THIS IMPROVEMENT HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR OF HIGHWAYS IN ACCORDANCE WITH THE PROVISIONS OF SECTION 1178-21 GENERAL CODE OF OHIO

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

A-U-687(10)

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	AU-687(10)	

1 / 172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY- PART 5
SUM-5-10.95

Note:
Federal Project No. U-687(9) appearing elsewhere in this plan shall be considered as A-U-687(10)

AKRON EXPRESSWAY SYSTEM

SUM-5-10.95
SUMMIT COUNTY
CITY OF AKRON

LIMITED ACCESS

PART 5 - EXPRESSWAY

SOUTH STREET TO EAST MARKET STREET

INDEX OF SHEETS

1 TITLE. SHEET
2-4 SCHEMATIC PLAN AND PROFILE
5-8 RIGHT OF WAY PLANS
9-9A GENERAL NOTES
10-11 QUANTITIES
12-14 TYPICAL CROSS SECTIONS-EXPRESS-WAY RAMPS AND SERVICE ROADS
15-19 EXPRESSWAY PAVEMENT DETAILS
20 RAMP PROFILES
21 RAMP DETAILS
22 PLAN-PROFILE OF RAMPS "K", "L" AND "M" SEGMENT
23-26 PLAN-PROFILE OF SERVICE ROADS
27-28 TYPICAL CROSS SECTIONS-REPAVED STREETS AND TEMPORARY ROADWAYS
29 PLAN-PROFILE OF SOUTH STREET TO EXPRESSWAY TEMPORARY ROADWAY
30 PLAN-PROFILE OF EXCHANGE STREET WIDENING
31 PLAN-PROFILE OF CARROLL STREET
32 PLAN-PROFILE OF BUCHTEL STREET
33 PLAN-PROFILE OF MARKET AND BEACON STREETS
34 PLAN-PROFILE OF KIRKWOOD AVENUE
35-36 MISCELLANEOUS DETAILS
37-39 OVERPASS APPROACH SLAB DETAILS
40 UNDERPASS APPROACH SLAB DETAILS
41-42 RETAINING WALL-CROUSE STREET
43-45 RETAINING WALL-FOUNTAIN STREET
46-49 RETAINING WALLS-RAMP "U"
50-51 RETAINING WALL-WEST SERVICE ROAD
52-53 RETAINING WALL-RAMP "Q"
54-56 RETAINING WALL-KIRKWOOD AVENUE
57-67 DRAINAGE
68-100 CROSS SECTIONS
101-105 GENERAL NOTES, QUANTITIES AND COMMON DETAILS-STRUCTURES
106-118 OVERPASS-BEACON STREET
119-127 OVERPASS-RAMP "U"
128-140 OVERPASS-EXCHANGE STREET
141-150 UNDERPASS-CARROLL STREET
151-162 UNDERPASS-BUCHTEL STREET
163-172 UNDERPASS-MARKET STREET

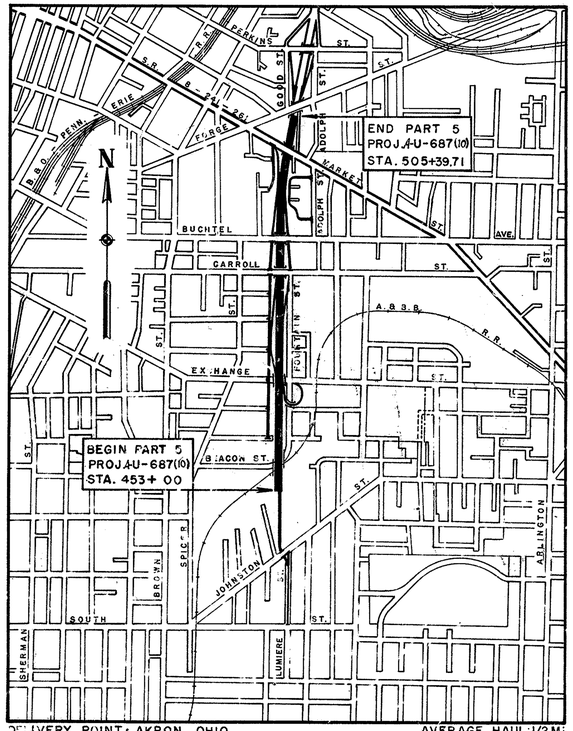
NOTE:

THIS SET OF PLANS, THE EXPRESSWAY FROM SOUTH STREET TO EAST MARKET STREET COVERS ONLY PART 5 OF THIS PROJECT. PARTS 1 THROUGH 4 ARE IN EARLIER CONTRACTS.

LINE DATA

Revised Sheets 16, 131, 133, 135 & 136 8/6/53

BEGIN PROJECT A-U-687(10)	STA. 453 + 00.00	
END PROJECT A-U-687(10)	STA 505 + 39.71	
NET LENGTH A-U-687(10)	5,239.71 LIN FT. OR 0.992 MILES	
ADDITIONS:- BEACON STREET	728.16 LIN. FT	
SOUTH STREET TO BEGINNING OF PROJECT	1,913.09 LIN FT	
EXCHANGE STREET	1,124.60 LIN. FT	
CARROLL STREET	746.13 LIN. FT	
BUCHTEL AVENUE	863.82 LIN. FT	
RAMP "K"	845.45 LIN. FT	
RAMP "L"	891.00 LIN. FT.	
TOTAL LENGTH OF WORK	12,351.96 LIN. FT. OR 2.339 MILES	



DELIVERY POINT: AKRON, OHIO AVERAGE HAUL: 1/2 Mi. * Accepted by B.P.R.

LOCATION PLAN

0 1000 2000 3000

SCALE IN FEET

PORTION TO BE IMPROVED
STATE HIGHWAYS
OTHER HIGHWAYS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO DEPARTMENT OF HIGHWAYS, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH IN THE PLANS AND ESTIMATE.

THE RIGHT OF WAY FOR THIS IMPROVEMENT WILL BE PROVIDED BY THE STATE OF OHIO.

APPROVED _____
DATE 7/6/53 DIRECTOR OF PUBLIC SERVICE, CITY OF AKRON

CONSTRUCTION BUREAU OCT 27 1955 GROUND PHOTOLAB

APPROVED W. R. Lawrence
DATE 4-15-1953 DIVISION DEPUTY DIRECTOR

APPROVED John Ike
DATE 7/7/53 CHIEF ENGINEER, BUREAU OF PLANNING AND PROGRAMMING

APPROVED _____
DATE _____ CHIEF ENGINEER, BUREAU OF BRIDGES & R.R. CROSSINGS

APPROVED _____
DATE 7/7/53 CHIEF ENGINEER, BUREAU OF LOCATION & DESIGN

APPROVED _____
DATE 4-26-53 FIRST ASSISTANT DIRECTOR & CHIEF ENGINEER

APPROVED _____
DATE _____ DIRECTOR OF HIGHWAYS

PREPARED AND RECOMMENDED BY

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
K. R. Bergendoff

H.G. SOURS, ASSOCIATE
COLUMBUS

FILE NO.	SUMMIT COUNTY
	SEC. SUM-5-10.95 PART 5
	DATE OF LETTING _____, 195__
	CONTRACT NO. _____

SUPPLEMENTAL SPECIFICATIONS

NUMBER	DATE	NUMBER	DATE
5	5-28-48	T-171.19 Rev.	7-31-50
31	6-13-49	M-103.14	7-31-50
M-101.7	1-24-53	30	5-28-48
M-110.25 Rev.	7-25-51		
M-110.26	1-14-52		

STANDARD DRAWINGS

NUMBER	DATE	NUMBER	DATE
L-3	4-1-50	*I-8 M.H. NO.1	5-1-52
L-3A	4-1-50	*I-8 M.H. NO.2	5-1-52
*T-35	10-1-52	*I-12	1-25-52
*B-T-71R	1-2-51	I-15 NO. 1	3-1-47
*L.J. NO.1	8-1-51	I-15 NO. 2	6-17-49
*T.J. NO.1	8-1-51	*I-21	1-2-51
*T.J. NO.2	8-1-51	*G-8.07	5-1-51
*T.J. NO.3	8-1-51	*B.T. 50-70-71 E NO.	10-1-47
I-1,2,3,4 & 5	2-20-48	S-27 FC. 2	3-15-48
* I-8C.B. NO.2-2A & B	5-1-52		
* I-8C.B. NO.3	5-1-52		
* I-8C.B. NO.3-A	5-1-52		

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

RECOMMENDED FOR APPROVAL _____ DATE _____
DISTRICT ENGINEER

APPROVED _____ DATE _____
FOR THE DIVISION ENGINEER

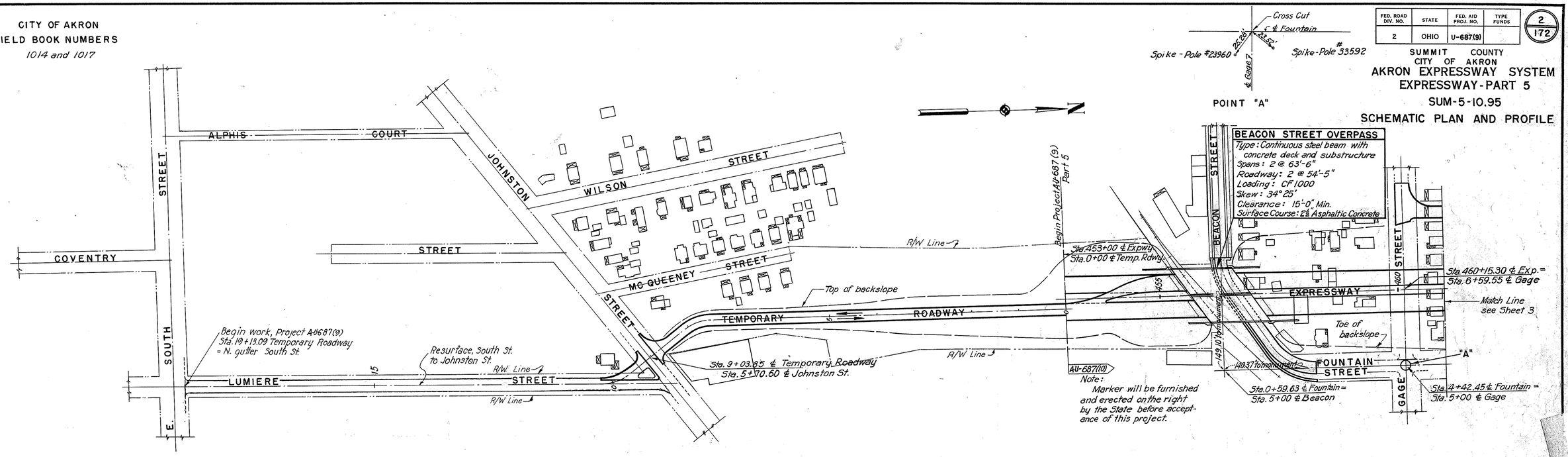
Revised 10-53 P.G. 6/23/55

CITY OF AKRON
FIELD BOOK NUMBERS
1014 and 1017

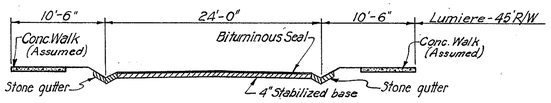
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	

2
172

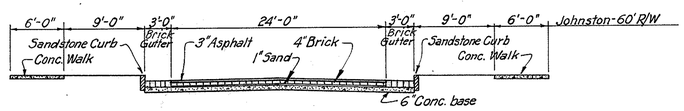
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
SCHEMATIC PLAN AND PROFILE



PLAN
Scale 1" = 100'



CROSS SECTION OF
LUMIERE
No Scale



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JOHNSTON
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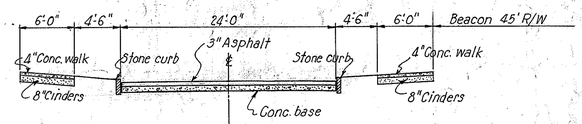

CROSS SECTION OF
BEACON
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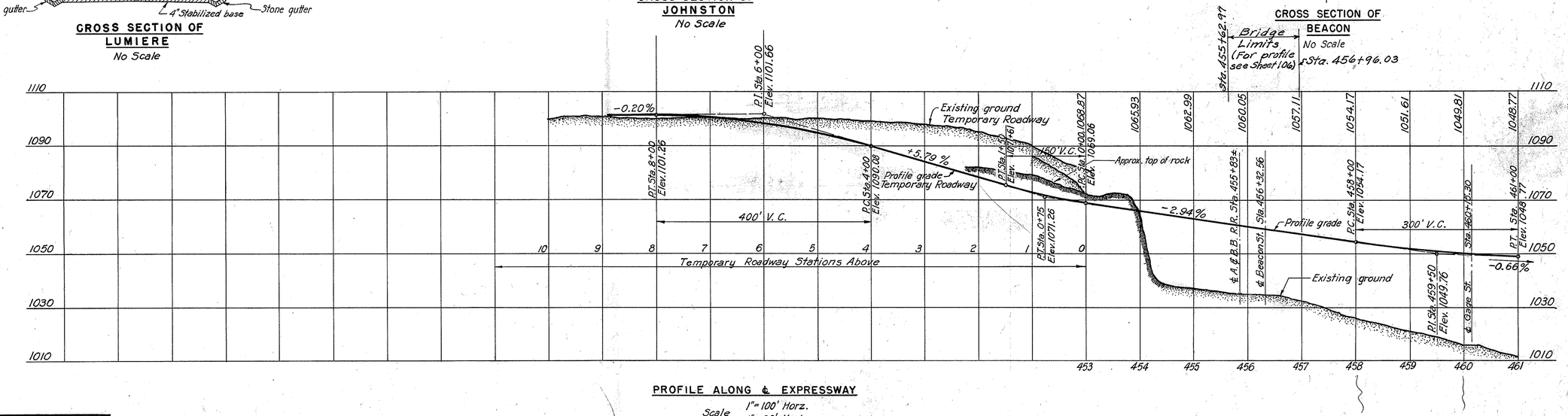


PROFILE ALONG ℄ EXPRESSWAY
Scale 1"= 100' Horz.
1"= 20' Vert.

502

SCALE As shown
MADE J.S.M. DATE 10-7-52
TRCD. H.T.S. DATE 10-23-52
CKD. V.D.G. DATE 12-2-52

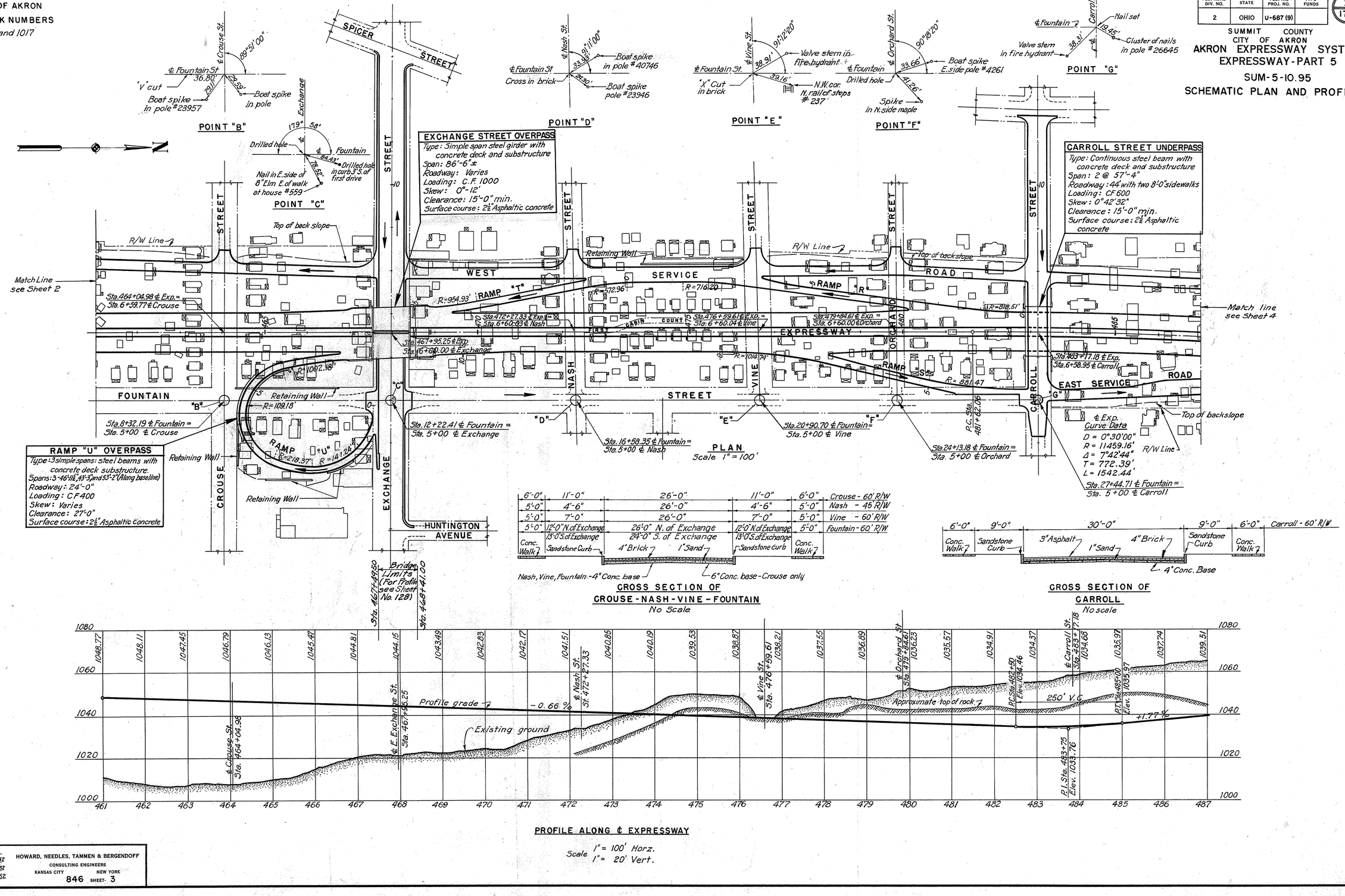
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 2

CITY OF AKRON
FIELD BOOK NUMBERS
1014 and 1017

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-667 (9)	

3 / 172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
SCHEMATIC PLAN AND PROFILE



PROFILE ALONG ℄ EXPRESSWAY
Scale 1" = 100' Horz.
1" = 20' Vert.

SCALE	As Shown
MADE	J.S.M. DATE 7-24-52
TRCD.	A.J.S. DATE 10-21-52
CKD	V.D.G. DATE 12-2-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 3

503

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	

4 / 172

SUMMIT COUNTY
CITY OF AKRON

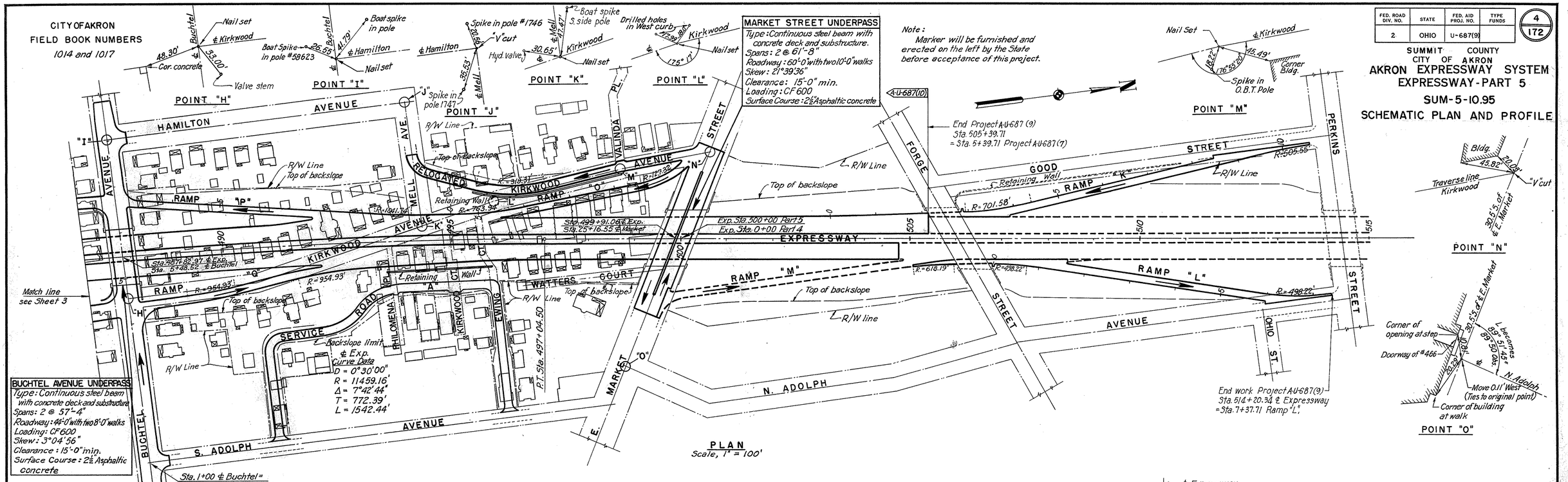
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95
SCHEMATIC PLAN AND PROFILE

CITY OF AKRON
FIELD BOOK NUMBERS
1014 and 1017

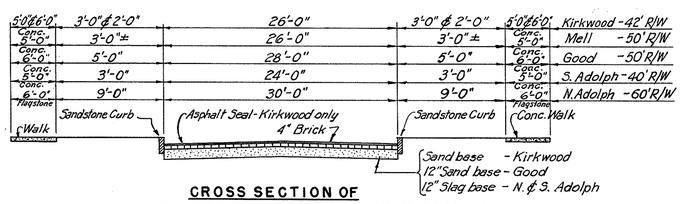
BUCHTEL AVENUE UNDERPASS
Type: Continuous steel beam with concrete deck and substructure.
Spans: 2 @ 57'-4"
Roadway: 44'-0" with two 8'-0" walks
Loading: CF 600
Skew: 3°04'56"
Clearance: 15'-0" min.
Surface Course: 2½ Asphaltic concrete

MARKET STREET UNDERPASS
Type: Continuous steel beam with concrete deck and substructure.
Spans: 2 @ 61'-8"
Roadway: 60'-0" with two 10'-0" walks
Skew: 21°39'36"
Clearance: 15'-0" min.
Loading: CF 600
Surface Course: 2½" Asphaltic concrete

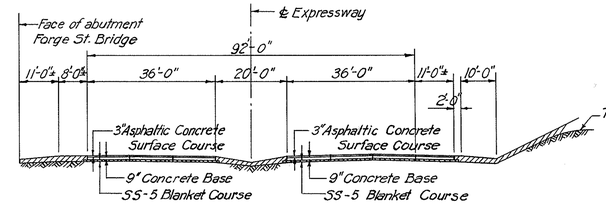
Note:
Marker will be furnished and erected on the left by the State before acceptance of this project.



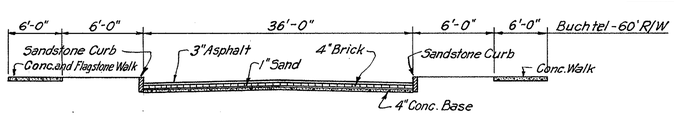
PLAN
Scale, 1" = 100'

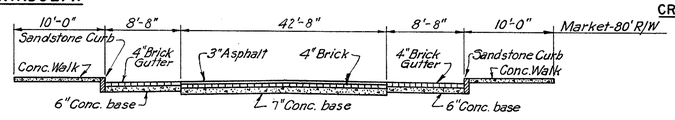


CROSS SECTION OF
KIRKWOOD - MELL - GOOD - S. ADOLPH - N. ADOLPH
No Scale



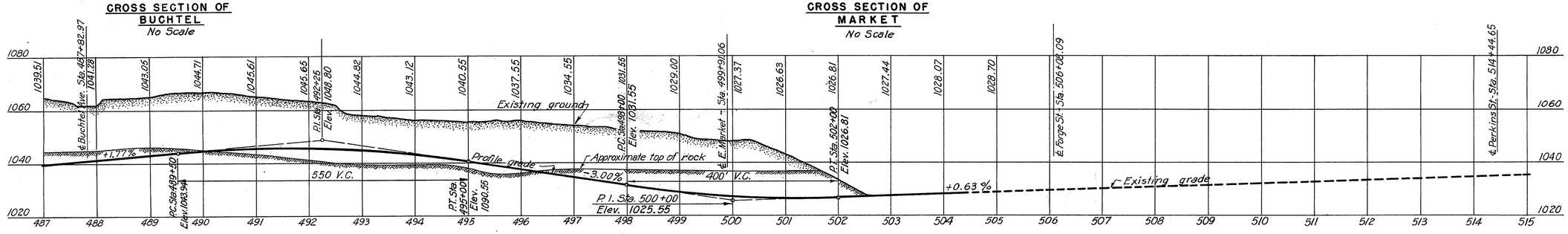
CROSS SECTION OF EXISTING EXPRESSWAY
AT STA. 505+39.71
Scale 1" = 20'





CROSS SECTION OF
BUCHTEL
No Scale

CROSS SECTION OF
MARKET
No Scale



PROFILE ALONG ℄ EXPRESSWAY

Scale 1" = 100' Horz.
1" = 20' Vert.

SCALE As shown
MADE J.M. DATE 7-22-52
TRCD H.F.S. DATE 10-20-52
CKD V.D.G. DATE 12-2-52

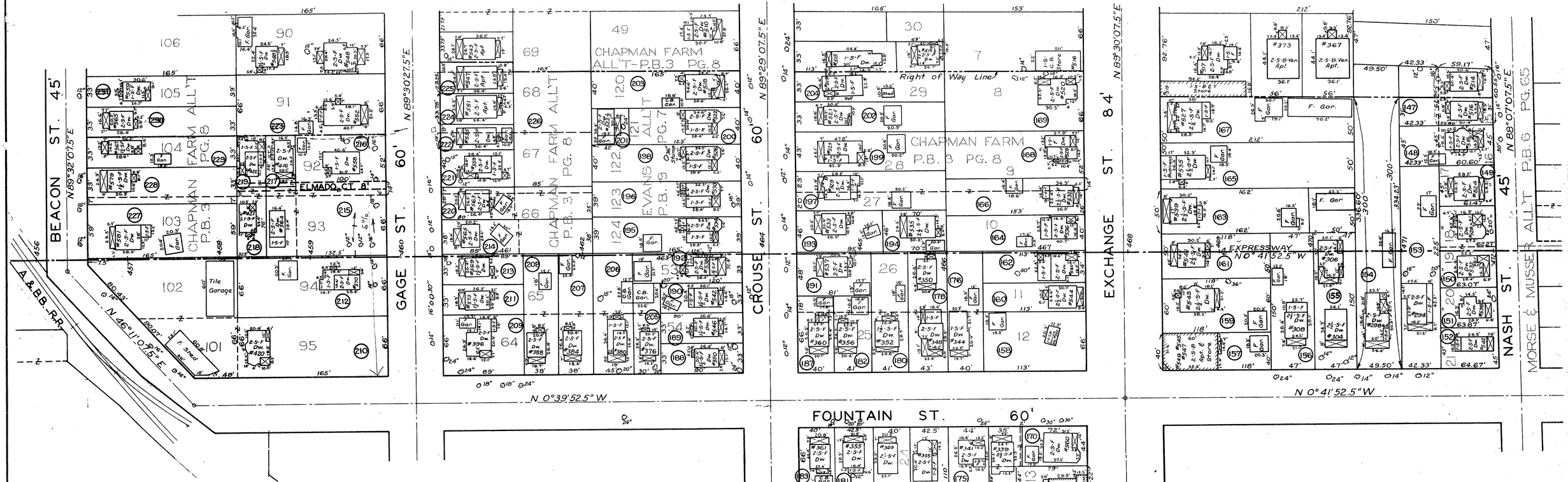
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 4

504

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

5 / 172

SUMMIT COUNTY
CITY OF AKRON, OHIO
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY – PART 5
SUM.-5-10.95



PARCEL NO.	OWNER	AREA
147	E.J. & L.N. Hofer	
148	C.O. & I.T. Peterson	
149	L.L. Zahler	
150	C.F. Leroy	
151	L.L. Zahler	
152	J.O. Breehl	
153	L.L. Zahler	
154	M. & C. Giustino	
155	W.C. Tadlock	
156	J.F. & I. Cottle	
157	W.E. & F. Kuhn	
158	E.E. krumeich Et. Al.	
159	E.G. Clor	
160	E.J. Starkey	
161	V.D. & A.J. Moon	
162	E.C. Fisher	
163	A.M. Foland	
164	B. & P. Mianasion	
165	L.M. & B.J. Mack	
166	G.F. & A.E. Harvey	
167	H.C. Beckwith Sr.	
168	J.A. & R.L. Alexander	
169	Louise Meyer	
170	R. Davis	
171	J.C. & D. Mlotkowski	
172	J. & H. Waloskay	
173	A. & R. Kohn	
174	C.G. & M.M. Bolin	
175	A. Frederick	
176	W.N. & E. Westfall	
177	J.R. Shelter	
178	M. & W.G. Shimko	
179	M. Popio	
180	J.M. Leffler	
181	M. Miller & A. Saunders	

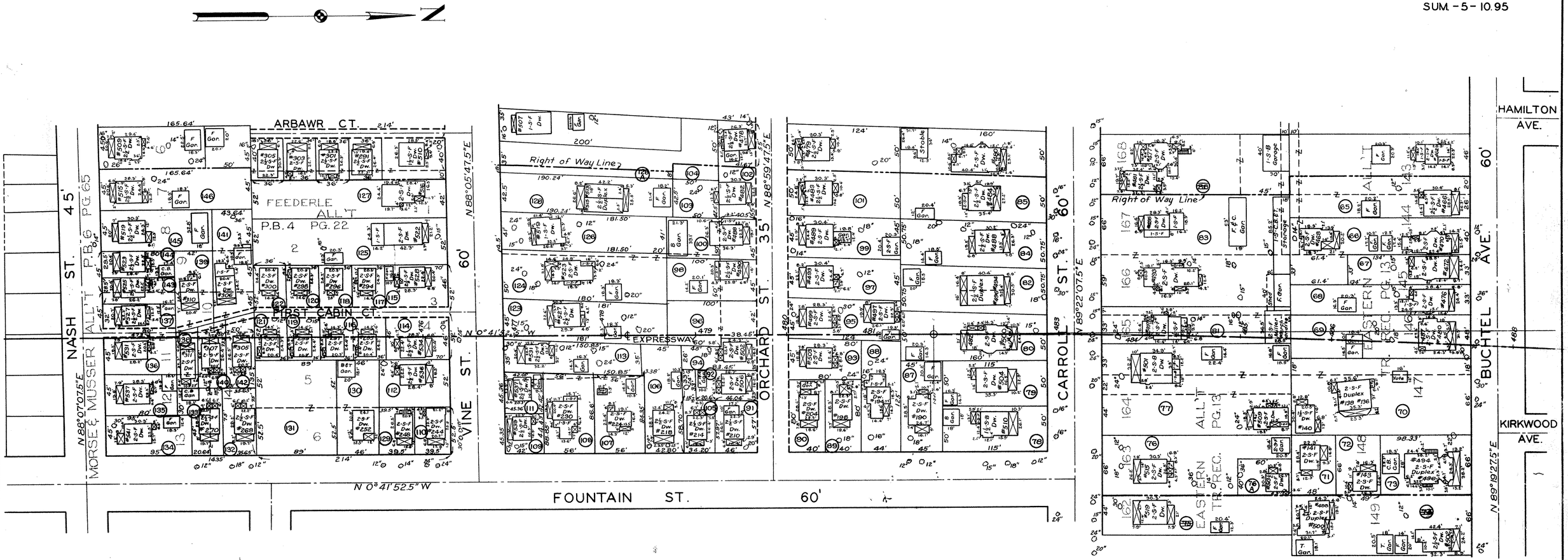
PARCEL NO.	OWNER	AREA
182	A.J. DiMascio	
183	G. Baird	
184	M. Miller & A. Saunders	
185	J. Essy	
186	A.E. & F.S. Crumm	
187	Henry Wingerter	
188	F.W. Bittner	
189	P.C. & O.B. Gamber	
190	A.G. & I. Kagenaar	
191	D. & C. Williams	
192	M. Callahan	
193	A.L. Mc Alonan	
194	J.J. Shea	
195	K. Scherzer Et. Al.	
196	I.L. Beck	
197	J.D. & E.M. Cawthorne	
198	S. & C. Savino	
199	B. Gilliland	
200	J. & E. Mulrooney	
201	H. Hutchens	
202	W.M. Fuller	
203	E.C. Hendricks	
204	W.M. Fuller	
205	C.E. & M.W. Wilkinson	
206	J.A. & C. Loftin	
207	E.E. (Markley) Walker	
208	E.T. & E.L. Jones	
209	Herbert & Gladys Poppenhouse	
210	W.E. & L.E. Wolford	
211	M. Gould	
212	J.D. & A.R. Hendrixson	
213	R. & C.E. Widder	
214	R.J. & M.M. Shea	
215	K.B. & S.R. Bucher	
216	E.H. Shuman	

PARCEL NO.	OWNER	AREA
217	C.M. & F. Anderson	
218	Mary Quinn	
219	D.L. Smith	
220	C.H. Webster	
221	S. Angus	
222	H.C. Holsinger Et. Al.	
~~223~~	~~C.A. Biffecuffer~~	
224	G.S. Mc Intyre	
225	L.A. Mosley	
226	I.F. Maranville	
227	J. & L. Parish	
228	R.A. Archer Sr.	
229	E.R. & W.I. Bloom	
~~230~~	~~A.R. & G.W. Opel~~	
~~231~~	~~P. Radcliff~~	

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

6
172

SUMMIT COUNTY
CITY OF AKRON, OHIO
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM. - 5 - 10.95



PARCEL NO.	OWNER	AREA
65	W.E. Michael	
66	R.F. & G.A. Palmer	
67	R.A. Jones	
68	M. & A. Regal	
69	G. Roth	
70	S.A. & W.B. Huff, W.F. & E.R. Firick	
71	S.A. & M.J. Reed	
72	Ruby J. Pruitt	
73	L.M. Miller	
~~74~~	~~Ida Wagner~~	
~~75~~	~~Mary Mathias~~	
*76	F. Folmer	
77	J.A. Miller	
78	J.C. & E.C. Phillips	
79	E.P. & P.E. Brunswick	
80	M.J. Azar	
81	C.D. Miller & H.E. Miller	
82	V.E. Dimengo & E. Oberdier	
83	H.E. & C.D. Miller	
84	E.L. & L.M. Niham	
85	R.I. Bowman	
~~86~~	~~A.M. Huber~~	
87	M. Wagoner	
88	C.W. Noakes & H.M. Noakes	
89	F.M. Cottrill	
90	B.E. Cable	
91	I.J. & D.A. Schlosser	
92	V.C. Clarke	
93	N.B. & V. Reese	
94	R.E. & D.G. Wagner	

PARCEL NO.	OWNER	AREA
95	S. Karamelo	
96	J.J. & C. Schreiner	
97	R.C. & M.A. Opp	
98	J.J. Schreiner	
99	George D. Tolos	
100	L.M. Howes	
101	T.J. & L. Peach	
102	M.J. Steinel	
103	M.J. Steinel	
104	M.J. Steinel	
105	H.E. Rudd	
106	J.B. & L. Jones	
107	W.W. & A.L. Sawyers	
108	E. & D.L. Ecker Jr.	
109	A.C. France	
110	V.S. Back	
111	G.B. & G.F. Duncan	
112	J.W. & H.A. Parks	
113	P. & J.C. Harper	
114	L.C. & E. Hamilton	
115	M. & M. Dolly	
116	Clinton Gougler	
117	F.D. Ellison	
118	J.J. & E.L. Sichiner	
119	J.M. & R.L. Cheuvront	
120	M. & M. Wolfe	
121	P.N. & H.M. Mikalas	
122	P.R. & M.K. Faidley	
123	M.F. & M.L. Bridges	
124	J.M. & C. Flora	

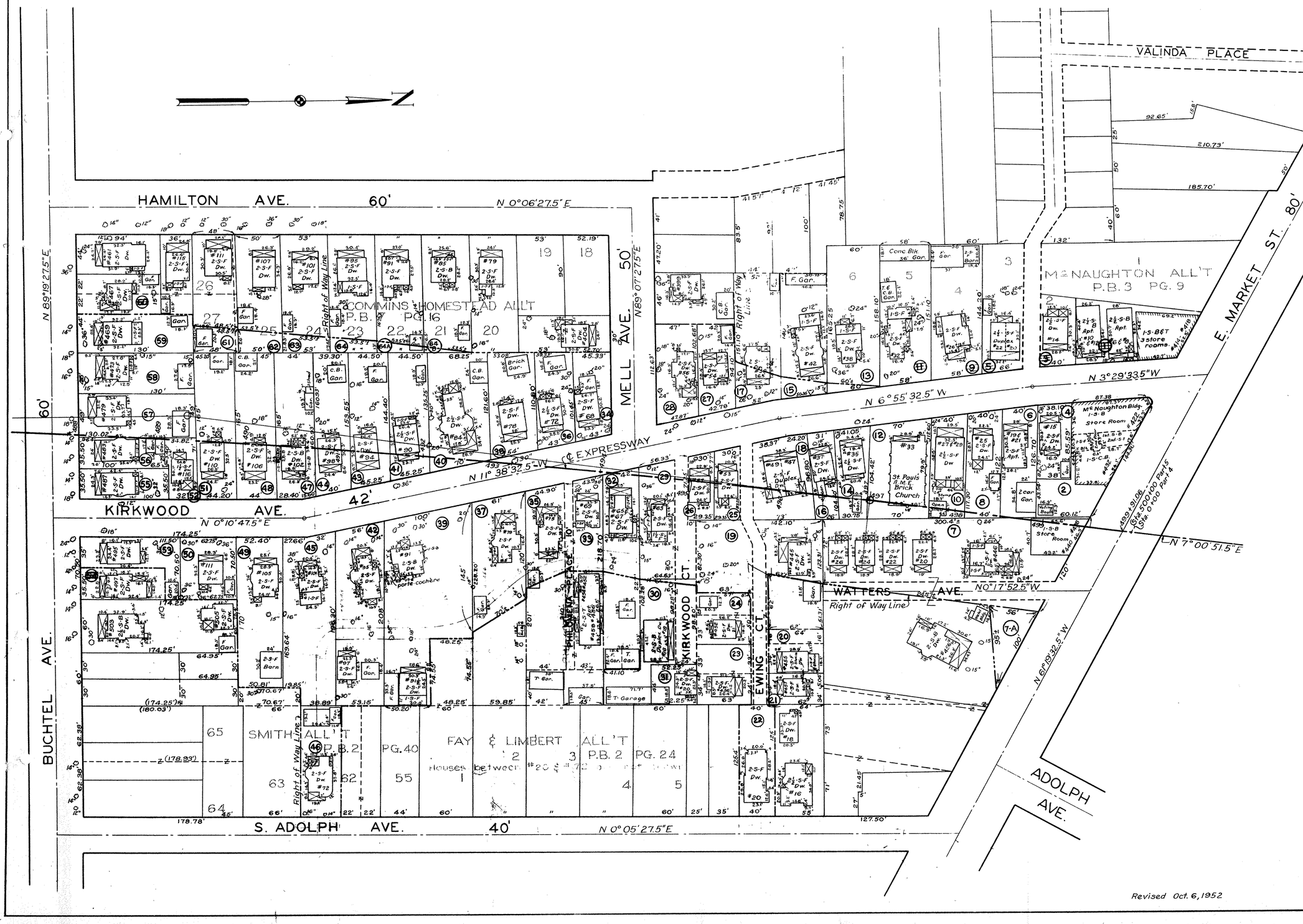
PARCEL NO.	OWNER	AREA
125	Frank Joseph & Minnie Leicht	
126	P.E. Ritter	
127	L.B. & L.B. Rookstool	
*128	Bertha B. & O.E. Gormire	
129	V. Back	
130	D.W. & V.L. Smith	
131	C.S. Tutwiler	
132	Chester Tutwiler	
133	C. Beegle	
134	M.E. Shriber	
135	T.S. & E.G. Eveleth	
136	E.B. & J.F. Hartline	
137	R.W. & O.N. Kittle	
138	C.M. Beegle	
139	C. & M.O. Martin	
140	C. & L. Tanner	
141	E.O. & P.M. Brooks	
142	R.L. & M.A. Ferrell	
143	W.L. Wolfe	
144	T.P. & E. Thomas	
145	W.J. & B. Cowling	
146	C.F. & M.R. LeRoy	
*76A	L.C. Brooks & J.P. Brooks	
*128A	J.E. & M.E. Garver	

8-19-52 Revised property line - Parcel 105

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-68(19)	POST WAR

7 / 172

SUMMIT COUNTY
CITY OF AKRON, OHIO
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM.-5-10.95



PARCEL NO.	OWNER	AREA
1	~~D.E. Miller~~ ~~E.L.A.~~	
2	K. Miktarian	
3	M.G. Powell	
4	T.B. Jefferson	
5	~~C.G.E.~~ & A. ~~Hamline~~	
6	Mary E. McGill	
* 7	R.B. Watters	
8	B.B. Angello	
9	C.E. Kaufman	
10	John D. & Helen G. Miller	
11	R. J. & C.V. Grafton	
12	St. Paul A.M.E. Church	
13	C.J. & T.C. Harris	
14	N.M. Spencer & A. Arthur	
15	P.E. & M.A. Selby	
16	J.M. & M.E. Miller	
17	E. Hord	
18	M. Estelle Tennis	
19	R.I. Ewing	
20	E. Gerke	
21	E.D. Charlton	
22	Ida De Marco	
23	M. De Vaughn	
24	Z.V. Halacheff	
25	E.S. & E.C. Lyons	
26	R.P. Smith	
27	A.E. Roberts	
28	G. Salhany	
29	S.J. & A. Hobler	
30	D.E. & K.M. Hunt	
31	~~C.E. & D.M. Strassner~~	
32	J.A. & F. Braun	
33	F.J. & A. Archual	
34	B. Leveque & Huntington Nat'l Bank-Columbus	
35	Jennie Corey	
36	L.J. & Fred O'Neil & Bertha Herbruck	
37	E.V. Carter	
38	E.C. Tobias	
39	E. Lillibridge	
40	E.M. Paul	
41	J.M. Miller	
42	F.J. Manson Et. Al.	
43	C.A. & V.B. Noland	
44	J.E. Kennedy	
45	R.C. Halfen Jr.	
46	C. Smith	
47	A.M. Davidson	
48	H.B. Washer Sr.	
49	Lewis Patrick	
50	G.E. & M.W. Washer	
51	L.S. Oswald	
52	R. & O.L. Waddell	
53	C.B. Stock	
~~54~~	~~C.E. Smith & Et. Al.~~	
55	F.L. Martin	
56	G.R. & H.V. Kroker	
57	L.B. Rutherford	
58	L. Hoyman & M. Kuster	
59	W.H. & H.M. Graham	
~~60~~	~~M.G. Holt~~	
61	D.E. McKay	
62	W. Stahl	
63	Cora M. Douglas	
64	J.W. & E.B. Cain	
64 A	L. Leola Bradley	
64 B	Margaret E. Lasher	
* 7-A	R.B. Watters - Temporary Easement for Runaround during Market St. Bridge construction.	

FED ROAD DIV NO.	STATE	FED AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-627(9)	POST WAR

8
172

SUMMIT COUNTY
CITY OF AKRON, OHIO
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM.-5-10.95

WILSON ST. 45' — WILSON ALL'T P.B.5 PG. 29 — S 10° 38' 52.5" E

COVENTRY ST. 45' — S 0° 46' 07.5" W

JOHNSTON ST. 60' — N 51° 24' 07.5" E

MC QUEENEY ST. 30' — S 10° 39' 52.5" E

LUMIERE ST. 45'

BEACON ST. 45' — N 89° 32' 07.5" E

BETTIE ST. 45'

A & B B.R.

Right Of Way Line

℄ Probable ℄ of Future Expressway

℄ EXPRESSWAY N 8° 41' 52.5" W

OVERLOOK HEIGHTS ALL'T P.B. 15 PG. 7

PARCEL NO.	OWNER	AREA
232	Orr Thomas Oil Co.	
233	A. & B.B. R.R. Penna R.R.	
234	H. Budoff	
235	Orr Thomas Oil Co.	
236	E. & C. Mc Queeney	
237	Catherine M. Mc Queeney	
238	Joyce Downey Seven-Up Inc.	
239	A.C. Canfield	
240	C.A. & E. Wyzynski	
241	H. & M. Haury	
242	H.H. & W.L. Hall	
243	J.M. Hemli	
244	P. & A. Gredicak	
245	J. & W. Nagy	
246	R.D. & E.J. Hastings	
247	D.E. & G.K. Long	
248	M.L. Appelman	
249	E.C. Mc Queeney	
250	J.E. & E. Otto	
251	F. & D. Burnell	
252	Daisy S. Schufle	
253	V.F. & H. Bennett	
254	W.G. & S.L. Adrion	
255	S.A. Salenday	
256	C.A. Miller	
257	C.L. & C.E. Cook	
258	A.M. Miller	
259	J.A. & E.A. Buck	
260	M.G. & F.J. Adelman	
261	J.L. & E.L. Gill	
262	C.E. & M.F. Cooley	
263	R.W. & O.G. Berry	
264	E.H. & S.E. Zinkhann	
264-A	C.R. & F. Newton	
264-B	Scovill Manufacturing Co.	

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

9
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART
SUM-5-10.95
GENERAL NOTES

NOTES

GENERAL

FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE IN ACCORDANCE WITH SEC. S-0.01(b) HAVING A MINIMUM OF 200 SQ. FT. OF FLOOR SPACE. THE CONTRACTOR SHALL HAVE A TELEPHONE INSTALLED AND MAINTAINED DURING CONSTRUCTION OF THIS PROJECT.

UTILITY ADJUSTMENT

ANY AND ALL WORK REQUIRED FOR PUBLIC OR PRIVATE UTILITIES, EXCEPT WATER MAINS AS NOTED BELOW, WILL BE DONE BY AND AT THE EXPENSE OF THEIR RESPECTIVE OWNERS UNLESS OTHERWISE NOTED IN THE PLANS.

CROUSE, VINE, ORCHARD AND CARROLL STREETS

THE EXISTING 6 IN. WATER MAIN WILL BE CUT AND PLUGGED OUTSIDE THE LIMITS OF THE EXPRESSWAY BY OTHERS. THE CONTRACTOR SHALL REMOVE THE MAIN ACROSS THE EXPRESSWAY, THE WORK TO BE PAID FOR UNDER "ITEM E-12, PIPE REMOVED AND STORED". PIPE REMOVED SHALL REMAIN THE PROPERTY OF THE CITY AND SHALL BE STORED ON THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER.

NASH STREET AND MELL AVENUE

THE EXISTING 4 IN. AND 6 IN. WATER MAINS WILL BE CUT AND PLUGGED OUTSIDE THE LIMITS OF THE EXPRESSWAY BY OTHERS. THE CONTRACTOR SHALL REMOVE THE MAINS ACROSS THE EXPRESSWAY, THE WORK TO BE PAID FOR UNDER "ITEM E-12, PIPE REMOVED AND STORED". PIPE REMOVED SHALL REMAIN THE PROPERTY OF THE CITY AND SHALL BE STORED ON THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER.

FIRST CABIN COURT

THE CONTRACTOR SHALL REMOVE THE EXISTING 2 IN. WATER MAIN, THE WORK TO BE PAID FOR UNDER "ITEM E-12, PIPE REMOVED AND STORED". PIPE REMOVED SHALL REMAIN THE PROPERTY OF THE CITY AND SHALL BE STORED ON THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER.

BUCHTEL AVENUE

THE EXISTING 6 IN. WATER MAIN WILL BE CUT AND PLUGGED OUTSIDE THE LIMITS OF THE EXPRESSWAY BY OTHERS. THE CONTRACTOR SHALL REMOVE THE MAIN ACROSS THE EXPRESSWAY, THE WORK TO BE PAID FOR UNDER "ITEM E-12, PIPE REMOVED AND STORED". PIPE REMOVED SHALL REMAIN THE PROPERTY OF THE CITY AND SHALL BE STORED ON THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL INSTALL AND TEST A NEW 30 IN. WATER MAIN TO BE LAID UNDER THE EXPRESSWAY NORTH OF THE BUCHTEL AVENUE UNDERPASS TO THE LINE AND GRADE AND WITHIN THE LIMITS SHOWN ON SHEET 32 OF THE PLANS. THE CITY OF AKRON WILL PROVIDE THE NECESSARY PIPE, JOINT MATERIAL, VALVES, SPECIALS AND OTHER CONNECTIONS CALLED FOR ON THE PLANS. CONNECTIONS TO THE EXISTING 30 IN. WATER MAIN WILL BE MADE BY OTHERS. INSTALLATION OF THE PIPE INCLUDING EXCAVATION, FURNISHING AND PLACING SAND CUSHION, BACKFILLING, DISPOSAL OF SURPLUS EXCAVATION AND ALL INCIDENTALS WILL BE PAID FOR UNDER ITEM "SPECIAL", INSTALLING 30 IN. WATER MAIN. FOLLOWING INSTALLATION OF THE NEW 30 IN. WATER MAIN, THE EXISTING 30 IN. WATER MAIN WILL BE CUT AND CONNECTED TO THE NEW MAIN BY OTHERS. THE CONTRACTOR SHALL REMOVE THE ABANDONED PORTION OF THE EXISTING MAIN, THE WORK TO BE PAID FOR UNDER "ITEM E-12, PIPE REMOVED AND STORED". PIPE REMOVED SHALL REMAIN THE PROPERTY OF THE CITY AND SHALL BE STORED ON THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER.. SEE SHEET 35.

KIRKWOOD AVENUE

THE EXISTING 12 IN. WATER MAIN WILL BE CUT AND PLUGGED OUTSIDE THE LIMITS OF THE EXPRESSWAY BY OTHERS. THE CONTRACTOR SHALL REMOVE THE MAIN ACROSS THE EXPRESSWAY, THE WORK TO BE PAID FOR UNDER "ITEM E-12, PIPE REMOVED AND STORED". PIPE REMOVED SHALL REMAIN THE PROPERTY OF THE CITY AND SHALL BE STORED ON THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL INSTALL AND TEST A NEW 12 IN. WATER MAIN TO BE LOCATED ALONG THE WEST SIDE OF RAMP "P" AS SHOWN ON SHEETS 18, 19, 21 & 34 OF THE PLANS THE CITY OF AKRON WILL PROVIDE THE NECESSARY PIPE, JOINT MATERIAL, VALVES, SPECIALS AND OTHER CONNECTIONS CALLED FOR ON THE PLANS. CONNECTIONS TO THE EXISTING 12 IN. MAIN AND NEW 30 IN. MAIN WILL BE MADE BY OTHERS. INSTALLATION OF THE PIPE INCLUDING EXCAVATION, FURNISHING AND PLACING SAND CUSHION, BACKFILLING, DISPOSAL OF SURPLUS EXCAVATION AND ALL INCIDENTALS WILL BE PAID FOR UNDER ITEM "SPECIAL", INSTALLING 12 IN. WATER MAIN. SEE ALSO NOTE "C".

SERVICE ROAD "A"

THE CONTRACTOR SHALL INSTALL AND TEST A NEW 6 IN. AND 4 IN. WATER MAIN TO BE LOCATED ALONG SERVICE ROAD "A" AS SHOWN ON SHEET 26 OF THE PLANS. THE CITY OF AKRON WILL PROVIDE THE NECESSARY PIPE, JOINT MATERIAL, VALVES, SPECIALS AND OTHER CONNECTIONS CALLED FOR ON THE PLANS. CONNECTIONS TO EXISTING MAINS WILL BE MADE BY OTHERS. INSTALLATION OF THE PIPE INCLUDING EXCAVATION, FURNISHING AND PLACING SAND CUSHION, BACKFILLING, DISPOSAL OF SURPLUS EXCAVATION AND ALL INCIDENTALS WILL BE PAID FOR UNDER ITEM "SPECIAL" INSTALLING 6 IN. AND 4 IN. WATER MAIN. SEE ALSO NOTE "C".

EAST MARKET STREET

THE EXISTING 8 IN. AND 16 IN. WATER MAINS WILL BE CUT AND PLUGGED OUTSIDE THE LIMITS OF THE EXPRESSWAY BY OTHERS. THE CONTRACTOR SHALL REMOVE THE MAINS ACROSS THE EXPRESSWAY, THE WORK TO BE PAID FOR UNDER "ITEM E-12, PIPE REMOVED AND STORED". PIPE REMOVED SHALL REMAIN THE PROPERTY OF THE CITY AND SHALL BE STORED ON THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER.

FOR NOTES PERTAINING TO NEW 16 IN. WATER MAIN TO BE LOCATED UNDER THE MARKET STREET UNDERPASS, SEE SHEET 101 OF THE PLANS.

WORK BY THE CITY OF AKRON

WITHIN THE CORPORATE LIMITS OF THE CITY OF AKRON THE CITY WILL PERFORM ANY WORK (NOT INCORPORATED IN THESE PLANS) NECESSARY TO PROPERLY JOIN THE NEW AND EXISTING PAVEMENTS AND WALKS AT THE TERMINI OF THE NEW PAVEMENTS AND WALKS. THE CITY WILL PERFORM ANY PAVEMENT REPAIR BEYOND THE LIMITS OF PROPOSED PAVEMENT DUE TO SEWER CONSTRUCTION AND WILL SEAL AND FILL (BY MUD JACK) THE EXISTING SEWERS THAT ARE TO BE ABANDONED.

THE CITY WILL ALSO WRECK AND REMOVE ALL EXISTING BUILDINGS WITHIN THE LIMITS OF THE EASEMENT LINES. THE CITY WILL WRECK THE BUILDINGS TO THE TOP OF THE EXISTING CELLAR FOUNDATIONS AND REMOVE ALL THE RESULTING DEBRIS.

TRAFFIC

PORTIONS OF THIS PROJECT SHALL BE CONSTRUCTED UNDER TRAFFIC, AND THE CONTRACTOR, TO THE SATISFACTION OF THE ENGINEER, SHALL PLAN AND CONDUCT HIS OPERATIONS SO THAT TRAFFIC SHALL BE MAINTAINED AS HEREIN SPECIFIED.

DESIGN SPEED: EXPRESSWAY - 50 M.P.H. RAMPS - 35 M.P.H.

GENERAL

GENERAL

WHEN ANY STREET IS CLOSED TO TRAFFIC, AND NOT THEN PERMANENTLY CLOSED, WORK ON THAT PARTICULAR STREET SHALL BE PROSECUTED TO THE FULLEST TO ALLOW FOR ITS RE-OPENING AS SOON AS POSSIBLE. EXISTING STREETS ADJACENT TO THE PROJECT SHALL REMAIN OPEN AS LONG AS POSSIBLE AND FEASIBLE.

LUMIERE STREET

LUMIERE STREET BETWEEN SOUTH STREET AND JOHNSTON STREET WILL BE CLOSED TO TRAFFIC UNTIL THE RESURFACING IS COMPLETE AND CAN (IN THE OPINION OF THE ENGINEER) BE OPENED TO TRAFFIC. DURING THIS PERIOD TRAFFIC WILL BE DETOURED VIA JOHNSTON STREET, HAMMEL STREET AND SOUTH STREET.

JOHNSTON, EXCHANGE AND GOOD STREETS AND ADOLPH AVENUE

TWO-WAY TRAFFIC WILL BE MAINTAINED AT ALL TIMES.

BEACON STREET

BEACON STREET WITHIN THE LIMITS OF CONSTRUCTION WILL BE CLOSED TO TRAFFIC UNTIL THE OVERPASS STRUCTURE AND CONTIGUOUS REPAVEMENT AND RESURFACING CAN (IN THE OPINION OF THE ENGINEER) BE OPENED TO TRAFFIC. DURING THIS PERIOD TRAFFIC WILL BE DETOURED VIA SPICER STREET AND EXCHANGE STREET.

FOUNTAIN STREET

FOUNTAIN STREET WILL BE CLOSED TO TRAFFIC UNTIL THE RESURFACING AND REPAVEMENT IS COMPLETED AND CAN (IN THE OPINION OF THE ENGINEER) BE OPENED TO TRAFFIC. DURING THIS PERIOD TRAFFIC WILL BE DETOURED VIA SPICER STREET AND EITHER EXCHANGE STREET, CARROLL STREET OR BUCHTEL AVENUE.

BUCHTEL AVENUE AND CARROLL STREET

THE CONTRACTOR SHALL SCHEDULE AND PERFORM HIS WORK SO THAT TWO-WAY TRAFFIC IS MAINTAINED ON EITHER BUCHTEL AVENUE OR CARROLL STREET AT ALL TIMES. DETOURS VIA SPICER STREET, EITHER CARROLL STREET OR BUCHTEL AVENUE AND ANNADALE AVENUE WILL BE MAINTAINED DURING CONSTRUCTION.

KIRKWOOD AVENUE

KIRKWOOD AVENUE WILL BE CLOSED TO TRAFFIC UNTIL THE RESURFACING AND REPAVEMENT IS COMPLETED AND CAN (IN THE OPINION OF THE ENGINEER) BE OPENED TO TRAFFIC. DURING THIS PERIOD TRAFFIC WILL BE DETOURED VIA FIR HILL AND SPICER STREETS AND EITHER CARROLL STREET OR BUCHTEL AVENUE. KIRKWOOD AVENUE SHALL NOT BE CLOSED TO TRAFFIC UNTIL SERVICE ROAD "A" AND ITS CONNECTIONS TO ADOLPH AVENUE HAVE BEEN CONSTRUCTED IN A PERMANENT OR TEMPORARY MANNER WHICH IS SATISFACTORY TO THE ENGINEER.

EAST MARKET STREET

TWO-WAY TRAFFIC WILL BE MAINTAINED AT ALL TIMES. A TEMPORARY BY-PASS ROADWAY, AS LOCATED AND DETAILED ON THE PLANS, SHALL BE CONSTRUCTED, MAINTAINED AND REMOVED BY THE CONTRACTOR AND AS DIRECTED BY THE ENGINEER.

IN ADDITION TO THE REQUIREMENTS OF SECTION G-8.07, "BARRICADES", "DANGER" AND "WARNING" SIGNS, THE CONTRACTOR SHALL DISPLAY ONE "PLEASE"- MEN WORKING ON ROAD" SIGN FURNISHED BY THE STATE AT EACH END OF EACH ZONE WHERE WORK IS IN PROGRESS AND IN SUCH A POSITION AS TO BE VISIBLE TO THE TRAFFIC APPROACHING THE ZONE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PRESERVATION OF THESE SIGNS, SHALL ADVANCE THE SIGNS AS WORK PROGRESSES AND SHALL RETURN THE SIGNS TO THE STATE AT THE COMPLETION OF THE WORK.

IN ADDITION TO THE ABOVE, SECTION G-4.05 (MAINTENANCE OF LOCAL TRAFFIC) WILL BE IN FORCE DURING THE ENTIRE LIFE OF THE CONTRACT.

IN ADDITION TO THE ABOVE, THE ITEM OF "MAINTAINING TRAFFIC" SHALL INCLUDE FURNISHING LIGHTS, SIGNS (OTHER THAN THOSE MENTIONED ABOVE), BARRICADES AND WATCHMEN, PLUS THE DISPLAYING AND ADVANCING OF THE "PLEASE-MEN WORKING ON ROAD" SIGNS TO ASSURE THE FLOW OF TRAFFIC TWENTY-FOUR (24) HOURS DAILY.

ALL OF THE ABOVE ARE INCLUDED IN THE LUMP SUM BID FOR "MAINTAINING TRAFFIC".

BLANKET COURSE CLASSIFIED EMBANKMENT MATERIAL ITEM SS-5

IN THE EVENT THAT GRANULAR MATERIAL MEETING THE GRADING AND SPECIFICATION REQUIREMENTS FOR CLASSIFIED EMBANKMENT MATERIAL ITEM SS-5 CAN BE OBTAINED FROM THE VARIOUS ITEMS OF EXCAVATION ON THIS PROJECT, THE CONTRACTOR MAY USE THIS MATERIAL IN THE CONSTRUCTION OF THE BLANKET COURSE IN ACCORDANCE WITH THE PROVISIONS OF SEC. G-4.07 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.

BLASTING

WHERE BLASTING IS NECESSARY, THE CONTRACTOR WILL BE REQUIRED TO TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE WORK ALREADY COMPLETED AND THE ADJACENT PROPERTY AND HE SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGE TO THE WORK OR TO ADJACENT PROPERTY.

PAVEMENT

PLACING AND FINISHING CONCRETE PAVEMENT

HAND-FINISHING AS PER SECTION T-71.211 OF THE GENERAL SPECIFICATIONS WILL BE PERMITTED AT THE FOLLOWING LOCATIONS:
APPROACH SLABS
INTERSECTIONS.
RAMPS WHERE SHARP CURVATURE PREVENTS THE USE OF A FINISHING MACHINE.
SECTIONS WHERE THE MAINTENANCE OF TRAFFIC REQUIRES HAND-FINISHING.
VARIABLE WIDTH LANES WHICH IN THE OPINION OF THE ENGINEER REQUIRE HAND-FINISHING.

TACK COAT INCLUDING SAND COVER

BITUMINOUS TACK COAT, SEC. M-5.5 MS-2 or SS-1 SHALL BE APPLIED BY DISTRIBUTOR OR BY BROOMS AT THE RATE OF 0.10 GAL. PER SQUARE YARD. AFTER THE BITUMINOUS MATERIAL HAS BEEN APPLIED, ALL MATERIAL NOT REQUIRED TO GIVE A UNIFORM COATING TO THE SURFACE SHALL BE SWEPT INTO ALL CRACKS AND OPEN JOINTS BEFORE THE SAND COVER IS PLACED. SAND COVER SHALL BE UNIFORMLY SPREAD AT A RATE OF FROM 2 TO 5 POUNDS PER SQUARE YARD. THE SAND SHALL BE SPREAD AT SUCH TIME AND SHALL BE IN SUCH CONDITION THAT IT WILL ADHERE TO THE BITUMINOUS MATERIAL. COST OF SAND COVER SHALL BE INCLUDED IN THE PRICE BID PER GALLON FOR BITUMINOUS MATERIAL.

ASPHALTIC CONCRETE

THE COARSE AGGREGATE REQUIRED FOR ALL OF THE ASPHALTIC CONCRETE ON THIS PROJECT SHALL MEET THE REQUIREMENTS OF S.C M-3.1, M-3.6 OR M-3.93 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.

SUPERELEVATION

SUPERELEVATED CURVES SHALL BE BUILT WITHOUT CROWN. THE CROWN SHALL BE WORKED OUT OF THE PAVEMENT IN THE AREA INDICATED ON THE PAVEMENT DETAILS.

PAVEMENT

PAVEMENT JOINTS

THE LOCATION OF CONSTRUCTION JOINTS NOT INDICATED ON THE PLANS SHALL BE LOCATED BY THE CONTRACTOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

FLEXIBLE FORMS

APPROVED FLEXIBLE FORMS MAY BE USED FOR CONSTRUCTION OF CIRCULAR PAVEMENT EDGES, CIRCULAR CONCRETE CURBS AND CONCRETE CURB TRANSITIONS OF SHORT RADII.

DRIVES

THE NUMBER, LOCATION, TYPE AND GRADE OF DRIVES MAY BE ADJUSTED BY THE ENGINEER DURING CONSTRUCTION.

SIDEWALK

IN LIEU OF THE SURFACE GROOVING CALLED FOR IN THE SPECIFICATIONS, STEEL PLATES, 1/8 OF AN INCH IN THICKNESS, SHALL BE USED TO DIVIDE THE WALK, FOR ITS FULL WIDTH AND THICKNESS, INTO BLOCKS APPROXIMATELY 5 FEET IN LENGTH UNLESS OTHERWISE ORDERED BY THE ENGINEER. THE STEEL PLATES SHALL BE REMOVED AS SOON AS THE CONCRETE HAS SET TO THE EXTENT THAT THE REMOVAL WILL NOT DISTURB OR INJURE THE JOINT THAT HAS BEEN FORMED.

THE LIMITS AND QUANTITY OF NEW SIDEWALK AS SHOWN ON THE PLANS MAY BE ADJUSTED BY THE ENGINEER.

DRAIN PIPES

NEW DRAIN PIPES AND CURB OPENINGS, AS DETAILED ON THE PLANS, ARE TO BE PROVIDED AT LOCATIONS DESIGNATED BY THE ENGINEER. THE CONTRACT UNIT PRICE PER LINEAR FOOT OF ITEM T-2, "24" STD. WEIGHT WELDED W.I. PIPE SEC. M-6.10 FOR STORM SEWERS", SHALL INCLUDE THE CURB OPENING, FURNISHING AND INSTALLING THE PIPE AND OTHER INCIDENTALS NECESSARY TO SATISFACTORILY COMPLETE THIS ITEM. THE NUMBER OF LINEAR FEET OF DRAIN PIPE SHOWN IN THE ESTIMATE MAY BE ADJUSTED BY THE ENGINEER.

EXISTING DRAIN PIPES ENCOUNTERED DURING CONSTRUCTION ARE TO BE ADJUSTED OR RE-PLACED AS DIRECTED BY THE ENGINEER. PAYMENT FOR THE ADJUSTMENT OF EXISTING DRAIN PIPES WILL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR LINEAR FEET OF CURB. PAYMENT FOR RE-PLACEMENT DRAIN PIPES WILL BE MADE AS NOTED ABOVE FOR NEW DRAIN PIPES.

ROADWAY

SEWAGE

THE CONTRACTOR SHALL SO CONDUCT HIS OPERATIONS THAT THE FLOW OF ALL EXISTING SEWERS WILL BE MAINTAINED AT ALL TIMES.

ANY ADDITIONAL LABOR OR COST INVOLVED IN MAINTAINING THIS FLOW, BY PUMPING SEWAGE OR BY ANY OTHER APPROVED METHOD WHICH IS NECESSARY FOR THE CONSTRUCTION OF THE WORK SHALL BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF STORM SEWERS, ITEM T-2.

DISPOSAL OF SURPLUS EXCAVATION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISPOSAL OF ANY SURPLUS EXCAVATION.

DISPOSAL OF PAVEMENT

PAVEMENT REMOVED UNDER ITEM E-8 MAY BE PLACED IN EMBANKMENT IN ACCORDANCE WITH SECTION E-1.05 AND WILL BE CONSIDERED RANDOM MATERIAL EXCEPT WHERE USED IN THE PART OF THE EMBANKMENT MORE THAN THREE (3) FEET BELOW THE NEW PAVEMENT, IN WHICH CASE IT WILL BE CONSIDERED ROCK. ANY STEEL PROTRUDING FROM THE REMOVED PAVEMENT SHALL BE CUT OR BURNED SO THAT IT WILL NOT PROJECT MORE THAN ONE (1) INCH FROM ANY SIDE: THE QUANTITY OF PAVEMENT REMOVAL MAY BE ADJUSTED BY THE ENGINEER IN THE FIELD.

REMOVAL OF TREES AND STUMPS

ALL TREES AND STUMPS WITHIN THE LIMITS OF THE RIGHT OF WAY SHALL BE DISPOSED OF AS SPECIFIED IN SECTION E-1.02 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.

TREES SHALL NOT BE REMOVED, REGARDLESS OF SIZE, UNTIL SPECIFICALLY AND CONSPICUOUSLY MARKED BY THE ENGINEER.

PAYMENT FOR THE REMOVAL OF TREES AND STUMPS IS INCLUDED IN THE UNIT PRICE BID FOR ITEM E-1, ROADWAY EXCAVATION.

REMOVAL OF REFUSE AND DEBRIS

ANY EXISTING REFUSE, DEBRIS OR ANY OTHER UNSUITABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR IN THE AREA DESCRIBED UNDER "DISPOSAL OF SURPLUS EXCAVATION". THE YARDAGE OF REFUSE OR DEBRIS, OR OTHER UNSUITABLE MATERIAL REMOVED AND DISPOSED OF WILL BE DETERMINED BY FINAL CROSS SECTIONS, AND THE YARDAGE SO DETERMINED WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR ROADWAY EXCAVATION, ITEM E-1.

REMOVAL MISCELLANEOUS

THE REMOVAL AND DISPOSAL OF ANY EXISTING PAVEMENT, SIDEWALK, BUILDING FOUNDATIONS, STEPS, CELLAR FLOORS, WELL COVERS, CISTERN COVERS, SEPTIC TANKS, CONCRETE BASES, WALLS, CURB, CURB AND GUTTER, RAILS, TIES, POLE STUBS, HEADWALLS, PIPES, DRIVEWAYS AND GARAGE FLOORS, OR OTHER MASONRY LYING WITHIN THE LIMITS OF RIGHT OF WAY (AND NOT SPECIFICALLY PAID FOR UNDER A SEPARATE ITEM) ARE CLASSIFIED AS EXCAVATION AND PAID FOR UNDER THE EXCAVATION ITEM OF WHICH THEY ARE A PART. WHERE ANY PAVEMENT OR SIDEWALK LYING WITHIN, OR BELOW, THE LIMITS OF ROADWAY EXCAVATION, ITEM E-1, OR EXCAVATION FOR STRUCTURES, ITEM E-2, IS PAID FOR UNDER A SEPARATE ITEM, THE PAY LIMITS FOR EXCAVATION, ITEM E-1 OR E-2, SHALL BE THE BOTTOM OF PAVEMENT OR SIDEWALK.

PAVEMENTS, SIDEWALKS, STEPS, CELLAR FLOORS OR OTHER MASONRY SHALL BE EXCAVATED TO A DEPTH OF THREE (3) FEET BELOW THE PROPOSED PAVEMENT SUBGRADE, IF LOCATED WITHIN THE PROPOSED PAVEMENT AREA, AND TO A DEPTH OF THREE (3) FEET BELOW THE PROPOSED FINISHED SURFACE IF LOCATED WITHOUT THE LIMITS OF THE PROPOSED PAVEMENT AREA.

PAVEMENTS, SIDEWALKS, CELLAR FLOORS OR OTHER MASONRY BELOW THE ABOVE LIMITS SHALL BE BROKEN UP INTO PORTIONS WHOSE AREA DOES NOT EXCEED ONE (1) SQUARE FOOT, BUT NEED NOT BE REMOVED.

BACKFILLING SHALL BE PERFORMED ACCORDING TO SECTION E-1.05 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS. WELLS, CISTERNS AND SEPTIC TANKS SHALL BE FILLED WITH BROKEN FOUNDATION MASONRY OR ROCK PLACED AS ROCK EMBANKMENT ACCORDING TO SECTION E-1.05 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.

PAYMENT FOR ALL OF THE ABOVE OPERATIONS SHALL BE INCLUDED IN CONTRACT UNIT PRICE BID FOR ROADWAY EXCAVATION, ITEM E-1, AND EXCAVATION FOR STRUCTURES, ITEM E-2.

ADDITIONAL EXCAVATION NECESSARY TO PERFORM ANY OF THE ABOVE OPERATIONS SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER CUBIC YARD FOR ROADWAY EXCAVATION, ITEM E-1, AND EXCAVATION FOR STRUCTURES, ITEM E-2.

ROADWAY

INLETS, MANHOLES AND PIPES

THE PROPOSED ELEVATIONS AND LOCATIONS OF CATCH BASINS, MANHOLES AND PIPES AND THE ESTIMATED LENGTHS OF PIPES MAY BE ADJUSTED BY THE ENGINEER DURING CONSTRUCTION.

LENGTH OF PIPE SPECIAL

THE NUMBER OF LINEAR FEET OF PIPE TO BE PAID FOR SHALL BE THE LENGTH OF THE PIPE LINE LESS THE ASSUMED LENGTHS (3 FEET) OF SPECIALS, REGARDLESS OF THE ACTUAL LENGTH OF PIPE SPECIAL USED.

IF ACTUAL LENGTH OF PIPE SPECIAL IS LESS THAN THREE (3) FEET, THE CONTRACTOR SHALL FURNISH ENOUGH EXTRA PIPE TO MAKE UP THE DIFFERENCE BETWEEN THE ASSUMED AND ACTUAL LENGTHS, AT THE PRICE BID FOR EACH SPECIAL. IF THE ACTUAL LENGTH OF THE PIPE SPECIAL USED IS GREATER THAN THREE (3) FEET, THE EXTRA LENGTH OF EACH PIPE SPECIAL, OVER AND OVER AND ABOVE THE ASSUMED LENGTH, SHALL BE PAID FOR AS LINEAR FEET OF PIPE.

LOCATION AND SIZE OF EXISTING PIPE

THE LOCATION, TYPE, DEPTH AND SIZE OF ALL EXISTING PIPES ARE SHOWN AS ACCURATELY AS THE AVAILABLE INFORMATION WILL PERMIT. THE STATE OF OHIO WILL NOT BE RESPONSIBLE FOR ANY VARIATIONS FOUND DURING CONSTRUCTION.

PAYMENT FOR PIPE REMOVED WILL BE MADE ACCORDING TO THE LISTING SHOWN ON THESE PLANS.

RESETTING MANHOLES

RESETTING MANHOLES, ITEM T-8, REPRESENTS THE REMOVAL (WHEN DEEMED NECESSARY BY THE ENGINEER) OF PORTIONS OF THE EXISTING MANHOLE AND THE REBUILDING AND ADJUSTING TO GRADE. THE AMOUNT OF THE EXISTING MANHOLE TO BE REMOVED SHALL BE DETERMINED BY THE ENGINEER. IF THE EXISTING CASTING IS DEEMED UNSATISFACTORY BY THE ENGINEER THE CASTING SHALL BE REPLACED BY A SATISFACTORY CASTING OBTAINED FROM THE ABANDONMENT OF MANHOLES ON OTHER PORTIONS OF THE PROJECT.

EMBANKMENT AND SILT

EXCAVATED MATERIAL SHALL BE PLACED IN THE EMBANKMENT IN ACCORDANCE WITH ITEM E-1 AND AS DIRECTED BY THE ENGINEER. MATERIAL OF WHICH THE GRAIN SIZE OF 50% OR MORE IS BETWEEN 0.074 M.M. AND 0.005 M.M. (STATE HIGHWAY TESTING LABORATORY METHOD OF TESTING) SHALL BE PLACED AT LEAST THREE (3) FEET BELOW THE PAVEMENT WHEN USED IN EMBANKMENT.

COMPACTION OF SOIL BACKFILL

SPECIAL CARE SHALL BE TAKEN TO PROPERLY COMPACT SOIL BACKFILL PLACED ADJACENT TO AN EXISTING PAVEMENT EDGE.

L-9 SEEDING AND PROTECTING, TYPE "A"

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS BETWEEN LINES TEN (10) FEET OUTSIDE THE WORK LIMITS AS SHOWN ON THE CROSS SECTIONS OR TO THE R/W LINE IF SUCH LINE IS LESS THAN TEN (10) FEET FROM THE WORK LIMITS. FINAL QUANTITIES OF SEEDING AND PROTECTING ITEM L-9 SHALL NOT INCLUDE ANY AREAS OF STABILIZED SHOULDER ITEM SPECIAL. ALL AREAS OUTSIDE THESE LIMITS WHERE THE VEGETATIVE GROWTH HAS BEEN INJURIOUSLY DISTURBED OR DESTROYED BY THE CONTRACTOR SHALL BE RESTORED AND SEEDED IN ACCORDANCE WITH THE PROVISIONS OF ITEM L-9, BY THE CONTRACTOR AT HIS OWN EXPENSE.

IN LIEU OF THE SEED MIX SPECIFIED UNDER L-9.12 OF THE SPECIFICATIONS THE FOLLOWING SEED MIX WILL BE USED:

50% KENTUCKY BLUE GRASS
25% CREEPING RED FESCUE
15% RED TOP
10% WHITE DUTCH CLOVER

ON SLOPES OF 1 ON 2 OR STEEPER OR OVER SIX (6) FEET IN HEIGHT, HAIRY VETCH SHALL BE USED INSTEAD OF WHITE DUTCH CLOVER.

FERTILIZING AREAS TO BE SEEDED OR SODDED

ALL AREAS TO BE SEEDED OR SODDED, L-9.1 OR L-10 SHALL HAVE COMMERCIAL FERTILIZER (10-6-4 MIX) OR ANY FORMULA APPROVED BY THE ENGINEER, APPLIED AT THE RATE OF TWENTY (20) POUNDS PER 1000 SQUARE FEET.

NOTE "C"

CONNECTIONS TO THE NEW WATER AND SEWER LINES PROVIDED ON SERVICE ROAD "A" WILL BE MADE BEFORE THE PRESENT SERVICE FROM THE UTILITIES ON KIRKWOOD AVENUE IS INTERRUPTED.

CONTRACTION JOINT SPACING

T-7.1 CONTRACTION JOINTS SHALL BE SPACED AT INTERVALS OF 60 FT. IN LIEU OF THE SPACING SPECIFIED ON STANDARD DRAWINGS T.J. No. 1, T.J. No. 2 AND T.J. No. 3.

SCALE
MADE G.M. DATE 11-15-52
TRCD H.R.S. DATE 12-12-52
CKD B.H.R. DATE 12-12-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 9

Rev. 5-4-53

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

9-A
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
GENERAL NOTES

NOTES

ROADWAY

ROADWAY LIGHTING

COST OF ALL OF THE FOLLOWING INSPECTIONS AND TESTS SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE VARIOUS ITEMS S-25 ON THIS PROJECT.

1. INSPECTION AND TESTING

THE INSTALLATION OF ALL STREET LIGHTING EQUIPMENT SHALL BE INSPECTED BY A REPRESENTATIVE OF THE OHIO EDISON COMPANY WHILE BEING INSTALLED. THE COST OF SUCH INSPECTION SHALL BE BORNE BY THE CONTRACTOR.

UPON COMPLETION OF THE INSTALLATION OF THE LIGHTING SYSTEM, THE FOLLOWING TESTS WILL BE CONDUCTED BY THE OHIO EDISON COMPANY, SUCH TESTS TO BE PAID FOR BY THE CONTRACTOR.

POTENTIAL TEST: THE POTENTIAL OF THE SYSTEM SHALL BE CONSIDERED SATISFACTORY WHEN THE TEST VOLTAGE OF TWICE THE OPERATING VOLTAGE PLUS 1000 VOLTS IS HELD FOR ONE MINUTE.

BURNING TEST: THE COMPLETED LIGHTING SYSTEM SHALL BE OPERATED FROM SUNSET TO SUNRISE EACH NIGHT FOR A PERIOD OF ONE WEEK PRIOR TO ACCEPTANCE. DURING THIS TRIAL OPERATION THE CONTRACTOR SHALL CORRECT ANY DEFECTS WHICH MAY DEVELOP. AT NO EXTRA COST TO THE STATE.

2. LIGHTING STANDARD FOUNDATIONS

THE LAMP STANDARD FOUNDATION SHALL BE CLASS "C" CONCRETE WITH FOUR (4)-1" x 3'3" CADMIUM COATED STEEL ANCHOR RODS EXTENDED 2-11/16" ABOVE THE TOP OF FOUNDATION. THE CABLES SHALL ENTER THE STANDARD THROUGH ONE (1)-3" TRANSITE CONDUIT OR EQUAL, INSTALLED IN THE CONCRETE FOUNDATION ON THE SAME SIDE AS THE CABLE IS INSTALLED. CONDUIT SHALL EXTEND AT LEAST 4" ABOVE TOP OF FOUNDATION.

3. CABLE

THE #6 CABLE AS INDICATED ON THE PLANS SHALL BE 5000 VOLT STRANDED COPPER SERIES CABLE WITH 10/64" RUBBER INSULATION, NON-SHIELDED WITH 4/64" NEOPRENE JACKET - CORONAL - GEOPRENE OR EQUAL.

THE #2 CABLE AS INDICATED ON THE PLANS SHALL BE SEVEN STRAND TINNED COPPER CABLE WITH 2/64" FLAMENOL INSULATION OR EQUAL.

4. STANDARDS

THE STANDARDS SHALL BE OF SUCH A DESIGN AS TO MAKE A COMPLETED WIRING RACEWAY AFTER THE STANDARDS HAVE BEEN ASSEMBLED AND ERECTED. THE BRACKET SHALL NOT BE LESS THAN 2" INSIDE DIAMETER. THE STANDARDS SHALL BE EQUIPPED WITH A "J" HOOK PLACED INSIDE AND ABOVE THE BRACKET MOUNTING HEIGHT TO ATTACH A CABLE GRIP IN SUCH A MANNER TO PREVENT THE CABLE FROM HANGING IN THE HOLE AND BRACKET BUSHING AT THE POINT OF BRACKET ATTACHMENT TO POLE. THE LIGHT STANDARDS SHALL BE SUPPLIED WITH A GROUNDING LUG INSIDE THE BASE.

5. LUMINAIRE

THE LUMINAIRES SHALL BE AS FOLLOWS:

A. EXPRESSWAY - G.E. FORM 101AR-A6G129 OR WESTINGHOUSE A.K. 15 EXCEPT FOR 2" SLIP FITTER, OR EQUAL, WITH 15,000 LUMEN, 20 AMP. INCANDESCENT SERIES LAMPS.

B. RAMPS - G.E. FORM 101R-A4G171 OR WESTINGHOUSE A.K. 10 (ROLLER LATCH) EXCEPT FOR 2" SLIP FITTER, OR EQUAL WITH 10,000 LUMEN, 20 AMP. INCANDESCENT SERIES LAMPS.

C. UNDER BRIDGE UNITS - EXCHANGE & BEACON STS. - G.E. FORM 79S-A4G157 OR WESTINGHOUSE A.K. 10 PENDANT, TYPE 5 DISTRIBUTION, OR EQUAL WITH 6000 LUMEN, 20 AMP. INCANDESCENT SERIES LAMPS.

6. CABLE INSTALLATION

CABLES SHALL BE CONTINUOUS FROM LUMINAIRE TO LUMINAIRE AND SHALL BE LAID NO LESS THAN 20" BELOW THE FINISHED GRADE. THE BURIED CABLE SHALL BE COMPLETELY SURROUNDED BY THREE INCHES OF "CONCRETE" SAND AND THE TRENCH FILL SHALL NOT CONTAIN STONE LARGER THAN 1/4" DIAMETER. WHERE THE CABLE IS TO BE PLACED UNDER RAMPS OR PAVEMENT CROSSINGS, IT SHALL BE INSTALLED IN A 3" DIAMETER JOHNS-MANVILLE KORDUCT OR EQUIVALENT CENTERED IN A 9" X 9" CLASS C CONCRETE ENCASEMENT. THE CONDUIT AND CONCRETE ENCASEMENT SHALL EXTEND 1' BEYOND THE PAVEMENT EDGE. THE CONDUIT SHALL BE GRADED TO PREVENT ANY WATER POCKETS.

7. CABLE TERMINATION AND SPLICING

THE CABLE TERMINATIONS AND SPLICES SHALL BE MADE IN ACCORDANCE WITH THE LATEST CABLE MANUFACTURER'S RECOMMENDATIONS AND UNDER THE SUPERVISION OR DIRECTION OF THE OHIO EDISON COMPANY'S INSPECTOR.

CABLE ENDS AT THE LUMINAIRES SHALL BE REINFORCED BACK SIX INCHES FROM THE ENDS BY WRAPPING WITH GLASS TAPE AND COVERING WITH CLEAR INSULATING LACQUER.

ROADWAY

8. GROUNDING

A GROUND ROD OR RODS SHALL BE DRIVEN UNDER THE BASE OF EACH LAMP STANDARD WITH A TINNED FLEXIBLE #6 BARE COPPER WIRE TAIL OF SUFFICIENT LENGTH TO REACH THE GROUNDING LUG ON THE STANDARD. STANDARD AND GROUND ROD MUST NOT MEASURE MORE THAN 15 OHMS RESISTANCE.

THE #2 CABLE SHALL BE GROUNDED TO THE LIGHTING STANDARD GROUND AT EACH STANDARD. AT THE MID-POINT AND EACH END OF THE CIRCUIT THE #2 GROUND CONDUCTOR SHALL BE CONNECTED TO THE OHIO EDISON COMPANY NEUTRAL GROUND GRID. LOCATION OF THESE GROUND POINTS AND METHOD OF INSTALLATION SHALL BE OBTAINED FROM THE OHIO EDISON COMPANY.

IF ADDITIONAL GROUND RODS ARE REQUIRED TO OBTAIN 15 OHMS RESISTANCE THEY MAY BE DRIVEN 5' OR MORE FROM THE BASE OF THE STANDARD AND TAILS FROM THE ADDITIONAL GROUND RODS BE EXTENDED FROM THESE RODS THROUGH THE CABLE ENTRANCE CONDUIT TO THE GROUNDING LUG IN THE STANDARD. ALL GROUNDING RODS AND TAILS SHALL NOT BE EXPOSED ABOVE THE GRADE LINE.

9. THE CONTRACTOR SHALL FURNISH TO THE OHIO EDISON COMPANY AT LEAST 3 PRINTS OF THE ELECTRICAL SYSTEM SHOWING EXACT LOCATION OF CABLES, CONNECTIONS, AND OTHER PERTINENT INFORMATION.

STABILIZED TURF SHOULDERS ITEM SPECIAL (SEE NOTE IN PROPOSAL)

1. DESCRIPTION

STABILIZED TURF SHOULDER SHALL CONSIST OF A COMPACTED MIXTURE OF AGGREGATE AND TOPSOIL CONSTRUCTED AT THE PRESCRIBED LOCATIONS, TO THE PRESCRIBED LINES, GRADES AND DIMENSIONS, AND PROPERLY FERTILIZED, SEEDED AND PROTECTED, ALL IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.

2. MATERIALS

UNLESS OTHERWISE SPECIFIED BY THE PLANS, SPECIAL PROVISIONS OR PROPOSAL, THE MATERIAL FOR THIS ITEM SHALL BE CRUSHED LIMESTONE, CRUSHED GRAVEL (MUST BE 40% CRUSHED), CRUSHED SLAG OR SLACKER AGGREGATE AND SHALL MEET THE FOLLOWING REQUIREMENTS:

SIEVE SIZE	PERCENT PASSING
2"	100
1"	70-100
3/8"	25-80
No. 10	15-50
No. 40	5-30
No. 200	0-12

THE MATERIAL PASSING THE NO. 40 SIEVE SHALL HAVE A LIQUID LIMIT NOT GREATER THAN 30 AND A PLASTICITY INDEX NOT GREATER THAN 6. THE CHARACTERISTICS OF THE MATERIAL SHALL BE SUCH THAT IT WILL COMPACT TO THE SATISFACTION OF THE ENGINEER.

TOPSOIL SHALL COMPLY WITH THE REQUIREMENTS OF SECTION L-2.02 EXCEPT THAT THE ORGANIC CONTENT SHALL BE NOT LESS THAN 2 PER CENT NOR MORE THAN 4 PER CENT. THE LOWER PERCENTAGE OF ORGANIC CONTENT IS PREFERABLE.

FERTILIZER SHALL COMPLY WITH THE REQUIREMENTS OF SECTION L-9.04.

THE GRASS SEED MIXTURE SHALL COMPLY WITH THE REQUIREMENTS OF SECTION L-9.12.

3. CONSTRUCTION METHODS

THE SUBGRADE FOR THE STABILIZED TURF SHOULDER SHALL BE THOROUGHLY ROLLED AND COMPACTED TO MEET THE DENSITY REQUIREMENTS SET FORTH IN SECTION E-1.08 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.

THE STABILIZED TURF SHOULDER SHALL BE CONSTRUCTED IN TWO COURSES TO THE LINES AND GRADES PRESCRIBED ON THE PLANS.

FOR THE LOWER COURSE, BROKEN STONE OR SLAG SHALL BE PLACED IN A LAYER NOT TO EXCEED 5 IN. COMPACTED THICKNESS. ITS INITIAL COMPACTION

ROADWAY

SHALL BE OBTAINED BY THE USE OF CRAWLER TYPE TRACTORS, TAMPING ROLLERS, TRENCH ROLLERS OR OTHER SUITABLE EQUIPMENT APPROVED BY THE ENGINEER. A 1 IN. LAYER OF TOPSOIL SHALL THEN BE SPREAD OVER THE COMPACTED AGGREGATE AND MIXED COMPLETELY WITH THE TOP 2 OR 3 IN. OF THE COMPACTED AGGREGATE LAYER BY MEANS OF AN APPROVED POWER-DRIVEN ROTARY TYPE MIXING MACHINE, MAKING A MINIMUM OF TWO PASSES OVER THE MATERIALS. A PASS IS DEFINED AS ONE PASSAGE OVER ALL MATERIALS THROUGH THE MIXING CHAMBER OF THE MACHINE.

UNLESS OTHERWISE APPROVED BY THE ENGINEER THE TOP COURSE SHALL CONSIST OF TWO PARTS AGGREGATE AND ONE PART TOPSOIL BY VOLUME. THE AGGREGATE SHALL BE SPREAD ON THE PREVIOUSLY PLACED LOWER COURSE AND THE TOPSOIL SPREAD OVER THE AGGREGATE. THE MATERIAL SHALL THEN BE MIXED COMPLETELY AS PRESCRIBED ABOVE FOR THE LOWER COURSE. STONE SHALL BE BROUGHT TO THE SURFACE OF THE SHOULDER AND THE DEPTH OF TOPSOIL AT THE SHOULDER SHALL NOT EXCEED 1/4 IN.

AFTER THE MATERIALS HAVE BEEN MIXED, THE SHOULDER SHALL BE ROLLED WITH A MINIMUM OF TWO PASSES OF A 3-WHEEL, 10-TON SMOOTH ROLLER. A PASS IS DEFINED AS ONE PASSAGE OF A REAR WHEEL OF THE ROLLER OVER THE ENTIRE AREA OF THE SHOULDER.

WHERE NECESSARY TO SECURE THE DESIRED COMPACTION, WATER SHALL BE ADDED AS DIRECTED BY THE ENGINEER. WATER NEEDED FOR THIS PURPOSE SHALL BE INCLUDED IN THE QUANTITY OF ITEM E-11, WATER.

THE FERTILIZING, SEEDING AND PROTECTING OF THE SHOULDERS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION L-9.11 AND L-9.12 EXCEPT AS MODIFIED HEREIN.

THE FERTILIZER AND THE SEED MIXTURE SHALL BE APPLIED AT THE RATES OF 20 POUNDS AND 4 POUNDS PER 1,000 SQUARE FEET RESPECTIVELY, AND THE SURFACE THEN LIGHTLY RAKED TO INCORPORATE THE FERTILIZER AND SEED INTO THE TOPSOIL WITHOUT DISLODGING THE STONES OR DISTURBING THE COMPACTED SHOULDER MATERIAL. THE SURFACE SHALL THEN BE LIGHTLY ROLLED AND COVERED WITH A HAY MULCH. MULCH MAY BE ANCHORED BY THE TWINE AND PEG METHOD OR BY THE APPLICATION OF RC-2 ASPHALT APPLIED AT THE RATE OF 0.04 GALLONS PER SQUARE YARD OF MULCH.

IF ANY OF THE HAY MULCH IS DISPLACED BEFORE THE GRASS SEED IS GERMINATED AND THE GRASS HAS MADE A GROWTH OF 1 TO 1-1/2 INCHES, IT SHALL BE PUT BACK IN PLACE OR, IF NECESSARY, REPLACED BY THE CONTRACTOR.

WHEN THE TURF HAS GROWN TO A HEIGHT OF 1-1/2 TO 2 INCHES THE HAY MULCH SHALL BE REMOVED WITH A HAND HAY FORK. ANY HAY WHICH CANNOT BE REMOVED EASILY SHALL BE ALLOWED TO REMAIN.

4. METHOD OF MEASUREMENT

THE QUANTITY OF STABILIZED TURF SHOULDER FOR WHICH PAYMENT WILL BE MADE WILL BE THE AREA, IN SQUARE YARDS, ACTUALLY MIXED AND CONSTRUCTED IN ACCORDANCE WITH THE PLANS OR AS DIRECTED BY THE ENGINEER.

5. BASIS OF PAYMENT

THE NUMBER OF SQUARE YARDS MEASURED AS PROVIDED ABOVE SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE YARD FOR "STABILIZED TURF SHOULDER" WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING, PLACING AND COMPACTING THE SHOULDER MATERIAL, FOR FURNISHING AND PLACING FERTILIZER AND SEED, FOR FURNISHING, PLACING AND REMOVING MULCH AND FOR FURNISHING ALL LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE ITEM.

STRUCTURES

FOR GENERAL NOTES PERTAINING TO UNDERPASS STRUCTURES AND RETAINING WALLS SEE SHEET 101.

OTHER NOTES

FOR OTHER GENERAL NOTES SEE SHEET 57.

SCALE
MADE GM DATE 2-9-53
TRCD. DATE
CKD HAS DATE 2-10-53

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET- 9A

GENERAL SUMMARY
ESTIMATED QUANTITIES

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

10
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95
QUANTITIES

EARTHWORK QUANTITIES

ITEM	QUANTITY
TOTAL EXCAVATION	357,794 CU.YDS.
TOTAL EMBANKMENT	324,129 CU.YDS.
TOTAL EMBANKMENT X 1.15	372,748 CU.YDS.
TOTAL BORROW	14,954 CU.YDS.

CODE TYPE 6708

ITEM NO.	DESCRIPTION	UNIT	EXPRESS-WAY S.H. 37,39 SH. 15-19	RAMP K SH. 22	RAMP L SH. 22	RAMP O SH. 21	RAMP P SH. 21	RAMP Q SH. 21	RAMP R SH. 21	RAMP S SH. 21	RAMP T SH. 21	RAMP U S.H. 38 SH. 21	SERVICE ROAD A SH. 26	WEST SERVICE ROAD SH. 23-25	EAST SERVICE ROAD SH. 25	TEMP-ORARY ROAD SH. 29	BEACON STREET SH. 33	EXCHANGE STREET SH. 30	CARROLL STREET SH. 31,40	BUCHTEL AVENUE SH. 32,40	MARKET STREET SH. 33,40	KIRKWOOD AVENUE SH. 34	LUMIERE STREET SH. 29	FOUN-TAIN STREET SH. 28	WALL-RAMP Q SH. 53	WALL-1 RAMP U SH. 47	WALL-2 RAMP U SH. 49	WALL-KIRK-WOOD SH. 56	WALL-WSR SH. 51	WALL-CROUSE SH. 42	WALL-FOUN-TAIN SH. 44	TOTAL
	PAVEMENT																															
B-10	9" PORTLAND CEMENT CONCRETE BASE COURSE	SQ.YD.	39,576	1,442	1,300												1,083		3,059	3,653	1,482	833										52,428
I-7	REINFORCED CONCRETE APPROACH SLABS	SQ.YD.	568									97							147	147	193											1,152
I-12	TYPE 2 MODIFIED CONCRETE CURB AND GUTTER (12" THICK APRON)	LIN.FT.	5,245	442	271																											5,958
I-12	TYPE 2 MODIFIED CONCRETE CURB AND GUTTER (9" THICK APRON)	LIN.FT.	1,000																													1,000
I-12	TYPE 2-A CONCRETE CURB	LIN.FT.											168	5,375	856	296		182		121													6,998
I-12	TYPE 2-A MODIFIED CONCRETE CURB	LIN.FT.												38				1,770														1,808
I-12	TYPE 2-B CONCRETE CURB	LIN.FT.		234	191												650		980	1,186	237	829										4,307
I-12	TYPE 4-A CONCRETE CURB	LIN.FT.	1,787			267	299	257	333	621	454	278		199		1,710		130			143											6,478
I-12	TYPE 4-B CONCRETE CURB	LIN.FT		645	832																											1,477
I-12	TYPE 6 CONCRETE CURB	LIN.FT.			41									30								175		242								488
I-21	PORTLAND CEMENT CONCRETE MEDIAN PAVEMENT AS PER PLAN	SQ.YD.																			37											37
I-21	PORTLAND CEMENT CONCRETE WALL PAVEMENT AS PER PLAN	SQ.YD.	59																													59
T-30	BITUMINOUS TACK COAT SEC. U-5.5, MS-2 OR SS-1	GAL.	3,969	139	126												105		321	380	166	136	272	659								6,273
T-35	ASPHALTIC CONCRETE SURFACE COURSE, TYPE "C" (70-80)	CU. YD.	1,654	58	52							4					44		133	158	75	51	94	229								2,552
B-35	ASPHALTIC CONCRETE LEVELING COURSE (70-80)	CU. YD.	1,653	58	52							4					44		134	158	75	51	95	229								2,553
T-70	8" PORTLAND CEMENT CONCRETE PAVEMENT	SQ.YD.	189													2,797					994											3,980
T-71	7" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT	SQ.YD.															20	160	102	135		50										467
T-71	9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT	SQ.YD.	3,300			489	648	472	315	718	428	650	2,292	9,075	1,431			1,530		216	170											21,634
S3-5	CLASSIFIED EMBANKMENT MATERIAL	CU.YD.	16,063																													16,063
	ROADWAY																															
E-1	ROADWAY EXCAVATION	CU.YD.	357,695																													357,695
E-2	EXCAVATION FOR STRUCTURES - UNCLASSIFIED	CU.YD.																							425	115	+96	800	472	278	401	2,587
E-2	EXCAVATION FOR STRUCTURES - ROCK AND SHALE	CU.YD.																							7	6		47	166	13	28	287
E-2	EXCAVATION FOR STRUCTURES - (EXISTING REINFORCED CONCRETE WALL)	CU.YD.																									16					16
E-2	COFFERDAMS, CRIBS AND SHEETING	LUMP SUM																							LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM
SPECIAL	9" STABILIZED TURF SHOULDER	SQYD	4,302	167	158	119	133	113				117						5		27	7											5,148
E-8	REMOVAL AND DISPOSAL OF EXISTING STONE CURB	LIN.FT.	2,390	216	158								100	517		284	710	2080	1,532	1,850	606	709		383								11,496
E-8	REMOVAL AND DISPOSAL OF EXISTING CURB (CONCRETE)	LIN.FT.																			59											59
E-8	REMOVAL AND DISPOSAL OF EXISTING SIDEWALK (CONCRETE)	SQ.FT.	14,988										566	2,932		1,410	2,454	14,326	9,142	10,718	5,850	3,563		12,993								78,942
E-8	REMOVAL AND DISPOSAL OF EXISTING SIDEWALK (FLAGSTONE)	SQ.FT.		1,480	4,352																											5,832
E-8	REMOVAL AND DISPOSAL OF EXISTING PAVEMENT (BRICK)	SQ.YD.	297	71	52								39				947				745	205										2,356
E-8	REMOVAL AND DISPOSAL OF EXISTING PAVEMENT (BRICK ON CONCRETE)	SQ.YD.	1,035											462				390						215								2,102
E-8	REMOVAL AND DISPOSAL OF EXISTING PAVEMENT (ASPHALT, BRICK ON CONCRETE)	SQ.YD.												196		87			2,620	3,772	1,814	711		72								9,273
E-8	REMOVAL AND DISPOSAL OF EXISTING PAVEMENT (BITUMINOUS SEAL ON STABILIZED BASE)	SQ.YD.														47																47
E-4	BORROW	CU. YD.	14,954																													14,954
E-8	REMOVAL AND DISPOSAL OF EXISTING PAVEMENT (CONCRETE)	SQ.YD.	70										21								994											1,085
E-8	REMOVAL AND DISPOSAL OF EXISTING PAVEMENT (ASPHALT ON BRICK)	SQ.YD.	2,178																													2,178
E-11	WATER	M.GAL.																														2,428
	WATER MAIN																															
* E-12	2" PIPE REMOVED AND STORED (WATER MAIN)	LIN.FT.	378										86																			464
* E-12	4" PIPE REMOVED AND STORED (WATER MAIN)	LIN.FT.	360																													360
* E-12	6" PIPE REMOVED AND STORED (WATER MAIN)	LIN.FT.	1,548																144	216												1,908
* E-12	8" PIPE REMOVED AND STORED (WATER MAIN)	LIN.FT.																			198											198
* E-12	12" PIPE REMOVED AND STORED (WATER MAIN)	LIN.FT.	864																													864
* E-12	16" PIPE REMOVED AND STORED (WATER MAIN)	LIN.FT.																			198											198
* E-12	30" PIPE REMOVED AND STORED (WATER MAIN)	LIN.FT.																		395												395
	ROADWAY (CONT.)																															
I-13	4" PORTLAND CEMENT CONCRETE SIDEWALK	SQ. FT.											220	13,496	2,081	826	1,801	12,203	5,100	6,010	2,114	1,394		450(SH 19)					720		46,415
I-1																																
I-15	GUARD RAIL, STEEL BEAM TYPE (DEEP) AS PER PLAN	LIN.FT.	1,961	262	478	159	225	162			105	435	288	945	415			25		50	600 & 165	63										6,338
I-15	GUARD RAIL REMOVED AND REBUILT	LIN.FT.	600																													600
L-9	SEEDING AND PROTECTING, TYPE "A" AS PER PLAN	SQ. YD.	103,701																						125			181	290			104,297
L-9	COMMERCIAL FERTILIZER, (10-6-4)	TONS																														9.44
L-10	SODDING	SQ. YD.	546																													546
S-1	CLASS "C" CONCRETE FOR STRUCTURES	CU. YD.																							153	58	120	366	341	189	363	1,590

SCALE None
MADE W.D.M. DATE
TRCD DATE
CKD B.H.R. DATE 12-26-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 10

* FEDERAL AND STATE FUNDS DO NOT PARTICIPATE IN THESE ITEMS.

GENERAL SUMMARY (CON'T)
ESTIMATED QUANTITIES

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

11 / 172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95
QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	EXPRESS-WAY SH. 15-19,57	RAMP K SH. 22	RAMP L SH. 22	RAMP O SH. 21	RAMP P SH. 21	RAMP Q SH. 21	RAMP R SH. 21	RAMP S SH. 21	RAMP T SH. 21	RAMP U SH. 21	SERVICE ROAD A SH. 26	WEST SERVICE ROAD SH. 23-25	EAST SERVICE ROAD SH. 25	TEMP-ORARY ROAD SH. 29	BEACON STREET SH. 33,57	EXCHANGE STREET SH. 30,57	CARROLL STREET SH. 31,57	BUCHTEL AVENUE SH. 32	MARKET STREET SH. 33,57	KIRKWOOD AVENUE SH. 34,57	LUMIERE STREET SH. 29	FOUN-TAIN STREET SH. 28	WALL-RAMP Q SH. 53	WALL-1 RAMP U SH. 47	WALL-2 RAMP U SH. 49	WALL KIRK-WOOD SH. 56	WALL-WSP SH. 51	WALL CROUSE SH. 42	WALL FOUN-TAIN SH. 44	TOTAL
																				ROADWAY (CONT.)												
S-3	TYPE "B" WATERPROOFING	SQ.YD.																							14	3	7	29	28	16	35	132
S-4	REINFORCING STEEL	LB.																							13,782	7,644	6,777	33,880	10,947	25,804	49,019	147,853
S-9	PREMOLDED BITUMINOUS EXPANSION JOINT FILLER (1" THICK)	SQ.FT.																							25			61	80	56	105	327
S-9	COPPER WATERSTOPS	LIN.FT.																							41	9	21	87	83	47	111	399
S-14	HANDRAIL, AS PER PLAN	LIN.FT.																								58.42		311.29	216.00			585.71
S-16	FIRST TEST PILE	LUMP SUM																									LUMP SUM					LUMP SUM
S-18	STEEL PILES 12" BP@53#	LIN.FT.																									330					330
SPECIAL	BARRICADE AS PER PLAN	LIN.FT.	225																													225
																				WATER MAIN (CONT.)												
* SPECIAL	INSTALLING 4" WATER MAIN, AS PER PLAN	LIN.FT.											700																			700
* SPECIAL	INSTALLING 6 " WATER MAIN, AS PER PLAN	LIN.FT.											315																			315
* SPECIAL	INSTALLING 12" WATER MAIN, AS PER PLAN	LIN.FT.	461				299															116										876
* SPECIAL	INSTALLING 30" WATER MAIN, AS PER PLAN	LIN.FT.																		412												412
																				DRAINAGE												
I-2	18" EXTRA STRENGTH VITRIFIED SEWER PIPE SEC. M-6.8(b) FOR STORM SEWERS	LIN.FT.	30																			100										130
I-2	21" EXTRA STRENGTH VITRIFIED SEWER PIPE SEC. M-6.8(b) FOR STORM SEWERS	LIN.FT.																				2										2
I-5	15" PIPE SPECIAL FOR STORM SEWERS	EACH																														250
I-2	15" STANDARD STRENGTH VIT. SEWER PIPE SEC. M-6.8(a) ENCASED FOR STORM SEWERS	LIN.FT.	250																													692
I-2	12" EXTRA STRENGTH VITRIFIED SEWER PIPE SEC. M-6.8(b) FOR STORM SEWERS	LIN.FT.	574										118								150											150
E-12	33" PIPE REMOVED AND DISPOSED OF	LIN.FT.															493				22											730
E-12	8" PIPE REMOVED AND DISPOSED OF	LIN.FT.	215																			90										90
E-12	10" PIPE REMOVED AND DISPOSED OF	LIN.FT.																			190											190
E-12	12" PIPE REMOVED AND DISPOSED OF	LIN.FT.																			160											160
E-12	18" PIPE REMOVED AND DISPOSED OF	LIN.FT.																		* 2												2
I-5	18" PIPE SPECIAL FOR STORM SEWERS	EACH																														3
SPECIAL	FLUME, AS PER PLAN	EACH	2					1																								
I-2	12" STANDARD STRENGTH VITRIFIED SEWER PIPE, SEC. M-6.8 (a) FOR STORM SEWERS	LIN.FT.	931		150	56				330	57	303	*296	207	*118, 1134	216		185		* 261		18				106	46	7	14	105	17	12	4469
I-2	15" STANDARD STRENGTH VITRIFIED SEWER PIPE, SEC. M-6.8(a) FOR STORM SEWERS	LIN.FT.	926												1221							120										1267
I-2	18" STANDARD STRENGTH VITRIFIED SEWER PIPE, SEC. M-6.8(a) FOR STORM SEWERS	LIN.FT.	365														443			* 202												1,010
I-2	21" STANDARD STRENGTH VITRIFIED SEWER PIPE, SEC. M-6.8(a) FOR STORM SEWERS	LIN.FT.	80												460																	540
I-2	24" STANDARD STRENGTH VITRIFIED SEWER PIPE, SEC. M-6.8(a) FOR STORM SEWERS	LIN.FT.	636																													636
I-2	30" STANDARD REINFORCED CONCRETE SEWER PIPE, SEC. M-6.6(a) FOR STORM SEWERS	LIN.FT.																			66											66
I-2	33" EXTRA STR. REINFORCED CONCRETE CULVERT PIPE, SEC. M-6.6(c) FOR STORM SEWERS	LIN.FT.																			132											132
S-29	DOWNSPOUTS	EACH																							1		1			2	2	6
I-2	48" STANDARD REINFORCED CONCRETE SEWER PIPE, SEC. M-6.6(a) FOR STORM SEWERS	LIN.FT.																			8											8
I-2	3½" STD. WEIGHT WELDED W.I. PIPE SEC. M-6.10 FOR STORM SEWERS	LIN.FT.																136	124	197		17										474
SPECIAL	INLET APRON, AS PER PLAN	EACH	13																													13
I-4	6" EXTRA QUALITY DRAIN TILE, SEC. M-6.7(b) FOR UNDERDRAINS	LIN.FT.	4914			300	375	325		263	305	325																					6807
I-5	12" PIPE SPECIAL, FLAP GATE AS PER PLAN	EACH											*1																			See Sheet 57
I-5	12" PIPE SPECIAL FOR STORM SEWER	EACH										6		*6																		20
I-5	36" PIPE SPECIAL FOR STORM SEWER	EACH	2																													12
I-5	15" PIPE SPECIAL, FLAP GATE AS PER PLAN	EACH																														2
I-6	MANHOLES, STANDARD NO. 1	EACH	8										*2	2	3			2	1	1	1	2	1									See Sheet 57
I-8	MANHOLES, STANDARD NO. 2	EACH	1											1	1					1		1	1									23
I-8	INLET MANHOLES, AS PER PLAN	EACH	11					1			1				3																	6
I-8	INLET MANHOLES WITH DROP PIPE, AS PER PLAN	EACH	3																													16
I-8	INLETS, TYPE A, AS PER PLAN	EACH											*1	1																		3
I-8	CATCH BASINS, STANDARD NO. 3	EACH	4			1				1	1	1				2																	2
I-8	CATCH BASINS, STANDARD NO. 3-A	EACH	7		1		1		1	1	1				13	1	2.																10
I-8	INLETS, AKRON STANDARD NO. 3	EACH													6				5	3	2	2											28
I-8	INLETS, AKRON STANDARD NO. 5	EACH																				2											18
** I-8	MANHOLES, ADJUSTED TO GRADE	EACH											1								2	2		12								2
* I-8	LAMPHOLES, ADJUSTED TO GRADE	EACH																	1	2												17
I-8	MANHOLE, REBUILD AS INLET MANHOLE	EACH	1																													3
I-8	INLETS, ADJUSTED TO GRADE	EACH																			1											1
I-14	12" CONCRETE PAVED GUTTER AS PER PLAN	LIN. FT.	190												310																	500
I-14	12" HALF-ROUND CONCRETE GUTTER	LIN.FT.																							230		112			125	244	711
I-16	LAMPHOLES ABANDONED	EACH																		1												1
I-16	INLET MANHOLES ABANDONED	EACH	3																													3
I-16	INLETS ABANDONED	EACH													1										2							2
I-16	MANHOLES ABANDONED	EACH																														1
I-2	36" EX.STR.REINF.CONC.CULV.PIPE, SEC. M-6.6(c) WITH VIT.HALF LINER FOR STORM SEWERS	LIN.FT.	190																													190
I-2	30" STD. REINF. CONC. SEWER PIPE, SEC. M-6.6(a) WITH VIT.HALF LINER FOR STORM SEWER	LIN. FT.	196																													196
I-2	33" EX.STR.REINF. CONC. CULVERT PIPE, SEC. M-6.6(c) WITH VIT.HALF LINER FOR STORM SEWER	LIN. FT.	446																													446
I-2	36" EX.STR.REINF. CONC. CULVERT PIPE, SEC. M-6.6(c) WITH VIT.HALF LINER FOR STORM SEWER WITH CONCRETE CRADLE	LIN. FT.	180																													180
S-24	REMOVAL OF EXISTING STRUCTURES	LUMP	1														1	5	1		5	3										LUMP
S-29	8" PERFORATED BITUMINOUS COATED CORRUGATED METAL PIPE SEC. M-6.4(f)	LIN. FT.																							227	71	112	321	237	120	243	1,331
S-29	POROUS BACKFILL	CU. YD.																							72	30	42	190	174	104	209	821
E-2	21" EXTRA STRENGTH REINFORCED CONCRETE CULVERT PIPE SEC M-6.6(c) FOR STORM SEWERS	LIN. FT.													215																	215
E-2	33" STANDARD STRENGTH REINFORCED CONCRETE CULVERT PIPE SEC M-6.6(c) WITH VIT. HALF LINER FOR STORM SEWERS	LIN. FT.	321																													321

SCALE None
MADE WDM DATE
TRCD DATE
CKD BHR DATE 12-26-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 11

FOR ESTIMATED QUANTITIES FOR STRUCTURES OVER 20 FT. SPAN, SEE SHEETS 101 AND 102
FOR ESTIMATED QUANTITIES OF ELECTRICAL EQUIPMENT, SEE SHEET NO. 36

* FEDERAL AND STATE FUNDS DO NOT PARTICIPATE IN THESE ITEMS
** FEDERAL AND STATE FUNDS DO NOT PARTICIPATE ON 10 EACH

△ SEE COLUMNS FOR SERVICE ROAD A, West Service Road, Carroll St, Buchtel Ave.

Rev. 5-4-53

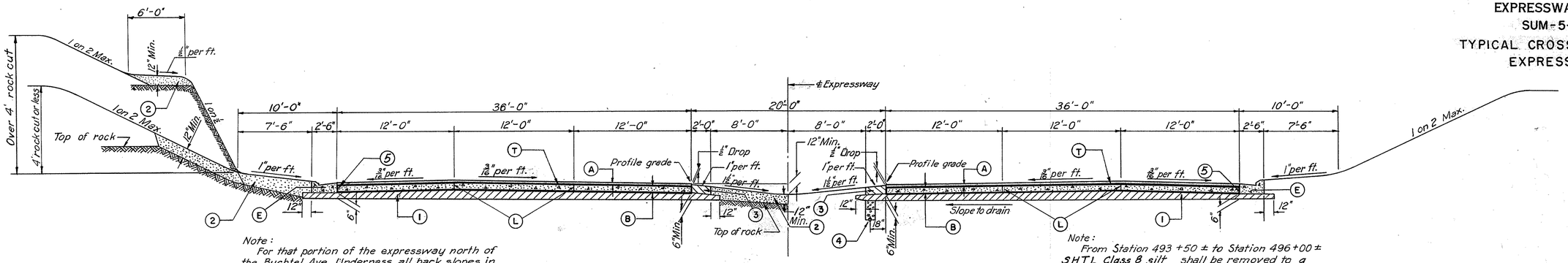
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

12
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95

TYPE T-35 ON B-70

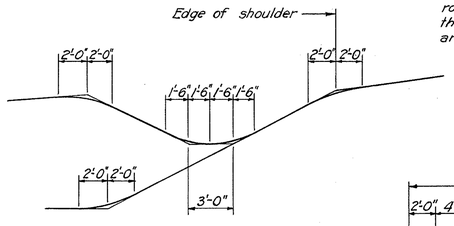
TYPICAL CROSS SECTIONS
EXPRESSWAY



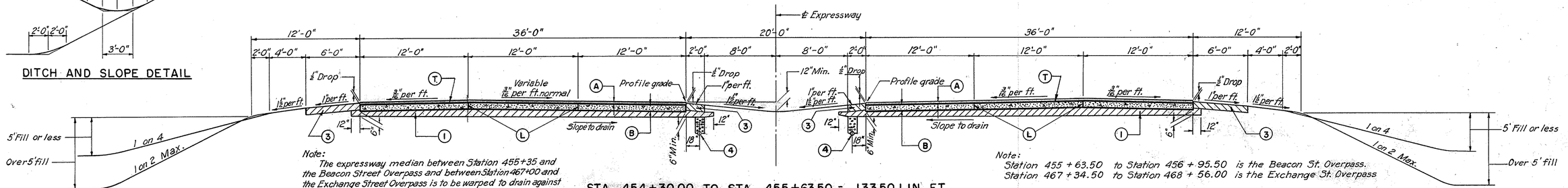
Note:
For that portion of the expressway north of the Buchtel Ave. Underpass all back slopes in rock cuts are 1 on 2. On the east side of the expressway back slopes in rock cuts are 1 on 2 throughout.

STA. 473+25 TO STA. 505+39.71 = 3214.71 LIN. FT.

Note:
From Station 493+50 ± to Station 496+00 ± SHTL Class B silt shall be removed to a depth of 12" below the SS-5 and replaced with suitable embankment material containing less than 50% silt size particles. The estimated additional excavation is included in the roadway excavation quantities.
Right lane paving meets existing pavement at Station 504+75.



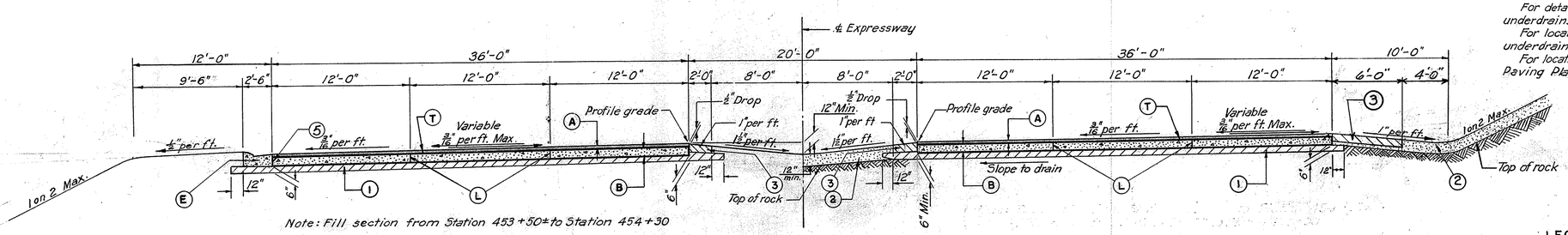
DITCH AND SLOPE DETAIL



Note:
The expressway median between Station 455+35 and the Beacon Street Overpass and between Station 467+00 and the Exchange Street Overpass is to be warped to drain against grade to an inlet.

Note:
Station 455+63.50 to Station 456+95.50 is the Beacon St. Overpass.
Station 467+34.50 to Station 468+56.00 is the Exchange St. Overpass

STA. 454+30.00 TO STA. 455+63.50 = 133.50 LIN. FT.
STA. 456+95.50 TO STA. 467+34.50 = 1039.00 LIN. FT.
STA 468+56.00 TO STA. 473+25.00 = 469.00 LIN. FT.



Note: Fill section from Station 453+50± to Station 454+30

STA. 453+00 TO STA. 454+30.00 = 130.00 LIN. FT.

Note:
For details of curb and gutter and underdrains see Sheet 35
For locations and profiles of underdrains see Drainage Plans
For locations of guard rail see Paving Plans.

Note:
For details of expressway median and west pavement surface course between station 453+00 and station 455+39.11 as affected by temporary crossing into east pavement, see Sheet 15.

LEGEND

- (T) Item T-30 Tack Coat
- (5) Standard Longitudinal Key Joint without tie bars.
- (1) Classified Embankment Material, Item SS-5
- (2) Soil Backfill,
- (3) 9" Stabilized Turf Shoulder (Placed in two courses)
- (4) Item I-4 Underdrain.
- (A) 3" Asphaltic Concrete Surface Course.
  1 1/2" Asphaltic Concrete Surface Course, Type "C"
  1 1/2" Asphaltic Concrete Leveling Course
- (B) 9" Portland Cement Concrete Base Course
- (E) Type 2 Modified Curb and Gutter
- (L) Standard Longitudinal Joint

505

SCALE 3/16" = 1'-0"
MADE V.D.G. DATE 9-15-52
TRCD. H.T.S. DATE 10-6-52
CKD. B.H.R. DATE 10-17-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 12

Rev. 5-12-53

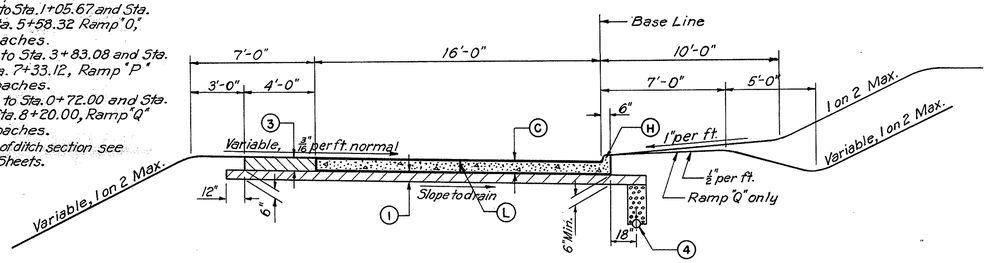
TYPE T-35 ON B-70, T-71

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

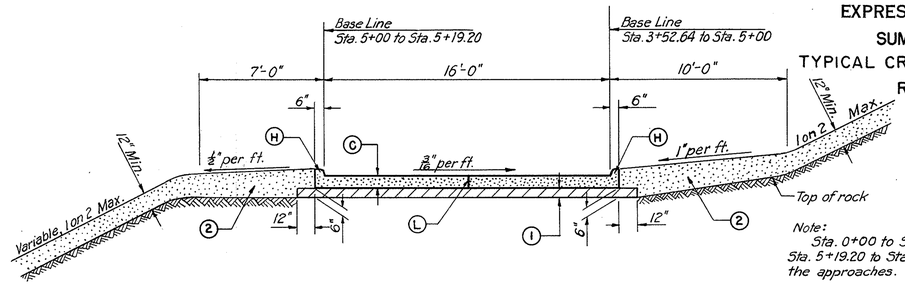
13
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
TYPICAL CROSS SECTIONS
RAMPS

Note:
Sta. 0+72.00 to Sta. 2+60.00, Ramp "Q" has opposite superelevation.
Sta. 0+00 to Sta. 1+05.67 and Sta. 3+72.33 to Sta. 5+58.32 Ramp "O," are the approaches.
Sta. 0+00 to Sta. 3+83.08 and Sta. 6+81.92 to Sta. 7+33.12, Ramp "P" are the approaches.
Sta. 0+00 to Sta. 0+72.00 and Sta. 3+29.47 to Sta. 8+20.00, Ramp "Q" are the approaches.
For location of ditch section see Cross Section Sheets.

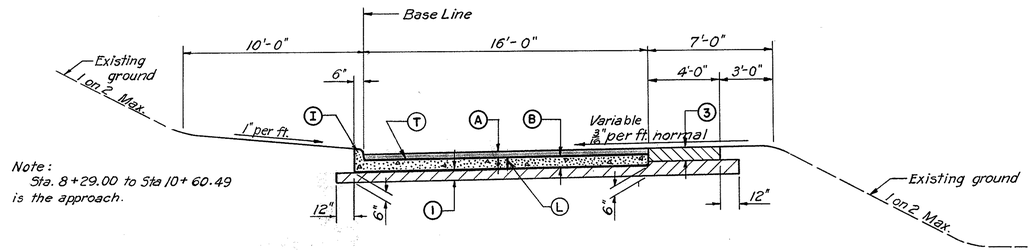


RAMPS "O", "P", "Q".
"O" - STA. 1+05.67 TO STA. 3+72.33 = 266.66 LIN. FT.
"P" - STA. 3+83.08 TO STA. 6+81.92 = 298.84 LIN. FT.
"Q" - STA. 0+72.00 TO STA. 3+29.47 = 257.47 LIN. FT.



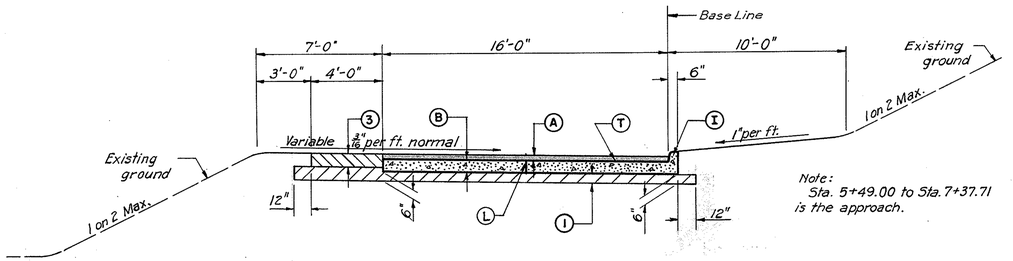
Note:
Sta. 0+00 to Sta. 3+52.64 and Sta. 5+19.20 to Sta. 8+04.13 are the approaches.

RAMP "R"
STA. 3+52.64 TO STA. 5+19.20 = 166.56 LIN. FT.



Note:
Sta. 8+29.00 to Sta 10+60.49 is the approach.

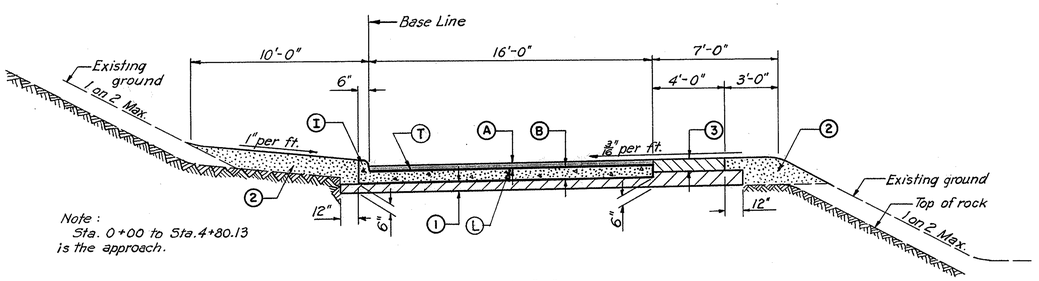
RAMP "K"
STA. 7+00 ± TO STA. 8+29.00 = 129.00 ± LIN. FT.



Note:
Sta. 5+49.00 to Sta. 7+37.71 is the approach.

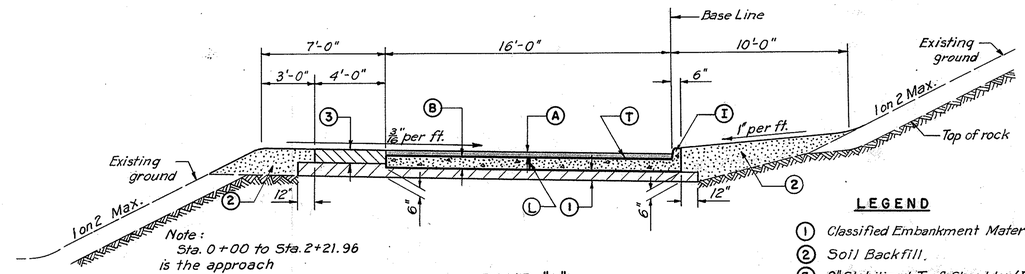
RAMP "L"
STA. 4+00 ± TO STA. 5+49.00 = 149.00 ± LIN. FT.

Note:
For details of curb and underdrain see Sheet 35
For details of approaches and locations of guard rail see Paving Plans.
For locations and profiles of underdrains see Drainage Plans.



Note:
Sta. 0+00 to Sta. 4+80.13 is the approach.

RAMP "K"
STA. 4+80.13 TO STA. 7+00 ± = 219.87 ± LIN. FT.



Note:
Sta. 0+00 to Sta. 2+21.96 is the approach

RAMP "L"
STA. 2+21.96 TO STA. 4+00 ± = 178.04 LIN. FT.

LEGEND
(1) Classified Embankment Material, Item 55-5
(2) Soil Backfill.
(3) 9" Stabilized Turf Shoulder (Placed in two courses)
(4) Item I-4 Underdrain
(A) 3" Asphaltic Concrete Surface Course
1½" Asphaltic Concrete Surface Course, Type "C"
1½" Asphaltic Concrete Leveling Course
(B) 9" Portland Cement Concrete Base Course
(C) 9" Reinforced Portland Cement Concrete Pavement
(H) Type 4-A Curb
(I) Type 4-B Curb
(T) Item T-30 Tack Coat
(L) Standard Longitudinal Joint

507

SCALE 1" = 1'-0"
MADE V.D.G. DATE 9-17-52
TRCD H.T.S. DATE 10-9-52
CKD B.H.R. DATE 10-20-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET- 13

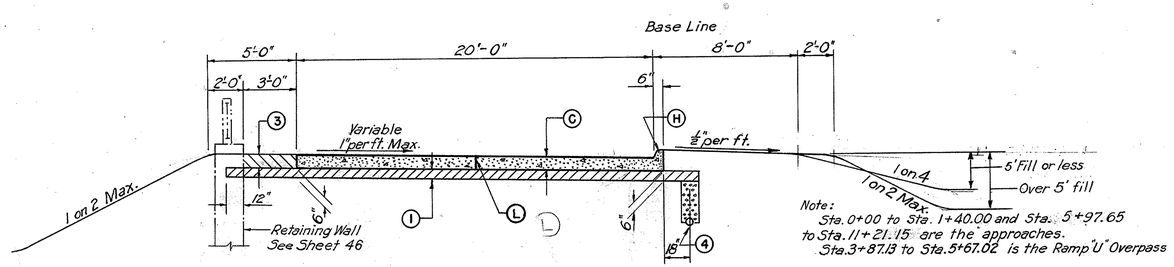
Rev. 5-12-53

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

14
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
TYPICAL CROSS SECTIONS
RAMPS AND SERVICE ROADS

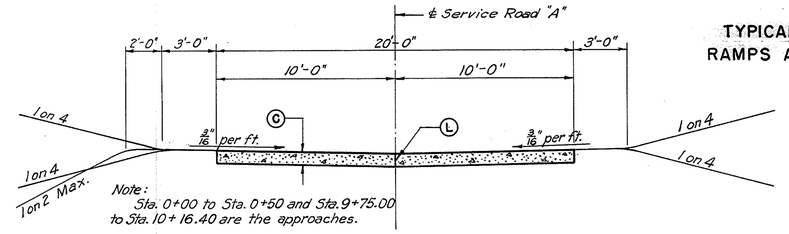
TYPE T-71



Note:
Sta. 0+00 to Sta. 1+40.00 and Sta. 5+97.65 to Sta. 11+21.15 are the approaches.
Sta. 3+87.18 to Sta. 5+67.02 is the Ramp "U" Overpass

RAMP "U"

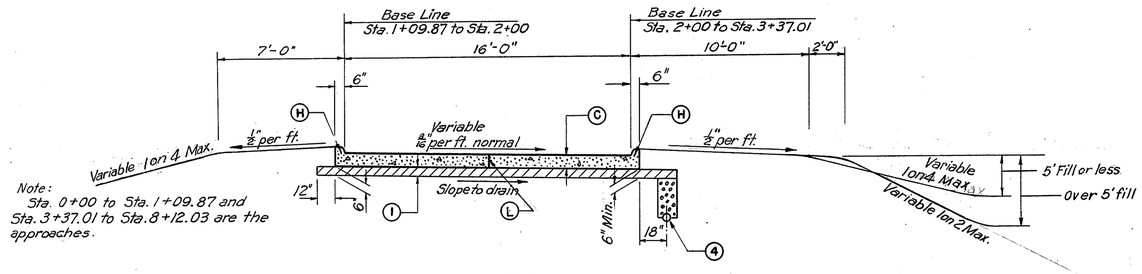
STA. 1+40+00 TO STA. 3+87.13 = 247.13 LIN. FT.
STA. 5+67.02 TO STA. 5+97.65 = 30.63 LIN. FT.



Note:
Sta. 0+00 to Sta. 0+50 and Sta. 9+75.00 to Sta. 10+16.40 are the approaches.

SERVICE ROAD "A"

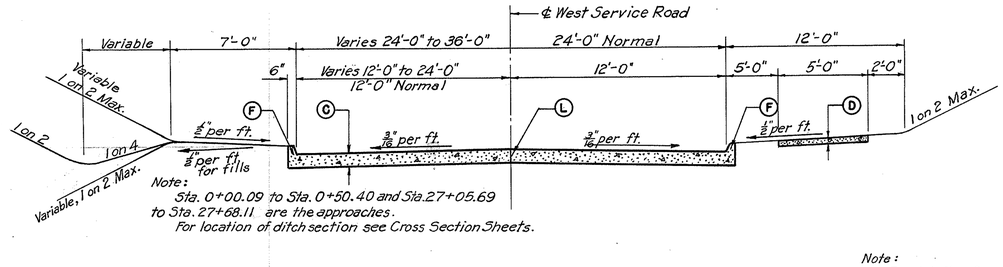
STA. 0+50.00 TO STA. 9+75.00 = 925.00 LIN. FT.



Note:
Sta. 0+00 to Sta. 1+09.87 and Sta. 3+37.01 to Sta. 8+12.03 are the approaches.

RAMP "T"

STA. 1+09.87 TO STA. 3+37.01 = 227.14 LIN. FT.

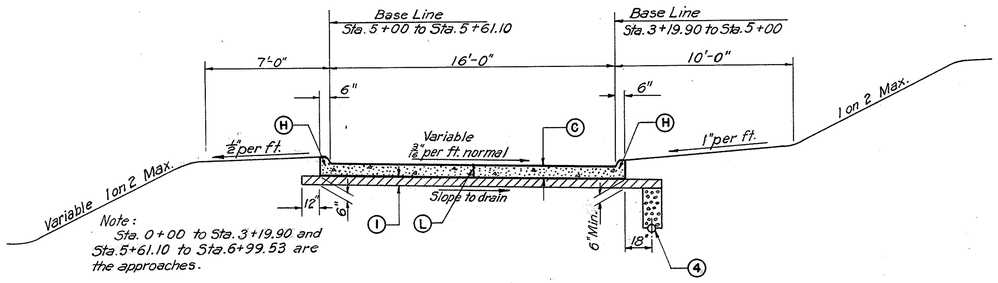


Note:
Sta. 0+00.09 to Sta. 0+50.40 and Sta. 27+05.69 to Sta. 27+68.11 are the approaches.
For location of ditch section see Cross Section Sheets.

WEST SERVICE ROAD

STA. 0+50.40 TO STA. 27+05.69 = 2655.29 LIN. FT.

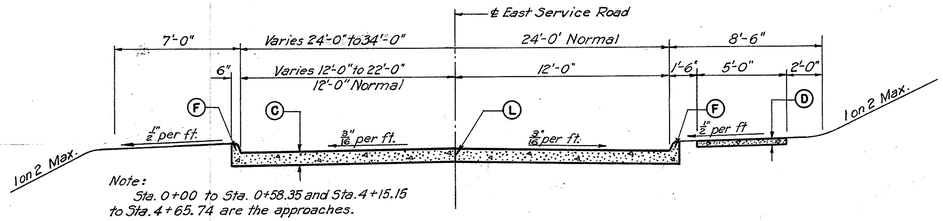
Note:
For details of curb and underdrain see Sheet 35
For details of approaches and locations of guard rails see Paving Plans.
For locations and profiles of underdrains see Drainage Plans.



Note:
Sta. 0+00 to Sta. 3+19.90 and Sta. 5+61.10 to Sta. 6+99.53 are the approaches.

RAMP "S"

STA. 3+19.90 TO STA. 5+61.10 = 241.20 LIN. FT.



Note:
Sta. 0+00 to Sta. 0+58.35 and Sta. 4+15.15 to Sta. 4+65.74 are the approaches.

EAST SERVICE ROAD

STA. 0+58.35 TO STA. 4+15.15 = 356.80 LIN. FT.

LEGEND

- (I) Classified Embankment Material, Item SS-5
- (3) 9" Stabilized Turf Shoulder (Placed in two courses)
- (4) Item I-4 Underdrain
- (C) 9" Reinforced Portland Cement Concrete Pavement
- (D) 4" Portland Cement Concrete Sidewalk
- (F) Type 2-A Curb
- (H) Type 4-A Curb
- (L) Standard Longitudinal Joint

508

SCALE 1/4" = 1'-0"
MADE V.D.G. DATE 9-19-52
TRCD T.T.S. DATE 10-7-52
CKD. B.H.R. DATE 11-21-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET- 14

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

15
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95
PAVEMENT DETAILS
EXPRESSWAY

Note: Asphaltic concrete surface course will not be required for area of expressway pavement west of temporary mall.
Pavement elevations shown for area west of temporary mall, unless otherwise noted are top of concrete base course elevations.
Expressway median west of temporary mall, to be sloped to drain westward.

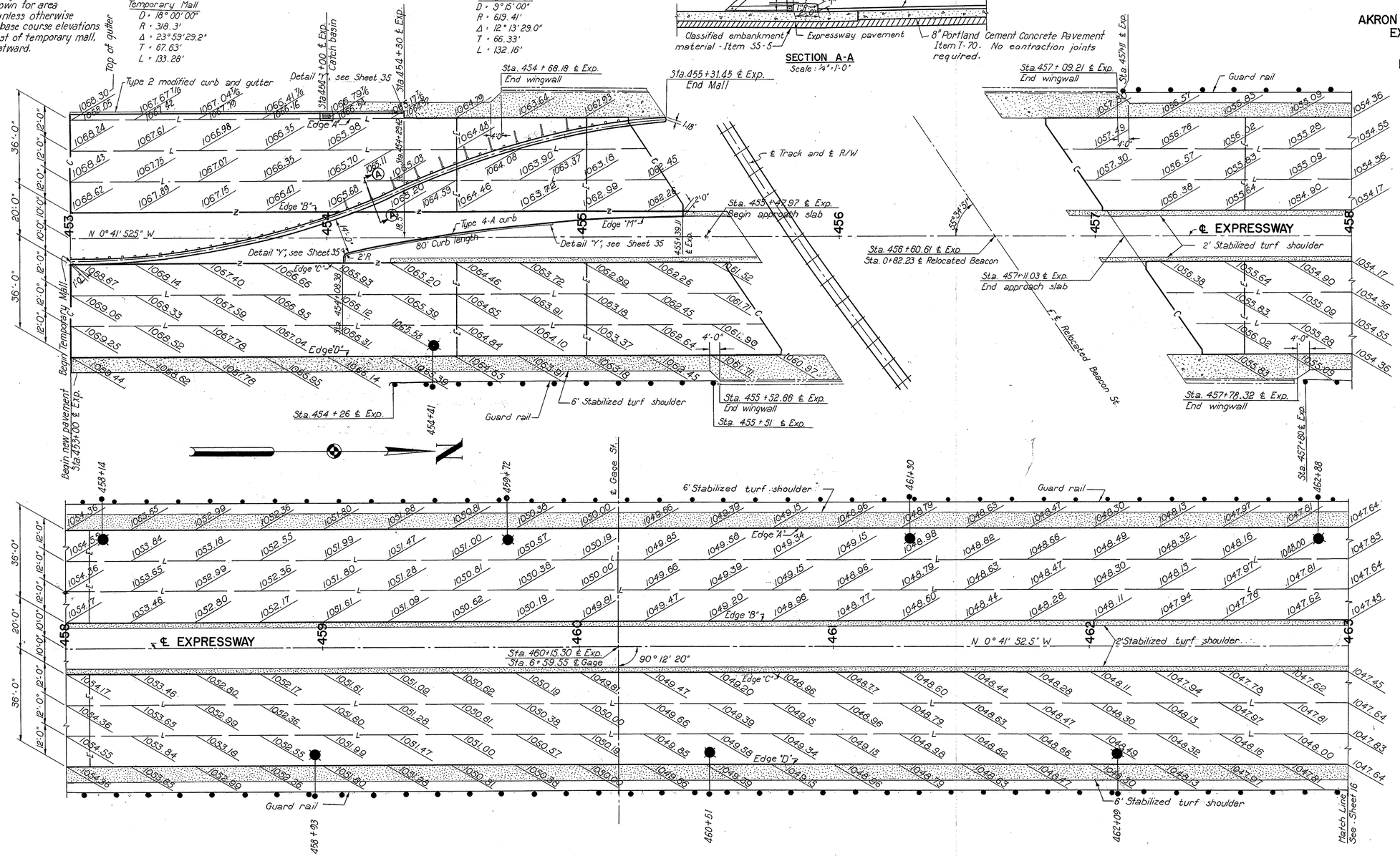
Curve Data
Temporary Mall
D = 18° 00' 00"
R = 318.3'
Δ = 23° 59' 29.2"
T = 67.63'
L = 133.28'

Curve Data
Edge "M"
D = 9° 15' 00"
R = 619.41'
Δ = 12° 13' 29.0"
T = 66.33'
L = 132.16'

Barricade - Ohio Dept. of Highways Standard G-8.07 Modified in area of pavement as shown. Post secured to pavement by clip angle and expansion bolt.

Temporary mall — 3" Asphaltic Concrete Surface Course. — Classified embankment material - Item 55-5 — Expressway pavement — 8" Portland Cement Concrete Pavement Item T-70. No contraction joints required.

SECTION A-A
Scale: 3/4" = 1'-0"



ESTIMATED QUANTITIES

Item	Description:	Quantity
B-70	9" Portland Cement Concrete Base Course	6,696 Sq. Yds.
B&T-35	3" Asphaltic Concrete	520 Cu. Yds.
I-12	Type 4-A Curb	85 Lin. Ft.
I-12	Type 2 Modified Curb and Gutter, 12" thick apron	130 Lin. Ft.
I-15	Guard Rail Steel Beam Type (Deep), As Per Plan	1234 Lin. Ft.
Special	9" Stabilized turf shoulder	1439 Sq. Yds.
T-70	8" Portland Cement Concrete Pavement	189 Sq. Yds.
I-21	Portland Cement Concrete Mall Pavement	59 Sq. Yds.
T-30	Bituminous Tack Coat, Sec. M-5.5 MS-2 or SS-1	624 Gal.
Special	Barricade, as per plan	225 Lin. Ft.

Note: For pavement joint legend, details of lighting and curbs, see Sheets 35 and 36.
For details of drainage structures, see Drainage Plans.
For typical cross sections, see Sheet 12.

SCALE 1" = 20'
MADE J.S.M. DATE 9-5-52
TRCD C.L. DATE 10-6-52
CKD V.D.G. DATE 12-3-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY 846 NEW YORK
SHEET 15

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FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

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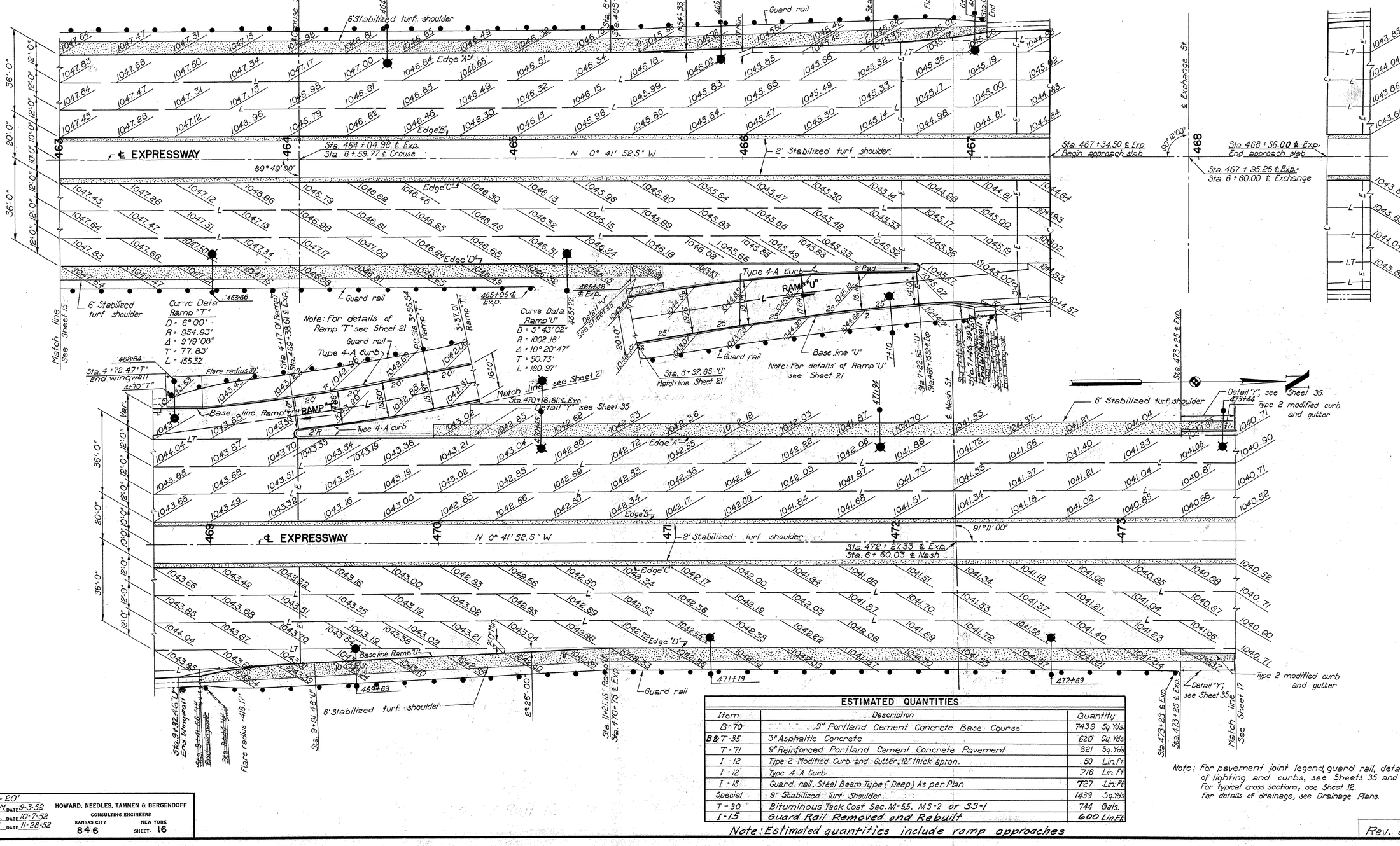
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
PAVEMENT DETAILS
EXPRESSWAY



ESTIMATED QUANTITIES

Item	Description	Quantity
B-70	9" Portland Cement Concrete Base Course	7439 Sq. Yds.
B & T-35	3" Asphaltic Concrete	620 Cu. Yds.
T-71	9" Reinforced Portland Cement Concrete Pavement	821 Sq. Yds.
I-12	Type 2 Modified Curb and Gutter, 12" thick apron.	50 Lin. Ft.
I-12	Type 4-A Curb	716 Lin. Ft.
I-15	Guard rail, Steel Beam Type (Deep) As per Plan	727 Lin. Ft.
Special	9" Stabilized Turf Shoulder	1439 Sq. Yds.
T-30	Bituminous Tack Coat Sec. M-55, MS-2 or SS-1	744 Gals.
I-13	Guard Rail Removed and Rebuilt	600 Lin. Ft.

Note: Estimated quantities include ramp approaches

SCALE	1" = 20'
MADE	J.S.M. DATE 9-3-52
TRCD	C.L. DATE 10-7-52
CKD	V.D.G. DATE 11-28-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
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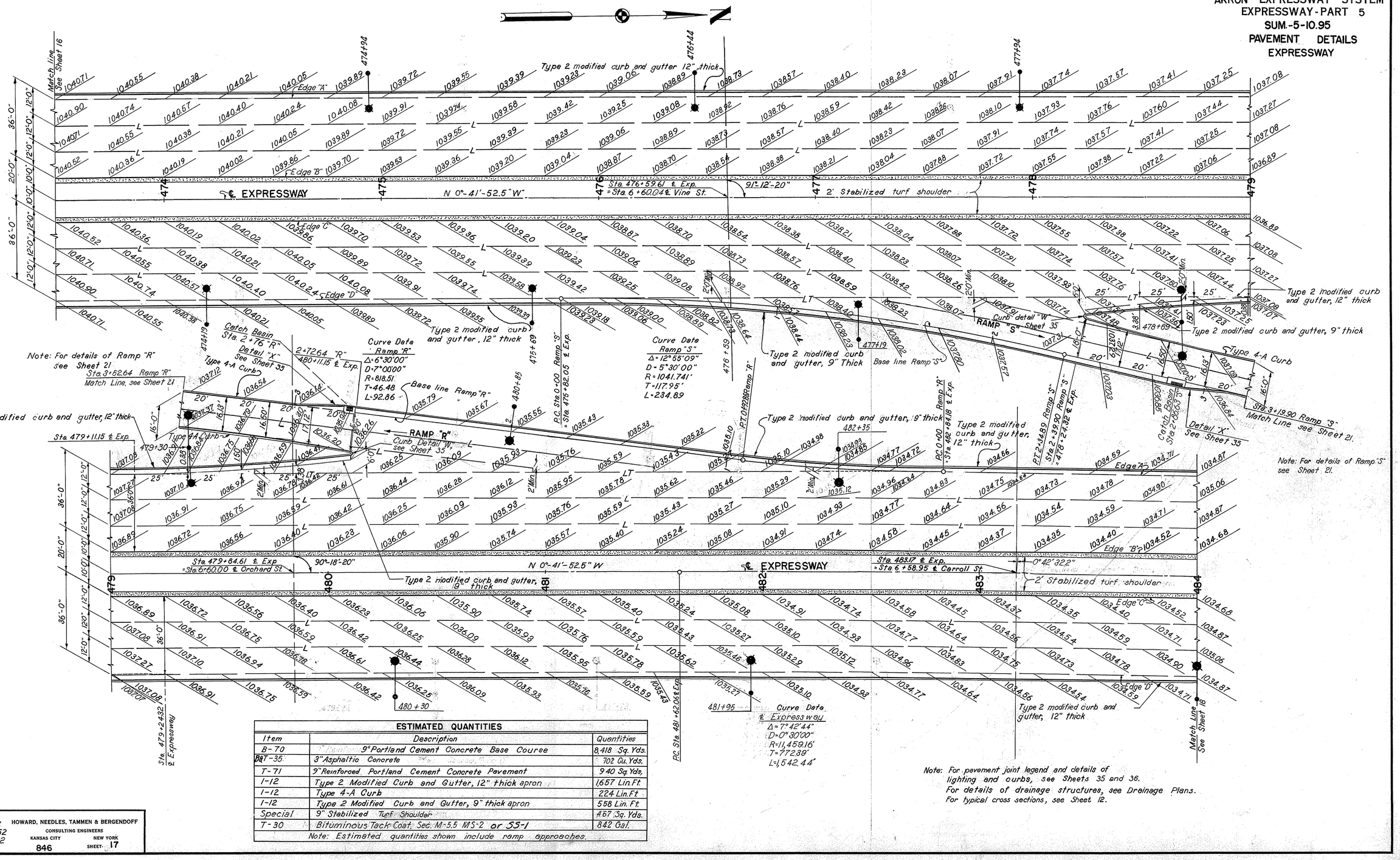
Rev. 8-6-53

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

17
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM.-5-10.95
PAVEMENT DETAILS
EXPRESSWAY



ESTIMATED QUANTITIES

Item	Description	Quantities
B-70	9" Portland Cement Concrete Base Course	8,418 Sq. Yds.
B&T-35	3" Asphaltic Concrete	702 Cu. Yds.
T-71	9" Reinforced Portland Cement Concrete Pavement	940 Sq. Yds.
I-12	Type 2 Modified Curb and Gutter, 12" thick apron	1,657 Lin. Ft.
I-12	Type 4-A Curb	224 Lin. Ft.
I-12	Type 2 Modified Curb and Gutter, 9" thick apron	558 Lin. Ft.
Special	9" Stabilized Turf Shoulder	467 Sq. Yds.
T-30	Bituminous Tack Coat, Sec. M-5.5 MS-2 or SS-1	842 Gal.

Note: Estimated quantities shown include ramp approaches.

SCALE 1" = 20'	HOWARD, NEEDLES, TAMMEN & BERGENDOFF	CONSULTING ENGINEERS	
MADE BHF DATE 9-6-52		KANSAS CITY	NEW YORK
TRCD L.L.L. DATE 10-3-52			
CKD BHR DATE 10-8-52			
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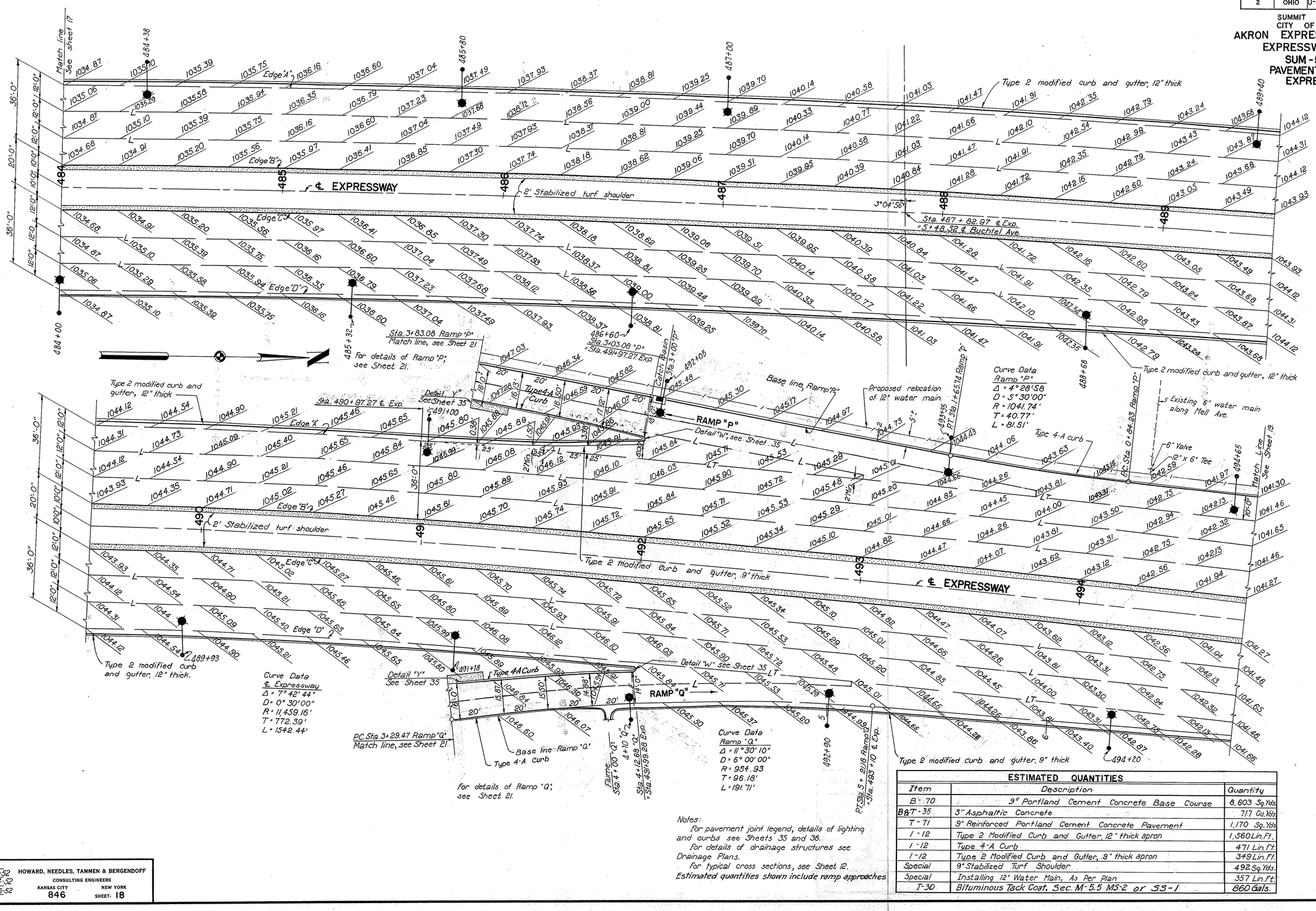
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

18
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
PAVEMENT DETAILS
EXPRESSWAY



Notes:
For pavement joint legend, details of lighting and curbs see Sheets 35 and 36.
For details of drainage structures see Drainage Plans.
For typical cross sections, see Sheet 12.
Estimated quantities shown include ramp approaches

ESTIMATED QUANTITIES

Item	Description	Quantity
B-70	9" Portland Cement Concrete Base Course	8,603 Sq.Yds
B&T-35	3" Asphaltic Concrete	717 Cu.Yds
T-71	9" Reinforced Portland Cement Concrete Pavement	1,170 Sq.Yds
1-12	Type 2 Modified Curb and Gutter, 12" thick apron	1,360 Lin.Ft.
1-12	Type 4-A Curb	471 Lin.Ft
1-12	Type 2 Modified Curb and Gutter, 9" thick apron	349 Lin.Ft
Special	9" Stabilized Turf Shoulder	492 Sq.Yds.
Special	Installing 12" Water Main, As Per Plan	357 Lin.Ft.
T-30	Bituminous Tack Coat, Sec. M-5.5 MS-2 or SS-1	860 Gals.

SCALE 1" = 20'
MADE B.H.F. DATE 8-29-52
TRCD C.L. DATE 10-4-52
CKD B.H.R. DATE 10-16-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
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FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

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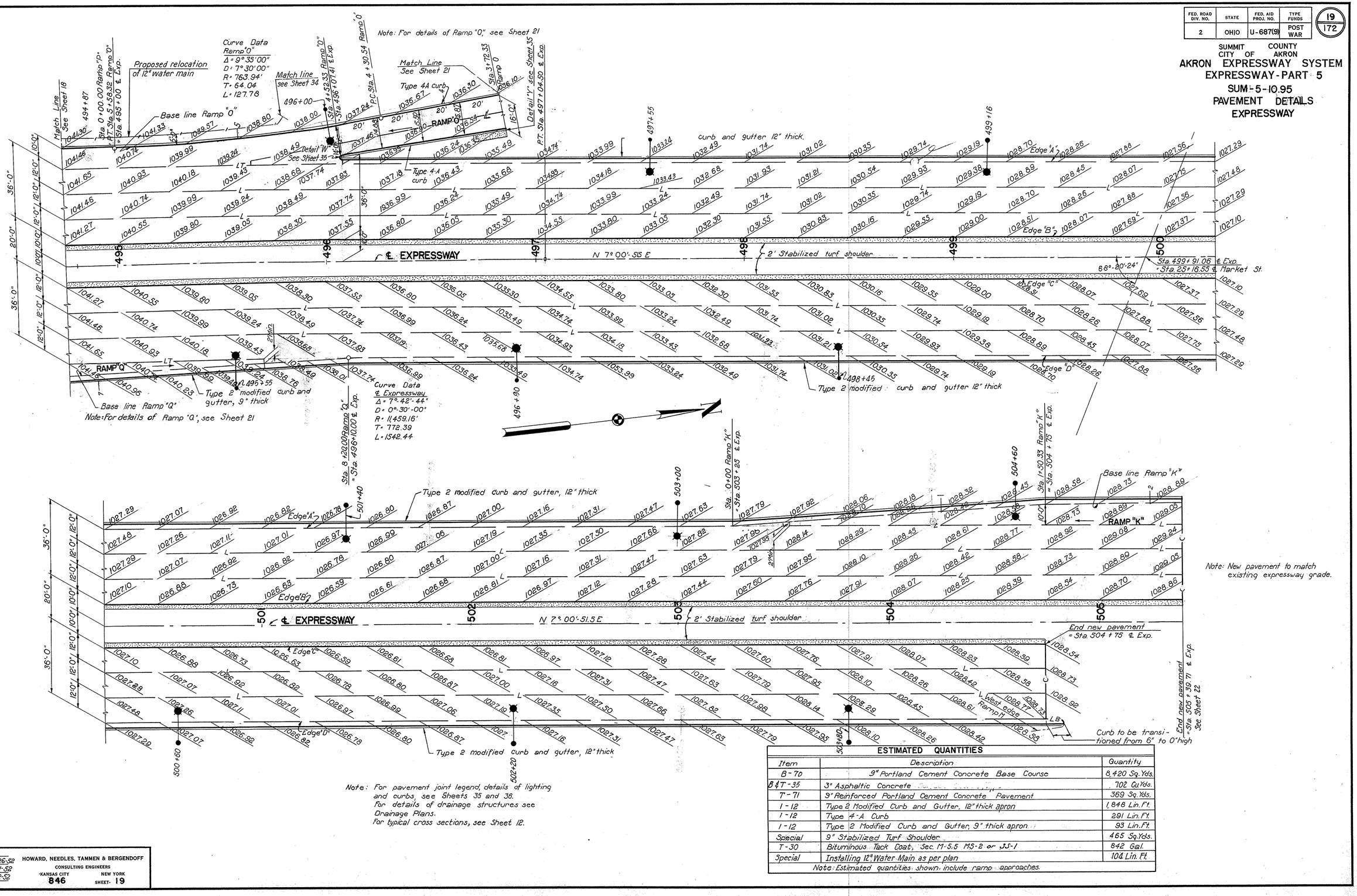
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95
PAVEMENT DETAILS
EXPRESSWAY



Note: New pavement to match existing expressway grade.

Note: For pavement joint legend, details of lighting and curbs, see Sheets 35 and 36.
For details of drainage structures see Drainage Plans.
For typical cross sections, see Sheet 12.

ESTIMATED QUANTITIES

Item	Description	Quantity
B-70	9" Portland Cement Concrete Base Course	8,420 Sq. Yds.
B & T-35	3" Asphaltic Concrete	702 Cu. Yds.
T-71	9" Reinforced Portland Cement Concrete Pavement	369 Sq. Yds.
I-12	Type 2 Modified Curb and Gutter, 12" thick apron	1,846 Lin. Ft.
I-12	Type 4-A Curb	291 Lin. Ft.
I-12	Type 2 Modified Curb and Gutter, 9" thick apron	93 Lin. Ft.
Special	9" Stabilized Turf Shoulder	465 Sq. Yds.
T-30	Bituminous Tack Coat, Sec. M-5.5 MS-2 or SS-1	842 Gal.
Special	Installing 12" Water Main as per plan	104 Lin. Ft.

Note: Estimated quantities shown include ramp approaches.

5/9

SCALE 1" = 20'
MADE B.H.F. DATE 8-26-52
TRCD C.L. DATE 10-1-52
CKD B.H.R. DATE 10-2-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY 846 NEW YORK
SHEET 19

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

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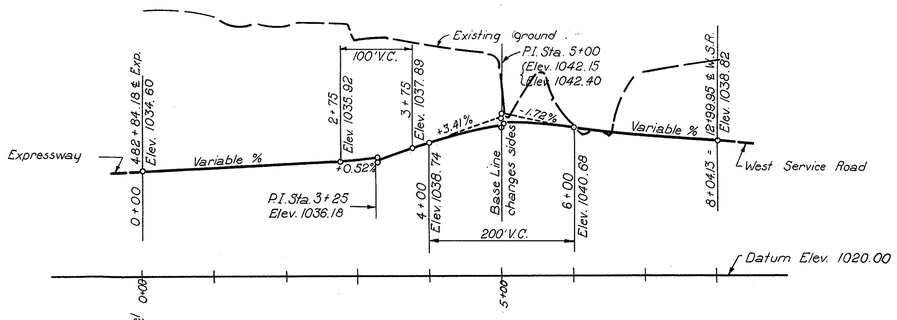
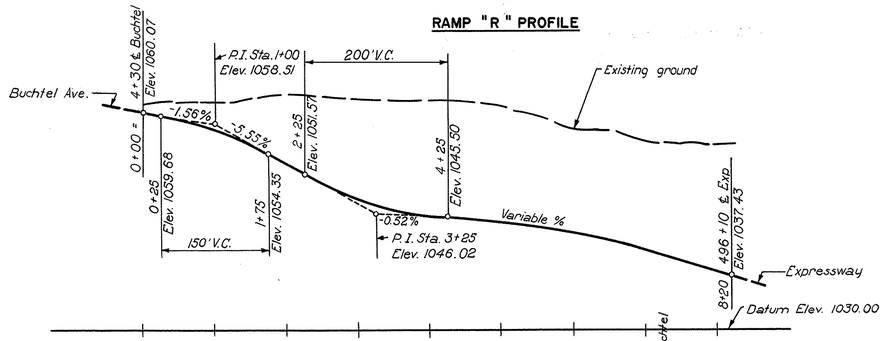
SUMMIT COUNTY
CITY OF AKRON

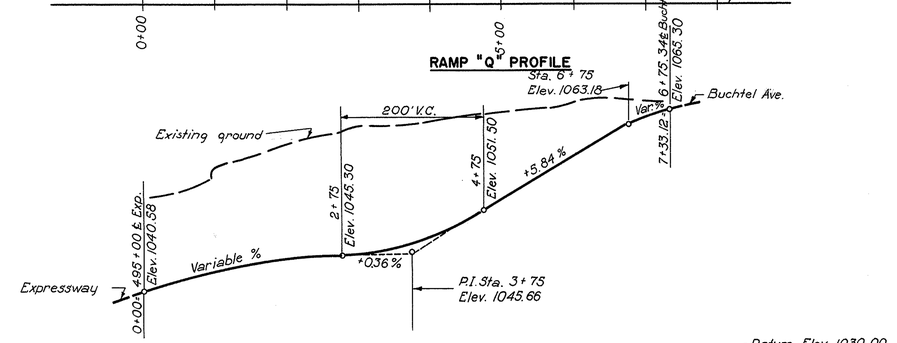
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY PART 5
SUM-5-10.95
RAMP PROFILES



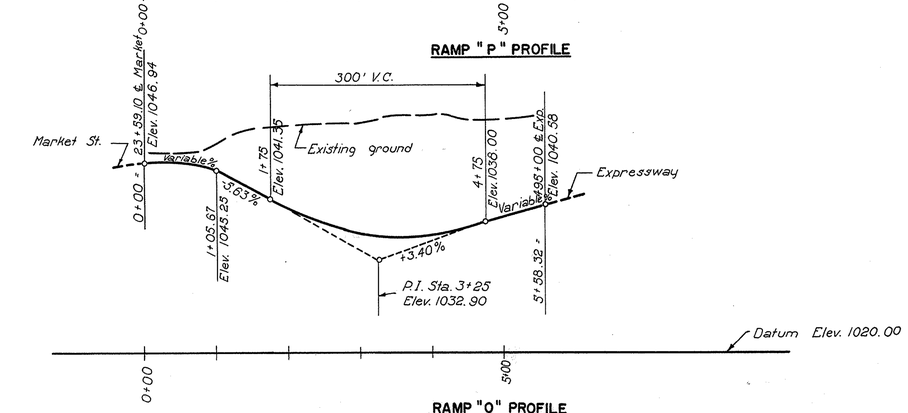
RAMP "R" PROFILE



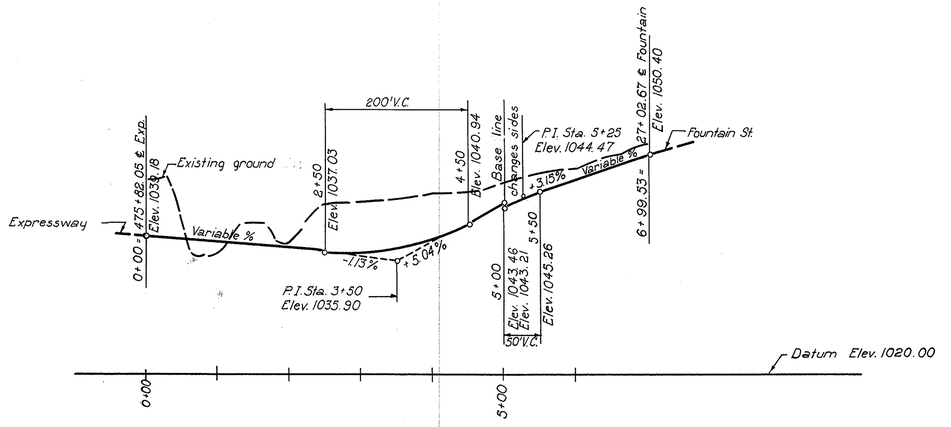
RAMP "Q" PROFILE



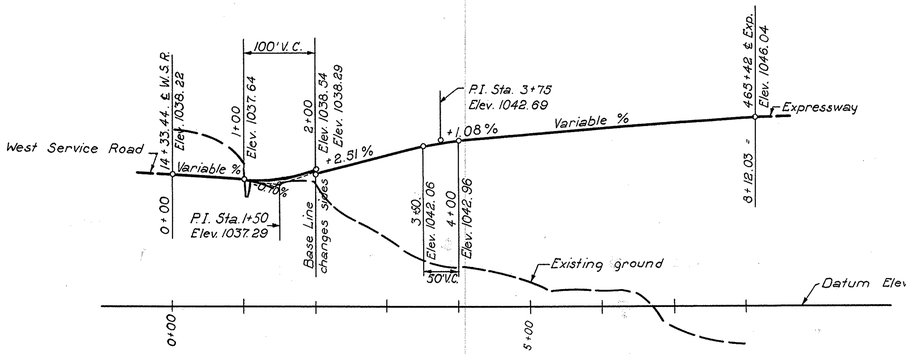
RAMP "P" PROFILE



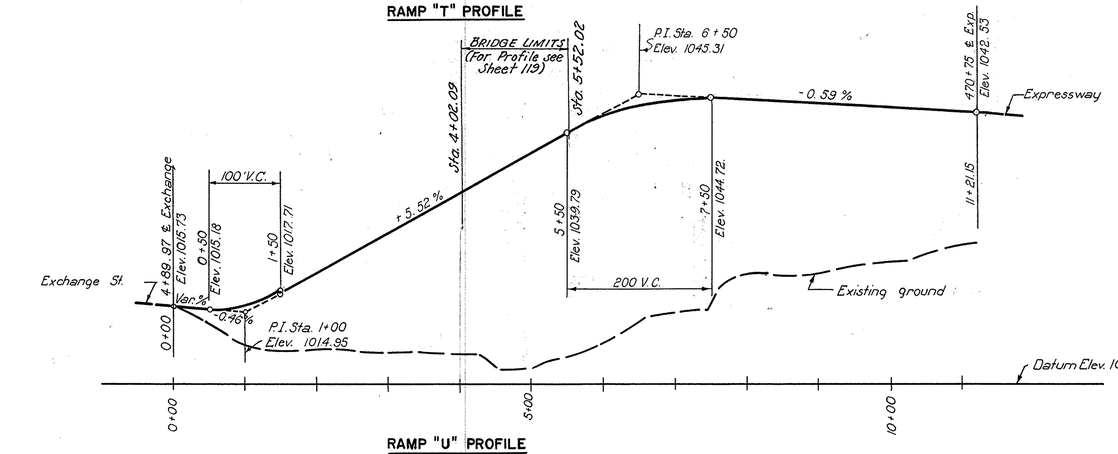
RAMP "O" PROFILE



RAMP "S" PROFILE



RAMP "T" PROFILE



RAMP "U" PROFILE

Note:
Profile shown along base line of all streets and ramps.
All stationing is computed along base lines.
Ground profile shown is along base lines.

SCALE 1"=10' Vert; 1"=100 Hor.
MADE B.H.F. DATE 9-25-52
TRCD. C.L. DATE 10-11-52
CKD. V.D.G. DATE 10-15-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

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SHEET- 20

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FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

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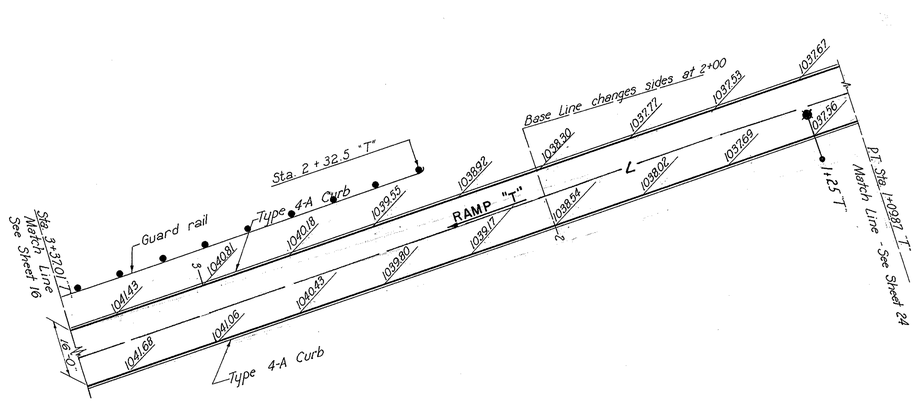
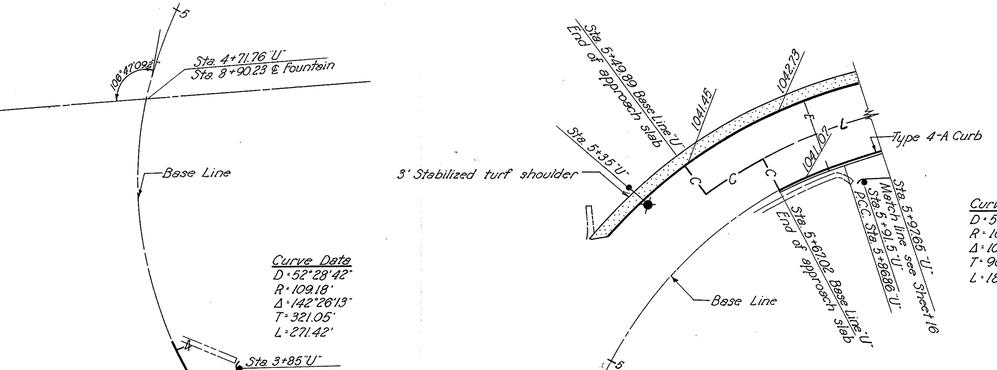
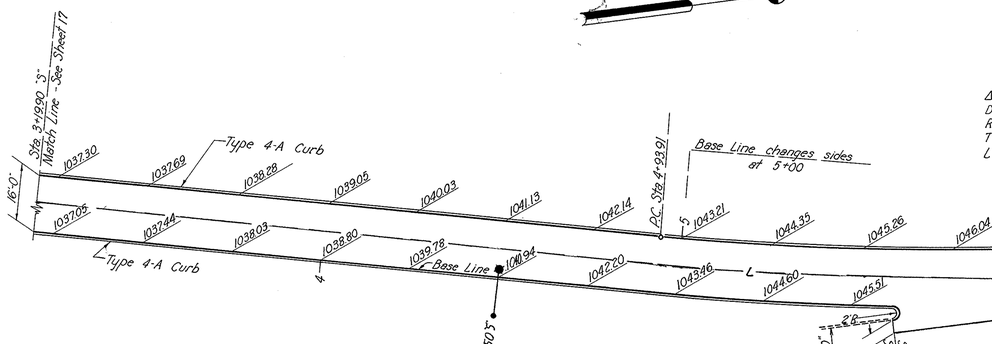
172

SUMMIT COUNTY
CITY OF AKRON

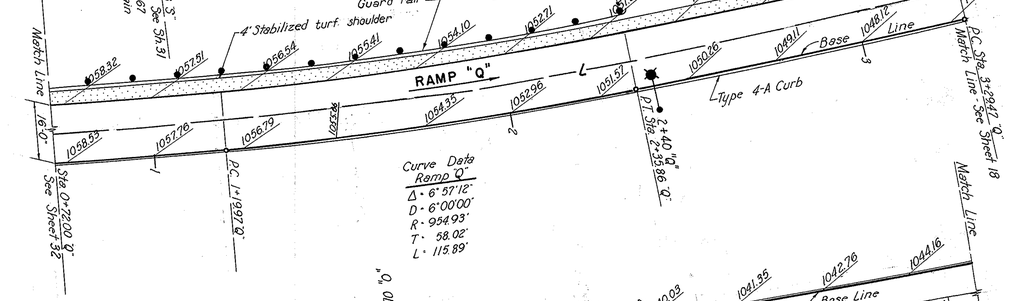
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART - 5
SUM-5-10.95
RAMP DETAILS







Curve Data
Ramp "S"
Δ = 12°55'09"
D = 6°30'00"
R = 881.47'
T = 99.80'
L = 198.75'



Note:
For details of concrete curb, guard rail and pavement joint legend see Sheets 35 and 36.
For additional pavement details see Typical Cross Sections, Sheets 13 and 14.

ESTIMATED QUANTITIES

Item	Description	Unit	Quantity
T-11	9" Reinforced Portland Cement Concrete Pavement	Sq.Yds.	3,620
Special	9" Stabilized Turf Shoulder	Sq.Yds.	482
I-12	Type 4-A Curb	Lin.Ft.	2,509
I-15	Guard Rail, Steel Beam Type (Deep), As Per Plan	Lin.Ft.	1,086
Special	Installing 12" Water Main, As Per Plan	Lin.Ft.	299

Note:
Estimated quantities shown cover only the pavement and related quantities for the areas detailed on this sheet.

SCALE 1" = 20'
MADE B.H.F. DATE 9-11-52
TRCD E.D.H. DATE 10-20-52
CKD _____ DATE _____

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
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FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

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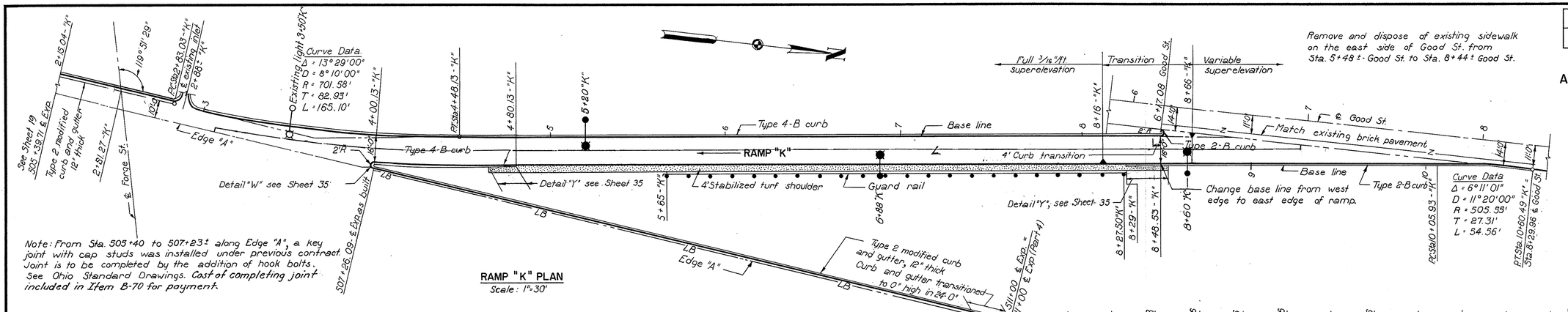
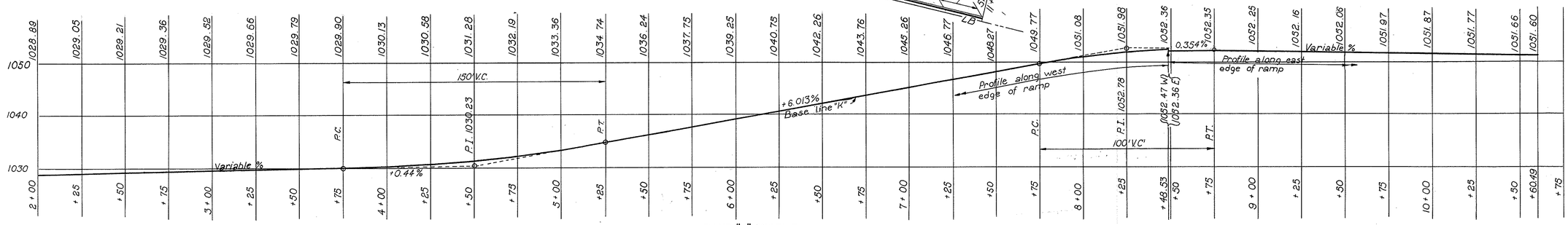
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
PLAN-PROFILE
RAMPS "K", "L" & "M" SEGMENT

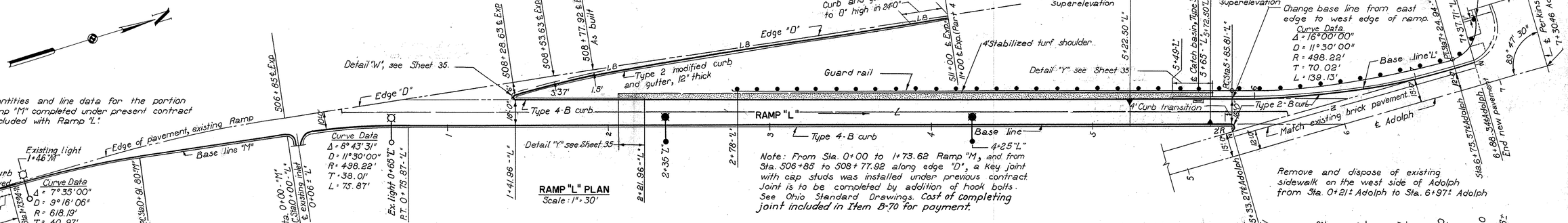


RAMP "K" PLAN
Scale: 1"=30'

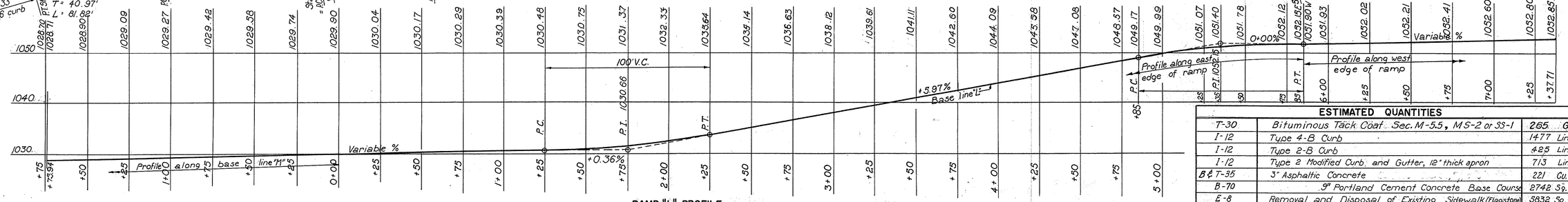


RAMP "K" PROFILE
Scale: 1" = 30' Hor.
1" = 10' Vert.

Notes:
For pavement joint legend and details of lighting and curbs, see Sheets 35 and 36.
For drainage details, see Drainage Plans.



RAMP "L" PLAN
Scale: 1"=30'



RAMP "L" PROFILE
Scale: 1" = 30' Hor.
1" = 10' Vert.

Note:
For pavement joint legend and details of lighting and curbs, see Sheets 35 and 36.
For drainage details, see Drainage Plans.
For typical sections, see Sheet 13.

ESTIMATED QUANTITIES

T-30	Bituminous Tack Coat Sec. M-5.5, MS-2 or SS-1	265 Gals.
I-12	Type 4-B Curb	1477 Lin. Ft.
I-12	Type 2-B Curb	425 Lin. Ft.
I-12	Type 2 Modified Curb and Gutter, 12" thick apron	713 Lin. Ft.
B & T-35	3" Asphaltic Concrete	221 Cu. Yds.
B-70	9" Portland Cement Concrete Base Course	2742 Sq. Yds.
E-8	Removal and Disposal of Existing Sidewalk (Flagstone)	3832 Sq. Ft.
I-15	Guard Rail, Steel Beam Type (Deep), As Per Plan	740 Lin. Ft.
E-8	Removal and Disposal of Existing Curb (Sandstone)	376 Lin. Ft.
E-8	Removal and Disposal of Existing Pavement (Brick)	123 Sq. Yds.
Special	9" Stabilized Turf Shoulder	325 Sq. Yds.
I-12	Type 6 Curb	41 Lin. Ft.

SCALE	As shown	HOWARD, NEEDLES, TAMMEN & BERGENDOFF	
MADE	A.F.S. DATE 9-12-52	CONSULTING ENGINEERS	
TRCD	C.L. DATE 10-10-52	KANSAS CITY	NEW YORK
CKD	V.D.G. DATE 10-15-52	846	SHEET 22

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FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

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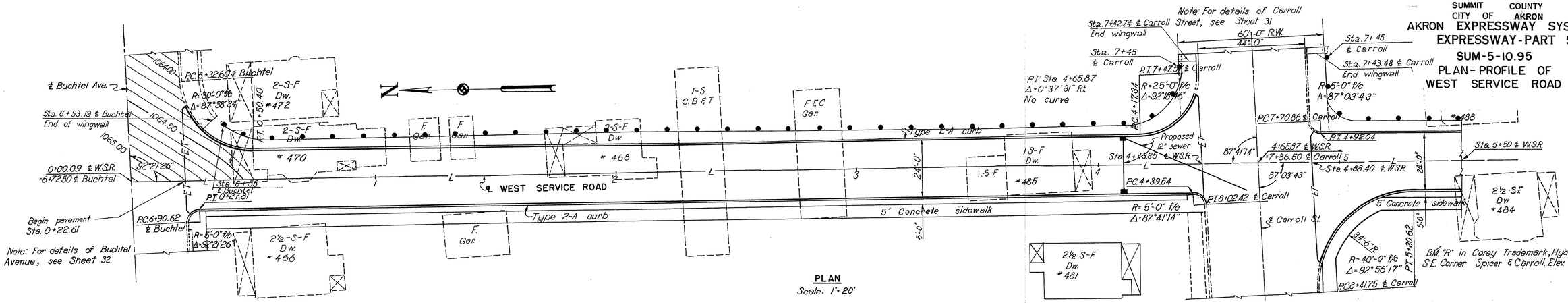
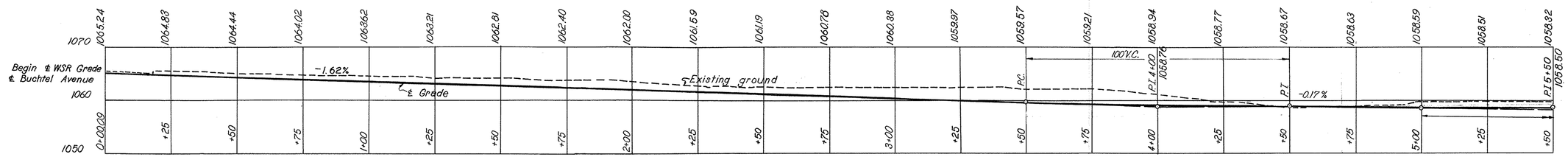
172

SUMMIT COUNTY
CITY OF AKRON

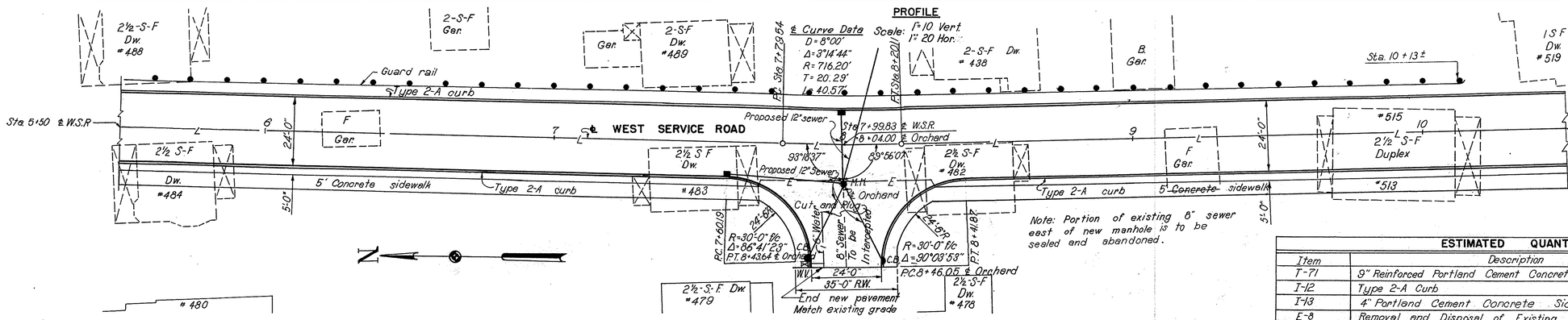
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
PLAN-PROFILE OF WEST SERVICE ROAD



PLAN
Scale: 1"=20'



PROFILE
Scale: 1"=10' Vert. 1"=20' Hor.



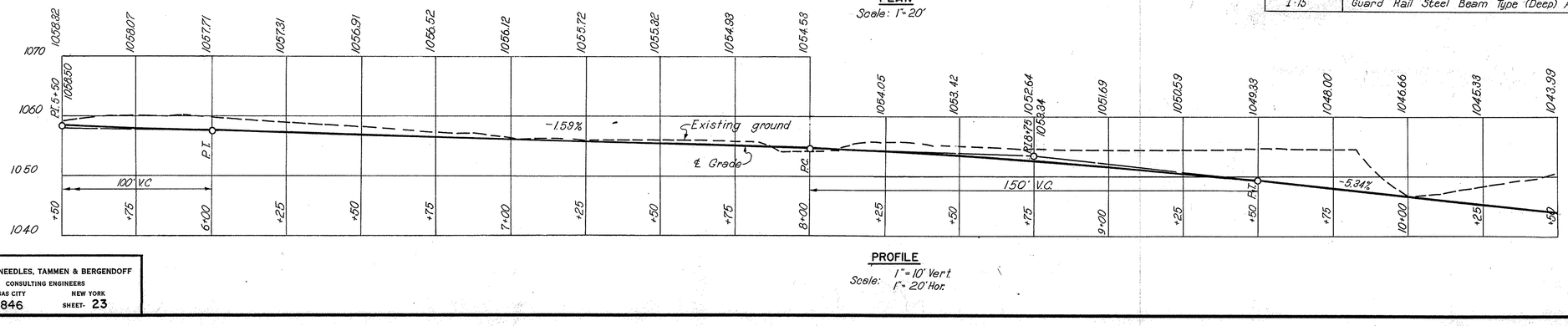
Notes:
For pavement cross section, see Sheet 14.
For pavement joint legend and detail of curb, see Sheet 35.
For drainage details, see drainage plan.

Note: Portion of existing 8" sewer east of new manhole is to be sealed and abandoned.

ESTIMATED QUANTITIES

Item	Description	Quantity
T-71	9" Reinforced Portland Cement Concrete Pavement	2,917 Sq. Yds.
I-12	Type 2-A Curb	1,996 Lin. Ft.
I-13	4" Portland Cement Concrete Sidewalk	4936 Sq. Ft.
E-8	Removal and Disposal of Existing Sidewalk (Concrete)	218 Sq. Ft.
I-15	Guard Rail Steel Beam Type (Deep) As Per Plan	945 Lin. Ft.

PLAN
Scale: 1"=20'



PROFILE
Scale: 1"=10' Vert. 1"=20' Hor.

SCALE	As Shown
MADE FMS	DATE 8-22-52
TRCD LLL	DATE 10-15-52
CKD VDG	DATE 10-16-52

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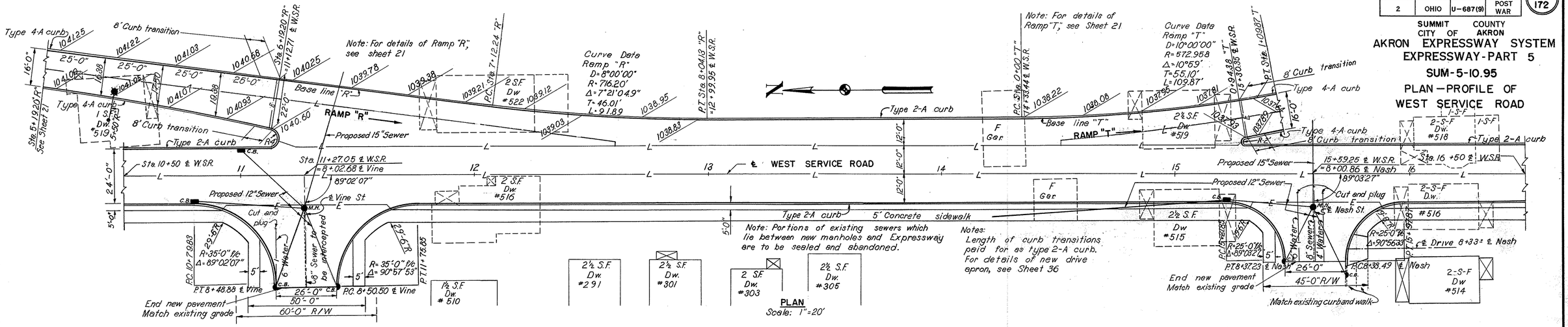
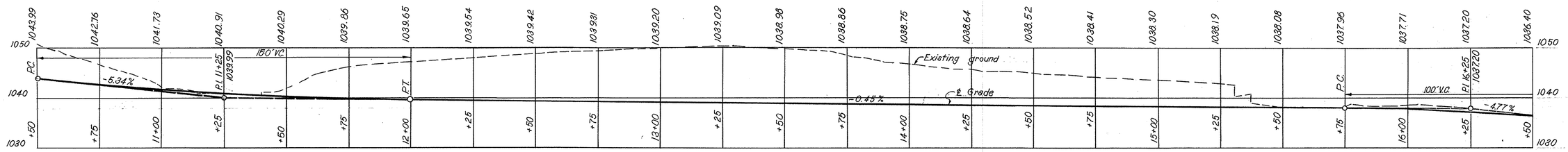
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

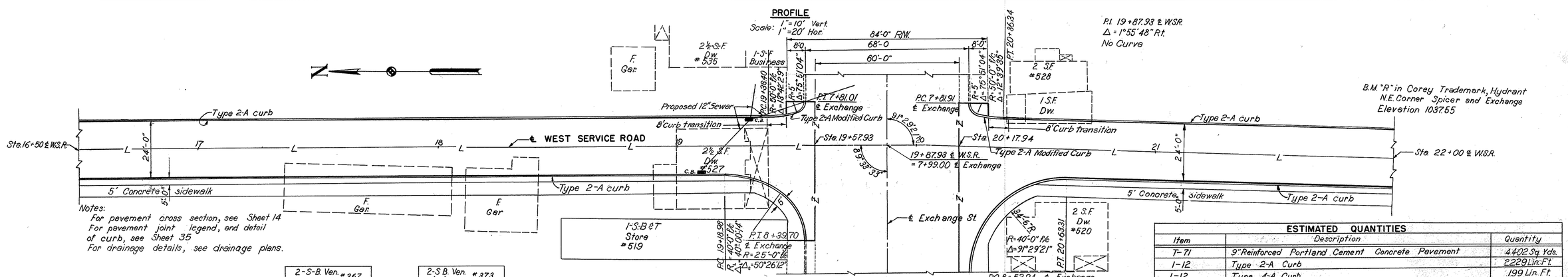
24
172

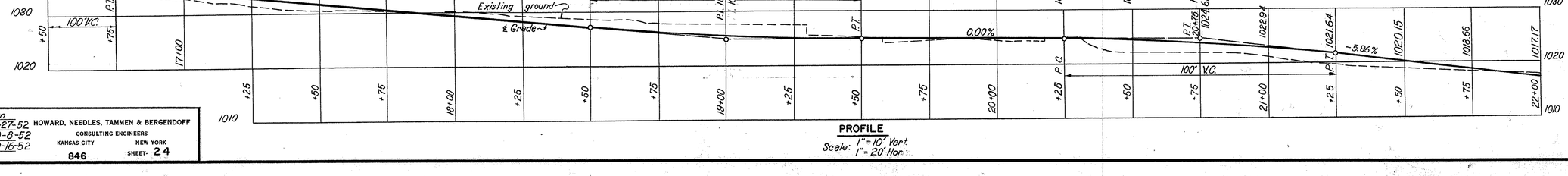
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
PLAN—PROFILE OF WEST SERVICE ROAD









ESTIMATED QUANTITIES

Item	Description	Quantity
T-71	9" Reinforced Portland Cement Concrete Pavement	4402 Sq. Yds.
I-12	Type 2-A Curb	2229 Lin. Ft.
I-12	Type 4-A Curb	199 Lin. Ft.
I-13	4" Portland Cement Concrete Sidewalk	5558 Sq. Ft.
E-8	Removal And Disposal of Existing Pavement (Brick on conc.)	402 Sq. Yds.
E-8	Removal And Disposal of Existing Curb (Sandstone)	278 Lin. Ft.
E-8	Removal And Disposal of Existing Sidewalk (Concrete)	1392 Sq. Ft.
I-12	Type 2-A Modified Curb	38 Lin. Ft.

Note: Estimated quantities shown include ramp approaches.

SCALE As Shown
MADE F.M.S. DATE 6-27-52
TRCD L.L.L. DATE 10-8-52
CKD V.D.G. DATE 10-16-52

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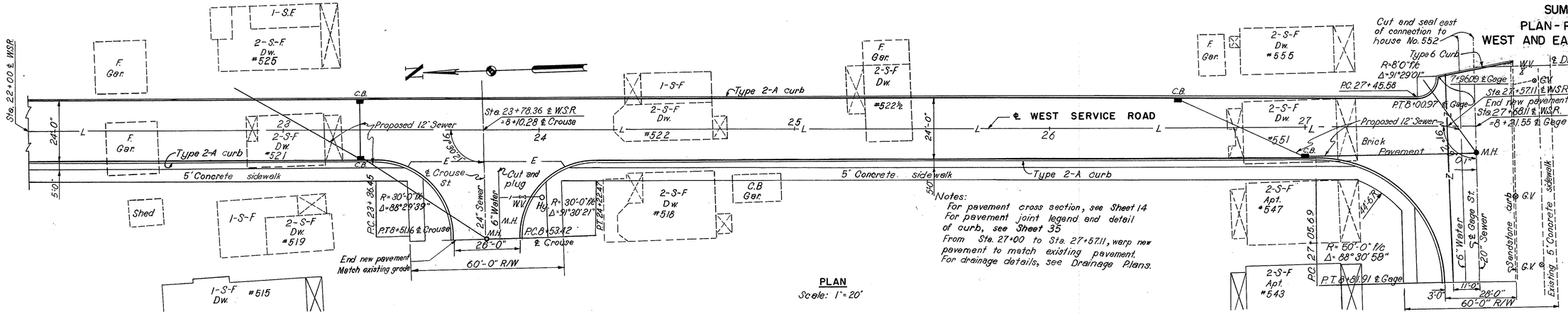
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

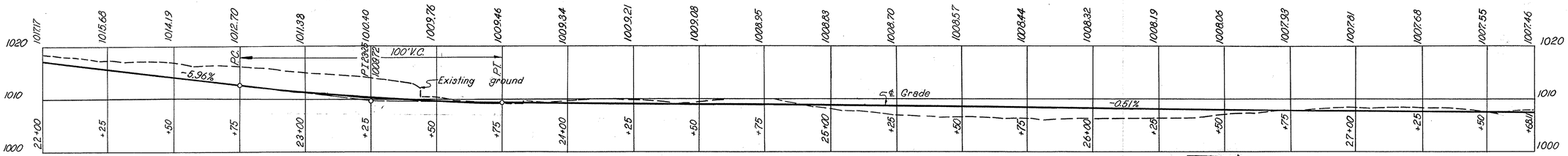
25
172

SUMMIT COUNTY
CITY OF AKRON

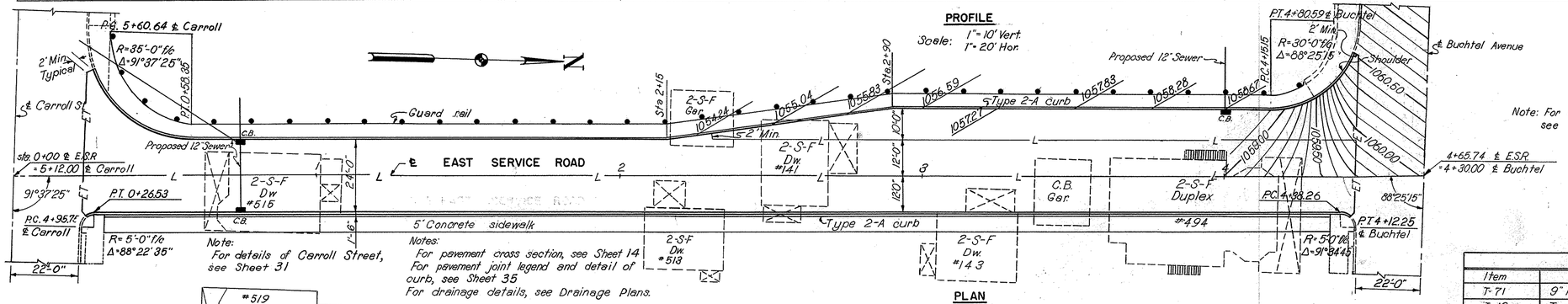
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95
PLAN - PROFILE OF WEST AND EAST SERVICE ROAD



PLAN
Scale: 1"=20'



PROFILE
Scale: 1"=10' Vert.
1"=20' Hor.

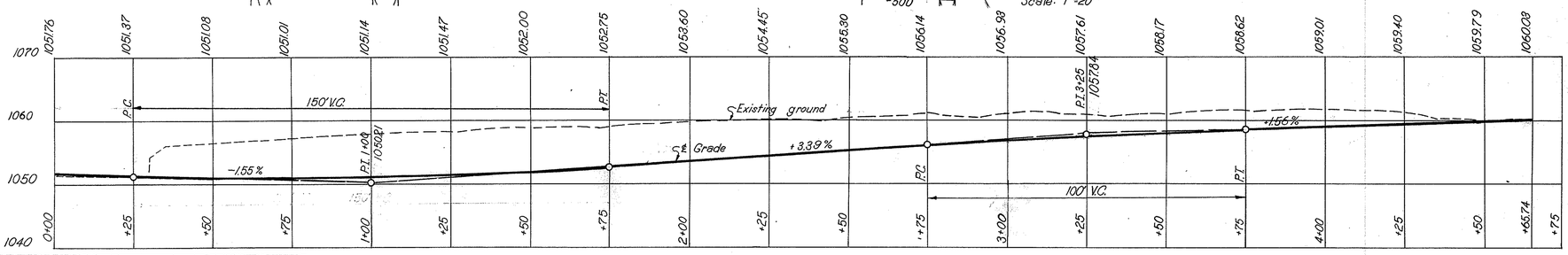


Note: For details of Buchtel Avenue, see Sheet 32

Note: For details of Carroll Street, see Sheet 31

Notes:
For pavement cross section, see Sheet 14
For pavement joint legend and detail of curb, see Sheet 35
For drainage details, see Drainage Plans.

PLAN
Scale: 1"=20'



PROFILE
Scale: 1"=10' Vert
1"=20' Hor.

ESTIMATED QUANTITIES

Item	Description	Quantity
T-71	9" Reinforced Portland Cement Concrete Pavement	3187 Sq. Yds.
T-12	Type 2-A Curb	2006 Lin. Ft.
T-12	Type 6 Curb	30. Lin. Ft.
T-13	4" Portland Cement Concrete Sidewalk	5083. Sq. Ft.
E-8	Removal and Disposal of Ex. Pavement (Asphalt, Brick on Conc.)	196 Sq. Yds.
E-8	Removal and Disposal of Existing Pavement (Brick on Conc.)	60 Sq. Yds.
E-8	Removal and Disposal of Existing Curb (Sandstone)	239 Lin. Ft.
E-8	Removal and Disposal of Existing Sidewalk (Conc.)	1322 Sq. Ft.
T-15	Guard Rail, Steel Beam Type (Deep), As per plan	415 Lin. Ft.

SCALE 1"=20
MADE F.M.S. DATE 9-3-52
TRCD L.L.L. DATE 10-13-52
CKD V.D.C. DATE 10-17-52

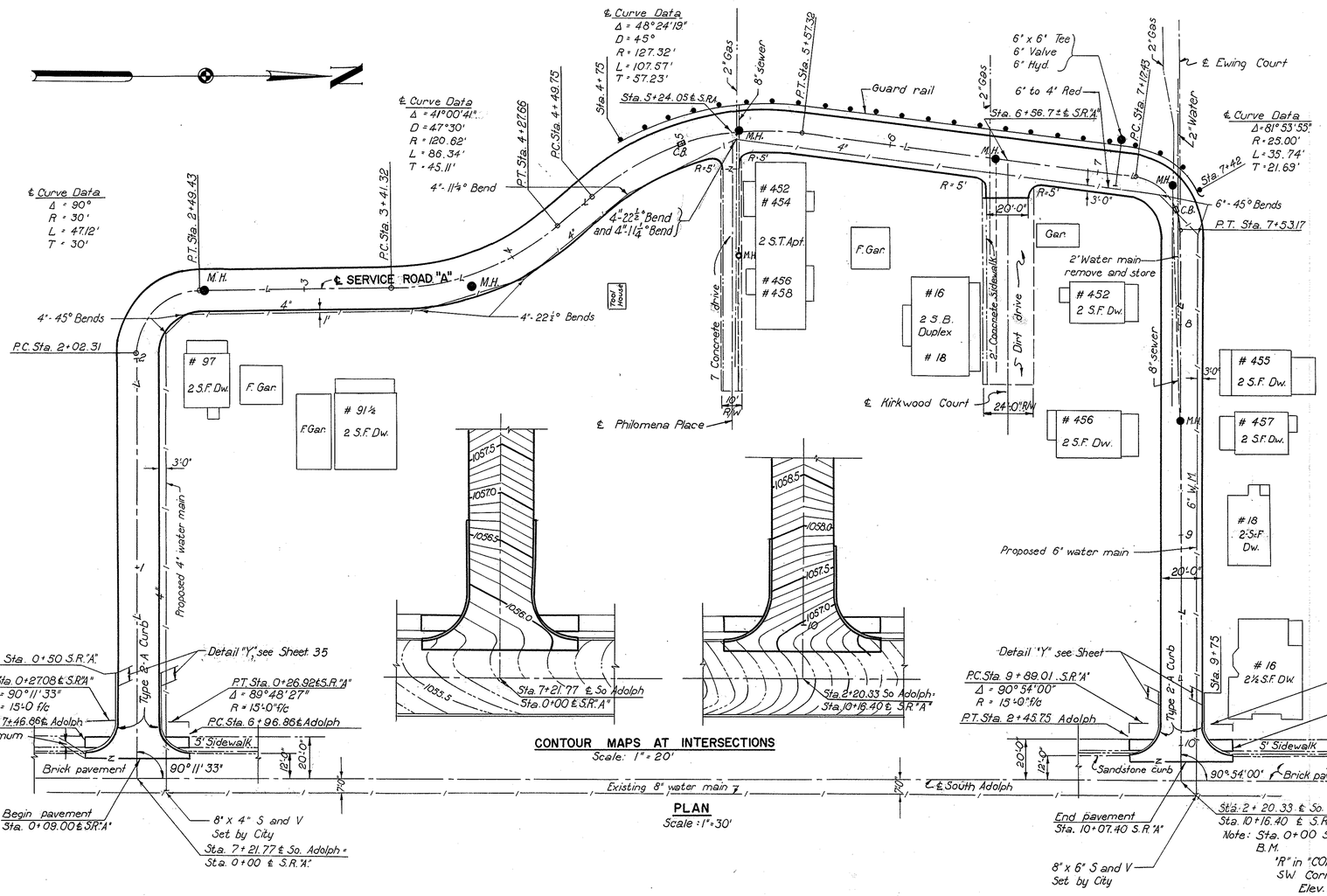
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846
SHEET 25

547

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

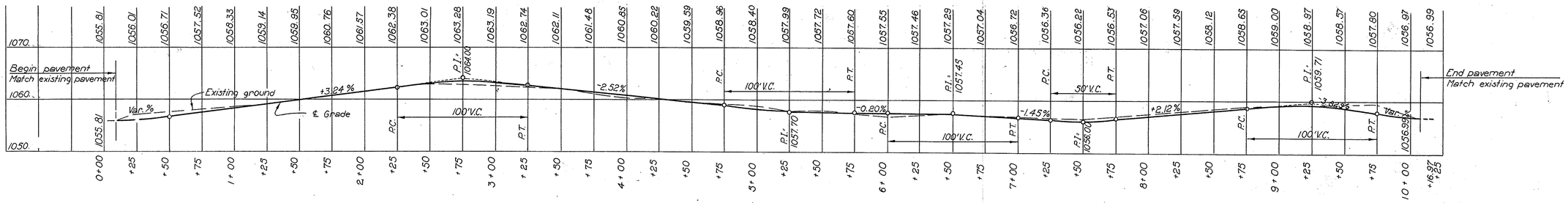
26
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
PLAN-PROFILE OF SERVICE ROAD "A"



CONTOUR MAPS AT INTERSECTIONS
Scale: 1" = 20'

PLAN
Scale: 1" = 30'



PROFILE
Scale: 1" = 40' Hor.
1" = 10' Vert.

ESTIMATED QUANTITIES

Item	Description	Quantity
T-71	9" Reinforced Portland Cement Concrete Pavement	2292 Sq. Yds.
I-12	Type 2-A Curb	168 Lin. Ft.
I-13	4" Portland Cement Concrete Sidewalk	220 Sq. Ft.
E-8	Removal and Disposal of Existing Pavement (Brick)	39 Sq. Yds.
E-8	Removal and Disposal of Existing Curbs (Sandstone)	100 Lin. Ft.
E-8	Removal and Disposal of Existing Sidewalks (Concrete)	566 Sq. Ft.
I-15	Guard Rail, Steel Beam Type (Deep), As Per Plan	288 Lin. Ft.
E-12	2" Pipe Removed and Stored (Water Main)	86 Lin. Ft.
Special	Installing 4" Water Main, As Per Plan	700 Lin. Ft.
Special	Installing 6" Water Main, As Per Plan	315 Lin. Ft.
E-8	Removal and Disposal of Existing Pavement (Concrete)	21 Sq. Yds.

Notes:
For Pavement Cross Sections, see Sheet 14
For longitudinal pavement joints not shown see Typical Sections.
For pavement joint legend, see Sheet 35
For drainage details, see Drainage Plans.
For details of guard rail, see Sheet 35

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SCALE As Shown
MADE W.R.O. DATE 9-15-52
TRCD C.L. DATE 10-9-52
CKD V.D.G. DATE 10-15-52

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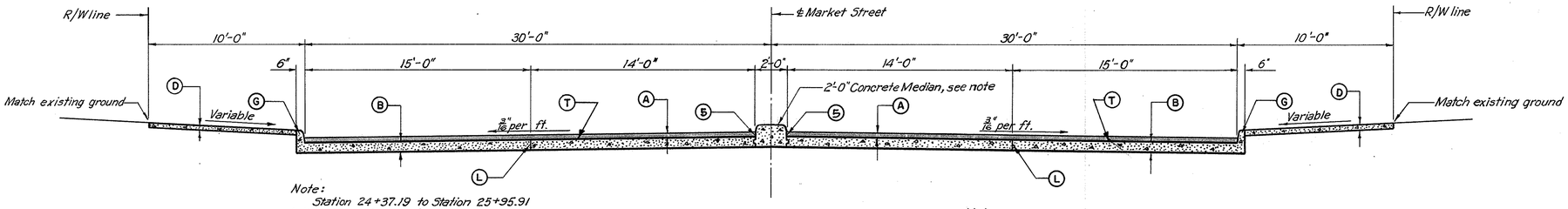
TYPE T-35

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

27
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95
TYPICAL CROSS SECTIONS
REPAVED AND WIDENED STREETS

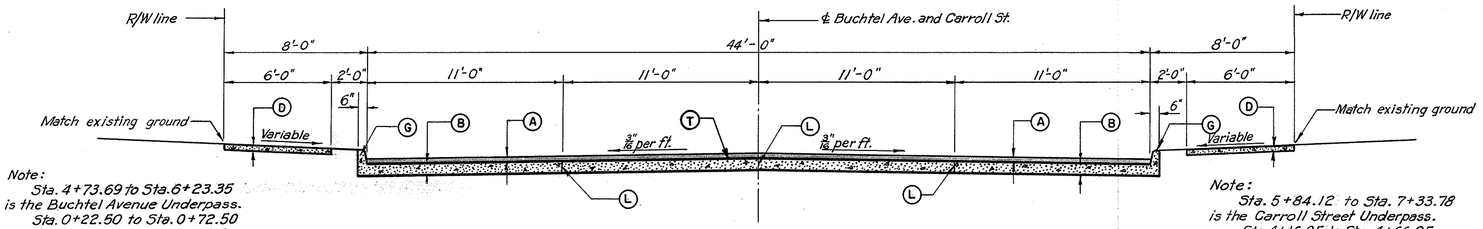


Note:
Station 24+37.19 to Station 25+95.91 is the Market Street Underpass.

Note:
Concrete median used betwen Station 23+50 and Station 24+37.19 and between Station 25+95.91 and Station 26+45.00.

MARKET STREET

STA. 23+06.71 TO STA. 24+37.19 = 130.48 LIN. FT.
STA. 25+95.91 TO STA. 26+89.40 = 93.49 LIN. FT.



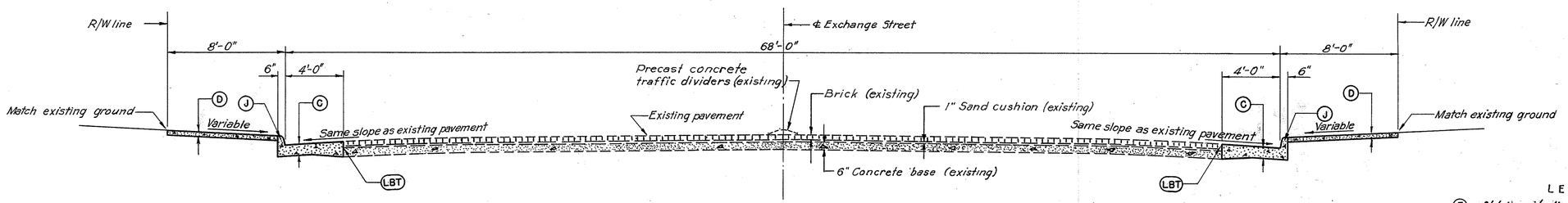
Note:
Sta. 4+73.69 to Sta. 6+23.35 is the Buchtel Avenue Underpass.
Sta. 0+22.50 to Sta. 0+72.50 and Sta. 8+36.32 to Sta. 8+86.32 are the approaches.

Note:
Sta. 5+84.12 to Sta. 7+33.78 is the Carroll Street Underpass.
Sta. 4+16.95 to Sta. 4+66.95 and Sta. 11+40.08 to Sta. 11+63.08 are the approaches.

BUCHTEL AVENUE AND CARROLL STREET

BUCHTEL	CARROLL
STA. 0+72.50 TO STA. 4+73.69 = 401.19 LIN. FT.	STA. 4+66.95 TO STA. 5+84.12 = 117.17 LIN. FT.
STA. 6+23.35 TO STA. 8+36.32 = 212.97 LIN. FT.	STA. 7+33.78 TO STA. 11+40.08 = 406.30 LIN. FT.

Note:
For details of curb, curb and gutter and median see Sheet 35.
For details of approaches see Paving Plans.



EXCHANGE STREET

LEGEND

- (5) Std. Longitudinal Key Joint Without Tie Bars
- (A) 3" Asphaltic Concrete Surface Course
  1½" Asphaltic Concrete Surface Course, Type "C"
  1½" Asphaltic Concrete Leveling Course
- (B) 9" Portland Cement Concrete Base Course
- (C) 9" Reinforced Portland Cement Concrete Pavement
- (D) 4" Portland Cement Concrete Sidewalk
- (J) Type 2-A Modified Curb
- (G) Type 2-B Curb
- (L) Standard Longitudinal Joint
- (LBT) Longitudinal Expansion Bolt Joint - Thickened Edge
- (T) Item T-30 Tack Coat

534

SCALE 1" = 1'-0"
MADE V.D.G. DATE 9-22-52
TRCD W.T.S. DATE 10-14-52
CKD B.T.H.R. DATE 11-21-52

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CONSULTING ENGINEERS
KANSAS CITY NEW YORK
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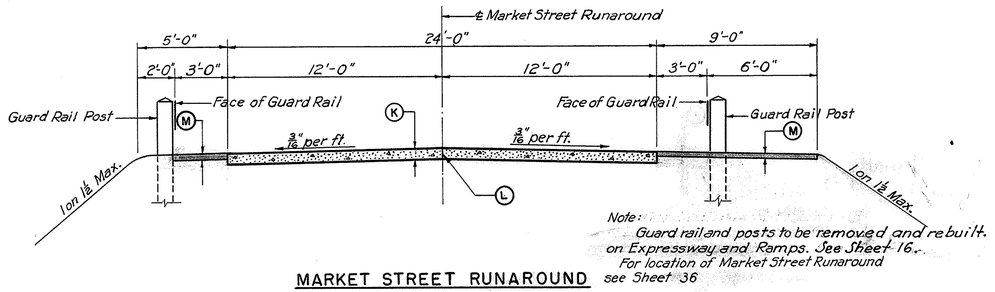
TYPE T-35

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

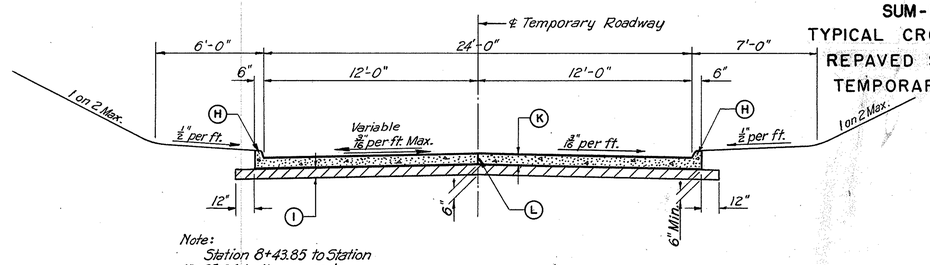
28
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
TYPICAL CROSS SECTIONS
REPAVED STREETS AND
TEMPORARY ROADWAYS



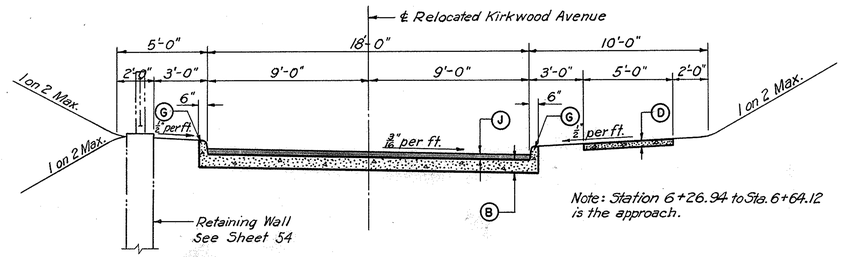
Note:
Guard rail and posts to be removed and rebuilt on Expressway and Ramps. See Sheet 16.
For location of Market Street Runaround see Sheet 36

MARKET STREET RUNAROUND



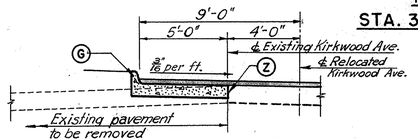
Note:
Station 8+43.85 to Station 10+25.04 is the approach.

TEMPORARY ROADWAY
EXPRESSWAY TO JOHNSTON STREET
STA. 0+00 TO STA. 8+43.85 = 843.85 LIN. FT.

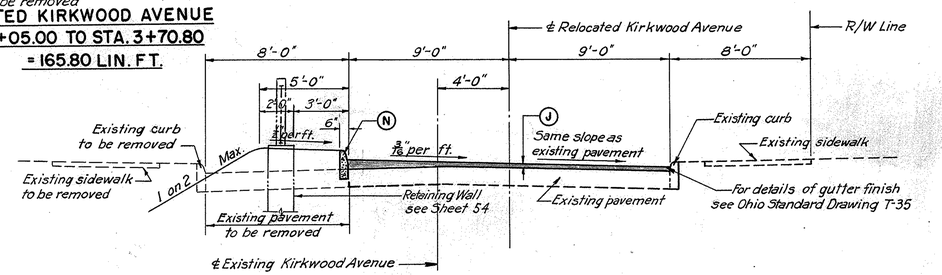


Note: Station 6+26.94 to Sta. 6+64.12 is the approach.

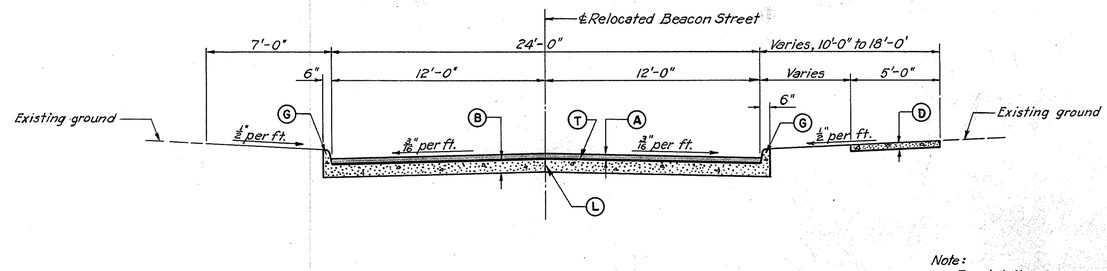
RELOCATED KIRKWOOD AVENUE
STA. 3+70.80 TO STA. 6+26.94 = 256.14 LIN. FT.



RELOCATED KIRKWOOD AVENUE
STA. 2+05.00 TO STA. 3+70.80
= 165.80 LIN. FT.

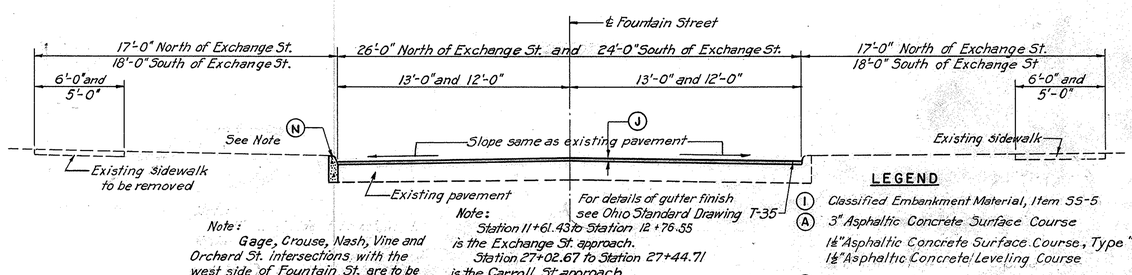


RELOCATED KIRKWOOD AVENUE.
STA. 0+53.65 TO STA. 2+05.00 = 151.35 LIN. FT.



Note:
For details of curbs see Sheet 35.
For details of approaches and locations of guard rails see Paving Plans

RELOCATED BEACON STREET
STA. 0+00 TO STA. 3+25.22 = 325.22 LIN. FT.



Note:
Gage, Crouse, Nash, Vine and Orchard St. intersections with the west side of Fountain St. are to be blocked with new Type 6 curb. Transition new curb as required to match existing curb.

Note:
Station 11+61.43 to Station 12+76.55 is the Exchange St. approach.
Station 27+02.67 to Station 27+44.71 is the Carroll St. approach.

FOUNTAIN STREET
STA. 2+56.76 TO STA. 11+61.43 = 904.67 LIN. FT.
STA. 12+76.55 TO STA. 27+02.67 = 1426.12 LIN. FT.

LEGEND

- (I) Classified Embankment Material, Item 55-5
- (A) 3" Asphaltic Concrete Surface Course
  1½" Asphaltic Concrete Surface Course, Type "C"
  1½" Asphaltic Concrete Leveling Course
- (B) 9" Portland Cement Concrete Base Course
- (D) 4" Portland Cement Concrete Sidewalk
- (G) Type 2-B Curb
- (H) Type 4-A Curb
- (K) 8" Portland Cement Concrete Pavement
- (M) Asphaltic Concrete: 1½" Surface T-35; 1½" Leveling B-35
- (L) Standard Longitudinal Joint
- (N) Type 6 Curb
- (J) 2½" Asphaltic Concrete Surface Course, 1¼" Asphaltic Concrete Leveling Course and 1¼" Asphaltic Concrete Surface Course, Type "C"
- (T) Item T-30 Tack Coat
- (Z) Expansion Joint without Tie Bars

535

SCALE 1" = 1'-0"
MADE V.D.G. DATE 9-23-52
TRCD H.T.S. DATE 10-13-52
CKD B.H.R. DATE 10-24-52

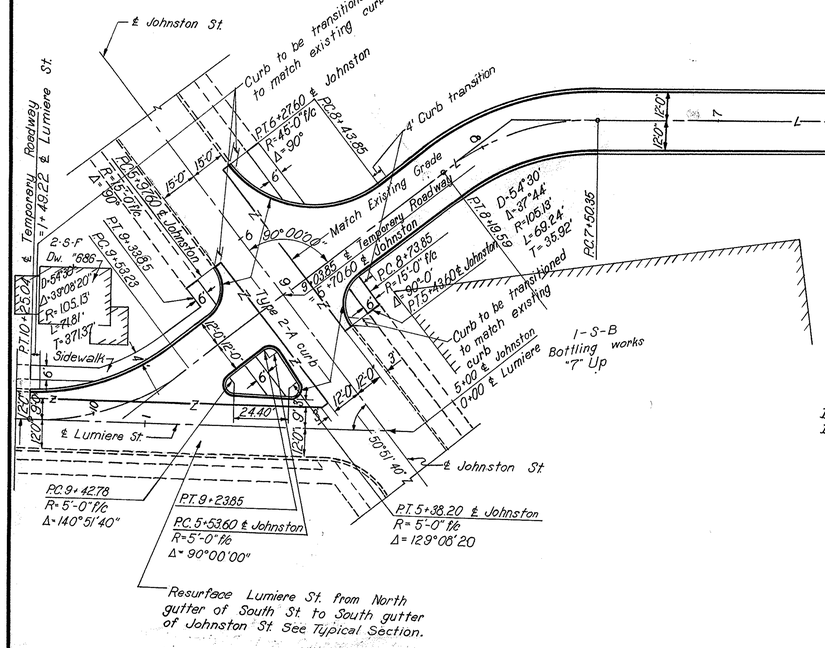
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 28

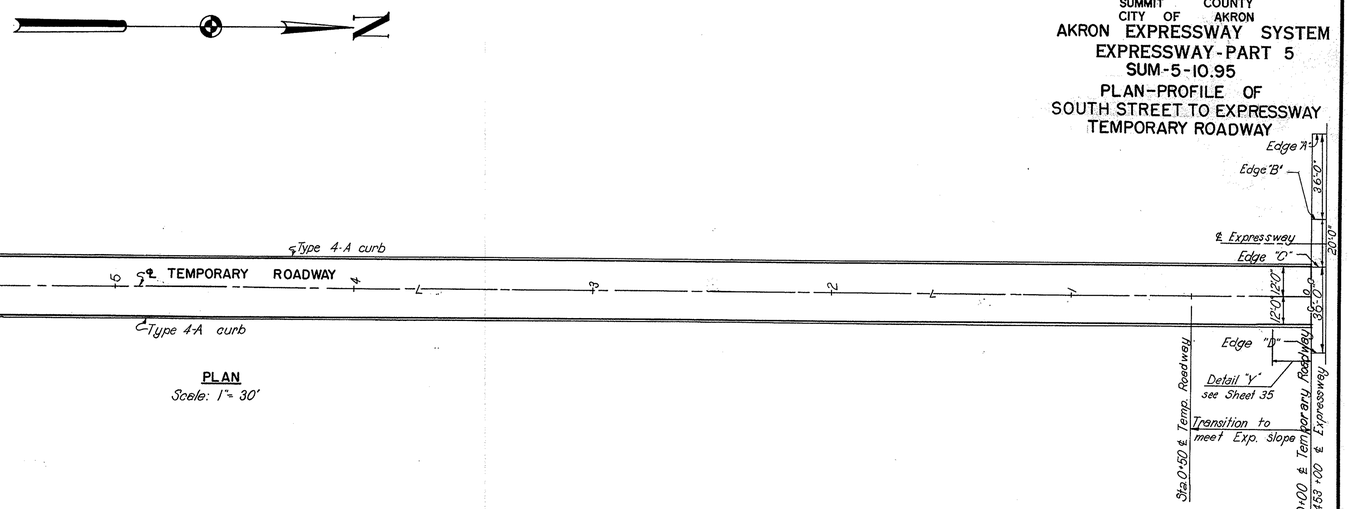
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

29 / 172

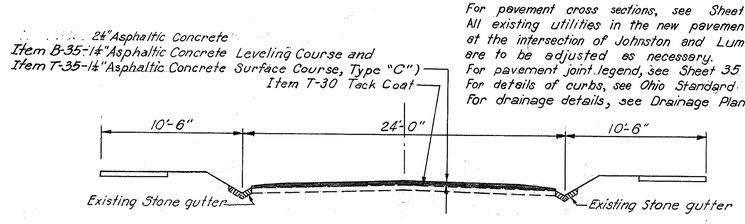
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
PLAN-PROFILE OF SOUTH STREET TO EXPRESSWAY TEMPORARY ROADWAY





PLAN
Scale: 1"= 30'

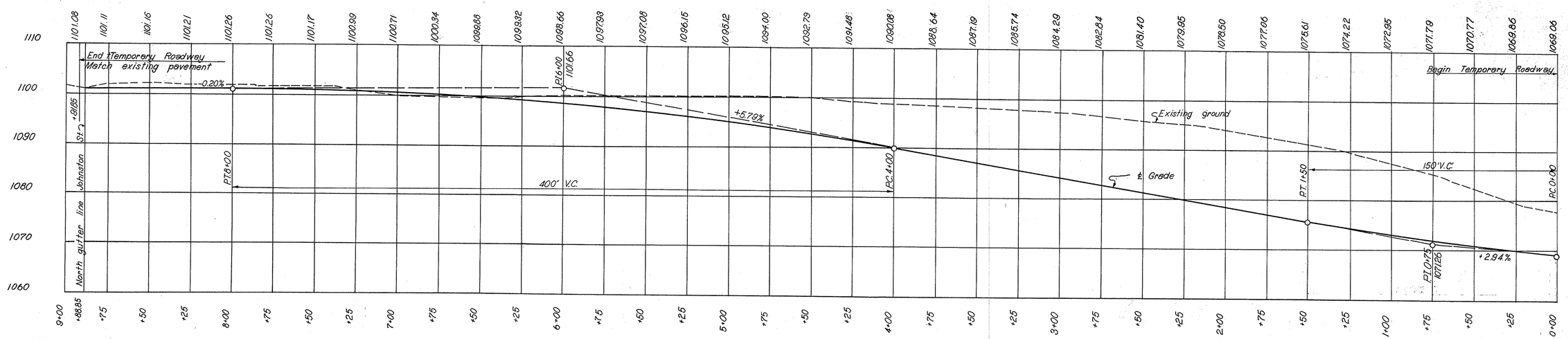


TYPICAL SECTION
RESURFACED LUMIERE STREET
Scale: ⅛"= 1'-0"

Notes:
For pavement cross sections, see Sheet 28
All existing utilities in the new pavement area at the intersection of Johnston and Lumiere Streets are to be adjusted as necessary.
For pavement joint legend, see Sheet 35
For details of curbs, see Ohio Standard Drawings.
For drainage details, see Drainage Plans.

ESTIMATED QUANTITIES

Item	Description	Quantity
I-12	Type 2-A Curb	296 Lin. Ft.
I-12	Type 4-A Curb	1,710 Lin. Ft.
T-70	8" Portland Cement Concrete Pavement	2,797 Sq. Yds.
B&T-35	2½" Asphaltic Concrete	189 Cu. Yds.
I-13	4" Portland Cement Concrete Sidewalk	826 Sq. Ft.
E-8	Removal and Disposal of Existing Curb (Sandstone)	244 Lin. Ft.
E-8	Removal and Disposal of Existing Sidewalk (Concrete)	1,410 Sq. Ft.
E-8	Removal and Disposal of Existing Pavement (Asphalt, Brick on Conc)	87 Sq. Yds.
E-8	Removal and Disposal of Existing Pavement (Bitum. Seal on Slab Base)	47 Sq. Yds.
T-30	Bituminous Tack Coat Sec. M-55, MS-2 or S S-1	272 Gals.



PROFILE
Scale: 1"=30' Hor.
1"=10' Vert

SCALE As Shown
MADE AFS DATE 10-10-52
TRCD LLL DATE 10-17-52
CKD VDG DATE 10-22-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY 846 NEW YORK
SHEET- 29

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

30
172

SUMMIT COUNTY
CITY OF AKRON

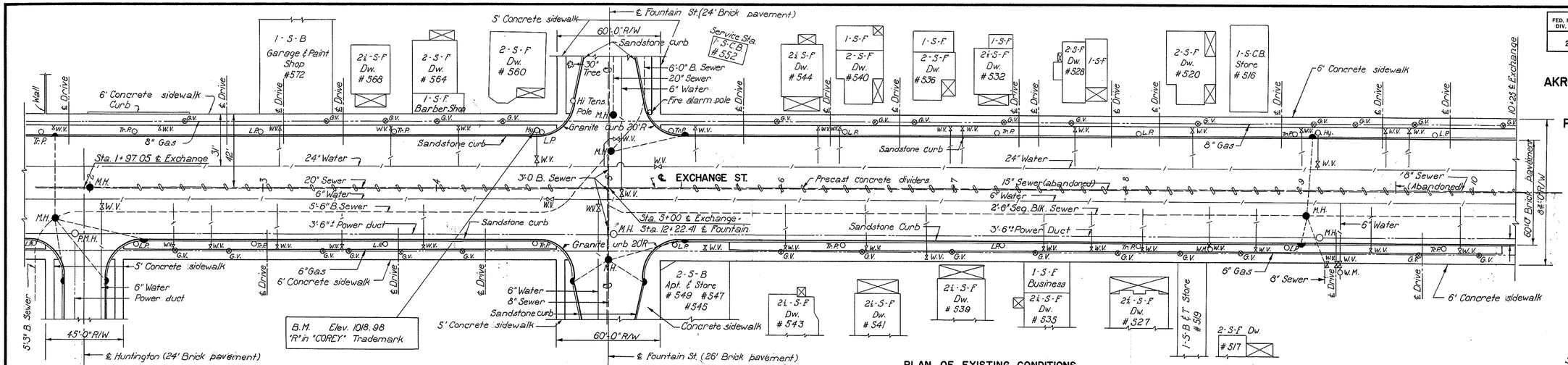
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95
PLAN - EXCHANGE STREET

LEGEND

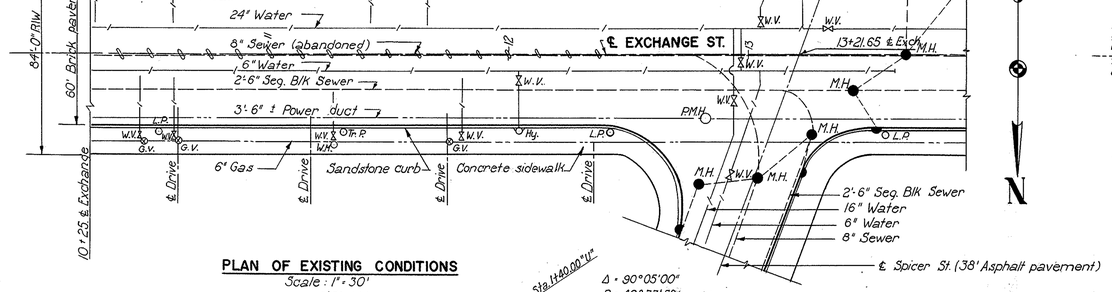
- G.V. = Gas valve
- W.V. = Water valve
- W.M. = Water meter
- P.M.H. = Power manhole
- M.H. = Sewer manhole
- = Sewer inlet
- H.Y. = Water hydrant
- L.P. = Light pole
- Tr.P. = Trolley pole
- ——— = Sewer line
- ——— = Water line
- ——— = Gas line
- ——— = Power duct

Notes:
For pavement joint legend, see Sheet 35
For pavement cross sections, see Sheet 27
All existing valve boxes, meter boxes, etc. on present water and gas lines in new pavement areas and shown on Final Plan to be made flush with new pavement, walk or curb.
All existing sewer manholes in new pavement area to be made flush with new pavement.
Hydrants, light poles and trolley poles to be relocated as shown on Final Plan.
Stations shown for ℄ Drives are approximate and the actual ℄ Drives are to be located in the field.
For details of drive aprons see Sheet 36
Remove and dispose of existing pre-cast concrete Traffic Dividers on Exchange from Sta. 7+63± to 8+25±. Payment to be included in price bid for Pavement Removal. Fill resulting holes with Class "C" concrete. Payment for concrete to be included in price bid for Item T-71, 9" concrete pavement.

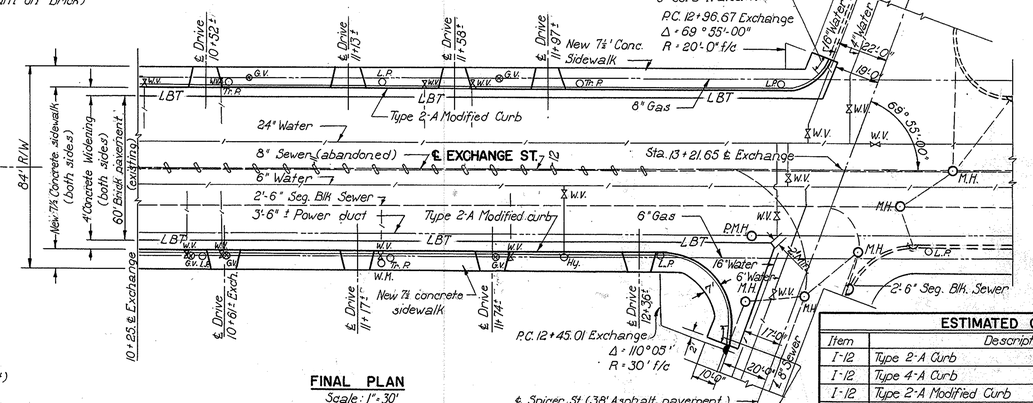
PLAN OF EXISTING CONDITIONS
Scale: 1" = 30'



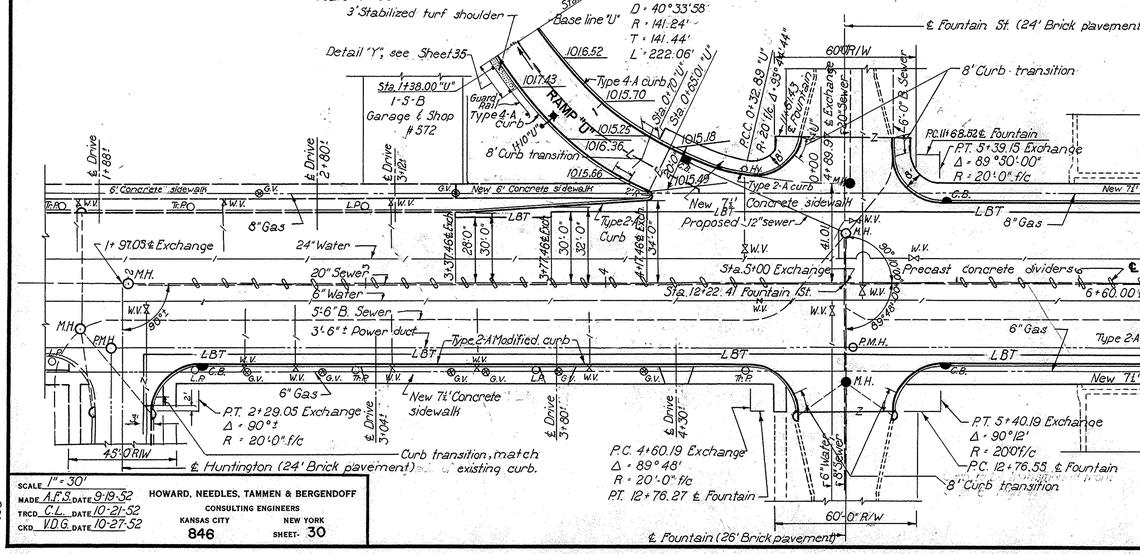
PLAN OF EXISTING CONDITIONS
Scale: 1" = 30'



FINAL PLAN
Scale: 1" = 30'



PLAN OF EXISTING CONDITIONS
Scale: 1" = 30'



FINAL PLAN
Scale: 1" = 30'

ESTIMATED QUANTITIES

Item	Description	Quantity
I-12	Type 2-A Curb	182 Lin.Ft.
I-12	Type 4-A Curb	130 Lin.Ft.
I-12	Type 2-A Modified Curb	1770 Lin.Ft.
T-71	9" Reinforced Portland Cement Concrete Pavement	1530 Sq.Yds.
I-13	4" Concrete Walk	12203 Sq.Ft.
E-8	Removal and Disposal of Existing Sidewalk (Concrete)	14326 Sq.Ft.
E-8	Removal and Disposal of Existing Curb (Granite)	225 Lin.Ft.
E-8	Removal and Disposal of Existing Pavement (Brick on Conc.)	390 Sq.Yds.
T-71	7" Reinforced Portland Cement Concrete Pavement (Drives)	160 Sq.Yds.
Special	9" Stabilized Turf Shoulder	5 Sq.Yds.
I-2	3½" Std. weight welded W.I. pipe: Sec. M-6.10 for storm sewers.	136 Lin.Ft.
E-8	Removal and Disposal of Existing Curb (Sandstone)	1855 Lin.Ft.
I-15	Guard Rail, Steel Beam Type (Deep) As Per Plan	25 Lin.Ft.

SCALE 1" = 30'
MADE A.F.S. DATE 9-19-52
TRCD C.L. DATE 10-21-52
CKD V.D.G. DATE 10-27-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 30

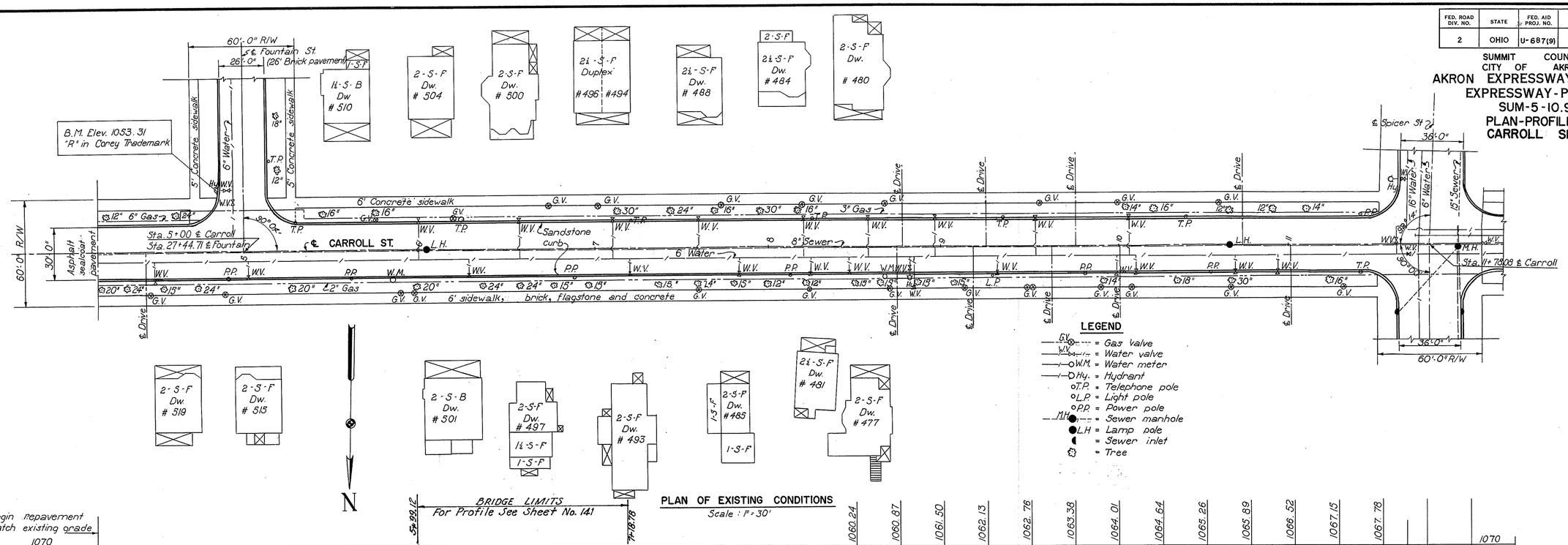
536

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

31
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
PLAN-PROFILE OF CARROLL SREET

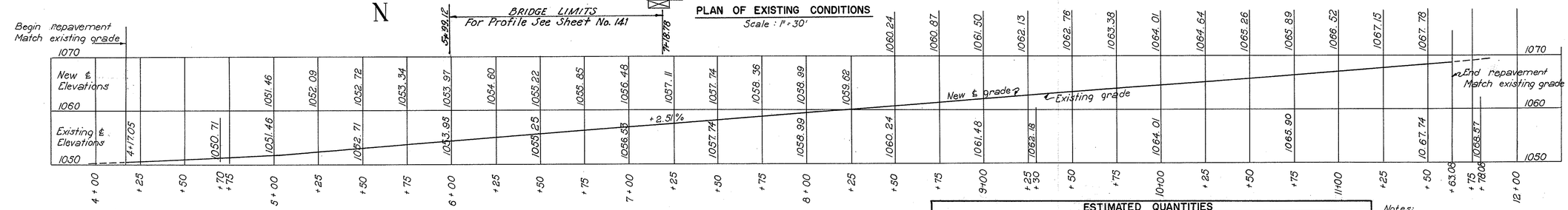


LEGEND

- G.V. = Gas Valve
- W.V. = Water valve
- W.M. = Water meter
- Hy. = Hydrant
- T.P. = Telephone pole
- L.P. = Light pole
- P.P. = Power pole
- M.H. = Sewer manhole
- L.H. = Lamp pole
- = Sewer inlet
- = Tree

PLAN OF EXISTING CONDITIONS

Scale: 1" = 30'



℄ PROFILE

Scale: 1" = 30' Hor.
1" = 10' Vert.

ESTIMATED QUANTITIES

Item	Description	Quantity
I-2	3½" Std. weight welded W.I. pipe Sec. M-6.10 for storm sewers	124 Lin. Ft.
T-30	Bituminous Tack Coat Sec. M-5.5, M3-2 or SS-1	306 Gals.
T-71	7" Reinforced Portland Cement Concrete Pavement (Drives)	102 Sq. Yds.
B-70	9" Portland Cement Concrete Base Course	3059 Sq. Yds.
B & T-35	3" Asphaltic Concrete	255 C.Y. Yds.
I-12	Type 2-B Curb	980 Lin. Ft.
E-6	Removal and Disposal of Existing Sidewalk (Concrete)	9142 Sq. Ft.
E-6	Removal and Disposal of Existing Pavement (Asphalt, Brick on Conc.)	2620 Sq. Yds.
I-13	4" Portland Cement Concrete Sidewalk	5100 Sq. Ft.
E-8	Removal and Disposal of Existing Sandstone Curb	1532 Lin. Ft.
E-12	6" Pipe Removed and Stored (Water Main)	144 Lin. Ft.

Notes:

For pavement cross sections, see Sheet 27.

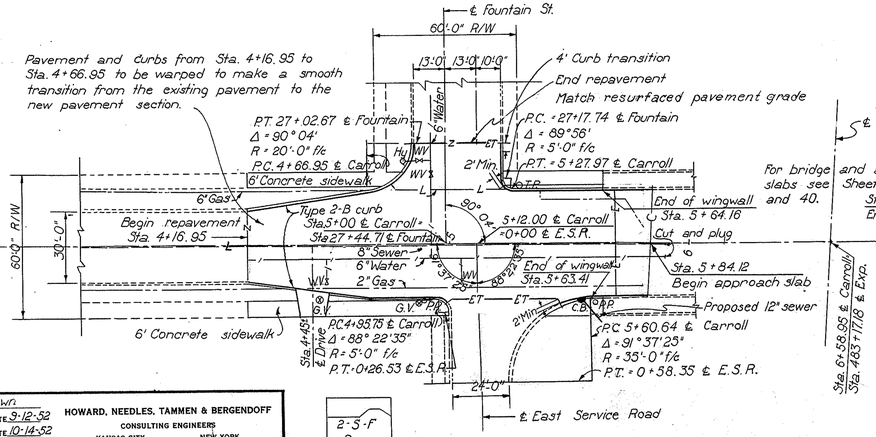
All existing valve boxes, meter boxes, etc. on present water and gas lines shown on Final Plan to be made flush with pavement.

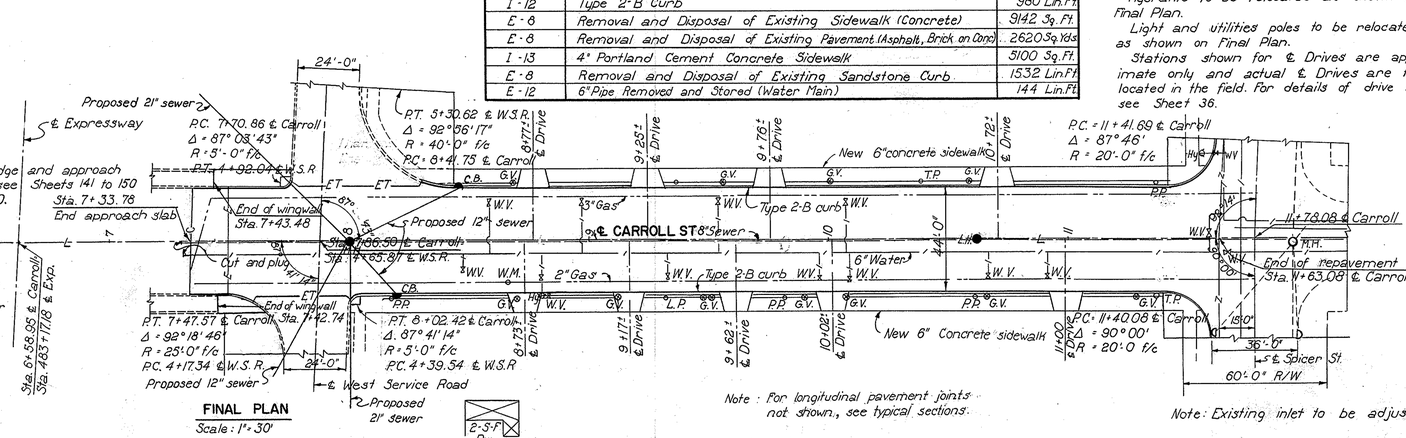
All existing sewer manholes and lamp holes to be made flush with new pavement.

Hydrants to be relocated as shown on Final Plan.

Light and utilities poles to be relocated as shown on Final Plan.

Stations shown for ℄ Drives are approximate only and actual ℄ Drives are to be located in the field. For details of drive aprons see Sheet 36.





FINAL PLAN

Scale: 1" = 30'

Note: For longitudinal pavement joints not shown, see typical sections.

Note: Existing inlet to be adjusted.

SCALE As shown
MADE F.M.S. DATE 3-12-52
TRCD C.L. DATE 10-14-52
CKD V.D.G. DATE 10-24-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846 SHEET: 31

539

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

32
172

SUMMIT COUNTY
CITY OF AKRON

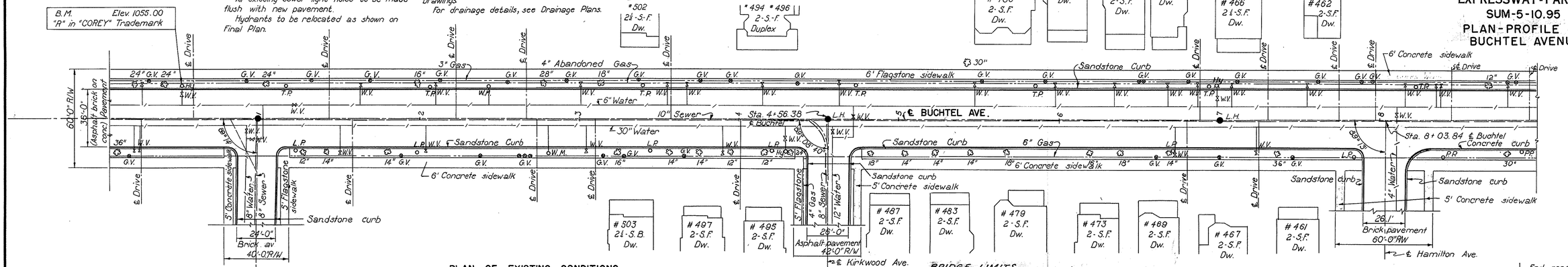
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95
PLAN - PROFILE OF BUCHTEL AVENUE

Notes:
For pavement cross sections, see Sheet 12.
All existing valve boxes, meter boxes, etc. on present water and gas lines shown on Final Plan to be made flush with new pavement.
All existing sewer light holes to be made flush with new pavement.
Hydrants to be relocated as shown on Final Plan.

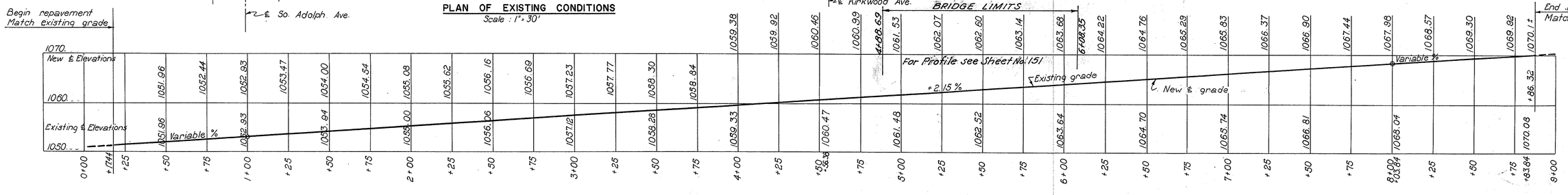
For pavement joint legend, see Sheet 35.
Light, Power, and Telephone Poles to be re-located as shown on Final Plan.
Inlets to be Akron Standard No. 3 located as shown on Final Plan. For details see Standard Drawings.
For drainage details, see Drainage Plans.

Stations shown for ℄ Drives are approximate only and actual ℄ Drives are to be located in the field. For details of drive apron, see Sheet 36.
For longitudinal pavement joints not shown, see typical sections.

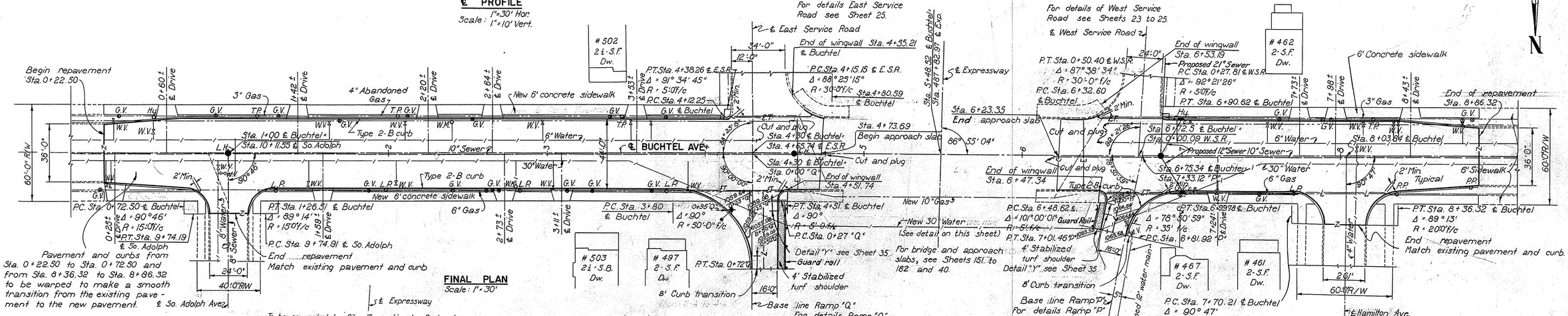
B.M. Elev. 1055.00
"R" in "COREY" Trademark



PLAN OF EXISTING CONDITIONS
Scale : 1" = 30'

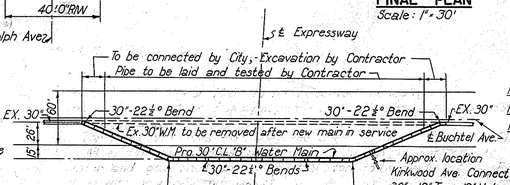


℄ PROFILE
Scale : 1" = 30' Hor.
1" = 10' Vert.



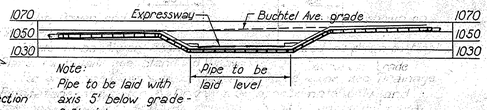
FINAL PLAN
Scale : 1" = 30'

PLAN



PROPOSED RELOCATION OF 30" BUCHTEL AVENUE WATER MAIN
Scale : 1" = 60'

PROFILE



Note: Pipe to be laid with axis 5' below grade - 3.5' minimum cover.

Note: All Bends to be anchored in Class "C" concrete. Approximate quantity = 12 Cu. Yds. Details of anchors to be furnished by City of Akron.

LEGEND

G.V. = Gas valve
W.V. = Water valve
W.M. = Water meter
Hy. = Hydrant
L.H. = Light hole
L.P. = Light pole
P.P. = Power pole
T.P. = Telephone pole
= Sewer inlets

ESTIMATED QUANTITIES

Item	Description	Quantity		Item	Description	Quantity	
I-12	Type 2-B Curb	1,186 Lin.Ft.		T-30	Bituminous Tack Coat Sec. M-55, M.5-2 or SS-1	365 Gals.	
B&T-35	3" Asphaltic Concrete	304 Cu.Yds.		E-8	Removal and Disposal of Existing Sidewalks (Concrete)	10,718 Sq.Ft.	
B-70	9" Portland Cement Concrete Base Course	3,653 Sq.Yds.		E-8	Removal and Disposal of Existing Curb (Sandstone)	1650 Lin.Ft.	
T-71	8" Reinforced Portland Cement Concrete Pavement	216 Sq.Yds.		E-8	Removal and Disposal of Existing Pavement (Asphalt, Brick on Concrete)	3772 Sq.Yds.	
I-13	4" Portland Cement Concrete Sidewalk	6010 Sq.Ft.		E-12	6" Pipe Removed and Stored (Water Main)	216 Lin.Ft.	
T-71	7" Reinforced Portland Cement Concrete Pavement (Drives)	135 Sq.Yds.		E-12	30" Pipe Removed and Stored (Water Main)	395 Lin.Ft.	
I-12	Type 2-B Curb	121 Lin.Ft.	Special		Installing 30" Water Main As Per Plan	412 Lin.Ft.	
I-15	Guard Rail Steel Beam Type (Deep) As Per Plan	50 Lin.Ft.	I-2		34" Std. weight welded W.I. pipe, Sec. M-5.10 for storm sewers	197 Lin.Ft.	

SCALE As shown
MADE W.P.O. DATE 9-9-52
TRCD C.L. DATE 10-17-52
CKD VDG DATE 10-23-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
SHEET- 32
846

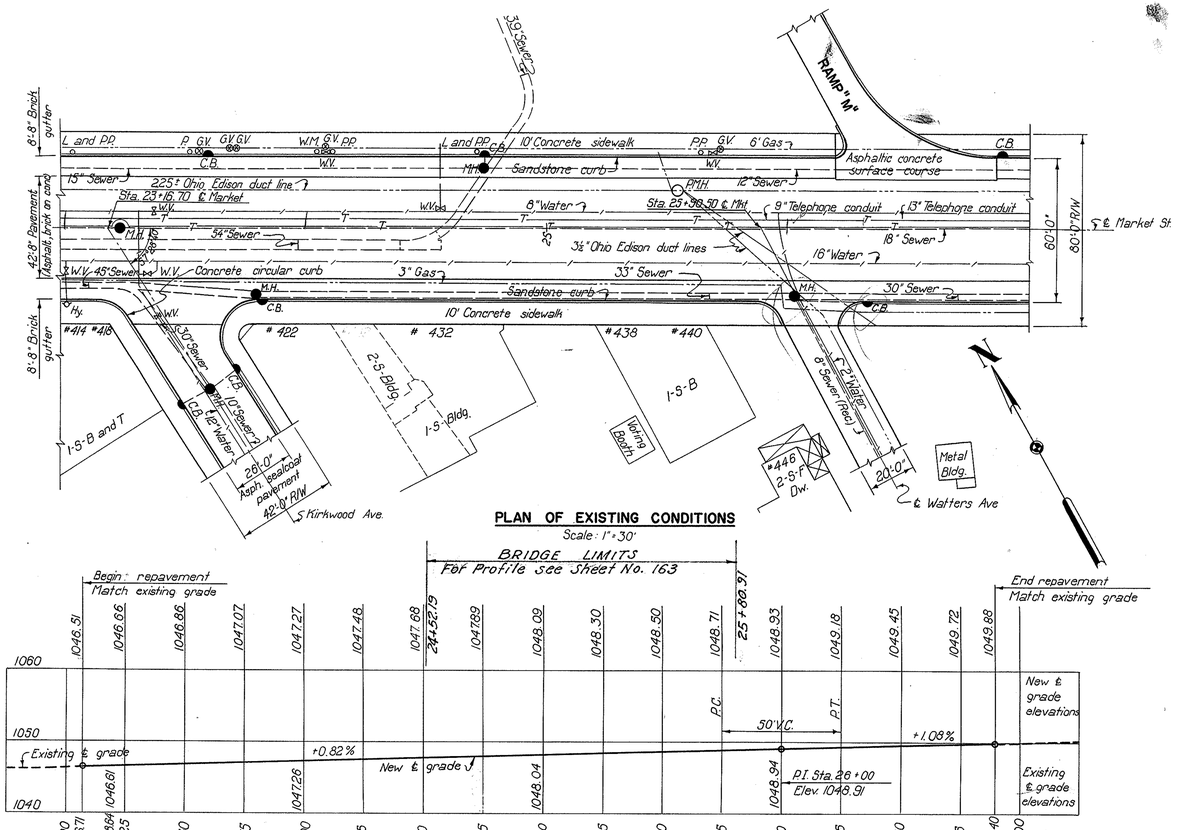
540

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

33
172

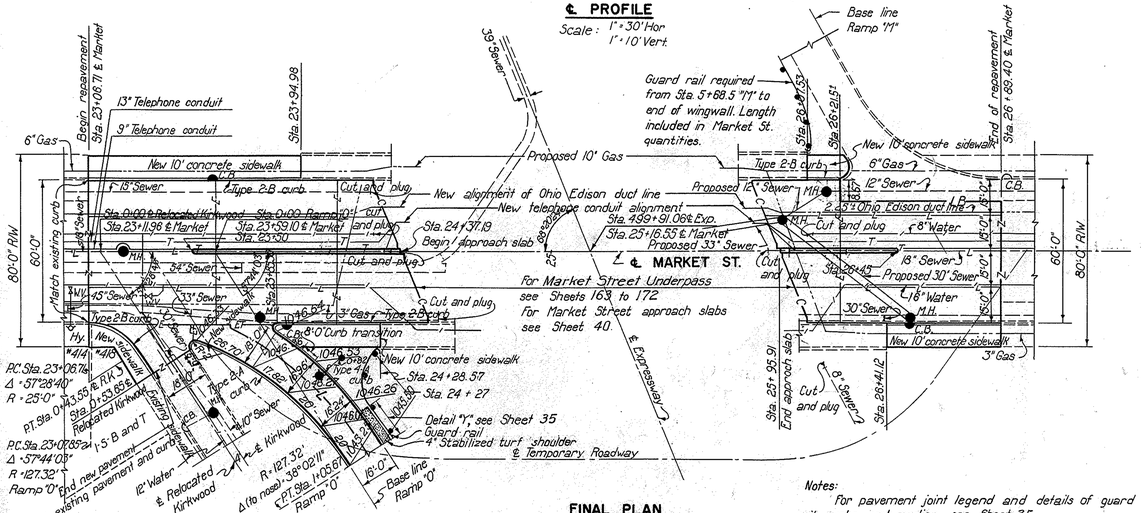
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
PLAN-PROFILE OF MARKET ST. AND BEACON ST.



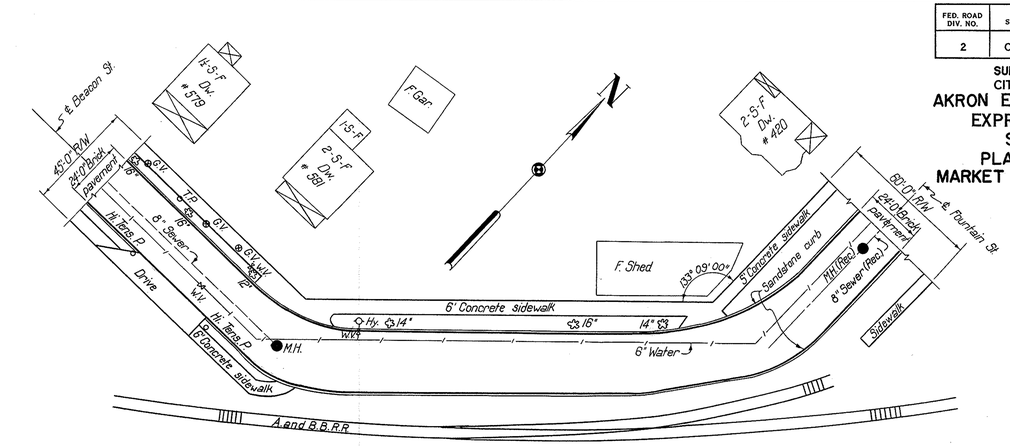
PLAN OF EXISTING CONDITIONS
Scale: 1"=30'

℄ PROFILE
Scale: 1"=30' Hor.
1"=10' Vert.

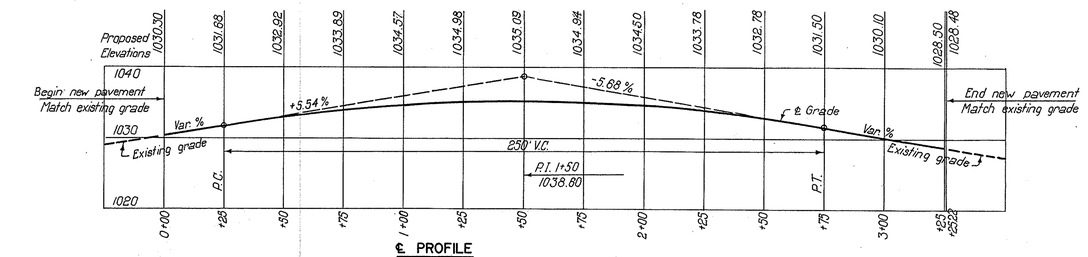


FINAL PLAN
Scale: 1"=30'

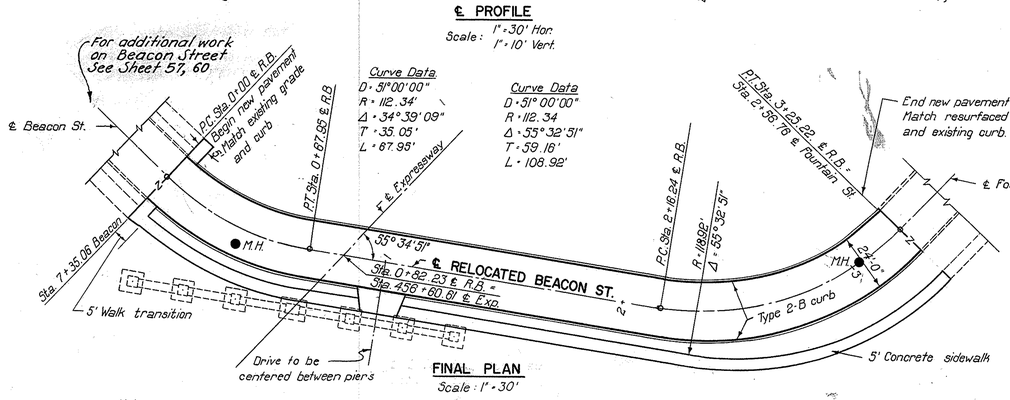
Notes:
For pavement joint legend and details of guard rail, curbs, and median, see Sheet 35
For drainage details, see drainage plans.
For typical section, see Sheet 27



PLAN OF EXISTING CONDITIONS
Scale: 1"=30'



℄ PROFILE
Scale: 1"=30' Hor.
1"=10' Vert.



FINAL PLAN
Scale: 1"=30'

Notes:
For typical section, see Sheet 28
For pavement joint legend, see Sheet 35
For detail of drive apron, see Sheet 36

ESTIMATED QUANTITIES

Item	Description	Quantity Beacon	Quantity Market	Quantity Runaround	Units
T-30	Bituminous Tack Coat, Sec. M-5.5 MS-2 or SS-1	105	147		Gals.
B-70	9" Portland Cement Concrete Base Course	1083	1482		Sq. Yds.
B & T-35	3" Asphaltic Concrete	88	123	11	Cu. Yds.
T-71	9" Reinforced Portland Cement Concrete Pavement		170		Sq. Yds.
T-70	8" Portland Cement Concrete Pavement			994	Sq. Yds.
T-71	7" Reinforced Portland Cement Concrete Pavement (Drives)	20			Sq. Yds.
B-8	Removal and disposal of 8" T-70 Pavement on Temporary Runaround			994	Sq. Yds.
I-21	2' Portland Cement Concrete Median, as per plan		30		Sq. Yds.
I-13	4" Portland Cement Concrete Sidewalk	1801	2114		Sq. Ft.
I-12	Type 2-B Curb	650	237		Lin. Ft.
I-12	Type 4-A Curb		143		Lin. Ft.
Special	9" Stabilized Turf Shoulder		7		Sq. Yds.
I-15	Guard Rail, Steel Beam Type 1 (Deep) As Per Plan		165	600	Lin. Ft.
E-8	Removal and Disposal of Existing Sidewalk (Concrete)	2454	5850		Sq. Ft.
E-8	Removal and Disposal of Existing Pavement (Brick)	947	745		Sq. Yds.
E-8	Removal and Disposal of Existing Pavement (Asphalt, brick on concrete)		1814		Sq. Yds.
E-8	Removal and Disposal of Existing Curb (Sandstone)	710	606		Lin. Ft.
E-8	Removal and Disposal of Existing Curb (Concrete)		39		Lin. Ft.
E-12	8" Pipe Removed and Stored (Water Main)		198		Lin. Ft.
E-12	16" Pipe Removed and Stored (Water Main)		198		Lin. Ft.

* Guard rail reused on expressway

SCALE As shown
MADE J.S.M. DATE 10-15-52
TRCD C.A.L. DATE 11-3-52
CKD B.H.R. DATE 11-7-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 33

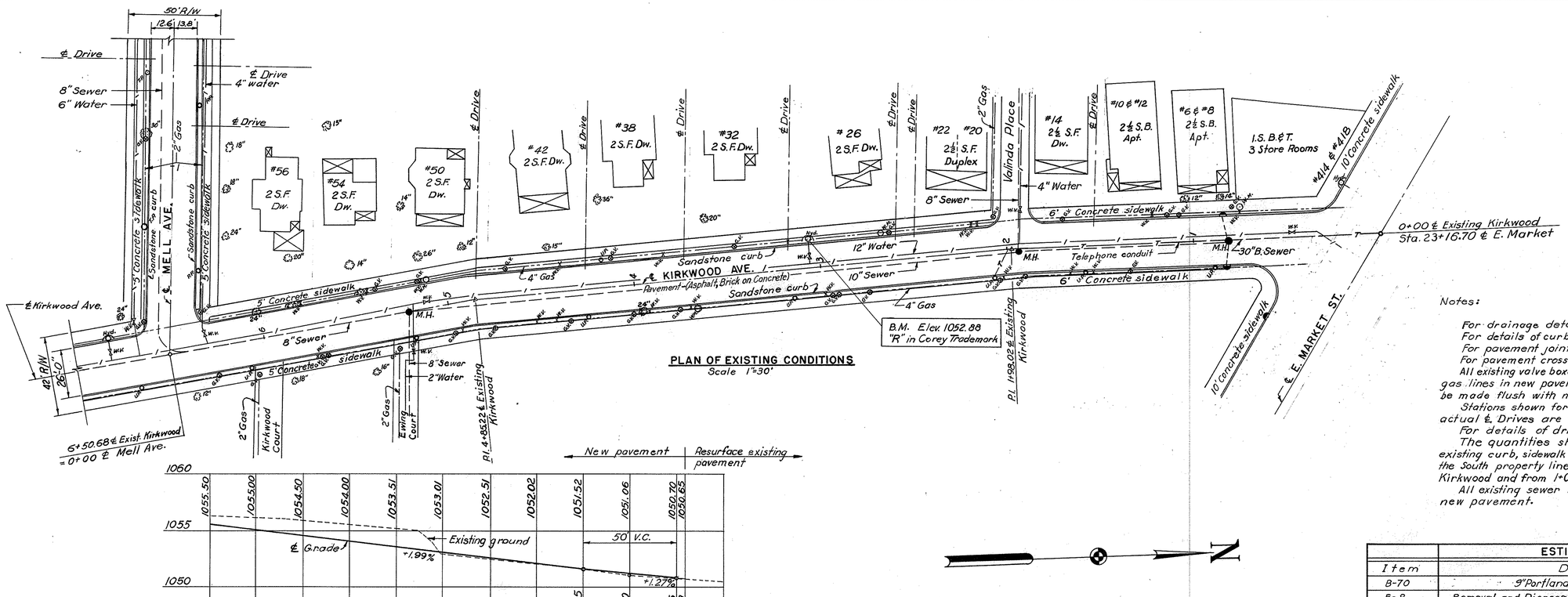
541

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

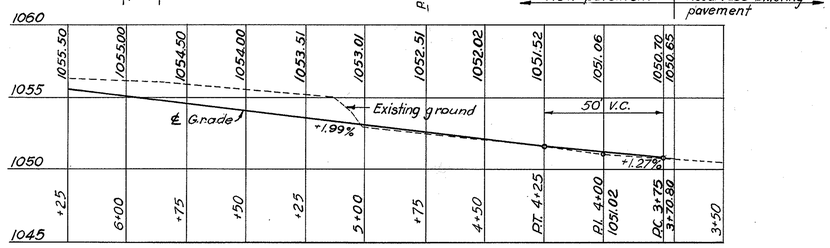
34
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
PLAN-PROFILE OF RELOCATED KIRKWOOD AVE.



PLAN OF EXISTING CONDITIONS
Scale 1"=30'



Notes:

For drainage details see drainage plans.
For details of curb and guard rail see sheet 35
For pavement joint legend see sheet 35
For pavement cross sections, see sheet 28
All existing valve boxes, meter boxes, etc. on present water and gas lines in new pavement area and shown on final plan to be made flush with new pavement.
Stations shown for ℄ Drives are approximate and the actual ℄ Drives are to be located in the field.
For details of drive aprons, see sheet 36
The quantities shown for the removal and disposal of existing curb, sidewalk and pavement are for the area from the South property line of E. Market St. to 4+85.22 ℄ existing Kirkwood and from 1+00 to 1+70 on Mell Ave.
All existing sewer manholes to be made flush with new pavement.

ESTIMATED QUANTITIES		
Item	Description	Quantity
B-70	9" Portland Cement Concrete Base Course	833 Sq. Yds.
E-8	Removal and Disposal of Existing Curb (Sandstone)	709 Lin. ft.
E-8	Removal and Disposal of Existing Sidewalk (Concrete)	3563 Sq. ft.
E-8	Removal and Disposal of Existing Pavement (Asphalt, Brick on Concrete)	711 Sq. Yds.
E-8	Removal and Disposal of Existing Pavement (Brick)	205 Sq. Yds.
I-12	Type 2-B Curb	829 Lin. ft.
I-12	Type 6 Curb	175 Lin. ft.
I-13	4" Portland Cement Concrete Sidewalk	1394 Sq. ft.
B&T-35	2½" Asphaltic Concrete	102 Cu. Yds.
Special	Installing 12" Water Main, As per Plan	116 Lin. Ft.
T-71	7" Reinforced Portland Cement Concrete Pavement (Drives)	50 Sq. Yds.
I-2	3¢ "Std. weight welded W.I. pipe" Sec. M-6.10 for storm sewers	17 Lin. ft.
I-15	Guard Rail, Steel Beam Type (Deep) As Per Plan	63 Lin. ft.
T-30	Bituminous Tack Coat Sec. M-5.5, MS-2 or SS-1	136 Gals.

FINAL PLAN
Scale 1"=30'

LEGEND

G.V.	Gas valve
W.V.	Water valve
W.M.	Water meter
T.M.H.	Telephone manhole
P.M.H.	Power manhole
M.H.	Sewer manhole
	Sewer inlet
Hyd.	Water hydrant
P.P.	Power pole
T.P.	Telephone pole
U.P.	Utility pole
	Sewer line
	Water line
	Telephone duct

551

SCALE As Shown
MADE R.C.D. DATE 9-30-52
TRCD M.A.S. DATE 10-20-52
CKD V.O.G. DATE 10-22-52

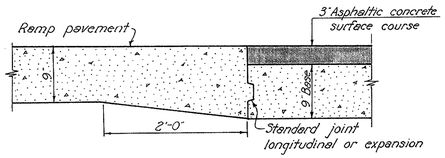
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846
SHEET 34

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

35
172

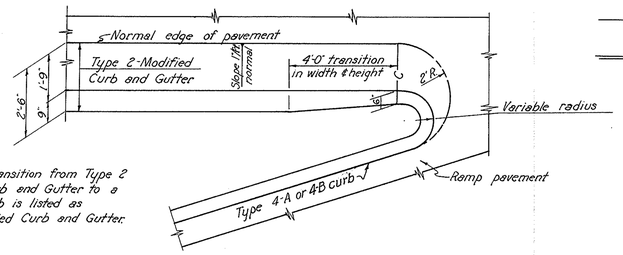
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
MISCELLANEOUS DETAILS



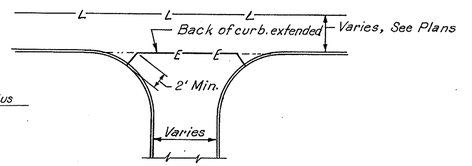
Note:
Locations of thickened joints are shown on pavement details by symbols "LT" and "ET."

THICKENED JOINT DETAIL
Scale: 1"=1'0"

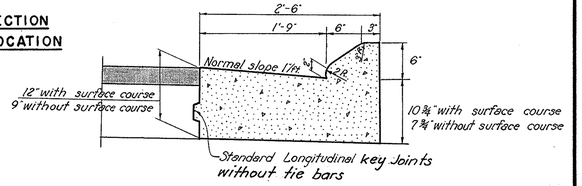


Note:
The 4'-0" transition from Type 2 Modified Curb and Gutter to a Type 4-A Curb is listed as Type 2 Modified Curb and Gutter.

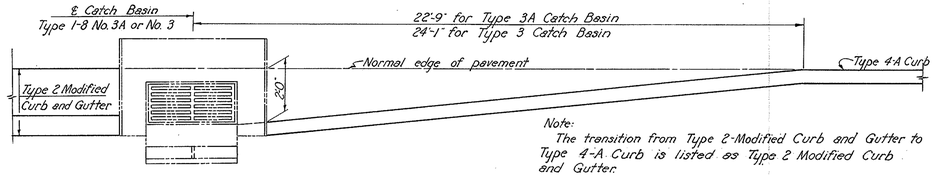
DETAIL "W"
PLAN OF CURB AND GUTTER TRANSITION
Scale: 3/8"=1'-0"



TYPICAL INTERSECTION
SHOWING JOINT LOCATION
No Scale

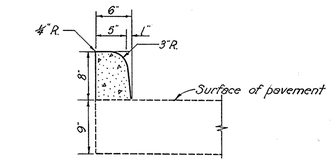


TYPE 2 MODIFIED CURB AND GUTTER
Scale: 1"=1'-0"

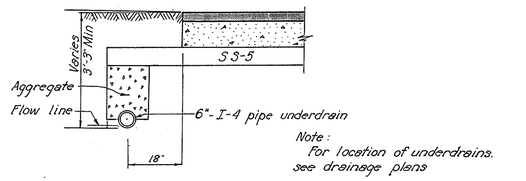


Note:
The transition from Type 2-Modified Curb and Gutter to Type 4-A Curb is listed as Type 2 Modified Curb and Gutter.

DETAIL "X"
PLAN OF CURB AND GUTTER TRANSITION
Scale: 3/8"=1'-0"

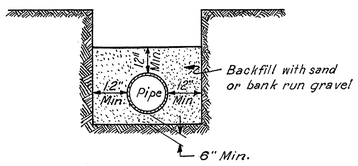


TYPE 2-A MODIFIED CURB
Scale: 1"=1'-0"

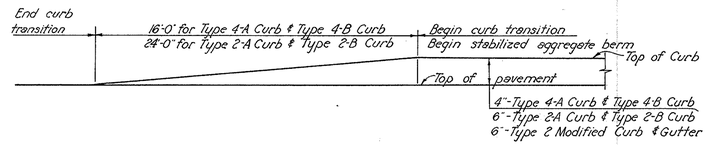


Note:
For location of underdrains, see drainage plans

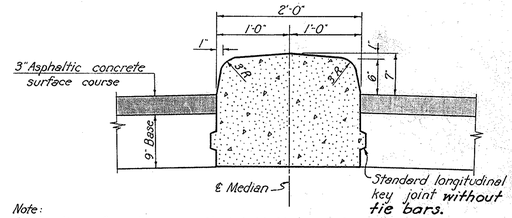
DETAIL OF PIPE UNDERDRAIN
Scale: 1/2"=1'-0"



TYPICAL BEDDING DETAILS
WATER MAINS
No Scale

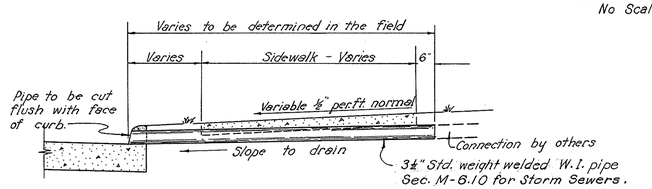


DETAIL "Y"
CURB TRANSITION
Not to Scale

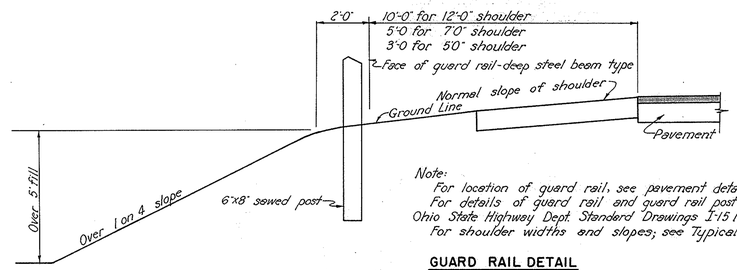


Note:
for location of median, see Market St. Plan and Profile Sheet 33

MEDIAN DETAIL
Scale: 1"=1'-0"



DETAIL OF DRAIN PIPE
Scale: 1/2"=1'-0"



Note:
For location of guard rail, see pavement details.
For details of guard rail and guard rail post see Ohio State Highway Dept. Standard Drawings T-15 No. 1 & 2
For shoulder widths and slopes; see Typical Sections

GUARD RAIL DETAIL
Scale: 3/8"=1'-0"

PAVEMENT JOINT LEGEND

Transverse construction joint	C
Transverse expansion joint	E
Transverse expansion joint-thickened edge	ET
Expansion joint without tie bars	Z
Longitudinal key joint with tie bar	L
Longitudinal key joint with tie bar-thickened edge	LT
Longitudinal expansion bolt joint	LB
Longitudinal expansion bolt joint-thickened edge	LBT

Note: For details of joints, see Ohio State Highway Dept. Standard Drawings

555

SCALE As Shown
MADE B.H.R. DATE 9-3-52
TRCD E.D.H. DATE 10-22-52
CKD _____ DATE _____

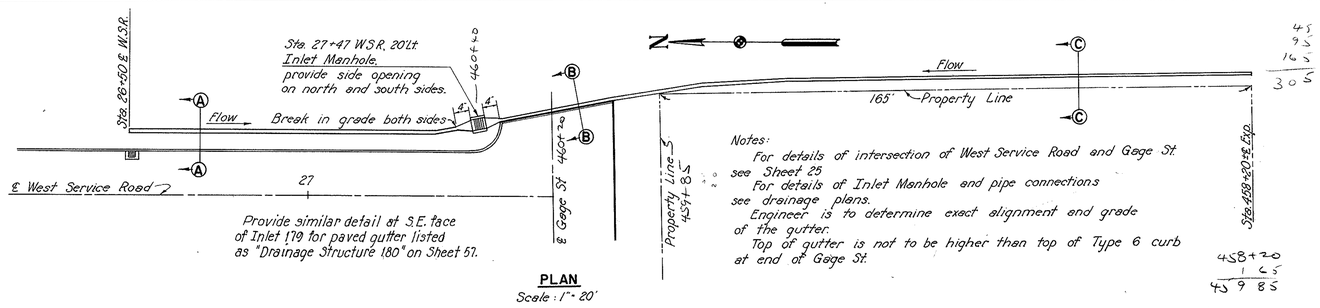
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY 846 NEW YORK
SHEET: 35

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U 687 (9)	POST WAR

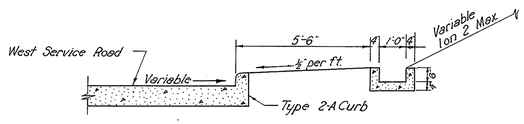
36
172

SUMMIT COUNTY
CITY OF AKRON

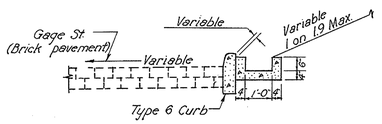
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
MISCELLANEOUS DETAILS



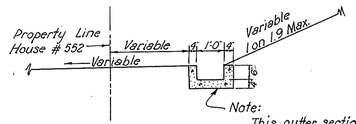
PLAN
Scale : 1"=20'



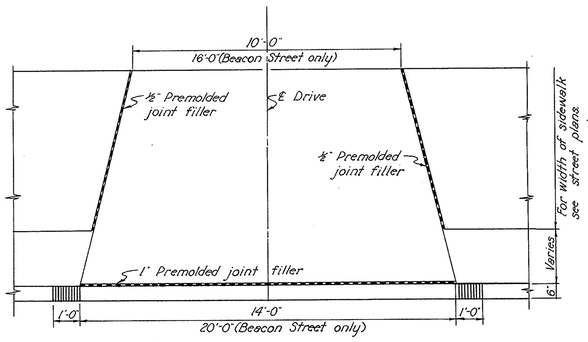
SECTION "A-A"
Scale : ⅜"=1'-0"



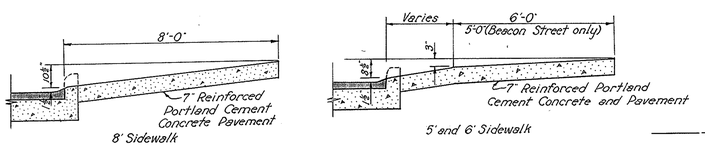
SECTION "B-B"
Scale : ⅜"=1'-0"



SECTION "C-C"
Scale : ⅜"=1'-0"



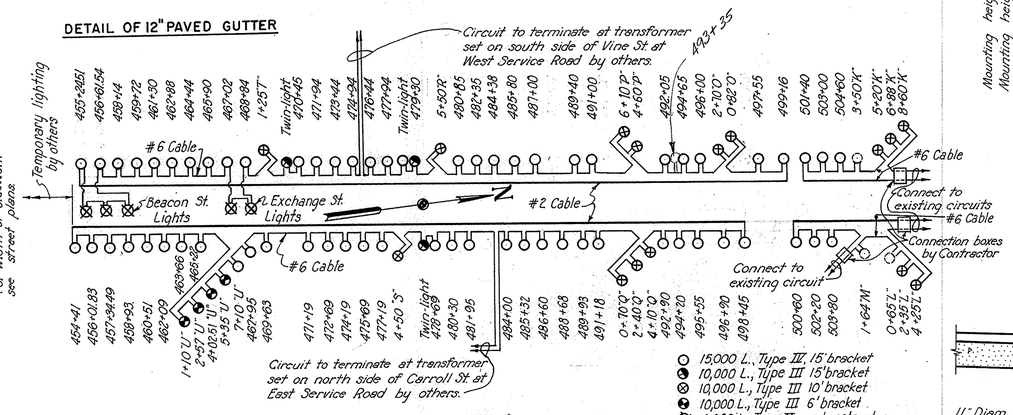
PLAN



SECTION A-A

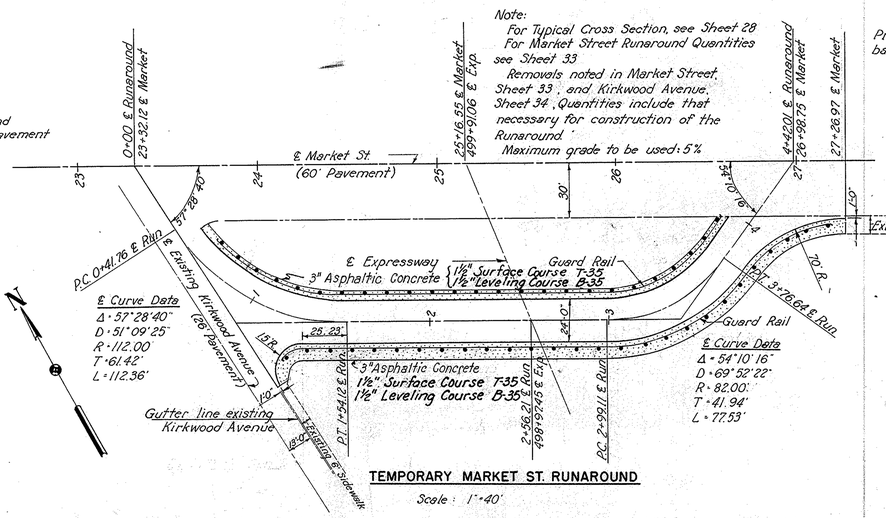
DETAILS OF DRIVE APRON
Scale: ⅜"=1'-0"

DETAIL OF 12" PAVED GUTTER

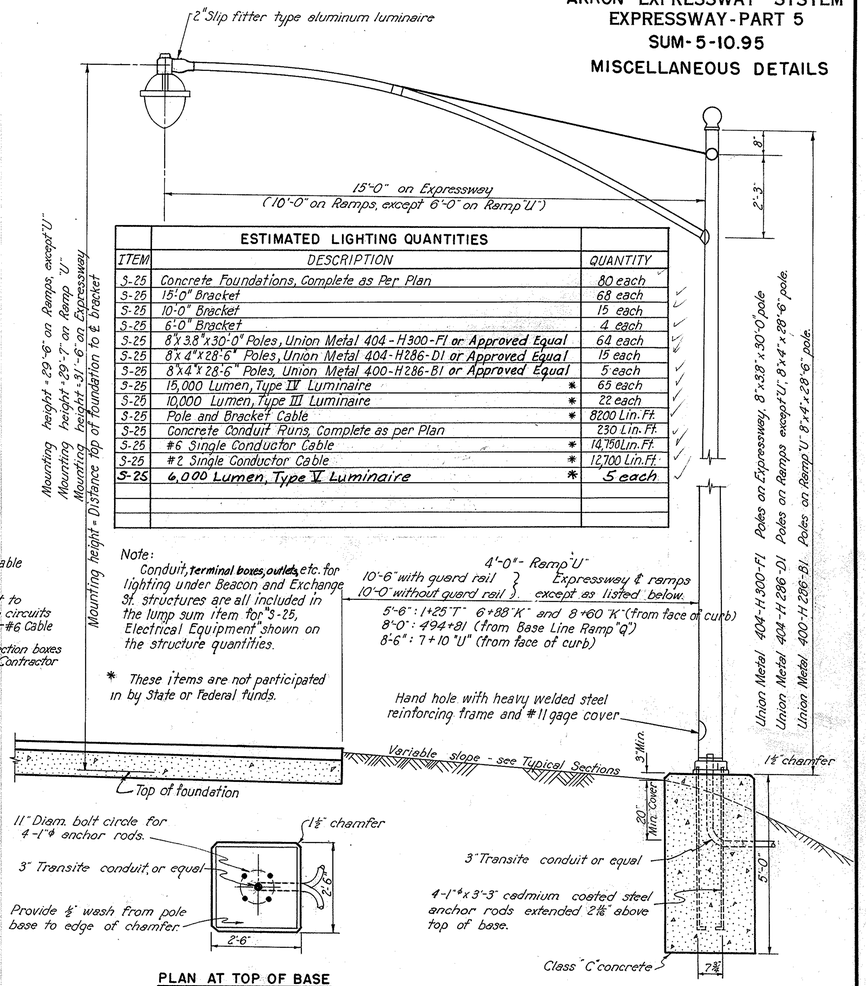


ROADWAY LIGHTING WIRING DIAGRAM
No Scale

- ○ 15,000 L., Type III, 15' bracket
- ◔ 10,000 L., Type III 15' bracket
- ⊗ 10,000 L., Type III 10' bracket
- ◕ 10,000 L., Type III 6' bracket
- ⊠ 6,000 L., Type V, under structure
- ◌ Existing lights.



TEMPORARY MARKET ST. RUNAROUND
Scale : 1"=40'



ESTIMATED LIGHTING QUANTITIES

ITEM	DESCRIPTION		QUANTITY
S-25	Concrete Foundations, Complete as Per Plan		80 each
S-25	15'-0" Bracket		68 each
S-25	10'-0" Bracket		15 each
S-25	6'-0" Bracket		4 each
S-25	8"x 3.8"x 30'-0" Poles, Union Metal 404-H300-F1 or Approved Equal		64 each
S-25	8"x 4"x 28'-6" Poles, Union Metal 404-H286-D1 or Approved Equal		15 each
S-25	8"x 4"x 28'-6" Poles, Union Metal 400-H286-B1 or Approved Equal		5 each
S-25	15,000 Lumen, Type IV Luminaire	*	65 each
S-25	10,000 Lumen, Type III Luminaire	*	22 each
S-25	Pole and Bracket Cable	*	8200 Lin. Ft.
S-25	Concrete Conduit Runs, Complete as per Plan		230 Lin. Ft.
S-25	#6 Single Conductor Cable	*	14,750 Lin. Ft.
S-25	#2 Single Conductor Cable	*	12,700 Lin. Ft.
S-25	6,000 Lumen, Type V Luminaire	*	5 each

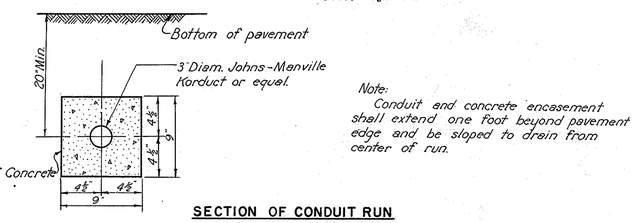
Note:
Conduit, terminal boxes, outlets, etc. for lighting under Beacon and Exchange St. structures are all included in the lump sum item for "S-25, Electrical Equipment" shown on the structure quantities.

* These items are not participated in by State or Federal funds.

4'-0"- Ramp "U"
10'-6" with guard rail } Expressway & ramps
10'-0" without guard rail } except as listed below.
5'-6" : 1+25 "T" 6+88 "K" and 8+60 "K" (from face of curb)
8'-0" : 494+81 (from Base Line Ramp "Q")
8'-6" : 7+10 "U" (from face of curb)

PLAN AT TOP OF BASE

TYPICAL ROADWAY LIGHTING UNIT
Scale : ½"=1'-0"



SECTION OF CONDUIT RUN UNDER PAVEMENT
Scale : 1½"=1'-0"

SCALE As shown
MADE A.F.S. DATE 10-2-52
TRCD E.D.W. DATE 10-27-52
CKD _____ DATE _____

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET- 36

554

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

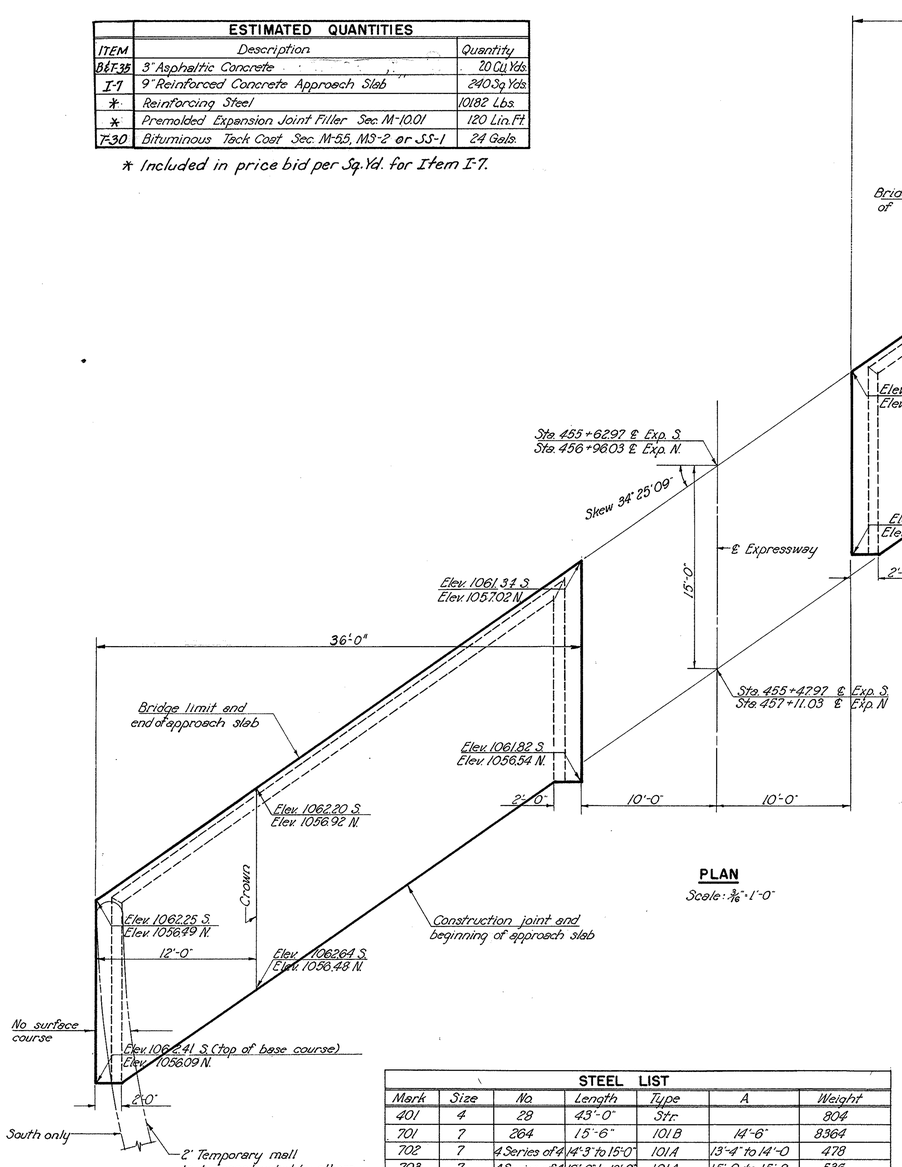
37
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95
APPROACH SLAB
BEACON ST. OVERPASS

ESTIMATED QUANTITIES		
ITEM	Description	Quantity
B&T-35	3" Asphaltic Concrete	20 Cu.Yds.
I-7	9" Reinforced Concrete Approach Slab	240 Sq.Yds.
*	Reinforcing Steel	10182 Lbs.
*	Premolded Expansion Joint Filler Sec. M-10.01	120 Lin.Ft.
T-30	Bituminous Tack Coat Sec. M-55, MS-2 or SS-1	24 Gals.

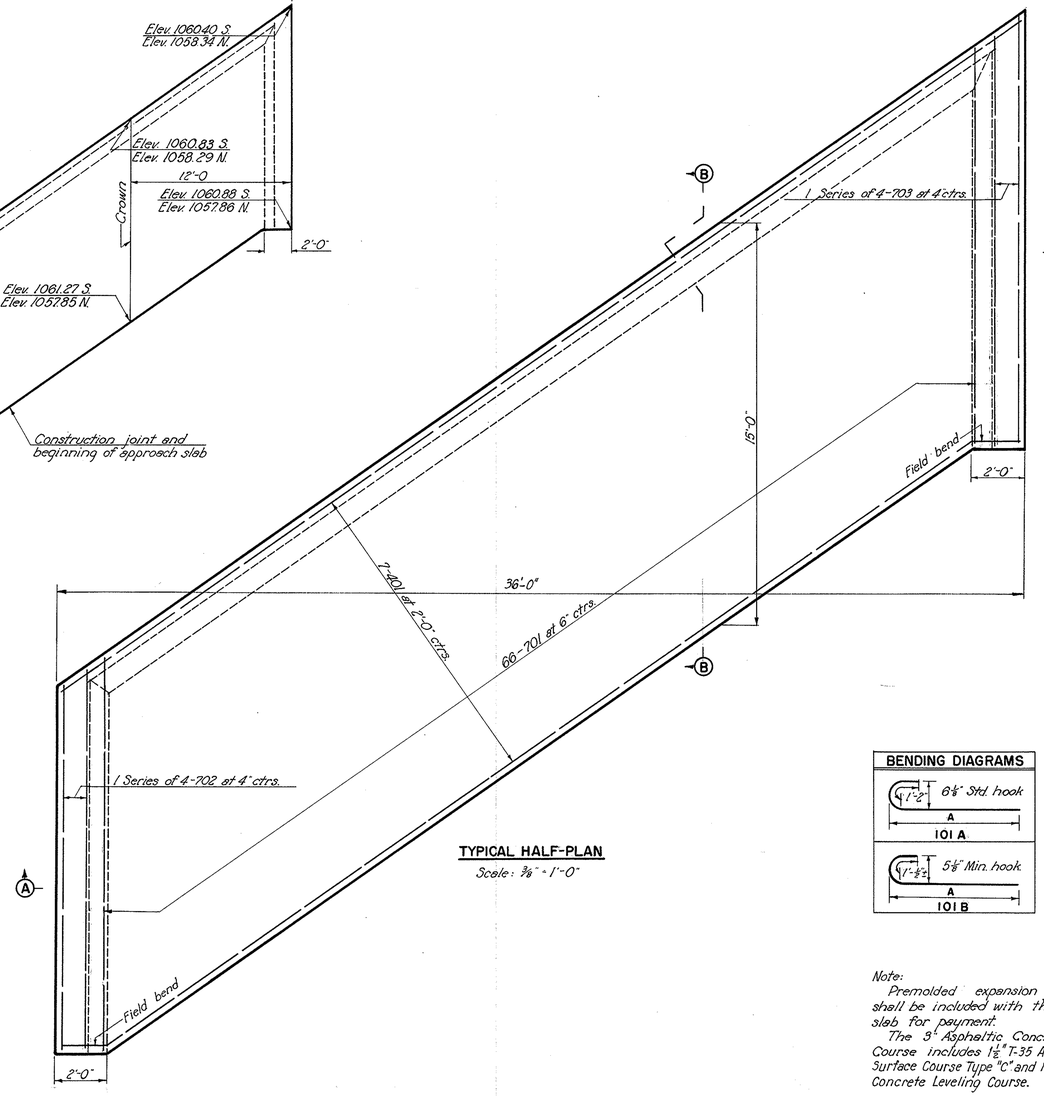
* Included in price bid per Sq.Yd. for Item I-7.



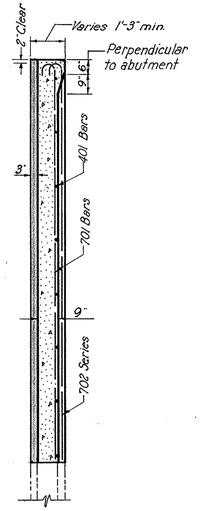
PLAN
Scale: 3/16" = 1'-0"

Note:
For location and curve data of temporary mall see Sheet 15

STEEL LIST						
Mark	Size	No.	Length	Type	A	Weight
401	4	28	43'-0"	Str.		804
701	7	264	15'-6"	101B	14'-6"	8364
702	7	4 Series of 4	14'-3" to 15'-0"	101A	13'-4" to 14'-0	478
703	7	4 Series of 4	16'-0" to 16'-9"	101A	15'-0 to 15'-8	536
					Total	10182



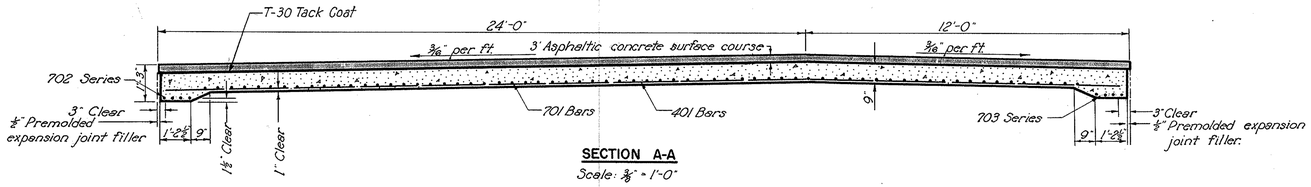
TYPICAL HALF-PLAN
Scale: 3/8" = 1'-0"



SECTION B-B
Scale: 3/8" = 1'-0"

BENDING DIAGRAMS

Note:
Premolded expansion joint filler shall be included with the approach slab for payment.
The 3" Asphaltic Concrete Surface Course includes 1 1/2" T-35 Asphaltic Concrete Surface Course Type "C" and 1 1/2" B-35 Asphaltic Concrete Leveling Course.



SECTION A-A
Scale: 3/8" = 1'-0"

SCALE	As shown
MADE	V.D.G. DATE 11-21-52
TRCD	E.D.H. DATE 12-2-52
CKD	V.D.G. DATE 12-4-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET: 37

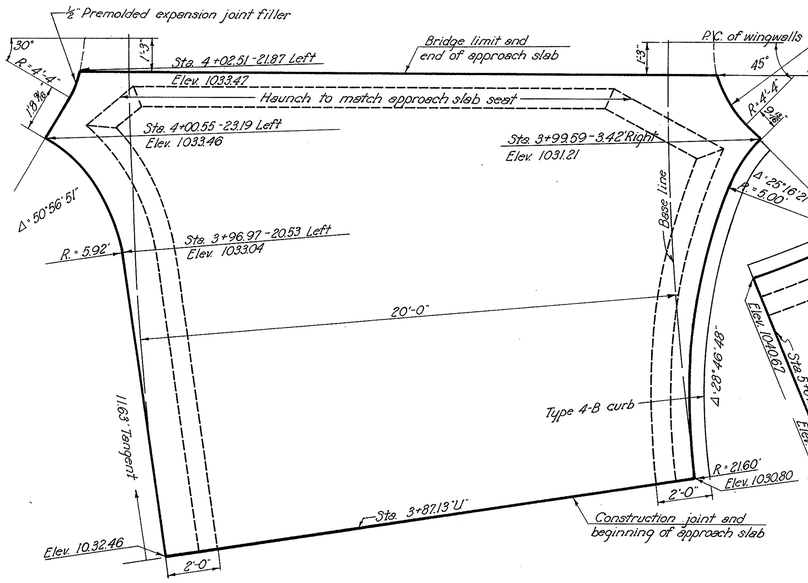
621

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

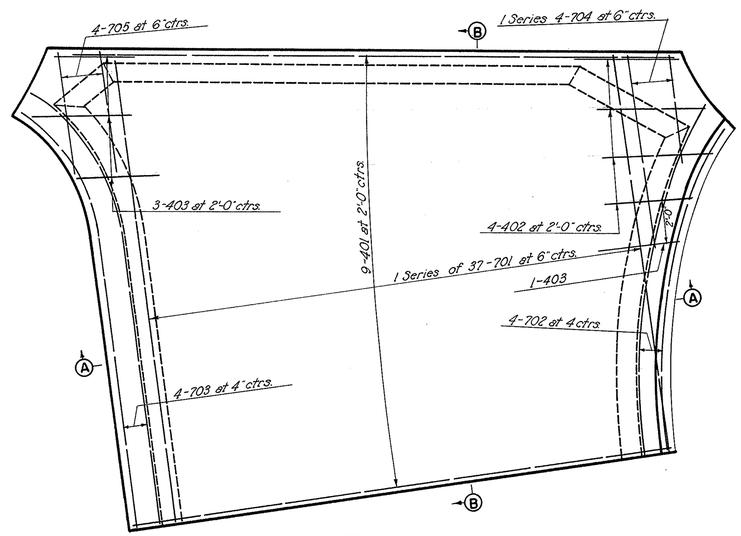
38
172

SUMMIT COUNTY
CITY OF AKRON

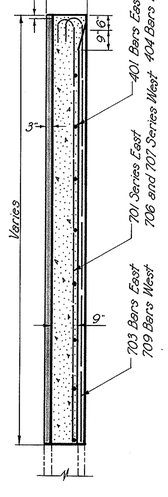
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM.-5-10.95
APPROACH SLAB
RAMP "U" OVERPASS



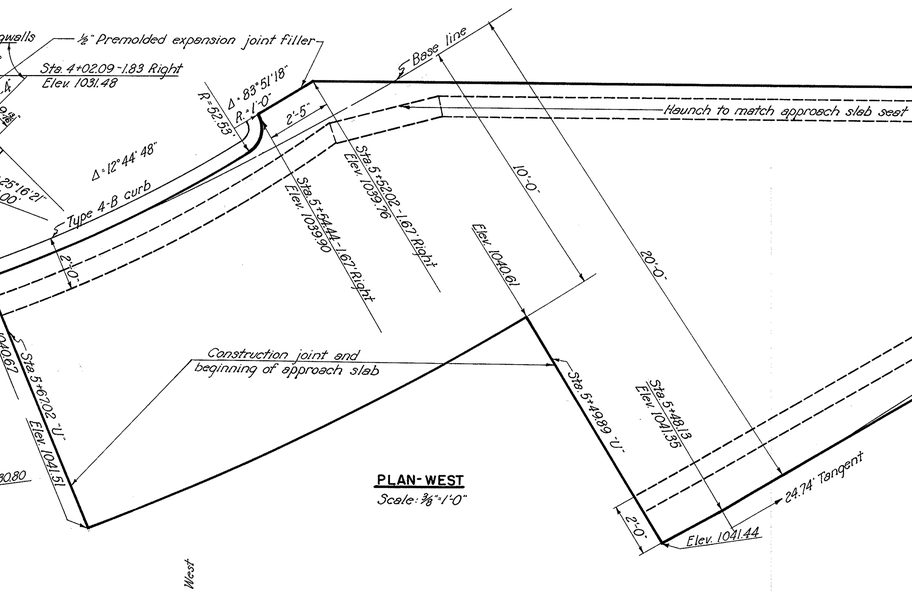
PLAN - EAST
Scale: ⅜"=1'-0"



STEEL PLAN
Scale: ⅜"=1'-0"



SECTION B-B
Scale: ⅜"=1'-0"

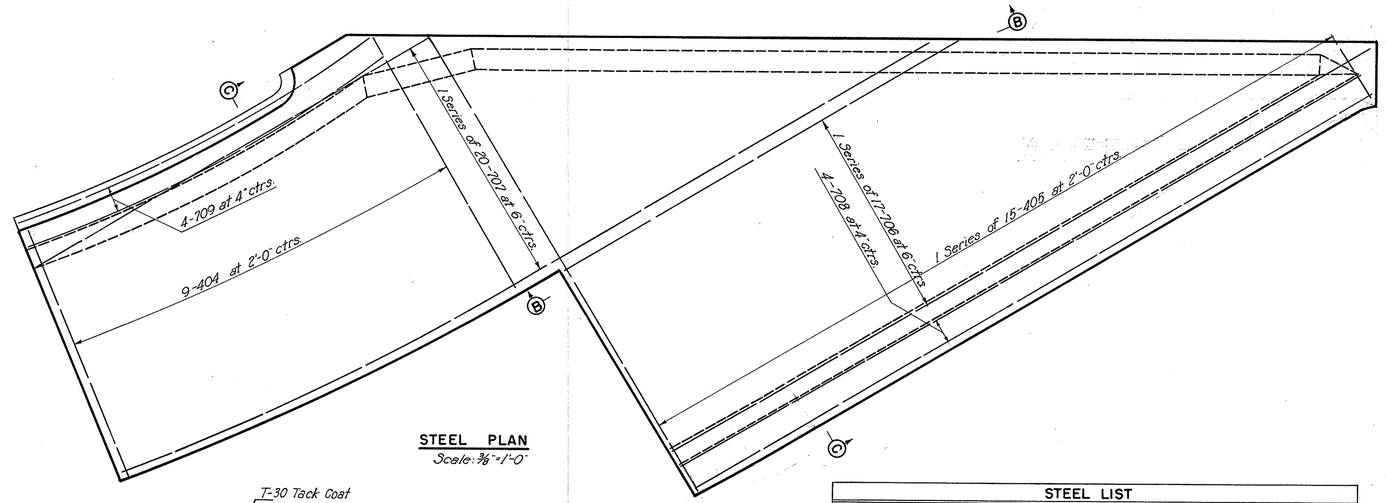


PLAN - WEST
Scale: ⅜"=1'-0"

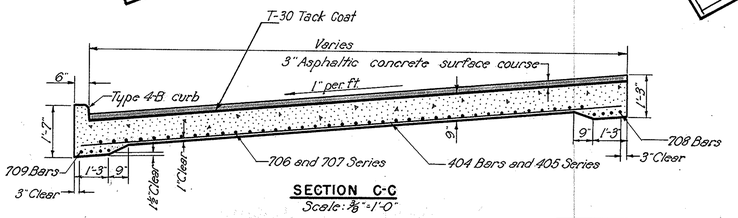
Note:
Premolded expansion joint filler shall be included with the approach slab for payment.

The 3" Asphaltic Concrete Surface Course includes 1½" T-35 Asphaltic Concrete Surface Course, Type "C" and 1½" B-35 Asphaltic Concrete Leveling Course.

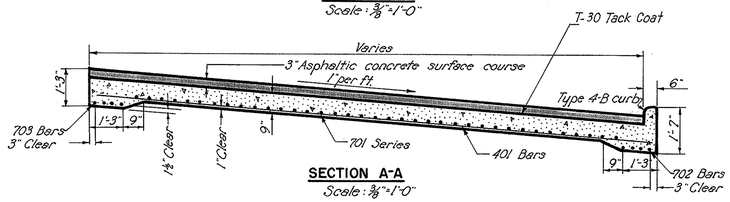
Stations shown in plan are along ramp base line.



STEEL PLAN
Scale: ⅜"=1'-0"



SECTION C-C
Scale: ⅜"=1'-0"

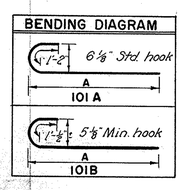


SECTION A-A
Scale: ⅜"=1'-0"

ESTIMATED QUANTITIES		
Item	Description	Quantity
B-1-35	3" Asphaltic Concrete	8 Cu.Yds.
I-7	9" Reinforced Concrete Approach Slab	97 Sq.Yds.
*	Type 4-B Curb	27 Lin.Ft.
*	Reinforcing Steel	4142 Lbs.
*	Premolded Expansion Joint Filler Sec. M-1001	11 Lin.Ft.
T-30	Bituminous Tack Coat Sec. M-5.5, M5-2	10 Gals.

*Included in price bid per Sq.Yd. for Item I-7.

BENDING DIAGRAM



STEEL LIST							
						East	West
Mark	Size	No.	Length	Type	A	Weight	Weight
401	4	9	20'-0"	Str.		120	
402	4	4	4'-0"	Str.		11	
403	4	4	3'-0"	Str.		8	
404	4	9	10'-0"	Str.			60
405	4	1 Series of 16	2'-3" to 19'-6"	Str.			109
701	7	1 Series of 37	15'-6 to 18'-6"	101 B	14'-8" to 17'-6"	1286	
702	7	4	14'-0"	101 A	13'-0"	114	
703	7	4	17'-9"	101 A	16'-9"	145	
704	7	1 Series of 4	4'-0" to 7'-0"	Str.		45	
705	7	4	4'-6"	Str.		37	
706	7	1 Series of 17	16'-6" to 29'-3"	101 B	15'-8" to 16'-6"		795
707	7	1 Series of 20	18'-0" to 33'-3"	101 B	17'-0" to 32'-4"		1049
708	7	4	27'-9"	101 A	26'-10"		227
709	7	4	16'-9"	101 A	15'-10"		137
				Total		1766	2376

SCALE As shown
MADE V.D.G. DATE 12-17-52
TRCD E.D.H. DATE 12-19-52
CKD V.D.G. DATE 12-20-52

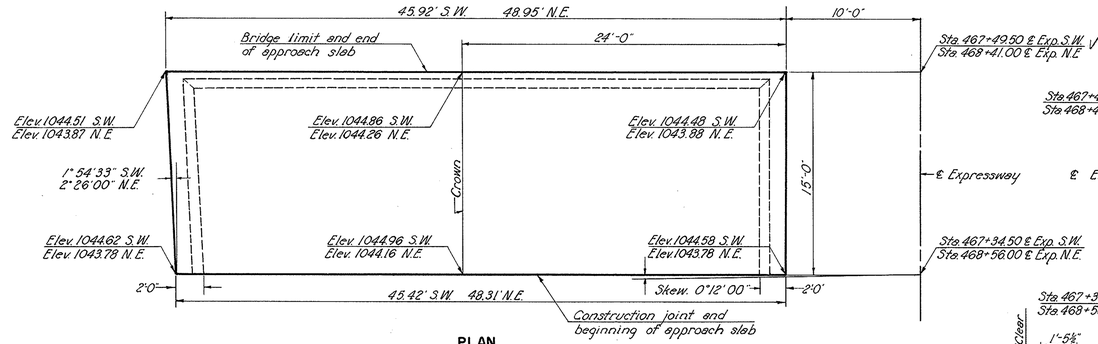
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY 846 NEW YORK
SHEET- 38

323

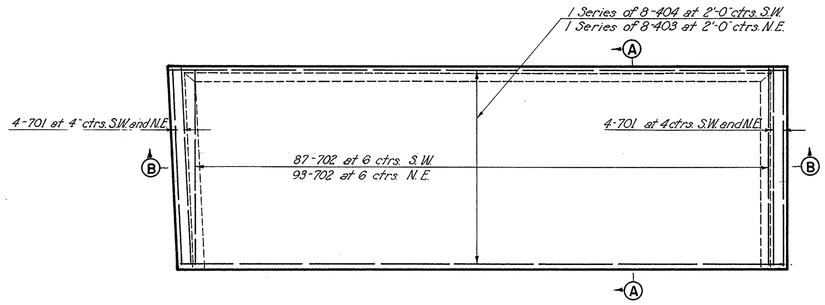
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

39
172

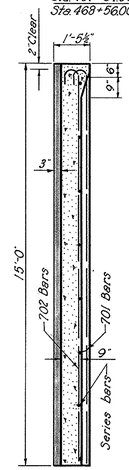
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95
APPROACH SLABS
EXCHANGE ST. OVERPASS



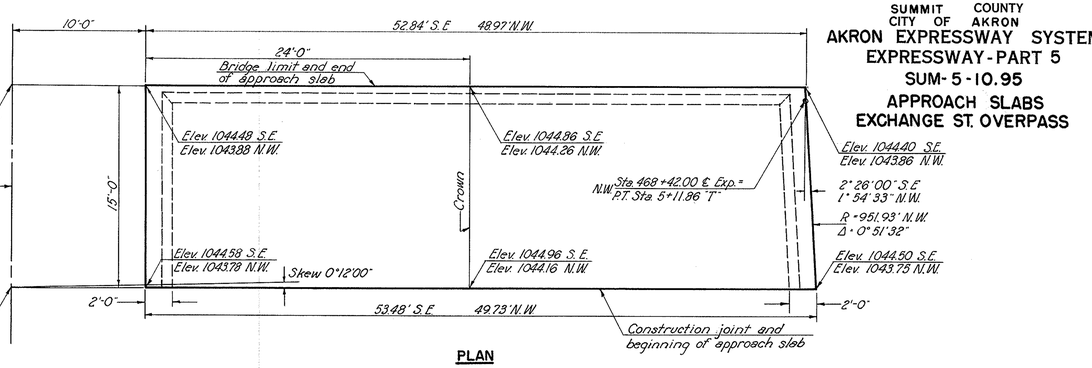
PLAN
SOUTHWEST AND NORTHEAST
Scale: 3/16" = 1'-0"



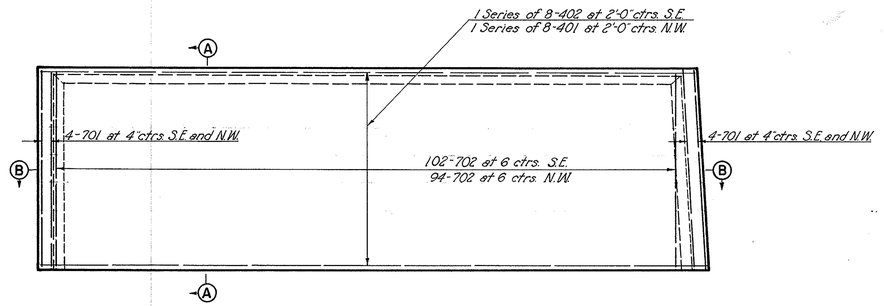
STEEL PLAN
SOUTHWEST AND NORTHEAST
Scale: 3/16" = 1'-0"



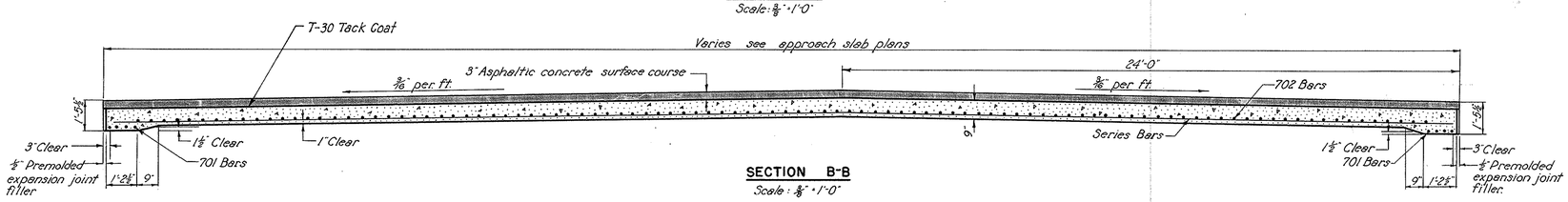
SECTION A-A
Scale: 3/8" = 1'-0"



PLAN
SOUTHEAST AND NORTHWEST
Scale: 3/16" = 1'-0"



STEEL PLAN
SOUTHEAST AND NORTHWEST
Scale: 3/16" = 1'-0"



SECTION B-B
Scale: 3/8" = 1'-0"

ESTIMATED QUANTITIES

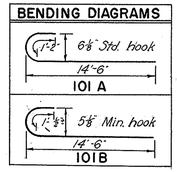
Item	Description	Quantity
BBT-35	3" Asphaltic Concrete Surface Course, Type "C"	27 Cu. Yds.
I-7	9" Reinforced Concrete Approach Slab	328 Sq. Yds.
*	Reinforcing Steel	13826 Lbs.
*	Premolded Expansion Joint Filler Sec. M-10.01	120 Lin. Ft.
T-30	Bituminous Tack Coat Sec. M-55, MS-2 or SS-1	33 Gals.

* Included in price bid per Sq. Yd. for Item I-7.

STEEL LIST

Mark	Size	No.	Length	Type	Southwest Weight	Northeast Weight	Southeast Weight	Northwest Weight
401	4	1 Series of 8	48'-6" to 49'-3"	Str.				261
402	4	1 Series of 8	52'-3" to 53'-0"	Str.			281	
403	4	1 Series of 8	47'-9" to 48'-6"	Str.		257		
404	4	1 Series of 8	45'-0" to 45'-6"	Str.	242			
701	7	32	15'-6"	101A	(8) 251	(8) 251	(8) 251	(8) 251
702	7	376	15'-6	101B	(87) 2726	(93) 2914	(102) 3196	(94) 2945
				Total	3219	3422	3728	3457

BENDING DIAGRAMS



Notes:
Premolded expansion joint filler shall be included with the approach slab for payment.
The 3" Asphaltic Concrete Surface Course includes 1½" T-35 Asphaltic Concrete Surface Course, Type "C" and 1½" Asphaltic Concrete Leveling Course.

520

SCALE As shown
MADE V.O.G. DATE 11-4-52
TRCD E.O.H. DATE 11-21-52
CKD V.O.G. DATE 12-4-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET- 39

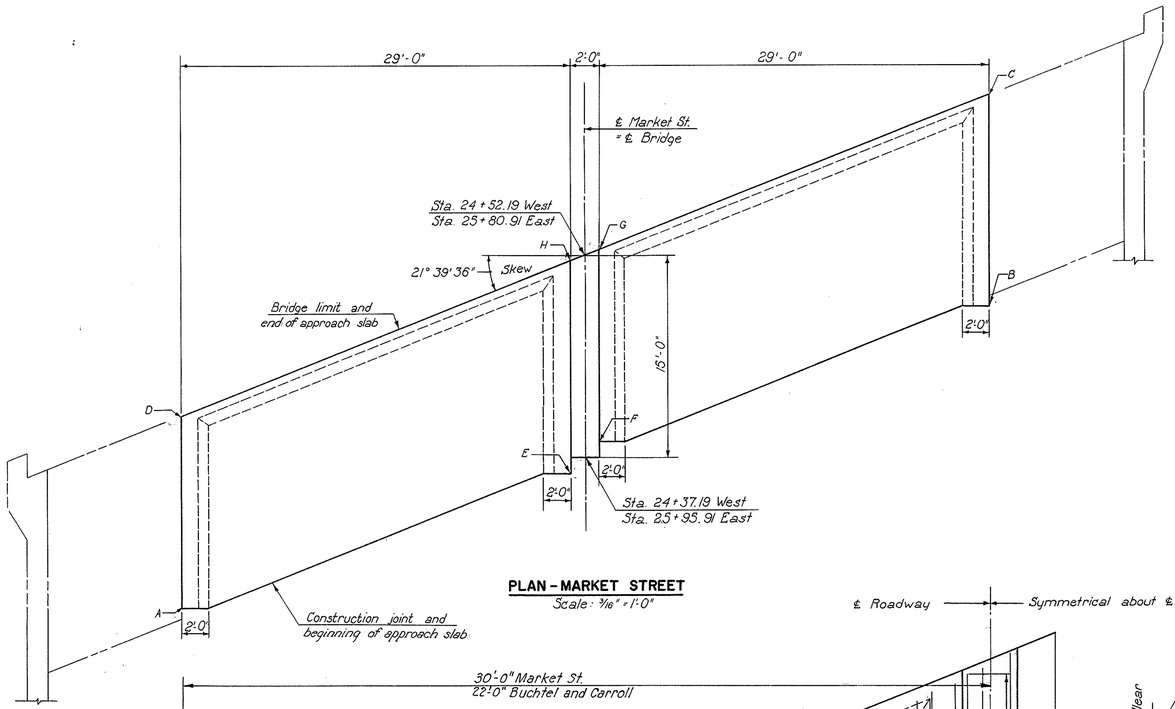
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

40
172

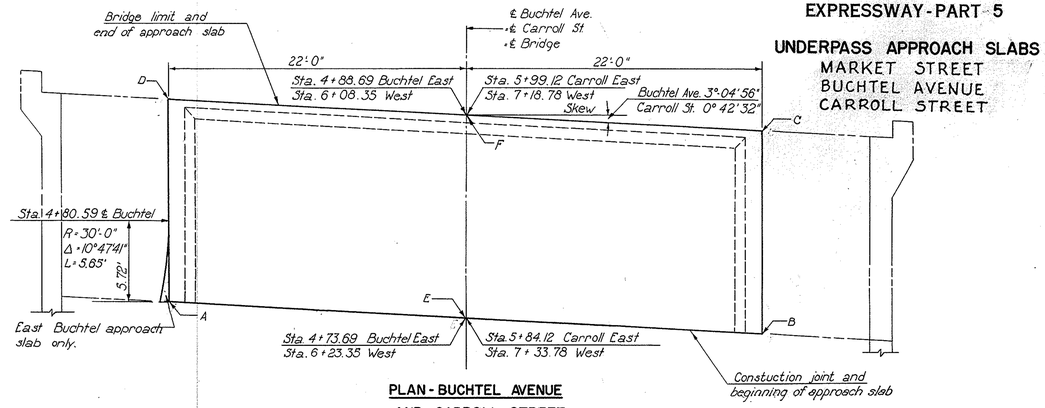
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5

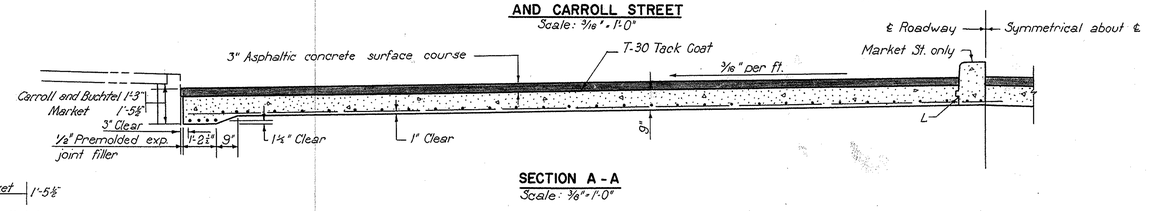
UNDERPASS APPROACH SLABS
MARKET STREET
BUCHTEL AVENUE
CARROLL STREET



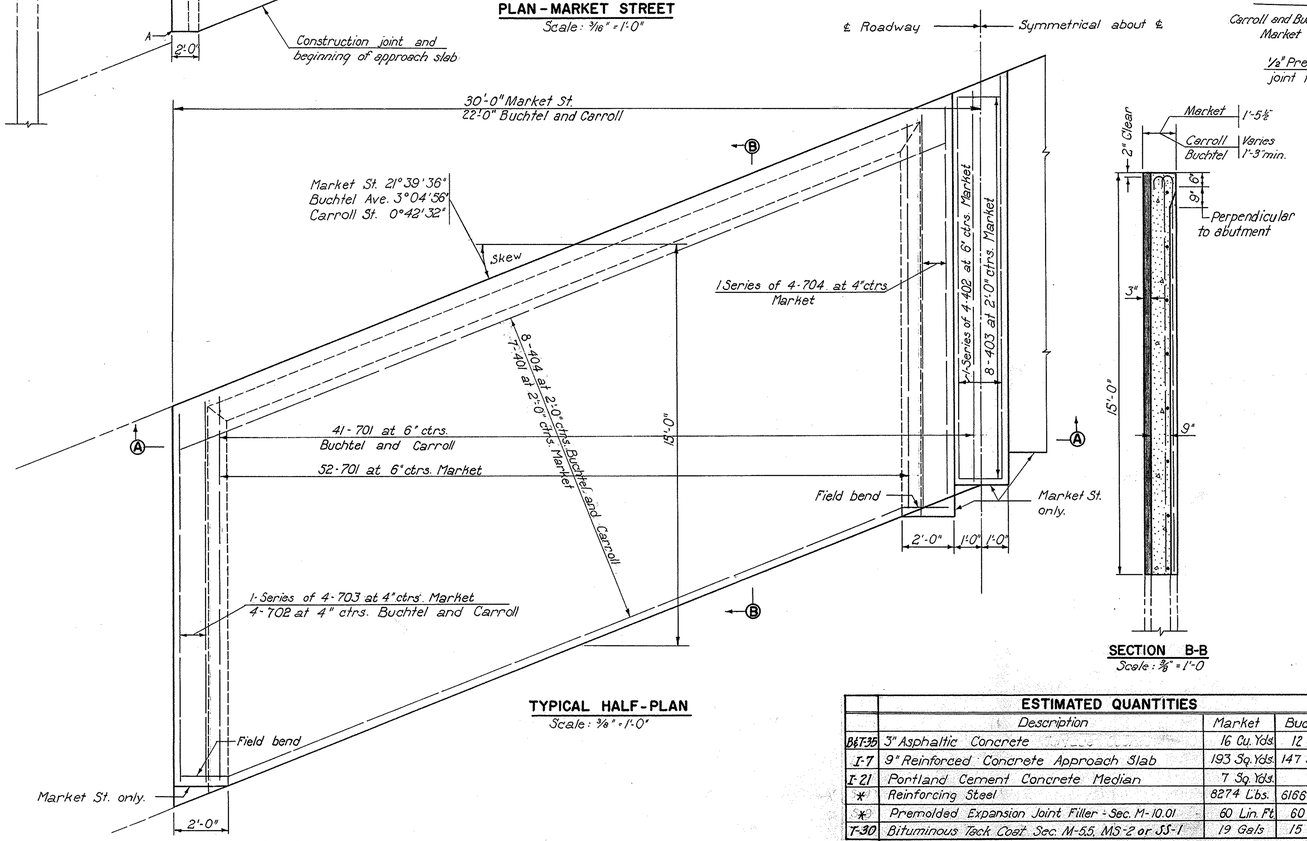
PLAN - MARKET STREET
Scale: 3/16" = 1'-0"



PLAN - BUCHTEL AVENUE AND CARROLL STREET
Scale: 3/16" = 1'-0"



SECTION A - A
Scale: 3/8" = 1'-0"



TYPICAL HALF-PLAN
Scale: 3/8" = 1'-0"

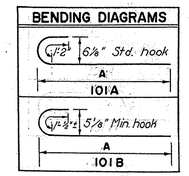
SECTION B-B
Scale: 3/8" = 1'-0

	ESTIMATED QUANTITIES			
	Description	Market	Buchtel	Carroll
B&T-35	3" Asphaltic Concrete	16 Cu. Yds.	12 Cu. Yds.	12 Cu. Yds.
I-7	9" Reinforced Concrete Approach Slab	193 Sq. Yds.	147 Sq. Yds.	147 Sq. Yds.
I-21	Portland Cement Concrete Median	7 Sq. Yds.		
*	Reinforcing Steel	8274 Lbs.	6166 Lbs.	6166 Lbs.
*	Premolded Expansion Joint Filler - Sec. M-10.01	60 Lin. Ft.	60 Lin. Ft.	60 Lin. Ft.
T-30	Bituminous Tack Coat Sec. M-5.5, MS-2 or SS-1	19 Gals.	15 Gals.	15 Gals.

* Included in price bid per Sq. Yd. for Item I-7.

STEEL LIST								
						Market	Buchtel	Carroll
Mark	Size	No.	Length	Type	A	Weight	Weight	Weight
401	4	14	30'-9"	Str.		288		
402	4	1 series of 4	14'-3" to 14'-9"	Str.		39		
403	4	8	1'-6"	Str.		8		
404	4	8	43'-6"	Str.			232	232
701	7	104	15'-6"	101 B	14'-6"	3295		
701	7	82	15'-6"	101 B	14'-6"		2598	2598
702	7	8	15'-6"	101 A	14'-6"		253	253
703	7	2 series of 4	14'-9" to 15'-3"	101 A	13'-10" to 14'-2"	245		
704	7	2 series of 4	15'-9" to 16'-3"	101 A	14'-10" to 15'-2"	262		
		Total for one approach				4137	3083	3083
		Total for both approaches				8274	6166	6166

BENDING DIAGRAMS



ELEVATIONS						
	Market		Buchtel		Carroll	
Point	East	West	East	West	East	West
A	1048.53	1047.02	1060.65	1063.82	1053.24	1056.98
B	1048.32	1047.20	1060.60	1063.87	1053.22	1056.99
C	1048.19	1047.33	1060.92	1063.54	1053.60	1056.62
D	1048.39	1047.13	1060.97	1063.49	1053.61	1056.60
E	1048.88	1047.35	1060.96	1064.18	1053.57	1057.33
F	1048.86	1047.57	1061.29	1063.86	1053.95	1056.95
G	1048.74	1047.69				
H	1048.74	1047.68				

Notes:

For details of median, see Sheet 35
Premolded expansion joint filler shall be included with the approach slab for payment.

The 3" Asphaltic Concrete Surface Course includes 1½" T-35 Asphaltic Concrete Surface Course, Type "C" and 1½" B-35 Asphaltic Concrete Leveling Course.

SCALE As shown
MADE V.D.G. DATE 10-13-52
TRCD C.A.L. DATE 10-24-52
CKD B.H.R. DATE 10-27-52

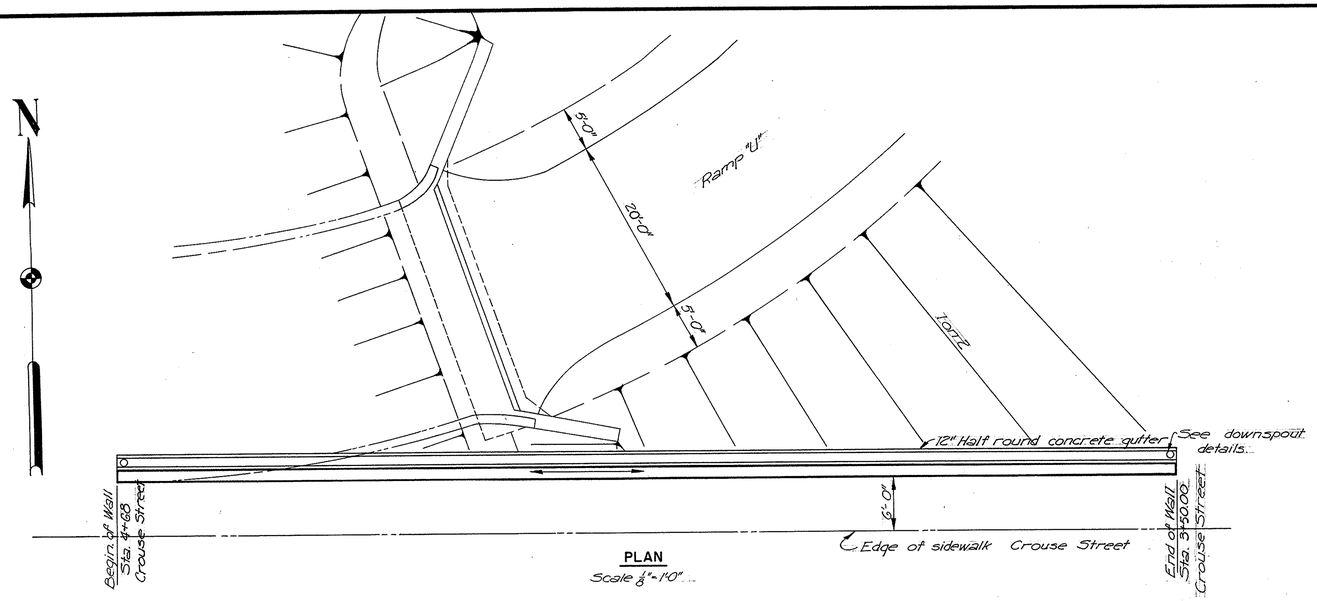
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY 846 NEW YORK
SHEET 40

542

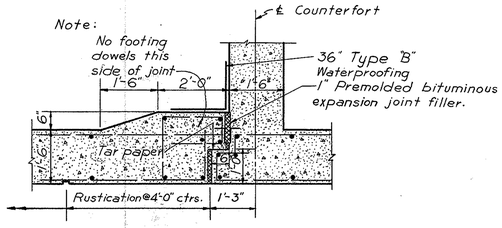
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST. WAR

41
172

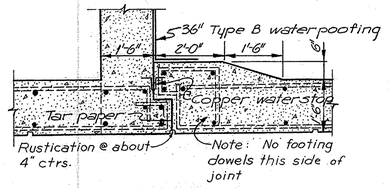
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
RETAINING WALL-CROUSE STREET



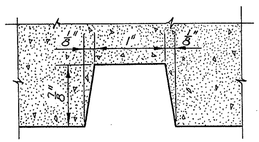
PLAN
Scale 1/8"=1'0"



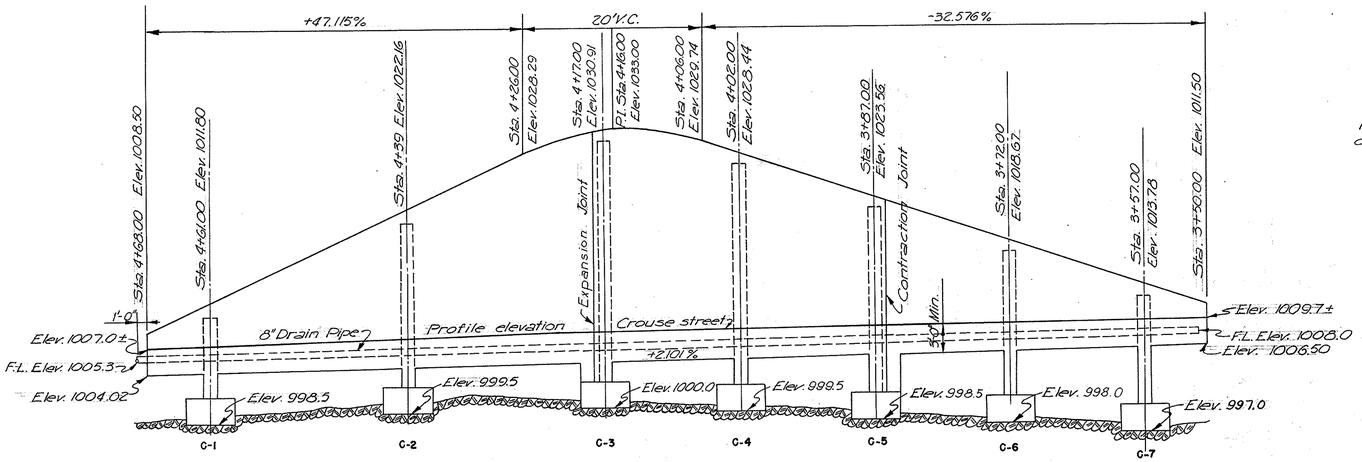
EXPANSION JOINTS
Scale: 1/2"=1'-0"



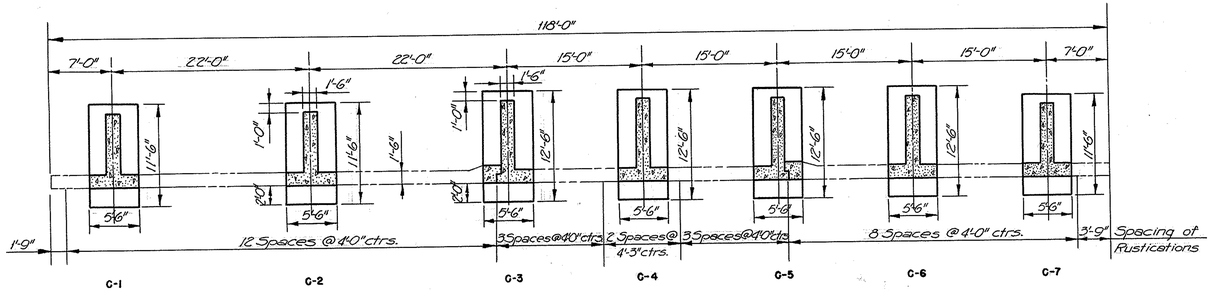
CONTRACTION JOINTS
Scale 1/2"=1'-0"



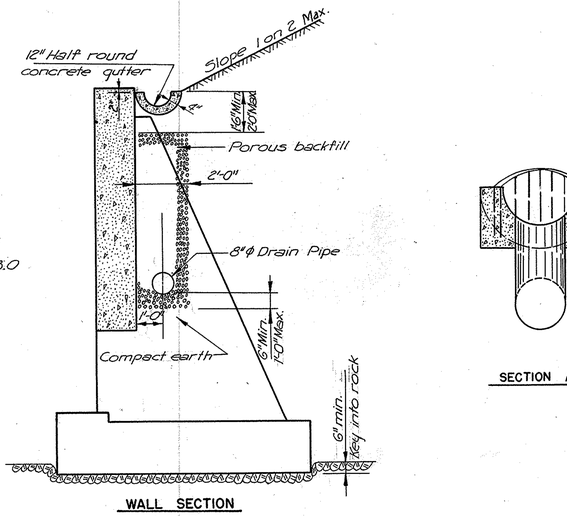
RUSTICATION DETAILS
Scale 1"=1'-0"



ELEVATION
Scale 1/8"=1'0"

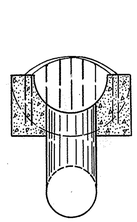


FOOTING PLAN
Scale 1/8"=1'0"

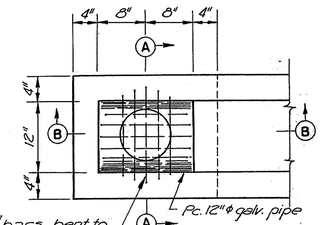


WALL SECTION
Not to Scale

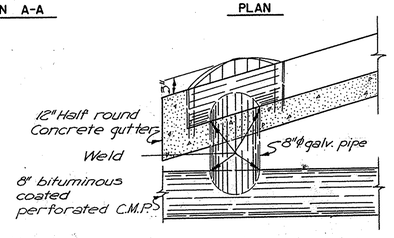
Note:
Porous backfill shall conform to Item S-29.02 and S-29.04.
Pipe shall be 8" bituminous coated perforated C.M.P. conforming to Sec. M-64(F) with necessary fittings.
Upper end of pipe shall be tightly closed with permanent header made of No. 16 gauge sheet metal.
Grade of pipe shall be 2.29%.



SECTION A-A



PLAN



SECTION B-B

DOWNSPOUT DETAILS
Scale 1"=1'0"

ITEM S-29 DOWNSPOUTS:
The unit price bid per each for Downspouts shall constitute full compensation for furnishing and fabricating the 12" galvanized pipe, the ½"ϕ bars as a screen and the 8" galvanized pipe, as detailed on the plans and for furnishing all labor, equipment, tools and incidentals necessary to complete this item in place, completed and accepted.

SCALE As shown
MADE R.K. DATE 12-7-52
TRCD G.R.C. DATE 12-22-52
CKD R.K. DATE 12-26-52

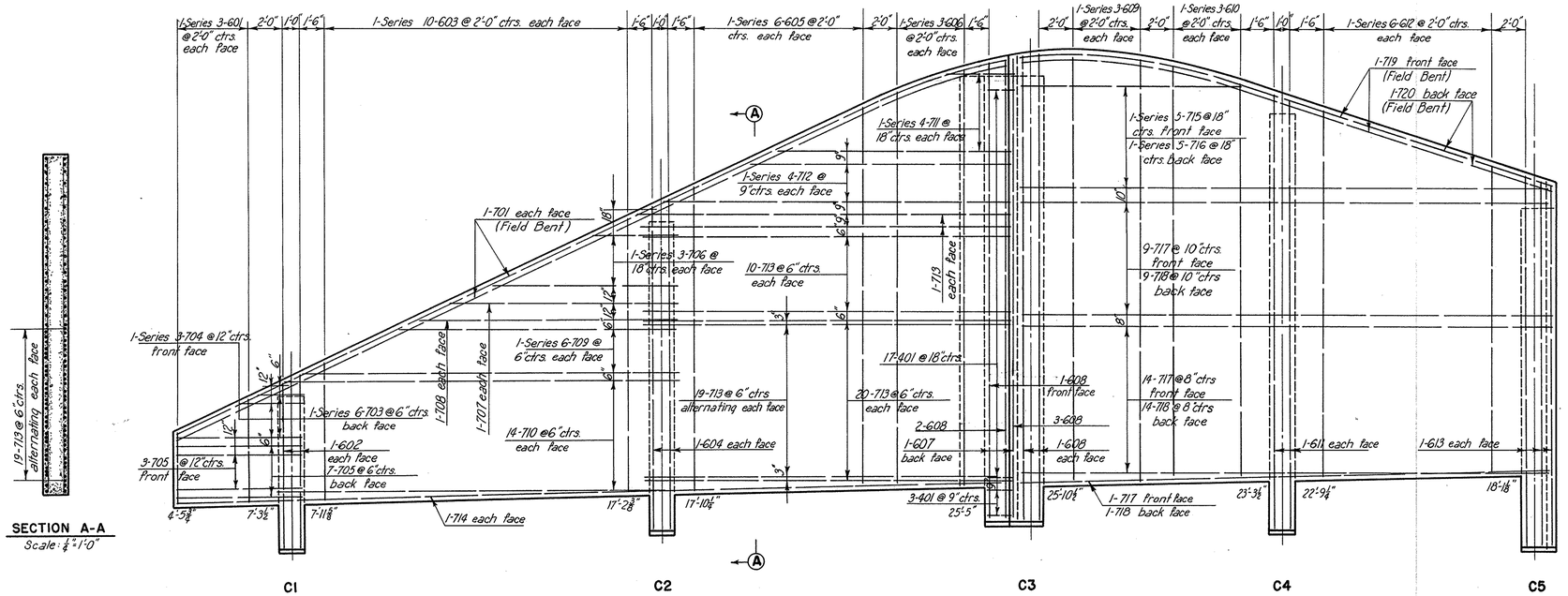
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846 SHEET-41

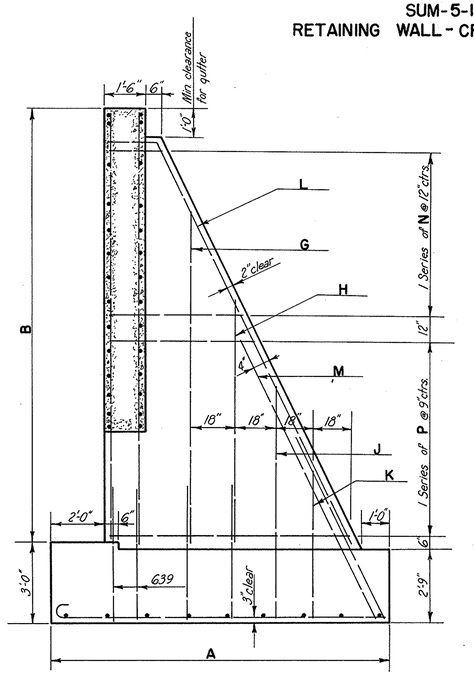
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

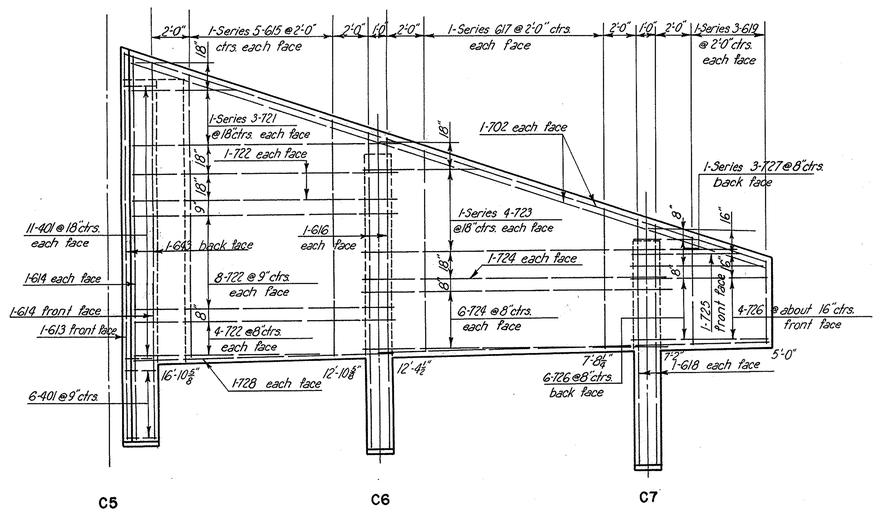
42
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95
RETAINING WALL - CROUSE STREET

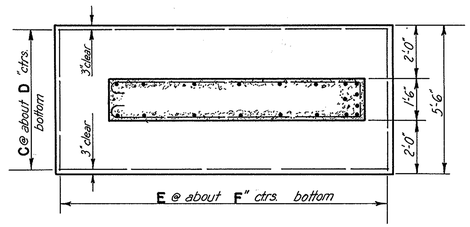


SECTION A-A
Scale: ¼"=1'-0"





ELEVATIONS
Scale: ¼"=1'-0"



TYPICAL COUNTERFORT SECTION
No Scale

TABLE FOR COUNTERFORTS

		1	2	3	4	5	6	7
A		11'6"	11'6"	12'6"	12'6"	12'6"	12'6"	11'6"
B		10'-3⅜"	19'-8"	27'-10⅝"	25'-11¼"	22'-0⅜"	17'-8"	13'-9⅜"
C		6-640	6-640	7-641	7-641	7-641	6-641	6-640
D		12"	12"	9½"	9½"	9½"	12"	12"
E		8-642	8-642	15-642	15-642	15-642	9-642	8-642
F		19"	19"	10½"	10½"	10⅜"	18"	19"
G		2-620	2-624	2-627	2-629	2-633	2-625	2-628
	Dowel	——	2-639	2-639	2-639	2-639	2-639	2-639
H		2-621	2-625	2-624	2-630	2-628	2-635	2-628
	Dowel	——	2-639	2-639	2-639	2-639	2-639	——
J		2-622	2-620	2-628	2-631	2-634	2-636	2-621
	Dowel	——	——	2-639	——	——	——	——
K		2-623	2-626	2-621	2-632	2-626	2-637	2-638
L		3-1101	3-1102	4-1103	4-1104	4-1105	3-801	3-1106
	Dowel	3-1107	3-1107	4-1107	4-1107	4-1107	3-802	3-1107
M		——	——	3-803	3-803	3-803	——	——
N		9-501	18-502	20-503	17-505	12-507	16-509	12-510
P		——	——	10-504	10-506	10-508	——	——

ESTIMATED QUANTITIES

Item	Description	Quantity
E-2	Cofferdams, Cribs and Sheeting	Lump Sum
E-2	Excavation for Structures - Unclassified	278 Cu. Yds.
E-2	Excavation for Structures - Rock	13 Cu. Yds.
S-29	Downspouts	2 Each
S-1	Class "C" Concrete	189 Cu. Yds.
S-3	Type "B" Waterproofing	16 Sq. Yds.
S-4	Reinforcing Steel	25804 Lbs.
S-9	1" Premolded Bituminous Expansion Joint Filler	56 Sq. Ft.
S-9	Copper Waterstop	47 Lin. Ft.
S-29	8" Perforated Bituminous Coated Corrugated Metal Pipe	120 Lin. Ft.
S-29	Porous Backfill	104 Cu. Yds.
I-13	4" Portland Cement Sidewalk	720 Sq. Ft.
I-14	12" Half Round Concrete Gutter	125 Lin. Ft.

SCALE As Shown
MADE R.K. DATE 12-26-52
TRCD C.C.B. DATE 12-27-52
CKD R.K. DATE 12-27-52

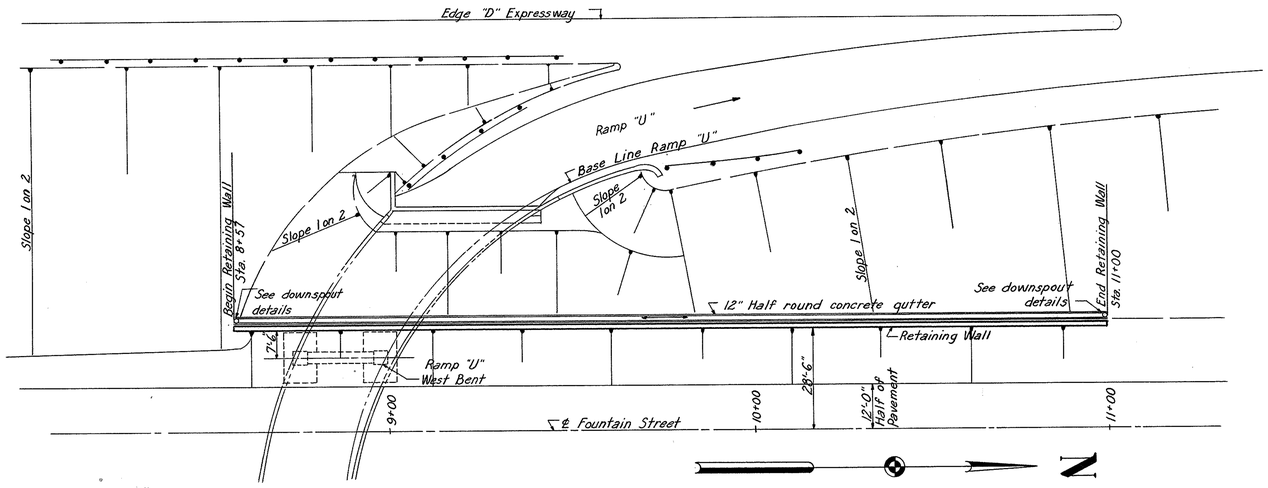
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 42

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

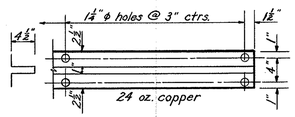
43
172

SUMMIT COUNTY
CITY OF AKRON

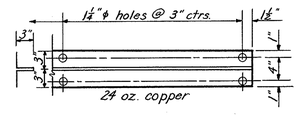
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95
RETAINING WALL - FOUNTAIN STREET



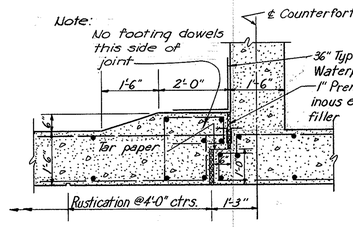
PLAN
Scale: 1" = 20'-0"



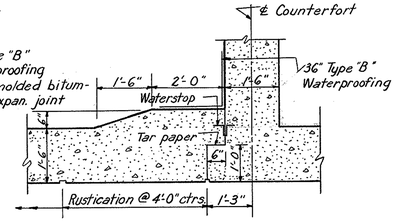
EXPANSION JOINT WATERSTOP
Scale: 1" = 1'-0"



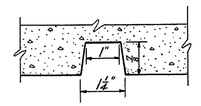
CONTRACTION JOINT WATERSTOP
Scale: 1" = 1'-0"



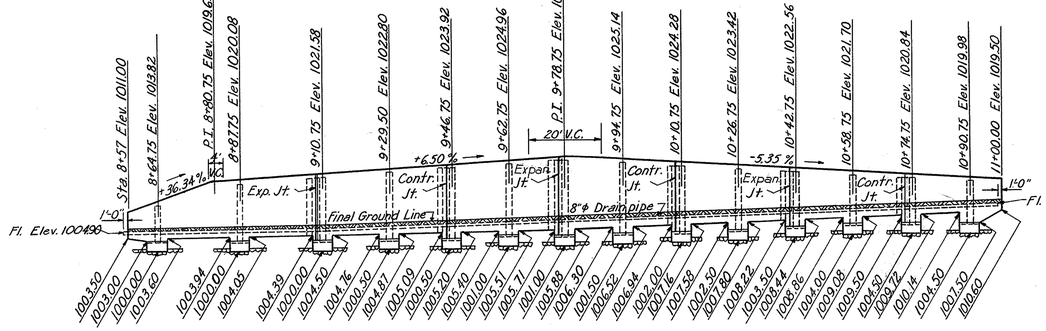
EXPANSION JOINTS
Scale: ½" = 1'-0"



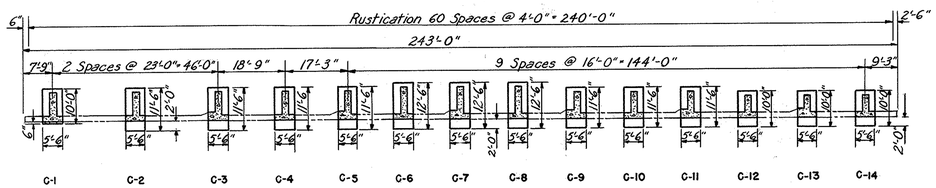
CONTRACTION JOINTS
Scale: ½" = 1'-0"



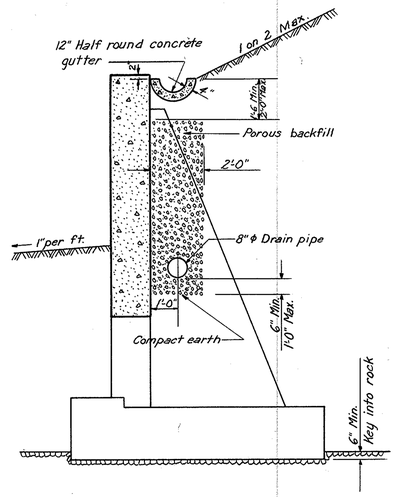
RUSTICATION DETAILS
Scale: 6" = 1'-0"



ELEVATION
Scale: 1" = 20'-0"

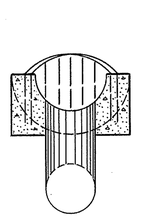


FOOTING PLAN
Scale: 1" = 20'-0"

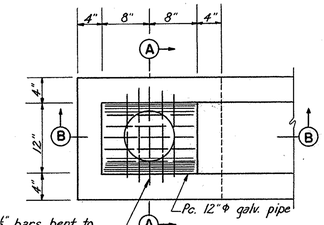


WALL SECTION
Not to scale

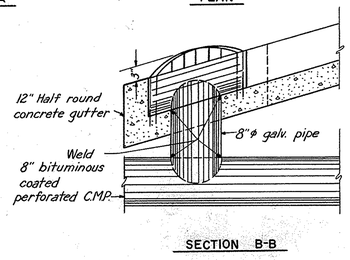
Note:
Porous backfill shall conform to Items S-2902 and S-2904.
Pipe shall be 8" bituminous coated perforated C.M.P. conforming to Sec. M-6.4(f) with necessary fittings.
Upper end of pipe shall be tightly closed with permanent headers made of No. 16 gauge sheet metal.
Grade of pipe shall be 2.92 %.



SECTION A-A



PLAN



SECTION B-B

DOWNSPOUT DETAILS
Scale: 1" = 1'-0"
See Note on Sheet 41

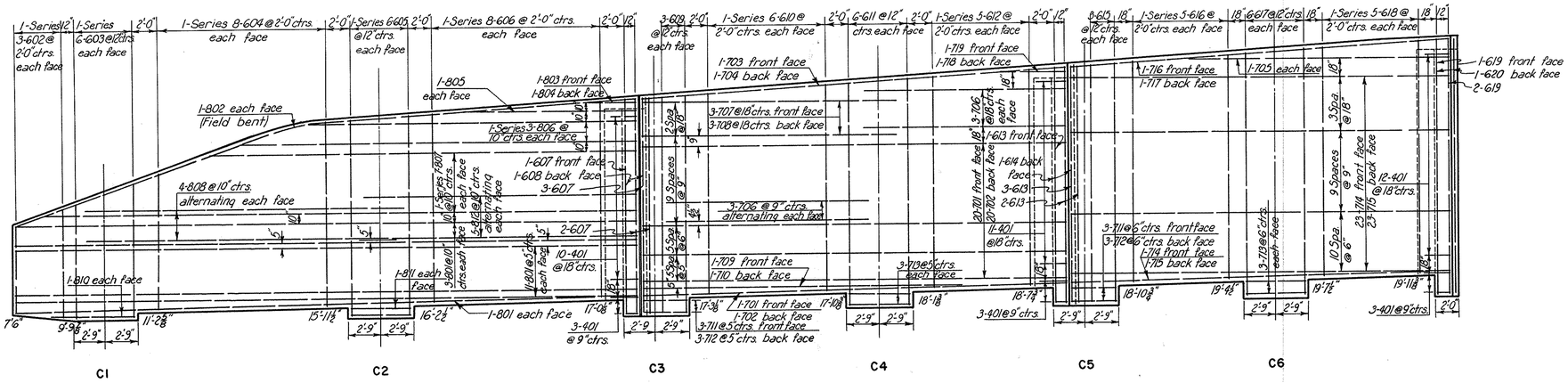
SCALE As Shown
MADE J.G.S. DATE 12-12-52
TRCD NAM DATE 12-19-52
CKD J.G.S. DATE 12-26-52

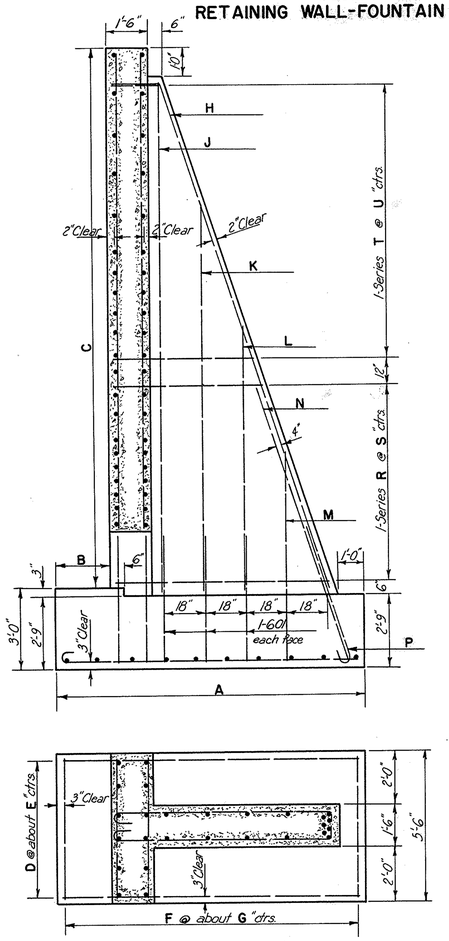
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 43

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

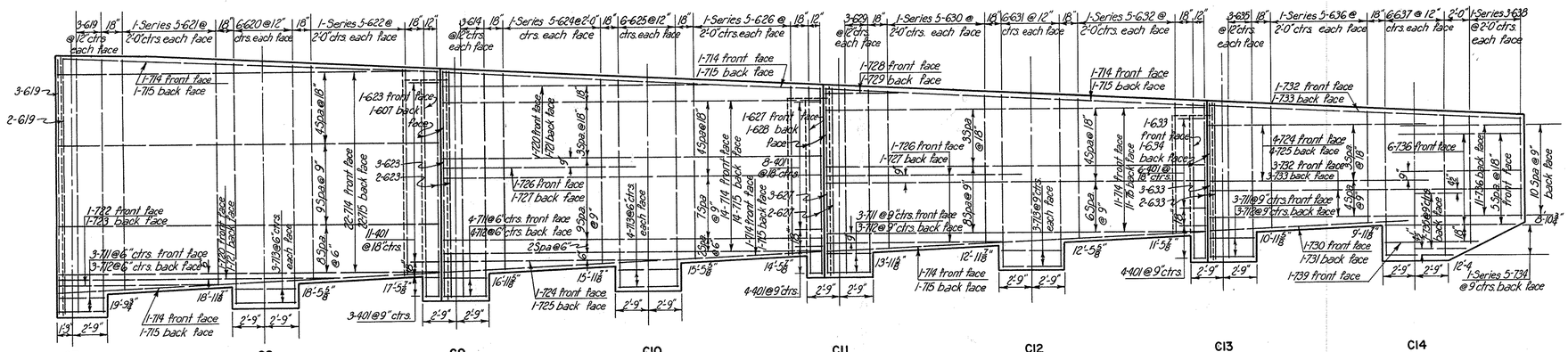
44
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
RETAINING WALL-FOUNTAIN STREET

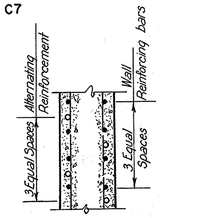




TYPICAL COUNTERFORT SECTION
No Scale



ELEVATIONS
Scale: 1/8" = 1'-0"



SECTION OF WALL SHOWING PLACEMENT OF ALTERNATING BARS
No Scale

ESTIMATED QUANTITIES

Item	Description	Quantity
E-2	Cofferdams, Cribs and Sheeting	Lump Sum
E-2	Excavation for Structures - Unclassified	401 Cu. Yds.
E-2	Excavation for Structures - Rock	28 Cu. Yds.
S-1	Class "C" Concrete	363 Cu. Yds.
S-3	Type "B" Waterproofing	35 Sq. Yds.
S-4	Reinforcing Steel	49019 Lbs.
S-9	1" Premolded Bituminous Expansion Joint Filler	37 Sq. Ft.
S-9	Copper Waterstop	111 Lin. Ft.
S-29	8" Bituminous Coated Corrugated Metal Pipe	243 Lin. Ft.
S-29	Porous Backfill	209 Cu. Yds.
I-14	12" Half Round Concrete Gutter	244 Lin. Ft.
S-29	Downspouts	2 Each

TABLE FOR COUNTERFORTS

COUNTERFORTS	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U
1	10'-0"	0'-6"	10'-9 3/8"	6'-6 3/9	12"	7'-6 1/2	19"	3-737	2-641	2-642	2-643	2-644	——	3-738	7-501	18"	——	——
2	11'-6"	2'-0"	17'-1"	7'-6 1/5	10"	10'-6 1/2	15"	4-1101	2-627	2-648	2-649	2-650	——	4-1102	11-502	18"	——	——
3	11'-6"	2'-0"	18'-7"	7'-6 1/5	10"	10'-6 1/2	15"	4-1103	2-651	2-652	2-653	2-643	——	4-1102	12-503	18"	——	——
4	11'-6"	2'-0"	19'-3 3/8"	7'-6 1/5	10"	10'-6 1/2	15"	4-1104	2-609	2-631	2-653	2-655	——	4-1102	12-503	18"	——	——
5	11'-6"	2'-0"	20'-5"	7'-6 1/5	10"	10'-6 1/2	15"	4-1105	2-623	2-628	2-654	2-656	——	4-1102	13-504	18"	——	——
6	12'-6"	2'-0"	20'-11 1/2"	7'-6 1/7	9 1/2"	15'-6 1/0	10 1/2"	4-1106	2-657	2-633	2-649	2-643	3-813	4-1102	11-505	9"	11-506	12"
7	12'-6"	2'-0"	21'-8 3/8"	7'-6 1/7	9 1/2"	15'-6 1/0	10 1/2"	4-1107	2-607	2-652	2-649	2-643	3-813	4-1102	11-505	9"	12-507	12"
8	12'-6"	2'-0"	20'-7 3/8"	7'-6 1/7	9 1/2"	15'-6 1/0	10 1/2"	4-1108	2-658	2-633	2-639	2-643	3-813	4-1102	11-505	9"	11-506	12"
9	11'-6"	2'-0"	19'-3 3/8"	7'-6 1/5	10"	10'-6 1/2	15"	4-1104	2-609	2-631	2-653	2-655	——	4-1102	12-503	18"	——	——
10	11'-6"	2'-0"	17'-11"	7'-6 1/5	10"	10'-6 1/2	15"	4-1109	2-658	2-635	2-659	2-643	——	4-1102	11-508	18"	——	——
11	11'-6"	2'-0"	16'-0 3/8"	7'-6 1/5	10"	10'-6 1/2	15"	4-1110	2-628	2-660	2-656	2-650	——	4-1102	10-509	18"	——	——
12	10'-0"	2'-0"	14'-8 3/8"	6'-6 3/9	12"	7'-6 1/0	19"	4-814	2-648	2-656	2-642	——	——	4-815	13-510	12"	——	——
13	10'-0"	2'-0"	13'-4 1/8"	6'-6 3/9	12"	7'-6 1/0	19"	4-816	2-660	2-655	2-661	——	——	4-815	12-511	12"	——	——
14	10'-0"	2'-0"	12'-5 3/8"	6'-6 3/9	12"	7'-6 1/0	19"	4-809	2-659	2-650	2-661	——	——	4-815	11-512	12"	——	——

SCALE As Shown
MADE J.G.S. DATE 12-15-52
TRCD. C.C.B. DATE 12-23-52
CKD. J.G.S. DATE 12-26-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET- 44

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

45
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95
RETAINING WALL - CROUSE STREET, FOUNTAIN STREET

RETAINING WALL - CROUSE STREET

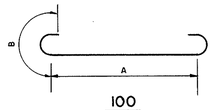
MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
401	4	37	7'-6"	123					185
501	5	1 @ 6 of 12	7'-8" to 18'-10"	125	2'-3" to 7'-10"				124
502	5	1 @ 6 of 12	7'-8" to 18'-10"	125	2'-3" to 7'-10"				249
503	5	1 @ 6 of 12	7'-2" to 17'-2"	125	2'-0" to 7'-0"				258
504	5	1 @ 10 of 12	17'-8" to 20'-10"	125	7'-3" to 8'-10"				201
505	5	1 @ 6 of 12	7'-2" to 16'-8"	125	2'-0" to 6'-9"				212
506	5	1 @ 10 of 12	17'-2" to 20'-10"	125	7'-0" to 8'-10"				198
507	5	1 @ 6 of 12	7'-2" to 15'-8"	125	2'-0" to 6'-3"				143
508	5	1 @ 10 of 12	15'-2" to 20'-10"	125	6'-6" to 8'-10"				193
509	5	1 @ 16 of 12	7'-8" to 20'-10"	125	2'-3" to 8'-10"				238
510	5	1 @ 6 of 12	7'-8" to 18'-10"	125	2'-3" to 7'-10"				166
601	6	2 @ 5 of 3	4'-0" to 6'-0"	Str.					45
602	6	4	9'-9"	Str.					59
603	6	2 @ 10 of 8	8'-0" to 16'-0"	Str.					361
604	6	4	19'-0"	Str.					114
605	6	2 @ 28 of 8	18'-0" to 22'-6"	Str.					365
606	6	2 @ 28 of 8	23'-3" to 24'-6"	Str.					215
607	6	2	26'-9"	Str.					80
608	6	10	37'-3"	Str.					410
609	6	2 @ 28 of 8	24'-9" to 25'-3"	Str.					225
610	6	2 @ 28 of 8	23'-6" to 24'-6"	Str.					216
611	6	4	25'-6"	Str.					154
612	6	2 @ 28 of 8	18'-0" to 21'-6"	Str.					356
613	6	7	21'-0"	Str.					221
614	6	3	20'-6"	Str.					93
615	6	2 @ 28 of 8	12'-9" to 15'-6"	Str.					212
616	6	4	17'-0"	Str.					102
617	6	2 @ 28 of 8	7'-6" to 11'-0"	Str.					167
618	6	4	13'-0"	Str.					78
619	6	2 @ 5 of 3	4'-6" to 6'-0"	Str.					47
620	6	4	11'-3"	Str.					68
621	6	6	9'-0"	Str.					81
622	6	2	6'-0"	Str.					20
623	6	2	4'-9"	Str.					14
624	6	4	17'-6"	Str.					105
625	6	4	13'-3"	Str.					80
626	6	4	7'-0"	Str.					42
627	6	2	23'-3"	Str.					70
628	6	8	12'-0"	Str.					144
629	6	2	20'-0"	Str.					60
630	6	2	15'-0"	Str.					45
631	6	2	12'-9"	Str.					38
632	6	2	8'-0"	Str.					24
633	6	2	16'-3"	Str.					49
634	6	2	10'-9"	Str.					32
635	6	2	10'-0"	Str.					30
636	6	2	9'-6"	Str.					29
637	6	2	6'-3"	Str.					19
638	6	2	5'-9"	Str.					17
639	6	56	4'-9"	Str.					400
640	6	18	11'-9"	101	10'-0"	1'-0"			318
641	6	27	12'-9"	101	11'-0"	1'-0"			517
642	6	78	15'-0"	Str.					586
643	6	2	19'-6"	Str.					59
701	7	4	54'-0"	Str.					442
702	7	4	37'-0"	Str.					303
703	7	1 @ 5 of 3	3'-0" to 8'-0"	Str.					88
704	7	1 @ 5 of 3	4'-3" to 8'-0"	Str.					168
705	7	10	8'-0"	Str.					164
706	7	2 @ 5 of 3	5'-3" to 11'-6"	Str.					103
707	7	2	13'-6"	Str.					55
708	7	2	15'-6"	Str.					63
709	7	2 @ 5 of 3	17'-0" to 22'-6"	Str.					484
710	7	28	24'-0"	Str.					1372
711	7	8 @ 5 of 3	4'-0" to 13'-6"	Str.					143
712	7	8 @ 5 of 3	15'-3" to 20'-3"	Str.					290
713	7	83	21'-6"	Str.					3648
714	7	2	49'-0"	Str.					200
715	7	1 @ 5 of 3	15'-6" to 33'-6"	122	14'-0" to 32'-0"				251
716	7	1 @ 5 of 3	15'-0" to 33'-0"	104	13'-6" to 31'-6"				246
717	7	24	35'-0"	120	32'-0"				1720
718	7	24	33'-0"	121	31'-0"				1620
719	7	2	36'-0"	120	33'-0"				147
720	7	2	34'-0"	121	32'-0"				139
721	7	2 @ 5 of 3	5'-9" to 14'-9"	Str.					126
722	7	28	14'-9"	Str.					845
723	7	2 @ 21 of 3	6'-6" to 20'-6"	Str.					291
724	7	14	17'-6"	Str.					501
725	7	1	6'-6"	Str.					13
726	7	10	8'-0"	Str.					164
727	7	1 @ 5 of 3	4'-0" to 8'-0"	Str.					37
728	7	2	35'-3"	Str.					144

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
801	8	3	19'-3"	124	17'-0"	1'-6"	12	5.5	154
802	8	3	5'-6"	Str.					44
803	8	9	11'-0"	Str.					264
1101	11	3	12'-3"	124	10'-0"	1'-6"	12	9	195
1102	11	3	20'-6"	124	19'-0"	1'-6"	12	4	327
1103	11	4	30'-6"	124	29'-0"	1'-6"	12	3	648
1104	11	4	26'-9"	124	25'-3"	1'-6"	12	3.5	569
1105	11	4	22'-6"	124	21'-0"	1'-6"	12	4.5	478
1106	11	3	15'-0"	124	13'-6"	1'-6"	12	6	239
1107	11	21	7'-3"	101	5'-4"	2'-1"			811

RETAINING WALL - FOUNTAIN STREET

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
401	4	78	7'-6"	123					391
501	5	1 @ 6 of 8	8'-2" to 18'-2"	125	2'-6" to 7'-6"				96
502	5	1 @ 6 of 8	6'-8" to 18'-8"	125	1'-9" to 7'-9"				145
503	5	1 @ 6 of 8	6'-8" to 18'-8"	125	1'-9" to 7'-9"				475
504	5	1 @ 6 of 8	6'-8" to 18'-8"	125	1'-9" to 7'-9"				172
505	5	1 @ 6 of 8	15'-2" to 20'-3"	125	6'-2" to 8'-9"				619
506	5	1 @ 6 of 8	6'-8" to 14'-8"	125	1'-9" to 5'-9"				244
507	5	1 @ 6 of 8	7'-2" to 14'-8"	125	2'-0" to 5'-9"				137
508	5	1 @ 6 of 8	7'-8" to 18'-8"	125	2'-3" to 7'-9"				151
509	5	1 @ 6 of 8	7'-2" to 18'-8"	125	2'-0" to 7'-9"				135
510	5	1 @ 6 of 8	7'-2" to 16'-2"	125	2'-0" to 6'-6"				159
511	5	1 @ 6 of 8	7'-2" to 16'-2"	125	2'-0" to 6'-6"				146
512	5	1 @ 6 of 8	6'-8" to 16'-2"	125	1'-9" to 6'-6"				132
601	6	244	4'-6"	Str.					1655
602	6	2 @ 5 of 3	7'-8" to 9'-9"	Str.					71
603	6	2 @ 28 of 8	9'-0" to 11'-0"	Str.					180
604	6	2 @ 28 of 8	11'-0" to 15'-0"	Str.					313
605	6	2 @ 28 of 8	16'-0" to 16'-6"	Str.					293
606	6	2 @ 28 of 8	15'-9" to 16'-3"	Str.					385
607	6	10	17'-0"	Str.					320
608	6	2	16'-9"	Str.					50
609	6	10	18'-0"	Str.					271
610	6	2 @ 28 of 8	16'-9" to 17'-3"	Str.					307
611	6	12	18'-6"	Str.					334
612	6	2 @ 28 of 8	17'-6" to 18'-0"	Str.					267
613	6	8	19'-6"	Str.					234
614	6	8	18'-3"	Str.					220
615	6	6	19'-0"	Str.					178
616	6	2 @ 28 of 8	18'-3" to 18'-9"	Str.					278
617	6	12	20'-3"	Str.					365
618	6	2 @ 28 of 8	19'-0" to 19'-6"	Str.					200
619	6	14	21'-3"	Str.					447
620	6	14	20'-3"	Str.					422
621	6	6 @ 28 of 8	18'-6" to 19'-3"	Str.					284
622	6	2 @ 28 of 8	17'-0" to 17'-9"	Str.					261
623	6	10	19'-0"	Str.					286
624	6	2 @ 28 of 8	15'-6" to 16'-3"	Str.					239
625	6	12	17'-3"	Str.					311
626	6	2 @ 28 of 8	14'-0" to 14'-9"	Str.					216
627	6	10	18'-6"	Str.					233
628	6	6	14'-6"	Str.					130
629	6	6	15'-3"	Str.					137
630	6	2 @ 28 of 8	12'-6" to 13'-3"	Str.					193
631	6	16	14'-0"	Str.					336
632	6	2 @ 28 of 8	11'-0" to 11'-9"	Str.					171
633	6	12	13'-0"	Str.					234
634	6	2	11'-0"	Str.					35
635	6	8	12'-0"	Str.					153
636	6	2 @ 28 of 8	9'-3" to 10'-0"	Str.					144
637	6	12	12'-3"	Str.					221
638	6	2 @ 28 of 8	8'-0" to 11'-0"	Str.					89
639	6	26	9'-6"	Str.					371
640	6	73	5'-0"	Str.					548
641	6	2	8'-0"	Str.					26
642	6	4	6'-6"	Str.					39
643	6	12	7'-0"	Str.					96
644	6	2	4'-0"	Str.					14
645	6	49	12'-0"	101	11'-0"	1'-0"			883
646	6	70	7'-0"	100	5'-0"	1'-0"			735
647	6	121	13'-0"	101	12'-0"	1'-0"			410
648	6	4	12'-0"	Str.					72
649	6	6	9'-0"	Str.					81
650	6	6	6'-9"	Str.					61
651	6	2	17'-6"	Str.					153
652	6	4	13'-3"	Str.					80
653	6	6	9'-9"	Str.					88

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
654	6	4	10'-0"	Str.					60
655	6	6	7'-3"	Str.					65
656	6	6	7'-9"	Str.					70
657	6	2	17'-0"	Str.					51
658	6	4	16'-6"	Str.					99
659	6	2	8'-3"	Str.					25
660	6	4	11'-0"	Str.					66
661	6	4	6'-0"	Str.					36
701	7	21	36'-9"	122	35'-3"				1581
702	7	21	36'-3"	104	35'-3"	1'-0"			1560
703	7	1	37'-0"	122	35'-6"				76
704	7	1	36'-6"	104	35'-6"	1'-0"			75
705	7	2	22'-6"	Str.					92
706	7	9	17'-0"	Str.					313
707	7	3	22'-6"	122	21'-0"				138
708	7	3	21'-6"	104	20'-6"	1'-0"			132
709	7	1	28'-0"	122	26'-6"				57
710	7	1	27'-0"	104	26'-0"	1'-0"			55
711	7	19	15'-0"	122	13'-6"				194
712	7	19	4'-0"	104	3'-0"	1'-0"			156
713	7	32	15'-0"	Str.					327
714	7	77	33'-0"	122	31'-6"				5200
715	7	77	32'-6"	104	31'-6"	1'-0"			5120
716	7	1	33'-3"	122	31'-9"				68
717	7	1	32'-9"	104	31'-9"	1'-0"			67
718	7	1	7'-0"	Str.					14
719	7	1	8'-0"	104	7'-0"	1'-0"			16
720	7	2	24'-6"	122	23'-0"				100
721	7	2	23'-6"	104	22'-6"	1'-0"			96
722	7	1	14'-6"	122	13'-0"				30
723	7	1	13'-6"	104	12'-6"	1'-0"			28
724	7	5	19'-6"	122	18'-0"				200
725	7	5	18'-6"	104	17'-6"	1'-0"			189
726	7	13	17'-6"	122	16'-0"				107
727	7	13	16'-6"	104	15'-6"	1'-0"			101
728	7	1	7'-6"	122	6'-0"				15
729	7	1	6'-6"	104	5'-6"	1'-0"			13
730	7	1	17'-9"	122	16'-3"				36
731	7	1	16'-9"	104	15'-9"	1'-0"			34
732	7	4	27'-6"	122	26'-0"				225
733	7	4	26'-6"	104	25'-6"	1'-0"			217
734	7	1 @ 5 of 3	6'-0" to 11'-0"	Str.					87
735	7	7	4'-0"	Str.					57
736	7	17	10'-3"	Str.					356
737	7	3	12'-6"	124	11'-0"	1'-6"	1.4	1	77
738	7	3	4'-6"	124	3'-6"	3'-0"	1	1	28
739	7	1	7'-6"	Str.					15
801	8	32	51'-6"	Str.					4400
802	8	2	53'-0"	Str.					283
803	8	1	6'-3"	104	5'-3"	1'-0"			17
804	8	1	5'-3"	Str.					14
805	8	2	16'-0"	Str.					85
806	8	3 @ 5 of 3	27'-0" to 33'-0"	Str.					481
807	8	2 @ 5 of 3	35'-0" to 43'-0"	Str.					1570
808	8	4	25'-6"	Str.					272
809	8	4	13'-6"	124	12'-0"	1'-6"	2	1	144
810	8	2	7'-0"	Str.					37
811	8	4	5'-0"	Str.					53
812	8	5	22'-6"	Str.					300
813	8	9	11'-0"	Str.					264
814	8	4	15'-6"	124	14'-0"	1'-6"	2	1	166
815	8	12	5'-0"	Str.					160
816	8	4	14'-6"	124	13'-0"	1'-6"	2	1	155
1101	11	4	18'-6"	124	17'-0"	1'-6"	2	1	393
1102	11	40	6'-7"	101	4'-6"	2'-1"			1400
1103	11	4	20'-6"	124	18'-6"	1'-6"	2	1	425
1104	11	8	20'-9"	124	19'-3"	1'-6"	3	1	882
1105	11	4	21'-0"	124	20'-3"	1'-6"	3	1	462
1106	11	4	23'-6"	124	22'-0"	1'-6"	3	1	478
1107	11	4	23'-3"	124	21'-9"	1'-6"	3	1	484
1108	11	4	22'-0"	124	20'-6"	1'-6"	3	1	467
1109	11	4	19'-3"	124	17'-0"	1'-6"	2	1	409
1110	11	4	17'-6"	124	16'-0"	1'-6"	2	1	372



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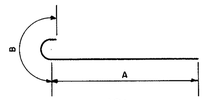

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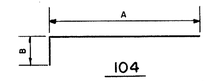

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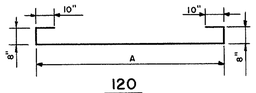

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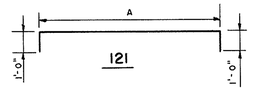

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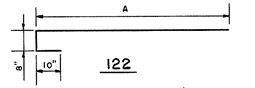

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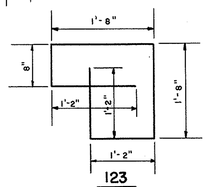

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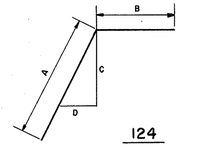

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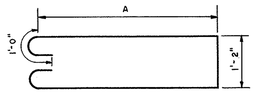


125

BENDING DIAGRAMS

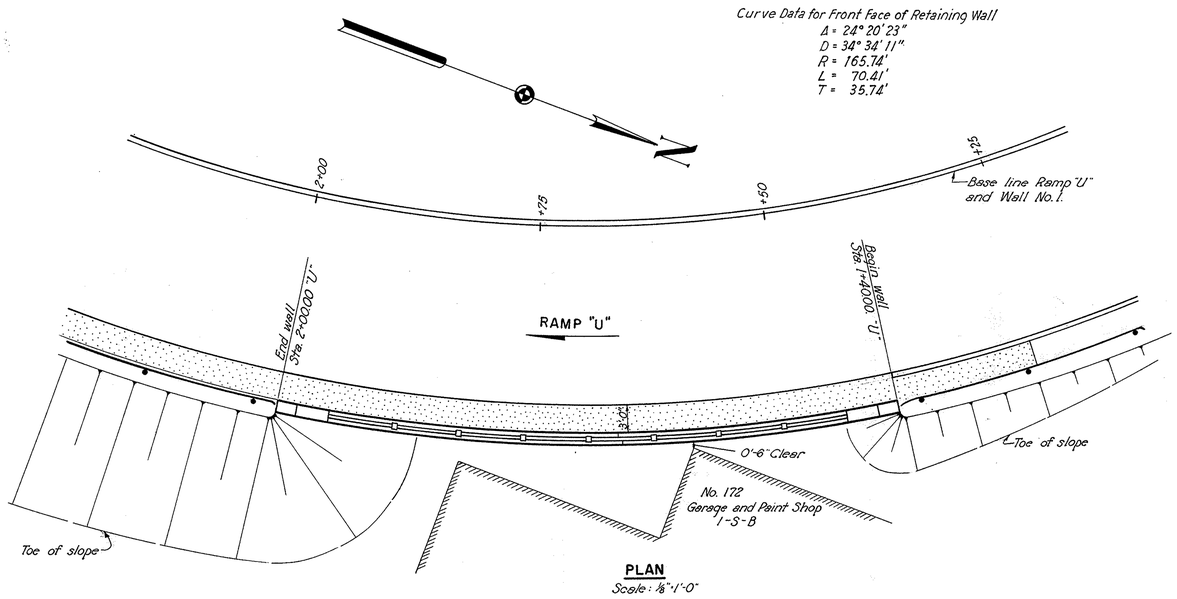
SCALE As shown
MADE R.K. DATE 12-12-52
TRCD N.A.M. DATE 12-20-52
CKD J.G.S. DATE 12-26-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET- 45

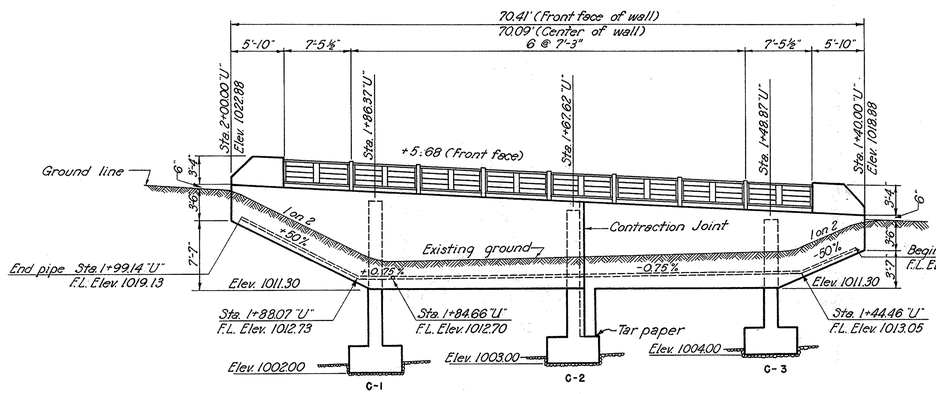
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

46
172

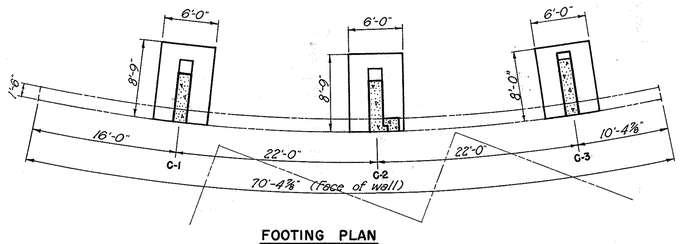
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95
RETAINING WALL NO. 1
RAMP "U"



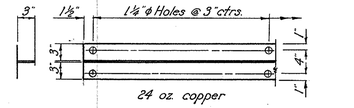
PLAN
Scale: 1/8" = 1'-0"



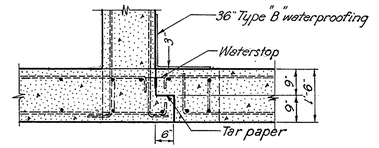
DEVELOPED ELEVATION
Scale: 1/8" = 1'-0"



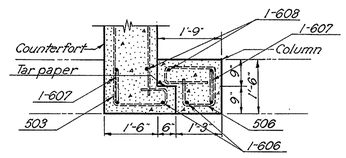
FOOTING PLAN
Scale: 1/8" = 1'-0"



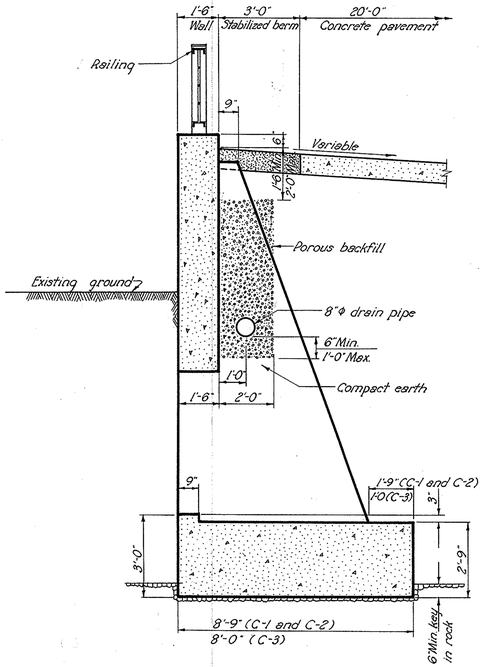
WATERSTOP
Scale: 1" = 1'-0"



CONTRACTION JOINT
Scale: 1½" = 1'-0"



WALL COLUMN
Scale: 1/8" = 1'-0"



WALL SECTION
Not to scale

Notes:

Porous backfill shall conform to Items S-29.02 and S-29.04.

Pipe shall be 8" bituminous coated perforated C.M.P. conforming to Sec. M-64(f) with necessary fittings.

Upper ends of pipes shall be tightly closed with permanent headers made of No. 16 gauge sheet metal.

Provide "T" fitting at Sta. 1+94.66 "U" and extend 8" drain pipe through wall at 1% grade. Pipe shall extend a minimum of 1'-0" beyond front face of wall. Provide 1'-22½" 8" pipe special at lower end of drain pipe.

Include "T" fitting and 22½° pipe bend in Item S-29, 8" ϕ drain pipe, for payment.

SCALE As shown
MADE W.D.M. DATE 12-2-52
TRCD C.O.H. DATE 12-6-52
CKD W.D.M. DATE 12-11-52

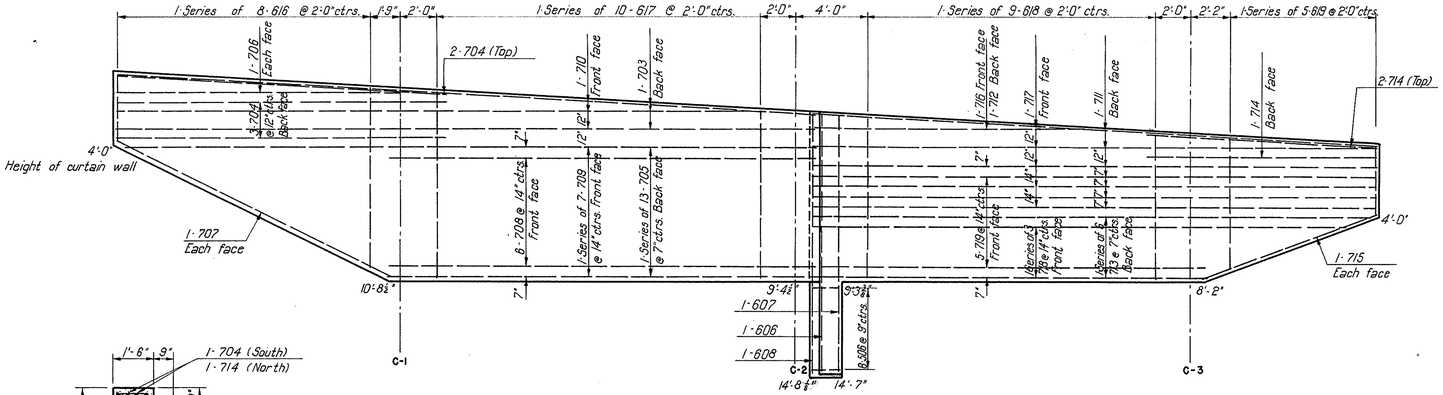
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 46

605

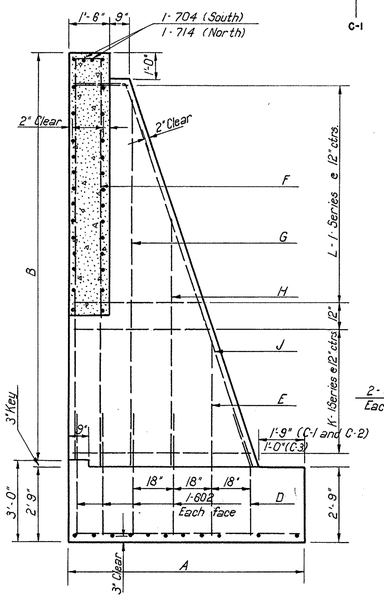
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

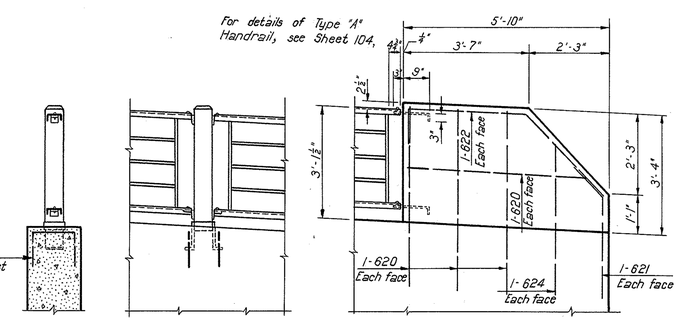
47
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
RETAINING WALL NO.1
RAMP "U"



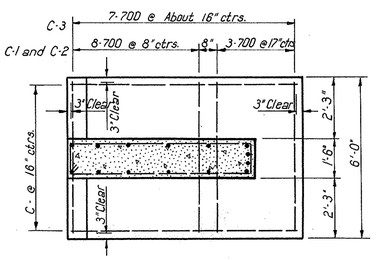
ELEVATION
Scale: 1/4" = 1'-0"



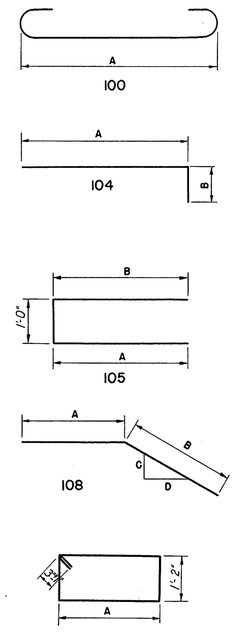


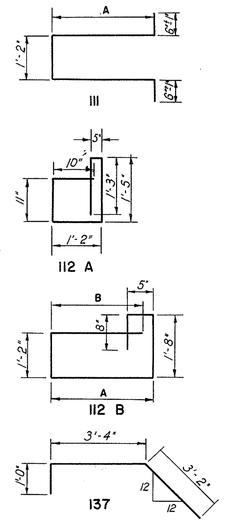
RAILING POST REINFORCING DETAIL
Scale: ½" = 1'-0"

ENDPOST
Scale: ½" = 1'-0"



TYPICAL COUNTERFORT SECTION
Not to scale





BENDING DIAGRAMS

ESTIMATED QUANTITIES

Item	Description	Quantity
E-2	Cofferdams, Cribs, and Sheeting	Lump Sum
E-2	Excavation for Structures - (Unclassified)	115 Cu. Yds.
E-2	Excavation for Structures (Rock and Shale)	6 Cu. Yds.
S-1	Class "C" Concrete for Structures	58 Cu. Yds.
S-3	Type "B" Waterproofing	3 Sq. Yds.
S-4	Reinforcing Steel	7644 Lbs.
S-9	Copper Waterstop	9 Lin. Ft.
S-14	Railing	58.42 Lin. Ft.
S-29	Porous Backfill	30 Cu. Yds.
S-29	8" Perforated Bituminous Coated Corrugated Metal Pipe	71 Lin. Ft.

TABLE FOR COUNTERFORTS

COUNTERFORTS	A	B	C	D	E	F	G	H	J	K	L
1	8'-9"	16'-11⅝"	5-600	4-800	2-603	2-605	2-610	2-613	4-801	1-501	1-500
2	8'-9"	14'-8⅝"	5-600	4-800	2-604	*	2-611	2-614	4-802	1-503	1-502
3	8'-0"	12'-5⅝"	5-601	3-701	2-625	2-609	2-612	2-615	3-702	1-505	1-504

* See Contraction Joint Detail.

REINFORCEMENT SCHEDULE

MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	C	D	WEIGHT
500	5	1-Series of 10	6'-0" to 11'-0"	111	1'-10" to 4'-5"				89 Lbs.
501	5	1-Series of 7	12'-6" to 16'-0"	109	4'-3" to 6'-6"				104
502	5	1-Series of 9	6'-0" to 11'-0"	111	1'-10" to 4'-6"				80
503	5	1-Series of 6	13'-3" to 16'-6"	112B	4'-10" to 6'-5"	4'-6" to 6'-2"			93
504	5	1-Series of 8	6'-0" to 11'-3"	111	1'-10" to 4'-1"				72
505	5	1-Series of 4	12'-9" to 15'-6"	109	5'-0" to 6'-4"				59
506	5	6	6'-0"	112A					38
600	6	10	8'-3"	Str.					124
601	6	5	7'-6"	Str.					56
602	6	24	4'-6"	Str.					162
603	6	2	7'-9"	Str.					23
604	6	2	7'-0"	Str.					21
605	6	2	34'-9"	105	16'-9"	17'-0"			104
606	6	2	14'-6"	Str.					44
607	6	2	30'-3"	105	14'-6"	14'-9"			91
608	6	2	14'-9"	Str.					44
609	6	2	25'-9"	105	12'-3"	12'-6"			77
610	6	2	15'-3"	Str.					46
611	6	2	13'-3"	Str.					40
612	6	2	11'-9"	Str.					35
613	6	2	10'-3"	Str.					31
614	6	2	8'-9"	Str.					26
615	6	2	7'-6"	Str.					22
616	6	1-Series of 8	8'-6" to 21'-0"	105	3'-9" to 10'-0"	3'-9" to 10'-0"			177
617	6	1-Series of 10	19'-6" to 21'-6"	105	9'-3" to 10'-3"	9'-3" to 10'-3"			308
618	6	1-Series of 9	17'-0" to 18'-6"	105	8'-0" to 8'-9"	8'-0" to 8'-9"			240
619	6	1-Series of 5	8'-6" to 15'-6"	105	3'-9" to 7'-3"	3'-9" to 7'-3"			90
620	6	16	5'-0"	Str.					120
621	6	4	4'-3"	108	2'-9"	1'-6"	12	12	26
622	6	4	7'-6"	137					45

MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	C	D	WEIGHT
623	6	14	3'-0"	105	1'-0"	1'-0"			63 Lbs.
624	6	4	4'-3"	Str.					26
625	6	2	6'-3"	Str.					19
700	7	29	7'-0"	100	5'-6"				415
701	7	3	4'-9"	108	2'-6"	2'-3"	5	12	29
702	7	3	14'-3"	108	1'-10"	12'-5"	7	12	87
703	7	3	38'-6"	104	38'-0"	0'-6"			236
704	7	5	18'-3"	Str.					186
705	7	1-Series of 13	23'-6" to 37'-9"	104	23'-0" to 37'-3"	0'-6"			814
706	7	2	18'-6"	Str.					76
707	7	2	17'-0"	Str.					69
708	7	6	24'-3"	104	23'-9"	0'-6"			297
709	7	1-Series of 7	24'-3" to 38'-6"	104	23'-9" to 38'-0"	0'-6"			449
710	7	3	39'-3"	104	38'-9"	0'-6"			241
711	7	7	31'-6"	104	31'-0"	0'-6"			451
712	7	1	15'-6"	104	15'-0"	0'-6"			32
713	7	1-Series of 6	22'-0" to 30'-3"	104	21'-6" to 29'-9"	0'-6"			320
714	7	3	12'-9"	Str.					78
715	7	2	10'-3"	Str.					42
716	7	1	15'-9"	104	14'-7"	1'-2"			32
717	7	5	32'-0"	104	30'-10"	1'-2"			327
718	7	1-Series of 3	22'-6" to 29'-3"	104	21'-4" to 28'-1"	1'-2"			159
719	7	5	22'-6"	104	21'-4"	1'-2"			230
800	8	8	5'-0"	108	2'-6"	2'-6"	4	12	107
801	8	4	18'-6"	108	1'-10"	16'-8"	6	12	198
802	8	4	16'-3"	108	1'-10"	14'-5"	6	12	174

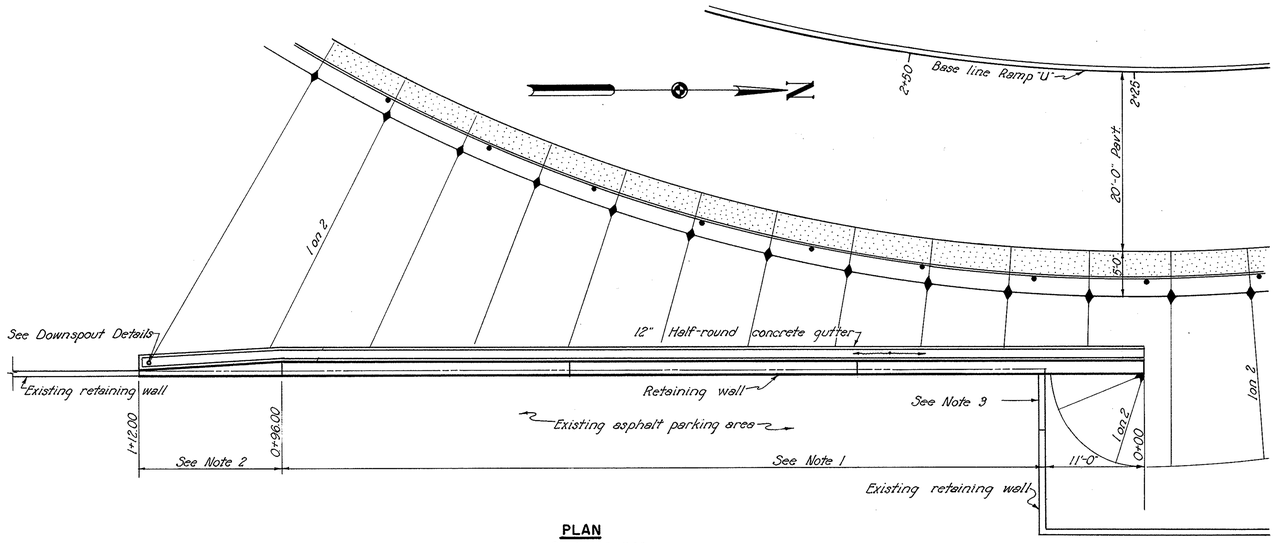
606

SCALE As shown	HOWARD, NEEDLES, TAMMEN & BERGENDOFF	
MADE WDM DATE 12-6-52	CONSULTING ENGINEERS	
TRCD CAL DATE 12-12-52	KANSAS CITY	NEW YORK
CKD WDM DATE 12-13-52	846	SHEET- 47

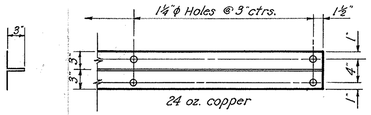
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

48
172

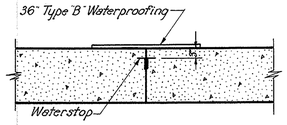
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
RETAINING WALL NO.2
RAMP "U"



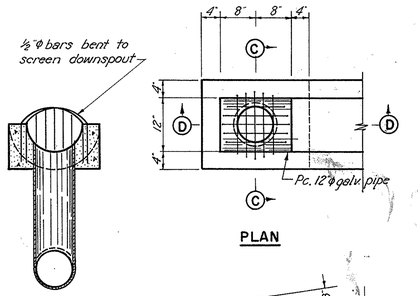
PLAN
Scale: 1/8" = 1'-0"



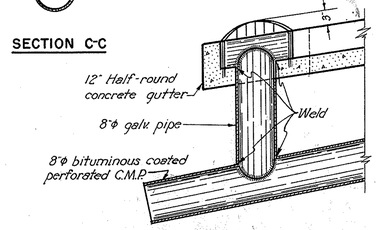
CONTRACTION JOINT WATERSTOP
Scale: 1" = 1'-0"



CONTRACTION JOINT
Scale: 1/2" = 1'-0"



PLAN



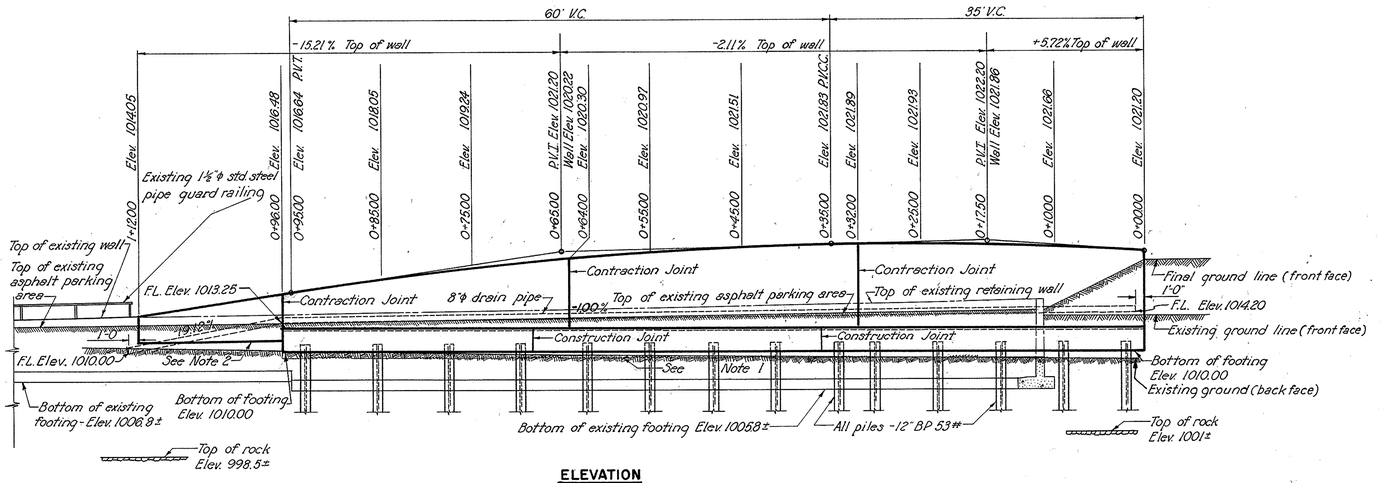
SECTION C-C

SECTION D-D

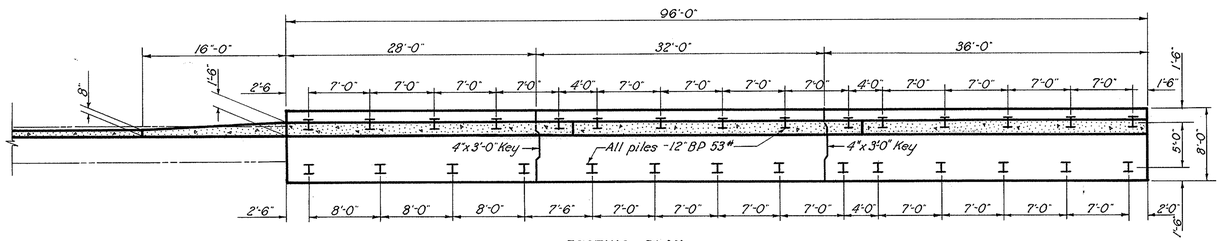
DOWNSPOUT DETAILS
Scale: 1" = 1'-0"

See Note on Sheet 41.

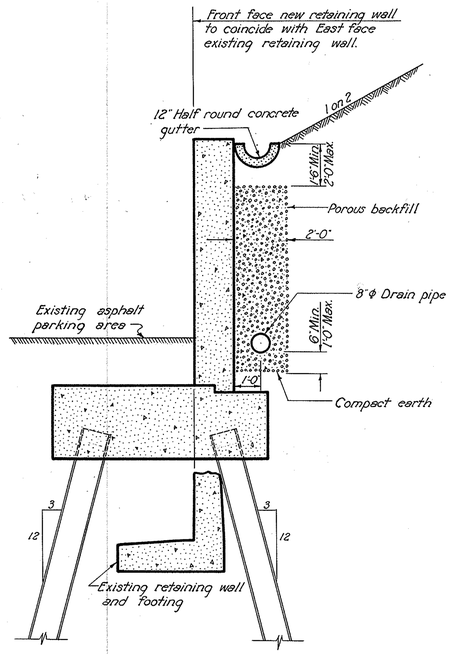
Notes:
1. Remove existing retaining wall including reinforcing bars to an elevation of 1009.5.
2. Remove existing retaining wall a minimum of 3 ft. below top of existing wall to expose back face vertical bars. Front face vertical bars shall be clipped at same elevation as back face vertical bars. Clean all exposed bar ends and butt weld extensions. Wall shall be tapered in width on the West side from 18" at Sta. 0+96.00 to 8" at Sta. 1+12.00.
3. Remove approximately 6 ft. of existing East-West retaining wall to provide clearance for the construction of North-South retaining wall. This portion of East-West wall to be reconstructed by Contractor upon completion of North-South wall.
4. Porous backfill shall conform to Items S-29.02 and S-29.04.
5. Drain pipe shall be 8" bituminous coated perforated C.M.P. conforming to Sec. M-64(f) with necessary fittings. Upper end of pipe shall be tightly closed with permanent header made of No. 16 gauge sheet metal.
6. Removal of asphalt pavement and portion of East-West retaining wall shall be kept to a minimum. Contractor shall replace pavement and wall with like kind and thickness. Payment for removal and replacement of asphalt pavement shall be included in price bid for "Excavation for Structures - Unclassified" and payment for removal and replacement of wall shall be included in price bid for "Excavation for Structures - Existing Reinforced Concrete Wall."



ELEVATION
Scale: 1/8" = 1'-0"



FOOTING PLAN
Scale: 1/8" = 1'-0"



WALL SECTION
Not to scale

SCALE	As shown
MADE	A.F.S. DATE 12-4-52
TRCD	E.D.H. DATE 12-10-52
CKD	W.D.M. DATE 12-11-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY 846 NEW YORK
SHEET- 48

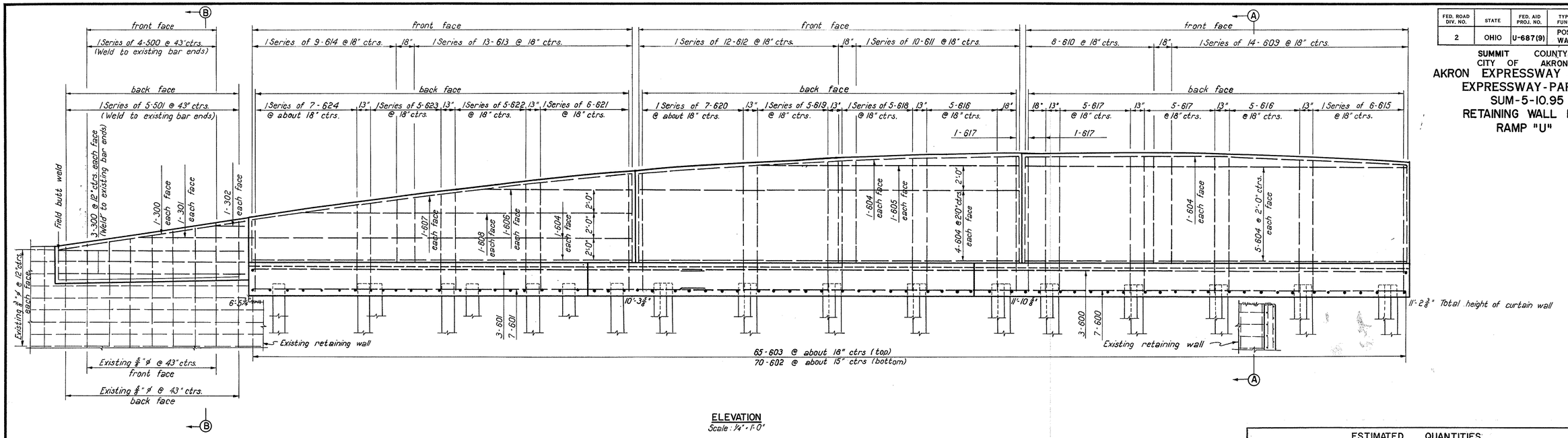
607

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

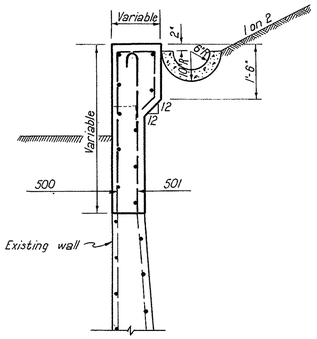
49
172

SUMMIT COUNTY
CITY OF AKRON

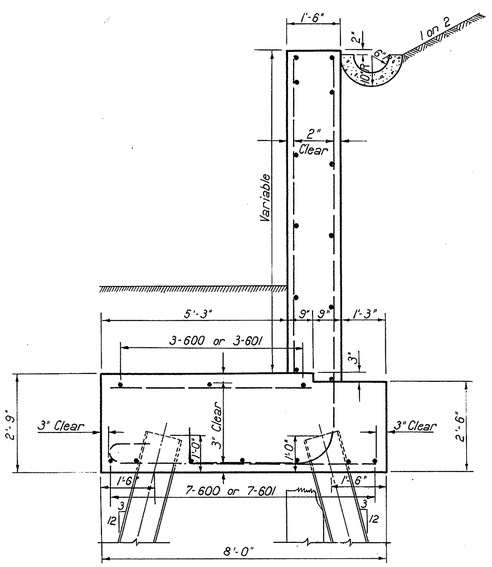
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
RETAINING WALL NO. 2
RAMP "U"



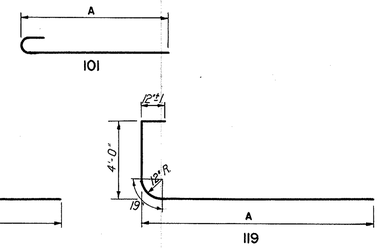
ELEVATION
Scale: ¼" = 1'-0"



SECTION B-B
Scale: ½" = 1'-0"



SECTION A-A
Scale: ½" = 1'-0"



BENDING DIAGRAMS

ESTIMATED QUANTITIES

Item	Description	Quantity
E-2	Cofferdams, Cribs and Sheeting	Lump Sum
E-2	Excavation for Structures (Unclassified)	96 Cu. Yds.
E-2	Excavation for Structures (Existing Reinforced Concrete Wall)	16 Cu. Yds.
S-1	Class "C" Concrete for Structures	120 Cu. Yds.
S-3	Type "B" Waterproofing	7 Sq. Yds.
S-4	Reinforcing Steel	6777 Lbs.
S-9	Copper Waterstop	21 Lin. Ft.
S-16	First Test Pile	Lump Sum
S-18	Steel Piles 12 BP #53	330 Lin. Ft.
S-29	Porous Backfill	42 Cu. Yds.
S-29	8" Perforated Bituminous Coated Corrugated Metal Pipe	112 Lin. Ft.
I-14	12" Half-Round Concrete Gutter	112 Lin. Ft.
S-29	Downspouts	1 Each

REINFORCEMENT SCHEDULE

MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT
600	6	10	60'-0"	Str.					901
601	6	10	37'-6"	Str.					563
602	6	70	8'-3"	101	7'-6"				867
603	6	65	5'-9"	Str.					562
604	6	26	31'-6"	Str.					1230
605	6	2	23'-0"	Str.					69
606	6	2	13'-0"	Str.					39
607	6	2	32'-0"	Str.					96
608	6	2	28'-0"	Str.					84
609	6	1 Series of 14	8'-3" to 9'-0"	Str.					181
610	6	8	9'-0	Str.					108
611	6	1 Series of 10	8'-6" to 9'-0"	Str.					131
612	6	1 Series of 12	7'-6" to 8'-6"	Str.					144
613	6	1 Series of 13	5'-6" to 7'-3"	Str.					124
614	6	1 Series of 9	3'-6" to 5'-3"	Str.					59
615	6	1 Series of 6	15'-3" to 15'-9"	119	10'-9" to 11'-1"				140
616	6	10	15'-9"	119	11'-2"				236
617	6	13	16'-0"	119	11'-4"				312
618	6	1 Series of 5	15'-6" to 15'-9"	119	10'-11" to 11'-2"				117
619	6	1 Series of 5	15'-0" to 15'-6"	119	10'-6" to 10'-11"				114
620	6	1 Series of 7	14'-6" to 15'-0"	119	9'-10" to 10'-6"				155
621	6	1 Series of 6	13'-9" to 14'-3"	119	9'-1" to 9'-9"				126
622	6	1 Series of 5	13'-0" to 13'-6"	119	8'-4" to 8'-11"				100
623	6	1 Series of 5	12'-0" to 12'-9"	119	7'-5" to 8'-2"				93
624	6	1 Series of 7	10'-9" to 12'-0"	119	6'-1" to 7'-4"				120
300	3	8	15'-9"	Str.					47
301	3	2	9'-6"	Str.					7
302	3	2	2'-0"	Str.					2
500	5	1 Series of 4	5'-6" to 7'-6"	120	3'-3" to 4'-8"	8" to 10"	12	12	27
501	5	1 Series of 5	3'-6" to 5'-6"	101	2'-10" to 4'-10"				23

608

SCALE As shown
MADE AFS DATE 12-9-52
TRCD CAL DATE 12-13-52
CKD CAE DATE 12-13-52

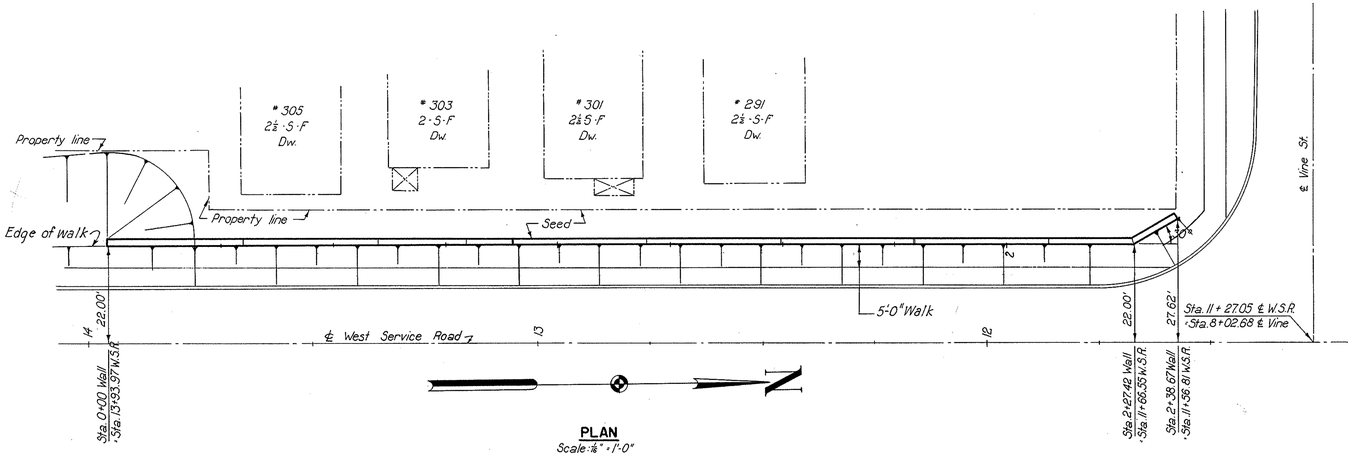
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846
SHEET 49

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

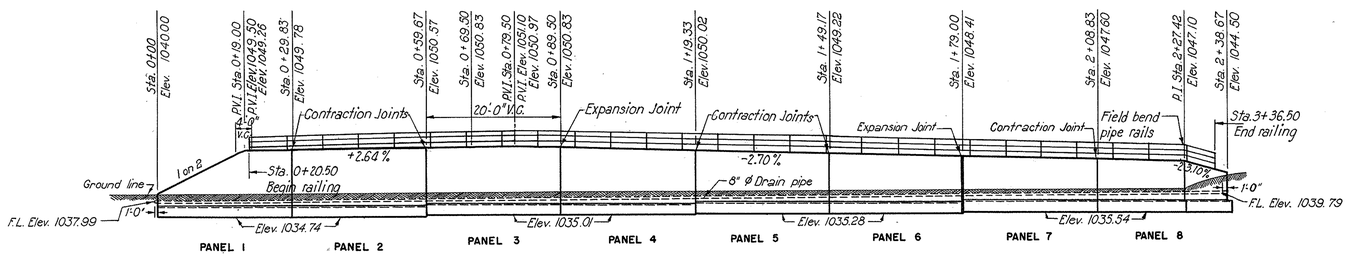
50
172

SUMMIT COUNTY
CITY OF AKRON

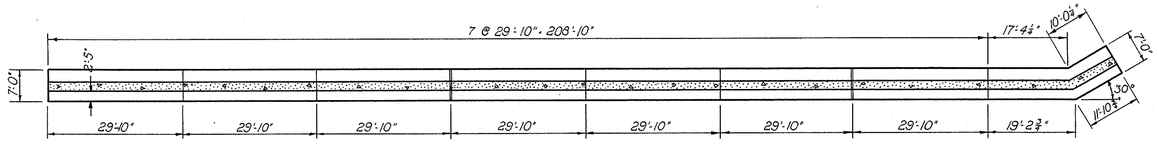
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
RETAINING WALL
WEST SERVICE ROAD



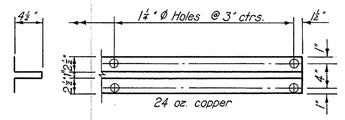
PLAN
Scale: ⅛" = 1'-0"



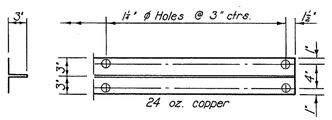
ELEVATION
Scale: ⅛" = 1'-0"



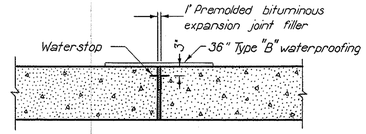
FOOTING PLAN
Scale: 1/16" = 1'-0"



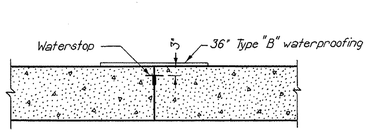
EXPANSION JOINT WATERSTOP
Scale: 1" = 1'-0"



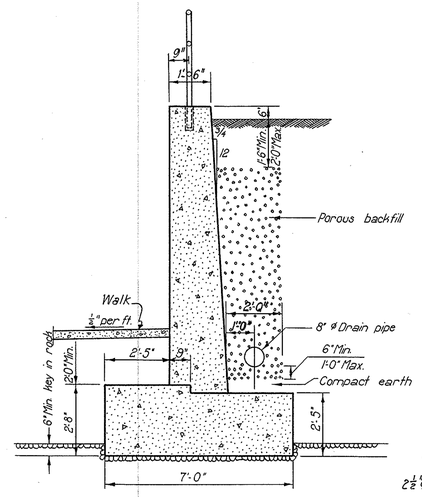
CONTRACTION JOINT WATERSTOP
Scale: 1" = 1'-0"



EXPANSION JOINT
Scale: 1" = 1'-0"

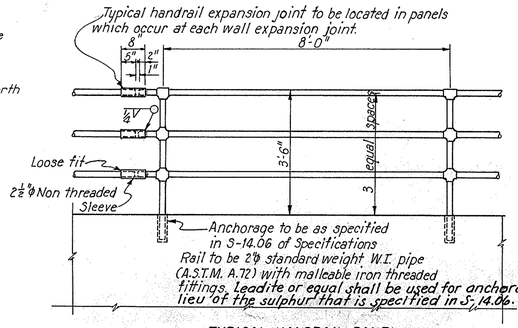


CONTRACTION JOINT
Scale: 1" = 1'-0"



WALL SECTION
Not to scale

Note:
Porous backfill shall conform to Items S-29.02 and S-29.04.
Pipe shall be 8" bituminous coated perforated C.M.P. conforming to Sec. M-64(f) with necessary fittings.
Upper end of pipe shall be tightly closed with a permanent header made of No. 16 gauge sheet metal.



TYPICAL HANDRAIL PANEL
Scale: ½" = 1'-0"

SCALE	As shown
MADE	WDM DATE 11-7-52
TRCD.	CAL DATE 11-13-52
CKD	W.D.M. DATE 12-11-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846
SHEET- 50

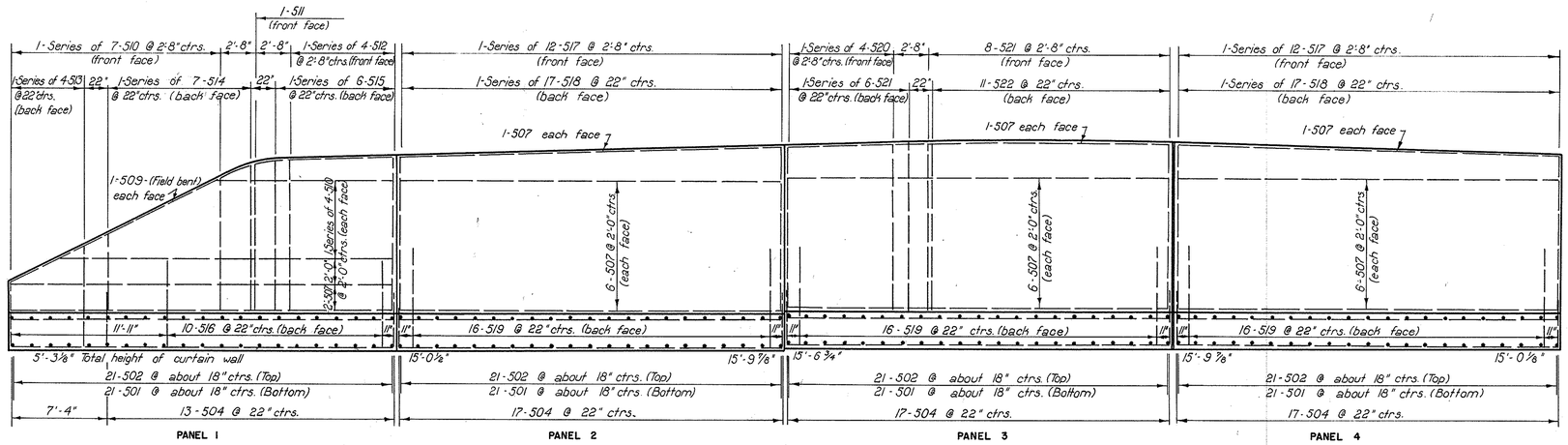
603

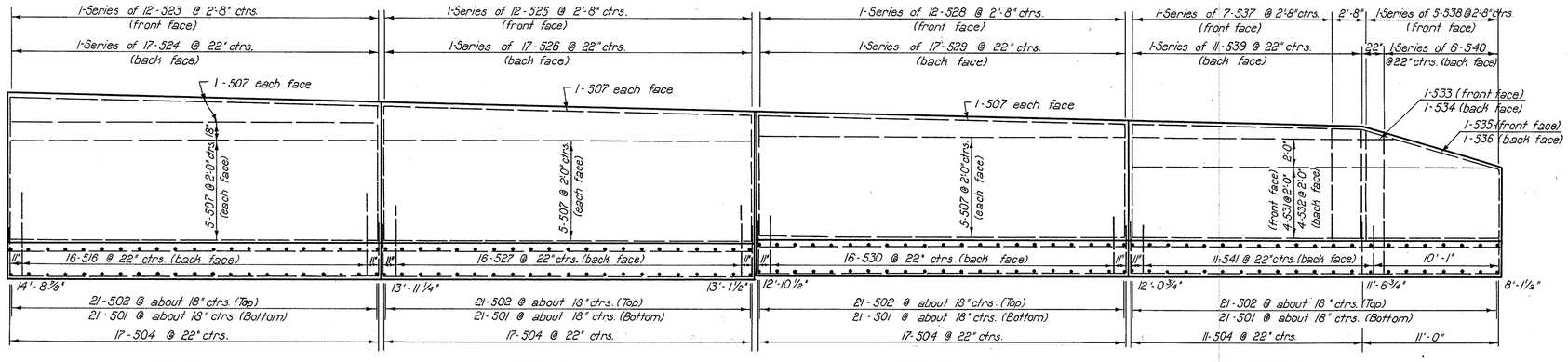
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

51
172

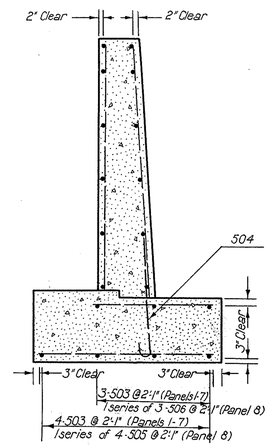
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95
RETAINING WALL
WEST SERVICE ROAD

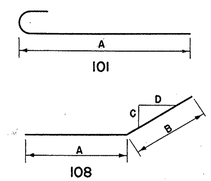




ELEVATIONS
Scale: 3/16"-1'-0"



TYPICAL WALL SECTION
Not to scale



BENDING DIAGRAMS

ESTIMATED QUANTITIES

Item	Description	Quantity
E-2	Cofferdams, Cribs, and Sheeting	Lump Sum
E-2	Excavation for Structures - (Unclassified)	472 Cu. Yds.
E-2	Excavation for Structures - (Rock and Shale)	186 Cu. Yds.
511	Class "C" Concrete for Structures	341 Cu. Yds.
513	Type "B" Waterproofing	28 Sq. Yds.
514	Reinforcing Steel	10947 Lbs.
519	Premolded Bituminous Expansion Joint Filler	80 Sq. Ft.
519	Copper Waterstops	83 Lin. Ft.
529	Porous Backfill	174 Cu. Yds.
529	8" Perforated Bituminous Coated Corrugated Metal Pipe	237 Lin. Ft.
L-9	Seeding and Protecting, Type "A"	290 Sq. Yds.
514	Handrail, Pipe as per plan	216 Lin. Ft.

REINFORCEMENT SCHEDULE

MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT
501	5	168	6'-6"	Str.					1139
502	5	168	4'-6"	Str.					788
503	5	49	29'-3"	Str.					1495
504	5	126	4'-9"	101	4'-2"				624
505	5	1 series of 4	27'-0" to 30'-3"	108	17'-2" to 18'-9"	9'-10⅝" to 11'-8"	7	12	119
506	5	1 series of 3	27'-0" to 29'-3"	108	17'-2" to 18'-3"	9'-10⅝" to 11'-0"	7	12	88
507	5	84	29'-6"	Str.					2585
508	5	2 series of 4	14'-0" to 26'-0"	Str.					167
509	5	2	31'-6"	Str.					66
510	5	1 series of 7	2'-6" to 10'-6"	Str.					47
511	5	1	11'-6"	Str.					12
512	5	1 series of 4	11'-9" to 14'-0"	Str.					50
513	5	1 series of 4	5'-6" to 8'-3"	101	4'-11" to 7'-8"				29
514	5	1 series of 7	6'-0" to 11'-9"	Str.					65
515	5	1 series of 6	12'-0" to 12'-3"	Str.					76
516	5	26	7'-3"	101	6'-7"				196
517	5	2 series of 12	12'-0" to 13'-0"	Str.					313
518	5	2 series of 17	12'-3" to 13'-3"	Str.					432
519	5	48	8'-3"	101	7'-7"				413
520	5	1 series of 4	12'-9" to 13'-0"	Str.					54
521	5	14	13'-0"	Str.					190
522	5	11	13'-3"	Str.					152
523	5	1 series of 12	11'-0" to 11'-9"	Str.					142
524	5	1 series of 17	11'-3" to 12'-0"	Str.					206
525	5	1 series of 12	10'-3" to 11'-0"	Str.					133
526	5	1 series of 17	10'-6" to 11'-3"	Str.					193
527	5	16	6'-3"	101	5'-8"				104
528	5	1 series of 12	9'-3" to 10'-0"	Str.					120
529	5	1 series of 17	9'-6" to 10'-3"	Str.					175
530	5	16	5'-3"	101	4'-7"				88
531	5	4	29'-3"	108	18'-3"	11'-0"	7	12	122
532	5	4	28'-6"	108	17'-10"	10'-8"	7	12	119
533	5	1	20'-6"	108	18'-4"	2'-2"	7	12	21
534	5	1	19'-9"	108	18'-0"	1'-9"	7	12	21
535	5	1	29'-9"	108	18'-5"	11'-4"	7⅛	12	31
536	5	1	28'-9"	108	17'-11	10'-10"	7⅛	12	30
537	5	1 series of 7	8'-9" to 9'-0"	Str.					65
538	5	1 series of 5	6'-0" to 8'-6"	Str.					38
539	5	1 series of 11	8'-9" to 9'-3"	Str.					103
540	5	1 series of 6	9'-3 to 11'-3"	101	8'-7 to 10'-8"				64
541	5	11	4'-6"	101	3'-10"				52

SCALE As shown
MADE WDM DATE 11-5-52
TRCD C.A.L. DATE 11-18-52
CKD W.D.M. DATE 12-11-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846
SHEET: 51

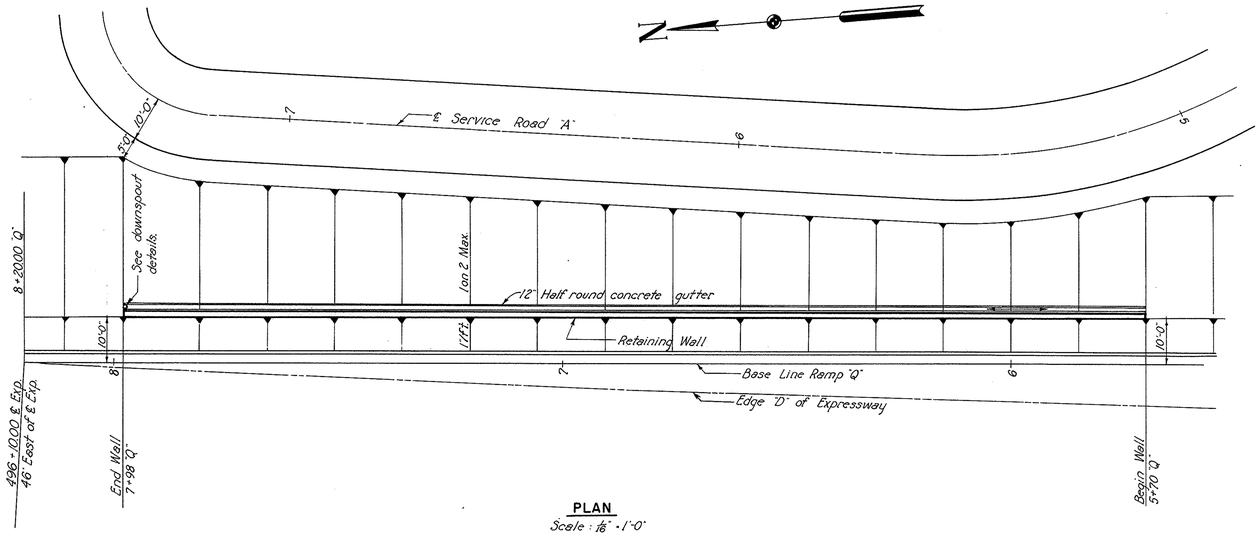
604

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

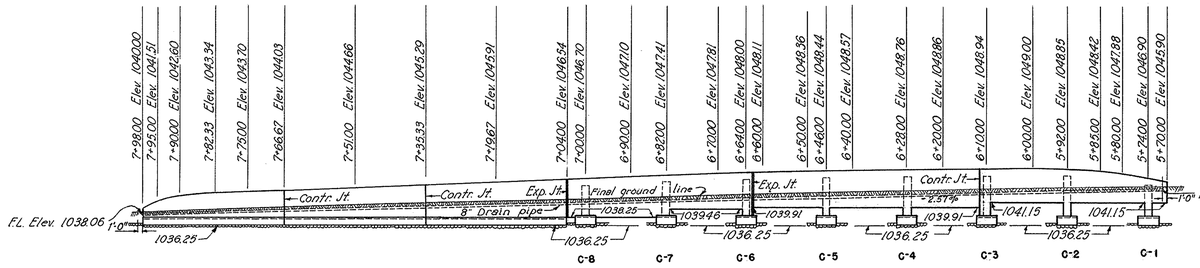
52
172

SUMMIT COUNTY
CITY OF AKRON

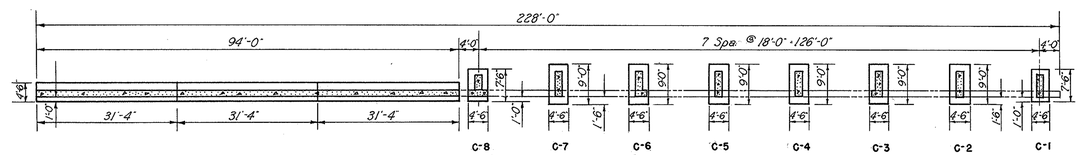
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
RETAINING WALL
RAMP "Q"



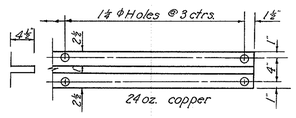
PLAN
Scale: 16" = 1'-0"



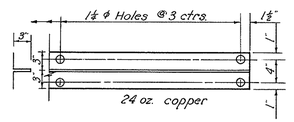
ELEVATION
Scale: 1/16" = 1'-0"



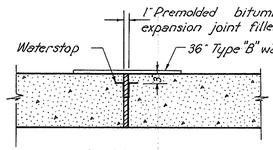
FOOTING PLAN
Scale: 1/16" = 1'-0"



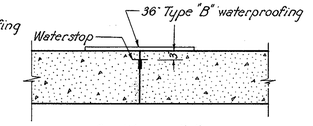
EXPANSION JOINT WATERSTOP
Scale: 1" = 1'-0"



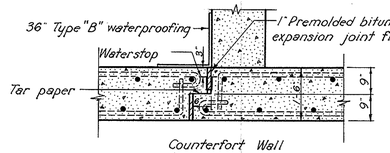
CONTRACTION JOINT WATERSTOP
Scale: 1" = 1'-0"



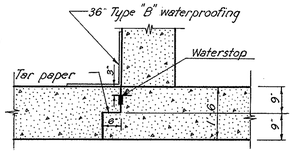
Cantilever Wall



Cantilever Wall



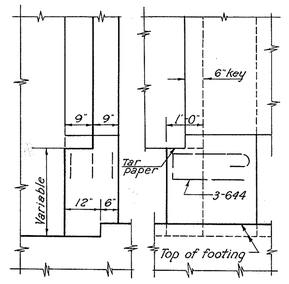
Counterfort Wall



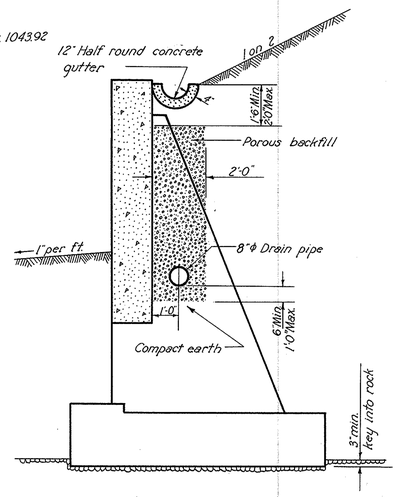
Counterfort Wall

EXPANSION JOINTS
Scale: 1/2" = 1'-0"

CONTRACTION JOINTS
Scale: 1/2" = 1'-0"

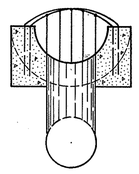


WALL SEAT
Scale: 1/2" = 1'-0"

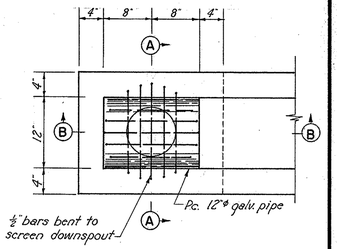


WALL SECTION
Not to scale

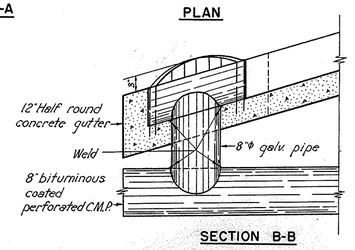
Note:
Porous backfill shall conform to Items S-2902 and S-2904
Pipe shall be 8" bituminous coated perforated C.M.P. conforming to Sec. M-64(F) with necessary fittings
Upper end of pipe shall be tightly closed with permanent header made of No. 16 gauge sheet metal.
Grade of pipe shall be -25.7%



SECTION A-A



PLAN



SECTION B-B

DOWNSPOUT DETAILS
Scale: 1" = 1'-0"

See Note on Sheet 41

SCALE As shown
MADE A.F.S. DATE 10-17-52
TRCD. E.D.H. DATE 10-30-52
CKD. W.D.M. DATE 12-11-52

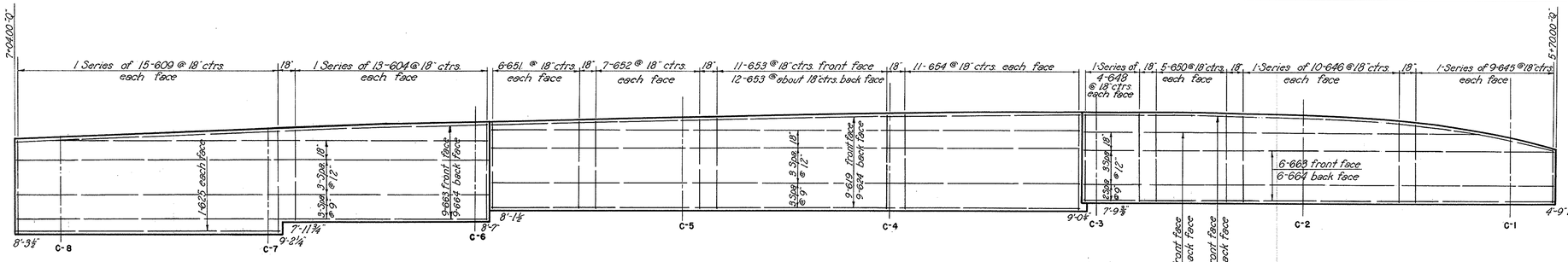
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET- 52

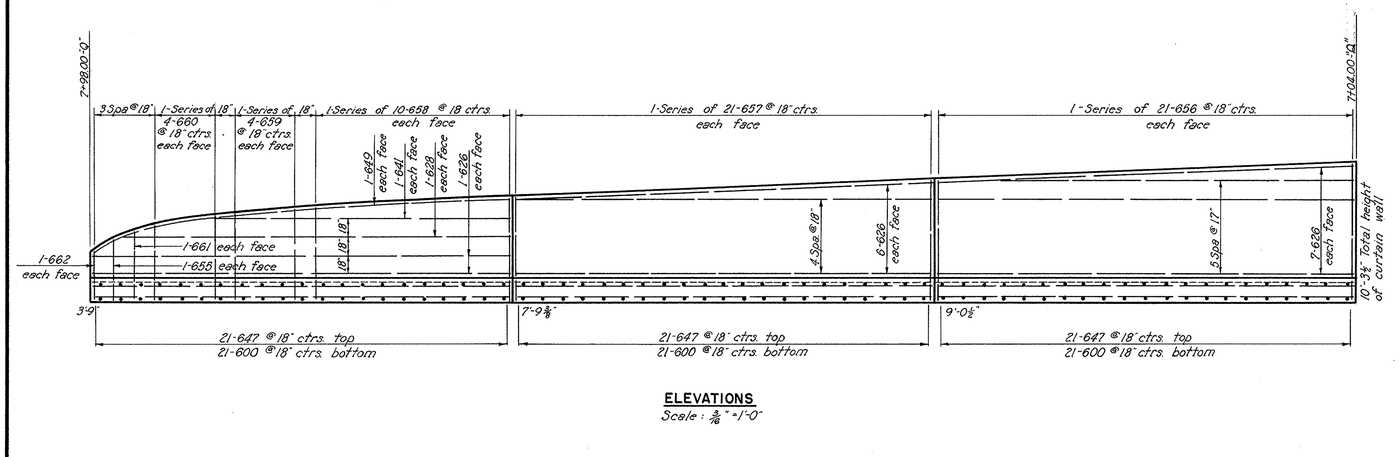
552

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

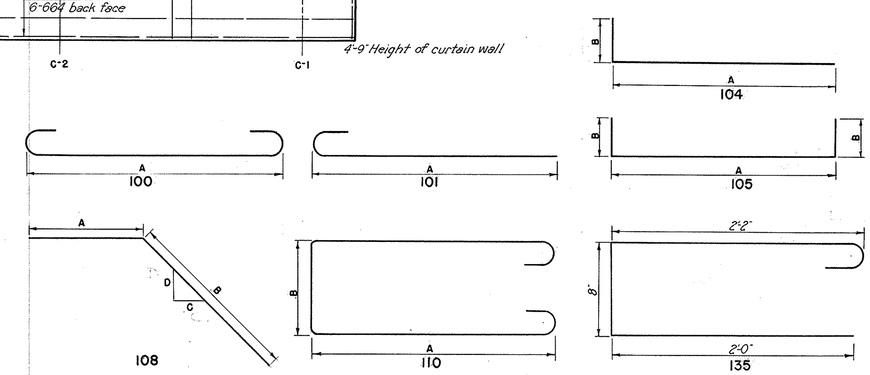
53
172

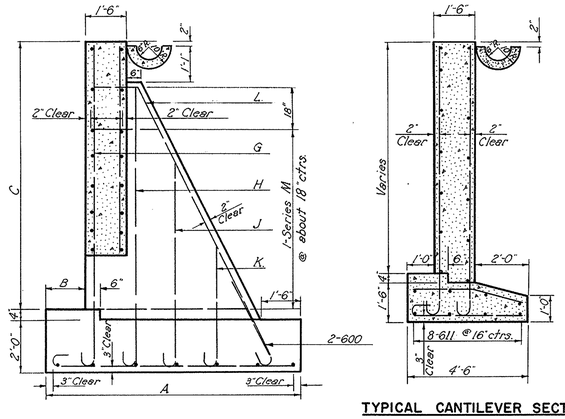
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
RETAINING WALL
RAMP "Q"





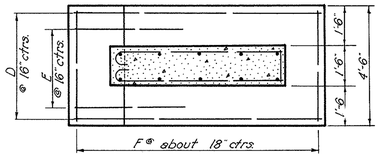
ELEVATIONS
Scale: 3/16" = 1'-0"





TYPICAL CANTILEVER SECTION
Not to scale

ESTIMATED QUANTITIES		
Item	Description	Quantity
E-2	Cofferdams, Cribs and Sheeting	Lump Sum
E-2	Excavation for Structures - Unclassified	425 Cu.Yds.
E-2	Excavation for Structures - Rock	7 Cu.Yds.
S-1	Class "C" Concrete	153 Cu.Yds.
I-14	12" Half Round Concrete Gutter	230 Lin.Ft.
S-3	Type "B" Waterproofing	14 Sq.Yds.
S-4	Reinforcing Steel	13,782 Lbs.
S-9	Premolded Bituminous Expansion Joint Filler	25 Sq.Ft.
S-9	Copper Waterstops	41 Lin.Ft.
S-29	Porous Backfill	72 Cu.Yds.
S-29	8" Perforated Bituminous Coated Corrugated Metal Pipe	227 Lin.Ft.
L-9	Seeding and Protection Type "A"	125 Sq.Yds.
S-29	Downspouts	1 Each



TYPICAL COUNTERFORT SECTION
Not to scale

TABLE FOR COUNTERFORTS													
COUNTER FORTS	A	B	C	D	E	F	G	H	J	K	L	M
1	7'-6"	1'-0	8'-3 3/4"	4-601	——	6-602	2-605	2-606	2-621	——	2-632	1-639
2	9'-0"	1'-6"	10'-3 3/4"	4-603	3-600	7-602	2-607	2-608	2-622	2-623	2-633	1-640
3	9'-0"	1'-6"	10'-4 3/8"	4-603	3-600	7-602	2-607	2-608	2-622	2-623	2-634	1-640
4	9'-0"	1'-6"	10'-2 5/8"	4-603	3-600	7-602	2-607	2-612	2-622	2-623	2-633	1-640
5	9'-0"	1'-6"	9'-10 5/8"	4-603	3-600	7-602	2-613	2-614	2-627	2-623	2-635	1-640
6	9'-0"	1'-6"	9'-5"	4-603	3-600	7-602	2-615	2-616	2-629	2-630	2-636	1-642
7	9'-0"	1'-6"	8'-10"	4-603	3-600	7-602	2-612	2-618	2-631	2-655	2-637	1-643
8	7'-6"	1'-0"	8'-1 1/2"	4-601	——	6-602	2-616	2-620	2-610	——	2-638	1-639

REINFORCEMENT SCHEDULE

MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT	MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT
600	6	97	4'-9"	101	4'-0"				692	645	6	2 Series of 9	4'-6" to 6'-6"	Str.					149
601	6	8	7'-9"	101	7'-0"				93	646	6	2 Series of 10	6'-9" to 7'-6"	Str.					214
602	6	54	5'-6"	100	4'-0"				446	647	6	63	4'-0"	108	2'-0"	2'-0"	12	3	378
603	6	24	9'-3"	101	8'-6"				333	648	6	2 Series of 4	7'-3" to 7'-6"	Str.					99
604	6	2 Series of 13	7'-6" to 8'-0"	Str.					303	649	6	2	31'-3"	Str.					94
605	6	2	11'-0"	101	10'-3"				33	650	6	10	7'-6"	Str.					113
606	6	2	9'-9"	101	9'-0"				29	651	6	12	7'-9"	Str.					140
607	6	6	13'-0"	101	12'-2"				117	652	6	14	8'-0"	Str.					168
608	6	4	11'-9"	101	10'-11"				70	653	6	23	8'-3"	Str.					285
609	6	2 Series of 15	7'-9" to 8'-9"	Str.					372	654	6	22	8'-6"	Str.					281
610	6	2	6'-0"	101	5'-4"				18	655	6	4	5'-3"	101	4'-5"				32
611	6	24	30'-9"	Str.					1108	656	6	2 Series of 21	9'-3" to 10'-6"	101	8'-7" to 9'-10"				623
612	6	4	11'-6"	101	10'-9"				69	657	6	2 Series of 21	8'-0" to 9'-3"	101	7'-4" to 8'-7"				544
613	6	2	12'-6"	101	11'-9"				38	658	6	2 Series of 10	7'-6" to 8'-0"	101	6'-9" to 7'-4"				233
614	6	2	11'-3"	101	10'-6"				34	659	6	2 Series of 4	7'-0" to 7'-6"	101	6'-3" to 6'-9"				87
615	6	2	12'-0"	101	11'-4"				36	660	6	2 Series of 4	6'-0 to 6'-9"	101	5'-3" to 6'-0"				77
616	6	4	10'-9"	101	10'-0"				64	661	6	2	5'-9"	101	4'-11"				17
617	6	1	33'-6"	104	32'-6"	1'-0"			50	662	6	2	4'-3"	101	3'-5"				13
618	6	2	10'-3"	101	9'-6"				30	663	6	16	41'-9"	101	40'-11"				1003
619	6	9	53'-0"	105	51'-0"	1'-0"			716	664	6	16	41'-3"	104	40'-5"	10"			991
620	6	2	9'-6"	101	8'-9"				28	665	6	1	33'-9"	101	33'-0"				51
621	6	2	6'-3"	101	5'-5				19										
622	6	6	8'-9"	101	8'-0				79										
623	6	8	5'-9"	101	4'-11"				69										
624	6	9	53'-9"	100	52'-2"				726										
625	6	2	21'-3"	Str.					64										
626	6	30	31'-0"	Str.					1397										
627	6	2	8'-6"	101	7'-9"				26										
628	6	2	28'-0"	Str.					84										
629	6	2	8'-3"	101	7'-5"				25										
630	6	2	5'-6"	101	4'-8"				17										
631	6	2	7'-9"	101	7'-1"				23										
632	6	2	9'-6"	108	1'-8"	7'-10"	5	12	28										
633	6	4	11'-6"	108	1'-8"	9'-10"	5	12	69										
634	6	2	11'-9"	108	1'-8"	10'-1"	5	12	35										
635	6	2	11'-3"	108	1'-8"	9'-7"	5	12	34										
636	6	2	10'-9"	108	1'-8"	9'-1"	6	12	32										
637	6	2	10'-3"	108	1'-8"	8'-7"	6	12	31										
638	6	2	9'-3"	108	1'-8"	7'-7"	5	12	28										
639	6	2 Series of 5	7'-3" to 10'-3"	110	2'-3" to 3'-10"	1'-2"			131										
640	6	4 Series of 6	7'-3" to 12'-3"	110	2'-4" to 4'-9"	1'-2"			351										
641	6	2	19'-6"	Str.					58										
642	6	1 Series of 5	7'-3" to 12'-3"	110	2'-4" to 4'-9"	1'-2"			73										
643	6	1 Series of 5	7'-6" to 11'-9"	110	2'-5" to 4'-7"	1'-2"			72										
644	6	6	5'-6"	135					50										

SCALE As shown
MADE A.F.S. DATE 10-22-52
TRCD. E.D.H. DATE 11-14-52
CK'D. W.D.M. DATE 12-11-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846
SHEET- 53

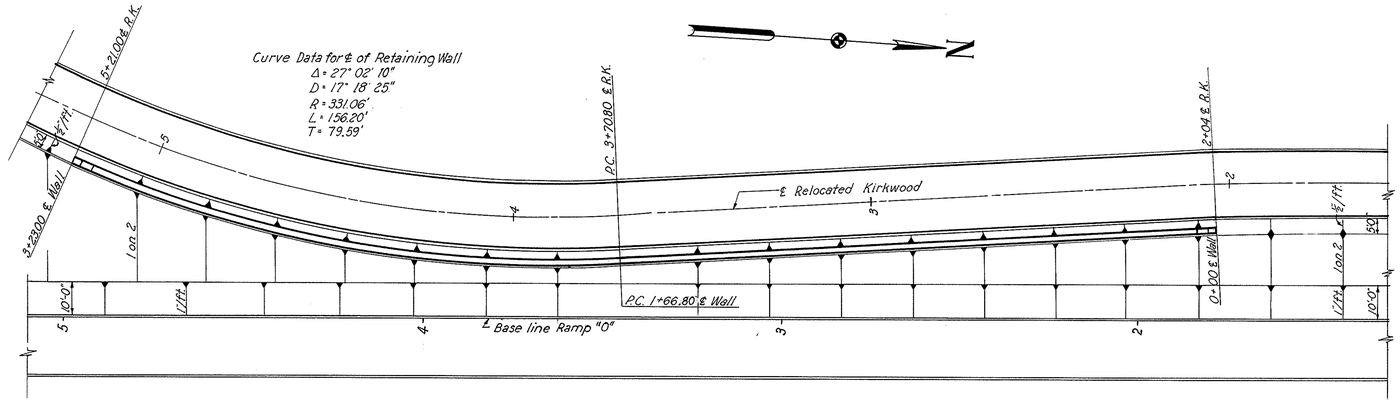
553

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

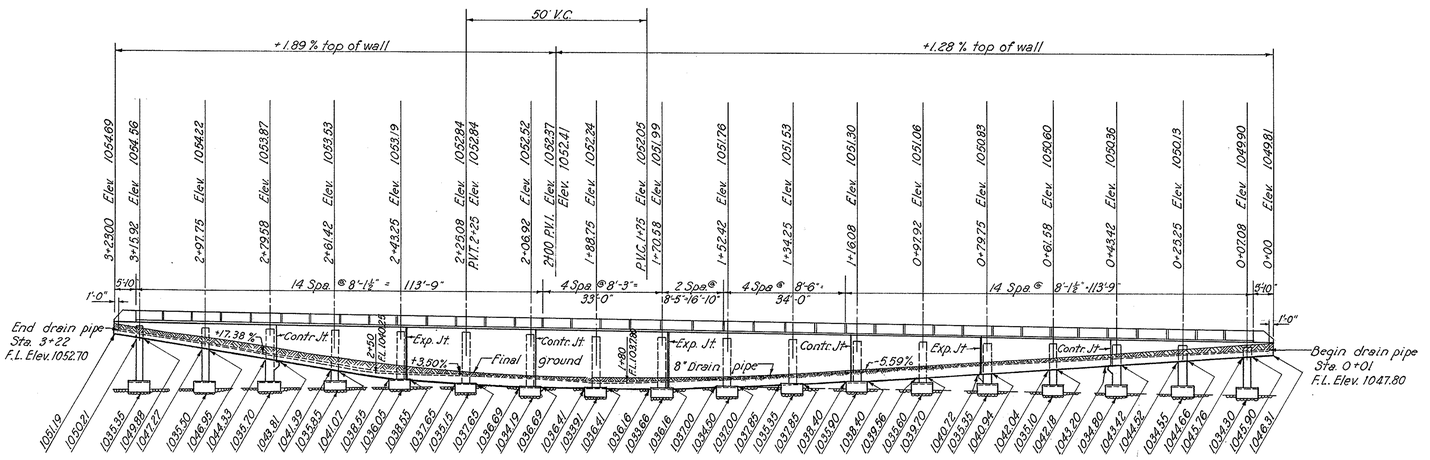
54
172

SUMMIT COUNTY
CITY OF AKRON

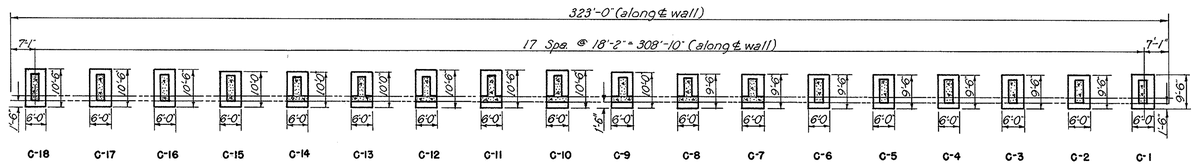
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
RETAINING WALL
KIRKWOOD AVENUE



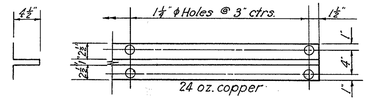
PLAN
Scale: 1"=20'



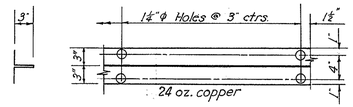
ELEVATION
Developed View
Scale 1"=20'



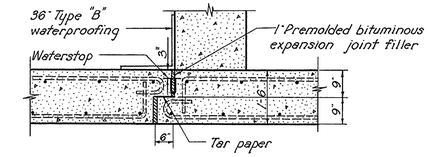
FOOTING PLAN
Developed View
Scale 1"=20'



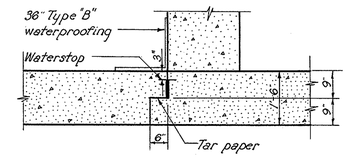
EXPANSION JOINT WATERSTOP
Scale: 1"=1'-0"



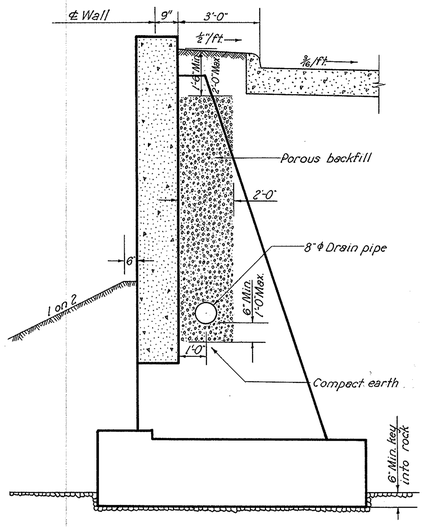
CONTRACTION JOINT WATERSTOP
Scale: 1"=1'-0"



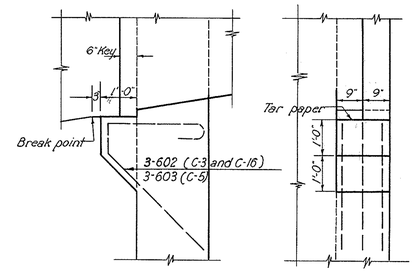
EXPANSION JOINTS
Scale ½"=1'-0"



CONTRACTION JOINTS
Scale: ½"=1'-0"



WALL SECTION
Not to scale



WALL SEAT
Scale: ½"=1'-0"

Note:
Porous backfill shall conform to Items S-29.02 and S-29.04.
Pipe shall be 8" bituminous coated perforated C.M.P. conforming to Sec. M-64(f) with necessary fittings.
Upper ends of pipes shall be tightly closed with permanent headers made of No. 16 gauge sheet metal.
Provide "T" fitting @ Sta. 1+80 and extend 8" drain pipe through wall. Pipe shall extend a minimum of 1'-0" beyond front face of wall on a grade of 36.70%

SCALE As shown
MADE A.F.S. DATE 10-29-52
TRCD E.D.H. DATE 11-6-52
CKD W.D.M. DATE 12-12-52

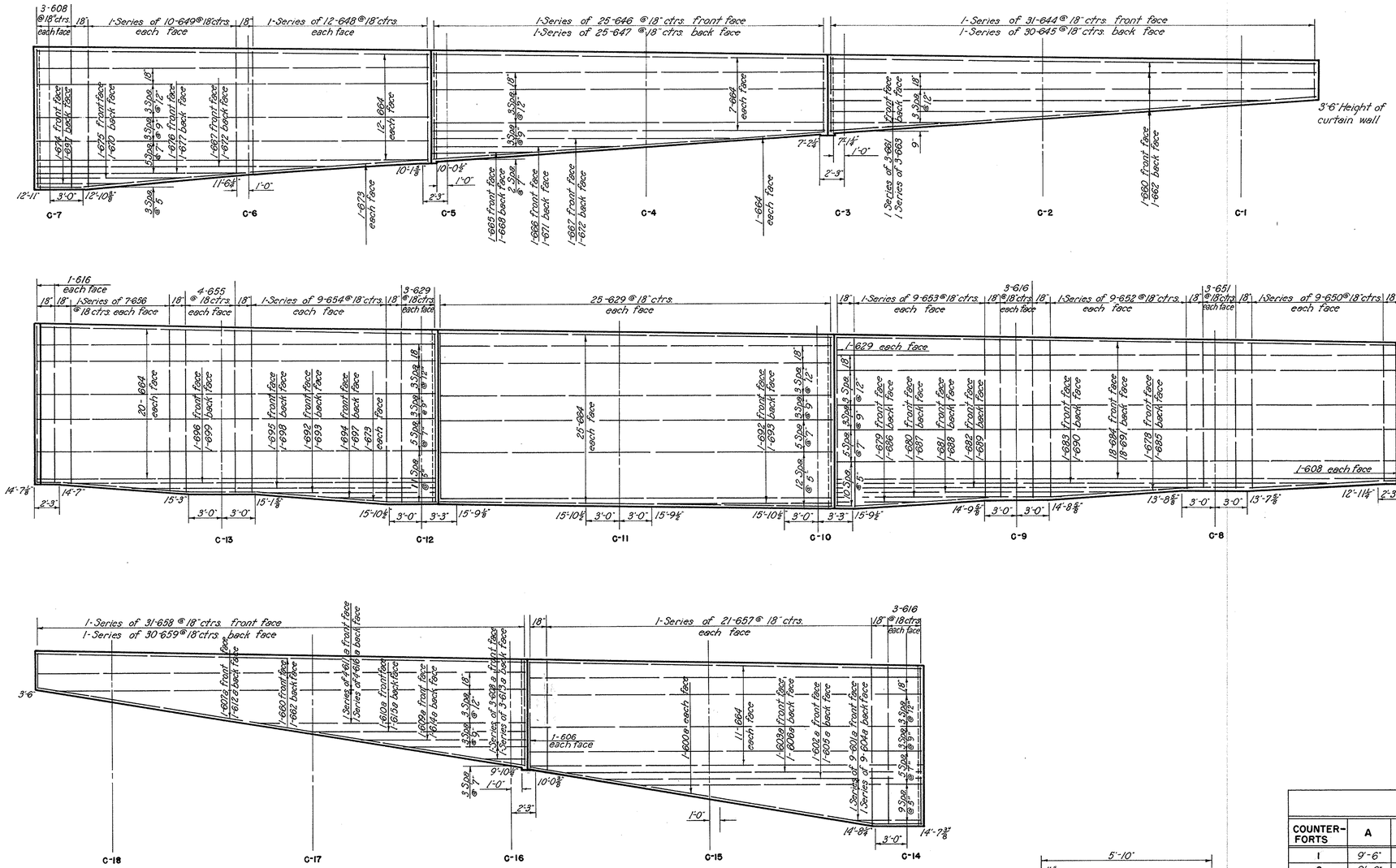
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY 846 NEW YORK
SHEET 54

600

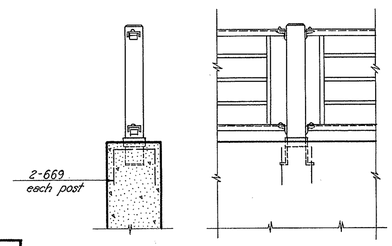
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

55
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
RETAINING WALL
KIRKWOOD AVENUE

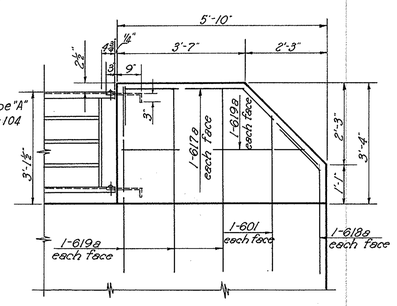


ELEVATIONS
Scale: 3/16" = 1'-0"

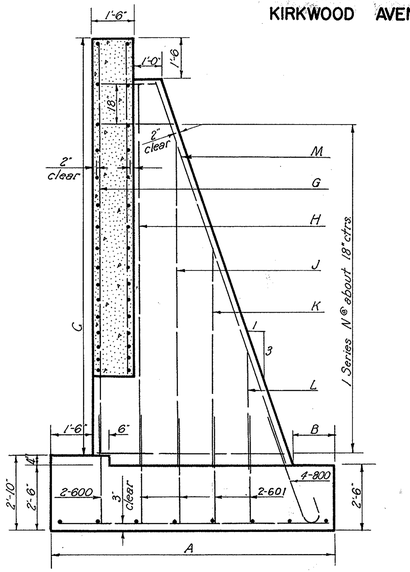


HANDRAIL POST REINFORCING DETAIL
Scale: 1/2" = 1'-0"

For details of Type "A" Handrail, see Sheet 104



ENDPOST
Scale: 1/2" = 1'-0"



TYPICAL COUNTERFORT SECTION
Not to scale

TABLE FOR COUNTERFORTS

COUNTER-FORTS	A	B	C	D	F	G	H	J	K	L	M	N
1	9'-6"	1'-7⅛"	12'-9¼"	5-604	7-605	2-608	2-609	2-610	2-601	——	4-801	1-634
2	9'-6"	1'-7⅛"	12'-9"	5-604	7-605	2-608	2-609	2-611	2-601	——	4-801	1-634
3	9'-6"	1'-7⅛"	12'-8⅜"	5-604	7-605	2-608	2-609	2-611	2-601	——	4-801	1-634
4	9'-6"	1'-8"	12'-8"	5-604	7-605	2-608	2-609	2-611	2-601	——	4-801	1-634
5	9'-6"	1'-8"	12'-7⅝"	5-604	7-605	2-612	2-609	2-611	2-601	——	4-801	1-635
6	9'-6"	1'-8⅛"	12'-7½"	5-604	7-605	2-612	2-609	2-611	2-601	——	4-801	1-635
7	9'-6"	1'-8⅜"	12'-6⅜"	5-604	7-605	2-612	2-613	2-611	2-601	——	4-801	1-635
8	9'-6"	1'-5¼"	13'-4¼"	5-604	7-605	2-614	2-615	2-604	2-600	——	4-802	1-636
9	10'-0"	1'-7"	14'-5⅛"	5-606	7-605	2-616	2-614	2-617	2-618	——	4-803	1-637
10	10'-6"	1'-8⅛"	15'-6"	5-607	8-605	2-619	2-620	2-614	2-621	2-622	4-804	1-638
11	10'-6"	1'-8⅛"	15'-6"	5-607	8-605	2-619	2-620	2-614	2-621	2-622	4-804	1-638
12	10'-6"	1'-8⅛"	15'-6"	5-607	8-605	2-619	2-620	2-614	2-621	2-622	4-804	1-638
13	10'-0	1'-5"	14'-10⅜"	5-606	7-605	2-623	2-624	2-608	2-625	2-626	4-805	1-639
14	10'-0	1'-7½"	14'-5⅜"	5-606	7-605	2-620	2-627	2-617	2-618	——	4-803	1-640
15	10'-0	1'-5¼"	14'-10⅛"	5-606	7-605	2-623	2-624	2-608	2-625	2-626	4-805	1-639
16	10'-6"	1'-9⅜"	15'-4⅛"	5-607	8-605	2-628	2-620	2-614	2-621	2-626	4-806	1-641
17	10'-6"	1'-7⅛"	15'-10⅛"	5-607	8-605	2-629	2-623	2-624	2-630	2-622	4-807	1-642
18	10'-6"	1'-5⅛"	16'-4⅜"	5-607	8-605	2-631	2-628	2-632	2-633	2-622	4-808	1-643

SCALE As shown
MADE A.F.S. DATE 11-6-52
TRCD E.D.H. DATE 11-14-52
CKD W.D.M. DATE 12-12-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET: 55

601

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

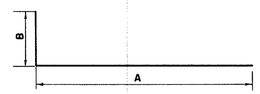
56
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
RETAINING WALL
KIRKWOOD AVENUE

REINFORCEMENT SCHEDULE

MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT
600	6	38	4'-6"	Str.					257
601	6	142	4'-3"	Str.					906
602	6	6	7'-9"	134	3'-8"				70
603	6	3	6'-3"	134	2'-2"				28
604	6	42	9'-0"	Str.					568
605	6	132	5'-6"	Str.					1090
606	6	22	9'-6"	Str.					314
607	6	30	10'-0"	Str.					451
608	6	20	12'-6"	Str.					376
609	6	12	11'-3"	Str.					203
610	6	2	8'-9"	Str.					26
611	6	12	8'-6"	Str.					153
612	6	6	12'-3"	Str.					110
613	6	2	11'-0"	Str.					33
614	6	12	13'-0	Str.					234
615	6	2	12'-0"	Str.					36
616	6	18	14'-3"	Str.					385
617	6	4	9'-9"	Str.					58
618	6	4	4'-9"	Str.					29
619	6	6	15'-3"	Str.					137
620	6	10	14'-0"	Str.					210
621	6	8	7'-9"	Str.					93
622	6	10	4'-0"	Str.					60
623	6	6	14'-6"	Str.					131
624	6	6	13'-6"	Str.					122
625	6	4	7'-6"	Str.					45
626	6	6	3'-9"	Str.					34
627	6	2	12'-9"	Str.					38
628	6	4	15'-0"	Str.					90
629	6	60	15'-6"	Str.					1397
630	6	2	8'-0"	Str.					24
631	6	2	16'-0	Str.					48
632	6	2	13'-9"	Str.					41
633	6	2	8'-3"	Str.					25
634	6	4 Series of 8	8'-9" to 15'-3"	110	2'-10" to 6'-0"	1'-8"			577
635	6	3 Series of 8	8'-9" to 15'-0"	110	2'-10" to 5'-11"	1'-8"			428
636	6	1 Series of 8	8'-9" to 15'-6"	110	2'-10" to 6'-2"	1'-8"			145
637	6	1 Series of 9	8'-9" to 16'-3"	110	2'-10" to 6'-7"	1'-8"			169
638	6	3 Series of 10	8'-9" to 17'-0"	110	2'-10" to 6'-11"	1'-8"			580
639	6	2 Series of 9	8'-9" to 16'-6"	110	2'-10" to 6'-8"	1'-8"			341
640	6	1 Series of 9	8'-9" to 16'-3"	110	2'-10" to 6'-6"	1'-8"			169
641	6	1 Series of 10	8'-9" to 16'-9"	110	2'-10" to 6'-10"	1'-8"			192
642	6	1 Series of 10	8'-9" to 17'-3"	110	2'-10" to 7'-0"	1'-8"			195
643	6	1 Series of 10	8'-9" to 17'-6"	110	2'-10" to 7'-2"	1'-8"			197
644	6	1 Series of 31	3'-0" to 6'-9"	Str.					227
645	6	1 Series of 30	3'-0" to 6'-9"	Str.					220
646	6	1 Series of 26	6'-9" to 9'-9"	Str.					310
647	6	1 Series of 25	6'-9" to 9'-6"	Str.					305
648	6	2 Series of 12	9'-9" to 11'-0"	Str.					374
649	6	2 Series of 10	11'-3" to 12'-6"	Str.					357
650	6	2 Series of 9	12'-6" to 13'-3"	Str.					348
651	6	6	13'-3"	Str.					119
652	6	2 Series of 9	13'-3" to 14'-3"	Str.					372
653	6	2 Series of 9	14'-3" to 15'-6"	Str.					402
654	6	2 Series of 9	14'-9" to 15'-6"	Str.					409
655	6	8	14'-9"	Str.					177
656	6	2 Series of 7	14'-3" to 14'-9"	Str.					305
657	6	2 Series of 21	9'-9" to 14'-3"	Str.					757
658	6	1 Series of 31	3'-0" to 9'-6"	Str.					291
659	6	1 Series of 30	3'-0" to 9'-6"	Str.					282
660	6	6	45'-3"	101	44'-6"				408
661	6	1 Series of 3	11'-9" to 41'-0"	101	11'-0" to 40'-3"				119
662	6	6	45'-0"	104	44'-0"	1'-0"			406
663	6	1 Series of 3	11'-6" to 40'-9"	104	10'-6" to 39'-9"	1'-0"			118
664	6	112	37'-9"	125	36'-0"	1'-0"			6350
665	6	1	9'-3"	101	8'-6"				14
666	6	1	18'-0"	101	17'-3"				27
667	6	2	29'-0"	101	28'-3"				87

MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT
668	6	1	9'-0"	104	8'-0"	1'-0"			14
669	6	74	3'-3"	105	1'-2"	1'-0"			361
670	6	1	15'-0"	104	14'-0"	1'-0"			22
671	6	1	17'-9"	104	16'-9"	1'-0"			27
672	6	2	28'-9"	104	27'-9"	1'-0"			86
673	6	4	38'-3"	125	36'-6"	1'-0			230
674	6	1	10'-0"	101	9'-3"				15
675	6	1	15'-3"	101	14'-6"				23
676	6	1	20'-3"	101	19'-6"				30
677	6	1	20'-0"	104	19'-0"	1'-0"			31
678	6	1	53'-3	105	51'-3"	1'-0"			80
679	6	1	8'-3"	104	7'-3"	1'-0"			12
680	6	1	14'-0"	104	13'-0"	1'-0"			21
681	6	1	24'-0"	104	23'-0"	1'-0"			36
682	6	1	32'-9"	104	31'-9"	1'-0"			49
683	6	1	44'-6"	104	43'-6"	1'-0"			67
684	6	18	53'-0"	105	51'-0"	1'-0"			1433
685	6	1	53'-9"	100	52'-3"				81
686	6	1	8'-6"	101	7'-9"				13
687	6	1	14'-3"	101	13'-6"				21
688	6	1	24'-3"	101	23'-6"				36
689	6	1	33'-0"	101	32'-3"				50
690	6	1	44'-9"	101	44'-0"				67
691	6	18	53'-9"	100	52'-2"				1453
692	6	2	16'-3"	101	15'-6"				49
693	6	2	16'-0"	104	15'-0"	1'-0"			48
694	6	1	10'-0"	101	9'-3"				15
695	6	1	27'-9"	101	27'-0"				42
696	6	1	34'-9"	101	34'-0"				52
697	6	2	9'-9"	104	8'-9"	1'-0"			30
698	6	1	27'-6"	104	26'-6"	1'-0"			41
699	6	1	34'-6"	104	33'-6"	1'-0"			52
600a	6	2	38'-9"	125	37'-0"	1'-0"			116
601a	6	1 Series of 9	7'-9" to 28'-3"	101	7'-0" to 27'-6"				243
602a	6	1	31'-9"	101	31'-0"				48
603a	6	1	35'-6"	101	34'-9"				53
604a	6	1 Series of 9	7'-6" to 28'-0"	104	6'-6" to 27'-0"	1'-0"			240
605a	6	1	31'-6"	104	30'-6"	1'-0"			47
606a	6	1	35'-3"	104	34'-3"	1'-0			53
607a	6	1	46'-0"	101	45'-3"				69
608a	6	1 Series of 3	4'-9" to 11'-9"	101	4'-0" to 11'-0"				37
609a	6	1	16'-6"	101	15'-9"				25
610a	6	1	21'-3"	101	20'-6"				32
611a	6	1 Series of 4	25'-9 to 44'-6"	101	25'-0" to 43'-9"				211
612a	6	1	45'-9"	104	44'-9"	1'-0"			69
613a	6	1 Series of 3	4'-6" to 11'-6"	104	3'-6" to 10'-6"				36
614a	6	1	16'-3"	104	15'-3"	1'-0"			24
615a	6	1	21'-0"	104	20'-0	1'-0"			32
616a	6	1 Series of 4	25'-6" to 44'-3"	104	24'-6" to 43'-3"	1'-0"			210
617a	6	4	7'-6"	137			12	12	45
618a	6	4	4'-3"	108	2'-9"	1'-6"	12	12	26
619a	6	16	5'-0"	Str.					120
800	8	72	5'-9"	101	4'-10"				1105
801	8	28	13'-3"	108	2'-0"	11'-3"	1	3	990
802	8	4	14'-0"	108	2'-0"	12'-0"	1	3	150
803	8	8	15'-0"	108	2'-0"	13'-0"	1	3	320
804	8	12	16'-3"	108	2'-0"	14'-3"	1	3	521
805	8	8	15'-6"	108	2'-0"	13'-6"	1	3	331
806	8	4	16'-0"	108	2'-0"	14'-0"	1	3	171
807	8	4	16'-9"	108	2'-0"	14'-9"	1	3	179
808	8	4	17'-9"	108	2'-0"	15'-9"	1	3	190



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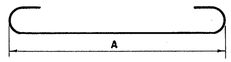

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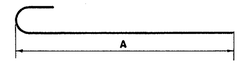

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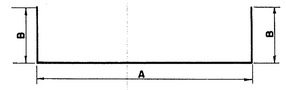

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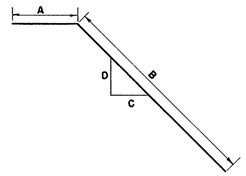

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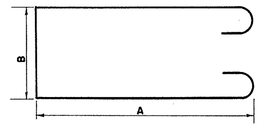

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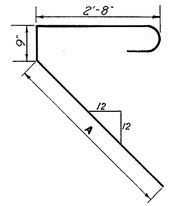

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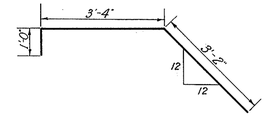

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BENDING DIAGRAMS

ESTIMATED QUANTITIES

Item	Description	Quantity	
E-2	Cofferdams, Cribs and Sheeting	Lump Sum	
E-2	Excavation for Structures - Unclassified	800	Cu.Yds.
E-2	Excavation for Structures - Rock	47	Cu.Yds.
S-1	Class "C" Concrete for Structures	366	Cu.Yds.
S-3	Type "B" Waterproofing	29	Sq.Yds.
S-4	Reinforcing Steel	33880	Lbs.
S-9	1" Premolded Bituminous Expansion Joint Filler	61	Sq.Ft.
S-9	Copper Waterstops	87	Lin.Ft.
S-14	Handrail	311.29	Lin.Ft.
S-29	Porous Backfill	190	Cu.Yds.
S-29	8" Perforated Bituminous Coated Corrugated Metal Pipe	321	Lin.Ft.
L-9	Seeding and Protecting Type "A"	181	Sq.Yds.

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SCALE No scale
MADE A.F.S. DATE 11-11-52
TRCD E.D.H. DATE 11-17-52
CKD W.O.M. DATE 12-12-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 56

DRAINAGE STRUCTURES

CODE	LOCATION	DESCRIPTION	ELEV.*	REMARKS
1	5+65 "L" - 16' LT.	TYPE 3-A CATCH BASIN	1057.56	
2	511+00 - 63' LT.	EXISTING INLET MANHOLE		
3	508+26.75 - 56.5' LT.	EXISTING INLET MANHOLE		ABANDON
4	508+25± - 46' LT.	TYPE 3-A CATCH BASIN	1030.61	INTERCEPT EXISTING SEWER
5	509+00± - 46' RT.	TYPE 3-A CATCH BASIN	1031.08	INTERCEPT EXISTING SEWER
6	509+35.63' - 63' RT.	EXISTING INLET MANHOLE		ABANDON
7	506+12.75 - 66' LT.	EXISTING INLET MANHOLE	1028.53	ADD FLUME
8	506+91 - 66' RT.	EXISTING INLET MANHOLE	1029.03	ADD FLUME
9	505+04 - 73' LT.	EXISTING INLET MANHOLE		ABANDON
10	502+50 - ℄	EXISTING MANHOLE		
11	502+50 - 29' RT.	EXISTING INLET MANHOLE		REMOVE
12	501+25 - 46' LT.	TYPE 3 CATCH BASIN	1026.44	
13	501+50 - ℄	EXISTING MANHOLE	1025.61	REBUILD AS INLET MANHOLE
14	501+25 - 46' RT.	TYPE 3 CATCH BASIN	1026.44	
15	21+80 MARKET - 24' LT.	EXISTING MANHOLE		
16	23+12 MARKET - ℄	EXISTING MANHOLE	1046.56	RESET
17	23+59 MARKET - 30' LT.	EXISTING INLET	1046.14	RESET
18	24+53.91 MARKET - 7' RT.	EXISTING JUNCTION CHAMBER		
19	24+72 MARKET - 24' LT.	EXISTING MANHOLE		REMOVE
20	24+72 MARKET - 30' LT.	EXISTING INLET		REMOVE
21	25+96 MARKET - 13' LT.	TYPE 2 MANHOLE	1048.69	
22	26+15 MARKET - 24' LT.	TYPE 1 MANHOLE	1048.70	
23	26+89.40 MARKET-30' LT.	EXISTING INLET		
24	27+50 MARKET - 28' LT.	EXISTING MANHOLE		
25	0+81 REL. KIRKWOOD-9' RT.	EXISTING INLET		
26	0+78 REL. KIRKWOOD - ℄	EXISTING MANHOLE	1047.3±	RESET
27	0+81 REL. KIRKWOOD-18' LT.	EXISTING INLET		REMOVE
28	23+80 MARKET-28' RT.	EXISTING MANHOLE	1046.67	RESET
29	23+83 MARKET - 30' RT.	EXISTING INLET	1046.33	SEE NOTE 1, STA. 23+90
30	500+02 - 51' LT.	TYPE 1 MANHOLE	1027.62	
31	26+03 MARKET - 26' RT.	EXISTING MANHOLE		REMOVE
32	26+34 MARKET - 30' RT.	EXISTING INLET		REMOVE
33	26+50 MARKET - 30' RT.	AKRON NO. 3 INLET	1048.67	
34	26+50 MARKET - 28' RT.	TYPE 1 MANHOLE	1049.01	
35	27+50 MARKET - ℄	EXISTING MANHOLE		
36	27+75 MARKET - 28' RT.	EXISTING MANHOLE		
37	2+00 REL. KIRKWOOD-8' LT.	EXISTING MANHOLE	1048.8±	RESET
38	4+03 REL. KIRKWOOD-7' LT.	TYPE 1 MANHOLE	1051.23	INTERCEPT EXISTING SEWER
39	3+62.04 "O" - B.L.	TYPE 3 CATCH BASIN	1035.91	
40	497+50 - 52' LT.	TYPE 1 MANHOLE	1033.74	
41	497+00 - ℄	INLET MANHOLE	1033.55	
42	497+00 - 46' RT.	TYPE 3-A CATCH BASIN	1034.40	
43	1+64 WELL - 12.8 LT.	AKRON NO. 5 INLET	1056.24	
44	1+64 WELL - 13.8 RT.	AKRON NO. 5 INLET	1056.34	
45	1+30 WELL - ℄	TYPE 2 MANHOLE	1056.50	
46	4+90 KIRKWOOD - ℄	EXISTING MANHOLE		REMOVE
47	495 + 00 - ℄	TYPE 1 MANHOLE	1039.55	
48	7 + 32 "SRA" - 6' LT.	TYPE 2 MANHOLE	1056.41	INTERCEPT EXISTING SEWER
49	7 + 45.31 "SRA" - ℄	TYPE A INLET	1056.22	
50	8 + 45 "SRA" - ℄	EXISTING MANHOLE	1057.70	RESET
51	6 + 51± "SRA" - ℄	TYPE 1 MANHOLE	1057.29	INTERCEPT EXISTING SEWER
52	5 + 32 "SRA" - ℄	TYPE 1 MANHOLE	1057.91	INTERCEPT EXISTING SEWER
53	5 + 32 "SRA" - 55' RT.	EXISTING MANHOLE		
54	5 + 00 "SRA" - ℄	TYPE A INLET	1058.40	
55	3 + 00 "P" - B.L.	TYPE 3-A CATCH BASIN	1045.31	
56	492 + 00 - ℄	TYPE 1 MANHOLE	1044.65	
57	4 + 00 "O" - B.L.	FLUME AND INLET MANHOLE	1044.79	
58	9 + 85 KIRKWOOD - ℄	EXISTING LAMPHOLE		REMOVE
59	7 + 00 BUCHTEL-22' RT.	AKRON NO. 3 INLET	1065.16	
60	7 + 00 BUCHTEL - ℄	EXISTING LAMPHOLE		ABANDON
61	7 + 00 BUCHTEL - 22' LT.	AKRON NO. 3 INLET	1065.16	
62	6 + 86 BUCHTEL - ℄	TYPE 1 MANHOLE	1065.53	INTERCEPT EXISTING SEWER
63	487 + 25 - 46' LT.	TYPE 3-A CATCH BASIN	1039.80	
64	487 + 25 - ℄	INLET MANHOLE	1038.95	
65	487 + 25 - 46' RT.	TYPE 3-A CATCH BASIN	1039.80	
66	4 + 00 "ESR" - 22' LT.	TYPE 3-A CATCH BASIN	1058.50	
67	4 + 56 BUCHTEL - ℄	EXISTING LAMPHOLE	1060.59	RESET
68	1 + 00 BUCHTEL - ℄	EXISTING LAMPHOLE	1052.93	RESET
69	8 + 45 CARROLL - 22' LT.	AKRON NO. 3 INLET	1059.45	
70	8 + 00 CARROLL - ℄	TYPE 2 MANHOLE	1058.99	INTERCEPT EXISTING SEWER
71	8+20 CARROLL - 22' RT.	AKRON NO. 3 INLET	1058.82	
72	4+10 "WSR" - 12' RT.	TYPE 3-A CATCH BASIN	1058.51	
73	4+10 "WSR" - 12' LT.	TYPE 3-A CATCH BASIN	1058.51	
74	483+25 - 46' LT.	TYPE 3 CATCH EASIN	1034.37	
75	483+40 - 8' LT.	TYPE 1 MANHOLE	1034.21	
76	483+60 - ℄	INLET MANHOLE	1033.45	
77	483+25 - 46' RT.	TYPE 3 CATCH BASIN	1034.37	
78	0+75 "ESR" - 12' LT.	TYPE 3 CATCH BASIN	1050.65	
79	0+75 "ESR" - 12' RT.	TYPE 3 CATCH BASIN	1050.65	
80	482+90 - 8' LT.	TYPE 1 MANHOLE	1034.19	
81	482+75 - ℄	INLET MANHOLE	1033.45	
82	6+15 CARROLL - ℄	EXISTING LAMPHOLE		REMOVE
83	5+55 CARROLL -22' RT.	AKRON NO. 3 INLET	1052.17	
84	48+50 - ℄	TYPE 1 MANHOLE	1034.24	
85	8+44 ORCHARD - 12' LT.	AKRON NO. 3 INLET	1055.48	
86	8+44 ORCHARD - 12' RT.	AKRON NO. 3 INLET	1055.48	
87	7+60 "WSR" - 12' RT.	TYPE 3-A CATCH BASIN	1054.80	
88	8+18 ORCHARC - ℄	TYPE 2 MANHOLE	1054.34	INTERCEPT EXISTING SEWER
89	6+00 "WSR" - 12' LT.	TYPE 3-A CATCH BASIN	1054.17	
90	2+76 "P" - B.L.	TYPE 3 - A CATCH BASIN	1035.75	
91	479+60 - 46' LT.	TYPE 3 - A CATCH BASIN	1039.91	
92	479+50 - ℄	INLET MANHOLE	1035.56	
93	2+86.63 "S" - B.L.	TYPE 3 CATCH BASIN	1036.66	
94	5+00 "S" - B.L.	TYPE 3-A CATCH BASIN	1043.64	
95	25+65 FOUNTAIN ℄	EXISTING MANHOLE		RESET TO GRADE
96	8+81 VINE - ℄	EXISTING MANHOLE		
97	8+50 VINE - 13' LT.	AKRON NO. 3 INLET	1041.16	
98	8+50 VINE - 13' RT.	AKRON NO. 3 INLET	1041.71	
99	10+80 "WSR" - 12' RT.	TYPE 3-A CATCH BASIN	1042.19	
100	8+17 VINE - ℄	TYPE 1 MANHOLE	1041.32	INTERCEPT EXISTING SEWER
101	11+00 "WSR" - 12' LT.	TYPE 3-A CATCH BASIN	1041.37	
102	476+25 - ℄	INLET MANHOLE	1037.70	PROVIDE DROP
103	20+75 FOUNTAIN - ℄	EXISTING MANHOLE		RESET TO GRADE
104	10+42 NASH - ℄	EXISTING LAMPHOLE		
105	8+45 NASH - 13' LT.	AKRON NO. 3 INLET	1039.90	
106	8+15 NASH - ℄	TYPE 1 MANHOLE	1037.84	INTERCEPT EXISTING SEWER
107	1+50 "T" - 16' RT.	TYPE 3 -A CATCH BASIN	1037.36	
108	8+37 NASH - 13' RT.	AKRON NO. 3 INLET	1039.03	
109	15+22 "WSR" - 12' RT.	TYPE 3-A CATCH BASIN	1037.85	
110	1+21.81 "T" - B.L.	TYPE 3 CATCH BASIN	1037.40	
111	472+25 - 83' LT.	INLET MANHOLE	1035.50	
112	471+75 - ℄	INLET MANHOLE	1040.68	PROVIDE DROP
113	471+65 - ℄	PIPE SPECIAL (36")		RADIUS PIPE
114	16+50 FOUNTAIN - ℄	EXISTING MANHOLE		RESET TO GRADE
115	9+06 EXCHANGE - 30' LT.	EXISTING INLET	1027.2±	SEE NOTE 1
116	9+00 EXCHANGE - 15' RT.	EXISTING MANHOLE		
117	9+00 EXCHANGE - 30' RT.	EXISTING INLET	1026.3±	SEE NOTE 1
118	19+10 "WSR" - 12' RT.	TYPE 3-A CATCH BASIN	1024.68	
119	19+30 "WSR" - 12' LT.	TYPE 3-A CATCH BASIN	1024.38	
120	19+33 "WSR" - 28' LT.	INLET MANHOLE	1022.75	
121	7+75 EXCHANGE - 15' RT.	TYPE 1 MANHOLE	1023.68	
122	467+00 - ℄	INLET MANHOLE	1043.81	
123	13+30 EXCHANGE - 30' RT.	EXISTING INLET	1016.6±	SEE NOTE 1
124	12+77 FOUNTAIN - 20' LT.	EXISTING INLET		
125	12+75 FOUNTAIN - ℄	PIPE SPECIAL (36")		RADIUS PIPE
126	12+64 FOUNTAIN - ℄	EXISTING MANHOLE		RESET TO GRADE
127	12+77 FOUNTAIN -20' RT.	EXISTING INLET		
128	5+44 EXCHANGE - 30' R&L.	EXISTING INLET	1017.0±	SEE NOTE 1
129	11+80 FOUNTAIN - ℄	EXISTING MANHOLE		RESET TO GRADE
130	5+00 EXCHANGE - 15' LT.	EXISTING MANHOLE		
131	0+57.69 "U" - B.L.	TYPE 3 CATCH BASIN	1014.99	
132	2+20 "U" - 30' LT.	PIPE SPECIAL (12")		4-22-1/2° BENDS
133	2+19 "U" - 47.5' LT.	INLET MANHOLE	1014.0	
134	8+64 CROUSE - 13' LT.	EXISTING INLET		
135	8+53 CROUSE - ℄	EXISTING MANHOLE		
136	8+64 CROUSE - 13' RT.	EXISTING INLET		
137	23+30 "WSR" - 12' LT.	TYPE 3-A CATCH BASIN	1009.91	
138	23+30 "WSR" - 12' RT.	TYPE 3-A CATCH BASIN	1009.91	
139	22+68 "WSR" - 24' LT.	INLET MANHOLE	1012.49	
140	465+00 - ℄	TYPE 2 MANHOLE	1045.13	
141	463+00 - ℄	INLET MANHOLE	1046.45	
142	5+33 CROUSE-13' RT. &LT.	EXISTING INLET		ABANDON
143	5+33 CROUSE - ℄	EXISTING MANHOLE	1012.5±	RESET
144	3+08 "U" - 56' LT.	PIPE SPECIAL (12")		"T" FITTING
145	8+68 FOUNTAIN-12' LT.	EXISTING INLET		
146	5+00 CROUSE - ℄	EXISTING MANHOLE		RESET TO GRADE
147	8+19 FOUNTAIN-30' RT.	EXISTING INLET		
148	8+32 FOUNTAIN- 30' RT.	EXISTING MANHOLE		
149	8+45 FOUNTAIN - 30' RT.	EXISTING INLET		
150	8+68 FOUNTAIN - 12' RT.	EXISTING INLET		
151	10+65 CARROLL - ℄	EXISTING LAMPHOLE		REPLACE WITH TYPE 1 M.H.
152	3+22 CROUSE - 20' RT.	PIPE SPECIAL (12")		1 - 22-1/2° BEND
153	3+18 CROUSE - ℄	EXISTING MANHOLE		
154	27+00 "WSR" - 12' RT.	TYPE 3-A CATCH BASIN	1007.45	
155	26+50 "WSR" - 12' LT.	TYPE 3-A CATCH BASIN	1007.70	
156	27+47 "WSR" - 20' LT.	INLET MANHOLE	1008.06	2 SIDE OPENINGS
157	7+40 GAGE - ℄	EXISTING MANHOLE		ABANDON
158	8+33 GAGE - ℄	TYPE 1 MANHOLE	1007.05	
159	GAGE AND "WSR"	PAVED GUTTER		SEE SHEET 36
160	6+22 FOUNTAIN - 17' LT.	EXISTING MANHOLE		RESET TO GRADE
161	6 + 32 FOUNTAIN - ℄	EXISTING MANHOLE		RESET TO GRADE
162	4 + 62 FOUNTAIN - 17' LT.	EXISTING MANHOLE		RESET TO GRADE
163	4 + 42 FOUNTAIN - ℄	EXISTING MANHOLE		RESET TO GRADE
164	2 + 62 FOUNTAIN - ℄	EXISTING MANHOLE		RESET TO GRADE
165	458 + 00 - ℄	INLET MANHOLE	1053.17	
166	11 + 38 BEACON - ℄	EXISTING MANHOLE		
167	9 + 00 BEACON - ℄	EXISTING MANHOLE		
168	6 + 95 BEACON - ℄	TYPE 1 MANHOLE	1031.95	
169	6 + 45 BEACON - ℄	EXISTING MANHOLE		REMOVE
170	455 + 35 ℄	INLET MANHOLE	1060.96	PROVIDE DROP
171	454 + 00 - 46' LT.	TYPE 3-A CATCH BASIN	1065.20	SEE NOTE 3
172	454 + 25 - 56' RT.	INLET MANHOLE	1065.10	
173	453 + 25 - ℄	TYPE 1 MANHOLE	1067.14	
174	0+17 TEMP. RD. -12' RT.	TYPE 3-A CATCH BASIN	1069.24	
175	1+00 TEMP. RD. -12' LT.	TYPE 3-A CATCH BASIN	1072.78	
176	3+77 "S.R.A." - 5' RT.	TYPE 1 MANHOLE	1061.35	
177	2+50 "S.R.A."	TYPE 1 MANHOLE	1063.01	
178	0+95 RELOCATED BEACON 14.5' RT.	TYPE 1 MANHOLE	1034.70	
179	456+00 87.2' RT.	INLET MANHOLE	1031.7±	LOCATE AT TOE OF SLOPE
180	454+25-56' RT. TO 456+00-87' RT.	12" PAVED GUTTER		SEE SHEET 35 FOR SECTION, GRADE TO BE SET BY THE ENGINEER IN THE FIELD

EXISTING PIPE DETAILS

STREET	LOCATION STATION — STATION		SIZE (in.)	LENGTH (ft.)	REMARKS
EXPRESSWAY	509+00 RT.	509+35 RT.	12		ABANDON
EXPRESSWAY	508+25 LT.	508+27 LT.	12		ABANDON
EXPRESSWAY	505+04 LT.	℄	12		ABANDON
EXPRESSWAY	502+50 RT.	℄	12		ABANDON
MARKET	26+15 LT.	24+25 LT.	12	190	REMOVE AND DISPOSE OF E-1
MARKET	25+90	24+30	18	160	REMOVE AND DISPOSE OF E-1
MARKET	26+00 RT.	24+50	33	150	REMOVE AND DISPOSE OF E-1
MARKET	26+03 RT.		8	22	REMOVE AND DISPOSE OF E-1
MARKET	26+03 RT.		8		ABANDON
KIRKWOOD	4+00	4+90	10	90	REMOVE AND DISPOSE OF E-1
KIRKWOOD	4+90	12+65	8	775	REMOVE AND DISPOSE OF E-1
WELL	0+00	0+50	8	50	REMOVE AND DISPOSE OF E-1
KIRKWOOD	4+90 ℄	4+90,145 LT.	8	145	REMOVE AND DISPOSE OF E-1
KIRKWOOD	5+75 ℄	5+75,120 LT.	8	120	REMOVE AND DISPOSE OF E-1
KIRKWOOD	7+00 ℄	7+00,85 LT.	8	85	REMOVE AND DISPOSE OF E-1
BUCHTEL	6+20	4+75	10	145	REMOVE AND DISPOSE OF E-1
CARROLL	7+25	5+90	8	135	REMOVE AND DISPOSE OF E-1
ORCHARD	7+55	5+40	8	215	REMOVE AND DISPOSE OF E-1
VINE	8+17	5+00	8		ABANDON
VINE	6+89 LT.		8		ABANDON
NASH	8+15	5+00	8		ABANDON
GAGE	8+33	7+40	8		ABANDON
BEACON	6+45	11+38	8	493	REMOVE AND DISPOSE OF E-1

PIPE DETAILS

CODE	LOCATION FROM	LOCATION TO	SIZE (in.)	LGTH (ft.)	GRADE (%)	INVERT ELEV. UPPER	INVERT ELEV. LOWER	REMARKS
P-1	1	2	12	150	14.18	1047.77	1026.62	
P-2	12	13	12	50	0.50	1022.70	1022.45	
P-3	14	13	12	50	0.50	1022.70	1022.45	
P-4	33	34	12	2	1.00	1045.00	1044.98	FLAP GATE,
P-5	34	21	30	66	1.00	1033.36	1032.70	
P-6	22	21	12	16	0.90	1036.60	1035.86	
P-7	21	30	33	132	1.00	1019.38	1018.06	M-6.6(c)
P-8	30	18	48	8	0.38	1016.8	1016.78	
P-9	40	30	24	246	3.05	1026.33	1018.81	
P-10	39	40	12	56	6.42	1031.00	1027.41	
P-11	WALL	39	12	14	36.70	1036.18	1031.04	REL. KIRKWOOD WALL
P-12	41	40	24	68	3.00	1028.41	1026.37	
P-13	42	41	15	44	2.73	1030.40	1029.20	
P-14	WALL	42	12	106	6.71	1037.76	1030.65	RAWP "O" WALL
P-15	48	42	12	118	5.38	1037.00	1030.65	M-6.8(b)
P-16	49	48	12	15	7.57	1052.14	1050.79	FLAP GATE,
P-17	51	48	12	77	0.50	1048.31	1047.93	SEE NOTE 2
P-18	52	51	12	115	0.80	1048.91	1048.34	SEE NOTE 2
P-19	54	52	12	28	7.35	1054.32	1051.26	FLAP GATE,
P-20	47	41	24	196	3.06	1034.45	1028.45	
P-21	45	47	21	180	2.70	1039.55	1034.70	M-6.8(b)
P-22	44	45	15	35	6.00	1052.42	1050.32	FLAP GATE,
P-23	43	45	15	35	6.00	1052.42	1050.32	FLAP GATE,
P-24	56	47	15	296	1.71	1040.26	1035.20	
P-25	55	56	15	68	1.68	1041.44	1040.30	
P-26	57	56	12	77	0.53	1040.96	1040.55	
P-27	59	62	12	20	0.40	1062.41	1062.33	FLAP GATE,
P-28	61	62	12	20	0.40	1062.41	1062.33	FLAP GATE,
P-29	62	70	21	460	1.74	1055.78	1049.34	
P-30	72	73	12	21	2.00	1054.76	1054.34	
P-31	73	70	12	50	10.00	1054.30	1049.30	FLAP GATE,
P-32	71	70	12	20	10.00	1054.07	1052.07	FLAP GATE,
P-33	69	70	12	45	10.00	1054.07	1050.20	FLAP GATE,
P-34	70	84	21	215	4.02	1035.82	1027.18	M-6.6(c)
P-35	63	64	12	44	2.71	1036.06	1034.87	
P-36	65	64	12	44	2.13	1035.81	1034.87	
P-37	66	65	12	52	24.00	1048.54	1036.06	M-6.8(b)
P-38	64	76	18	365	0.95	1032.32	1028.85	
P-39	78	76	12	137	2.65	1033.00	1029.37	M-6.8(b)
P-40	79	78	12	21	10.00	1046.74	1044.64	
P-41	83	78	12	58	10.00	1048.42	1042.62	
P-42	76	75	21	20	0.60	1028.60	1028.48	
P-43	75	80	21	46	0.60	1028.44	1028.16	
P-44	74	80	12	42	3.98	1030.65	1028.98	
P-45	80	81	21	14	1.00	1028.12	1027.98	
P-46	77	81	12	64	1.40	1030.65	1029.75	
P-47	81	84	24	126	0.63	1027.73	1026.93	
P-48	84	92	30	196	1.50	1026.68	1023.74	VIT. CLAY LINER
P-49	86	88	12	35	10.00	1051.40	1047.90	FLAP GATE,
P-50	85	88	12	35	10.00	1051.40	1047.90	FLAP GATE,
P-51	87	88	12	46	10.00	1050.72	1046.12	FLAP GATE,
P-52	89	88	12	22	5.45	1050.26	1049.06	
P-53	88	92	12	155	9.44	1038.90	1024.28	M-6.8(b)
P-54	90	92	12	90	5.00	1031.84	1027.34	
P-55	91	92	12	65	5.00	1033.00	1029.75	
P-56	93	92	12	120	3.00	1032.71	1029.11	
P-57	94	93	12	210	3.04	1039.13	1032.75	
P-58	92	102	33	321	1.50	1028.49	1018.67	VIT. CLAY LINER, M-6.6(b)
P-59	98	100	12	38	10.00	1037.63	1033.83	FLAP GATE,
P-60	99	100	12	38	10.00	1038.11	1034.31	FLAP GATE,
P-61	101	100	12	38	9.55	1037.46	1033.83	
P-62	97	100	12	46	10.00	1037.08	1032.48	FLAP GATE,
P-63	100	102	15	151	2.34	1031.57	1028.03	
P-64	102	112	33	446	1.50	1018.63	1011.95	VIT. CLAY LINER, M-6.6(c)
P-65	108	106	12	40	5.00	1034.95	1032.95	FLAP GATE,
P-66	109	106	12	50	4.00	1033.77	1031.77	FLAP GATE,
P-67	105	106	12	45	5.00	1034.92	1032.67	FLAP GATE,
P-68	106	111	15	70	2.40	1028.09	1026.66	
P-69	WALL	109	12	105	3.67	1037.66	1033.81	"WSR" WALL
P-70	107	111	12	35	4.17	1033.28	1031.82	
P-71	110	111	12	22	5.45	1033.32	1032.12	
P-72	111	112	15	90	2.40	1026.56	1024.21	M-6.8(b)
P-73	112	126	36	370	1.84	1011.70	1004.89	M-6.6(c), Vit clay liner, 90° cradle
P-74	131	130	12	73	0.50	1011.26	1010.90	
P-75	120	119	12	13	0.80	1018.67	1018.57	
P-76	118	119	12	24	2.20	1020.77	1020.24	
P-77	119	121	12	40	5.83	1018.53	1016.20	FLAP GATE,
P-78	138	135	12	56	1.00	1005.40	1004.94	FLAP GATE,
P-79	139	138	12	63	3.60	1008.27	1006.00	
P-80	137	138	12	20	3.11	1006.00	1005.44	
P-81	133	153	12	230	3.90	1009.96	1001.00	M-6.8(b)
P-82	WALL	133	12	46	5.80	1012.66	1010.00	"U" WALL NO. 1
P-83	WALL	144	12	7		1009.67	1004.29	"U" WALL NO. 2
P-84	122	140	12	196	0.40	1039.46	1038.68	
P-85	140	143	15	155	6.00	1006.08	996.78	M-6.8(a) ENCASED
P-86	141	140	15	196	0.67	1042.12	1040.81	
P-87	165	141	12	496	0.83	1046.44	1042.37	
P-88	154	158	12	70	10.00	1002.46	995.46	FLAP GATE,
P-89	155	154	12	50	1.00	1003.50	1002.50	
P-90	156	158	12	34	10.00	1003.44	1000.04	
P-91	167	166	18	238	5.5±	1013.2±	999.6±	SEE NOTE 2
P-92	168	167	18	205	5.5±	1024.4±	1013.2±	SEE NOTE 2
P-93	170	168	15	95	5.50	1029.61	1024.39	M-6.8(a) ENCASED
P-94	171	170	12	120	3.40	1060.96	1056.89	
P-95	172	170	12	115	3.30	1060.78	1056.89	
P-96	173	170	15	207	2.94	1062.75	1056.62	
P-97	174	173	15	37	7.78	1065.67	1062.79	
P-98	175	174	15	78	5.50	1070.00	1065.71	
P-99	WALL	142	12	12	16.7±	1004.57	1002.6±	FOUNTAIN STREET WALL
P-100	WALL	149	12	17	10.0±	1004.97	1003.3±	CROUSE STREET WALL
P-101	176	54	12	144	2.37	1052.34	1048.93	SEE NOTE 2
P-102	177	176	12	124	0.50	1053.05	1052.43	SEE NOTE 2
P-103	Ex.10"	62	18	202	2.15	1061.15	1056.03	SPECIALS 1-18"x30°BEND AND 1-18"x10°30° BEND. SEE NOTE 2
P-104	151	50	12	261	3.51	1059.64	1050.09	SEE NOTE 2
P-105	Ex.8"	88	12	36±	VAR.	1047.5±	1045.34	SPECIALS 1-12"x30°BEND AND 1-12"x45°30° BEND.
P-106	Ex.8"	100	12	40±	VAR.	1033.5±	1031.82	SPECIALS 1-12"x30°BEND AND 1-12"x45°30° BEND.
P-107	Ex.8"	106	12	42±	VAR.	1033.±	1028.34	SPECIALS 1-12"x30°BEND AND 1-12"x8" 30° BEND.
P-108	Ex.8"	45	12	50±	VAR.	1051.±	1047.25	SPECIALS 1-15"x30°BEND AND 1-15"x8"30° BEND
P-109	179	168	12	85	3.90	1030.24	1024.64	

587

SCALE 1" = 100'-0"
MADE RES DATE 12-15-52
TRCD [illegible] DATE 12-16-52
CKD RES DATE 12-16-52

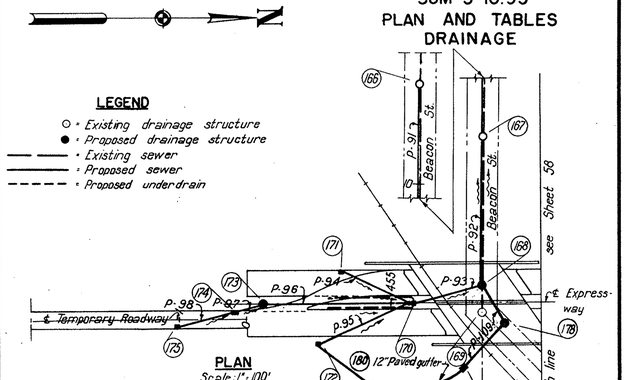
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
SHEET 57

846

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

57
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
PLAN AND TABLES
DRAINAGE



PLAN
Scale: 1" = 100'

Provide 190' of 12" paved gutter along toe of slope. See Sheet 36 for section

GENERAL NOTES

SEWERS ARE DESIGNED FOR FULL FLOW BY THE RATIONAL METHOD, BASED ON THE CITY OF AKRON FORMULA: I EQUALS 160 OVER T PLUS 20.

MINIMUM VELOCITY OF FLOW SHALL BE AS FOLLOWS: MAIN LINES - 3.0 F.P.S., LATERALS - 2.5 F.P.S.

MANHOLES LISTED AS "TYPE 1" OR "TYPE 2" ARE STANDARD NO. 1 OR NO. 2 MANHOLES AS PER THE STANDARD CONSTRUCTION DRAWINGS 1-8 M.H. No. 1 OR NO. 2.

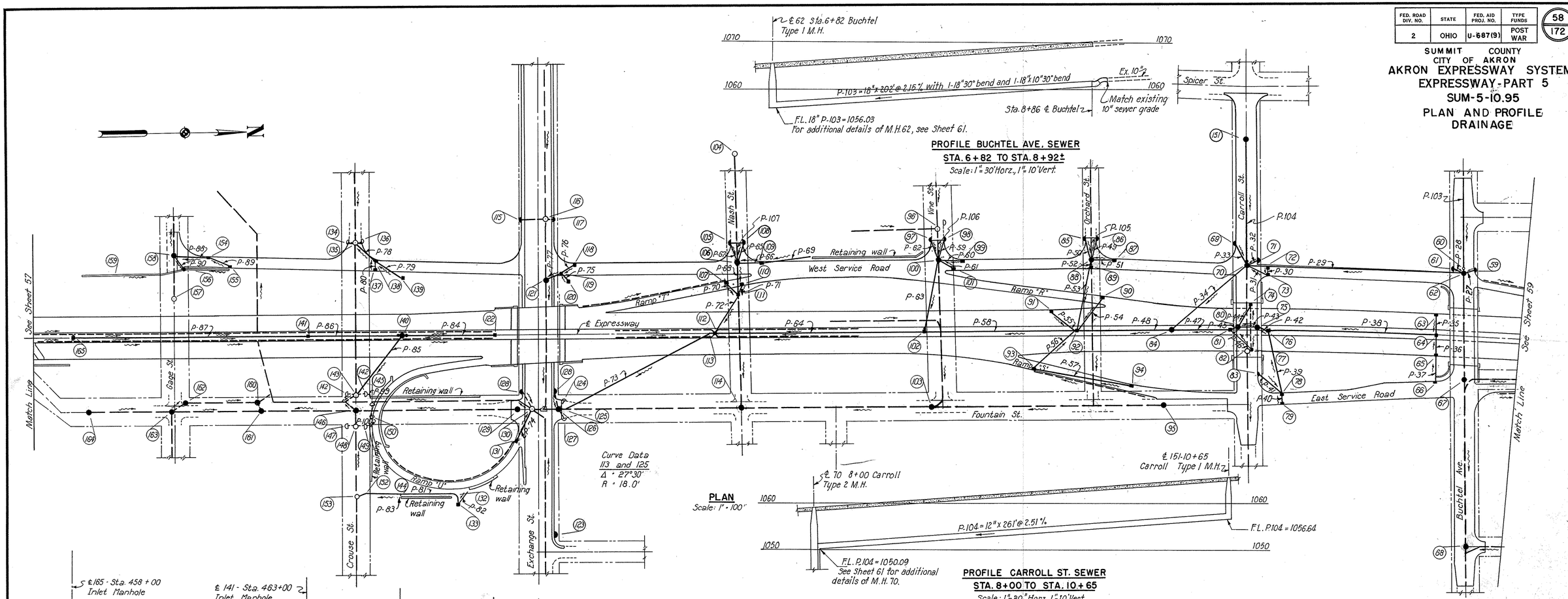
INLETS LISTED AS "TYPE 3" OR "TYPE 3-A" ARE STANDARD NO. 3 OR NO. 3-A CATCH BASINS AS PER THE STANDARD CONSTRUCTION DRAWINGS 1-8 C.B. NO. 3 OR NO. 3-A.

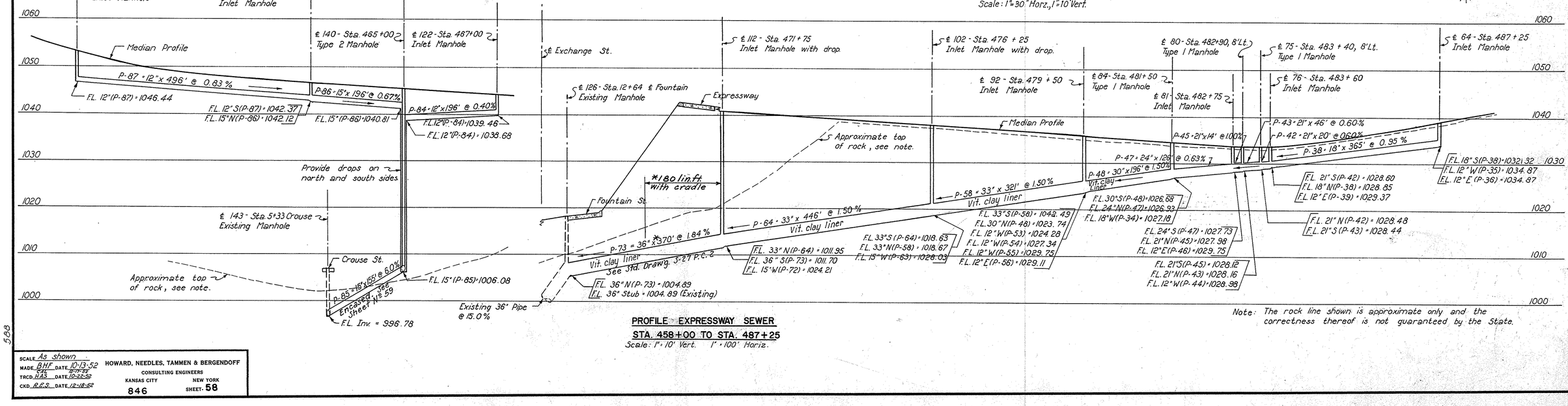
INLETS LISTED AS "AKRON NO. 3" OR "AKRON NO. 5" ARE CITY OF AKRON STANDARD INLETS NO. 3 OR NO. 5. FOR DETAILS

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

58
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
PLAN AND PROFILE DRAINAGE





PROFILE EXPRESSWAY SEWER
STA. 458+00 TO STA. 487+25
Scale: 1" = 10' Vert. 1" = 100' Horiz.

Note: The rock line shown is approximate only and the correctness thereof is not guaranteed by the State.

SCALE	As shown
MADE	BHF DATE 10-13-52
	CHK DATE 10-17-52
TRCD	HAS DATE 10-22-52
CKD	R.F.S. DATE 12-18-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846
SHEET: 58

568

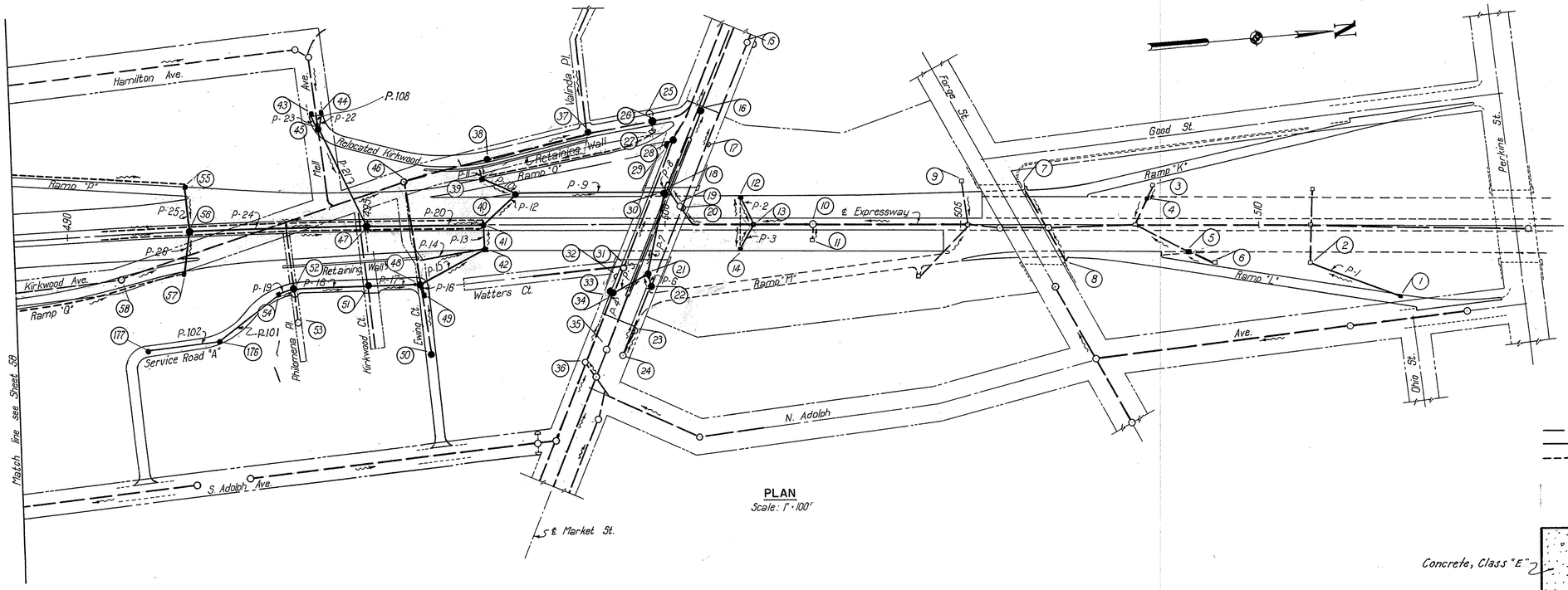
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

59
172

SUMMIT COUNTY
CITY OF AKRON

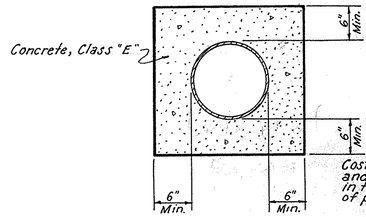
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
PLAN AND PROFILE
DRAINAGE

Note:
Transverse Underdrains are to be provided at Sta. 506+12.75 and Sta. 406+91 from the edges of the existing pavement to inlet manholes 7 and 8. Underdrain shall be placed in accordance with the detail shown on Sheet 35 and shall drain to the inlet manholes.



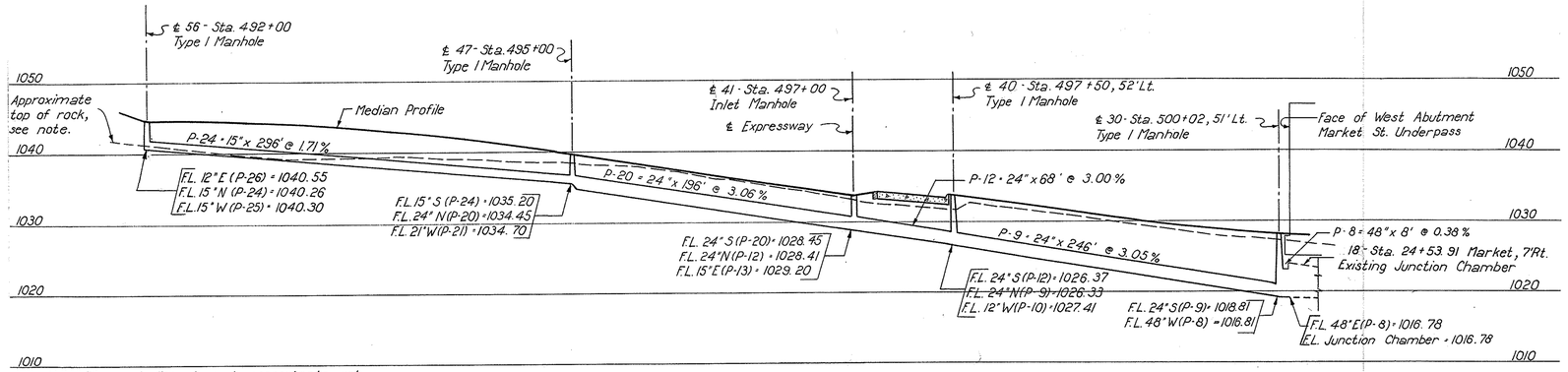
PLAN
Scale: 1"=100'

LEGEND
- ○ = Existing drainage structure
- ● = Proposed drainage structure
- ——— = Existing sewers
- ——— = Proposed sewers
- - - - - = Proposed underdrains



Cost of required Excavation and concrete to be included in the price bid per lin. ft. of pipe Item I-2.

DETAIL OF
CONCRETE ENCASEMENT
(Where called for; See Sheet 57)



Note: The rock line shown is approximate only and the correctness thereof is not guaranteed by the State.

PROFILE EXPRESSWAY SEWER
STA. 492+00 TO STA. 500+02
Scale: 1"=10' Vert. 1"=50' Horiz.

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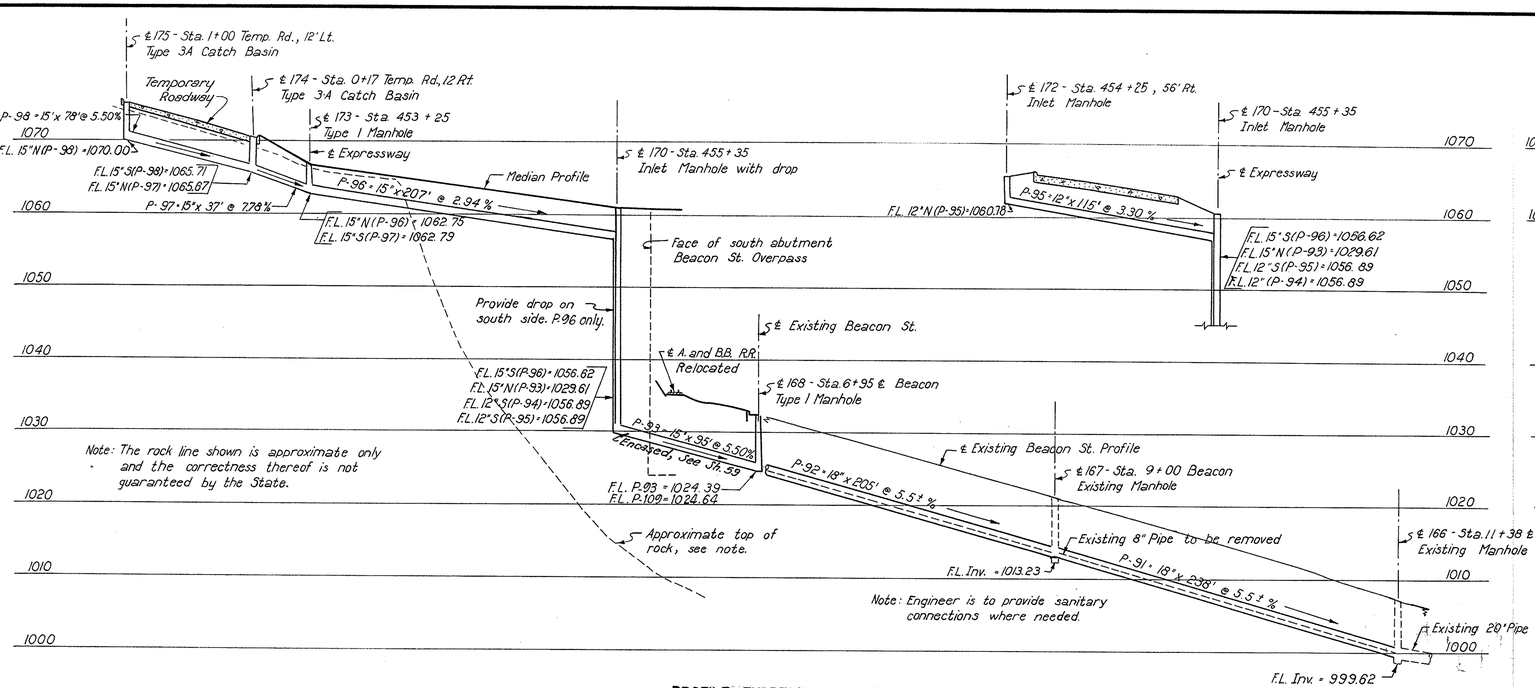
SCALE As shown	HOWARD, NEEDLES, TAMMEN & BERGENDOFF	
MADE RES DATE 9-15-52	CONSULTING ENGINEERS	
TRCD HAJ DATE 10-21-52	KANSAS CITY	NEW YORK
CKD RES DATE 12-16-52	846	SHEET 59
TRCD CAL DATE 12-16-52		

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

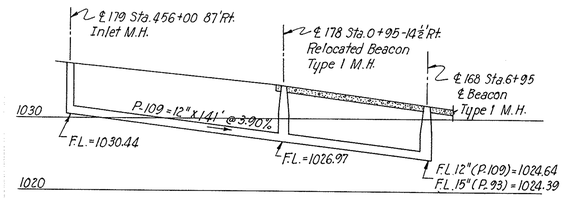
60
172

SUMMIT COUNTY
CITY OF AKRON

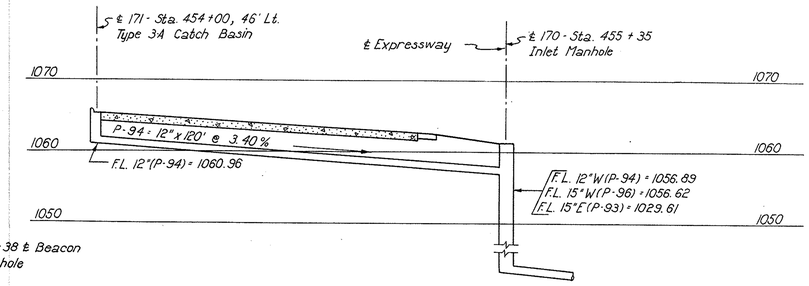
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART - 5
SUM-5-10.95
SEWER - PROFILES



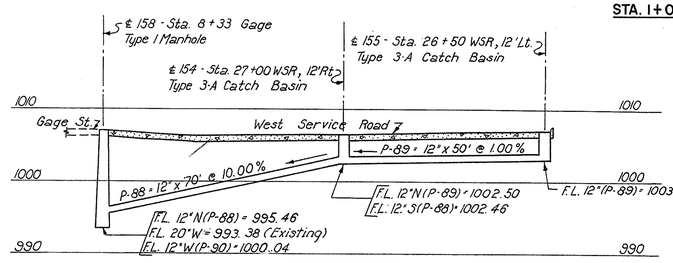
PROFILE EXPRESSWAY AND BEACON ST. SEWER
STA. 1+00 TEMPORARY ROADWAY TO STA. 11+38 BEACON
Scale: 1" = 10' Vert. 1" = 50' Horiz.



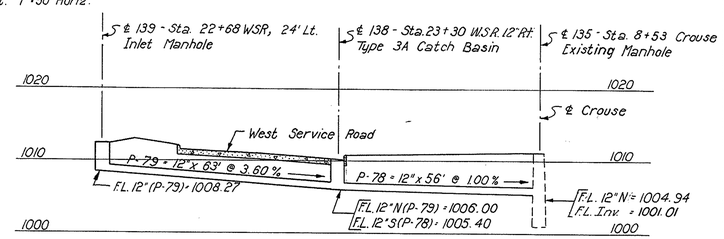
PROFILE BEACON ST. SEWER
Scale: 1"= 30' Hor, 1"= 10' Vert.



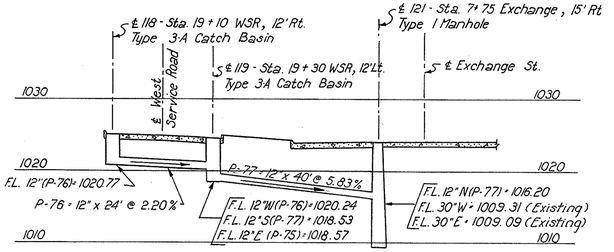
PROFILE EXPRESSWAY LATERAL
STA. 454+00 TO STA. 455+35
Scale: 1"=10' Vert. 1"= 20' Horiz.



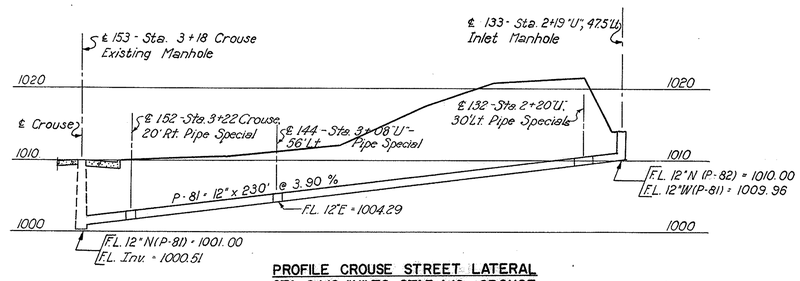
PROFILE WEST SERVICE ROAD LATERAL
STA. 8+33 GAGE TO STA. 26+50 WSR
Scale: 1"=10' Vert. 1"= 20' Horiz.



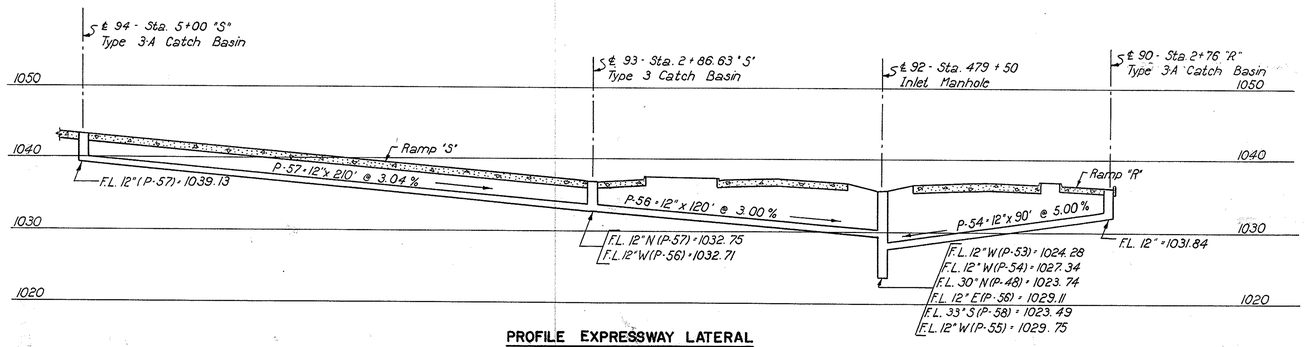
PROFILE WEST SERVICE ROAD LATERAL
STA. 22+68 WSR TO STA. 8+53 CROUSE
Scale: 1"=10' Vert, 1"= 20' Horiz.



PROFILE WEST SERVICE ROAD LATERAL
STA. 19+10 WSR TO STA. 7+75 EXCHANGE
Scale: 1"=10' Vert. 1"= 20' Horiz.



PROFILE CROUSE STREET LATERAL
STA. 2+19 "U" TO STA3+18 CROUSE
Scale: 1"=10' Vert., 1"= 30' Horiz.



PROFILE EXPRESSWAY LATERAL
STA. 5+00 "S" TO STA. 2+76 "R"
Scale: 1"=10' Vert. 1"=30' Horiz.

393

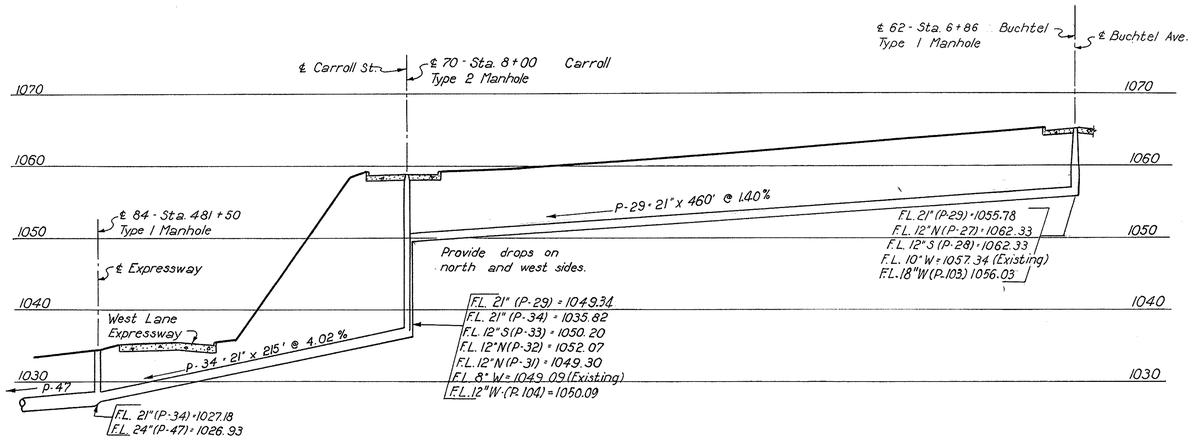
SCALE	As shown	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE	BHF DATE 10-13-52	CONSULTING ENGINEERS
TRCD	CAL DATE 12-8-52	KANSAS CITY / NEW YORK
CKD	R.E.S. DATE 12-19-52	846 SHEET 60

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

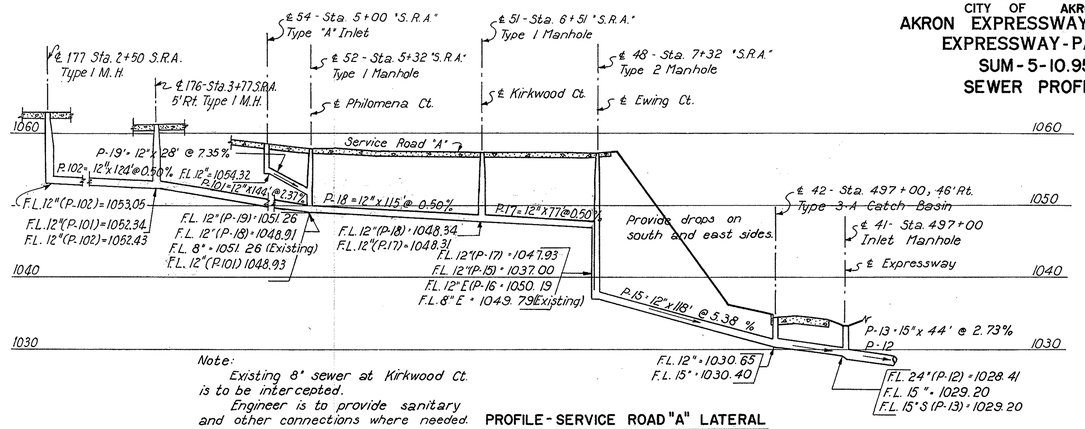
61
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95
SEWER PROFILES

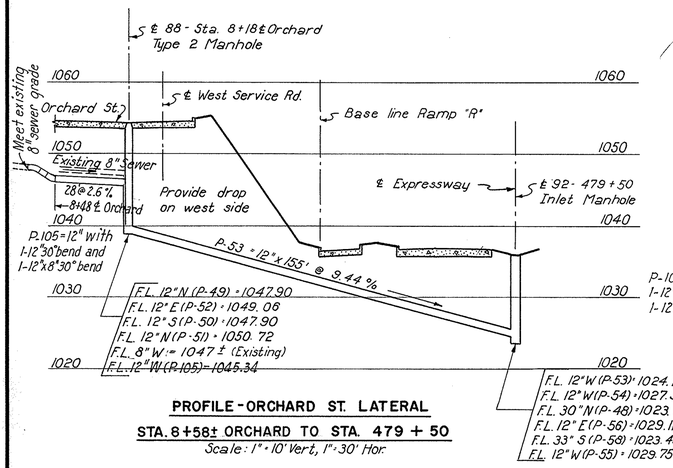


PROFILE - WEST SERVICE ROAD LATERAL
STA. 6+86 BUCHTEL TO STA. 481+50
Scale: 1" = 10' Vert, 1" = 50' Hor.

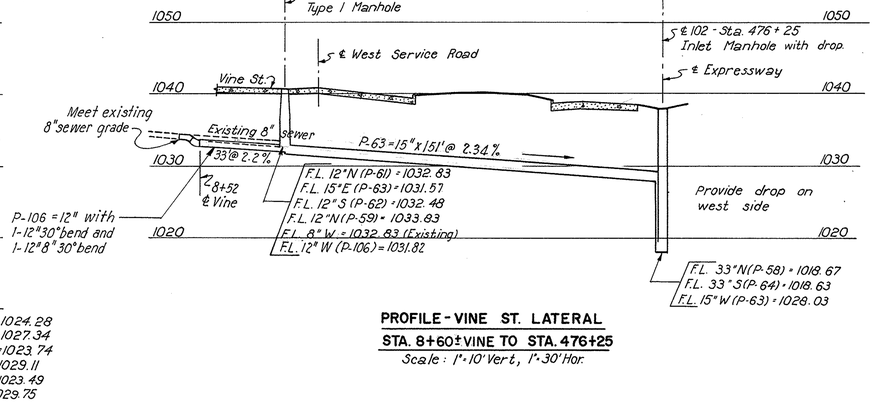


Note:
Existing 8" sewer at Kirkwood Ct. is to be intercepted.
Engineer is to provide sanitary and other connections where needed.

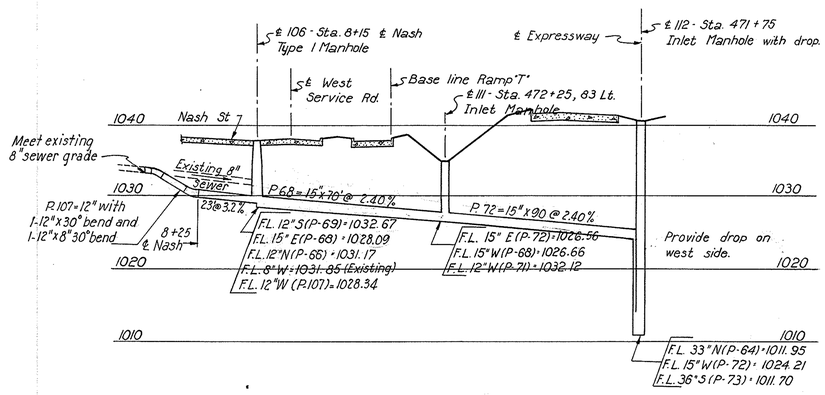
PROFILE - SERVICE ROAD "A" LATERAL
STA. 2+50 "SRA" TO STA. 497+00
Scale: 1" = 10' Vert, 1" = 50' Hor.



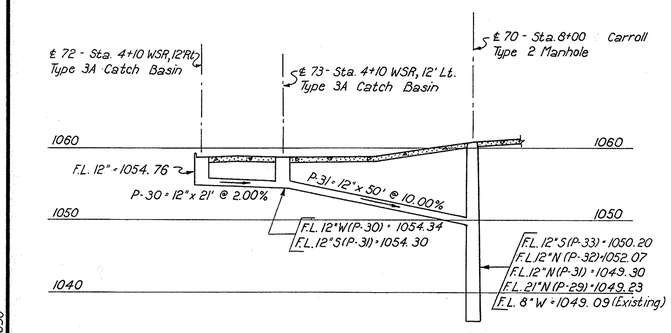
PROFILE - ORCHARD ST. LATERAL
STA. 8+58± ORCHARD TO STA. 479+50
Scale: 1" = 10' Vert, 1" = 30' Hor.



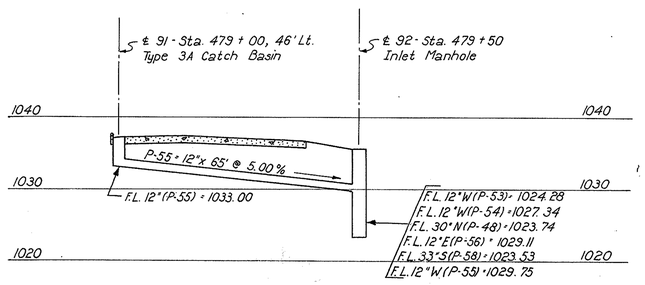
PROFILE - VINE ST. LATERAL
STA. 8+60± VINE TO STA. 476+25
Scale: 1" = 10' Vert, 1" = 30' Hor.



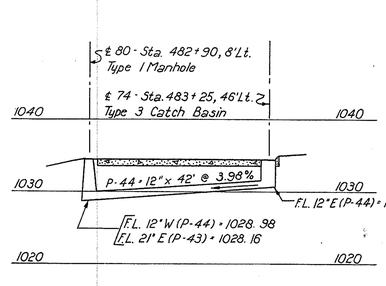
PROFILE - NASH ST. LATERAL
STA. 8+60± NASH TO STA. 471+75
Scale: 1" = 10' Vert. 1" = 30' Hor.



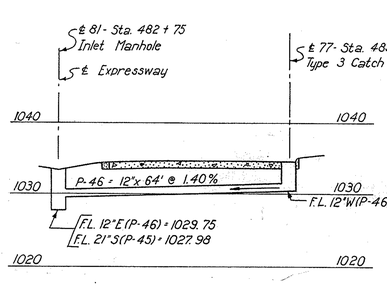
WEST SERVICE ROAD LATERAL
STA. 4+10 TO STA. 8+00 CARROLL
Scale: 1" = 10' Vert. 1" = 20' Hor.



PROFILE EXPRESSWAY LATERAL
STA. 479+00 TO STA. 479+50
Scale: 1" = 10' Vert. 1" = 20' Hor.



PROFILE EXPRESSWAY LATERAL
STA. 482+90 TO STA. 483+25
Scale: 1" = 10' Vert. 1" = 20' Hor.



PROFILE EXPRESSWAY LATERAL
STA. 482+75 TO STA. 483+25
Scale: 1" = 10' Vert. 1" = 20' Hor.

595

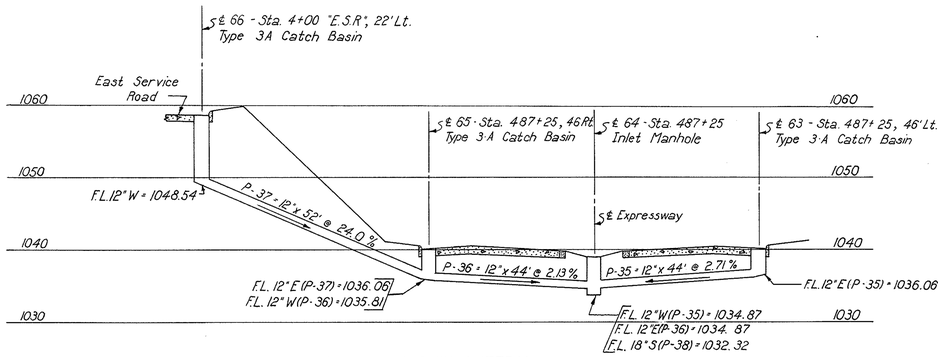
SCALE As shown
MADE RES DATE 10-14-52
TRCD CAL DATE 12-17-52
CKD _____ DATE _____

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846
SHEET- 61

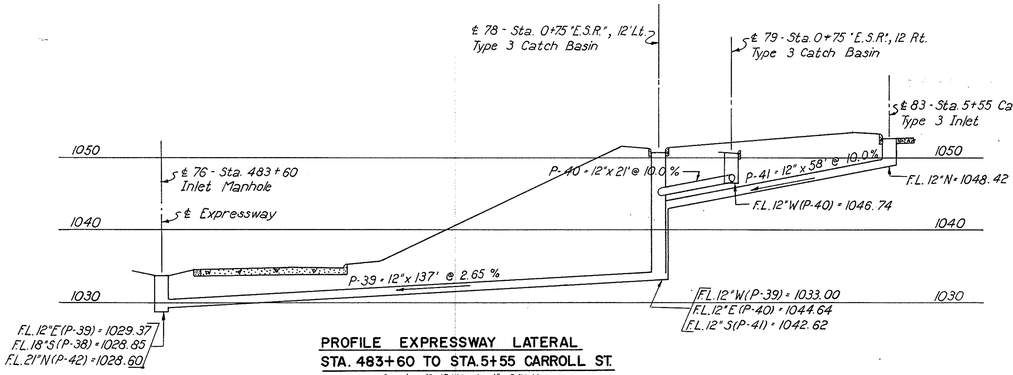
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

62
172

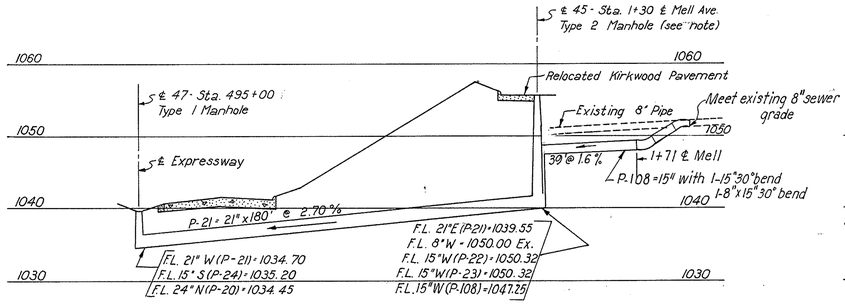
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
SEWER PROFILES



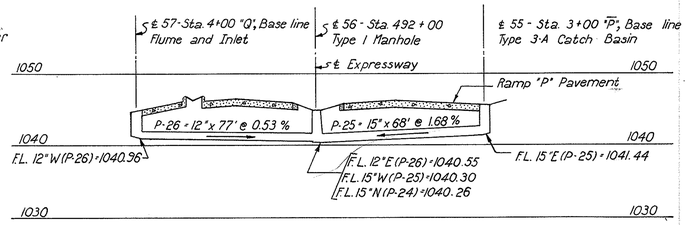
PROFILE EXPRESSWAY LATERAL
STA. 4+00 E.S.R. TO STA. 487+25
Scale : 1"=10' Vert. 1"=20' Hor.



PROFILE EXPRESSWAY LATERAL
STA. 483+60 TO STA. 5+55 CARROLL ST.
Scale : 1"=10' Vert. 1"=20' Hor.

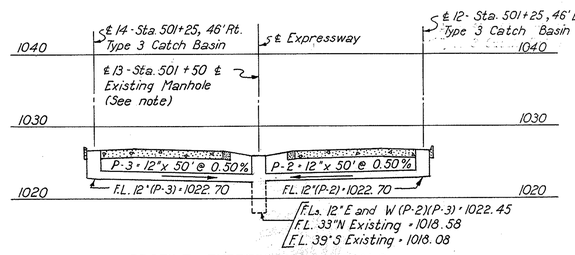


PROFILE MELL AVE. LATERAL
STA. 495+00 TO STA. 1+93± MELL AVE.
Scale: 1"=10' Vert. 1"=30' Hor.

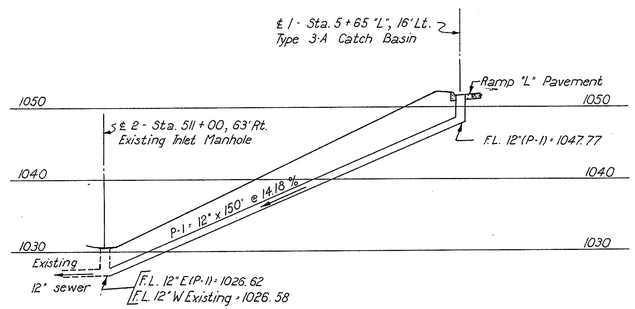


PROFILE EXPRESWAY LATERALS
STA. 4+00 "Q" TO STA. 3+00 "P"
Scale : 1"=10' Vert. 1"=30' Hor.

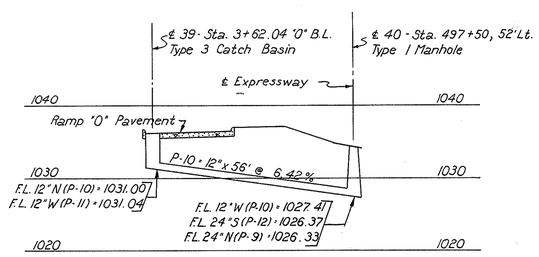
Note: Existing manhole is to be removed as necessary and rebuilt as an inlet manhole. Median is to be warped from Sta. 501+25 to drain to the inlet manhole at Sta. 501+50.



PROFILE EXPRESSWAY LATERALS
STA. 501+25 TO STA. 501+50
Scale : 1"=10' Vert. 1"=20' Hor.

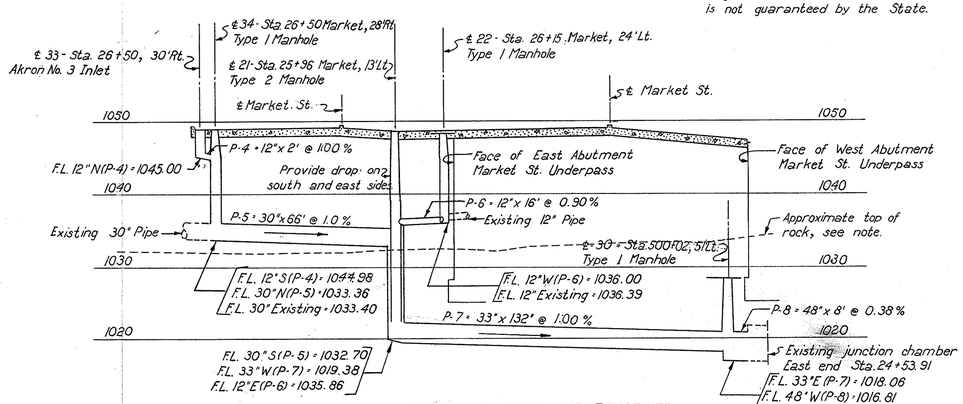


PROFILE EXPRESSWAY LATERAL
STA. 511+00 TO STA. 5+65 "L"
Scale: 1"=10' Vert. 1"=30' Hor.



PROFILE EXPRESSWAY LATERAL
STA. 3+62.04 "O" TO STA. 497+50
Scale: 1"=10' Vert. 1"=20' Hor.

Note: The rock line shown is approximate only and the correctness thereof is not guaranteed by the State.



PROFILE MARKET STREET SEWER
STA. 26+50 TO STA. 24+53.91
Scale: 1"=10' Vert. 1"=30' Hor.

596

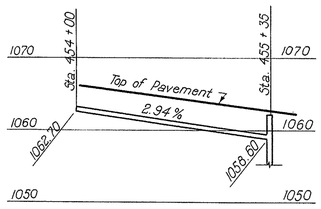
SCALE	As shown
MADE	B.H.F. DATE 10-21-52
TRCD	A.E.S. DATE 12-19-52
CKD	A.E.S. DATE 12-20-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET: 62

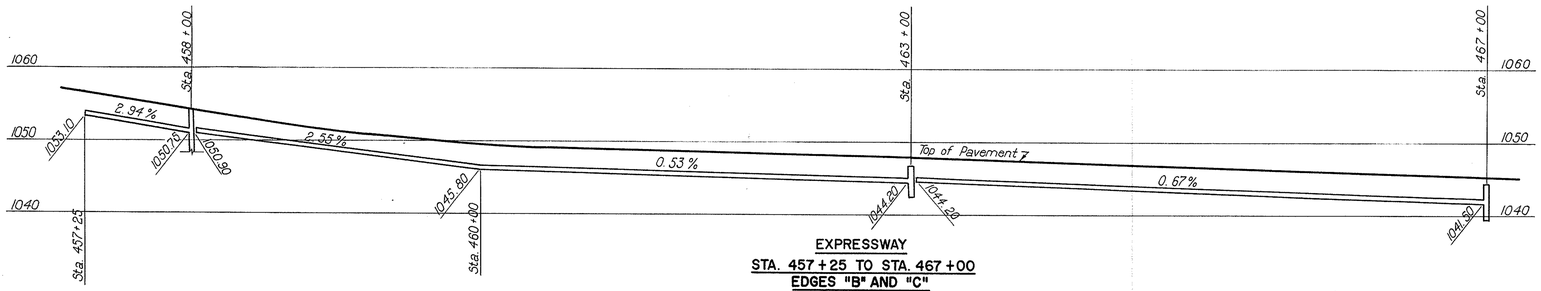
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

63
172

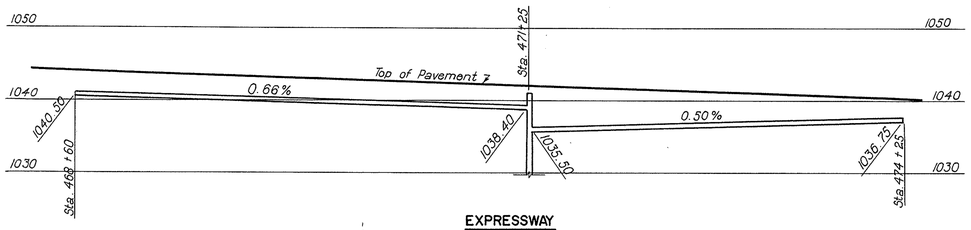
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART-5
SUM: 5-10.95
UNDERDRAIN PROFILES



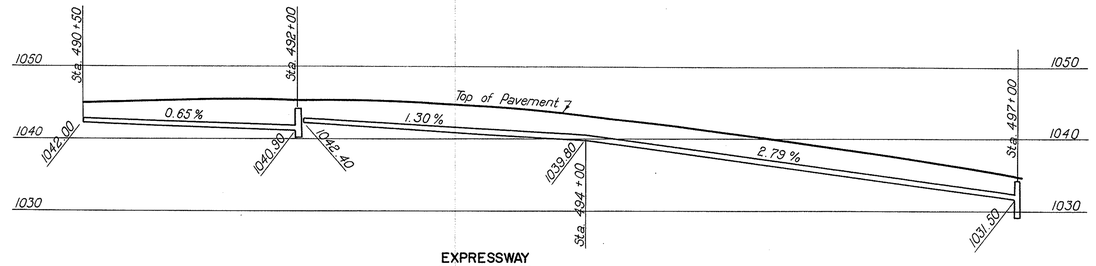
EXPRESSWAY
STA. 454 + 00 TO STA. 455 + 35
EDGES "B" AND "C"
1"=10' Vert. 1"=50' Hor.



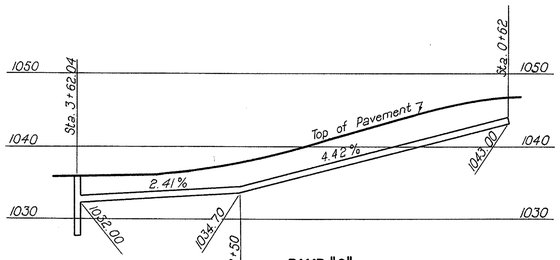
EXPRESSWAY
STA. 457 + 25 TO STA. 467 + 00
EDGES "B" AND "C"
1"=10' Vert. 1"=50' Hor.



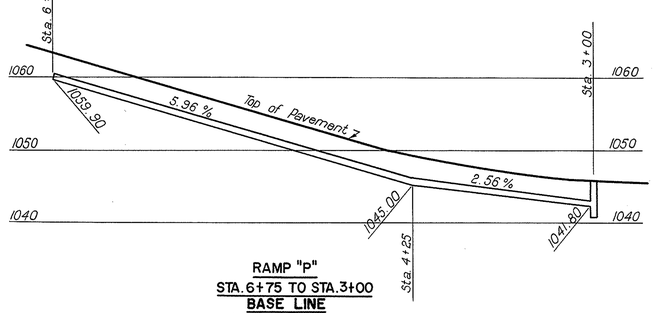
EXPRESSWAY
STA. 468 + 60 TO STA. 474 + 25
EDGES "B" AND "C"
1"=10' Vert. 1"=50' Hor.



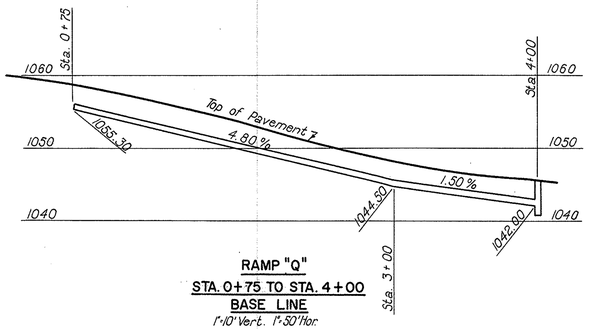
EXPRESSWAY
STA. 490 + 50 TO STA. 497 + 00
EDGES "B" AND "C"
1"=10' Vert. 1"=50' Hor.



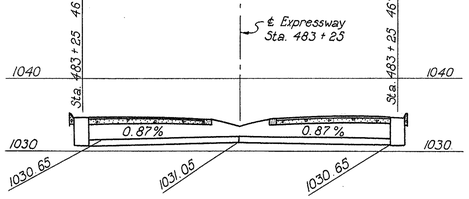
RAMP "O"
STA. 3+62.04 TO STA. 0+62
BASE LINE
1"=10' Vert. 1"=50' Hor.



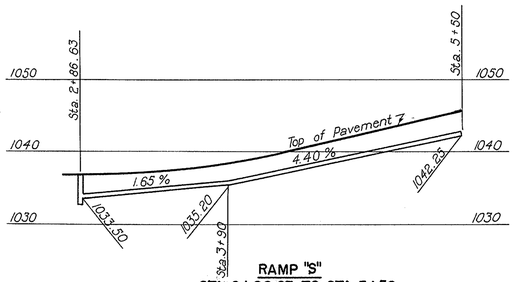
RAMP "P"
STA. 6+75 TO STA. 3+00
BASE LINE
1"=10' Vert. 1"=50' Hor.



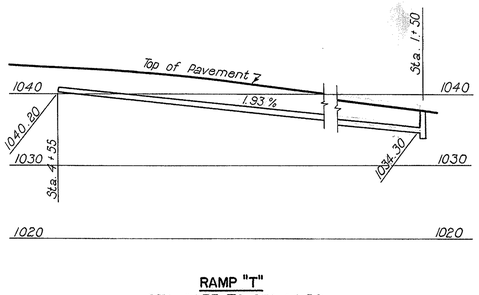
RAMP "Q"
STA. 0+75 TO STA. 4+00
BASE LINE
1"=10' Vert. 1"=50' Hor.



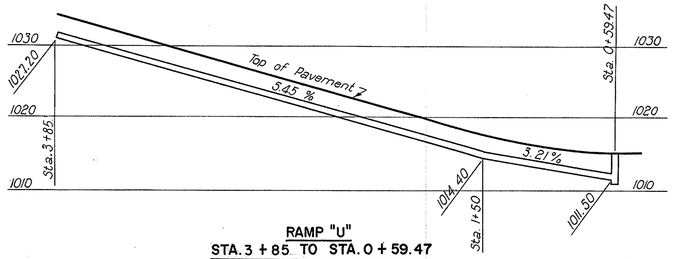
EXPRESSWAY
STA. 483 + 25 - 46' LT. TO 46' RT.
1"=10' Vert. 1"=20' Hor.



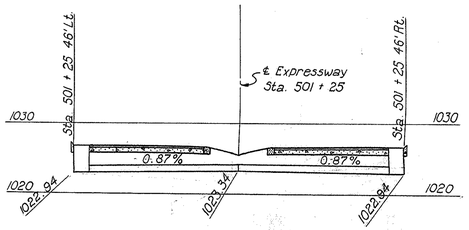
RAMP "S"
STA. 2+86.63 TO STA. 5+50
1"=10' Vert. 1"=50' Hor.



RAMP "T"
STA. 4+55 TO STA. 1+50
BASE LINE
1"=10' Vert. 1"=50' Hor.



RAMP "U"
STA. 3 + 85 TO STA. 0 + 59.47
BASE LINE
1"=10' Vert. 1"=50' Hor.



EXPRESSWAY
STA. 501 + 25 - 46' LT. TO 46' RT.
1"=10' Vert. 1"=20' Hor.

SCALE As shown
MADE FMS DATE 11-22-52
TRCD CAL DATE 11-24-52
CKD RES DATE 11-29-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET- 63

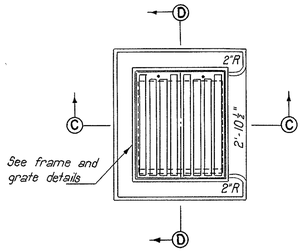
597

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

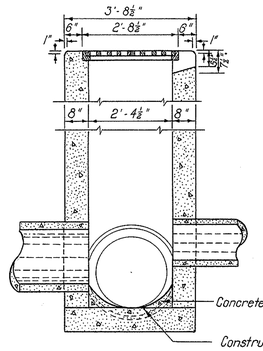
64
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART-5
SUM-5-10.95
INLET AND FLUME DETAILS



Note:
The top of the inlet manhole grate shall be set at normal ditch elevation and the actual flow line of the ditch shall be dropped to the elevation of the bottom of the vertical opening beginning 10' upstream from the upstream face of the inlet.



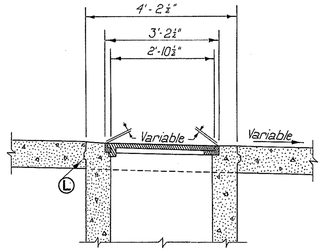
SECTION "C-C"

SECTION "D-D"

INLET MANHOLE
Scale: ½"=1'-0"

PLAN

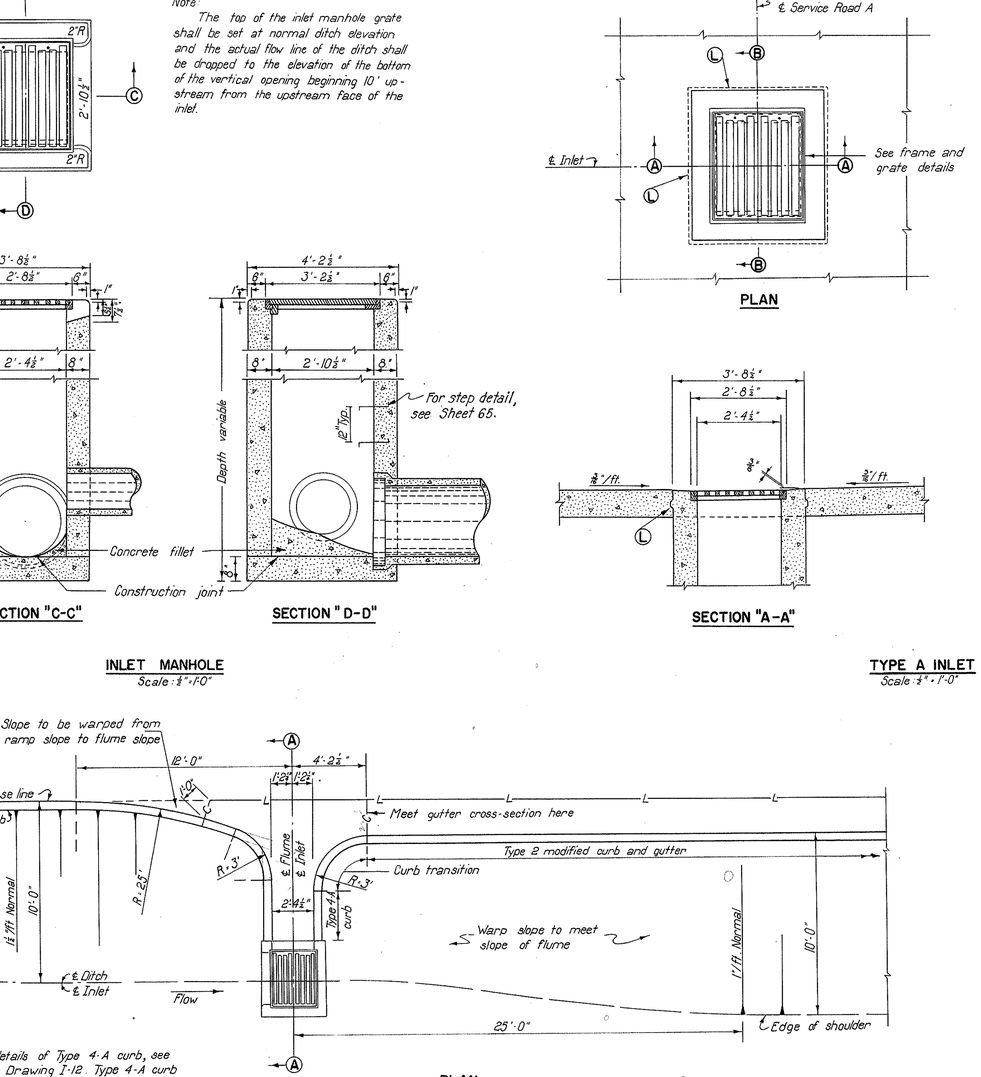
SECTION "A-A"



SECTION "B-B"

Note:
Grate is to be placed on the same grade as pavement.
Nut on bolt is to be recessed flush with top of grate.
All details not shown to be similiar to Inlet Manhole.

TYPE A INLET
Scale: ½"=1'-0"

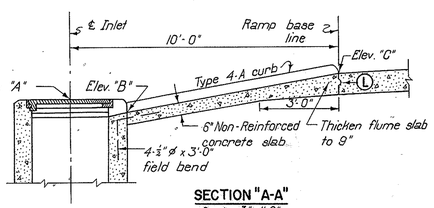


PLAN
Scale: ¼"=1'-0"

Notes:
For details of Type 4-A curb, see Standard Drawing I-12. Type 4-A curb on flume is to be paid for as part of flume.
Class "C" concrete shall be used.
Payment for flume shall be based on the area bounded by the two construction joints, the standard longitudinal key joint and the inlet as shown on this sheet.

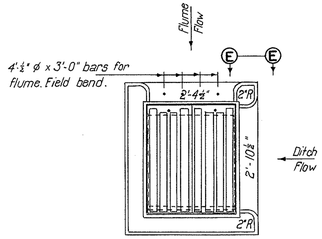
FLUME ELEVATIONS				
STRUCTURE CODE	STATION	ELEV. "A"	ELEV. "B"	ELEV. "C"
7	506+12.75	1028.53	1028.07	1029.45
8	506+91	1029.03	1028.57	1029.95
37	4+00 "Q"	1044.79	1044.33	1045.71

FLUME

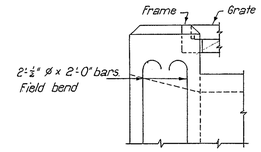


SECTION "A-A"
Scale: ½"=1'-0"

Note:
All details not shown to be similiar to Inlet Manhole.

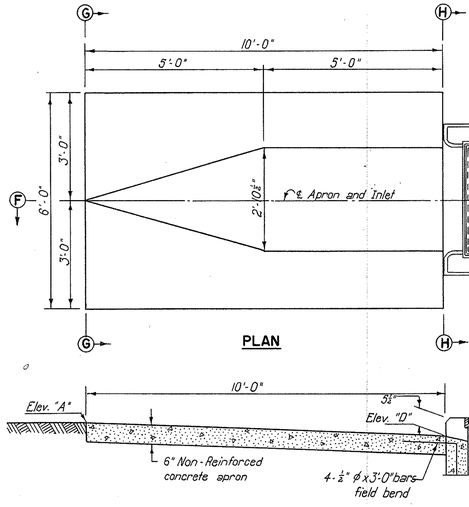


PLAN
Scale: ½"=1'-0"



SECTION "E-E"
Scale: 1½"=1'-0"

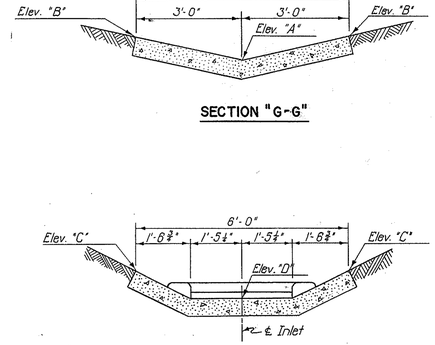
FLUME INLET



PLAN

SECTION "F-F"

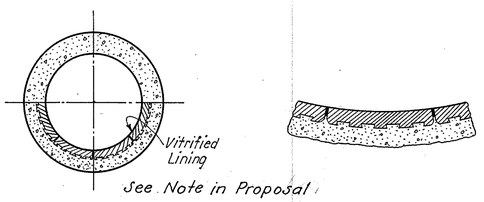
MEDIAN APRON
Scale: ½"=1'-0"



SECTION "G-G"

SECTION "H-H"

APRON ELEVATIONS						
STRUCTURE CODE	STATION	ELEV. "A"	ELEV. "B"	ELEV. "C"	ELEV. "D"	ELEV. "E"
13	501+50	1025.6 ±	1025.9 ±	1025.33	1025.15	1025.61
41	497+00	1033.93	1034.23	1033.27	1033.09	1033.55
64	487+25	1039.17	1039.47	1038.67	1038.49	1038.95
76	483+60	1033.50	1033.80	1033.17	1032.99	1033.45
81	482+75	1033.52	1033.82	1033.17	1032.99	1033.45
92	479+50	1035.64	1035.94	1035.28	1035.10	1035.56
102	476+25	1037.78	1038.08	1037.42	1037.24	1037.70
112	471+75	1040.76	1041.06	1040.40	1040.22	1040.68
122	467+00	1043.89	1044.19	1043.53	1043.35	1043.81
141	463+00	1046.53	1046.83	1046.17	1045.99	1046.45
165	458+00	1053.48	1053.78	1052.89	1052.71	1053.17
170	455+35	1061.33	1061.63	1060.68	1060.50	1060.96



See Note in Proposal

REINFORCED CONCRETE PIPE
HALF LINED WITH VITRIFIED PIPE
Not to scale

Notes:
Inlet details not shown shall be similiar to details for Inlet Manhole.
Concrete apron and median inlet are separate pay items. See list of quantities.
Concrete aprons are to be used at all median inlets. The median inlet at Sta. 501+50 shall have an additional apron on the side opposite that shown in the details.
Class "C" concrete shall be used.

590

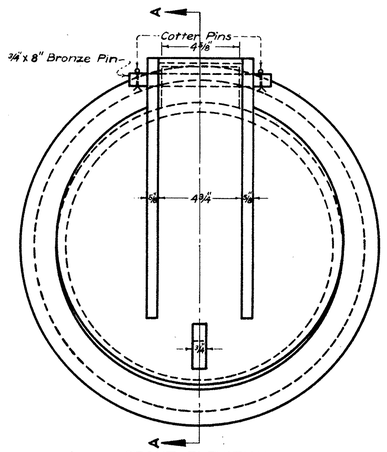
SCALE	As shown
MADE	R.E.S. DATE 9-25-52
TRCD.	C.A.L. DATE 11-4-52
CKD.	R.E.S. DATE 11-29-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET- 64

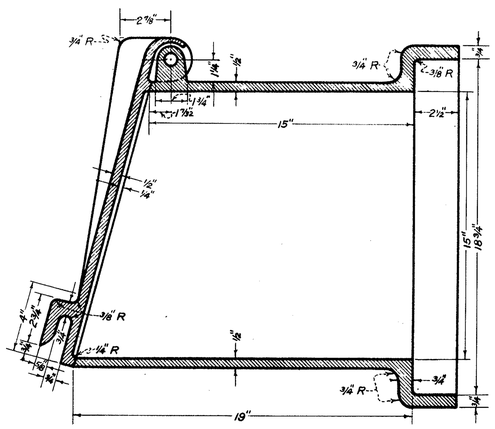
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

65
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95
FLAP GATE & GRATE DETAILS

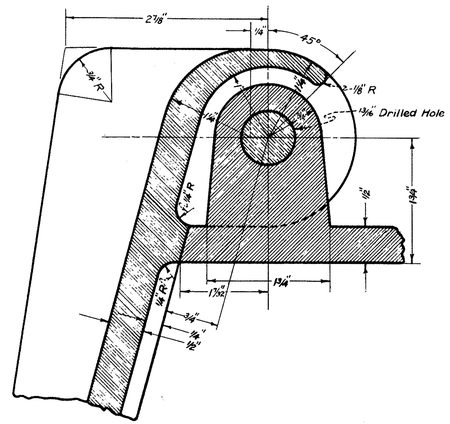


FRONT ELEVATION

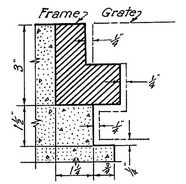


SECTION A - A

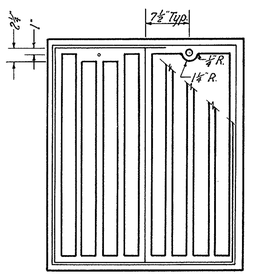
15" FLAP GATE
Scale: 3"=1'-0"

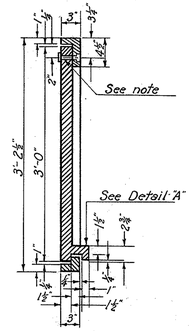


SECTION THRU HINGE 12" & 15"
TRUE SCALE



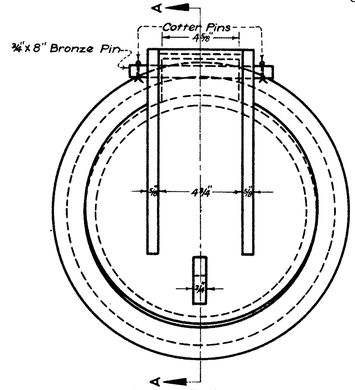
DETAIL "A"
Scale: ⅜"=1'



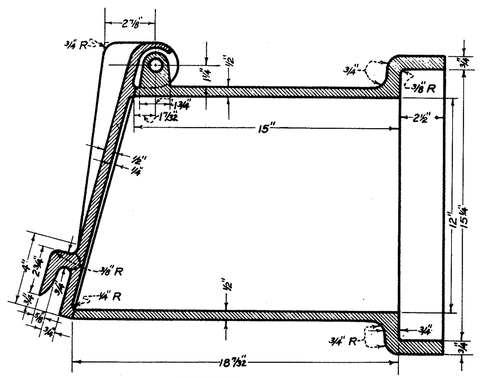


Note:
⅜"x3½" Standard square head Bronze or Brass bolt with standard hex nut in ⅜" ϕ hole. Bolt head to be recessed flush with bottom of flange.
Grate and frame shall be cast iron.

FRAME AND GRATE DETAILS
Scale: 1"=1'-0"



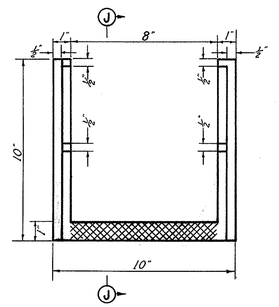
FRONT ELEVATION



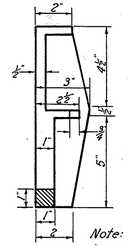
SECTION A - A

12" FLAP GATE
Scale: 3"=1'-0"

Note~
Bearing parts of flap gate and flap gate frame shall be machined to provide a firm and even seat.
Finished castings shall not vary more than 1/16" per foot in any dimension.
Material shall be cast iron of good quality. Castings shall be free from blowholes and other defects. They shall be cleaned of all scale and grease, and receive two coats of bituminous paint.



PLAN



SECTION "JJ"

Note: Steps to be grey iron castings.

STEP DETAILS
Scale: 1"=4"

SCALE As shown
MADE ____ DATE ____
TRCD E.D.H. DATE 11-10-52
CKD R.E.S. DATE 12-2-52

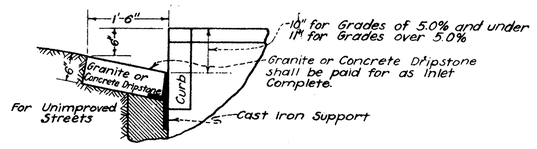
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 65

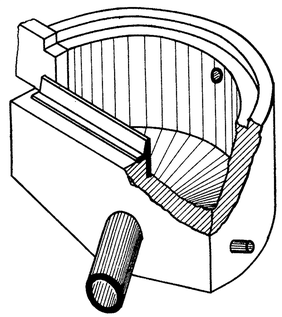
599

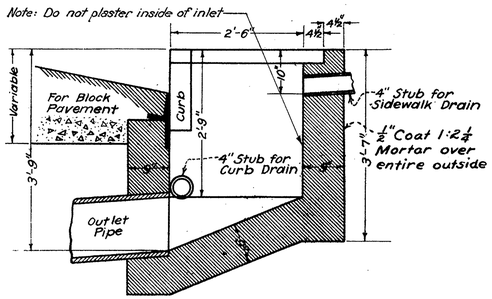
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

66
172

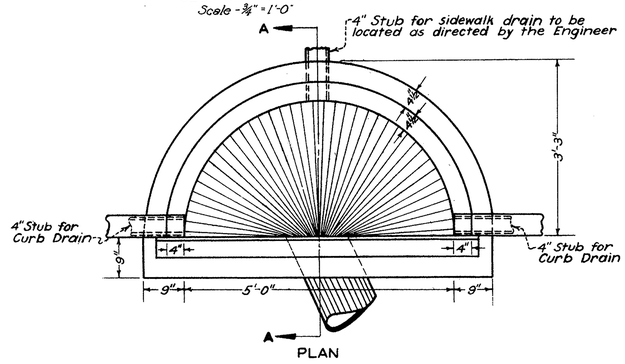
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY- PART 5
SUM-5-10.95
AKRON NO.3 INLET



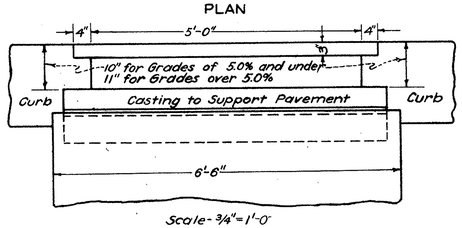




SECTION A - A
Scale - ¾" = 1'-0"

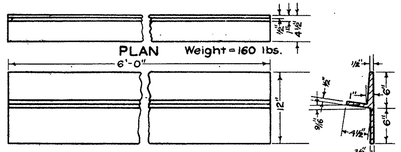


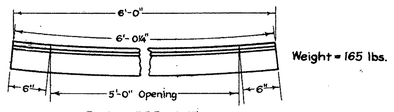
PLAN



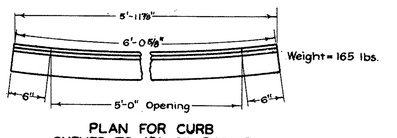
Scale - ¾" = 1'-0"

Notes~
Inlet is to be built of Brick laid up in Portland Cement Mortar, corners bonded, and with every fifth course a stretcher course.
4" Tile stubs to be placed in inlets as indicated on the plan and sealed when directed by the Engineer. The stubs shall be paid for as Inlet Complete.
On unpaved streets and wherever there is no existing curb, standard curbs of a minimum length of two (2) feet to be furnished on each side of inlet, notched as shown and where there is no bid price on curb, the curb shall be paid for as Inlet Complete.
Where Inlet is constructed in existing pavement all reshaping of pavement, within the limits shown on the plan, shall be paid for as Inlet Complete.
Space on top of inlet casting between webs shall be filled with one to two mortar, trowelled to a smooth finish.





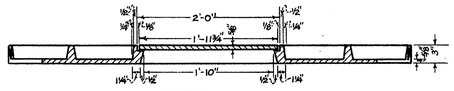
PLAN FOR CURB CURVED TO 20'-0" RADIUS

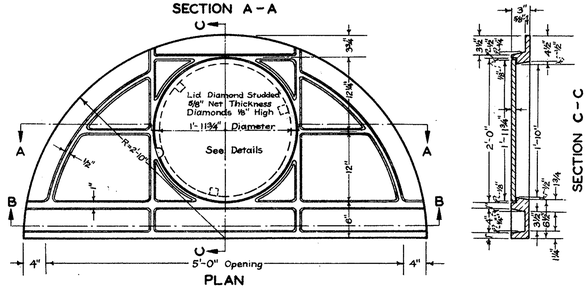


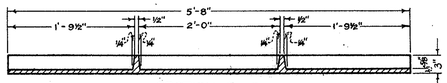
PLAN FOR CURB CURVED TO 15'-0" RADIUS

CASTING TO SUPPORT PAVEMENT AT OPENINGS

Scale : 1" = 1'-0"



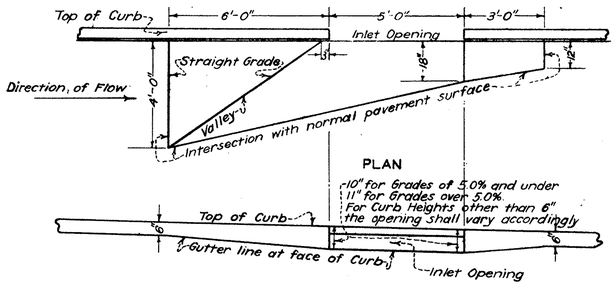




Approximate Wt.= 515 lbs.

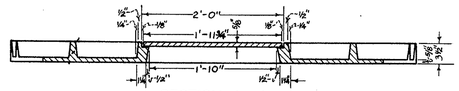
TOP CASTING FOR STRAIGHT CURB

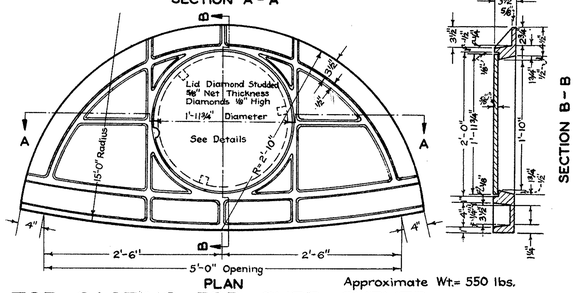
Scale : 1" = 1'-0"



ELEV. SHOWING GUTTER DEPRESSION IN PAVEMENT FOR INLET

Scale- ⅜" = 1'-0"

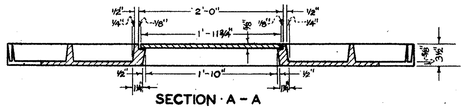


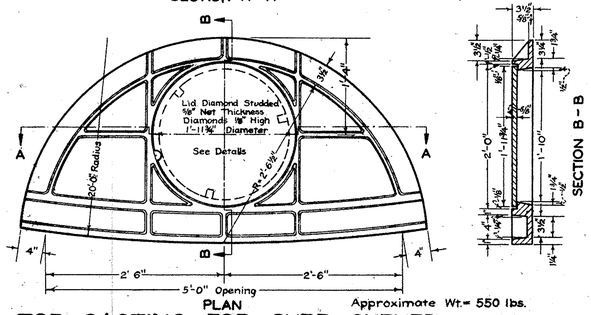


Approximate Wt.= 550 lbs.

TOP CASTING FOR CURB CURVED FOR 15' - 0" RADIUS

Scale : 1" = 1'-0"

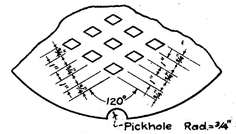




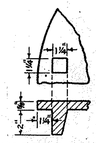
Approximate Wt.= 550 lbs.

TOP CASTING FOR CURB CURVED TO 20' - 0" RADIUS

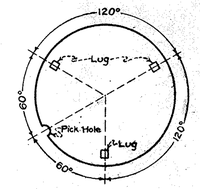
Scale : 1" = 1'-0"



DETAIL OF LID



UNDERSIDE OF LID
Showing Lugs



UNDERSIDE OF LID
Showing Location of Lugs and Pickhole

Note~
Material shall be cast iron of good quality. Castings shall be free from blowholes and other defects. They shall be cleaned of all scale and grease and receive two coats of bituminous paint.

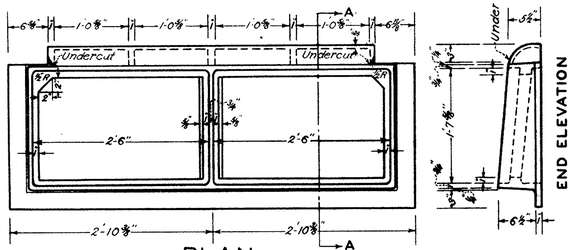
SCALE As shown
MADE ____ DATE ____
TRCD. E.O.H. DATE 11-24-52
CKD. R.E.S. DATE 12-3-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 66

697

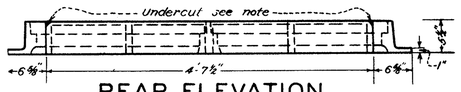
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	67
2	OHIO	U-687 (9)	POST WAR	172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY- PART 5
SUM-5-10.95
AKRON NO. 5 INLET

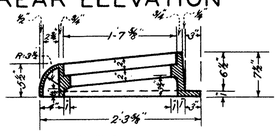


PLAN

FRONT ELEVATION

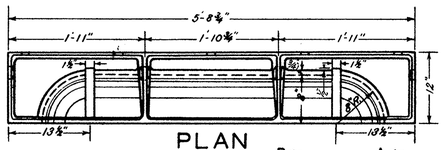


REAR ELEVATION

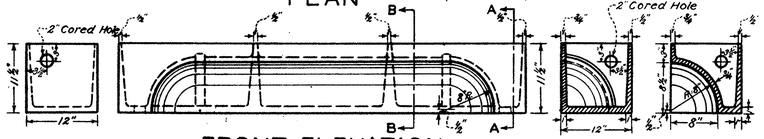


SECTION A-A

# GUTTER GRATING FRAME
WEIGHT = 543#
Scale: 1"=1'-0"

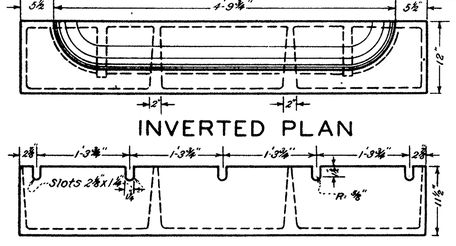


PLAN



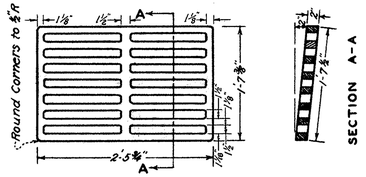
FRONT ELEVATION

SECTION A-A SECTION B-B



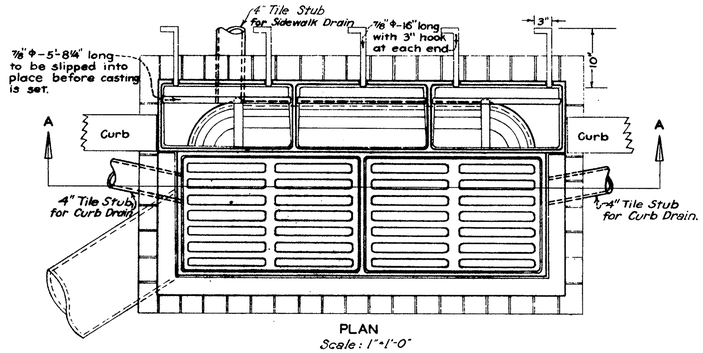
REAR ELEVATION

# CURB CASTING
WEIGHT = 513#
Scale: 1"=1'-0"

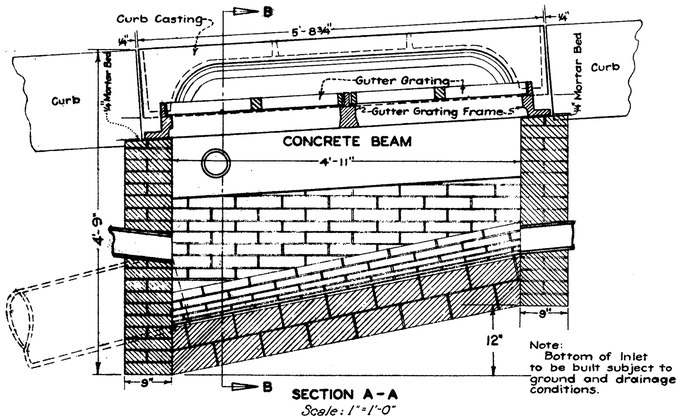


PLAN

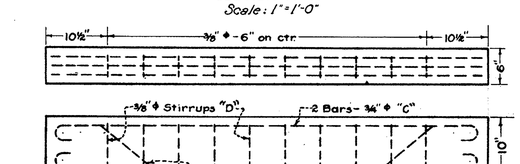
# GUTTER GRATING
WEIGHT = 158#
Scale: 1"=1'-0"



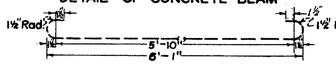
PLAN
Scale: 1"=1'-0"



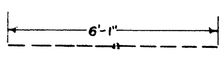
SECTION A-A
Scale: 1"=1'-0"



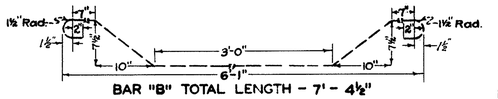
DETAIL OF CONCRETE BEAM



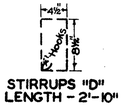
BAR "A" TOTAL LENGTH - 6'-10½"



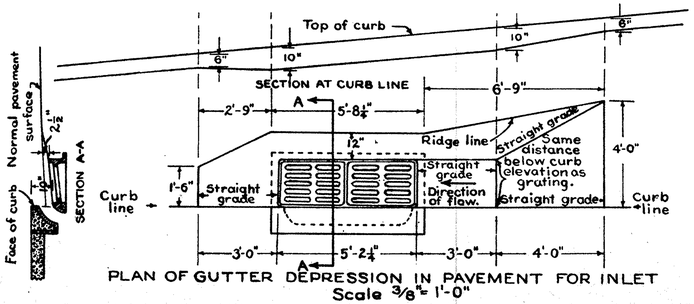
BAR "C" TOTAL LENGTH - 6'-1"



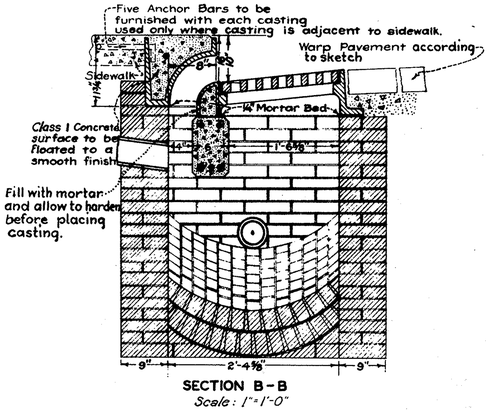
BAR "B" TOTAL LENGTH - 7'-4½"
Scale: 1"=1'-0"



STIRRUPS "D"
LENGTH - 2'-10"



PLAN OF GUTTER DEPRESSION IN PAVEMENT FOR INLET
Scale ⅜"= 1'-0"



SECTION B-B
Scale: 1"=1'-0"

Notes:

Inlet

4" Tile stubs to be placed in inlets as indicated on the plan and sealed when directed by the Engineer. The stubs shall be paid for as Inlet, Complete.

On unpaved streets and wherever there is no existing curb, standard curbs of a minimum length of two (2) feet to be furnished on each side of the inlet and where there is no bid price on curb, the curb shall be paid for as Inlet, Complete.

Where inlet is constructed in existing pavement all reshaping of pavement within the limits shown on the plan shall be paid for as Inlet, Complete.

Castings

Undercut Gutter Grating Frame where noted so as to permit a minimum opening of three (3) inches between Curb Casting and Gutter Grating Frame.

Bearing parts of Gutter Grating and Gutter Grating Frame shall be machined to provide a firm and even seat.

Finished Castings shall not vary more than one sixteenth (1/16) inch per foot in any dimension, or more than five per cent (5%) in weight from that called for on the drawing.

Material shall be cast iron of good quality. Castings shall be free from blowholes and other defects. They shall be cleaned of all scale and grease, and receive two coats of bituminous paint.

SCALE	As shown
MADE	DATE
TRCD. E.D.H.	DATE 11-24-52
CKD. R.E.S.	DATE 12-3-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 67

698

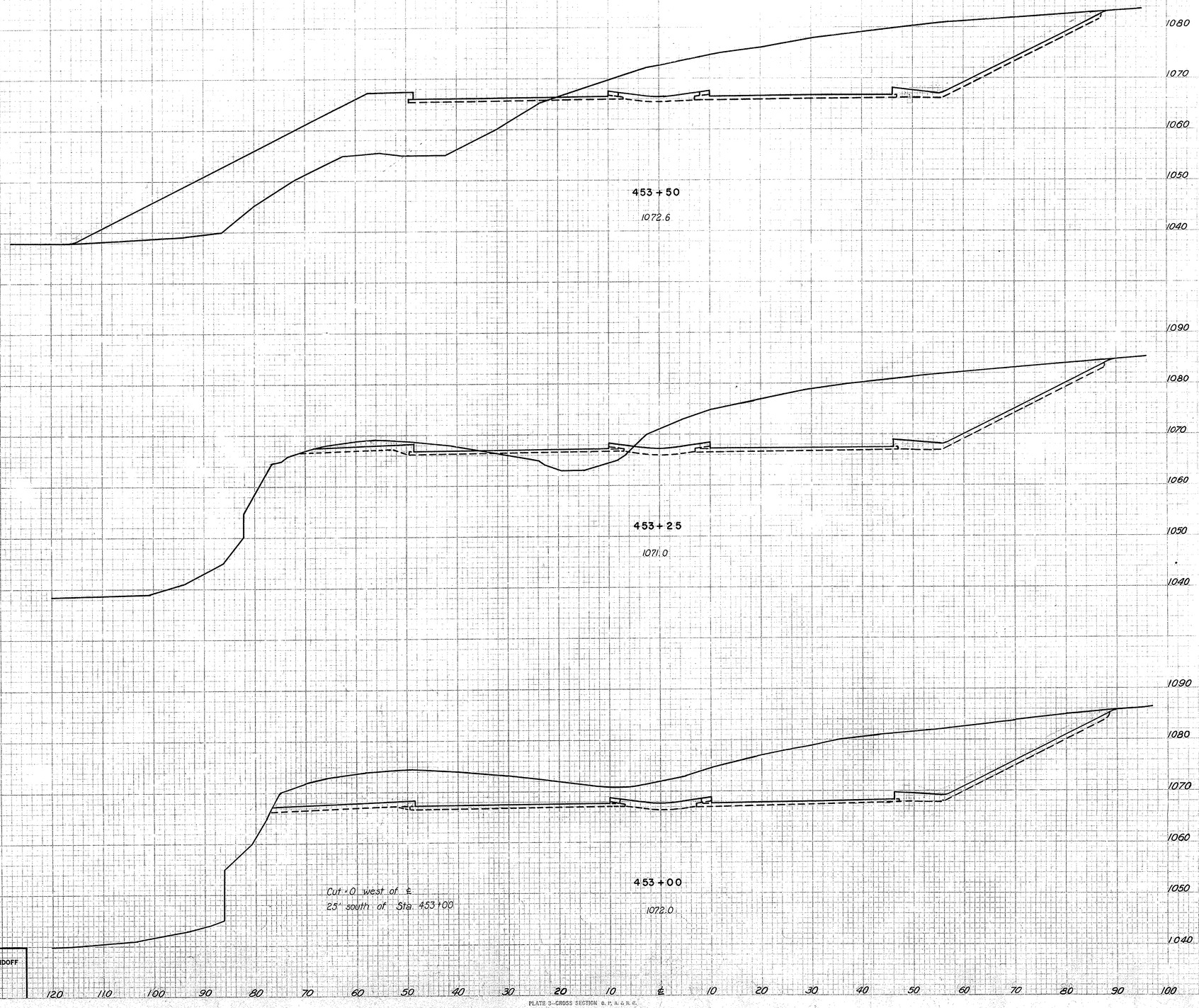
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

68
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

SEEDING	
Width Lin. Ft.	Area Sq. Yds.
156	
	328
80	
	250
100	



VOLUME SS-5	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	971	826		
46			884	447
	960	141		
39			1052	109
forward	1315	94		
back	433	0		
			200	0

STA. 453+00 TO STA. 453+50

ORIGINAL SURVEY — SURVEYED, PLOTTED, NOTE BOOK, TEMPLATE, AREAS, AREAS CHECKED, NO., DATE, BY

FINAL SURVEY — SURVEYED, PLOTTED, NOTE BOOK, TEMPLATE, AREAS, AREAS CHECKED, NO., DATE, BY

SCALE 1" = 10'
MADE J.L.F. DATE 10-18-52
TRCD H.A.S. DATE 11-5-52
CKD B.H.F. DATE 10-18-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 68

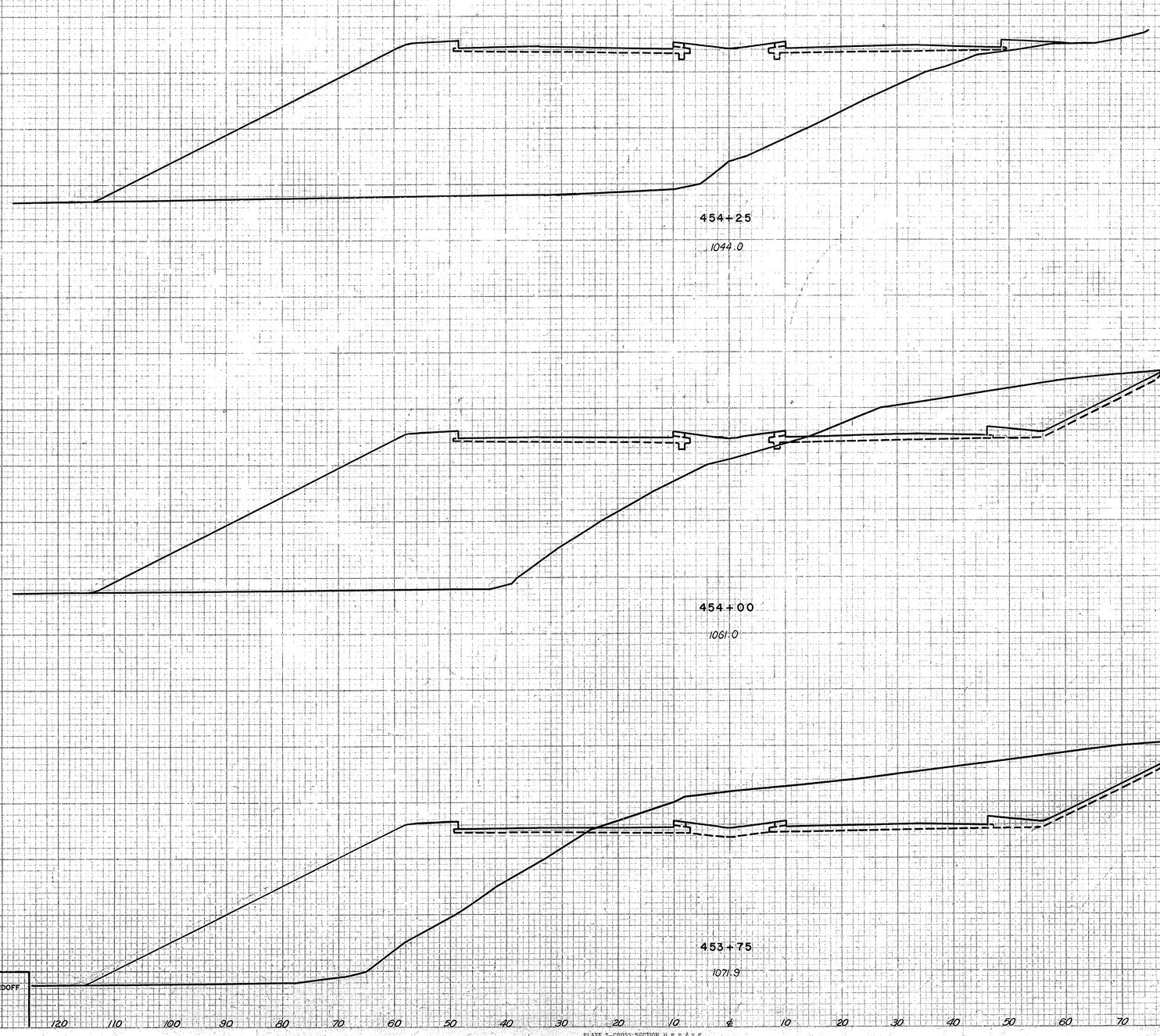
PLATE 3—CROSS SECTION O. P. A. & R. E.
CHARLES BRUNING COMPANY, INC.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

69
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

SEEDING	
Width Lin. Ft.	Area Sq. Yds.
130	
	381
144	
	423
154	
	431



VOLUME	END AREA		VOLUME	
SS-5	CUT	FILL	CUT	FILL
	0	2682		
67			180	2062
	388	1817		
67			589	1475
	885	1149		
64			859	914

STA. 453+75 TO STA. 454+25

ORIGINAL SURVEY — STAKED — PLOTTED — TEMPLATE — NOTE BOOK — PAGES — NO. — AREAS CHECKED — DATE

FINAL SURVEY — STAKED — PLOTTED — TEMPLATE — NOTE BOOK — PAGES — NO. — AREAS CHECKED — DATE

SCALE 1"=10'
MADE J.L.E. DATE 10-18-52
TRCD O.A.L. DATE 11-6-52
CKD B.H.F. DATE 10-18-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 69

PLATE 3—CROSS SECTION U. P. R. & R. E.
CHARLES BRANNIN COMPANY, INC.

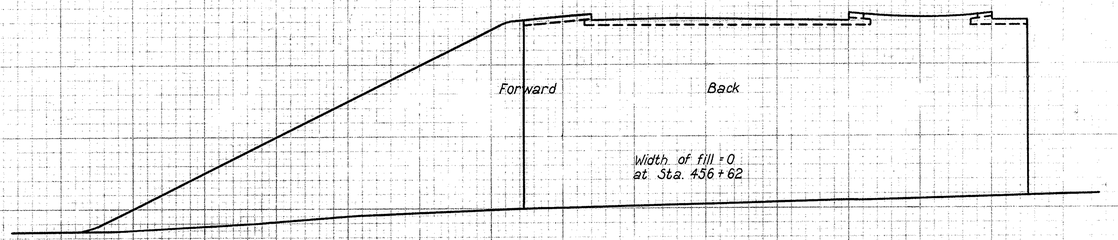
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

70
172

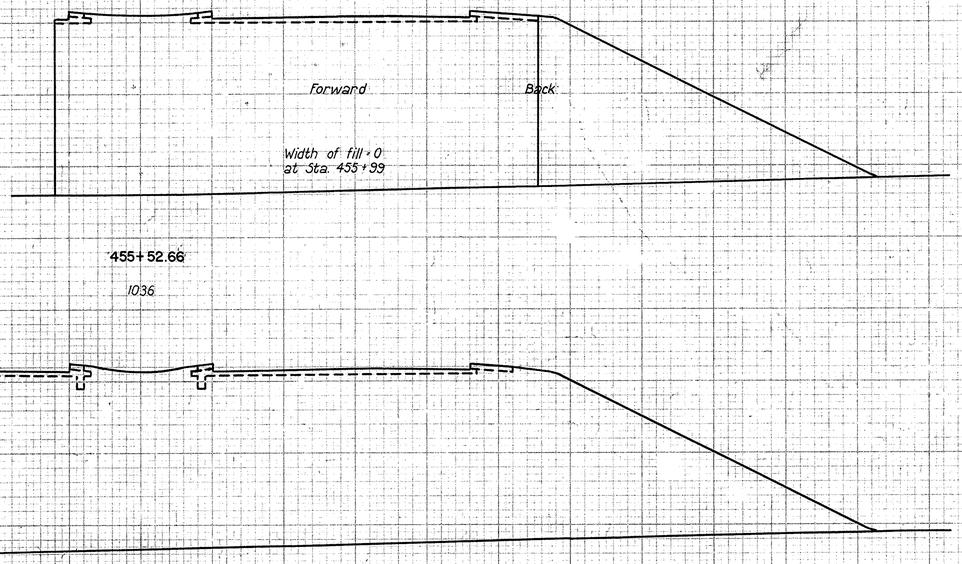
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

Note:
Conic sections of fill computed separately.

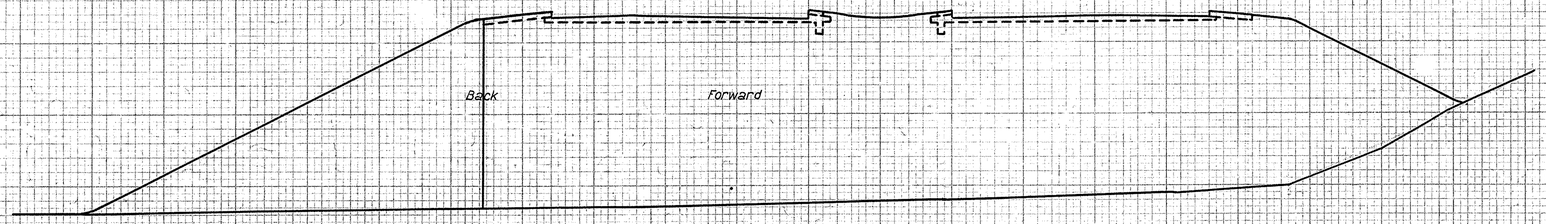
457 + 09.21
1031.2



455 + 52.66
1036



455 + 23
1036.6



454 + 68.18
1037.8

SEEDING				VOLUME	END AREA		VOLUME	
Width Lin. Ft.	Area Sq. Yds.			SS-5	CUT	FILL	CUT	FILL
		1040						
		1030				2584		forward
						1749		back
97	forward							
285	conic section			Computed conic section				764
				31				1538
		1060						2302
225	conic section							
				Computed conic section				536
				31				1390
								1926
62	back	1040						
						1620		forward
						2195		back
273								
		1060		62				2993
84		1050						
		1040				3255		
730	includes conic section							
				Computed conic section				764
				146				6441
								7205
62	forward	1060						
133	back							
		1050			0	3090		forward
						3848		back
870		1040						
				89				5225

STA. 454 + 68.18 TO STA. 457 + 09.21

SCALE 1" = 10'
MADE J.L.F. DATE 10-8-52
TRCD C.A.L. DATE 11-29-52
CKD B.H.F. DATE 10-18-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
SHEET 70
846

PLATE 3—CROSS SECTION O. P. R. & R. C.
CHARLES BRUNING COMPANY, INC.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

71
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

SEEDING Width Lin. Ft.	SEEDING Area Sq. Yds.
180	978
172	411
169 - forward 106 - back	
684 includes conic section	
104	
300	

458+50
1022.7

458+00
1026.0

457+78.32
1027.7

457+35
1030.1

VOLUME SS-5	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		5020		
1133				8866
		4555		
	258			3616
		4453 - forward 3828 - back		
Computed conic section 1115				385 6077 6462
	594	3747		3024

Note:
Conic section of fill computed separately.

SCALE 1" = 10'
MADE C.B.F. DATE 10-17-52
TRCD E.H.S. DATE 11-11-52
CKD B.H.F. DATE 10-17-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 71

PLATE 3-CROSS SECTIONS C. P. P. & H. E.
CHARLES BRUNING COMPANY, INC.

STA. 457 + 35 TO STA. 458+50

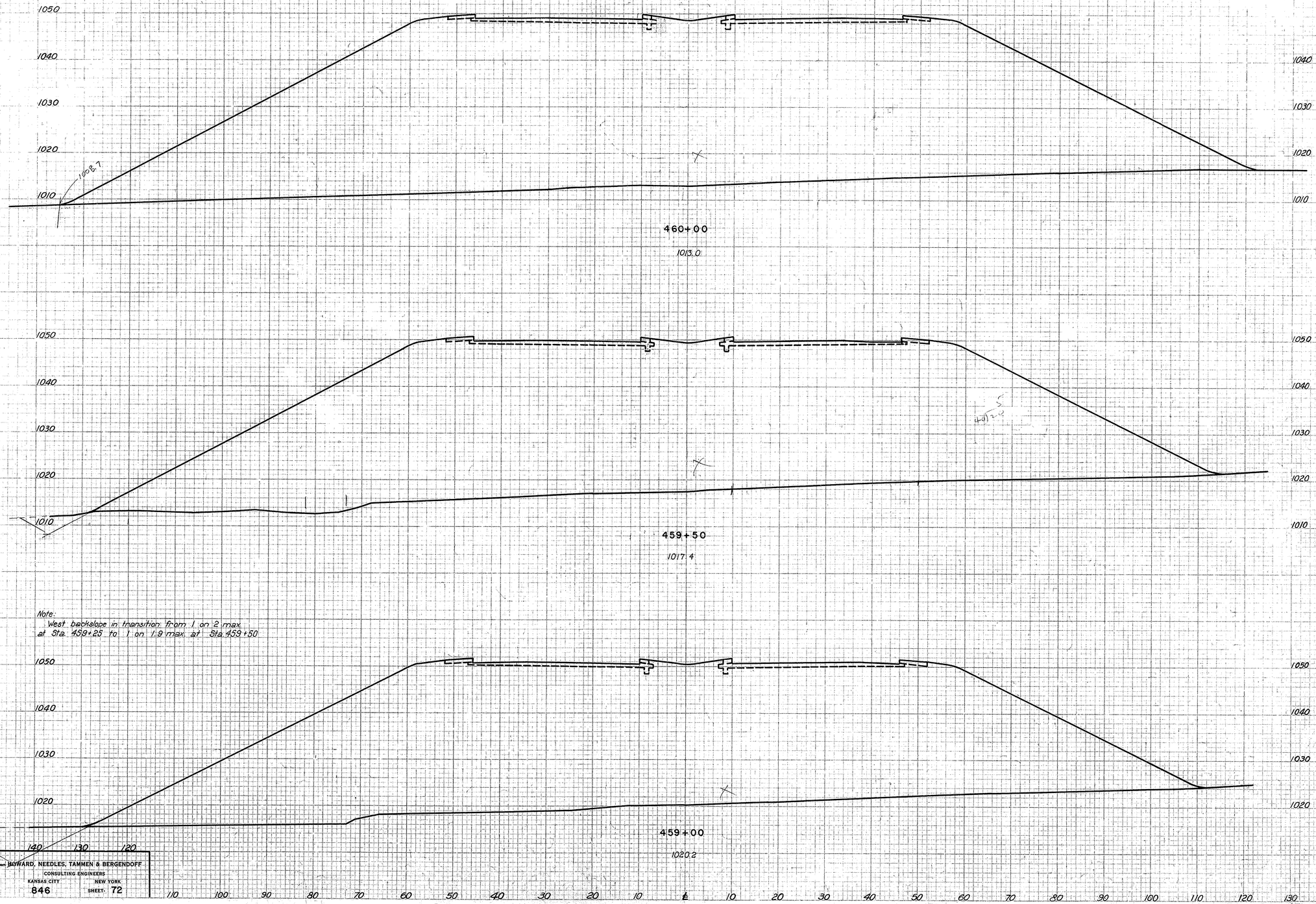
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

72
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95

Note:
West backslope in transition from 1 on 1.9 max. at Sta. 460+00 to 1 on 2 at Sta. 460+25

SEEDING	
Width	Area
Lin. Ft.	Sq. Yds.
220	
	1180
205	
	1125
200	
	1082



VOLUME SS-5	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		6516		
133				11342
			5733	
133				10318
			5410	
133				9657

Note:
West backslope in transition from 1 on 2 max. at Sta. 459+25 to 1 on 1.9 max. at Sta. 459+50

FINAL SURVEY — SURVEYED, PLOTTED, TRACED, NOTE BOOK, MEAS. CHECKED, NO., DATE, BY

ORIGINAL SURVEY — SURVEYED, PLOTTED, TRACED, NOTE BOOK, MEAS. CHECKED, NO., DATE, BY

SCALE 1"=10'
MADE C.R.E. DATE 10-17-52
TRCD C.A.L. DATE 11-5-52
CKD B.H.E. DATE 10-17-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET: 72

PLATE 3—CROSS SECTION C. P. R. & E. E.
CHARLES BARNUM COMPANY, INC.

STA. 459+00 TO STA. 460+00

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

73
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95

SEEDING		VOLUME	END AREA		VOLUME	
Width Lin Ft	Area Sq Yds	SS-5	CUT	FILL	CUT	FILL
254			0	7556		
		133			18	13461
1381						
			19	6982		
242						
		133			47	12729
1329						
			32	6765		
236						
		133			30	12297
1260						

461+50
1003.7

461+00
1011.5

460+50
1012.7

180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110

STA. 460+50 TO STA. 461+50

SCALE	1"=10'
MADE	C.A.E. DATE 10-17-52
TRCD	C.A.L. DATE 11-5-52
CKD	B.H.F. DATE 10-17-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 73

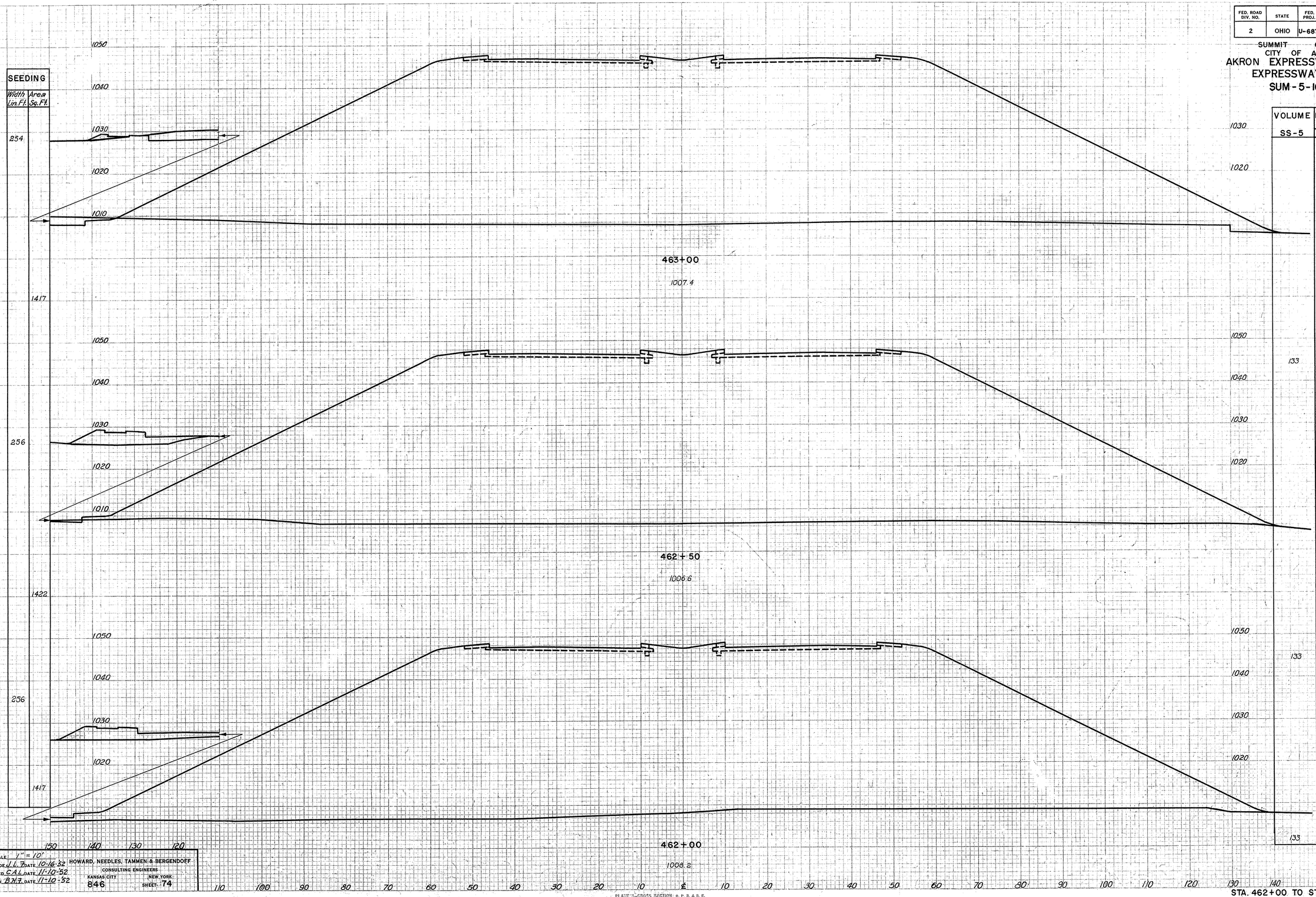
FINAL SURVEY DATA — DATE / BY / SURVEYED / PLOTTED / NOTE BOOK / TEMPLATE / AREAS CHECKED / NO.

ORIGINAL SURVEY DATA — DATE / BY / SURVEYED / PLOTTED / NOTE BOOK / TEMPLATE / AREAS CHECKED / NO.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

74
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95



VOLUME	END AREA		VOLUME	
SS-5	CUT	FILL	CUT	FILL
	50	7397		
133			52	14065
	6	7793		
133			6	14402
	0	7761		
133			0	14182

FINAL SURVEY NOTE BOOK NO. — SURVEYED / PLOTTED / CROSS SECTIONED / TEMPLATE / AREAS CHECKED / DATE / BY

ORIGINAL SURVEY NOTE BOOK NO. — SURVEYED / PLOTED / CROSS SECTIONED / TEMPLATE / AREAS CHECKED / DATE / BY

SCALE 1" = 10'
MADE J.L.T. DATE 10-16-52
TRCD C.A.L. DATE 11-10-52
CKD B.H.T. DATE 11-10-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 74

PLATE 5-CROSS SECTION, O. P. R. & R. E.
CHARLES THEBEAU COMPANY, INC.

STA. 462+00 TO STA. 463+00

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

75
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95

VOLUME SS-5	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	139	6320		
133			177	12618
	52	7308		
133			121	13359
	79	7120		
133			120	13442

SEEDING
Width Area
Lin.Ft. Sq.Yds

190
1168
230
1338
252
1405

464+50
1008.6
464+00
1007.3
463+50
1008.1

1050
1040
1030
1020
1010

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, NOTE BOOK, NO., AREAS CHECKED, BY, DATE

ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, NOTE BOOK, NO., AREAS CHECKED, BY, DATE

SCALE 1" = 10'
MADE J.L.T. DATE 10-16-52
TRCD C.A.L. DATE 11-10-52
CKD B.H.T. DATE 11-12-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
SHEET 75
846

PLATE 3—CROSS SECTION U. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

STA. 463 + 50 TO STA. 464 + 50

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

76
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95

SEEDING Width Area Lin.Ft. Sq.Yds.			VOLUME SS-5 CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	1040					
	1030					
181	1010	466+50 1016.9		7	5569	
			168		39	10700
	1040					
985	1030			35	6002	
	1020					
173	1010	466+00 1014.5	157		110	11620
	1040					
994	1030		forward	84	8581	
184 130	forward back 1020		back		4546	
	1010		146		249	9261
		465+50 1011.2				
	1040					
781	1030			185	5456	
151	1020					
947	1010	465+00 1009.8	133		300	10904

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120

STA. 465+00 TO STA. 466+50

SCALE 1"=10'		
MADE J.L.T. DATE 10-16-52	HOWARD, NEEDLES, TAMMEN & BERGENDOFF	
TRCD C.A.L. DATE 11-18-52	CONSULTING ENGINEERS	
CKD B.H.T. DATE 11-19-52	KANSAS CITY	NEW YORK
846	SHEET 76	

FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, NOTE BOOK, NO., AREAS CHECKED, DATE, BY

ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, NOTE BOOK, NO., AREAS CHECKED, DATE, BY

PLATE 3—CROSS SECTION - O. P. R. A. R. E.
CHARLES BRUNING COMPANY, INC.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

77
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

FINAL SURVEY — SURVEYED — BY — DATE — PLOTTED — CHECKED — TRACED — AREAS CHECKED — NOTE BOOK — PAGE — NO.

ORIGINAL SURVEY — SURVEYED — BY — DATE — PLOTTED — CHECKED — TRACED — AREAS CHECKED — NOTE BOOK — PAGE — NO.

SEEDING	
Width	Area
Lin. Ft.	Sq. Yds.
184	640
205	1180

640 includes computed conic section

620 includes computed conic section

Area to be site-graded to drain toward inlet manhole

forward only

back only

VOLUME	END AREA		VOLUME	
SS-5	CUT	FILL	CUT	FILL
	115	3512		
	181		253	6919
Computed conic section		790		
total	129	2370		
	0	0		
computed conic section		1264		
total	63	2579		
	147	3845	57	7230
	5	4833		
	167		11	9630

SCALE 1" = 10'
MADE CRE DATE 10-15-52
TRCD HAS DATE 11-3-52
CKD BHT DATE 11-5-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
SHEET 77
846

PLATE 3—CROSS SECTION O. P. W. A. E. E.
CHARLES BRUNING COMPANY, INC.

STA. 467+00 TO STA. 469+00

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

78
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95

SEEDING	
Width Lin.Ft.	Area Sq.Yds.
158	
	698
165	
	922
167	
	946
175	
	992
182	
1017	

471+50
1030.4

471+00
1026.9

470+50
1024.9

470+00
1024.2

469+50
1023.0

VOLUME	END AREA		VOLUME	
SS-5	CUT	FILL	CUT	FILL
		75		1512
152			103	3510
		36		2277
152			39	4810
		6		2911
155			43	5640
		41		3184
158			132	6100
		123		3400
163			220	6395

STA. 469+50 TO STA. 471+50

ORIGINAL SURVEY — SURVEYED, PLOTTED, TAB PLATE, NOTE BOOK, AREAS, AREAS CHECKED, NO., DATE, BY

FINAL SURVEY — SURVEYED, PLOTTED, TAB PLATE, NOTE BOOK, AREAS, AREAS CHECKED, NO., DATE, BY

SCALE 1"=10'
MADE C.R.E. DATE 10-15-52
TRCD. H.A.S. DATE 11-6-52
CKD B.H.T. DATE 11-6-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
SHEET 78
846

PLATE 3--CROSS SECTION O. P. R. & B.E.
CHARLES BRUNING COMPANY, INC.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

79
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95

SEEDING Width Lin. Ft.	SEEDING Area Sq. Yds.
125	
	778
155	
	857
153	
	723
149	
	213
164	
	790
156	
	874

Limits of construction
W.S.R. Retaining Wall

474 + 00
1044.7

473 + 50
1040.5

473 + 00
1037.7

472 + 57
1035.5

472 + 45
1032.8

472 + 00
1033.2

VOLUME SS-5	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	1367	0		
133			2160	11
	970	12		
133			1320	30
	458	315		
115			655	709
	365	575		
35			100	378
	83	1128		
141			127	1822
	70	1058		
152			134	2380

SCALE 1"= 10'
MADE CRE. DATE 10-15-52
TRCD WJS DATE 11-5-52
CKD DJT. DATE 11-5-52
HOWARD, NEEDLES, TAMMEN & BERGENDOFF.
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846
SHEET: 79

PLATE 3—CROSS SECTION O. P. R. & S. E.
CHARLES BRUNING COMPANY, INC.

STA. 472 + 00 TO STA. 474 + 00

FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS CHECKED, NOTE BOOK, NO.
ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS CHECKED, NOTE BOOK, NO.
DATE BY

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

80
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

| SEEDING Width Area Lin Ft. Sq Yds. | | |

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

81
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

SEEDING Width	Area Lin. Ft.	Sq. Yds.
150	1005	
136	104	
130	773	
137	802	
125	590	
132	257	

478+50
1047.9

477+94
1047.4

477+87
1039.7

477+35
1045.1

476+80
1038.0

476+38
1037.9

VOLUME SS-5	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	2619	125		
199			519	224
	2317	91		
25			398	24
	753	91		
183			2524	145
	1868	60		
185			2142	216
	235	152		
129			368	233
	238	150		
49			609	100

SCALE 1"=10'
MADE J.L.T. DATE 10-14-52
TRCD C.A.L. DATE 11-6-52
CKD B.H.T. DATE 11-6-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
SHEET: 81
846

PLATE 3—CROSS SECTION C. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

STA. 476+38 TO STA. 478+50

FINAL SURVEY — SURVEYED, PLOTTED, NOTE BOOK, TEMPLATE, AREAS CHECKED, NO., BY, DATE

ORIGINAL SURVEY — SURVEYED, PLOTTED, NOTE BOOK, TEMPLATE, AREAS CHECKED, NO., BY, DATE

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

82
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95

SEEDING		SODDING	
Width Lin. Ft.	Area Sq. Yds.	Width Lin. Ft.	Area Sq. Yds.
180	978	6	33
172	930	6	33
163	894	6	33
162	877	6	33
154	856	6	0

VOLUME	END AREA		VOLUME	
SS-5	CUT	FILL	CUT	FILL
	3178	73		
183			5908	132
	3203	70		
180			5506	148
	2743	90		
171			3106	197
	2771	123		
170			4917	231
	2539	127		
177			4776	233

481+00
1053.1

480+50
1051.6

480+00
1049.0

479+50
1048.6

479+00
1047.1

Sod

ORIGINAL SURVEY — NOTE BOOK — PLATE — AREAS — CHECKED — BY — DATE

FINAL SURVEY — NOTE BOOK — SURVEYED — PLOTTED — TEMPLATE — AREAS — CHECKED — BY — DATE

SCALE 1"=10'
MADE J.L.T. DATE 10-14-52
TRCD H.A.S. DATE 11-7-52
CKD B.H.T. DATE 11-7-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846
SHEET 82

PLATE 3—CROSS SECTION—O. P. R. & R. R.
CHARLES BRUNNER COMPANY, INC.

STA. 479+00 TO STA. 481+00

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

83
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95

	SEEDING		SODDING	
	Width Lin. Ft.	Area Sq. Yds.	Width Lin. Ft.	Area Sq. Yds.
forward	108			
back	109		6	
		628		25
	200		6	
	194		6	
	190		6	
	160	150	140	

VOLUME SS-5	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
forward	2759	74		
back	3061			
105			4361	102
	3,304	75		
154			6006	136
	3182	72		
163			5622	130
	2,890	68		
144			5619	131

482+87
1055.6

482+50
1055.4

482+00
1054.6

481+50
1053.1

Back
forward
forward
Back
Sod

1060
1050
1040
1030
1093
33
1067
33
1029
33

130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FINAL SURVEY — ORIGINAL SURVEY
SURVEYED
PLOTTED
TEMPLATE
NOTE BOOK
NO.
DATE
BY
AREAS CHECKED

SCALE 1"=10'
MADE J.L.F. DATE 10-13-52
TRCD. A.A.S. DATE 11-7-52
CKD. B.H.F. DATE 11-7-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 83

PLATE 3—CROSS SECTION O. P. R. & S. E.
CHARLES BRUNING COMPANY, INC.

STA. 481+50 TO STA. 482+87

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

84
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95

SEEDING		SODDING	
Width Lin.Ft.	Area Sq.Yds.	Width Lin.Ft.	Area Sq.Yds.
195		6	
	1100		33
201		6	
	1116		33
201		6	
	1077		35
forward 187		6	
back 45			
	451		40

485+00
1061.4

484+50
1060.3

484+00
1059.2

483+47
1057.2

VOLUME SS-5	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	4,727	107		
133			8868	192
	4850	100		
133		0	8933	181
	4798	95		
141			8728	124
forward 160	4,035	31		
back	3,168		6586	117

PLATE 3—CROSS SECTION O. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

STA. 483+47 TO STA. 485+00

SCALE 1"=10'
MADE LLS DATE 10-13-52
TRCD LLS DATE 10-8-52
CKD BHT DATE 11-6-52
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
SHEET 84
846

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

85
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95

SEEDING		SODDING		
Width Lin. Ft.	Area Sq. Yds.	Width Lin. Ft.	Area Sq. Yds.	
			17	forward
173		6		1070
				1060
				1050
	994		33	1040

487+00
1068.8

SEEDING		SODDING		
Width Lin. Ft.	Area Sq. Yds.	Width Lin. Ft.	Area Sq. Yds.	
185		6		1070
				1060
				1050
	1053		33	1040

486+50
1064.8

SEEDING		SODDING		
Width Lin. Ft.	Area Sq. Yds.	Width Lin. Ft.	Area Sq. Yds.	
194		6		1070
				1050
	1111		33	1040

486+00
1063.6

SEEDING		SODDING		
Width Lin. Ft.	Area Sq. Yds.	Width Lin. Ft.	Area Sq. Yds.	
206		6		1070
				1050
	1145		33	1040

Sod

485+50
1062.5

VOLUME	END AREA		VOLUME	
SS-5	CUT	FILL	CUT	FILL
	4363	68		
133			8297	131
	4598	73		
133			8680	150
	4776	89		
133			8839	160
	4770	105		
133			8794	196

STA. 485+50 TO STA. 487+00

FINAL SURVEY — SURVEYED ___ DATE; PLOTTED ___ BY; NOTE BOOK ___ TEMPLATE ___ AREAS ___ AREAS CHECKED ___ NO. ___

ORIGINAL SURVEY — SURVEYED ___ DATE; PLOTTED ___ BY; NOTE BOOK ___ TEMPLATE ___ AREAS ___ AREAS CHECKED ___ NO. ___

SCALE 1"=10'
MADE J.L.T. DATE 10-13-52
TRCD C.A.L. DATE 11-8-52
CKD B.H.T. DATE 11-8-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
SHEET 85
846

PLATE 3—CROSS SECTION O. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

86
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95

SEEDING		VOLUME	END AREA		VOLUME	
Width Lin. Ft.	Area Sq. Yds.	SS-5	CUT	FILL	CUT	FILL
175						
			3,939	65		
	953					
		231			7172	123
169						
			3807	68		
	637					
150 forward						
35 back						
			4929	84		
			forward 3587	65		
			back 3106	61		
	203					
					7279	134
23 forward						
160 back						
	941					
			forward 3133	54		
			back 3680			
		136			7596	115

488+50
1064.5

488+14
1063.2

487+51
1063.5

Back
forward

SCALE 1" = 10'
MADE J.J.F. DATE 10-16-52
TRCD C.A.L. DATE 11-15-52
CKD B.T.S. DATE 11-15-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
SHEET 86

PLATE 3—CROSS SECTION O. P. R. & R. E.
CHARLES SHINING COMPANY, INC.

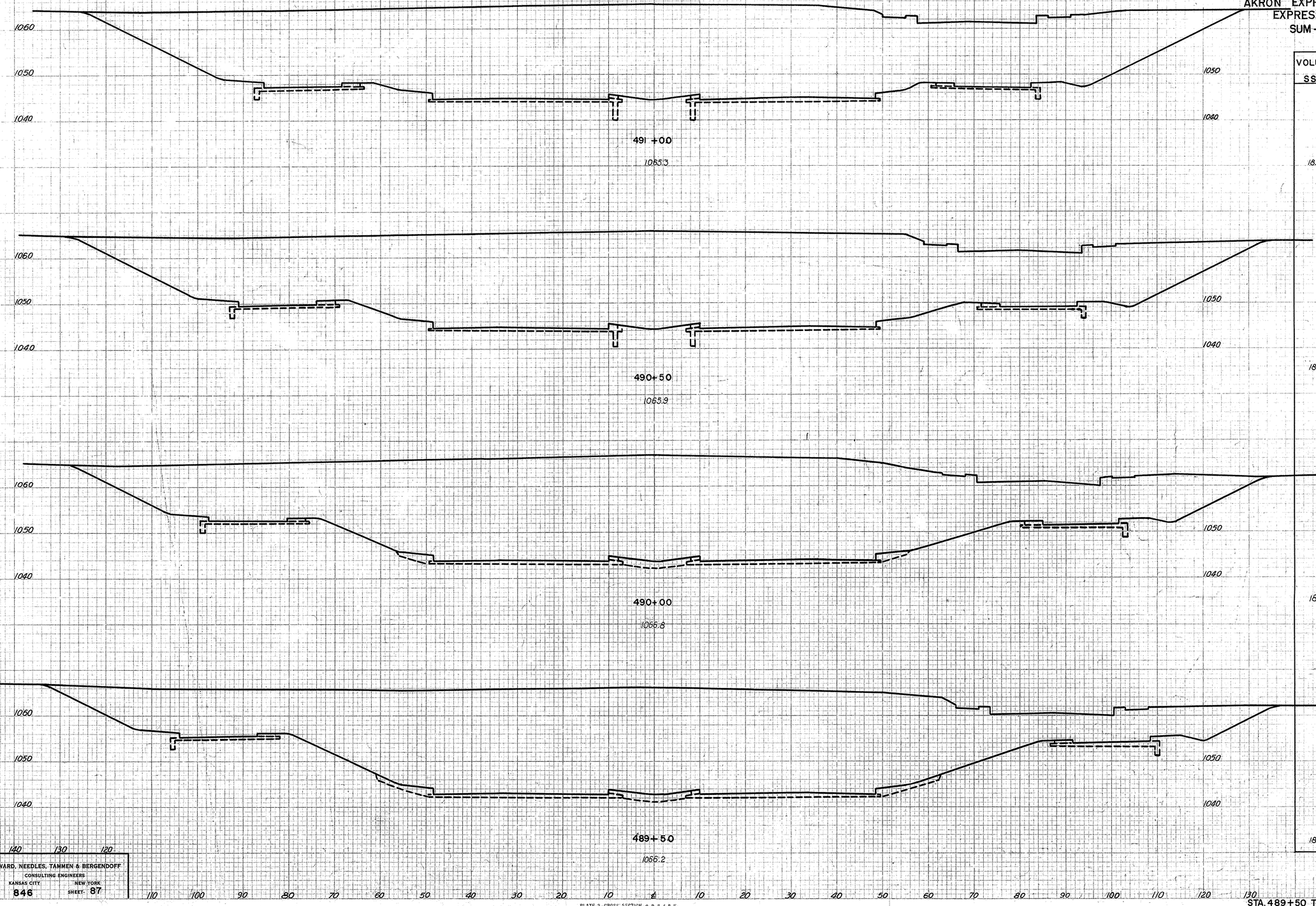
STA. 487+51 TO STA. 489+00

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

87
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

SEEDING	
Width Lin. Ft.	Area Sq. Yds.
172	
	978
180	
	1000
180	
	1002
188	
	1004



VOLUME SS-5	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	4,014	0		
183			7487	0
	4072	0		
189			7614	47
	4,151	51		
189			7686	106
	4150	64		
189			7490	119

FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS CHECKED — NOTE BOOK — NO. — BY — DATE

ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS CHECKED — NOTE BOOK — NO. — BY — DATE

SCALE 1"=10'
MADE J.L.T. DATE 10-16-52
TRCD C.A.L. DATE 11-8-52
CKD B.N.T. DATE 11-8-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 87

PLATE 3—CROSS SECTION O. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

STA. 489+50 TO STA. 491+00

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

88
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

SEEDING	
Width	Area
Lin. Ft.	Sq. Yds.
120	
	678
124	
	698
127	
	743
140	
	834
160	
	923

493+50
1055.6

493+00
1056.8

492+50
1061.0

492+00
1063.4

491+50
1064.8

VOLUME	END AREA		VOLUME	
SS-5	CUT	FILL	CUT	FILL
	2346	0		
173			4599	0
	2621	0		
181			5090	0
	2876	0		
189			5799	0
	3387	0		
181			6574	0
	3713	0		
174			7158	0

FINAL SURVEY — NOTE BOOK — NO. — DATE — BY
SURVEYED — PLOTTED — TEMPLATE — TRACED — AREAS CHECKED

ORIGINAL SURVEY — NOTE BOOK — NO. — DATE — BY
SURVEYED — PLOTTED — TEMPLATE — TRACED — AREAS CHECKED

SCALE 1"=10'
MADE J.J.T. DATE 10-16-52
TRCD H.A.S. DATE 11-10-52
CKD R.H.T. DATE 11-10-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY 846 NEW YORK
SHEET: 88

PLATE 3—CROSS SECTION O. P. W. & R. C.
CHARLES BRUNING COMPANY, INC.

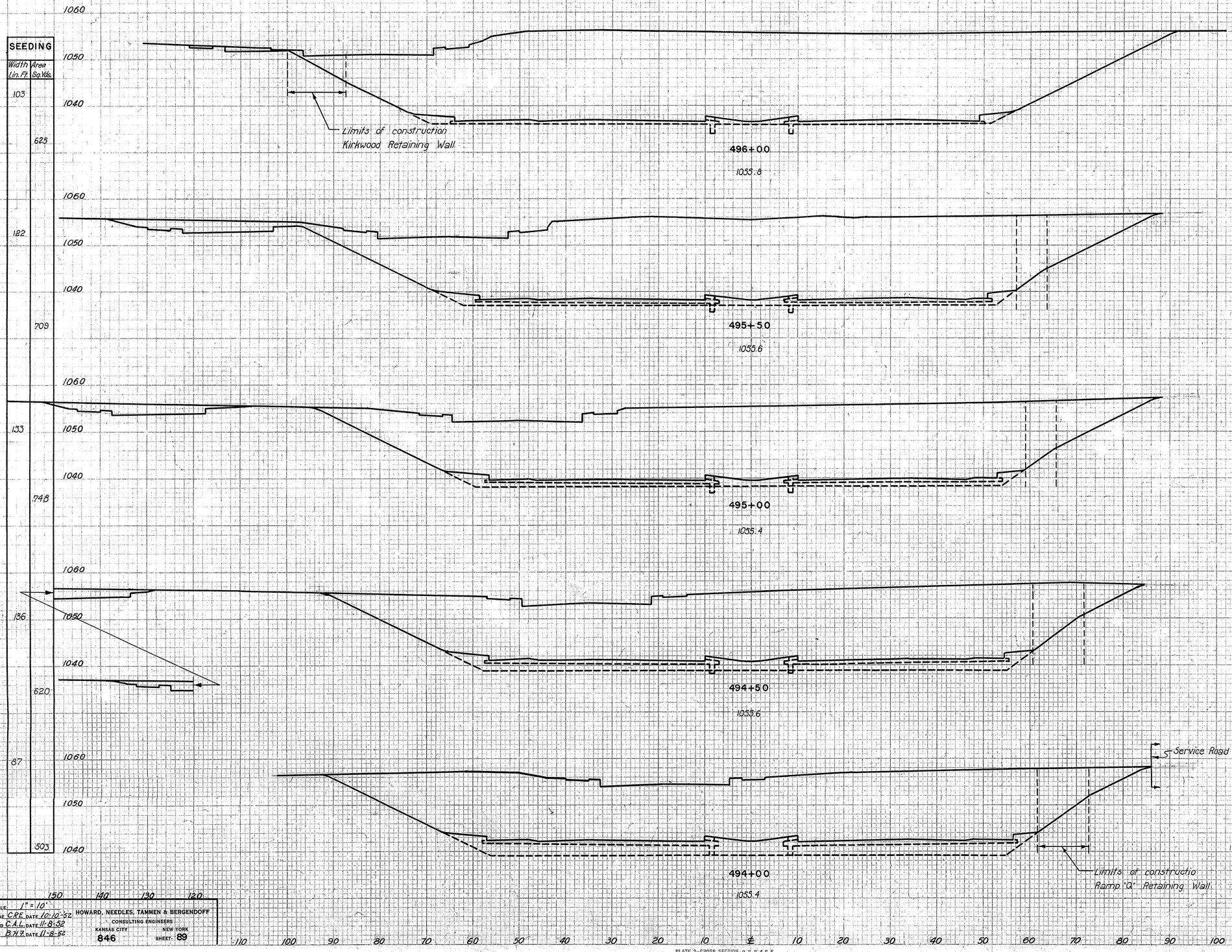
STA. 491+50 TO STA. 493+50

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

89
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

SEEDING Width Lin. Ft.	SEEDING Area Sq. Yds.
103	625
122	709
133	748
136	620
87	503



VOLUME SS-5	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	2960	36		
157			5286	132
	2749	107		
157			4847	226
	2486	137		
159			4564	314
	2443	202		
163			4572	469
	2495	305		
169			4482	282

FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS CHECKED, NOTE BOOK, NO., BY, DATE

ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS CHECKED, NOTE BOOK, NO., BY, DATE

SCALE 1" = 10'
MADE C.R.E. DATE 10-10-52
TRCD C.A.L. DATE 11-8-52
CKD B.H.T. DATE 11-8-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY 846 NEW YORK
SHEET: 89

PLATE 3—CROSS SECTION O. H. N. & B. E.
CHARLES BRUNING COMPANY, INC.

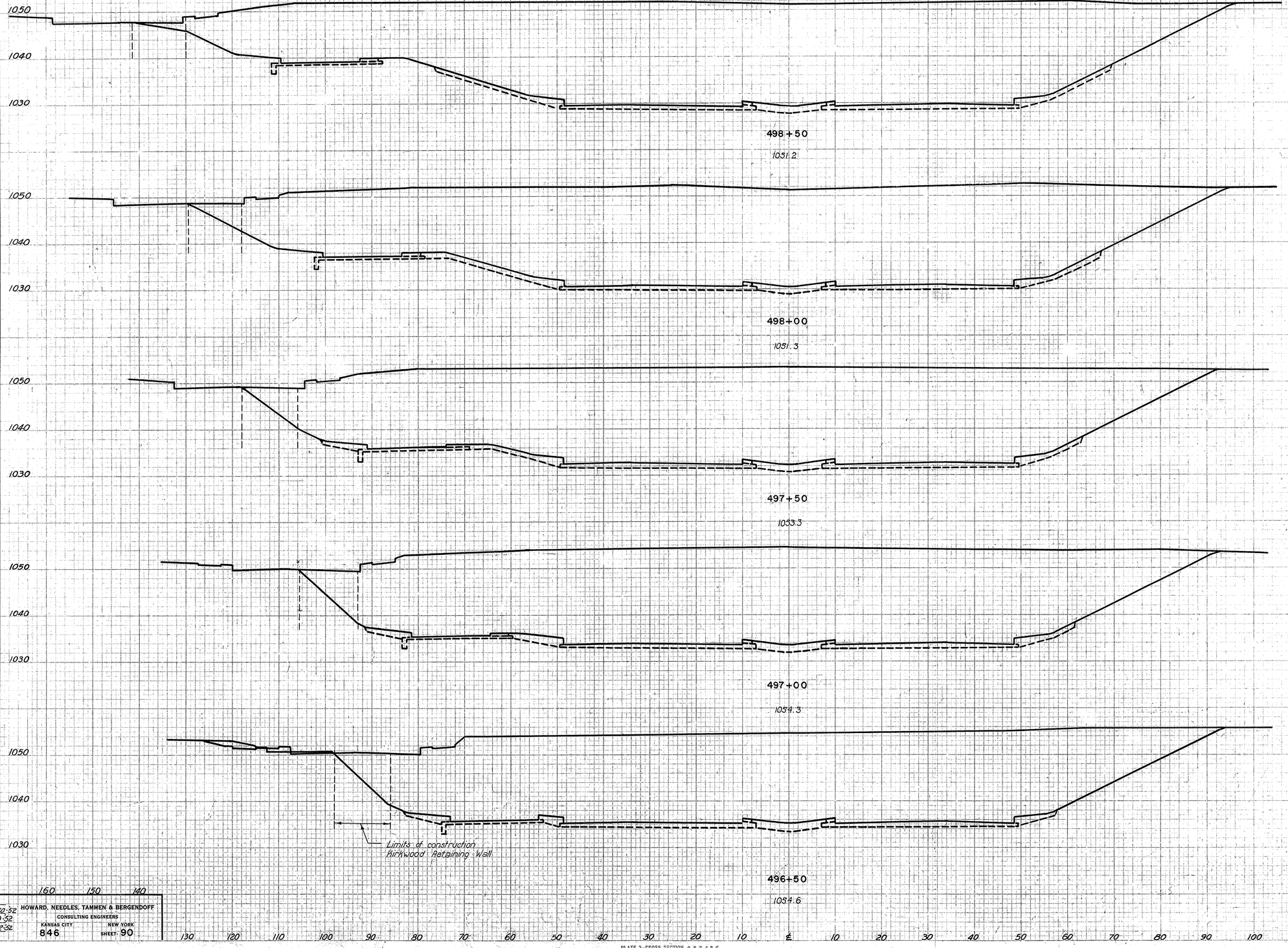
STA. 494+00 TO STA. 496+00

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

90
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95



SEEDING Width Lin. Ft.	SEEDING Area Sq. Yds.
146	
	766
130	
	678
114	
	603
103	
	564
100	
	564

	VOLUME SS-5	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
1030		3925	87		
	155			7160	164
1050					
1040		3808	90		
1030					
	155			6862	160
1050		3603	83		
1040					
1030	155			6531	150
1050		3450	79		
1040					
1030	155			6071	135
1050		3107	67		
1040					
1030					
	155			5617	95

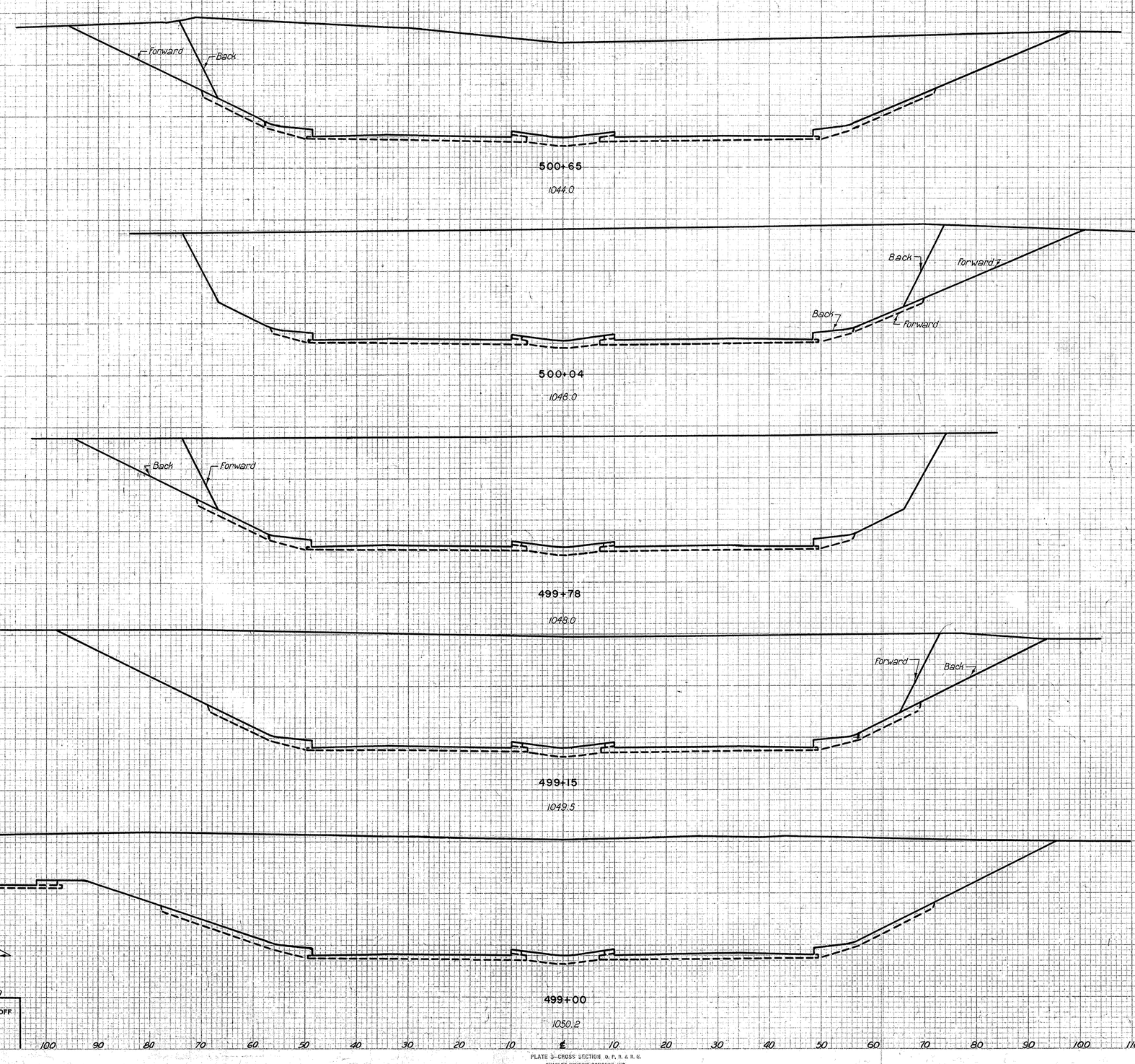
| | | | | |

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

91
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

SEEDING		
Width Lin. Ft.		Area Sq. Yds.
146	forward	631
94	back	
94	forward	104
36	back	
36	forward	633
89	back	
92	forward	258
143	back	
167		870



VOLUME		END AREA		VOLUME	
SS-5		CUT	FILL	CUT	FILL
forward	3056	85			
back	2898	70			
163				6616	156
forward	3134	68			
back	2922	53			
69				2803	52
forward	2900	55			
back	3053	70			
168				7209	164
forward	3126	71			
back	3318	83			
47				2044	50
155		4040	96	7375	169

FINAL SURVEY — SURVEYED, PLOTTED, TEMP. LVE., ISSUE, AREAS CHECKED — NOTE BOOK, NO., BY, DATE

ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMP. LVE., ISSUE, AREAS CHECKED — NOTE BOOK, NO., BY, DATE

SCALE 1" = 10'
MADE J.L.L. DATE 10-9-52
TRCD C.A.L. DATE 11-15-52
CKD B.T.T. DATE 11-15-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY 846 NEW YORK
SHEET 91

PLATE 5-CROSS SECTION O. T. R. & R. E.
CHARLES BRUNING COMPANY, INC.

STA. 499+00 TO STA. 500+65

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

92
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95

SEEDING		
Width Lin. Ft.	Area Sq. Yds.	
118		
	672	
124		
	708	
131		
	723	
129		
	758	
144		
	758	

503+00
1026.9

502+00
1033.0

501+50
1038.2

501+00
1043.3

VOLUME SS-5	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	630	61		
133			1426	144
	910	95		
133			2241	179
	1510	98		
133			3332	182
	2110	99		
133			4465	181
	2712	97		
147			3738	118

STA. 501+00 TO STA. 503+00

FINAL SURVEY — NOTE BOOK — NO. — DATE — BY — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED

ORIGINAL SURVEY — NOTE BOOK — NO. — DATE — BY — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED

SCALE 1"=10'
MADE L.L.T. DATE 10-9-52
TRCD. HAS. DATE 11-10-52
CKD. B.H.T. DATE 11-10-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
SHEET: 92

846

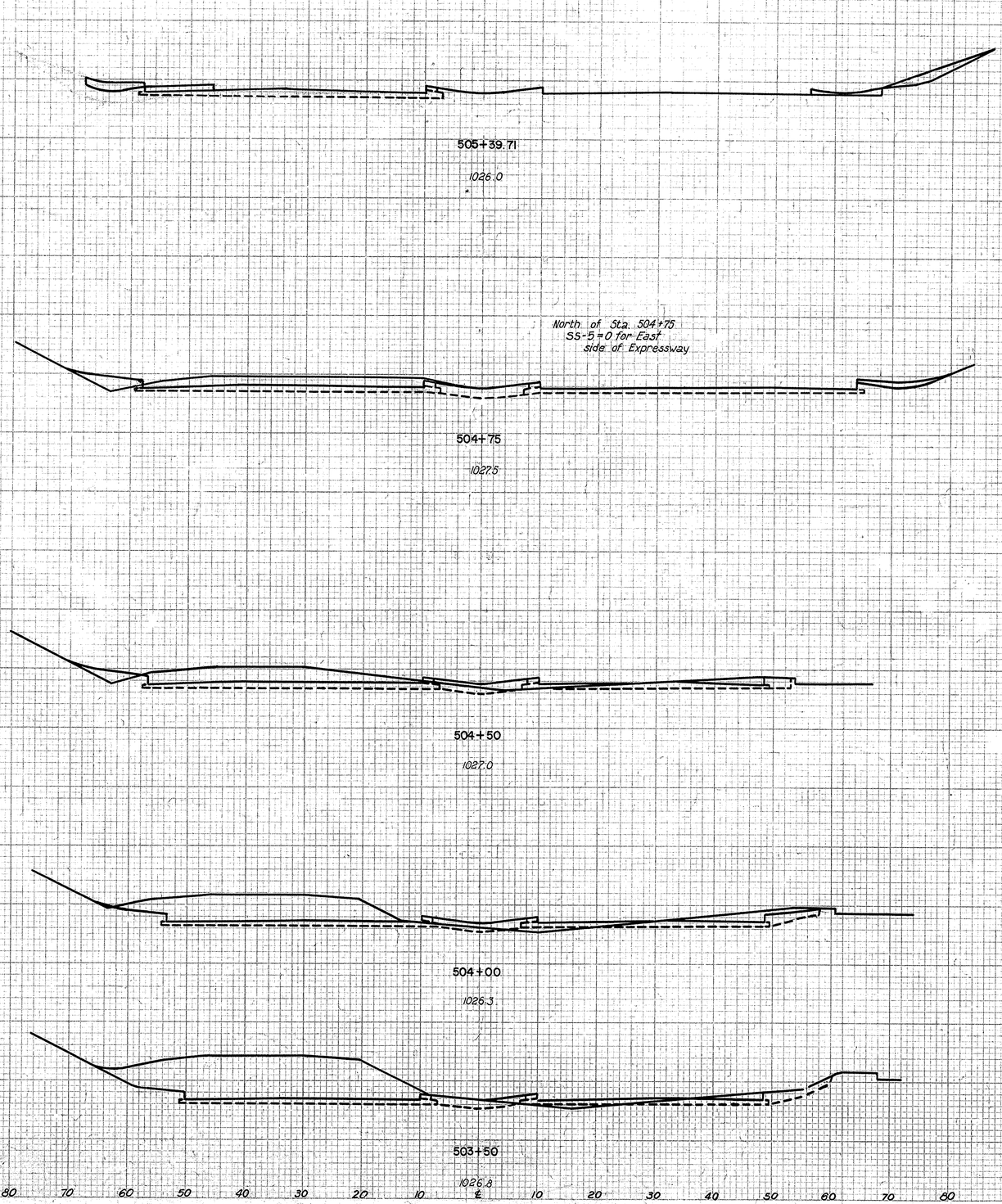
PLATE 3—CROSS SECTION © P. R. & R. C.
CHARLES BRUNING COMPANY, INC.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

93
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

SEEDING	Width Lin. Ft.	Area Sq. Yds.
40 forward		
80 back		
		548
	74	
		333
	46	
		339
	56	
		341
	67	
		515



VOLUME SS-5	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
forward	20	36		
back	20	52		
98			179	94
forward	130	28		
back	210	59		
70			187	51
			194	50
143			435	91
			276	48
139			646	90
			422	49
135			974	102

ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, NOTE BOOK, AREAS CHECKED, NO., BY, DATE

FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, NOTE BOOK, AREAS CHECKED, NO., BY, DATE

SCALE 1"=10'
MADE C.R.E. DATE 10-8-52
TRCD. C.A.L. DATE 11-18-52
CKD. B.H.T. DATE 11-18-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY 846 NEW YORK
SHEET. 93

PLATE 3—CROSS SECTION O. P. R. & R. E.
CHARLES ENNIS COMPANY, INC.

STA. 503 + 50 TO STA. 505 + 39.71

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

94
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

	SEEDING Width Lin Ft	SEEDING Area Sq Yds		VOLUME SS-5	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		1040	508+50		30	155		
		1030						
	100	516		48			65	239
			508+00					
		1040						
	86	458			40	103		
		1030						
	79	495	507+50	43			94	166
		1040						
					61	77		
		1030						
	99	232	507+00	32			96	210
		1040						
99-forward 56-back			506+78.9	11			31	88
		1030						
	177				38	75-forward 62-back		
			508+00					
		1050		14			39	71
	54	240	506+50		34	70		
		1040						
49-forward 20-back			506+08	19			46	107
		1030						
	18		507+50		25	67-forward 32-back		
		1050		4			7	9
20 forward 35 back		200	506+00		24	32		
				forward	24	36		
		1040		back				
	37	44	505+50	16			43	68
		1030						
			507+00					
				2	22	37	8	14

506+78.9 · 506+50 · 508+50 · 506+08 · 508+00 · 507+50 · 506+00 · 507+00 · 505+50

Forward · Back · Existing ground · New subgrade

110 100 90 80 70 60 50 40 ℄ 40 50 60 70 80 90 100 110 120 130

STA. 505+50 TO STA. 508+50

SCALE 1"=10'
MADE C.R.E. DATE 10-8-52
TRCD. C.A.L. DATE 11-7-52
CKD. B.M.T. DATE 11-7-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY 846 NEW YORK
SHEET 94

PLATE 3—CROSS SECTION O. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

ORIGINAL SURVEY — SURVEYED, CHIEF, TEMPLATE, NOTE BOOK, AREAS, AREAS CHECKED, DATE, BY, NO.

FINAL SURVEY — SURVEYED, CHIEF, TEMPLATE, NOTE BOOK, AREAS, AREAS CHECKED, DATE, BY, No.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE V FUNDS
2	OHIO	U-687(9)	POST WAR

95
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART - 5
SUM - 5 - 10.95

0 CUT AT STA. 514+20

SEEDING Width	SEEDING Area Lin. Ft.	Sq. Yds.		VOLUME SS-5	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		1040	513+50	4	15		19	
0		1030						
	0							
		1050		14			54	
0			513+00		43			
		1040						
	39			25			99	
14			512+50		64			
		1030						
	108							
				35			154	0
25			512+00		102	0		
		1050						
	236			41			172	33
		1040						
60			511+50		84	36		
	529	1030						
				42			172	274
130			511+00					
	667							
				43			114	508
110			510+50		80	278		
		1050						
	625							
		1040		43			49	483
115			510+00		43	270		
		1030						
	579							
				43			19	440
93			509+50		10	251		
		1050						
	458							
				43			17	346
72			509+00		10	224		
	478	1040						
				46	8	150	35	282

New subgrade

Existing ground

SCALE	1"=10'	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE	J.J.F. DATE 10-7-52	CONSULTING ENGINEERS
TRCD	C.A.L. DATE 11-7-52	KANSAS CITY NEW YORK
CKD	B.H.T. DATE 11-7-52	SHEET 95

PLATE 3—CROSS SECTION O. P. N. & R. U.
CHARLES BRUNING COMPANY, INC.

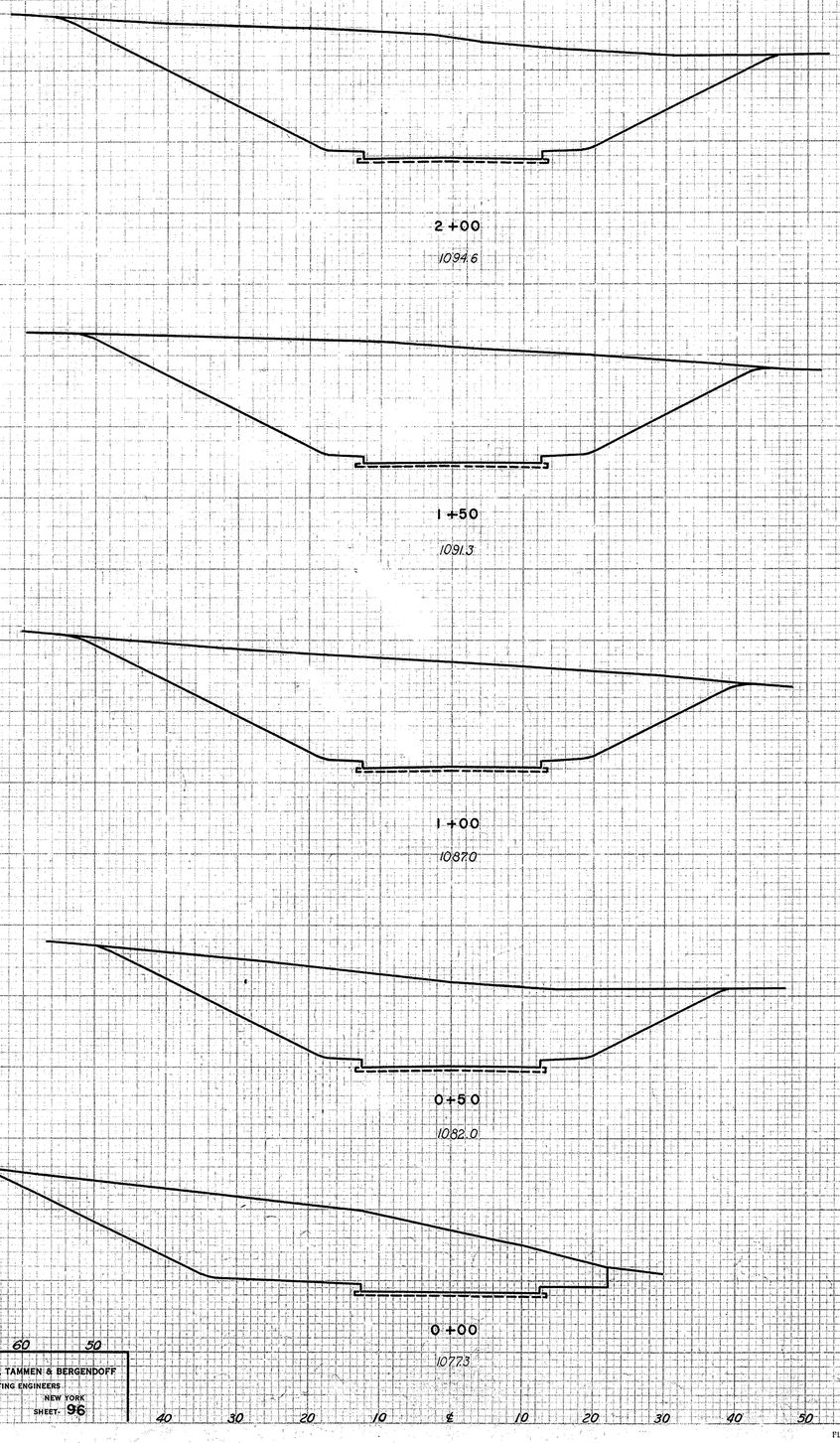
STA. 509+00 TO STA. 513+50

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

96
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95

SEEDING		
Width Lin.Ft.	Area Sq.Yds.	
58		4+50
	347	
67		4+00
	408	
80		3+50
	478	
92		3+00
	535	
100		2+50
	567	
104		2+00
	558	
97		1+50
	536	
96		1+00
	531	
95		0+50
	500	
85		0+00



VOLUME	END AREA		VOLUME	
SS-5	CUT	FILL	CUT	FILL
4+50 25	329	0	494	0
25			766	
4+00	439			
25			1081	0
3+50	669			
25			1398	0
3+00	841			
25			1685	0
2+50	980			
25			1940	0
2+00	1116			
25			2014	0
1+50	1059			
25			1851	0
1+00	941			
25			1561	0
0+50	745			
25			1342	0
0+00	704	0		

ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS, NOTE BOOK, NO., BY, DATE, AREAS CHECKED

FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS, NOTE BOOK, NO., BY, DATE, AREAS CHECKED

SCALE 1"=10' MADE J.L.F. DATE 10-7-52
TRCD C.A.L. DATE 11-4-1952
CKD B.H.F. DATE 11-4-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 96

PLATE 2—CROSS SECTION O. P. N. 4.0. E.
CHARLES BRUNING COMPANY, INC.

STA. 0+00 TO STA. 4+50
TEMPORARY ROADWAY

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

97
172

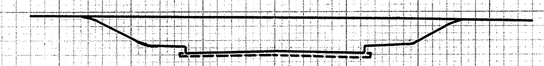
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95

SEEDING Width Lin.Ft.	SEEDING Area Sq.Yds.		VOLUME SS-5	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0		8+89	10				
	72						
			25			57	0
33		8+50					
	185			79			
			25			104	10
37		8+00					
	208			34	11		
			25			47	31
38		7+50					
	214			17	23		
			25			21	55
39		7+00					
	208			6	36		
			25			28	43
36		6+50					
	206			24	10		
			25			111	9
38		6+00					
	228			96	0		
			25			230	0
44		5+50					
	261			153	0		
			25			330	0
50		5+00					
				204	0		

6+50
1099.8

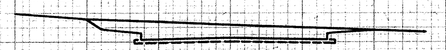
6+00
1100.3

5+50
1100



5+00
1099.3

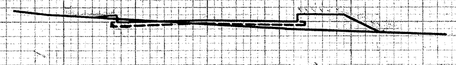
CUT=0 AT STA. 8+89



8+50
1102.2

8+00
1101.1

7+50
1100.5



7+00
1099.9

ORIGINAL SURVEY — SURVEYED — PLOTTED — TEMPLATE — AREAS — NOTE BOOK — AREAS CHECKED — NO. — BY — DATE

FINAL SURVEY — SURVEYED — PLOTTED — TEMPLATE — AREAS — NOTE BOOK — AREAS CHECKED — NO. — BY — DATE

SCALE 1"=10'
MADE C.R.E. DATE 10-6-52
TRCD C.A.L. DATE 11-4-1952
CKD B.H.T. DATE 11-4-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 97

STA. 5+00 TO STA. 8+89
TEMPORARY ROADWAY

PLATE 3—CROSS SECTION O. P. R. & P. E.
CHARLES BRUNING COMPANY, INC.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

98
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95

CUT AND FILL = 0 AT STA. 10 + 04

SEEDING Width Lin. Ft.	Area Sq. Yds.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		10+04	0	0		
29	167				2	0
		10+00	27	0		
31	167				64	0
		9+50	42	0		
29	156				57	3
		9+00	20	3		
27	158				40	3
		8+50	23	0		
30	167				53	0
		8+00	34	0		
30	139				56	0
		7+50	26	0		
21	114				29	6
		7+00	5	7		
21	122				14	11
		6+50	10	5		
23	114				9	13
		6+00	0	9		
18	133				26	8
		5+50	28	0		
30	169				56	0
		5+00	33	0		
31	169				51	2
		4+50	22	2		
30	167				29	5
		4+00	9	3		
30	158				16	10
		3+50	8	8		
27	161				21	10
		3+00	15	3		
31	164				30	6
		2+50	17	4		
28	156				34	6
		2+00	20	3		
28	156				32	6
		1+50	15	4		
28	156				36	6
		1+00	24	2		
28	87				57	2
		0+50	38	0		
24		0+20			27	0
		0+12	0	0		

3+50
1061.7

3+00
1062.6

2+50
1063.0

2+00
1061.5

1+50
1060.0

1+00
1058.8

0+50
1057.4

7+00
1056.9

6+50
1057.2

6+00
1057.0

5+50
1058.0

5+00
1059.0

4+50
1059.8

4+00
1060.5

10+00
1057.5

9+50
1059.6

9+00
1059.0

8+50
1058.4

8+00
1057.6

7+50
1056.3

1060

30 20 10 € 10 20 30

SCALE 1"=10'
MADE C.R.E. DATE 10-6-52
TRCD C.A.L. DATE 11-5-52
CKD B.H.R. DATE 11-5-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET: 98

PLATE 3—CROSS SECTION O. P. R. & R. E.
CHARLES BROWNE COMPANY, INC.

STA. 0+12 S.R. "A" TO STA. 10+04 S.R. "A"

FINAL SURVEY NOTE BOOK — DATE — BY — SURVEYED — PLOTTED — TRACED — AREAS — AREAS CHECKED — NO.

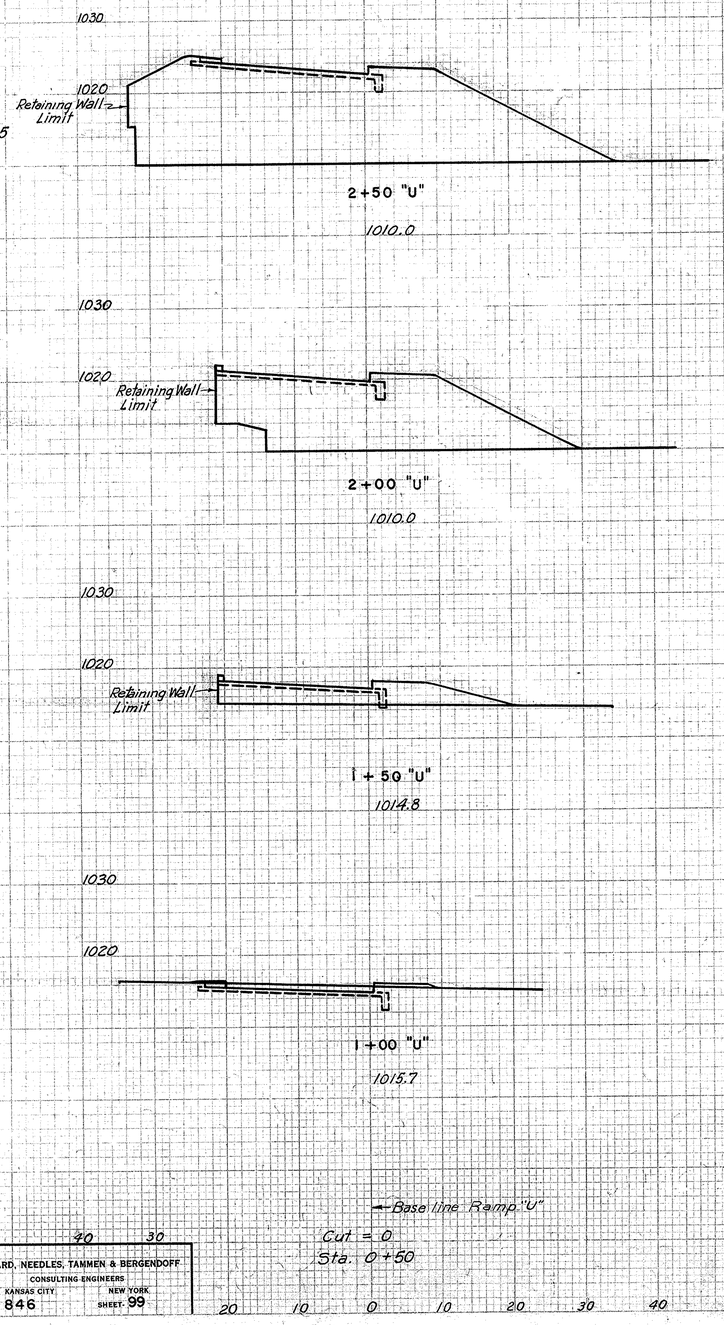
ORIGINAL SURVEY NOTE BOOK — DATE — BY — SURVEYED — PLOTTED — TRACED — AREAS — AREAS CHECKED — NO.

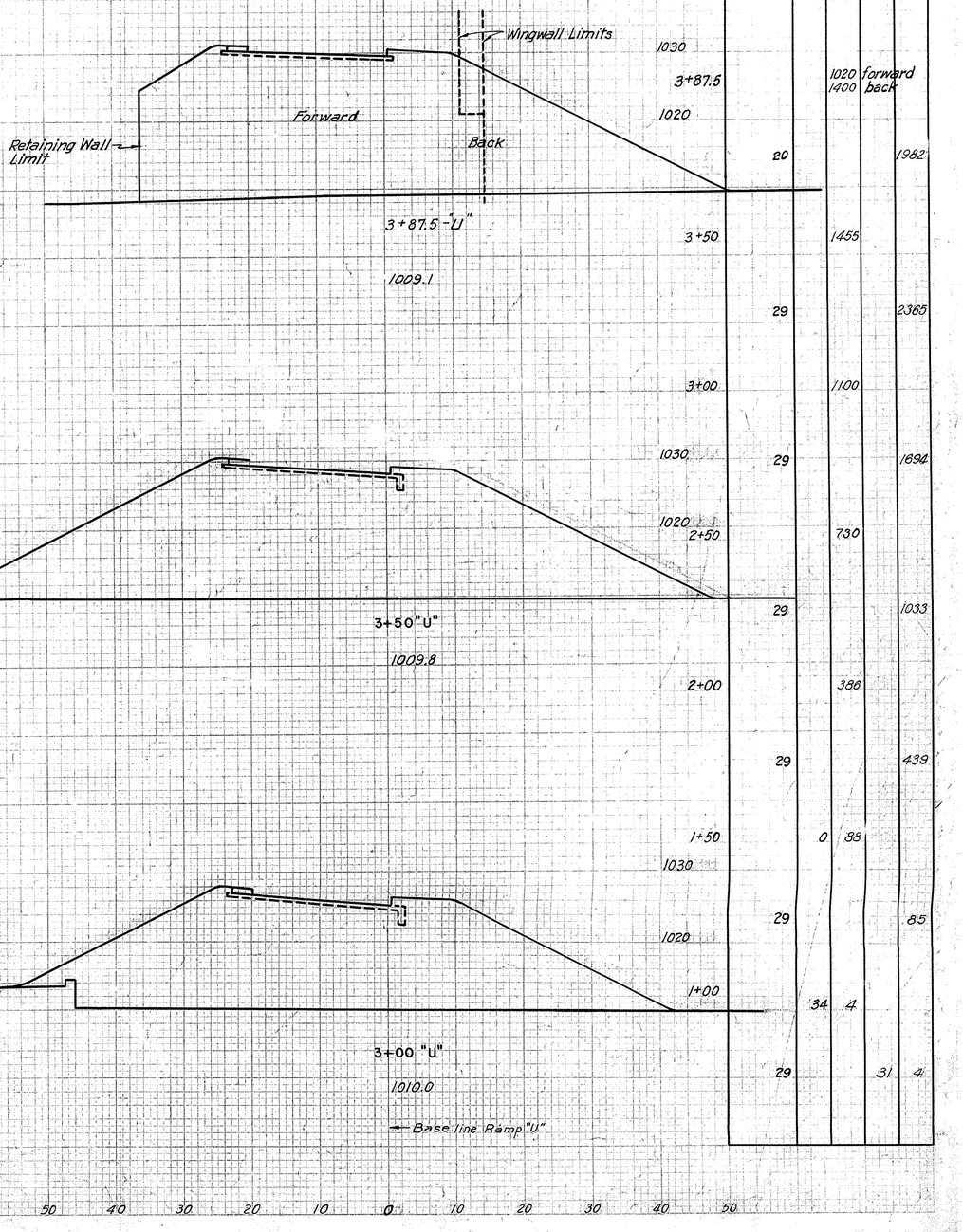
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

99
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95

SEEDING Width Lin.Ft.	Area Sq.Yds.		VOLUME SS-5 CUT	VOLUME SS-5 FILL	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	337							
83 forward		3+87.5				1020		1400
85 back							forward	back
	433				20			1982
123		3+50				1455		
	631				29			2365
104		3+00				1100		
	461				29			1694
62		2+50				730		
	297				29			1033
45		2+00				386		
	222				29			439
35		1+50			0	88		
	206				29			85
39		1+00				34	4	
	13				29		31	4





SCALE 1"=10'
MADE D.H.T. DATE 11-5-52
TRCD. C.A.L. DATE 11-13-52
CKD. C.R.E. DATE 11-19-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846 SHEET 99

PLATE 3—CROSS SECTION. O. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

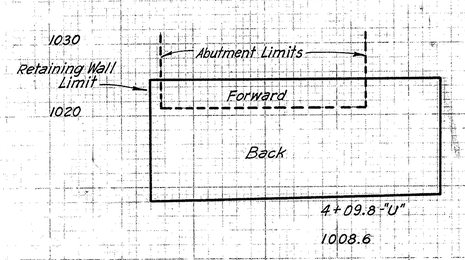
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

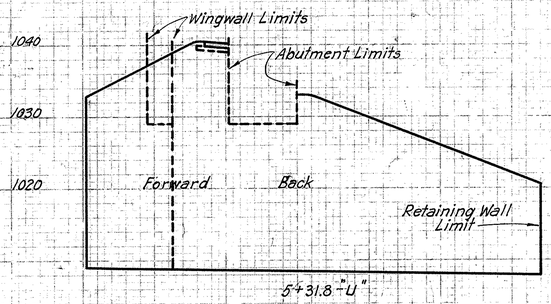
100
172

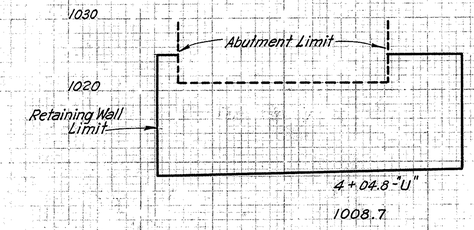
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95

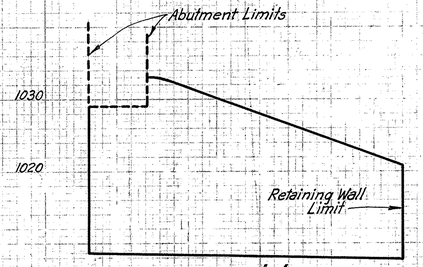
Fill = 0 at Sta. 4+46

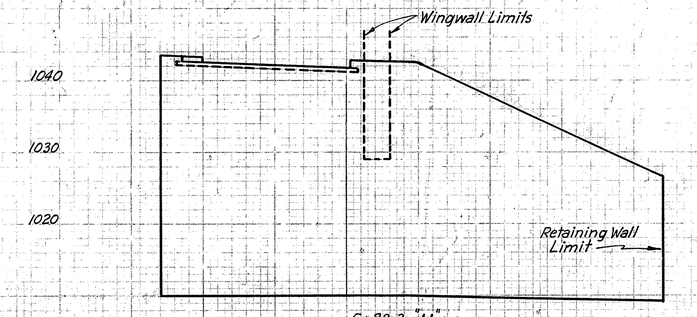
SEEDING Width Lin. Ft.	SEEDING Area Sq. Yds.	
	34	
51		5+88.3
	127	
47		5+65
	551	
46		5+55
	1129	
57 frd. 39 back		5+31.8
	30	
40		5+25
	18	
42 frd.		5+21
	178	
14 back		4+09.8
	8	
16		4+04.8
	488	
18		4+00
	14	
23		3+93.8

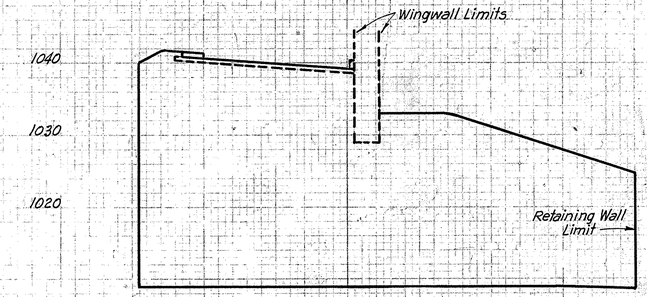


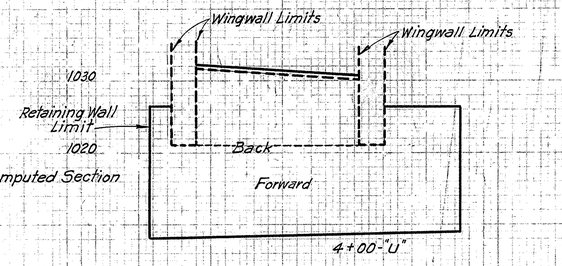




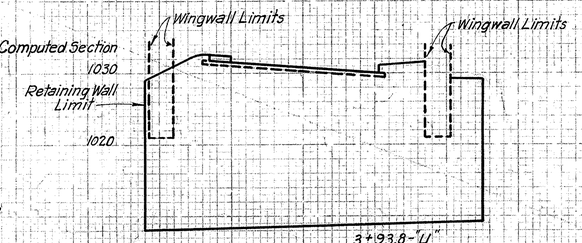


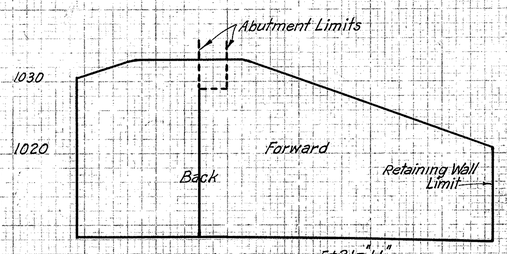




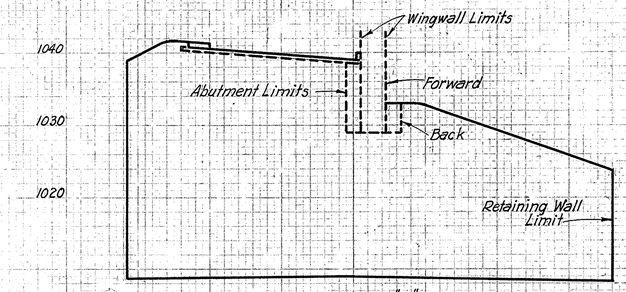


Conic section computed separately





Prismoidal & conic sections computed separately



VOLUME SS-5	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		2040		
3				440
5+88.3		1926 forward 1975 back		
11				1612
5+65		1760		
5				647
5+55		1734 forward 1706 back		
6				1340
5+31.8		1412 forward 1086		
10				244
5+25		849		
0				122
5+21		795 forward		
Computed Sections 0			1136	449
4+09.8		673 forward 559 back		
0				106
4+04.8		585		
Computed Section 0			469	107
4+00		618 forward 838 back		
3				207
3+93.8		965 forward 997 back		
3				235

SCALE 1" = 10'
MADE B.H.T. DATE 11-6-52
TRCD H.T.S. DATE 12-12-52
CKD. B.H.T. DATE 12-12-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 SHEET 100

PLATE 3—CROSS SECTION E. P. 1. & R. E.
CHARLES SHRINER COMPANY, INC.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

101
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

GENERAL NOTES FOR STRUCTURES

DESIGN SPECIFICATIONS

SPECIFICATIONS FOR DESIGN OF HIGHWAY STRUCTURES OF THE STATE OF OHIO, DEPARTMENT OF HIGHWAYS, OCTOBER 1, 1951. REVISED JULY 15, 1952.

BORINGS

RECORDS OF BORINGS AND SOUNDINGS FROM WHICH FOOTING ELEVATIONS HAVE BEEN ESTABLISHED ARE ON FILE AT THE STATE OF OHIO, DEPARTMENT OF HIGHWAYS AND MAY BE EXAMINED BY BIDDER.

FOOTING ELEVATIONS

ELEVATIONS OF BOTTOMS OF FOOTINGS RESTING ON ROCK ARE SUBJECT TO CHANGE WHEN EXCAVATIONS ARE MADE AND ACTUAL ELEVATIONS OF TOP OF SOUND ROCK DETERMINED. ALL SUCH FOOTINGS SHALL EXTEND AT LEAST THREE INCHES INTO SOUND ROCK.

PILING

THE PILE-DRIVING HAMMER USED FOR THE 12" STEEL PILES SHALL HAVE A CAPACITY OF AT LEAST 15,000 FT. POUNDS PER BLOW AND THAT USED FOR THE 8" PILES A CAPACITY OF AT LEAST 7,000 FT. POUNDS PER BLOW. THE PILES SHALL BE DRIVEN TO FIRM CONTACT WITH ROCK OR SHALE. THIS CONTACT SHALL BE CONSIDERED AS ACCOMPLISHED IF THE CAPACITY, ACCORDING TO THE FORMULA IN SEC. S-18.05, IS 65 TONS OR MORE FOR THE 12" PILES AND 65 TONS OR MORE FOR THE 8" PILES, AND IF THE LENGTH OF PENETRATION IS COMPARABLE WITH THE DISTANCE INTO ROCK OR SHALE ACCORDING TO THE BRIDGE FOUNDATION INVESTIGATION REPORT. (THE DESIGN LOAD PER PILE IS APPROXIMATELY 47 TONS FOR THE 12" AND 32 TONS FOR THE 8" STEEL PILES.)

WATERPROOFING

ALL CONSTRUCTION, EXPANSION AND CONTRACTION JOINTS IN ABUTMENTS AND RETAINING WALLS SHALL BE WATERPROOFED WITH 36-IN. TYPE "B" WATERPROOFING.

ALL SURFACES IN CONTACT WITH BITUMINOUS ROADWAY SURFACING SHALL BE WATERPROOFED WITH TYPE "C" WATERPROOFING.

UTILITIES

EXCEPT AS HEREAFTER PROVIDED ANY UTILITY FACILITIES ENCOUNTERED AT THE SITE OF THE WORK WHICH WILL INTERFERE WITH PORTIONS OF THE FINISHED EXPRESSWAY OR STRUCTURES WILL BE REMOVED OR RELOCATED BY OTHERS. THE CONTRACTOR SHALL CO-ORDINATE HIS OPERATIONS WITH THE WORK OF THE UTILITY OWNERS, OR OTHERS WHO MAY BE MAKING THE RELOCATIONS, AND SHALL NOTIFY THE OWNERS OF THE UTILITIES OF HIS SCHEDULE SUFFICIENTLY IN ADVANCE TO PERMIT THEM TO MAKE THE NECESSARY ALTERATIONS. IN ADDITION THE CONTRACTOR SHALL PERFORM THE FOLLOWING WORK ON UTILITIES.

FOR ADDITIONAL NOTES ON UTILITIES SEE SHEET 9.

CARROLL STREET

THE EXISTING GAS MAIN WILL BE REMOVED AND RELOCATED BY THE EAST OHIO GAS COMPANY. A 10-IN. LOW PRESSURE GAS MAIN WILL BE CARRIED UNDER THE NORTH SIDEWALK. THE PIPE AND PIPE HANGERS WILL BE FURNISHED AND INSTALLED BY THE EAST OHIO GAS COMPANY. THE CONTRACTOR SHALL PROVIDE AND INSTALL PIPE SLEEVES, ANGLE SUPPORTS, AND CLIP ANGLES. THE WORK TO BE PAID FOR UNDER ITEM S-7 STRUCTURAL STEEL.

BUCHTEL AVENUE

THE EXISTING 16-IN. WATER MAIN WILL BE RELOCATED ON SUPPORTS ON THE SOUTH SIDE OF THE BRIDGE UNDER THE SIDEWALK. ALL PIPE, SPECIAL CASTINGS, FITTINGS, JOINT MATERIAL AND HANGERS WILL BE FURNISHED BY OTHERS. LOADING AND HAULING OF THIS MATERIAL WILL BE DONE BY THE CONTRACTOR. LAYING OF NEW 16" WATER MAIN WILL BE DONE BY THE CONTRACTOR.

THE 16" CAST IRON PIPE WILL BE FURNISHED IN 18-FT. LENGTHS, COMPLETE WITH ALL JOINT MATERIALS, BY THE CITY OF AKRON AND SHALL BE INSTALLED BY THE CONTRACTOR TO A POINT APPROXIMATELY 5 FT. BACK OF EACH ABUTMENT BACKWALL. THE WORK OF LOADING, HAULING, LAYING AND INSTALLING THE 16" CAST IRON PIPE WILL BE PAID FOR UNDER THE ITEM "INSTALLING 16-IN. WATER MAINS". CONNECTION TO THE EXISTING DISTRIBUTION SYSTEM WILL BE BY OTHERS. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL PIPE SLEEVES AND CHANNEL OR ANGLE SUPPORTS. THE WORK TO BE PAID FOR UNDER ITEM S-7 STRUCTURAL STEEL.

THE EXISTING GAS MAIN WILL BE REMOVED AND RELOCATED BY THE EAST OHIO GAS COMPANY. A 10" LOW PRESSURE GAS MAIN WILL BE CARRIED UNDER THE NORTH SIDEWALK. THE PIPE AND PIPE HANGERS WILL BE FURNISHED AND INSTALLED BY THE EAST OHIO GAS COMPANY. THE CONTRACTOR SHALL PROVIDE AND INSTALL PIPE SLEEVES, ANGLE SUPPORTS AND CLIP ANGLES. THE WORK TO BE PAID FOR UNDER ITEM S-7 STRUCTURAL STEEL.

THE EXISTING TELEPHONE CONDUIT WILL BE REMOVED AND RELOCATED BY THE OHIO BELL TELEPHONE COMPANY. THE CONTRACTOR SHALL PROVIDE AND INSTALL THE CHANNEL SUPPORTS AND OPENINGS IN THE ABUTMENT BACKWALL.

THE EXISTING OHIO EDISON COMPANY CONDUIT WILL BE REMOVED AND RELOCATED BY THE OHIO EDISON COMPANY. THE CONDUIT AND ALL APPURTENANCES WILL BE SUPPLIED BY THE OHIO EDISON COMPANY. THE CONTRACTOR SHALL PROVIDE AND INSTALL THE ANGLE SUPPORTS AND OPENINGS IN THE ABUTMENT BACKWALL.

MARKET STREET

THE EXISTING 16-IN. WATER MAIN WILL BE RELOCATED ON SUPPORTS ON THE SOUTH SIDE OF THE BRIDGE UNDER THE SIDEWALK. ALL PIPE, SPECIAL CASTINGS, FITTINGS, JOINT MATERIAL AND HANGERS WILL BE FURNISHED BY OTHERS. LOADING AND HAULING OF THIS MATERIAL WILL BE DONE BY THE CONTRACTOR. LAYING OF NEW 16" WATER MAIN WILL BE DONE BY THE CONTRACTOR.

THE 16" CAST IRON PIPE WILL BE FURNISHED IN 18-FT. LENGTHS, COMPLETE WITH ALL JOINT MATERIALS, BY THE CITY OF AKRON AND SHALL BE INSTALLED BY THE CONTRACTOR TO A POINT APPROXIMATELY 5 FT. BACK OF EACH ABUTMENT BACKWALL. THE WORK OF LOADING, HAULING, LAYING AND INSTALLING THE 16" CAST IRON PIPE WILL BE PAID FOR UNDER THE ITEM "INSTALLING 16-IN. WATER MAINS". CONNECTION TO THE EXISTING DISTRIBUTION SYSTEM WILL BE BY OTHERS. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL PIPE SLEEVES AND CHANNEL OR ANGLE SUPPORTS. THE WORK TO BE PAID FOR UNDER ITEM S-7 STRUCTURAL STEEL.

THE EXISTING GAS MAIN WILL BE REMOVED AND RELOCATED BY THE EAST OHIO GAS COMPANY. A 10" LOW PRESSURE GAS MAIN WILL BE CARRIED UNDER THE NORTH SIDEWALK. THE PIPE AND PIPE HANGERS WILL BE FURNISHED AND INSTALLED BY THE EAST OHIO GAS COMPANY. THE CONTRACTOR SHALL PROVIDE AND INSTALL PIPE SLEEVES, ANGLE SUPPORTS AND CLIP ANGLES. THE WORK TO BE PAID FOR UNDER ITEM S-7 STRUCTURAL STEEL.

THE EXISTING TELEPHONE CONDUIT WILL BE REMOVED AND RELOCATED BY THE OHIO BELL TELEPHONE COMPANY. THE CONTRACTOR SHALL PROVIDE AND INSTALL THE CHANNEL SUPPORTS AND OPENINGS IN THE ABUTMENT BACKWALL.

THE EXISTING OHIO EDISON COMPANY CONDUIT WILL BE REMOVED AND RELOCATED BY THE OHIO EDISON COMPANY. THE CONDUIT AND ALL APPURTENANCES WILL BE SUPPLIED BY THE OHIO EDISON COMPANY. THE CONTRACTOR SHALL PROVIDE AND INSTALL THE ANGLE SUPPORTS AND OPENINGS IN THE ABUTMENT BACKWALL.

CLASS OF CONCRETE

ALL CONCRETE SHALL BE CLASS "C".

VIBRATION

ALL CONCRETE SHALL BE MECHANICALLY VIBRATED.

BAR CLEARANCES

BARS SHALL, UNLESS OTHERWISE SHOWN, BE AT LEAST 3 IN. CLEAR FROM THE FACE OF CONCRETE IN FOOTINGS AND 2 IN. CLEAR ELSEWHERE EXCEPT IN SLABS WHERE BARS SHALL BE 1 IN. CLEAR.

BITUMINOUS JOINT FILLER AND TAR PAPER

EXPANSION JOINTS SHALL HAVE ONE IN. BITUMINOUS PREMOLDED JOINT FILLER AT THE ENDS OF WALLS. EXPANSION AND CONTRACTION JOINTS IN WALLS SHALL HAVE TAR PAPER ON THE SIDES, TOPS AND BOTTOMS OF WALL SURFACES IN CONTACT WITH THE ABUTMENTS AND FOOTINGS. THE TAR PAPER SHALL BE OF A SUITABLE COMMERCIAL GRADE. THE JOINT FILLER AND TAR PAPER SHALL BE SECURELY FASTENED TO THE CONCRETE AND SHALL BE PROTECTED FROM DAMAGE DURING PLACING OF CONCRETE. PAYMENT FOR THE TAR PAPER WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE.

GRAY RUBBER JOINT FILLER

GRAY RUBBER JOINT FILLER SHALL BE EQUAL TO GRAY SPONGE RUBBER JOINT FILLER AS PRODUCED BY SERVISED PRODUCTS CORPORATION, 6051 W. 65TH STREET, CHICAGO 38, ILLINOIS.

PERFORATED CORRUGATED METAL PIPE

THE 8" PERFORATED BITUMINOUS-COATED CORRUGATED METAL PIPE BEHIND THE ABUTMENTS AND WINGWALLS SHALL BE PLACED WITH THE PERFORATIONS ON TOP OF THE PIPE.

DRAINAGE TUBES

DRAINAGE TUBES SHALL BE PLACED THROUGH THE SPAN SLABS ALONG THE CURBS AS DESCRIBED IN SEC. S-29.07 TO PROVIDE SUB-DRAINAGE FOR THE ASPHALTIC CONCRETE SURFACE COURSE. THE FIRST DRAIN TUBE AT ENDS OF BRIDGE SHALL BE PLACED WITHIN ONE FOOT OF THE END FINISH.

CONCRETE FINISH

ALL EXPOSED SURFACES OF CONCRETE, EXCEPT THE UNDERNEATH SIDE OF SUPERSTRUCTURE SLAB, THE TOPS OF PIER AND ABUTMENT BRIDGE SEATS AND THE FACES OF BACKWALLS SHALL BE GIVEN A RUBBED SURFACE FINISH. SUCH SURFACES ALSO PREFERABLY SHALL BE FORMED WITH FORM LINER TO REDUCE THE AMOUNT OF RUBBING REQUIRED.

THE CONCRETE FLOOR SLABS SHALL BE SO CONSTRUCTED THAT AFTER COMPLETION AND AFTER REMOVAL OF FORMS AND ANY FALSEWORK, AND AFTER THE STEEL GIRDERS HAVE DEFLECTED UNDER THE WEIGHT OF THE CONCRETE, THE SURFACE OF THE CONCRETE FLOOR SLABS SHALL CONFORM IN GRADE AND ELEVATION AS NEARLY AS PRACTICABLE TO THE GRADES AND ELEVATIONS STIPULATED IN THE PLANS, WITHOUT SAGS, HUMPS OR OTHER IRREGULARITIES, TO COMPENSATE FOR DEFLECTIONS OF THE SPANS WHICH WILL RESULT FROM THE DEAD LOAD OF CONCRETE, THE SCREEDS USED TO STRIKE OFF THE SURFACE OF THE CONCRETE SLAB SHALL BE SET UP WITH CAMBER ABOVE THE FINAL DESIRED GRADE LINE BY AMOUNTS EQUAL TO DEFLECTIONS SHOWN ON THE PLANS FOR DEAD LOAD OF CONCRETE. THE CONCRETE FLOOR SLABS SHALL BE OF UNIFORM THICKNESS OF 7-1/2 INCHES BETWEEN GIRDERS AND SHALL BE SET UP TO THE DESIRED CAMBERED POSITION BY INCREASING THE THICKNESS OF SLAB HAUNCHES AT THE GIRDERS.

DIMENSIONS

DIMENSIONS GIVEN ARE MEASURED HORIZONTALLY AND AT 60° F., UNLESS OTHERWISE NOTED.

RIVETS

UNLESS OTHERWISE NOTED ON THE DRAWINGS, ALL RIVETS ARE TO BE 7/8 IN. DIAMETER. WHERE NOT SHOWN ON DESIGN DRAWINGS, RIVET SPACING SHALL CONFORM TO THE REQUIREMENTS OF THE DESIGN SPECIFICATIONS.

WELDING

ALL WELDING SHALL BE CLASS "A".

CAMBER

THE CONTINUOUS I-BEAM GIRDERS NEED NOT BE CAMBERED TO COMPENSATE FOR DEFLECTIONS, BUT SHALL BE FABRICATED SO THAT VARIATION IN ALIGNMENT DUE TO MILL TOLERANCES SHALL BE IN THE DIRECTION OF CAMBER.

EXPANSION JOINTS

ROADWAY, SIDEWALK AND CURB JOINTS SHALL BE SHOP ASSEMBLED, CORRECTED TO PROVIDE UNIFORM CLOSE CONTACT BETWEEN THE TWO MATING PARTS OF EACH JOINT, MATCH-MARKED AND ERECTED TO REQUIRED LINES AND GRADES.

HANDRAIL

HANDRAIL SHALL BE FABRICATED IN UNITS AS SHOWN AND FINISHED HANDRAIL SHALL BE FREE OF BURRS, SHARP CORNERS AND ROUGH SURFACES. AFTER HANDRAILS HAVE BEEN SET IN PLACE, THEY SHALL BE ADJUSTED BY MOVING THE POSTS INWARD OR OUTWARD UNTIL THE TOP RAIL SHALL CONFORM TO A STRAIGHT LINE PARALLEL TO CENTERLINE OF ROADWAY. ALL HANDRAIL POSTS SHALL BE SET VERTICAL. THE ADJUSTMENT OF THE HANDRAIL SHALL BE SUCH THAT THE TOPS OF POSTS SHALL NOT DEPART MORE THAN 1/8 IN., FROM CORRECT LINE OR GRADE.

PAYMENT FOR HANDRAIL WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAR FOOT FOR ITEM S-14, HANDRAIL (STEEL), AND SHALL BE MEASURED BETWEEN ENDS OF STEEL RAILING, NOT INCLUDING CONCRETE END POSTS.

PROTECTION OF TRAFFIC ON EXCHANGE STREET

A MINIMUM VERTICAL CLEARANCE OF 13'-6" ABOVE THE ROADWAY SURFACE SHALL BE MAINTAINED FOR ALL TRAFFIC LANES AND THE CONTRACTOR SHALL SAFEGUARD THE TRAVELLING PUBLIC BY PROVIDING PLATFORMS, NETS OR OTHER SUITABLE PROTECTION ABOVE THE TRAVELLED LANES.

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	As Built	UNIT	A. & B.B R.R. AND BEACON STREET OVERPASS BR. NO. SU-5-110										RAMP U OVERPASS						
				CENTER BENT	SOUTH ABUTMENT	NORTH ABUTMENT	NORTHEAST WINGWALL	SOUTHEAST WINGWALL	NORTHWEST WINGWALL	SOUTHWEST WINGWALL	SUPER-STRUCTURE	APPROACH CURBS & SIDEWALKS	TOTAL	BENT 1	BENT 2	EAST ABUTMENT	WEST ABUTMENT	NORTHWEST WINGWALL	SUPER-STRUCTURE	TOTAL
E-2	COFFERDAMS, CRIBS AND SHEETING		LUMP SUM										LUMP SUM							LUMP SUM
E-2	EXCAVATION FOR STRUCTURES - UNCLASSIFIED	C-5 +205 1425	CU. YD.	264	640	311	86	119	99	111			~~1,630~~	64	83					147
E-2	EXCAVATION FOR STRUCTURES - ROCK AND SHALE	C-5 +51 06	CU. YD.		15								~~15~~	6	30					36
S-1	CLASS "C" CONCRETE	C-5 4033 21703	CU. YD.	228	649	580	62	71	76	89	373		~~2,120~~	60	155	62	79	28	116	500
S-3	TYPE "B" WATERPROOFING		SQ. YD.		20	17	9	11	9	10			66					4		4
S-3	TYPE "C" WATERPROOFING		SQ. YD.								1,540		1,540						377	377
S-4	REINFORCING STEEL	C-5 +3407 327737	LBS.	31,338	71,138	62,465	6,293	7,348	6,303	9,111	124,334		~~318,330~~	8,401	12,314	4,564	4,154	2,603	28,128	60,244
S-7	STRUCTURAL STEEL		LBS.								441,647		441,647						122,713	122,713
S-8	FIELD PAINTING STRUCTURAL STEEL		LBS.								441,647		441,647						122,713	122,713
S-9	1" PREMOULDED BITUMINOUS EXPANSION JOINT FILLER		SQ. FT.			42	50	38	44				174					14		14
S-9	COPPER WATER STOPS		LIN. FT.		64	54	26	33	28	30			235					12	31	12
S-14	HANDRAIL (STEEL) *		LIN. FT.								431		431						312	312
S-18	STEEL PILES (12 BP53)		LIN. FT.	1,117	1,050	2,620	505	395	562	495			6,744			234	442	288		964
S-18	STEEL PILES (8 BP36)		LIN. FT.																	
S-29	POROUS BACKFILL		CU. YD.		295	230	33	34	35	50			677					12		12
S-29	8" PERFORATED BITUMINOUS-COATED CORRUGATED METAL PIPE SEC. M-6.4 f		LIN. FT.		165	138	21	37	33	38			432					21		21
S-29	8" VITRIFIED CLAY PIPE, SEC. M-6.8(b) (INCLUDING PIPE SPECIALS)		LIN. FT.			30							30			58		47		105
S-29	12" VITRIFIED CLAY PIPE, SEC. M-6.8 (b)		LIN. FT.	162									162	28						28
S-29	SUB-DRAINAGE FOR WEARING SURFACE COURSE		LIN. FT.								517		517						145	145
S-29	PIPE SPECIALS (12" VITRIFIED CLAY PIPE) Sec. M-6.8(b)		EACH	10									10	3						3
S-29	4" WROUGHT IRON PIPE (INCLUDING PIPE SPECIALS AND SUPPORTS)		LIN. FT.	70		62							132	24	24	10				58
S-25	ELECTRICAL EQUIPMENT		LUMP SUM										LUMP SUM							LUMP SUM
T-35	2½" ASPHALTIC CONCRETE SURFACE COURSE, TYPE "C" (70-80)		CU. YD.								107		107						26	26
SPECIAL	1" GRAY RUBBER JOINT FILLER		SQ. FT.	77	93	68							238							

FOR ESTIMATED QUANTITIES FOR OTHER STRUCTURES, SEE SHEET 102.

*Type A Handrail = 1,109 Lin.Ft.
Type B Handrail (Straight) = 761 Lin.Ft.
Type B Handrail (Curved) = 312 Lin.Ft.

AKRON EXPRESSWAY SYSTEM
GENERAL NOTES AND QUANTITIES (FIRST SHEET)
UNDERPASS AND OVERPASS STRUCTURES
BR. NO. SU-5-110, RAMP "U" OVERPASS,
AND BRS. NO. SU-5-112, SU-5-115,
SU-5-116, AND SU-5-119
AKRON SUMMIT COUNTY, OHIO

SCALE
MADE GA. DATE 12-12-52
TRCD L.M. DATE 12-22-52
CKD L.L. DATE 12-26-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846-U SHEET 101

Revised As-Built P.G. 6/23/55

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

102
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95

ESTIMATED QUANTITIES

EXCHANGE STREET OVERPASS BR. NO. SU-5-112

ITEM	DESCRIPTION	As Built		UNIT	SOUTH ABUTMENT	NORTH ABUTMENT	NORTHEAST WINGWALL	SOUTHEAST WINGWALL	NORTHWEST WINGWALL	SOUTHWEST WINGWALL	SUPER-STRUCTURE	APPROACH CURBS & SIDEWALKS	TOTAL
E-2	COFFERDAMS, CRIBS AND SHEETING			LUMP SUM									LUMP SUM
E-2	EXCAVATION FOR STRUCTURES - UNCLASSIFIED			CU. YDS.	903	731	66	72	60	68			1,900
E-2	EXCAVATION FOR STRUCTURES - ROCK AND SHALE			CU. YDS.	46	50							96
S-1	CLASS "C" CONCRETE	C-6 +1	1,666	CU. YDS.	583	557	67	67	54	58	279		~~1,655~~
S-3	TYPE "B" WATERPROOFING			SQ. YDS.	48	30	10	12	8	9			117
S-3	TYPE "C" WATERPROOFING	C-6 +5	1,119	SQ. YDS.							1,114		~~1,114~~
S-4	REINFORCING STEEL			LBS.	60,876	53,507	7,788	7,960	5,185	5,705	91,028		~~232,049~~
S-7	STRUCTURAL STEEL	C-6 +67	538,942	LBS.							538,875		~~538,875~~
S-8	FIELD PAINTING STRUCTURAL STEEL	C-6 +67	538,942	LBS.							538,875		~~538,875~~
S-9	1" PREMOULDED BITUMINOUS EXPANSION JOINT FILLER			SQ. FT.			42	48	36	41			167
S-9	COPPER WATER STOPS			LIN. FT.	165	149							314
S-14	HANDRAIL (STEEL)			LIN. FT.							330		330
S-18	STEEL PILES (12 BP 53)			LIN. FT.			171	210	164	207			752
S-18	STEEL PILES (8 BP 36)			LIN. FT.									
S-29	POROUS BACKFILL			CU. YDS.	249	224	43	39	31	35			621
S-29	8" PERF. BIT. COATED CORR. METAL PIPE SEC. M-6.4F			LIN. FT.	129	124	22	23	19	26			343
S-29	8" VITRIFIED CLAY PIPE SEC. M-6.8 (b)			LIN. FT.	54	62							116
S-29	12" VITRIFIED CLAY PIPE SEC. M-6.8 (b)			LIN. FT.									
S-29	SUB-DRAINAGE FOR WEARING SURFACE COURSE			LIN. FT.							188		188
S-29	PIPE SPECIALS			EACH									
S-29	4" WROUGHT IRON PIPE (INCL. PIPE SPEC & SUPPORTS)			LIN. FT.		62							62
S-25	ELECTRICAL EQUIPMENT			LUMP SUM									LUMP SUM
T-35	2½" ASPHALTIC CONC. SURF. COURSE, TYPE 'C' (70-80)	C-6 +33	76.07	CU. YD.							77		~~77~~
				SQ. YDS.							1,114		1,114
SPECIAL	1" GRAY RUBBER JOINT FILLER			SQ. FT.	68	60							128

CARROLL STREET UNDERPASS BR. NO. SU-5-115

ITEM	CENTER BENT	EAST ABUTMENT	WEST ABUTMENT	NORTHEAST WINGWALL	SOUTHEAST WINGWALL	NORTHWEST WINGWALL	SOUTHWEST WINGWALL	SUPER-STRUCTURE	APPROACH CURBS & SIDEWALKS	TOTAL
E-2										LUMP SUM
E-2				55	83	36	36			210
E-2	37	84	171	5	5	2	2			306
S-1	84	174	195	31	35	15	15	180	24	753
S-3		6	7	7	7	8	8			43
S-3								560		560
S-4	12,225	13,446	15,208	2,709	3,029	1,441	1,441	51,000	4,358	104,857
S-7								207,780		207,780
S-8								207,780		207,780
S-9				30	29	35	35			129
S-9		15	18	20	20	23	23			119
S-14								334		334
S-18										
S-18									169	169
S-29		69	82	19	20	11	11			212
S-29		70	70	18	18					176
S-29		10	10							20
S-29	10									10
S-29								233		233
S-29	4									4
S-29	44	26								70
S-25										
T-35								39		39

ESTIMATED QUANTITIES

BUCHTEL AVENUE UNDERPASS BR. NO. SU-5-116

ITEM	DESCRIPTION	UNIT	CENTER BENT	EAST ABUTMENT	WEST ABUTMENT	NORTHEAST WINGWALL	SOUTHEAST WINGWALL	NORTHWEST WINGWALL	SOUTHWEST WINGWALL	SUPER-STRUCTURE	APPROACH CURBS & SIDEWALKS	TOTAL
E-2	COFFERDAMS, CRIBS AND SHEETING	LUMP SUM										LUMP SUM
E-2	EXCAVATION FOR STRUCTURES - UNCLASSIFIED	CU. YDS.		273	142	199	259	190	179			1,525
E-2	EXCAVATION FOR STRUCTURES - ROCK AND SHALE	CU. YDS.	65	24	147	3	5	3	3			250
E-12	PIPE TO BE REMOVED AND STORED	LIN. FT.										
S-1	CLASS "C" CONCRETE	CU. YDS.	86	187	199	39	51	44	46	180	25	857
S-3	TYPE "B" WATERPROOFING	SQ. YDS.		7	8	8	8	8	8			47
S-3	TYPE "C" WATERPROOFING	SQ. YDS.								569		569
S-4	REINFORCING STEEL	LBS.	12,442	13,955	14,903	3,338	4,173	3,990	3,838	50,940	5,199	112,778
S-7	STRUCTURAL STEEL	LBS.								208,080		208,080
S-8	FIELD PAINTING STRUCTURAL STEEL	LBS.								208,080		208,080
S-9	1" PREMOULDED BITUMINOUS EXPANSION JOINT FILLER	SQ. FT.				33	33	33	33			132
S-9	COPPER WATER STOPS	LIN. FT.		65	70							135
S-14	HANDRAIL (STEEL)	LIN. FT.								376		376
S-18	STEEL PILE (8 BP 36)	LIN. FT.									376	376
S-29	POROUS BACKFILL	CU. YDS.		78	87	19	25	25	21			255
S-29	8" PERFORATED BITUMINOUS-COATED CORRUGATED METAL PIPE SEC. M-6.4F	LIN. FT.		65	65	12	25	16	15			198
S-29	8" VITRIFIED CLAY PIPE - SEC. M-6.8 (b)	LIN. FT.		27	28							55
S-29	12" VITRIFIED CLAY PIPE - SEC. M-6.8 (b)	LIN. FT.	90									90
S-29	SUB-DRAINAGE FOR WEARING SURFACE COURSE	LIN. FT.								120		120
S-29	PIPE SPECIALS	EACH										
S-29	4" WROUGHT IRON PIPE (INCLUDING PIPE SPECIALS AND SUPPORTS)	LIN. FT.	52	28								80
T-35	2½" ASPHALTIC CONCRETE SURFACE COURSE TYPE "C" (70-80)	CU. YD.								39		39
** SPECIAL	INSTALLING 16" WATER MAINS	LIN. FT.										

MARKET STREET UNDERPASS BR. NO. SU-5-119

ITEM	CENTER BENT	EAST ABUTMENT	WEST ABUTMENT	NORTHEAST WINGWALL	SOUTHEAST WINGWALL	NORTHWEST WINGWALL	SOUTHWEST WINGWALL	SUPER-STRUCTURE	APPROACH CURBS & SIDEWALKS	TOTAL
E-2										LUMP SUM
E-2	25	10	5	108	111	87	86			432
E-2	31	90	228	4	4	8	3			368
E-12										
S-1	114	252	281	40	39	38	35	253	33	1,085
S-3		6	7	7	8	7	7			142
S-3								797		797
S-4	21,837	23,411	25,317	4,046	4,001	3,095	3,103	71,409	6,108	162,327
S-7								310,261		310,261
S-8								310,261		310,261
S-9				35	35	34	34		46	184
S-9		69	72							141
S-14								399		399
S-18									254	254
S-29		120	114	30	32	20	17			333
S-29		82	79	20	21	22	21			245
S-29		16	11							27
S-29	81									81
S-29								252		252
S-29	3									3
S-29	50		48							98
T-35								55		55
** SPECIAL								215		215

**Federal and State Funds do not participate in this item.

AKRON EXPRESSWAY SYSTEM
QUANTITIES (SECOND SHEET)
UNDERPASS AND OVERPASS STRUCTURES
BR. NO. SU-5-110, RAMP "U" OVERPASS,
AND BRS. NO. SU-5-112, SU-5-115,
SU-5-116 AND SU-5-119.
AKRON SUMMIT COUNTY. OHIO

SCALE
MADE E.N. DATE 11-16-52
TRCD H.S DATE 12-10-52
CKD G.A. DATE 12-12-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846-U SHEET 102

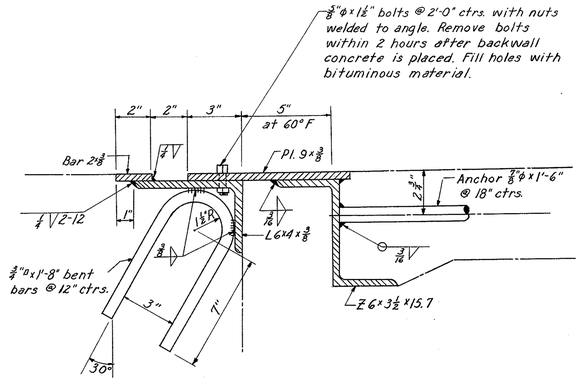
Revised As-Built P.G. 6/23/55

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

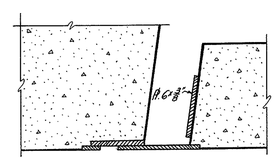
103 / 172

SUMMIT COUNTY
CITY OF AKRON

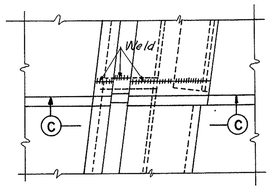
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95



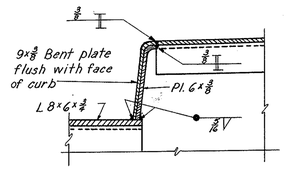
SIDEWALK



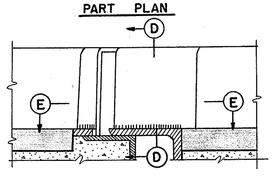
SECTION E-E



PART PLAN

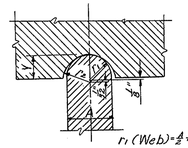


SECTION D-D

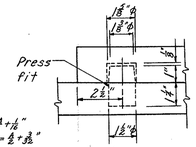


SECTION C-C

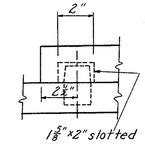
CURB EXPANSION DETAILS
Scale: 1½" = 1'-0"

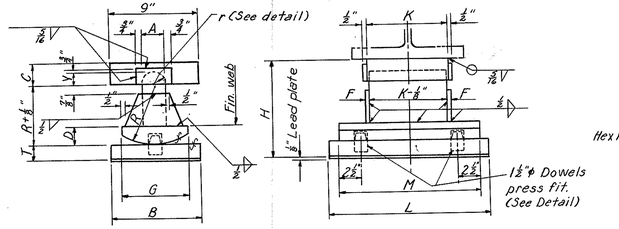


TOP BEARING DETAIL
Scale: 3" = 1'-0"

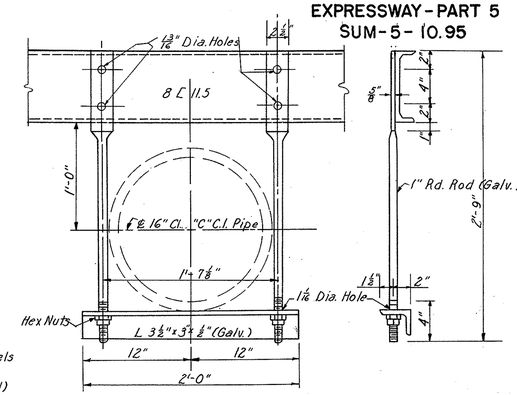


DOWEL DETAIL
Scale: 3" = 1'-0"

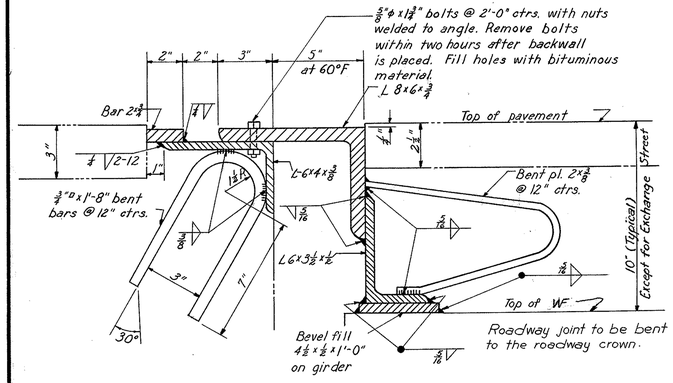




TYPICAL ROCKER
Scale: 1½" = 1'-0"

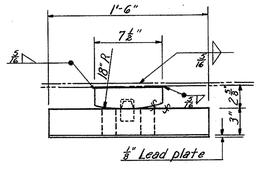


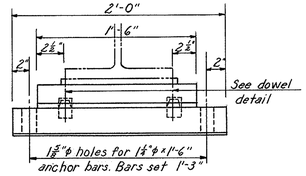
HANGER DETAIL FOR 16" WATER PIPE
Scale: 1½" = 1'-0"



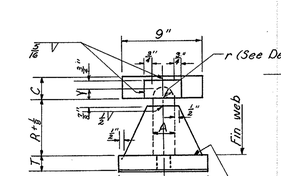
ROADWAY

EXPANSION JOINTS
Scale: 3" = 1'-0"

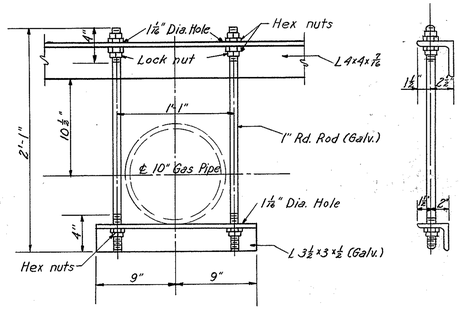




BOLSTER B 200 A
Scale: 1½" = 1'-0"



TYPICAL BOLSTER
Scale: 1½" = 1'-0"



HANGER DETAIL FOR 10" GAS PIPE
Scale: 1½" = 1'-0"

Bolster No.	Rocker No.	DIMENSIONS													Weight each (lb.)		Maximum Load (lb)
		F	B	L	H	T	R	C	A	V	K	D	G	M	Bolster	Rocker	
B-100	R-100	½	10	18	10⅜	1⅜	6½	2½	2½	1/16	9	2	7½	16	215	255	100,000
B-125	R-125	½	11	20	12⅜	2	7½	3	3	1/16	10½	2	8	17½	300	345	125,000
B-150	R-150	½	12	21	13⅜	2¼	8½	3	3	1/16	11½	2¼	8½	18	370	425	150,000

* For details of Rocker R-100-A see sheet 127

SHOE DIMENSIONS

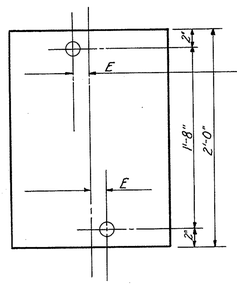
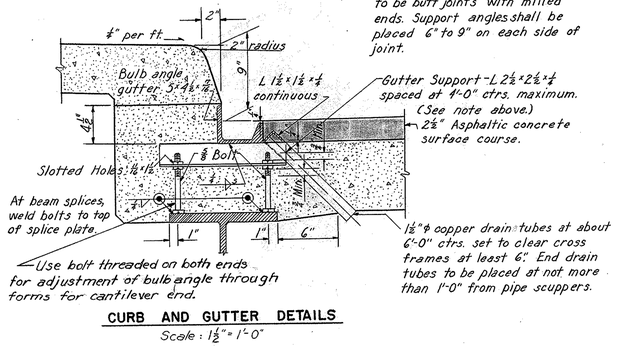
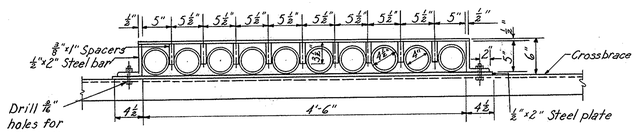


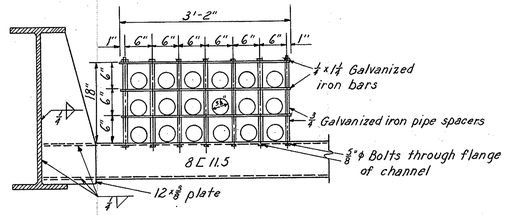
DIAGRAM OF ANCHOR BAR HOLES



CURB AND GUTTER DETAILS
Scale: 1½" = 1'-0"



DETAIL OF STEEL BAR CONDUIT SUPPORT
Scale: 1" = 1'-0"



TELEPHONE CONDUIT SUPPORT
Scale: ¾" = 1'-0"

Note: Conduit supports and pipe hangers will be furnished by others.

AKRON EXPRESSWAY SYSTEM

COMMON DETAILS
UNDERPASS AND OVERPASS STRUCTURES
BR. NO. SU-5-110, RAMP "U" OVERPASS,
AND BRS. NO. SU-5-112, SU-5-115,
SU-5-116 AND SU-5-119

AKRON SUMMIT COUNTY, OHIO

SCALE As shown
MADE RFJ DATE 11-6-52
TRCD NAN DATE 11-15-52
CKD W.B.C. DATE 11-19-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

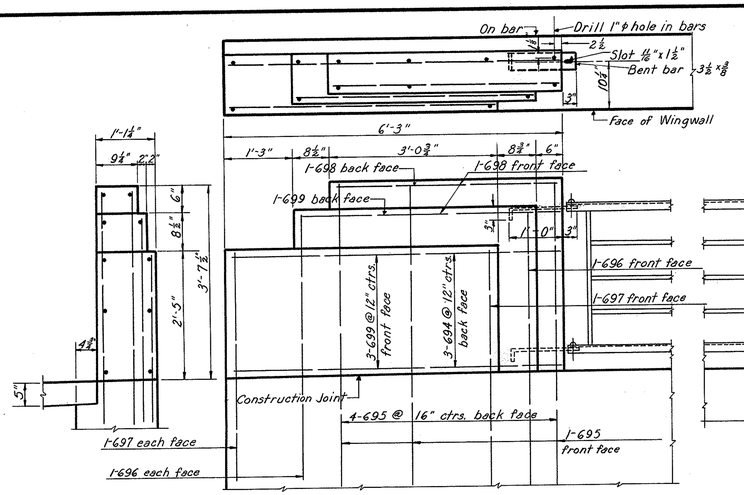
846-U SHEET 103

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

104
172

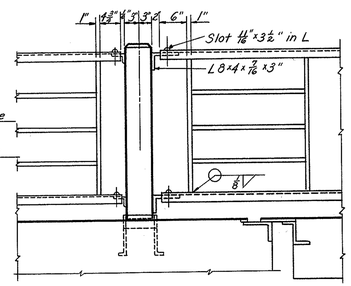
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95

Note: Handrail posts, spindles, and faces of endpost shall be vertical and rails shall be parallel to grade.

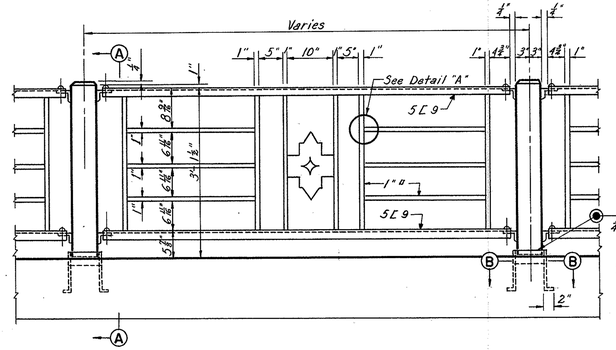


END VIEW

ENDPOST

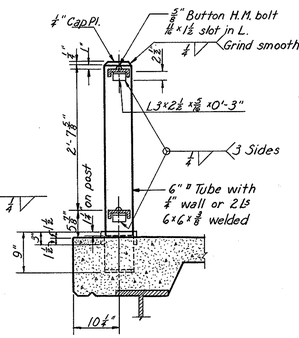


EXPANSION JOINT

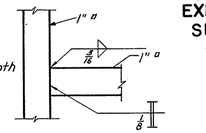


TYPE "A" HANDRAIL DETAILS
Scale: ¾" = 1'-0"

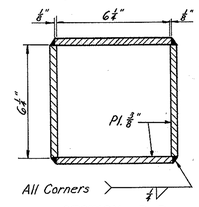
TYPICAL PANEL



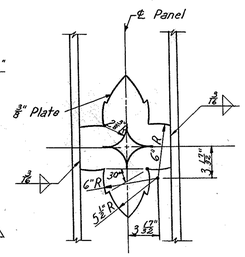
SECTION A-A
Scale: ¾" = 1'-0"



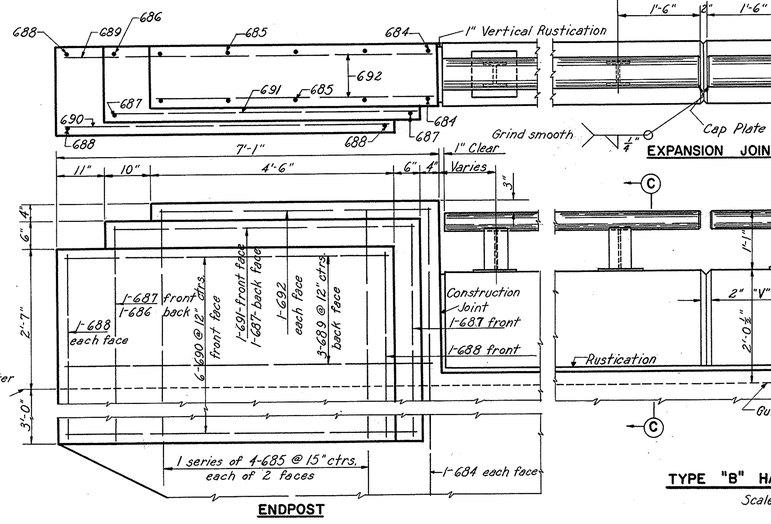
DETAIL "A"
Scale: ⅜" = 1"



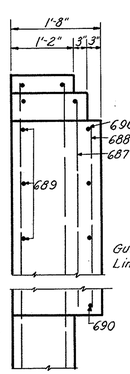
SECTION B-B
Scale: 3" = 1'-0"
Dimensions may be varied to fit built up post.



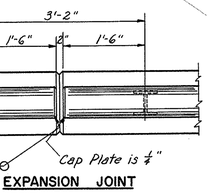
SHIELD DETAIL
Scale: 1½" = 1'-0"



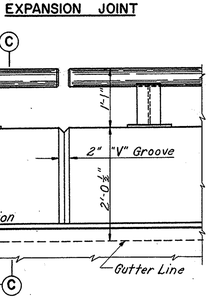
ENDPOST

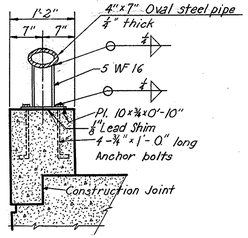


END VIEW



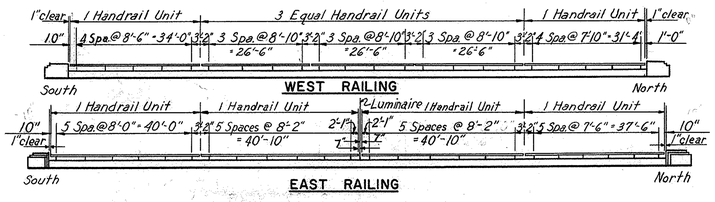
EXPANSION JOINT





SECTION C-C

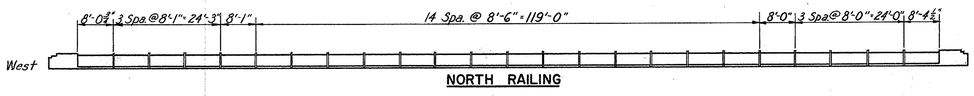
TYPE "B" HANDRAIL DETAILS
Scale: ¾" = 1'-0"



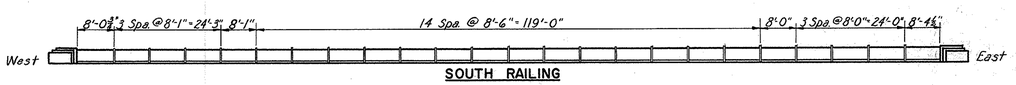
WEST RAILING

EAST RAILING

EXCHANGE STREET HANDRAIL
(Use Type B Handrail)

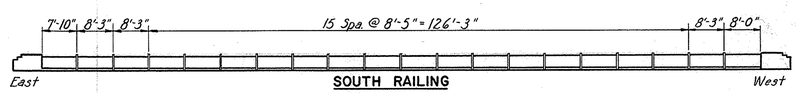


NORTH RAILING

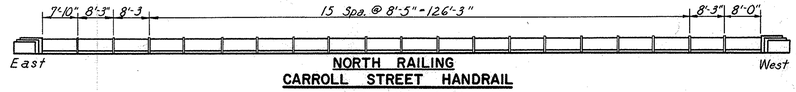


SOUTH RAILING

MARKET STREET HANDRAIL
(Use Type A Handrail)

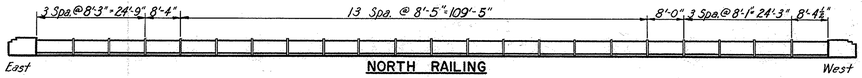


SOUTH RAILING

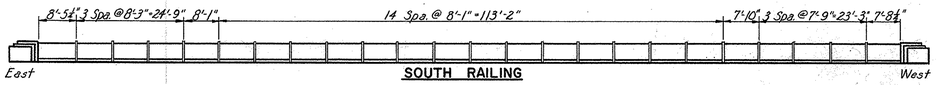


NORTH RAILING

CARROLL STREET HANDRAIL
(Use Type A Handrail)



NORTH RAILING



SOUTH RAILING

BUCHTEL AVENUE HANDRAIL
(Use Type A Handrail)

AKRON EXPRESSWAY SYSTEM
COMMON HANDRAIL DETAILS
UNDERPASS AND OVERPASS STRUCTURES
BR. NO. SU-5-110, RAMP "U" OVERPASS,
AND BRS. NO. SU-5-112, SU-5-115,
SU-5-116 AND SU-5-119
AKRON SUMMIT COUNTY, OHIO

SCALE As Shown
MADE R.F.S. DATE 9-30-52
TRCD J.W.L. DATE 11-20-52
CKD W.B.C. DATE 11-21-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

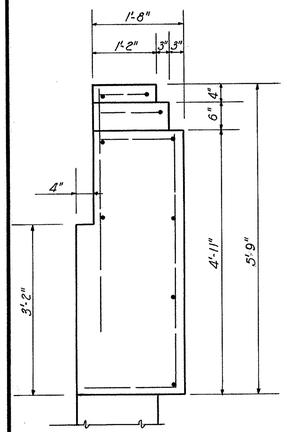
846-U SHEET 104

110

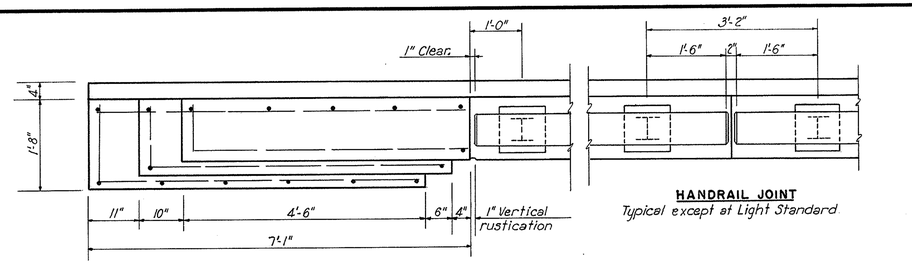
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687-(9)	POST WAR

105
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY — PART 5
SUM-5-10.95

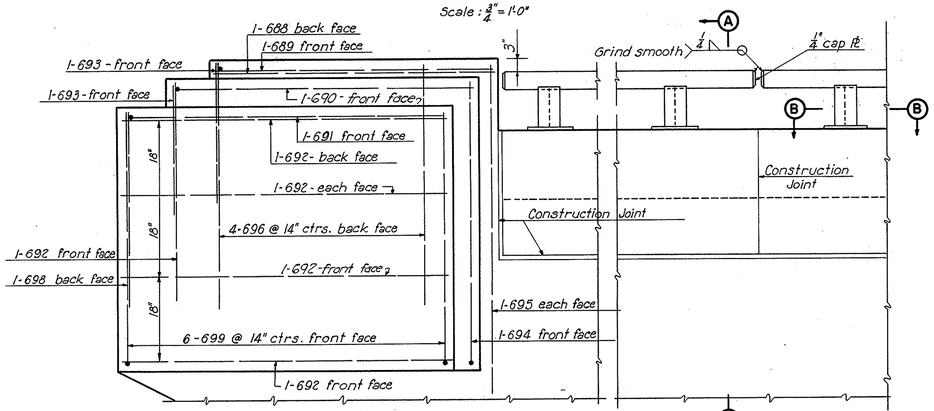


END VIEW

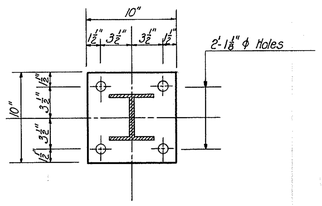


PLAN
Scale: $\frac{3}{4}$" = 1'-0"

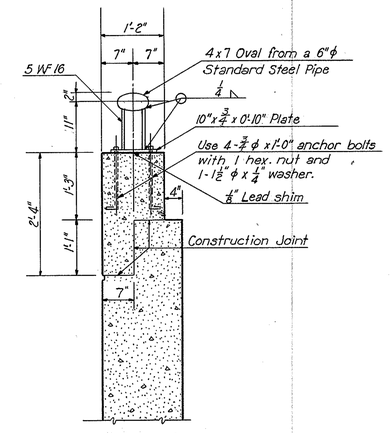
HANDRAIL JOINT
Typical except at Light Standard



END POST AND HANDRAIL DETAILS FOR BEACON STREET
Scale: $\frac{3}{4}$" = 1'-0"



SECTION B-B
Scale: $\frac{3}{4}$" = 1'-0"



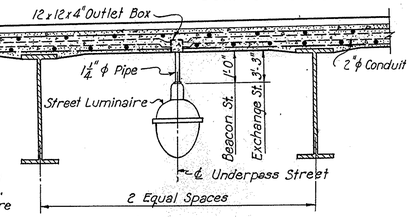
SECTION A-A
Scale: $\frac{3}{4}$" = 1'-0"

ELECTRICAL EQUIPMENT

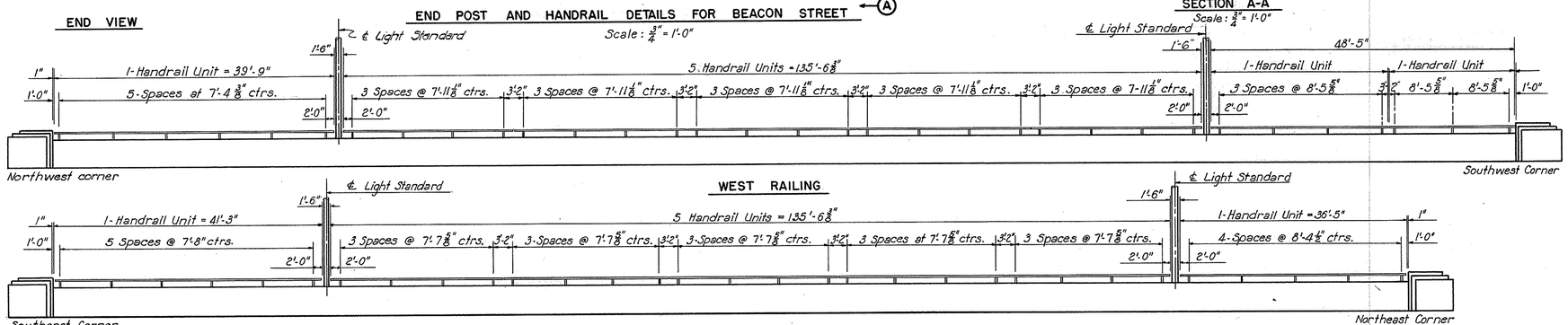
Note: Bridge contractor to provide conduit system, terminal box and outlets only for under structure lighting where indicated. Bridge contractor shall also furnish all Expressway conduit and anchor bolts for light standards which are on the structure. Furnishing and installing of poles, brackets and luminaires and wiring included in roadway quantities, Sheet 36.

For Beacon Street under structure luminaire location see sheet 106.

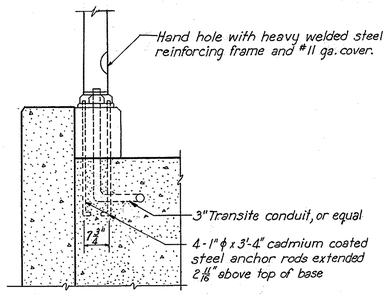
For Exchange Street under structure luminaire location see sheet 128.



UNDER STRUCTURE LUMINAIRE
Scale: $\frac{1}{2}$" = 1'-0"
3 Required for Beacon Street
2 Required for Exchange Street

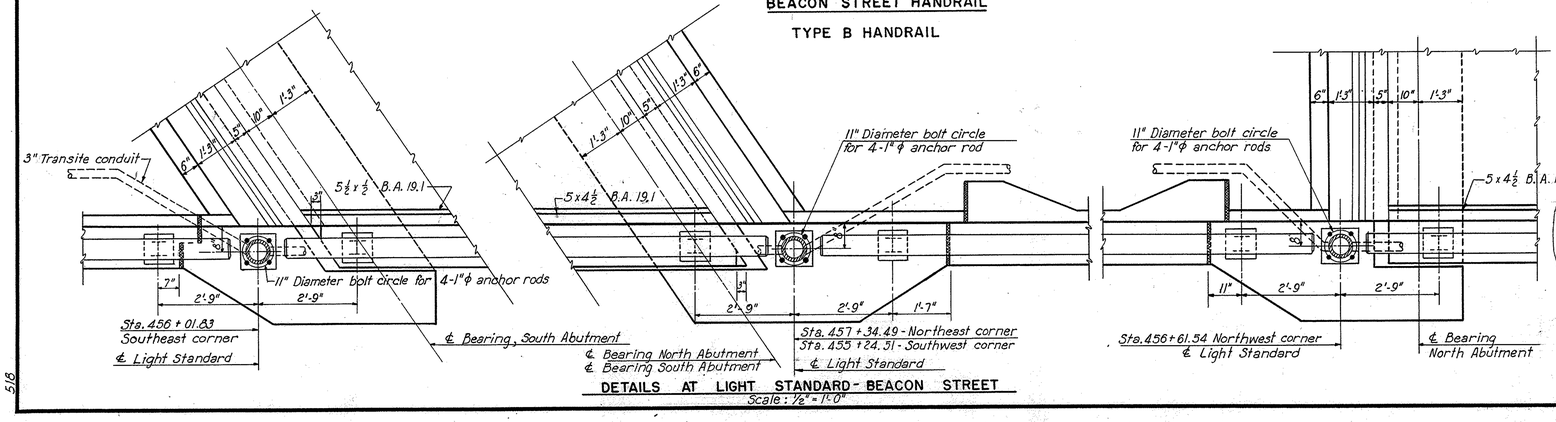


Note:
At the pole base there shall be a tinned # 6 copper wire brazed to one anchor bolt and connecting to a $\frac{1}{2}$" diameter by 8'-0" Copperweld ground rod or equal to obtain not more than 15 ohms resistance.
Extend conduit at least 4" above base.

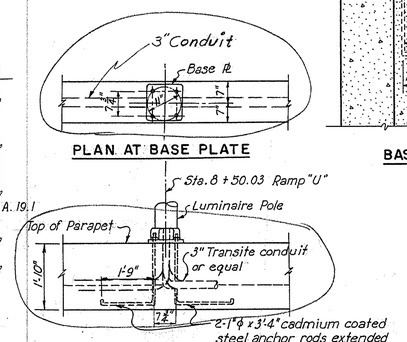


BASE FOR BRIDGE LIGHTING UNIT
Scale: $\frac{1}{2}$" = 1'-0"

BEACON STREET HANDRAIL
TYPE B HANDRAIL



DETAILS AT LIGHT STANDARD - BEACON STREET
Scale: $\frac{1}{2}$" = 1'-0"



ELEVATION
DETAIL OF LIGHT STANDARD
ON EXCHANGE STREET
Scale: $\frac{1}{2}$" = 1'-0"

Pencil Revision 3-15-54

AKRON EXPRESSWAY SYSTEM

COMMON DETAILS
UNDERPASS AND OVERPASS STRUCTURES
BR. NO. SU-5-110, RAMP "U" OVERPASS,
AND BRS. NO. SU-5-112, SU-5-115,
SU-5-116 AND SU-5-119

AKRON SUMMIT COUNTY, OHIO

SCALE As Noted
MADE TKC, DLC DATE 11-25-52
TRCD NAM, BH DATE 12-12-52
CKD EDJ DATE 12-9-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

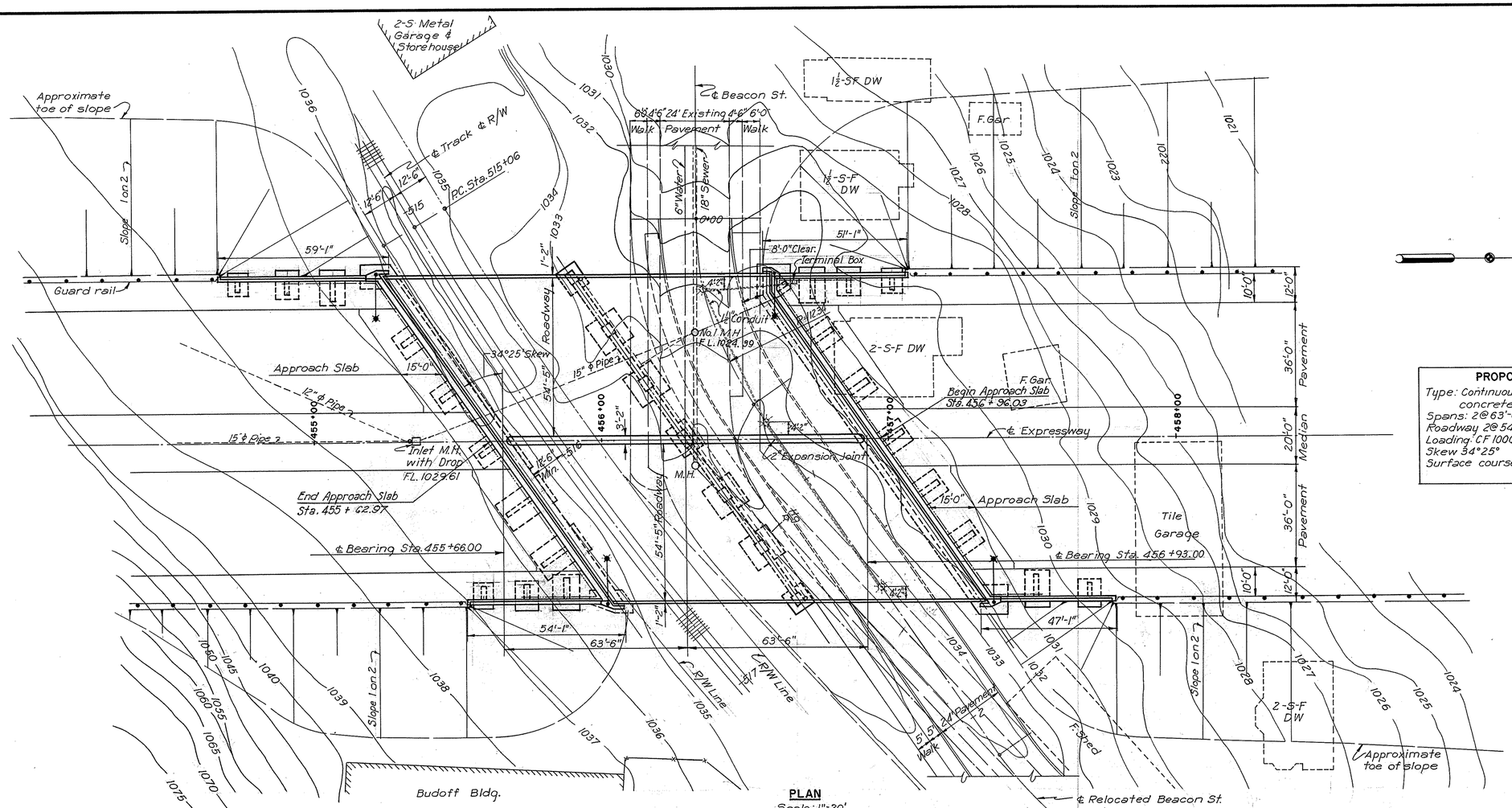
846-U SHEET. 105

516

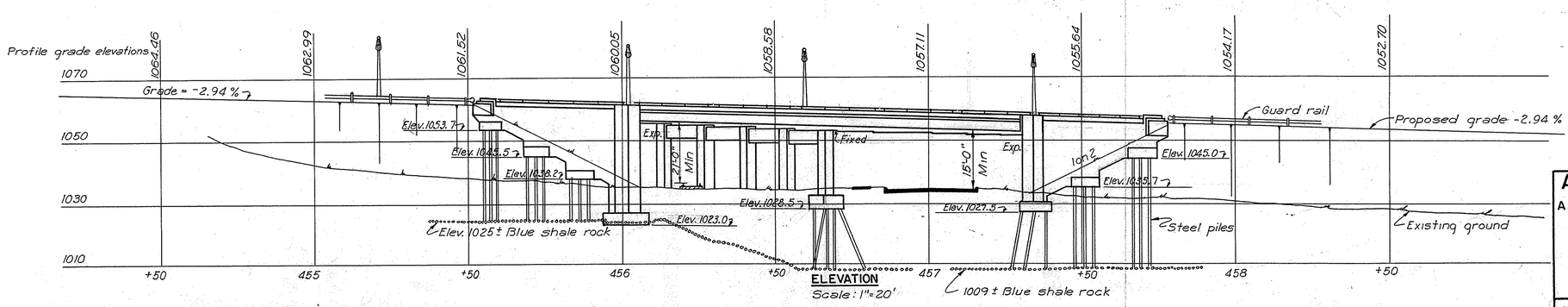
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

106
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-5-10.95



PLAN
Scale: 1"=20'



ELEVATION
Scale: 1"=20'

PROPOSED STRUCTURE
Type: Continuous steel beam with concrete deck and substructure
Spans: 2@63'-6"
Roadway 2@54'-5"
Loading: CF 1000
Skew 34°25"
Surface course: 2½" asphaltic concrete surface course

AKRON EXPRESSWAY SYSTEM
A.& B.B.R.R. AND BEACON STREET OVERPASS
BR. NO. SU 5 110

SITE PLAN

AKRON SUMMIT COUNTY, OHIO

SCALE 1"=20"
MADE JSM DATE 9-29-52
TRCD JHG DATE 11-24-52
CKD FBJ DATE 12-12-52

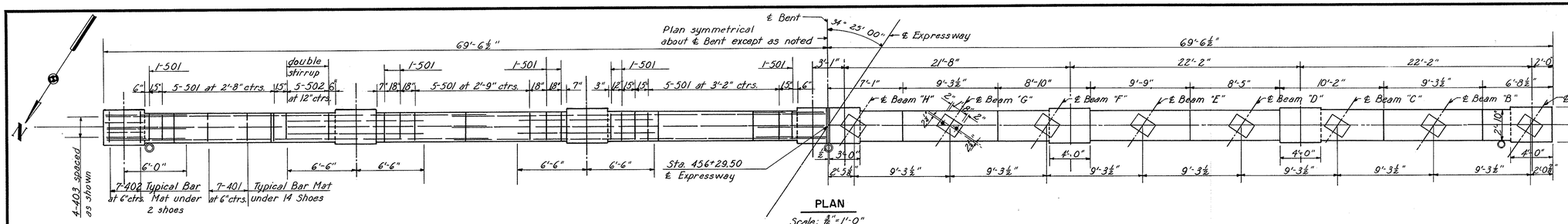
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 U SHEET- 106

505

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

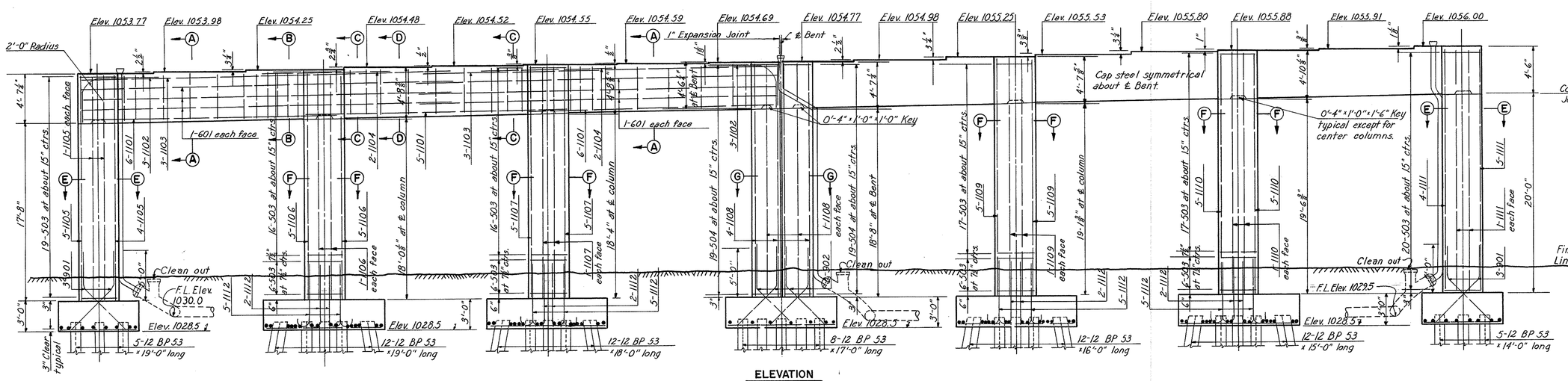
107
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY — PART 5
SUM-5-10.95



PLAN
Scale: 1/16" = 1'-0"

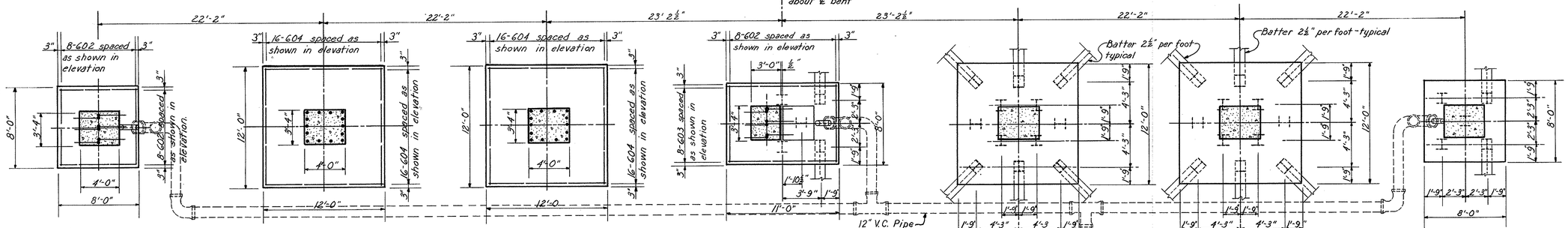
Note:
Special care shall be taken in placing reinforcing steel so that it will not interfere with anchor bolt holes.



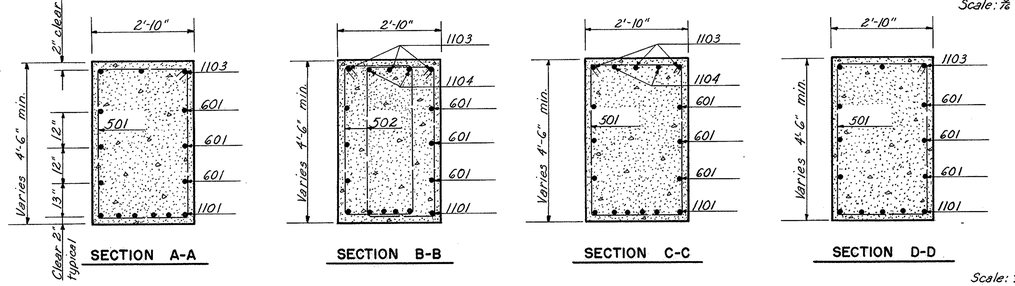
ELEVATION
Scale: 1/16" = 1'-0"

END VIEW
Scale: 1/16" = 1'-0"

Footing Plan symmetrical about ℄ Bent



FOOTING PLAN
Scale: 1/16" = 1'-0"



Scale: ½" = 1'-0"

AKRON EXPRESSWAY SYSTEM
A. & B.B.R.R. AND BEACON STREET OVERPASS
BR. NO. SU-5-110
CENTER BENT
AKRON SUMMIT COUNTY, OHIO

SCALE 3/16" & 1/2" = 1'-0"
MADE T.K.C. DATE 11-1-52
TRCD NAM DATE 11-24-52
CKD E.O.J. DATE 11-4-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET 107

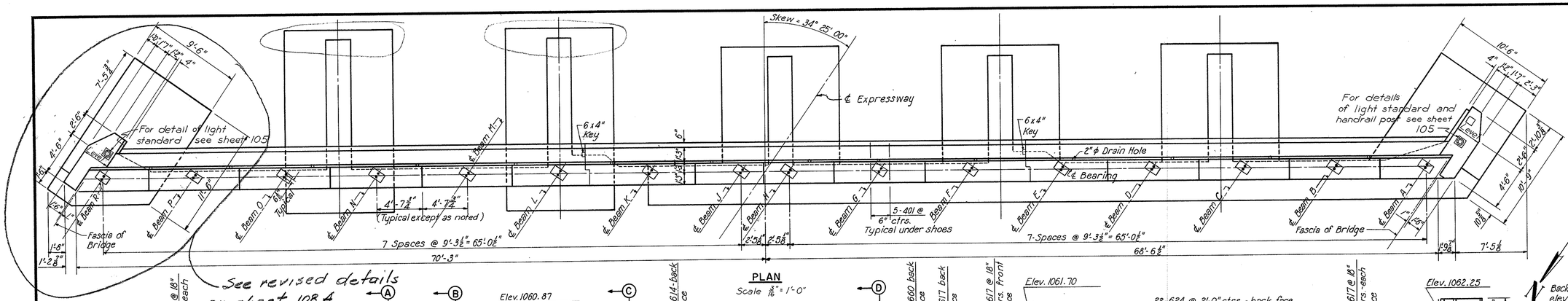
506

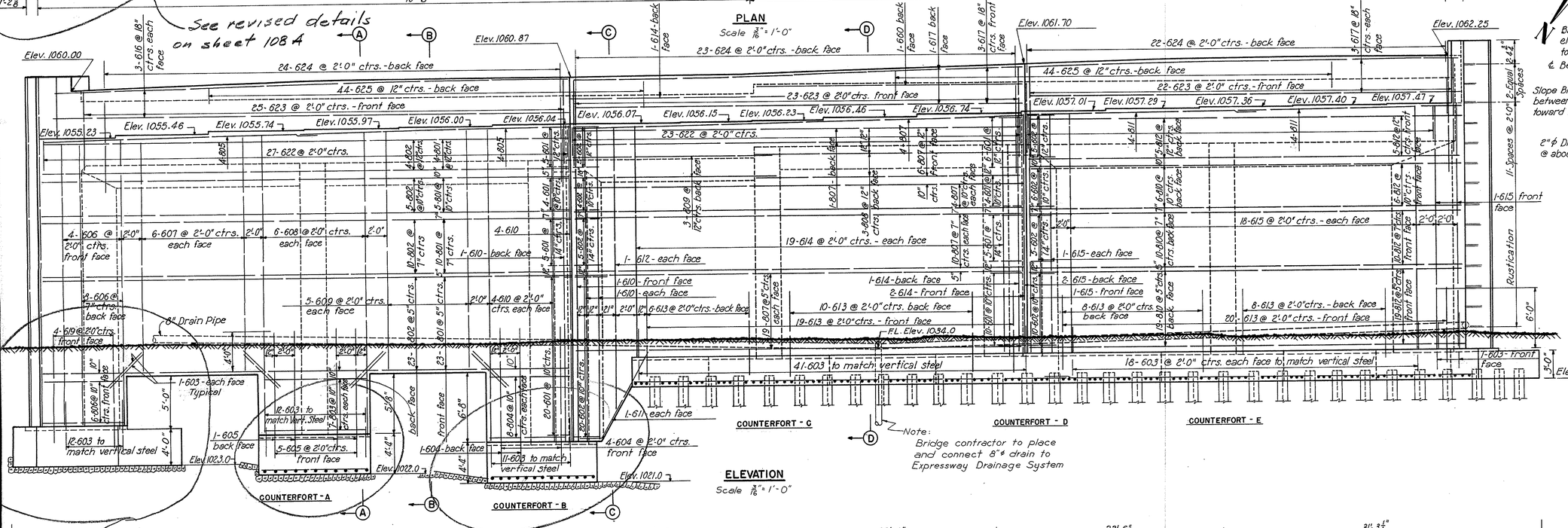
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

108
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART - 5
SUM - 5 - 10.95





PENCIL REVISIONS 3-1-54

AKRON EXPRESSWAY SYSTEM

A. & B.B.R.R. AND BEACON STREET OVERPASS

BR. NO. SU-5-110

SOUTH ABUTMENT

AKRON SUMMIT COUNTY, OHIO

SCALE 1/8" = 1'-0"
MADE EBJ DATE 11-13-52
TRCD NAH&H DATE 12-9-52
CKD RFS DATE 11-24-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

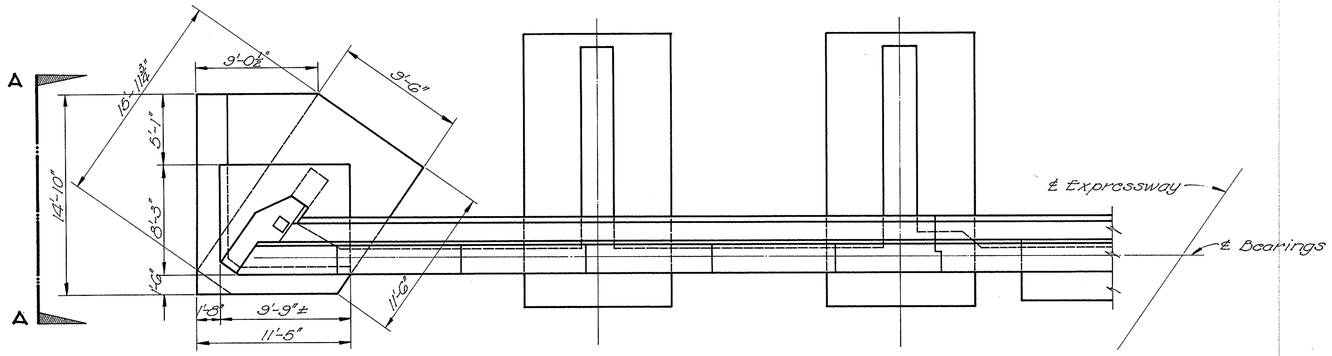
846-U SHEET 108

507

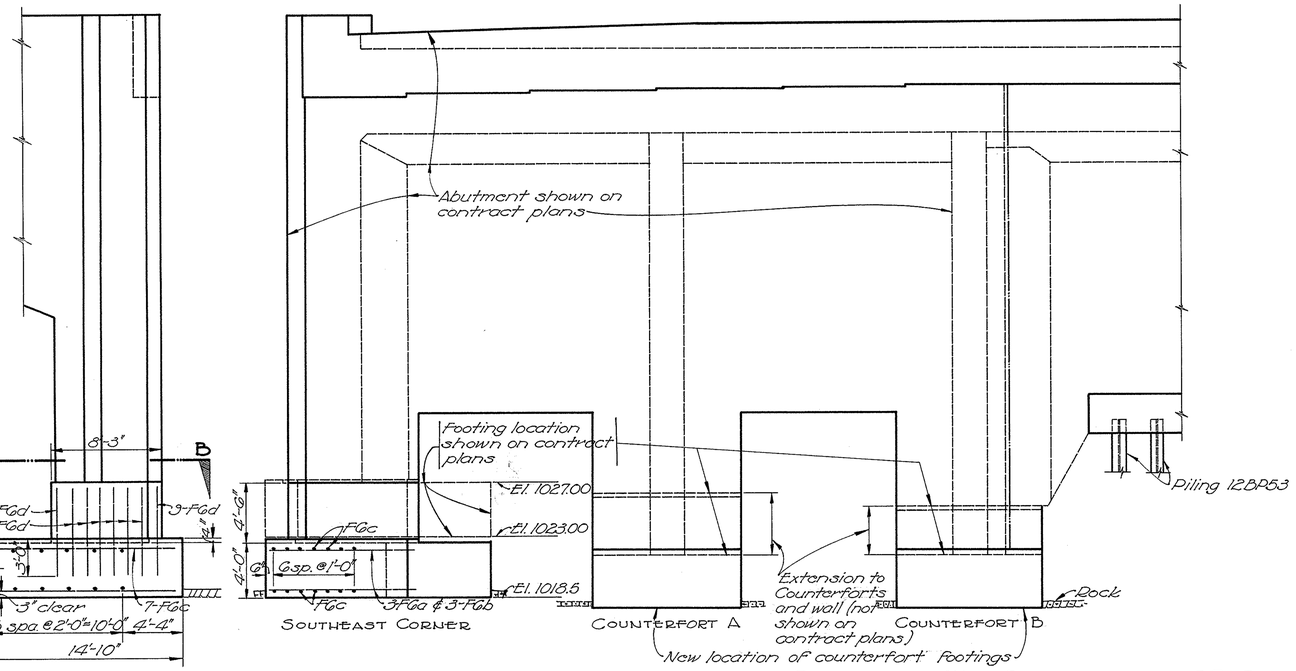
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	U-687(9)	Post War

108A
172

SUMMIT COUNTY
SUM-5-10.95
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART-5

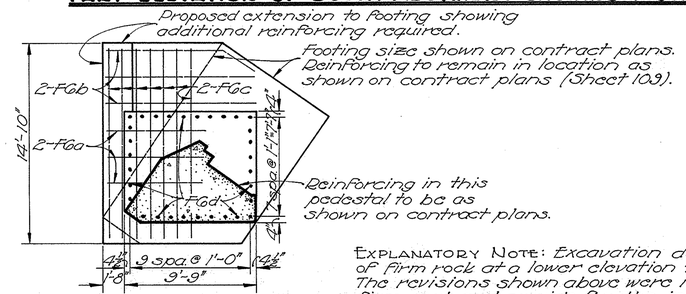


PART PLAN OF SOUTH ABUTMENT SHOWING SOUTHEAST CORNER



VIEW A-A

PART ELEVATION OF SOUTH ABUTMENT SHOWING FOOTING AND WALL EXTENSIONS AT S.E. CORNER



SECTION B-B

REINFORCING STEEL FOR S.E. CORNER EXTENSION					
Mark	Size	No.	Length	Weight	Shape
F6a	⅜"ϕ	6	7'-0"	63	St.
F6b	⅜"ϕ	6	11'-0"	99	St.
F6c	⅜"ϕ	14	14'-6"	305	St.
F6d	⅜"ϕ	31	7'-3"	337	St.

EXPLANATORY NOTE: Excavation during construction uncovered top of firm rock at a lower elevation than shown on the contract plans. The revisions shown above were necessary to found footings in firm rock and provide for the increased overturning forces.

NOTE:
This sheet is to be used in conjunction with Sheets No. 108, 109, 113 and 118 of the contract plans.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES AND RAILROAD CROSSINGS

AKRON EXPRESSWAY SYSTEM
A & BRR AND BEACON STREET OVERPASS

BRIDGE No. SU-5-110

REVISIONS TO SOUTHEAST CORNER OF SOUTH ABUTMENT
AKRON, SUMMIT COUNTY, OHIO

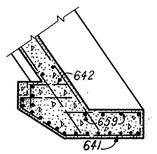
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
KED	KED	F.E.V.	[illegible]	[illegible]	3-1-54 3-31-54	

DIETZGEN CO. PRINTED ON NO. 120 IMPERIAL TRACING CLOTH FORM NO. 53 B

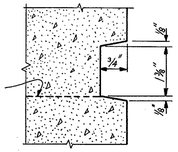
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

109
172

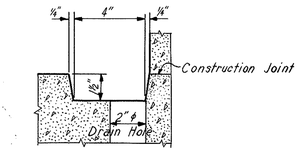
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95



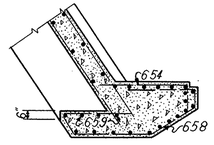
SECTION E-E
Scale ¼"=1'-0"



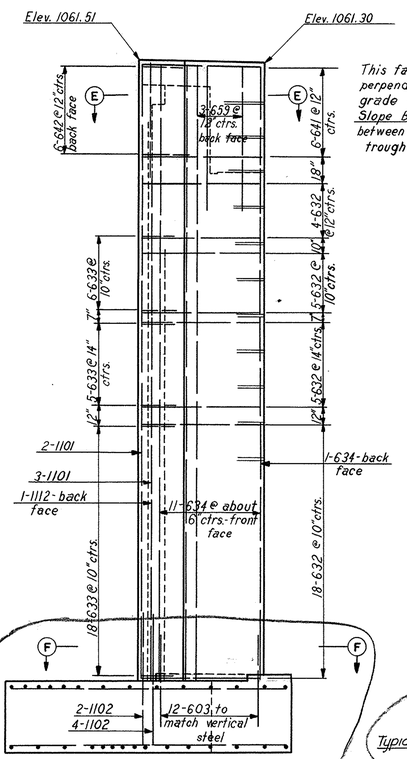
RUSTICATION DETAIL
Scale 6"=1'-0"



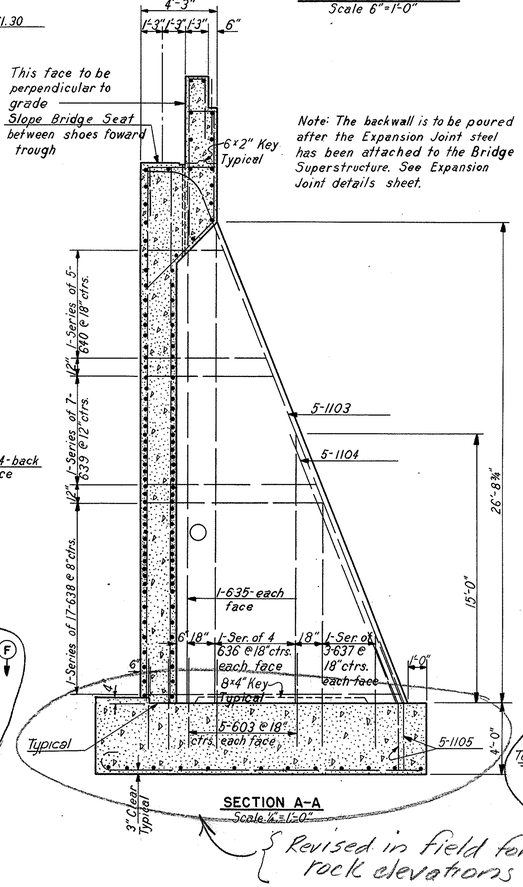
DRAIN HOLE DETAIL
Scale 3"=1'-0"



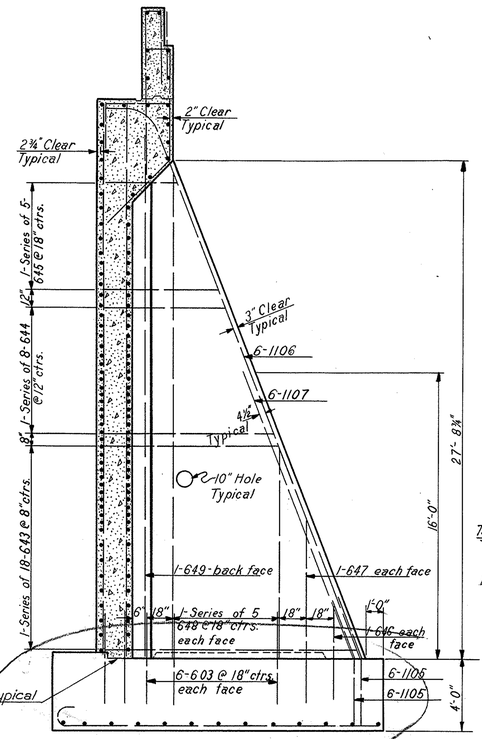
SECTION G-G
Scale ¼"=1'-0"



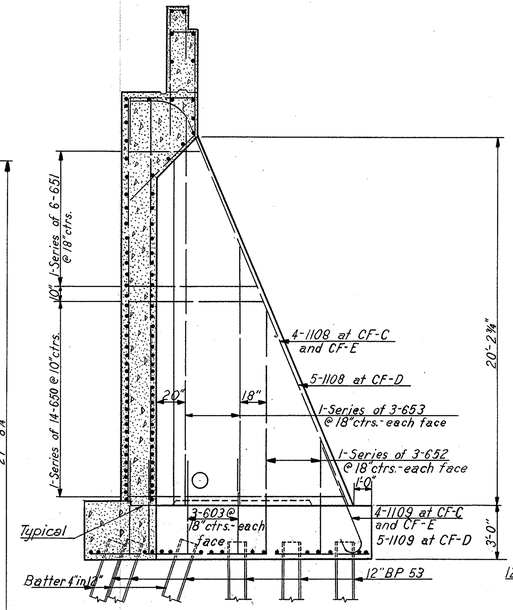
EAST END ELEVATION
Scale ¼"=1'-0"



SECTION A-A
Scale ¼"=1'-0"

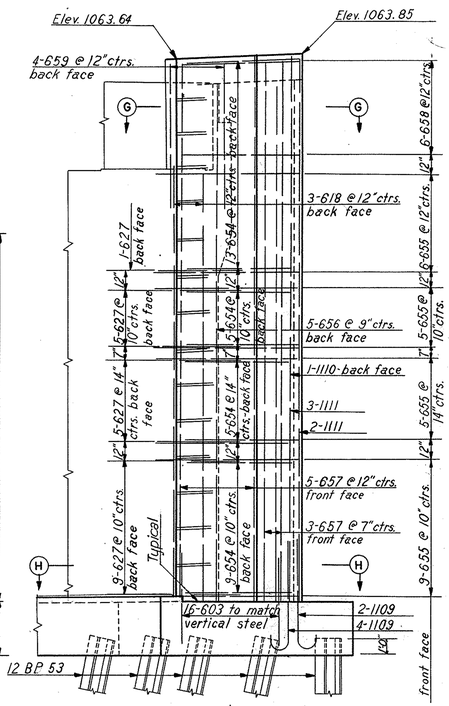


SECTION C-C
Scale ¼"=1'-0"

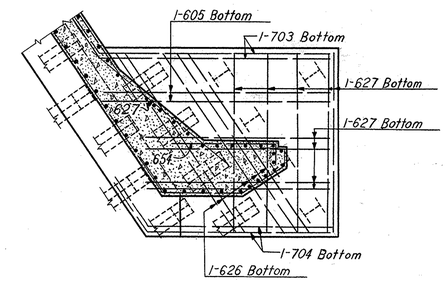


SECTION D-D
Scale ¼"=1'-0"

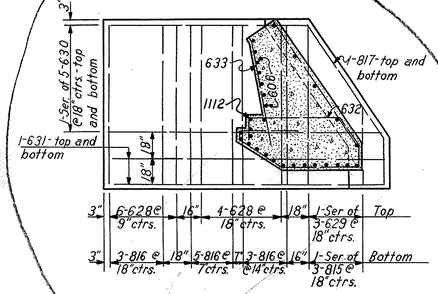
Note: Section D-D is typical for Counterforts C,D and E except as noted.



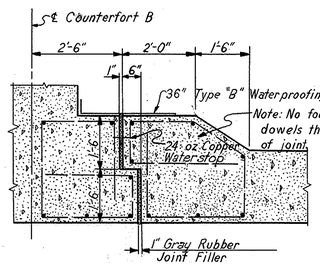
WEST END ELEVATION
Scale ¼"=1'-0"



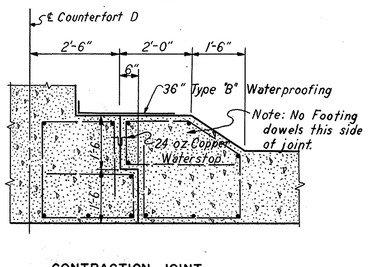
SECTION H-H
Scale: ¼"=1'-0"



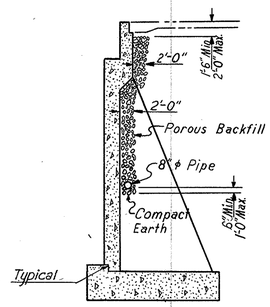
SECTION F-F
Scale ¼"=1'-0"



EXPANSION JOINT
Scale ½"=1'-0"



CONTRACTION JOINT
Scale ½"=1'-0"



ABUTMENT POROUS BACKFILL
No Scale

{ Revised in field for lower rock elevations }

See Sheet 108A for revised details

PENCIL REVISIONS 3-1-54

AKRON EXPRESSWAY SYSTEM

A. & B.B.R.R. AND BEACON STREET OVERPASS

BR. NO. SU-5-110

SOUTH ABUTMENT

AKRON SUMMIT COUNTY, OHIO

SCALE 1"=2", 3", & 6"=1'-0"
MADE E.R.J. DATE 11-18-52
TRCD E.N. DATE 12-8-52
CKD R.F.S. DATE 11-22-52

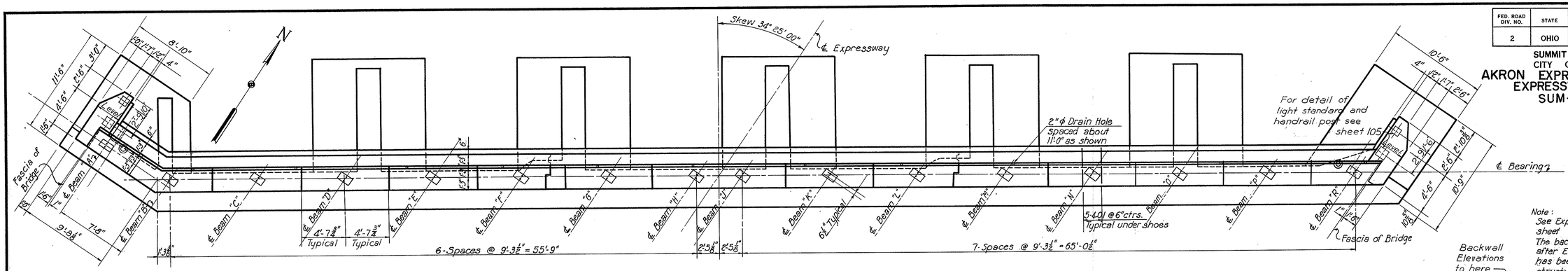
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

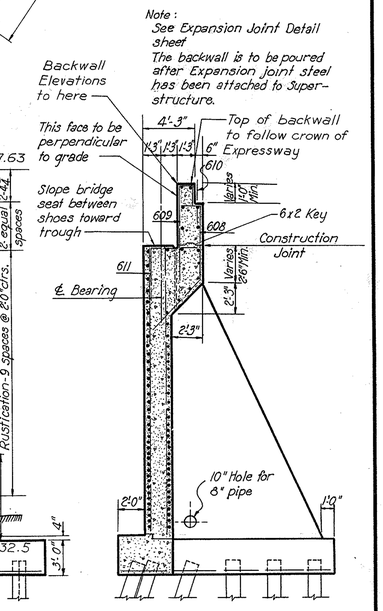
846-U SHEET- 109

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

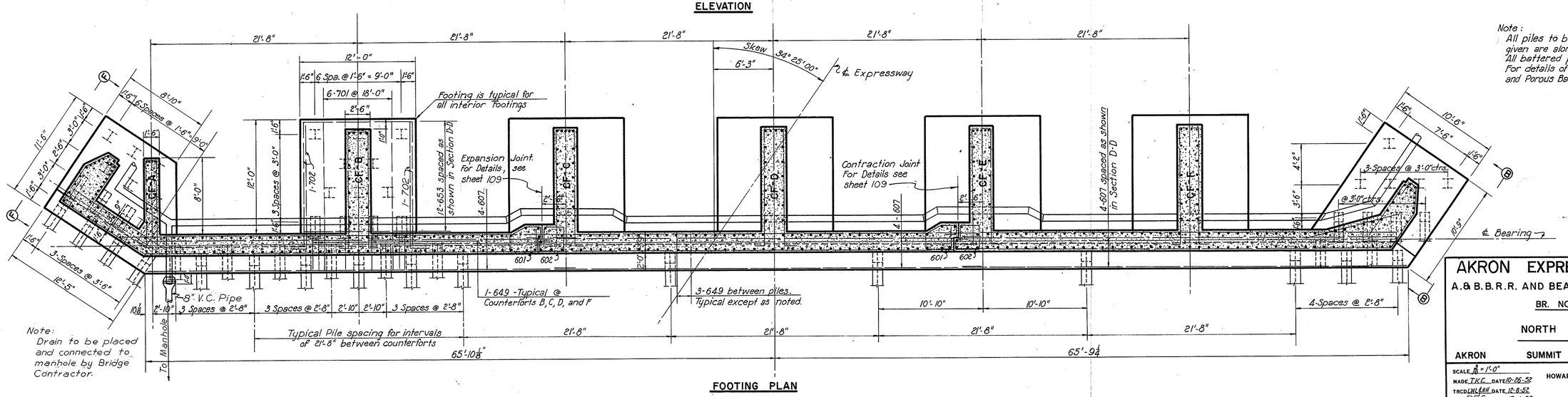
110
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95





Note:
See Expansion Joint Detail sheet
The backwall is to be poured after Expansion joint steel has been attached to Superstructure.



Note:
All piles to be 12 BP 53. Pile spacing given are along bottom of footing.
All battered piles to be battered 4 in 12.
For details of Drain Holes, Rustication, and Porous Backfill see sheet 109.

AKRON EXPRESSWAY SYSTEM
A. & B. B. R. R. AND BEACON STREET OVERPASS
BR. NO. SU-5-110
NORTH ABUTMENT
AKRON SUMMIT COUNTY, OHIO

SCALE 1/8" = 1'-0"
MADE TKC DATE 10-26-52
TRCD LWL&RH DATE 12-8-52
CKD RFS DATE 12-1-52

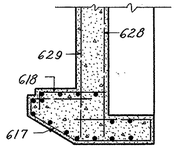
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846-U SHEET- 110

509

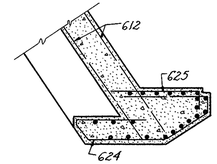
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

111
172

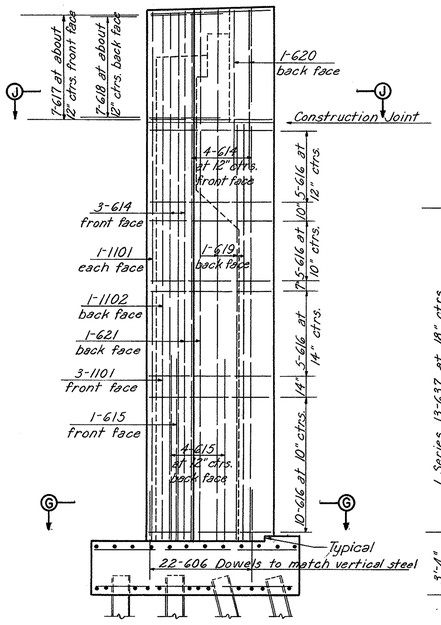
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY – PART 5
SUM-5-10.95



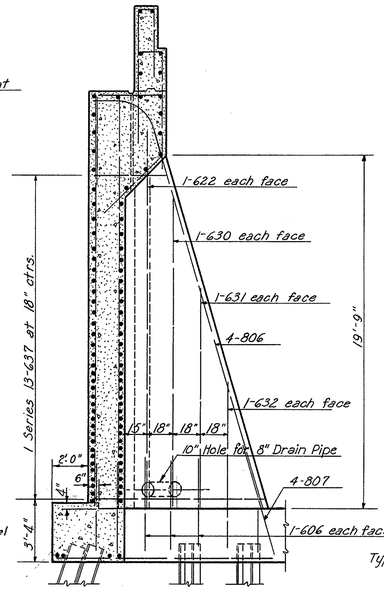
SECTION J-J



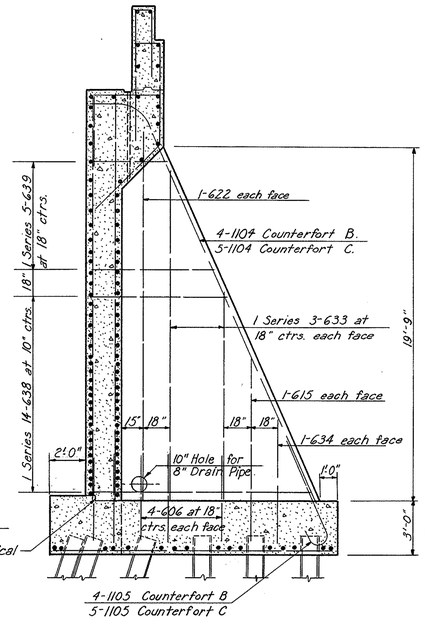
SECTION I-I



END VIEW F-F

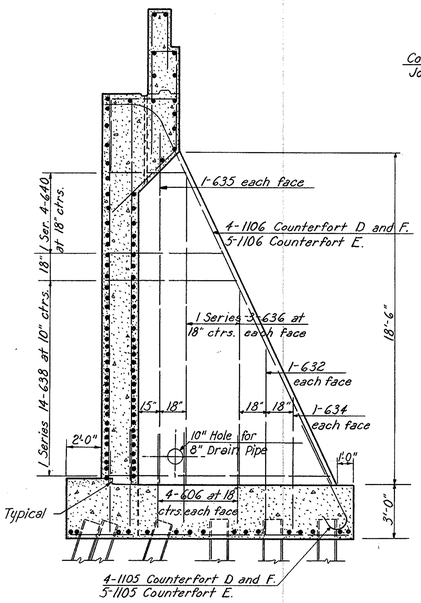


SECTION E-E



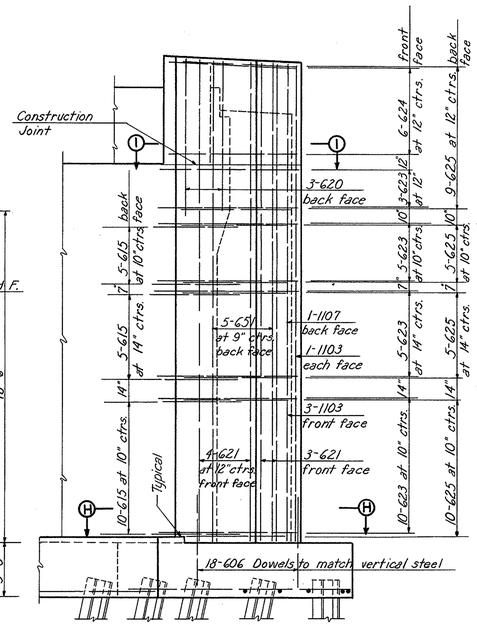
SECTION D-D

Typical for Counterforts B and C except as noted.

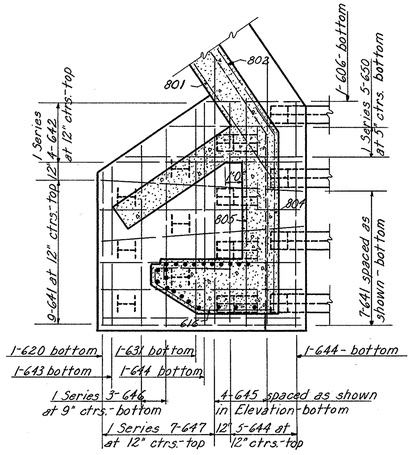


SECTION C-C

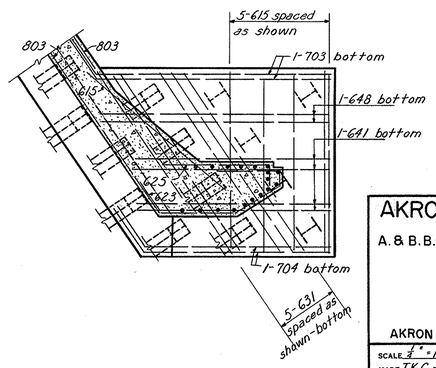
Typical for Counterforts D, E, and F except as noted.



END VIEW B-B



SECTION G-G



SECTION H-H

AKRON EXPRESSWAY SYSTEM

A. & B.B.R.R. AND BEACON STREET OVERPASS

BR. NO. SU-5-110

NORTH ABUTMENT

AKRON SUMMIT COUNTY, OHIO

SCALE 3/8"=1'-0"
MADE TK.C. DATE 11-25-52
TRCD NAM DATE 12-8-52
CKD R.F.S. DATE 12-15-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

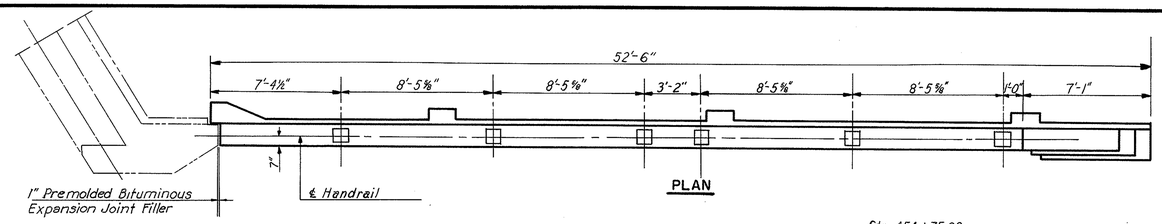
846-U SHEET- 111

510

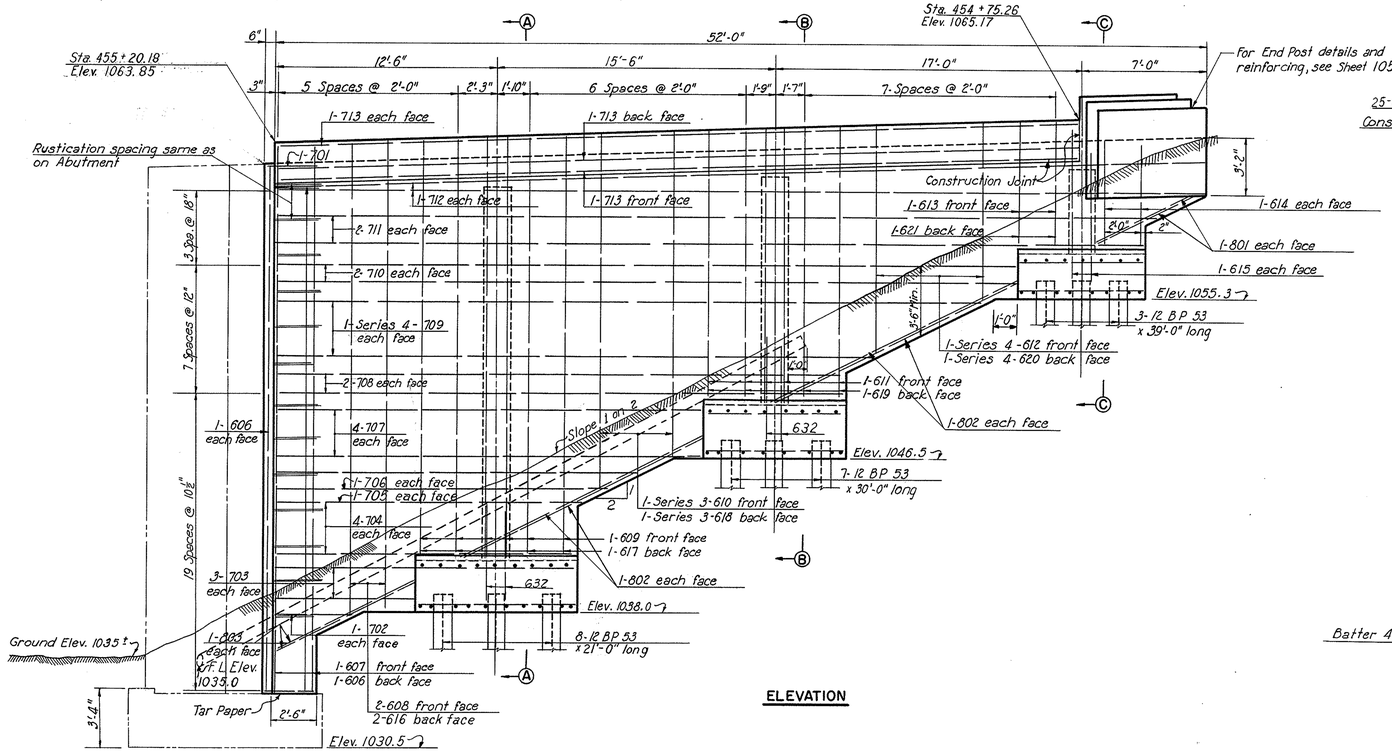
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

112 / 172

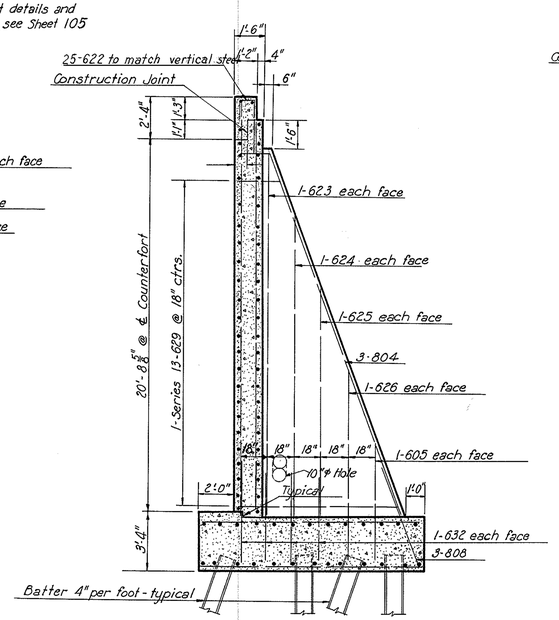
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95



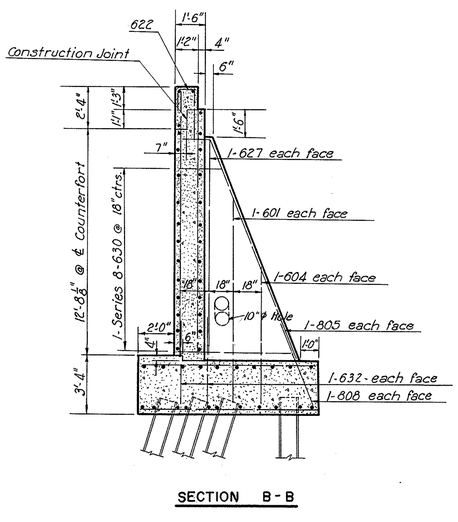
PLAN



ELEVATION



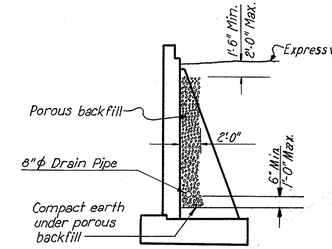
SECTION A - A



SECTION B - B

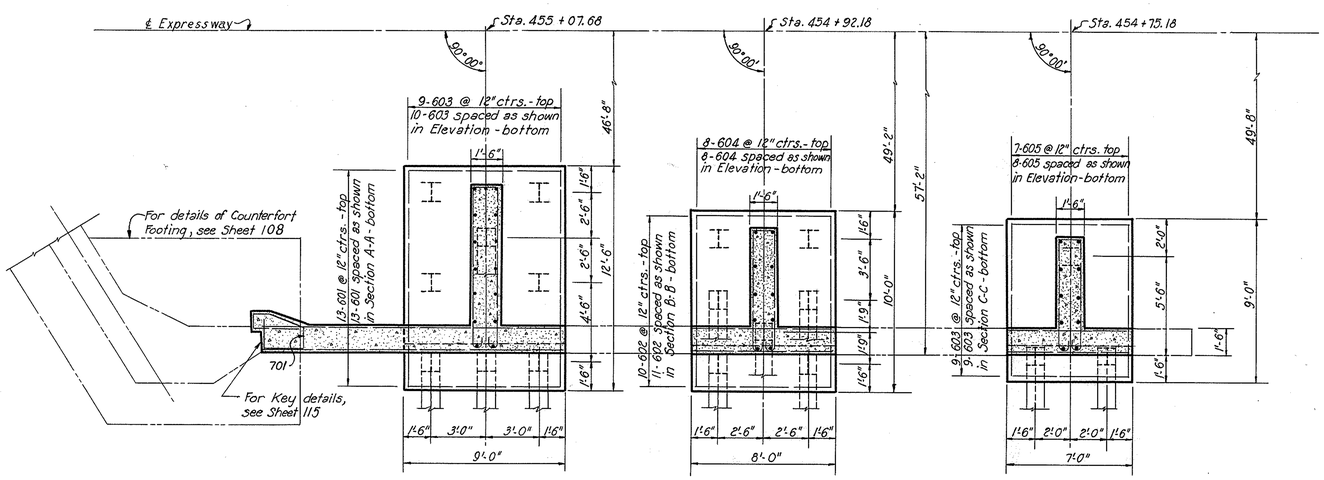
SECTION C - C

Note : All piles to be 12 BP.53. Pile spacing is given at bottom of footing. All battered piles to be 4" in 12".



WINGWALL POROUS BACKFILL

Not to scale



FOOTING PLAN

AKRON EXPRESSWAY SYSTEM

A. & B.B.R.R. AND BEACON STREET OVERPASS

BR. NO. SU-5-110

SOUTHWEST WINGWALL

AKRON SUMMIT COUNTY, OHIO

SCALE 1/2" = 1'-0"
MADE TKE DATE 11-13-52
TRCD LWL FAH DATE 12-5-52
CKD. DLC DATE 12-21-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

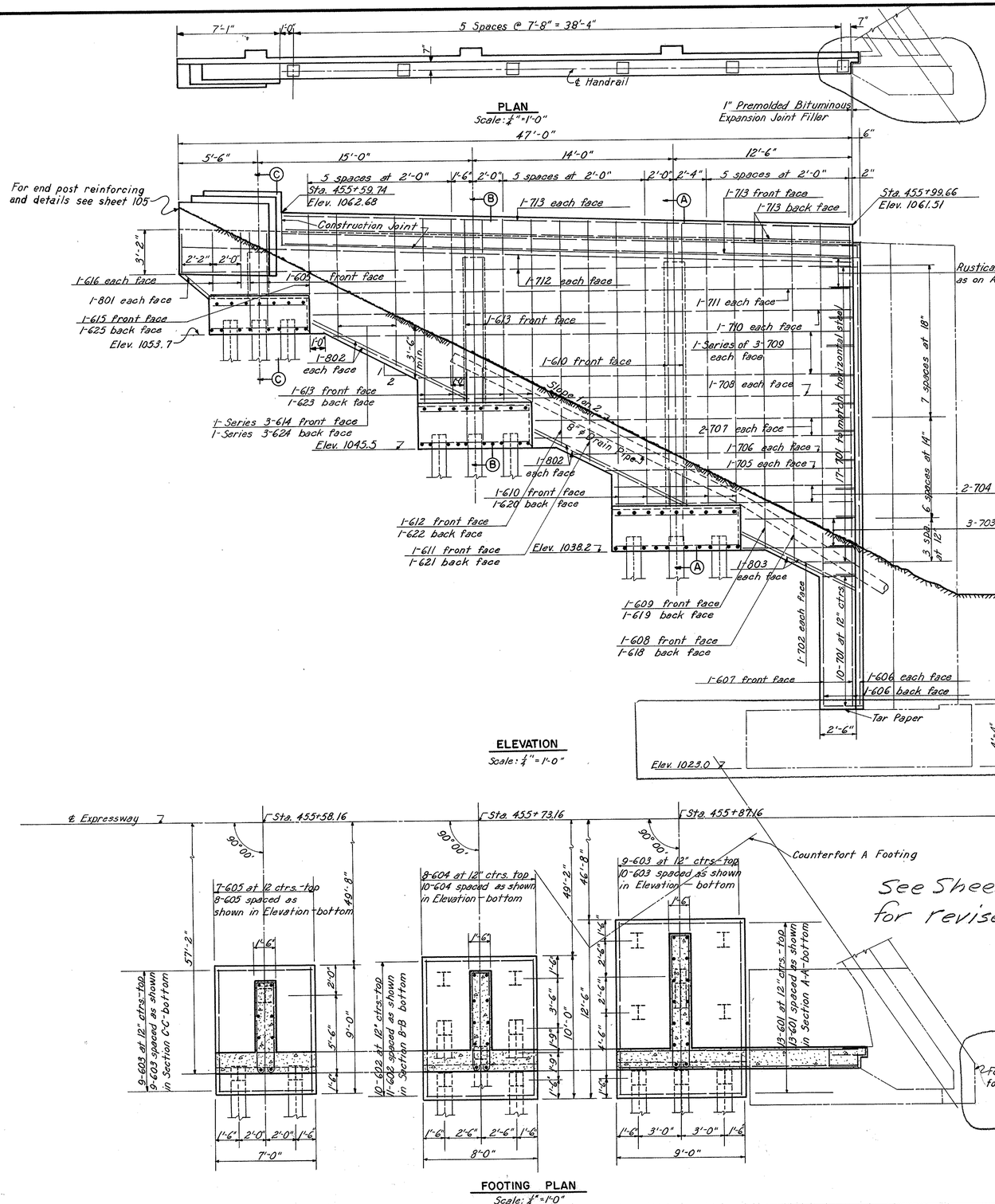
846-U SHEET- 112

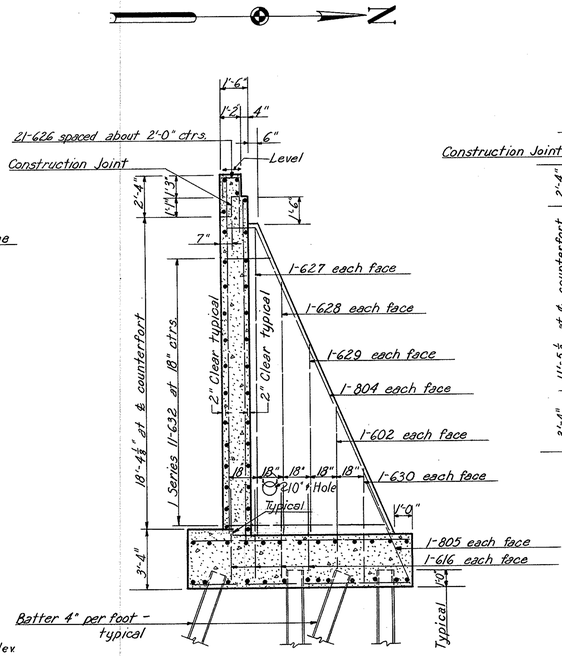
511

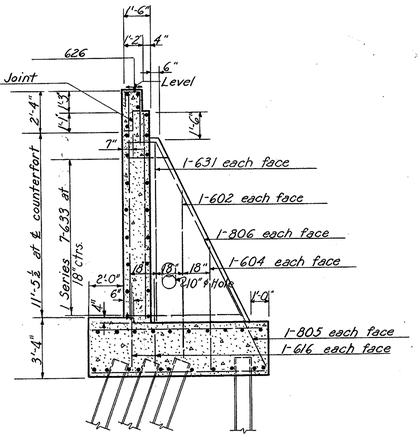
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

113
172

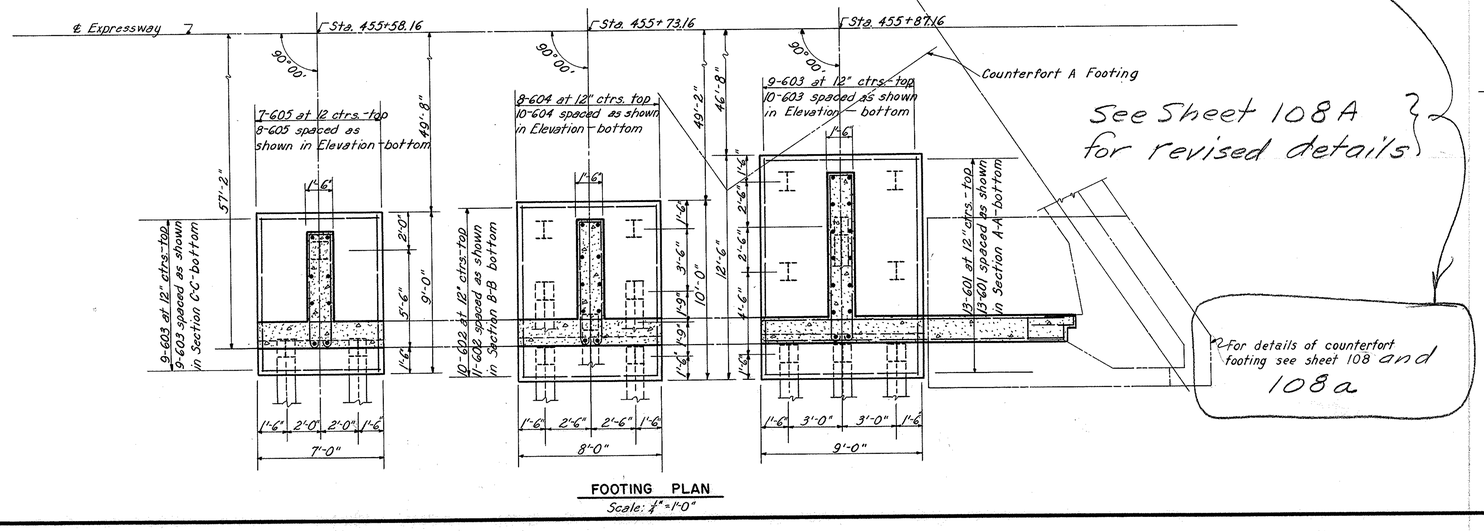
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY — PART 5
SUM-5-10.95

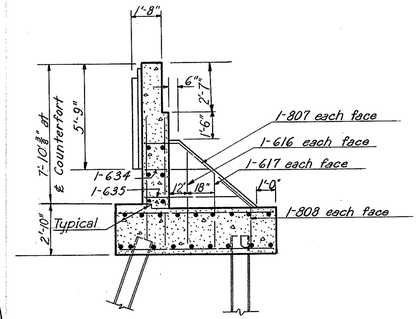


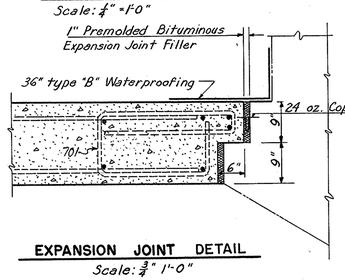




Note: All piles to be 12 BP 53. Pile spacing is given at bottom of footing. All battered piles to battered 4" in 12".
For porous backfill details see sheet 112







PENCIL REVISIONS 3-1-54

AKRON EXPRESSWAY SYSTEM
A. & B. B.R.R. AND BEACON STREET OVERPASS
BR. NO. SU 5-110
SOUTHEAST WINGWALL
AKRON SUMMIT COUNTY, OHIO

SCALE 1/4" & 3/4" = 1'-0"
MADE T.K.C. DATE 11-18-52
TRCD N.A.M. DATE 12-20-52
CKD D.L.C. DATE 11-20-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

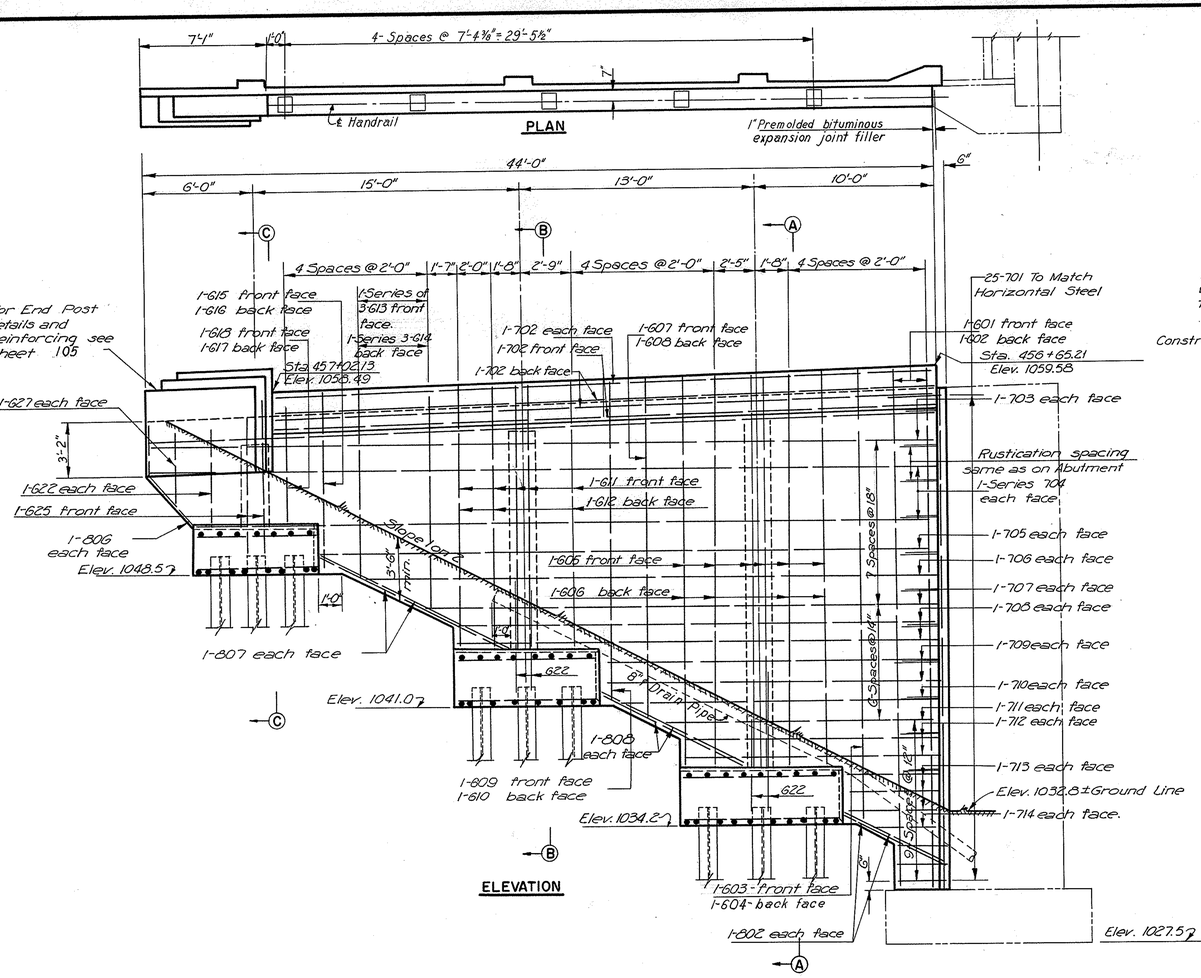
846-U SHEET 113

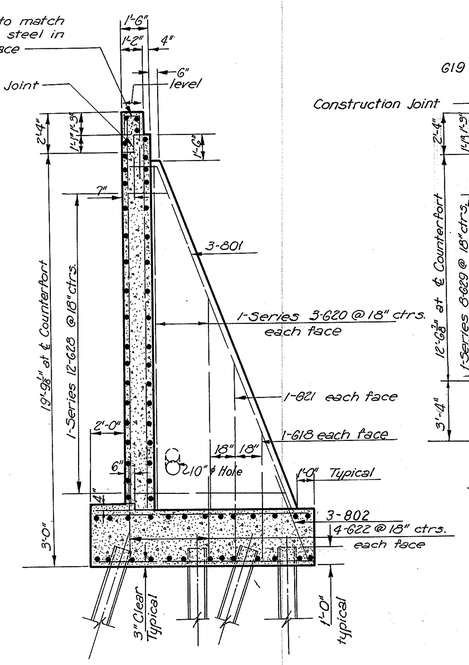
512

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

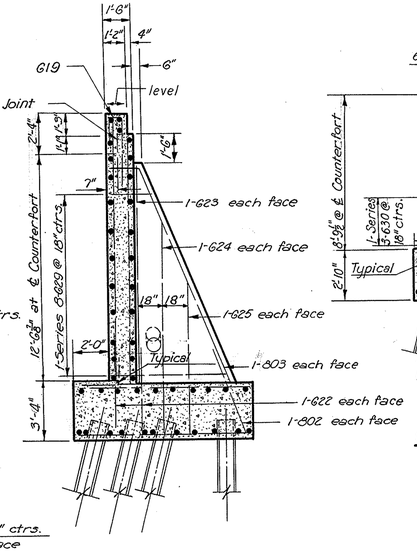
114
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

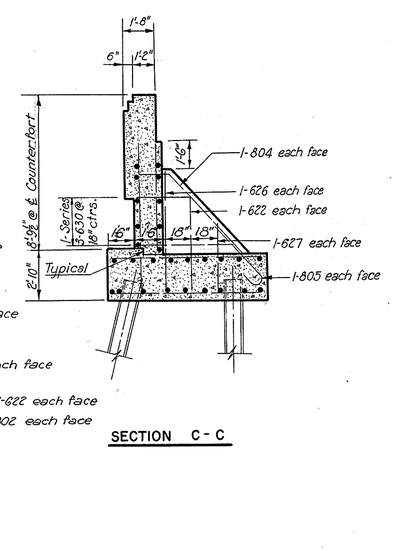




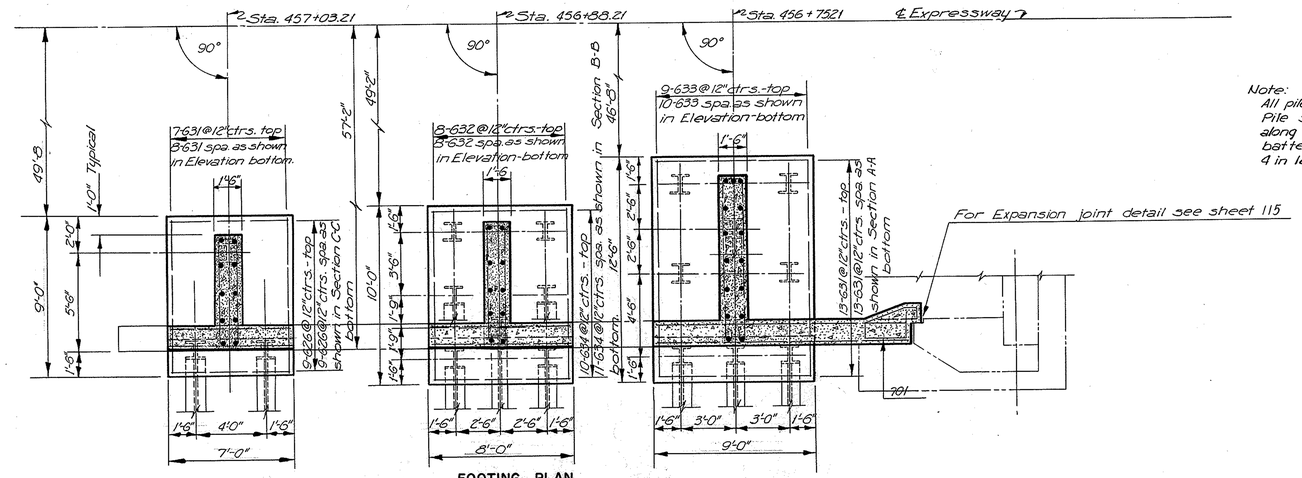
SECTION A - A



SECTION B - B



SECTION C - C



FOOTING PLAN

Note:
All piles to be 12 BP 53.
Pile spacing given is measured along bottom of footing. All battered piles are battered 4 in 12.

AKRON EXPRESSWAY SYSTEM
A. & B. B. R. R. AND BEACON STREET OVERPASS
BR. NO. SU-5-110
NORTHWEST WINGWALL
AKRON SUMMIT COUNTY, OHIO

SCALE 1/4" = 1'-0"
MADE JHG DATE 11-18-52
TRCD GC DATE 12-9-52
CKD TRC DATE 12-9-52

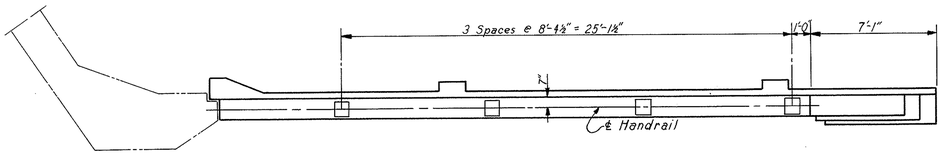
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET 114

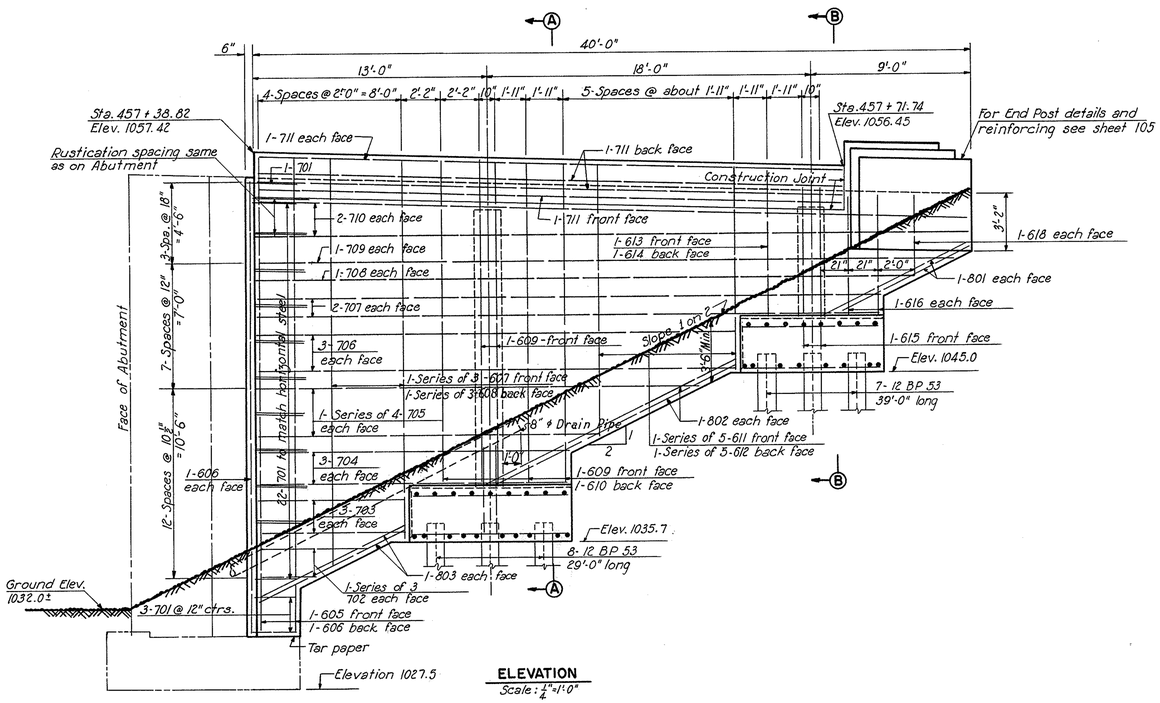
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

115
172

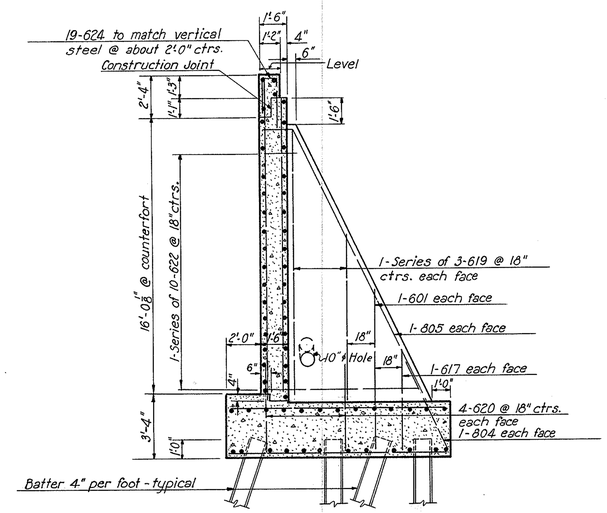
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY—PART 5
SUM-5-10.95



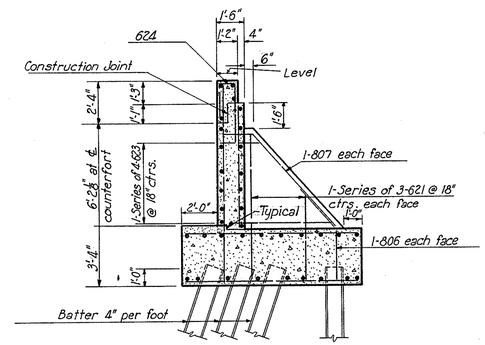
PLAN
Scale $\frac{1}{4}$"=1'-0"



ELEVATION
Scale: $\frac{1}{4}$"=1'-0"

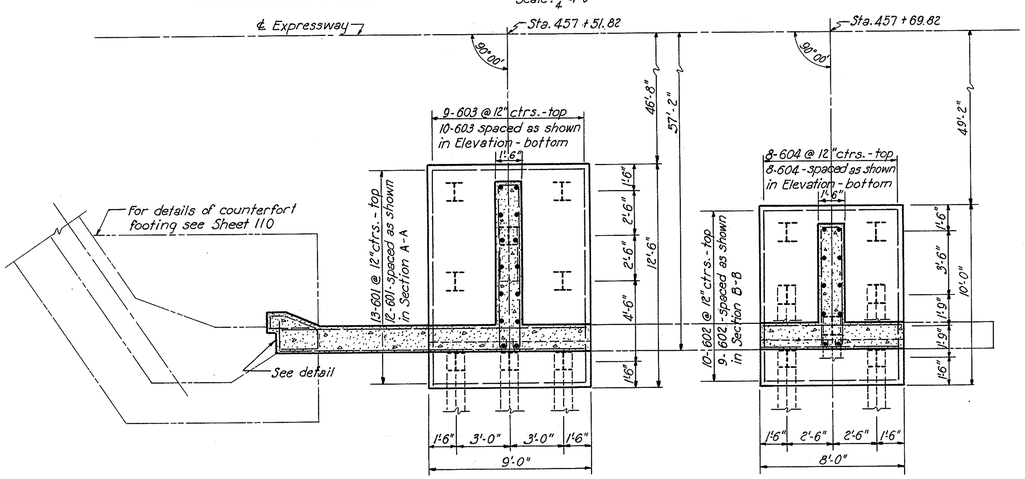


SECTION A-A
Scale: $\frac{1}{4}$"=1'-0"

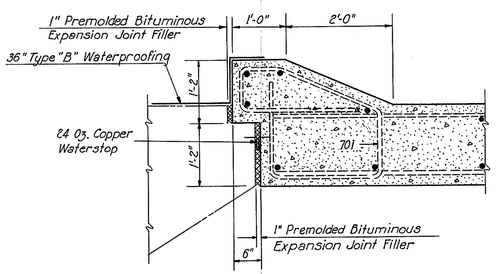


SECTION B-B
Scale: $\frac{1}{4}$"=1'-0"

Note: All piles to be 12" B.P.53. Pile spacing is given at bottom of footing. All battered piles to be battered 4" in 12".
For porous backfill details see sheet 112



FOOTING PLAN
Scale: $\frac{1}{4}$"=1'-0"



EXPANSION JOINT DETAIL
Scale: $\frac{3}{4}$"=1'-0"

AKRON EXPRESSWAY SYSTEM
A.&B.B.R.R. AND BEACON STREET OVERPASS
BR. NO. SU 5-110
NORTHEAST WINGWALL
AKRON SUMMIT COUNTY, OHIO

SCALE $\frac{1}{2}$", $\frac{3}{4}$" = 1'-0"
MADE DLC DATE 11-19-52
TRCD HAM FAN DATE 12-4-52
CKD. F.B.J. DATE 12-10-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846-U SHEET: 115

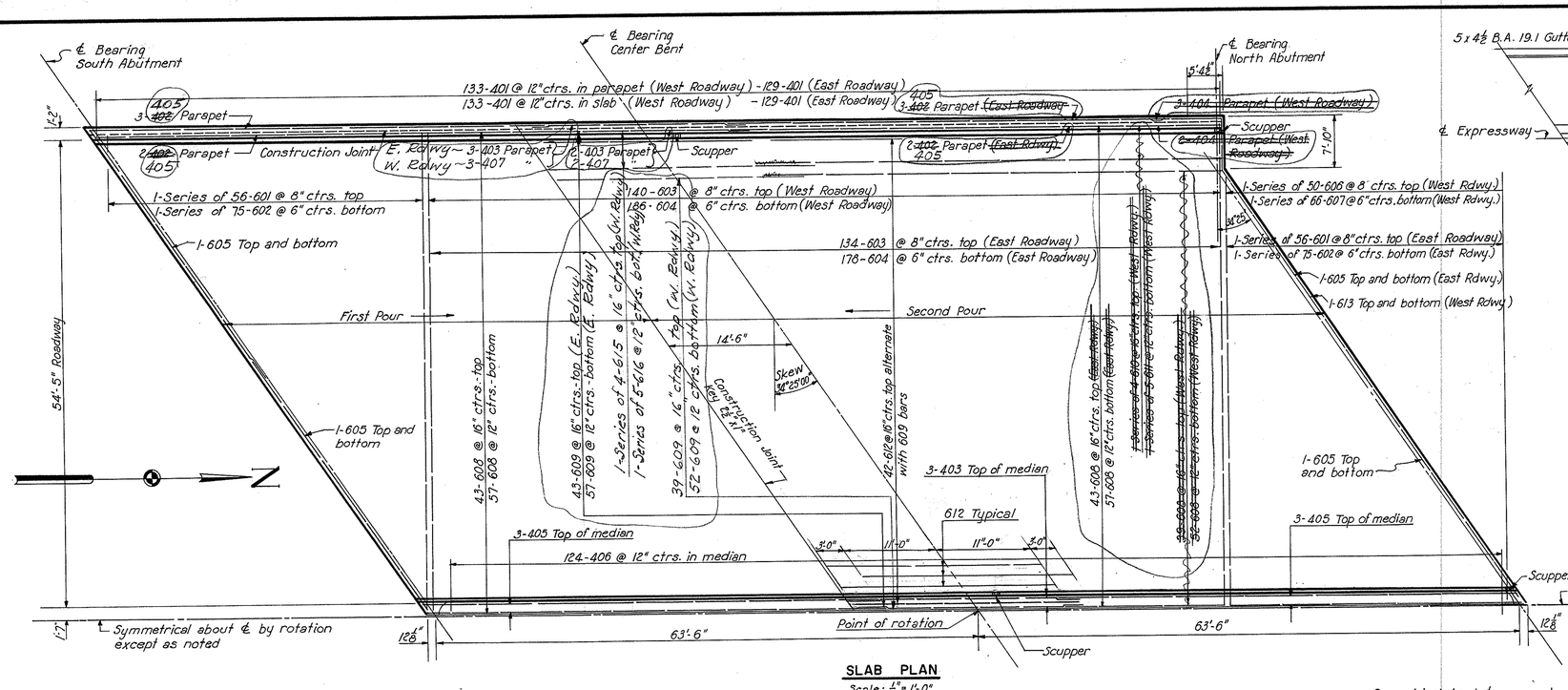
514

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

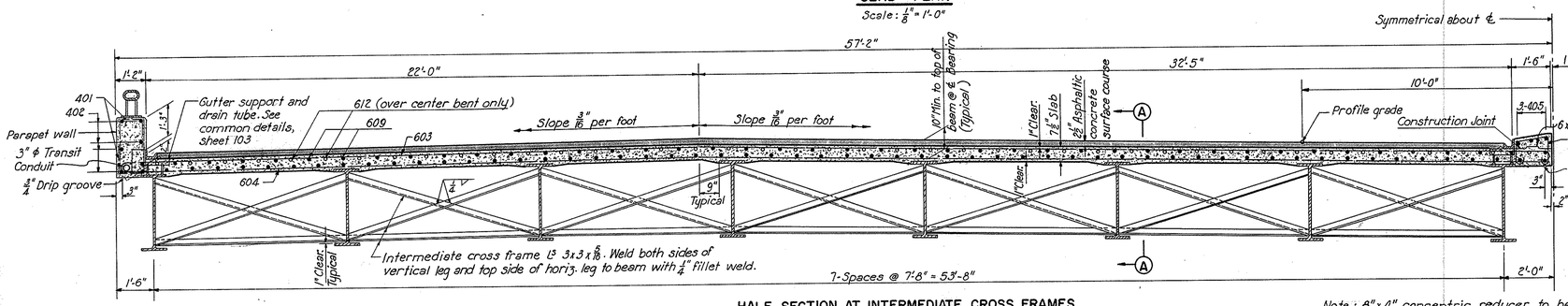
116
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

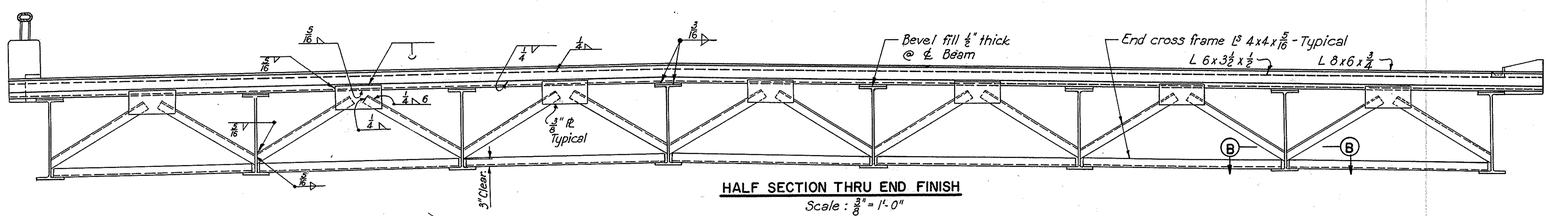


SLAB PLAN
Scale: 1/8" = 1'-0"

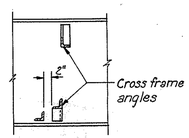


HALF SECTION AT INTERMEDIATE CROSS FRAMES
Scale: ⅜" = 1'-0"

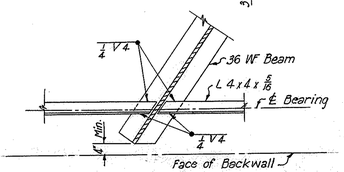
Note: 8" x 4" concentric reducer to be Crane Type Steel Butt-weld Reducer or equal..



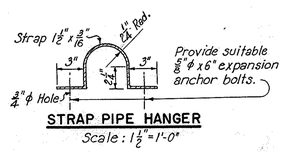
HALF SECTION THRU END FINISH
Scale: ⅜" = 1'-0"



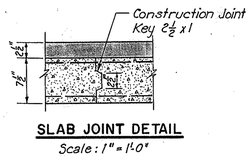
SECTION A-A
Scale: ½" = 1'-0"



SECTION B-B
Scale: 1½" = 1'-0"

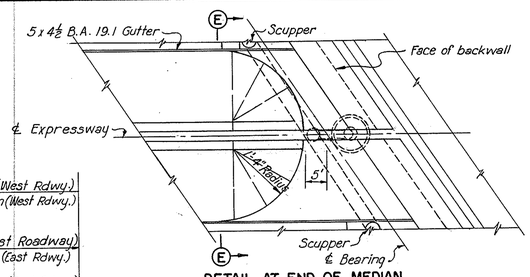


STRAP PIPE HANGER
Scale: 1½" = 1'-0"

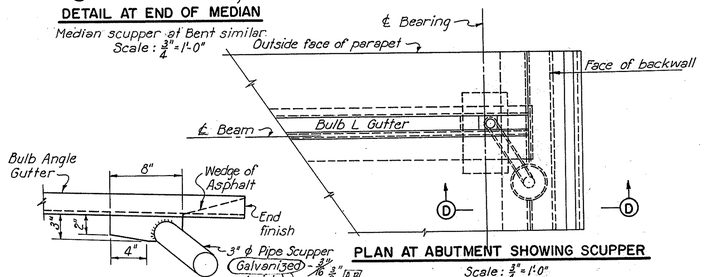


SLAB JOINT DETAIL
Scale: 1" = 1'-0"

PENCIL REVISIONS
9-24-53

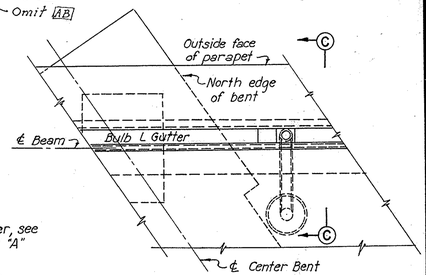


DETAIL AT END OF MEDIAN
Median scupper at Bent similar.
Scale: ¾" = 1'-0"

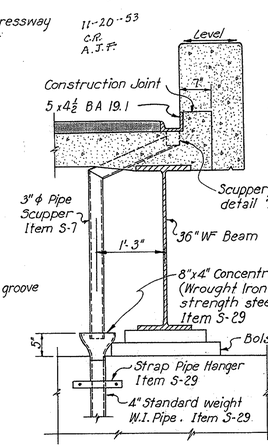


PLAN AT ABUTMENT SHOWING SCUPPER
Scale: ¾" = 1'-0"

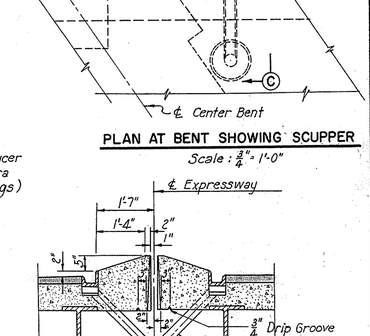
DETAIL "A"
Scale: 1½" = 1'-0"



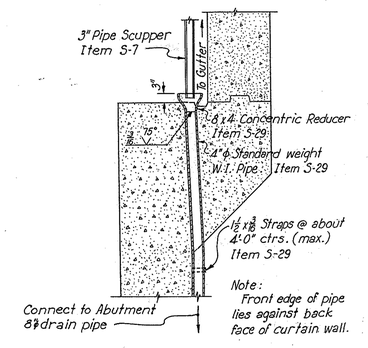
PLAN AT BENT SHOWING SCUPPER
Scale: ¾" = 1'-0"



SECTION C-C
Scale: ¾" = 1'-0"



SECTION E-E
Scale: ½" = 1'-0"
Note: Median drain at Center Bent similar.



SECTION D-D
Scale: ½" = 1'-0"

AKRON EXPRESSWAY SYSTEM
A. & B.B.R.R. AND BEACON STREET OVERPASS
BR. NO. SU-5-110

SLAB PLAN AND CROSS SECTION

AKRON SUMMIT COUNTY, OHIO

SCALE As shown
MADE C.R. DATE 11-4-52
TRCD WMH/AH DATE 12-4-52
CKD R.F.S. DATE 11-29-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET 116

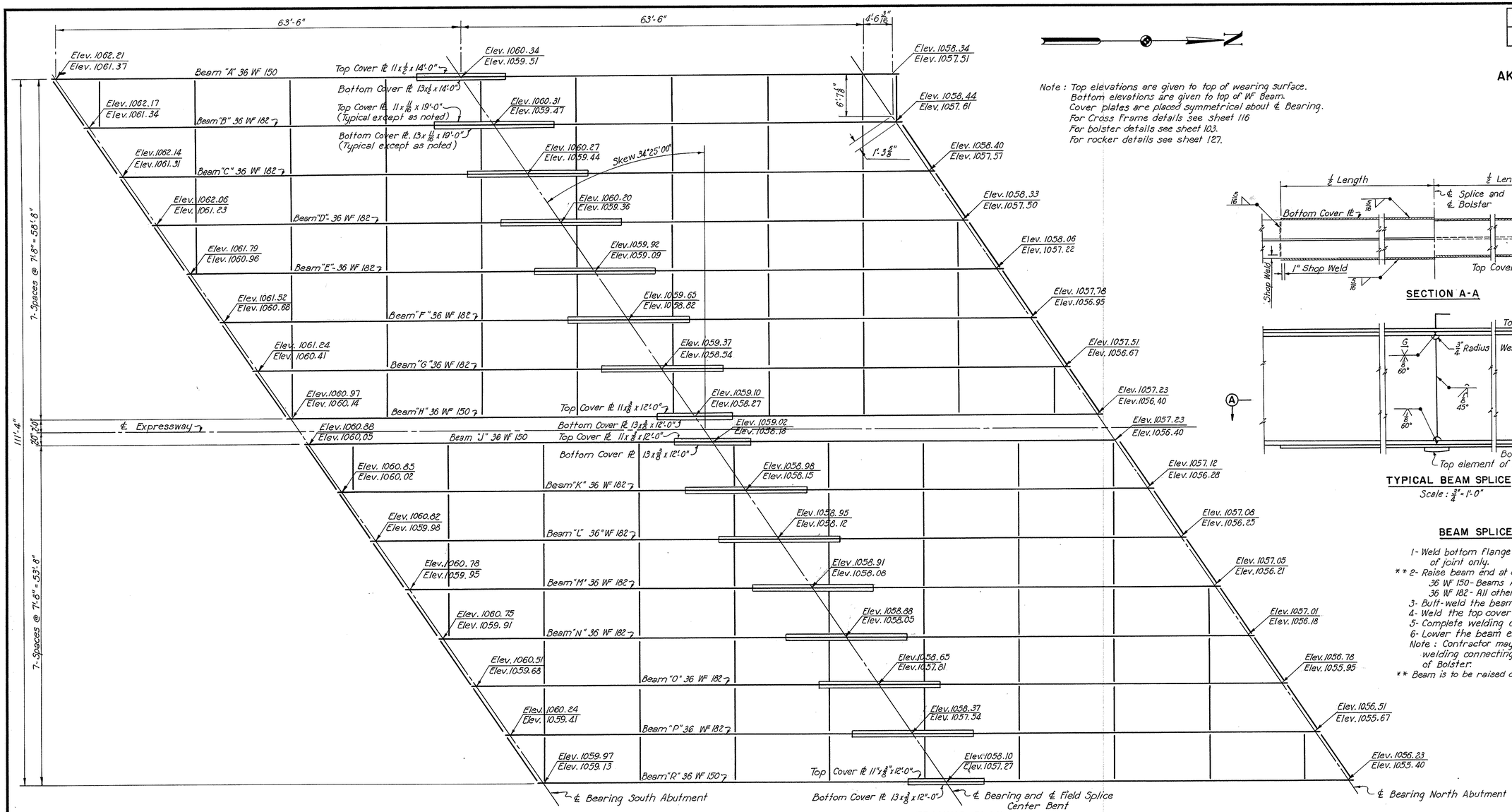
Revised As Built P.G. 6/23/55

515

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-637(9)	POST WAR

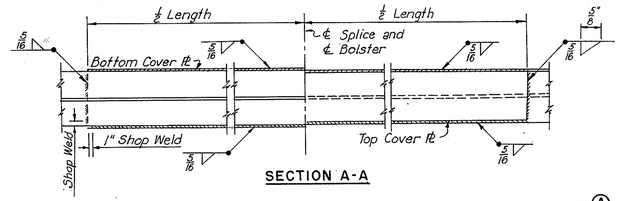
117
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-5-10.95

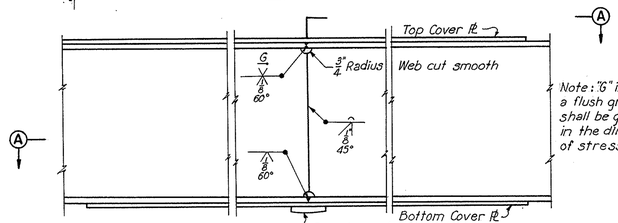


Note : Top elevations are given to top of wearing surface.
Bottom elevations are given to top of WF Beam.
Cover plates are placed symmetrical about ℄ Bearing.
For Cross Frame details see sheet 116
For bolster details see sheet 103.
For rocker details see sheet 127.

FRAMING PLAN



SECTION A-A

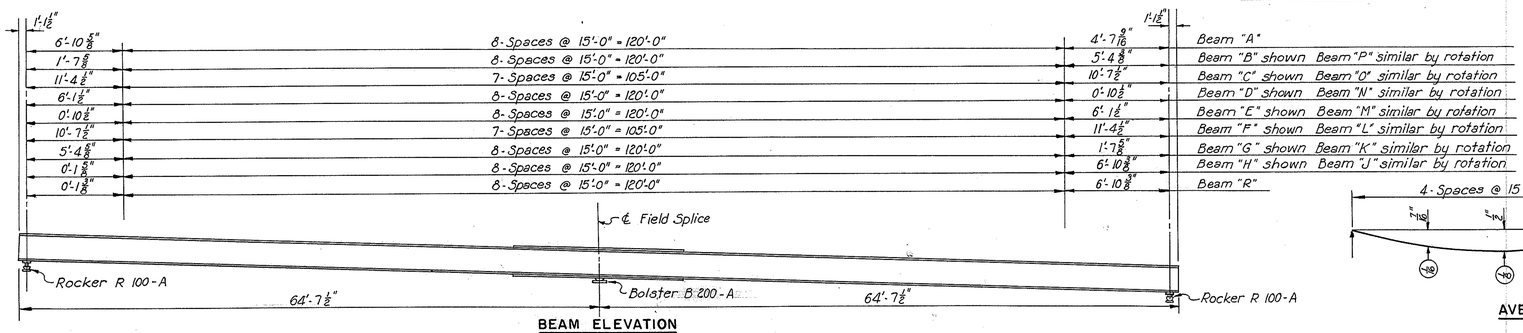


Note: "G" indicates a flush grind. Welds shall be ground in the direction of stress.

TYPICAL BEAM SPLICE
Scale : 3/4" = 1'-0"

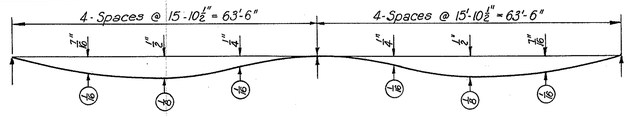
BEAM SPLICE WELDING PROCEDURE

1- Weld bottom flange cover plate to beam on one side of joint only.
** 2- Raise beam end at one abutment the following amount.
36 WF 150 - Beams A. H. J. and R. - 1 1/8 inch.
36 WF 182 - All other beams. - 1 1/8 inch.
3- Butt-weld the beam flanges and web.
4- Weld the top cover plate on each side of joint.
5- Complete welding of bottom cover plate.
6- Lower the beam end to final position.
Note : Contractor may submit alternate scheme for welding connecting lower cover plate and top element of Bolster.
** Beam is to be raised on span opposite the weld in Step 1.



BEAM ELEVATION
Scale : 1/4" = 1'-0"

Note : Dimensions in ◯ are deflections which may be expected in the steel beams when in place.
Dimensions above base line are additional deflections to be expected when concrete is in place.



AVERAGE DEAD LOAD DEFLECTION DIAGRAM
No scale

AKRON EXPRESSWAY SYSTEM
A. & B.B.R.R. AND BEACON STREET OVERPASS
BR. NO. SU-5-110
FRAMING PLAN
AKRON SUMMIT COUNTY, OHIO

SCALE 1/8, 1/4" = 1'-0"
MADE R.B.J. DATE 10-30-52
TRCD. R.H. DATE 11-24-52
CKD. T.K.C. DATE 11-3-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846-U SHEET- 117

516

SOUTHWEST WINGWALL

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	WEIGHT POUNDS
601	6	28	12'-0"	Str.				525
602	6	21	9'-6"	Str.				300
603	6	37	8'-6"	Str.				472
604	6	18	7'-6"	Str.				203
605	6	19	6'-6"	Str.				185
606	6	4	28'-0"	Str.				173
607	6	2	30'-0"	Str.				90
608	6	2	25'-6"	Str.				77
609	6	6	23'-0"	Str.				207
610	6	1 3/8 SQ	17'-6" to 19'-6"	Str.				83
611	6	6	15'-0"	Str.				135
612	6	1 3/4 SQ	9'-9" to 12'-3"	Str.				66
613	6	2	7'-0"	Str.				21
614	6	6	5'-6"	Str.				50
615	6	4	8'-0"	Str.				48
616	6	2	24'-3"	Str.				73
617	6	4	21'-0"	Str.				131
618	6	1 3/4 SQ	16'-3" to 18'-3"	Str.				78
619	6	6	13'-0"	Str.				124
620	6	1 3/4 SQ	8'-6" to 11'-0"	Str.				92
621	6	2	3'-6"	Str.				17
622	6	25	9'-0"	127	3'-3"	0'-9"	1'-0"	188
623	6	2	20'-3"	Str.				51
624	6	2	16'-6"	Str.				50
625	6	2	12'-6"	Str.				38
626	6	2	10'-6"	Str.				32
627	6	2	12'-3"	Str.				37
628	6	2	3'-6"	Str.				11
629	6	1 3/4 SQ	7'-1" to 20'-7"	110	1'-1"	2'-0" to 8'-9"		268
630	6	1 3/4 SQ	7'-7" to 16'-1"	110	1'-1"	2'-3" to 6'-6"		142
631	6	1 3/4 SQ	8'-1" to 14'-7"	110	1'-1"	2'-6" to 5'-9"		51
632	6	12	5'-0"	Str.				90

SOUTHEAST WINGWALL

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	WEIGHT POUNDS
601	6	26	12'-0"	Str.				469
602	6	25	9'-6"	Str.				357
603	6	37	8'-6"	Str.				472
604	6	20	7'-6"	Str.				225
605	6	17	7'-0"	Str.				179
606	6	4	33'-0"	Str.				198
607	6	2	34'-3"	Str.				103
608	6	1	23'-9"	Str.				36
609	6	1	23'-0"	Str.				35
610	6	6	20'-3"	Str.				182
611	6	1	17'-0"	Str.				26
612	6	1	16'-0"	Str.				24
613	6	6	13'-3"	Str.				119
614	6	1 3/4 SQ	8'-9" to 10'-6"	Str.				44
615	6	1	6'-0"	Str.				9
616	6	18	5'-0"	Str.				135
617	6	2	4'-0"	Str.				12
618	6	1	22'-6"	Str.				34
619	6	1	21'-9"	Str.				33
620	6	4	19'-0"	Str.				114
621	6	1	15'-9"	Str.				24
622	6	1	14'-9"	Str.				22
623	6	4	12'-0"	Str.				72
624	6	1 3/8 SQ	7'-6" to 9'-3"	Str.				38
625	6	1	4'-9"	Str.				7
626	6	21	5'-0"	127	3'-3"	0'-9"	1'-0"	158
627	6	2	17'-6"	Str.				53
628	6	2	14'-0"	Str.				42
629	6	2	10'-3"	Str.				31
630	6	2	6'-3"	Str.				19
631	6	2	10'-9"	Str.				32
632	6	3/4 SQ 11	7'-7" to 20'-7"	110		2'-3" to 8'-9"		233

NORTHWEST WINGWALL

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	WEIGHT POUNDS
633	6	3/4 SQ 6	7'-1" to 15'-7"	110	1'-1"	2'-0" to 6'-3"		119
634	6	1	10'-1"	110	1'-1"	3'-6"		15
635	6	1	13'-7"	110	1'-1"	5'-3"		21
701	7	38	9'-6"	130				544
702	7	2	41'-0"	Str.				16
703	7	6	7'-9"	Str.				95
704	7	4	16'-6"	Str.				135
705	7	2	17'-0"	Str.				69
706	7	2	19'-3"	Str.				79
707	7	4	22'-3"	Str.				182
708	7	2	30'-0"	Str.				123
709	7	1 3/4 SQ	30'-0" to 36'-0"	Str.				405
710	7	2	37'-9"	Str.				154
711	7	2	44'-9"	Str.				183
712	7	4	46'-9"	Str.				382
713	7	5	39'-6"	Str.				404

NORTHEAST WINGWALL

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	WEIGHT POUNDS
699	6	1	5'-9"	104	6'-0"	0'-9"		9
690	6	1	6'-6"	104	5'-6"	1'-0"		10
691	6	1	7'-0"	104	5'-9"	1'-3"		11
692	6	5	6'-0"	Str.				45
693	6	4	2'-6"	Str.				8
694	6	1	6'-0"	104	4'-9"	1'-3"		544
695	6	2	6'-0"	Str.				18
696	6	4	4'-3"	Str.				26
697	6	1	4'-0"	Str.				6
698	6	1	3'-6"	Str.				5
699	6	6	6'-0"	104	4'-6"	1'-6"		54

CENTER BENT

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	WEIGHT POUNDS
401	4	98	2'-6"	Str.				164
402	4	14	3'-0"	Str.				28
403	4	8	3'-6"	Str.				19
501	5	48	13'-6"	109	2'-5"	4'-1"		676
502	5	20	12'-0"	109	1'-8"	4'-1"		250
503	5	129	13'-6"	109	3'-7"	2'-11"		1816
504	5	38	11'-6"	109	2'-7"	2'-11"		456
601	6	24	35'-6"	Str.				1280
602	6	40	7'-6"	Str.				451
603	6	8	10'-6"	Str.				126
604	6	128	11'-6"	Str.				2211
901	9	12	9'-7"	108	2'-4"	5'-8"	12	391
902	9	12	9'-5"	108	2'-10"	5'-0"	12	384
1101	11	34	25'-9"	Str.				4649
1102	11	12	11'-5"	119	5'-9"	2'-6"		733
1103	11	12	36'-3"	Str.				2311
1104	11	8	13'-0"	Str.				553
1105	11	13	22'-0"	Str.				1519
1106	11	14	23'-6"	Str.				1674
1107	11	14	23'-9"	Str.				1690
1108	11	20	23'-0"	Str.				2444
1109	11	14	23'-6"	Str.				1748
1110	11	14	24'-0"	Str.				1785
1111	11	13	24'-3"	Str.				1674
1112	11	56	7'-9"	101	5'-8"	2'-1"		2336

SUPERSTRUCTURE SLAB

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	WEIGHT POUNDS
401	4	524	3'-10"	127	1'-11"	0'-10"	1'-1"	1341
402	4	15	53'-0"	Str.				531
403	4	16	25'-6"	Str.				273
404	4	5	57'-6"	Str.				192
405	4	12	51'-6"	Str.				413
405	4	248	4'-3"	133	0'-9"	1'-2"	1'-0"	704
601	6	3/4 SQ 56	3'-0" to 57'-0"	101	2'-0" to 56'-0"	1'-0"		7570
602	6	3/4 SQ 78	21'-0" to 56'-0"	Str.				9800
603	6	274	9'-3"	100	5'-3"	1'-0"		23973
604	6	364	5'-9"	Str.				31027
605	6	14	36'-0"	Str.				757
606	6	3/4 SQ 50	34'-0" to 49'-6"	101	2'-0" to 48'-6"	1'-0"		1972
607	6	3/4 SQ 66	2'-0" to 49'-0"	Str.				2528
608	6	191	5'-9"	Str.				31572
609	6	200	25'-6"	Str.				7660
610	6	3/4 SQ 6	54'-9" to 57'-6"	Str.				338
611	6	3/4 SQ 5	54'-9" to 57'-6"	Str.				421
612	6	84	25'-0"	Str.				3154
613	6	2	36'-0"	132	31'-0"	6'-0"	17"	108

SOUTH ABUTMENT

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	WEIGHT POUNDS
401	4	80	6'-3"	104	3'-9"	2'-6"		334
601	6	59	13'-0"	112				1152
602	6	60	13'-8"	129				1231
603	6	198	5'-0"	Str.				1487
604	6	6	13'-6"	Str.				122
605	6	11	12'-6"	Str.				207
606	6	12	28'-0"	Str.				505
607	6	12	23'-0"	Str.				415
608	6	12	29'-6"	Str.				532
609	6	10	23'-3"	Str.				349
610	6	18	30'-9"	Str.				831
611	6	2	11'-6"	132	9'-6"	2'-0"	5"	35
612	6	2	27'-9"	Str.				83
613	6	71	8'-6"	Str.				906
614	6	42	22'-3"	Str.				1404
615	6	45	23'-3"	Str.				1571
616	6	6	50'-3"	Str.				453
617	6	11	44'-6"	Str.				735
618	6	3	31'-6"	Str.				142
619	6	43	11'-6"	Str.				743
620	6	78	3'-6"	Str.				410
621	6	26	18'-0"	Str.				703
622	6	71	7'-0"	104	3'-9"	3'-3"		746
623	6	70	9'-9"	127	6'-6"	0'-10"	2'-6"	1033
624	6	69	11'-9"	128	6'-0"	4'-6"		1217
625	6	88	3'-0"	Str.				397
626	6	5	12'-0"	Str.				90
627	6	29	10'-0"	Str.				436
628	6	10	9'-0"	Str.				135
629	6	3/4 SQ 18	19'-5" to 28'-5"	126	7'-8" to 12'-2"	2'-1"		1509
651	6	3/4 SQ 6	12'-5" to 18'-7"	126	4'-2" to 7'-3"	2'-1"		419
652	6	3/4 SQ 6	6'-3" to 13'-6"	Str.				267
653	6	3/4 SQ 11	14'-6" to 21'-6"	Str.				487
654	6	32	6'-4"	104	5'-0"	1'-4"		304
655	6	25	13'-0"	136				488
656	6	5	28'-9"	Str.				216
657	6	8	30'-0"	Str.				360
658	6	6	16'-2"	134				146
659	6	7	8'-0"	Str.				84
660	6	1	26'-3"	Str.				39
661	6	8	42'-6"	Str.				511

NORTH ABUTMENT

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	WEIGHT POUNDS
401	4	80	6'-3"	104	3'-9"	2'-6"		334
601	6	47	13'-8"	129				965
602	6	47	13'-0"	112				920
603	6	95	20'-9"	Str.				2961
604	6	51	22'-3"	Str.				1704
605	6	118	8'-0"	Str.				1418
606	6	229	5'-0"	Str.				1720
607	6	12	44'-6"	Str.				802
608	6	65	10'-6"	128	5'-6"	5'-0"		1035
609	6	65	11'-4"	127	8'-0"	0'-10"	2'-6"	1106
610	6	88	3'-0"	Str.				397
611	6	69	6'-6"	104	3'-9"	2'-6"		674
612	6	6	46'-3"	Str.				417
613	6	6	42'-9"	Str.				385
614	6	7	29'-3"	Str.				309
615	6	34	10'-0"	Str.				511
616	6	25	12'-0"	123				788
617	6	7	15'-9"	124				166
618	6	7	5'-1"	104	3'-9"	1'-4"		53
619	6	11	23'-0"	Str.				390
620	6	6	8'-6"	Str.				77
621	6	11	26'-9"	Str.				442
622	6	6	21'-0"	Str.				189
623	6	23	13'-0"	136				1449
624	6	6	16'-2"	134				145
625	6	29	6'-4"	104	5'-0"	1'-4"		276
626	6	3	40'-9"	Str.				184
627	6	3	42'-6"	Str.				191
628	6	4	11'-0"	132	9'-0"	2'-0"	17"	66
629	6	4	10'-6"	Str.				63
630	6	2	17'-0"	Str.				51
631	6	8	12'-0"	Str.				144
632	6	8	9'-6"	Str.				114
633	6	3/4 SQ 6	11'-2" to 21'-8"	126				321
634	6	3/4 SQ 6	19'-1" to 28'-7"	126	7'-6" to 12'-3"	2'-1"		2505
635	6	3/4 SQ 6	12'-7" to 17'-0"	126	4'-3" to 6'-1"	2'-1"		227
636	6	3/4 SQ 6	12'-7" to 16'-1"	126	4'-3" to 6'-1"	2'-1"		263
637	6	20	11'-0"	Str.				330
638	6	3/4 SQ 11	24'-1" to 32'-5"	126	10'-0" to 14'-2"	2'-1"		721
639	6	3/4 SQ 7	18'-7" to 23'-1"	126	7'-3" to 9'-6"	2'-1"		219
640	6	3/4 SQ 5	13'-1" to 17'-7"	115	4'-6" to 6'-9"	2'-1"		115
641	6	6	15'-5"	125				140
642	6	6	3'-4"	104	2'-0"	1'-4"		30
643	6	3/4 SQ 6	23'-1" to 32'-9"	126	9'-1" to 14'-4"	2'-1"		778
644	6	3/4 SQ 6	18'-1" to 23'-5"	126	7'-0" to 9'-9"	2'-1"		249
645	6	3/4 SQ 6	12'-7" to 17'-1"	126	4'-3" to 6'-6"	2'-1"		111
646	6	2	6'-3"	Str.				19
647	6	2	10'-0"	Str.				30
648	6	3/4 SQ 5	18'-9" to 27'-0"	Str.				291
649	6	1	29'-0"	Str.				44
650	6	3/4 SQ 18	19'-5" to 28'-5"	126	7'-8" to 12'-2"	2'-1"		1509
651	6	3/4 SQ 6	12'-5" to 18'-7"	126	4'-2" to 7'-3"	2'-1"		419
652	6	3/4 SQ 6	6'-3" to 13'-6"	Str.				267
653	6	3/4 SQ 11	14'-6" to 21'-6"	Str.				487
654	6	32	6'-4"	104	5'-0"	1'-4"		304
655	6	25	13'-0"	136				488
656	6	5	28'-9"	Str.				216
657	6	8	30'-0"	Str.				360
658	6	6	16'-2"	134				146
659	6	7	8'-0"	Str.				84
660	6	1	26'-3"	Str.				39
661	6	8	42'-6"	Str.				511

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	WEIGHT POUNDS
701	7	18	15'-6"	Str.				570
702	7	12	15'-0"	104	13'-0"	2'-0"		368
703	7	2	15'-0"	132	13'-0"	3'-0"	8¼	65
704	7	2	13'-3"	132	10'-3"	3'-0"	8¼	54
801	8	42	51'-3"	Str.				5747
802	8	42	47'-0"	Str.				5271
803	8	14	10'-6"	Str.				392
804	8	16	7'-6"	Str.				320
805	8	8	27'-6"	Str.				587
806	8	6	8'-0"	Str.				128
807	8	78	44'-6"	Str.				9268
808	8	3	25'-9"	Str.				206
809	8	8	20'-9"	Str.				166
810	8	35	39'-6"	Str.				3691
811	8	8	23'-6"	Str.				502
812	8	45	43'-0"	Str.				5166

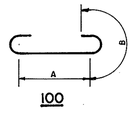
MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	WEIGHT POUNDS
813	8	13	10'-0"	101	17'-8"	1'-4"		859
814	8	5	13'-0"	101	11'-8"	1'-4"		174
815	8	1 3/8 SQ of 3	41'-3" to 201'-0"	Str.				53
816	8	11	9'-0"	Str.				264
817	8	2	10'-0"	132	7'-6"	2'-6"	14½	53
901	9	6	13'-3"	101	11'-6"	1'-9"		270
1101	11	5	34'-3"	Str.				910
1102	11	6	7'-6"	Str.				239
1103	11	5	33'-8"	108	30'-3"	1'-0"	5	894
1104	11	5	16'-0"	Str.				425
1105	11	22	7'-0"	132	3'-6"	3'-6"	5	818
1106	11	6	34'-8"	108	3'-3"	1'-0"	5	1105
1107	11	6	17'-0"	Str.				542
1108	11	13	26'-5"	108	23'-0"	1'-0"	5	1825
1109	11	19	7'-9"	101	5'-8"	2'-1"		782
1110	11	1	28'-9"	Str.				153
1111	11	5	30'-0"	Str.				797
1112	11	1	33'-0"	Str.				175

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687-(9)	POST WAR

118
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95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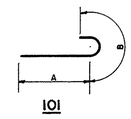
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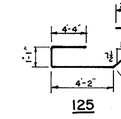
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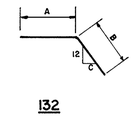
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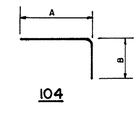
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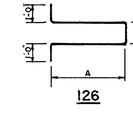
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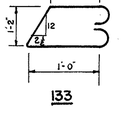
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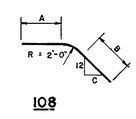
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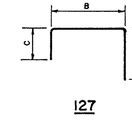
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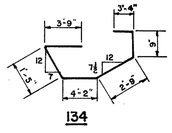
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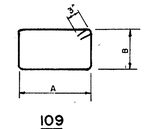
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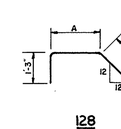
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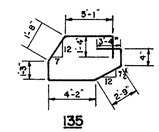
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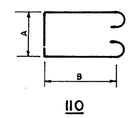
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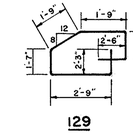
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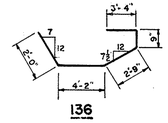
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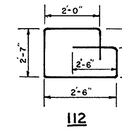
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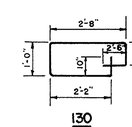
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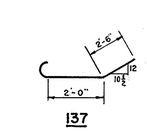
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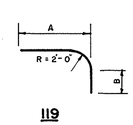
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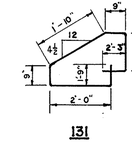
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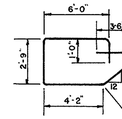
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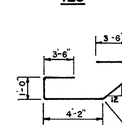

124

AKRON EXPRESSWAY SYSTEM

A. & B. B. R. R. AND BEACON STREET OVERPASS

BR. NO. SU-5-110

REINFORCEMENT SCHEDULE

AKRON, SUMMIT COUNTY, OHIO.

SCALE

MADE F.B.J. DATE 12-8-52

TRCD. H.S. DATE 12-12-52

CKD. T.E.C. DATE 12-13-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846 U SHEET- 118

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

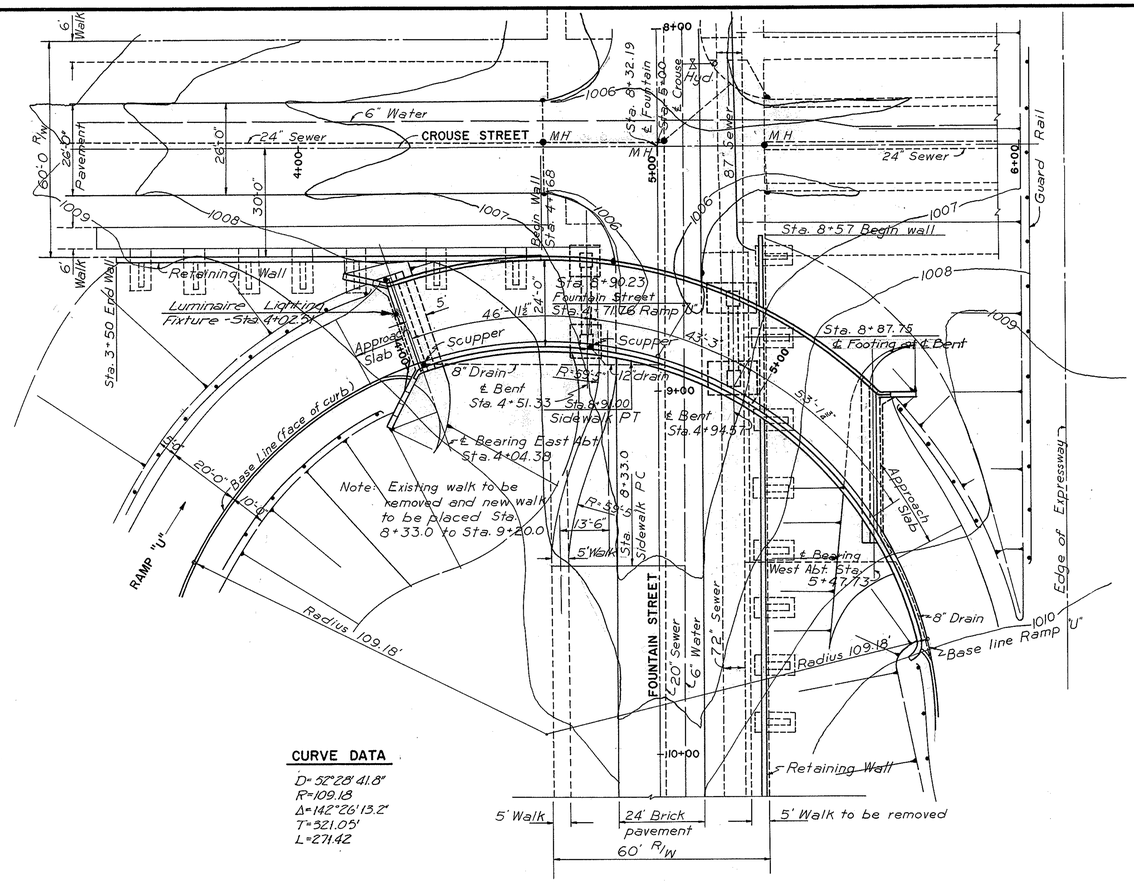
119
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM

EXPRESSWAY – PART – 5

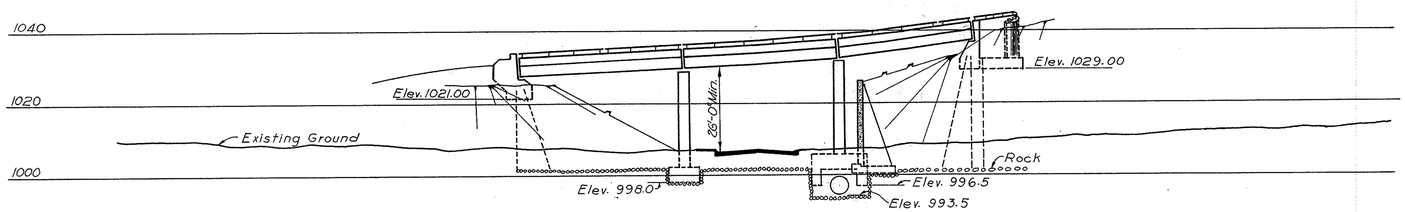
SUM-5-10.95



CURVE DATA

D = 52°28'41.8"
R = 109.18
Δ = 142°26'13.2"
T = 321.05'
L = 271.42

PLAN
Scale 1" = 20'



ELEVATION
Scale 1" = 20'

PROPOSED STRUCTURE
Type: 3 simple spans: steel beam with concrete deck and substructure.
Span: 46'-11⅛", 43'-3", 53'-1¼" Arc lengths on baseline.
Roadway: 24'-0"
Loading: CF 400
Skew: Varies
Surface Course: 2½" Asphaltic Concrete.

AKRON EXPRESSWAY SYSTEM

RAMP "U" OVERPASS

SITE PLAN

AKRON SUMMIT COUNTY, OHIO

SCALE 1" = 20'
MADE JHG DATE 12-9-52
TRCD LWL DATE 12-22-52
CKD WEG DATE 12-23-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET-119

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

120
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

Note: Special care shall be taken in placing top reinforcing steel so it will not interfere with drilling for anchor bolt holes.

SHOE PLACEMENT

PLAN

SECTION E-E
(Section F-F Similar)

SECTION A-A

SECTION B-B
(Same as A-A except as shown)

SECTION C-C

SECTION D-D
(Same as C-C except as shown)

BENT CROSS-SECTIONS
Scale: ½"=1'-0"

ELEVATION

END ELEVATION

FOOTING PLAN

EAST BENT DETAILS
Scale ¼"=1'-0"

SHOE PLACEMENT

PLAN

ELEVATION

END ELEVATION

FOOTING PLAN

WEST BENT DETAILS
Scale: ¼"=1'-0"

AKRON EXPRESSWAY SYSTEM

RAMP "U" OVERPASS

BENTS

AKRON SUMMIT COUNTY, OHIO

SCALE As shown
MADE MJK DATE 12-1-52
TRCD. E.N. DATE 12-22-52
CKD. MJK DATE 12-26-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

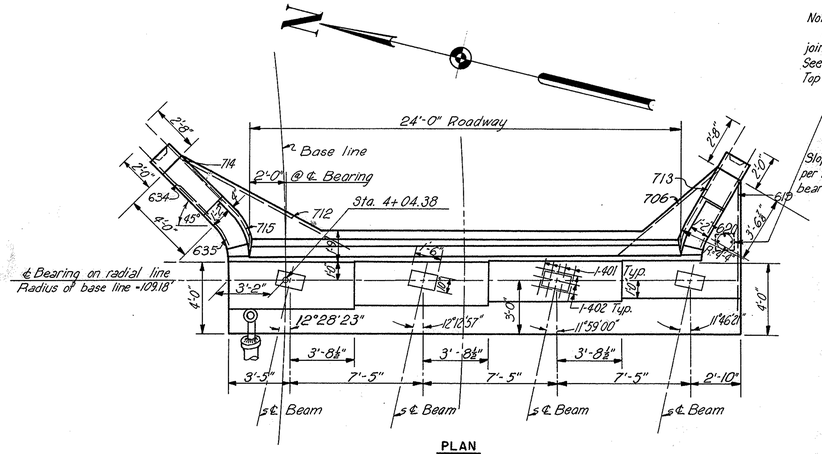
846-U SHEET- 120

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

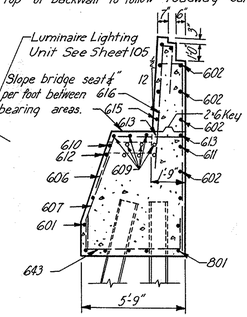
121
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY – PART – 5
SUM-5-10.95

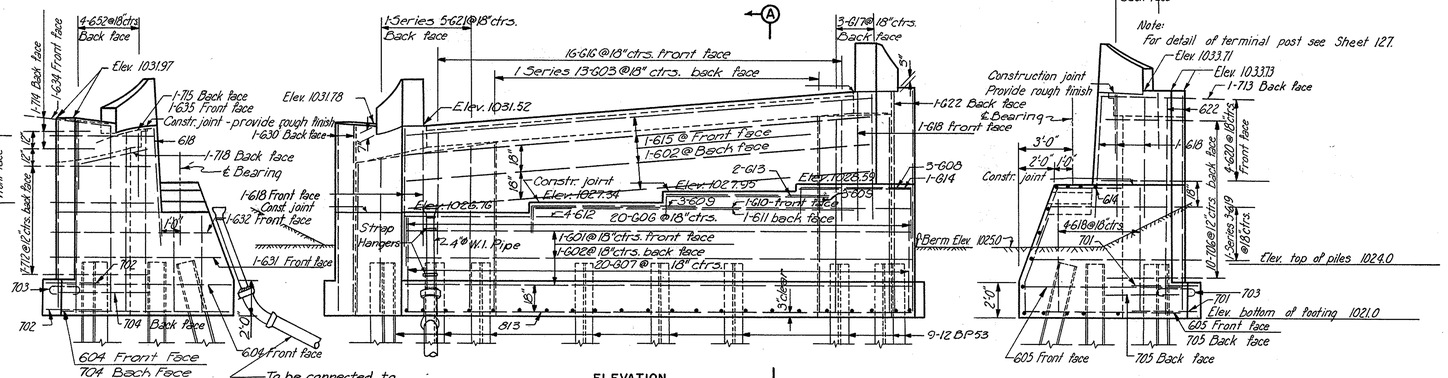
Note:
The backwall is to be poured after the expansion joint steel has been attached to superstructure.
See expansion joint detail Sheet 127.
Top of backwall to follow roadway surface.



PLAN



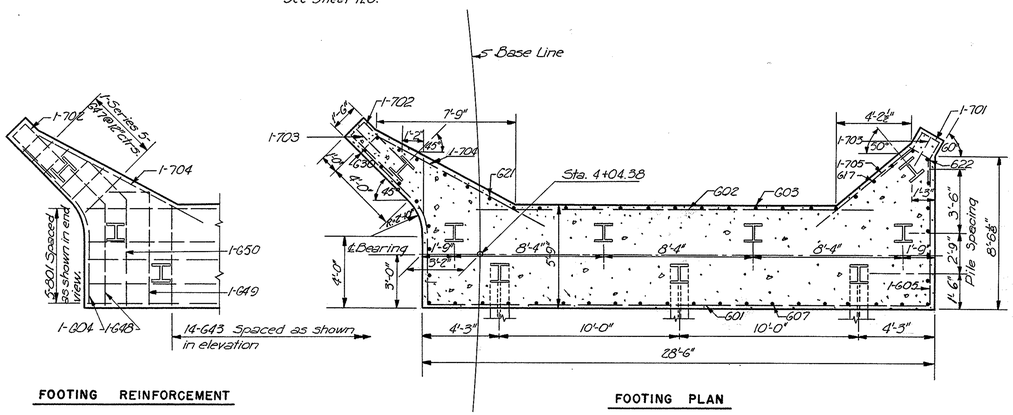
SECTION A-A



ELEVATION

END ELEVATION

END ELEVATION

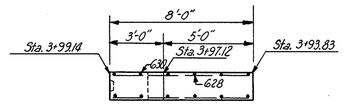


FOOTING REINFORCEMENT

FOOTING PLAN

FOOTING REINFORCEMENT

Note:
Pile spacing is at bottom of footing
Batter 3 Piles 3 in 12.



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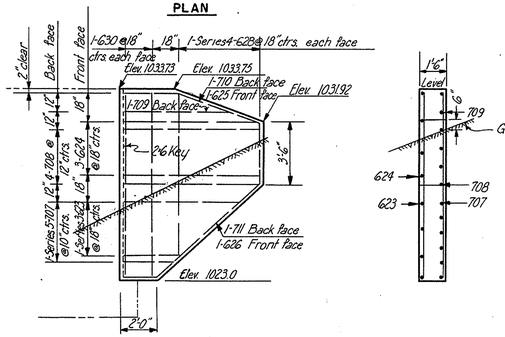
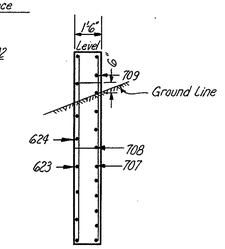
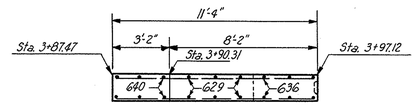


ELEVATION

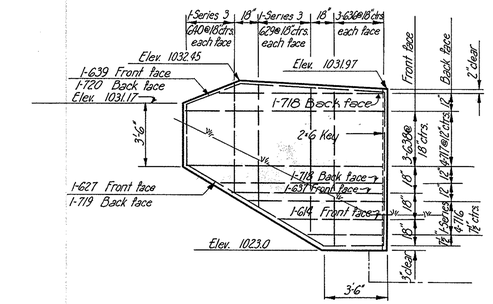


END ELEVATION

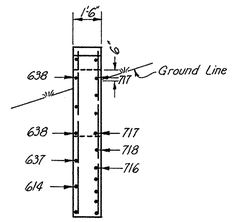
SOUTHEAST WINGWALL



PLAN



ELEVATION



END ELEVATION

NORTHEAST WINGWALL

AKRON EXPRESSWAY SYSTEM

RAMP "U" OVERPASS

EAST ABUTMENT

AKRON SUMMIT COUNTY, OHIO

SCALE 1/4" = 1'-0"
MADE WBC DATE 12-13-52
TRCD EN.GRC DATE 12-26-52
CKD. M.J.K. DATE 12-27-52

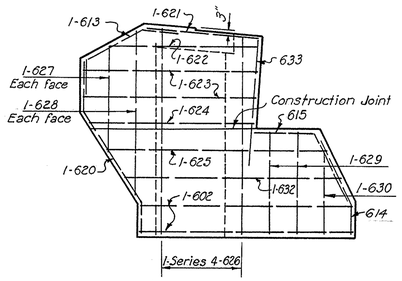
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET 121

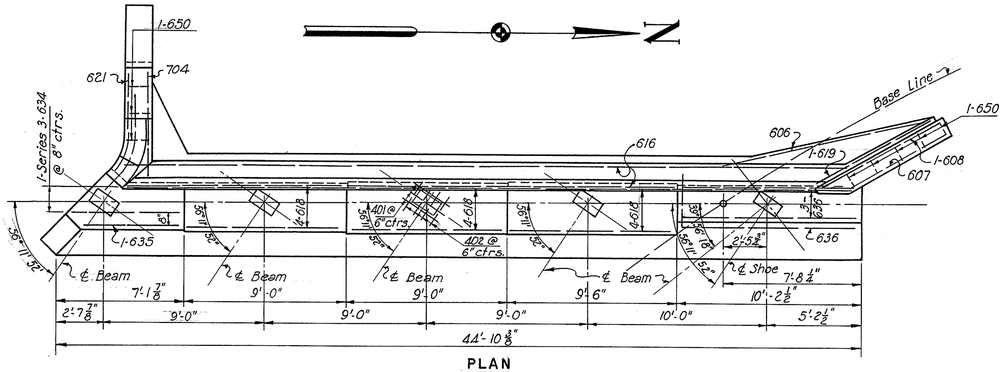
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

122
172

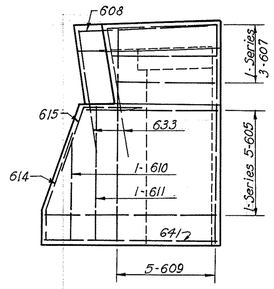
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY — PART 5
SUM-5-10.95



DEVELOPED END VIEW



PLAN



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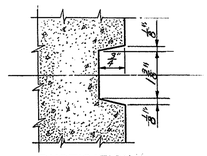
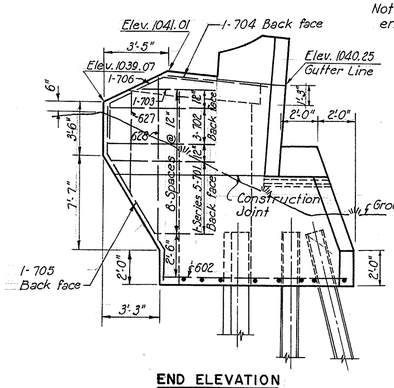
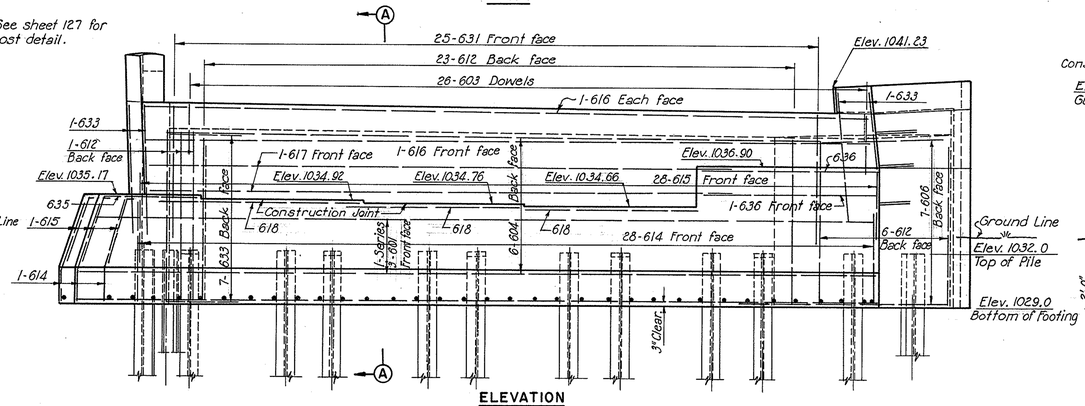


RUSTICATION
Scale: 6"=1'-0"

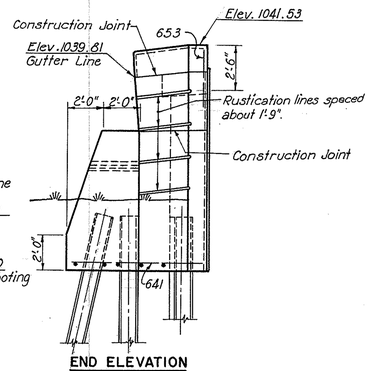


END ELEVATION

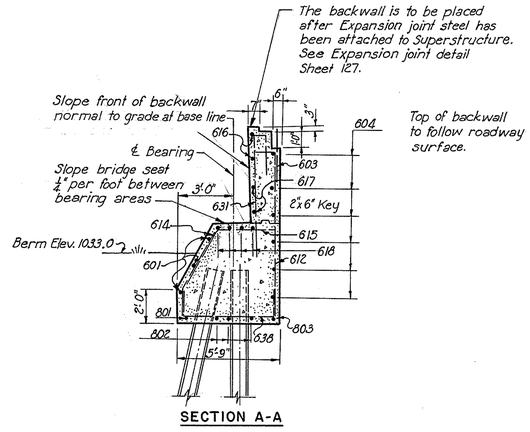
Note: See sheet 127 for end post detail.



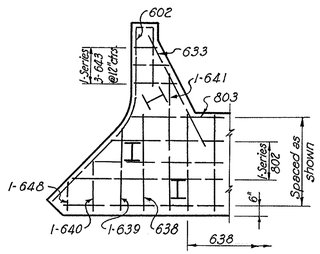
ELEVATION



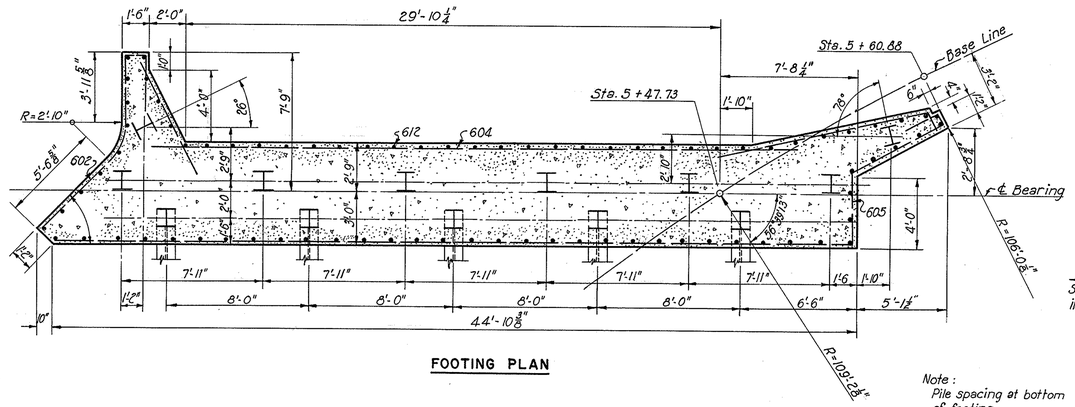
END ELEVATION



SECTION A-A

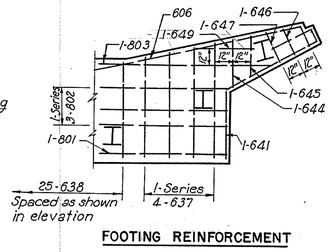


FOOTING REINFORCEMENT



FOOTING PLAN

Note:
Pile spacing at bottom of footing.
Footing reinforcement spaced as shown.
All piles are 12 BP 53.
Front piles to be battered. 3" per foot.



FOOTING REINFORCEMENT

Note:
All reinforcement spaced at 18" centers unless otherwise shown.
Care should be taken in placing bars to have reinforcement clear anchor bolt holes.
Rustication lines are parallel to roadway grade.

AKRON EXPRESSWAY SYSTEM
RAMP "U" OVERPASS
WEST ABUTMENT

AKRON SUMMIT COUNTY, OHIO

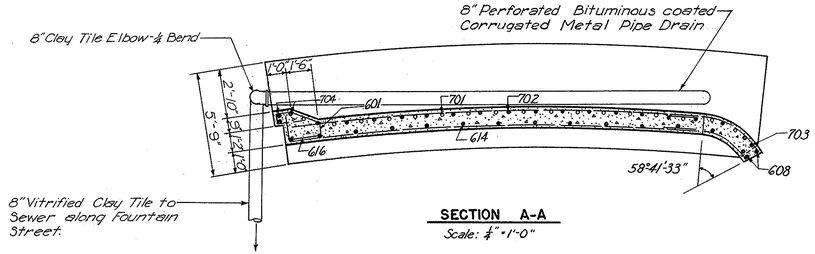
SCALE 1/4" = 1'-0"
MADE LET DATE 12-11-52
TRCD A.H DATE 12-24-52
CKD MJK DATE 12-26-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

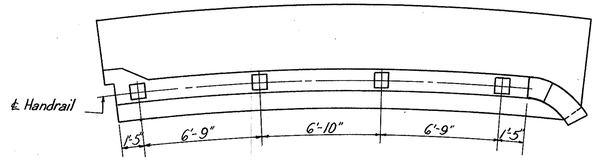
846U SHEET-122

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	123 / 172
2	OHIO	U-687 (9)	POST WAR	

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

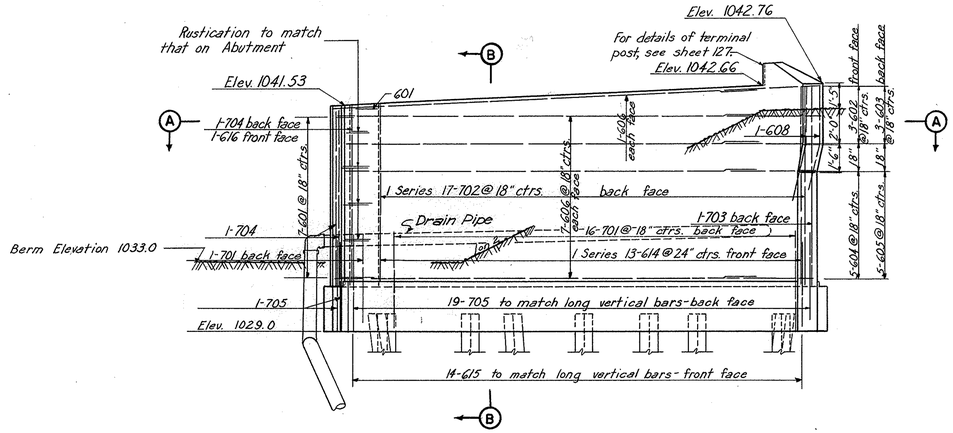


SECTION A-A
Scale: ¼"=1'-0"

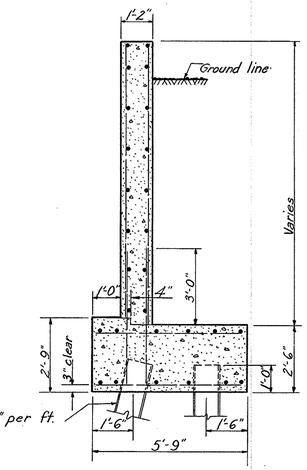


Note: For details of handrail posts, see sheet 127.

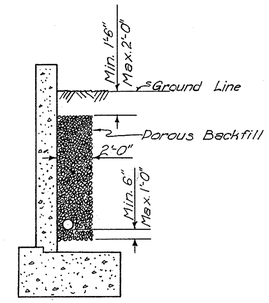
PLAN
Scale: ¼"=1'-0"



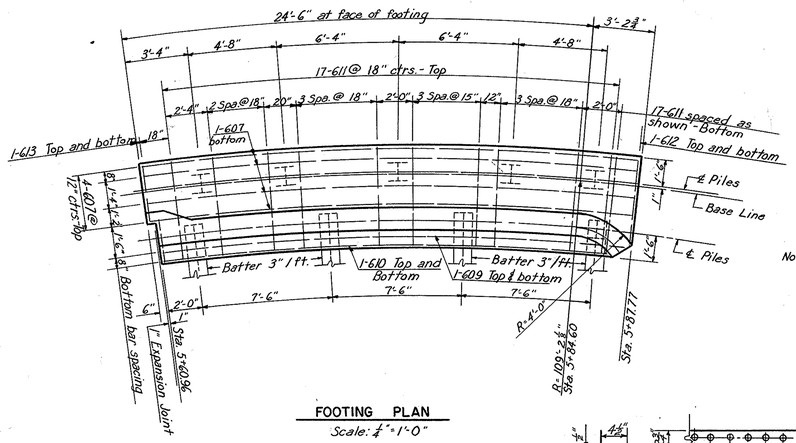
ELEVATION
Scale: ¼"=1'-0"



SECTION B-B
Scale: ⅜"=1'-0"

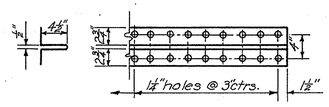


SECTION SHOWING POROUS BACKFILL
Not to Scale

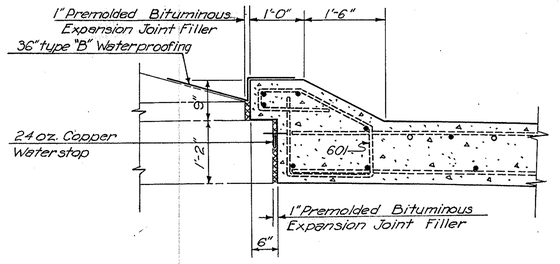


FOOTING PLAN
Scale: ¼"=1'-0"

Note: Pile spacing is at bottom of footing. All piles are 12BP53



EXPANSION JOINT WATERSTOP
Material: 24 oz. Copper
Scale: 1"=1'-0"



EXPANSION JOINT DETAIL
Scale: ¾"=1'-0"

AKRON EXPRESSWAY SYSTEM

RAMP "U" OVERPASS

NORTHWEST WINGWALL

AKRON SUMMIT COUNTY, OHIO

SCALE As shown
MADE R.F.S. DATE 12-9-52
TRCD M.A.M. DATE 12-16-52
CKD M.J.K. DATE 12-20-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET 123

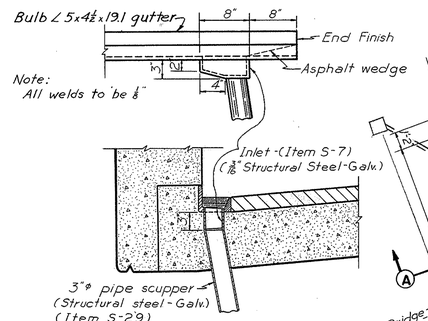
707

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

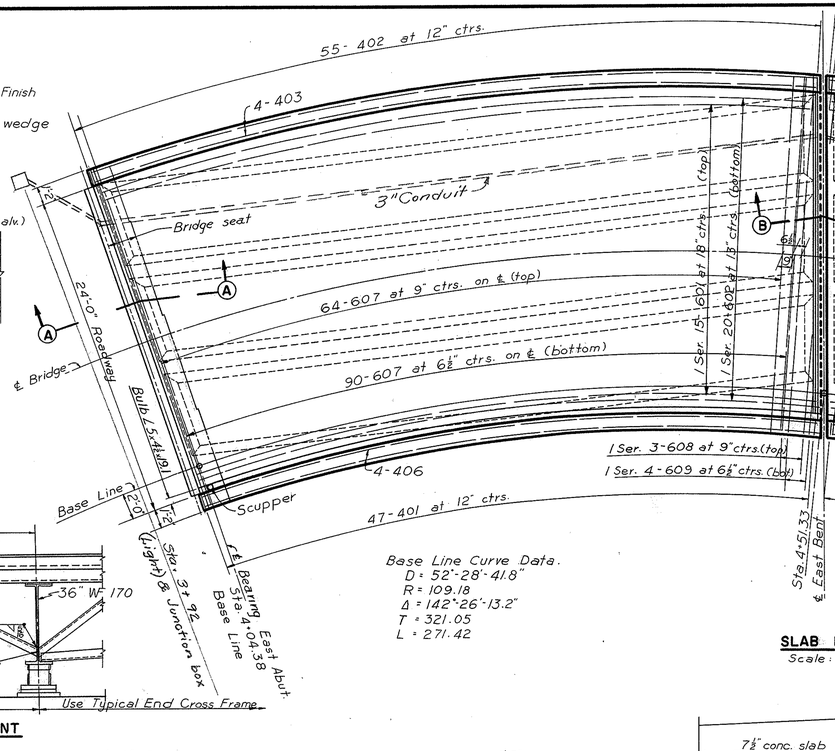
124
172

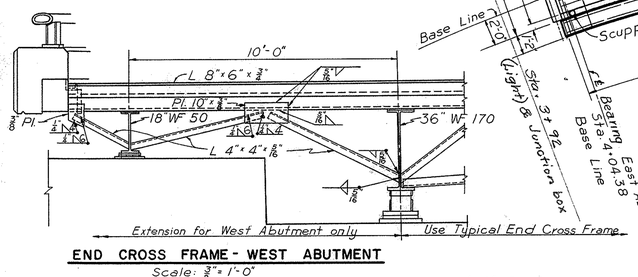
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95

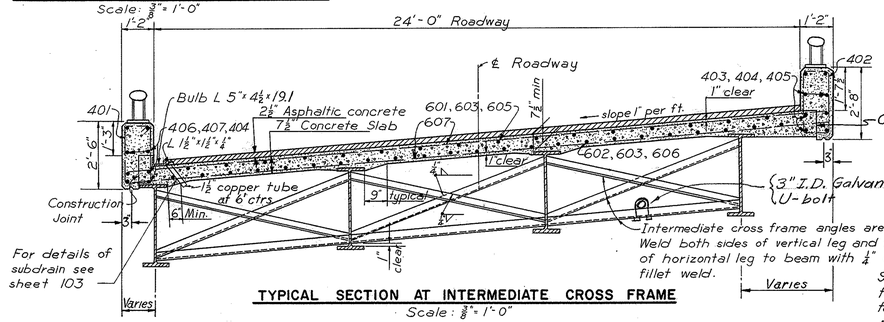


SCUPPER DETAIL
Scale: 1"=1'-0"

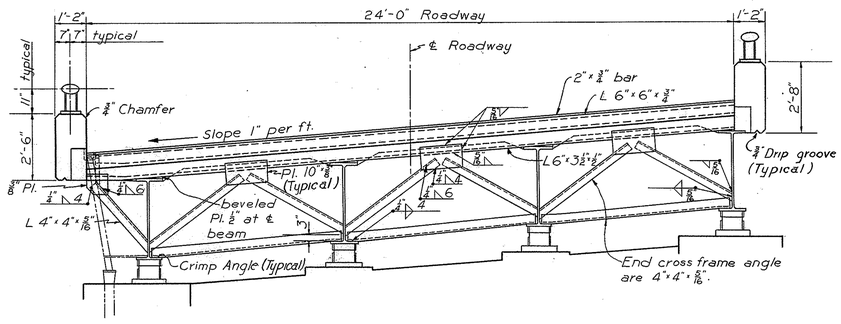




END CROSS FRAME - WEST ABUTMENT
Scale: ⅜"=1'-0"

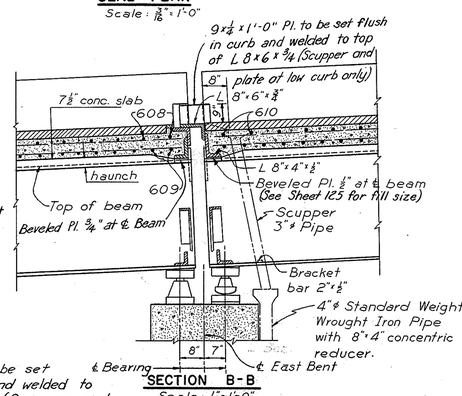


TYPICAL SECTION AT INTERMEDIATE CROSS FRAME
Scale: ⅜"=1'-0"

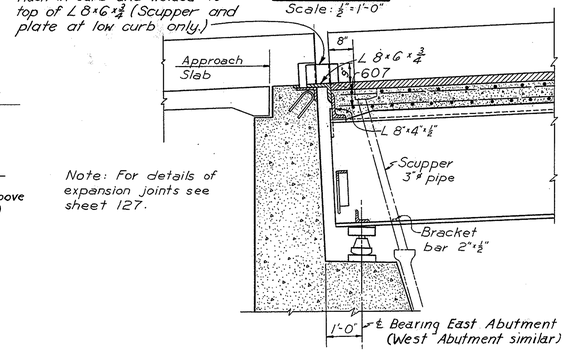


TYPICAL END CROSS FRAME
Scale: ⅜"=1'-0"

SLAB PLAN
Scale: 1/16"=1'-0"

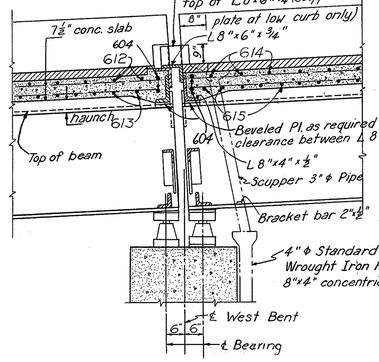


SECTION B-B
Scale: ½"=1'-0"



Note: For details of expansion joints see sheet 127.

SECTION A-A
Scale: ½"=1'-0"



SECTION C-C
Scale: ½"=1'-0"

Note: 8"x4" concentric reducer to be Crane Type Steel Butt-Weld Reducer or equal.

Rev. 4-26-54

AKRON EXPRESSWAY SYSTEM
RAMP "U" OVERPASS

SLAB PLAN AND SECTIONS

AKRON SUMMIT COUNTY, OHIO

SCALE As noted
MADE SWF DATE 12-6-52
TRCD LWL DATE 12-18-52
CKD MJK DATE 12-26-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

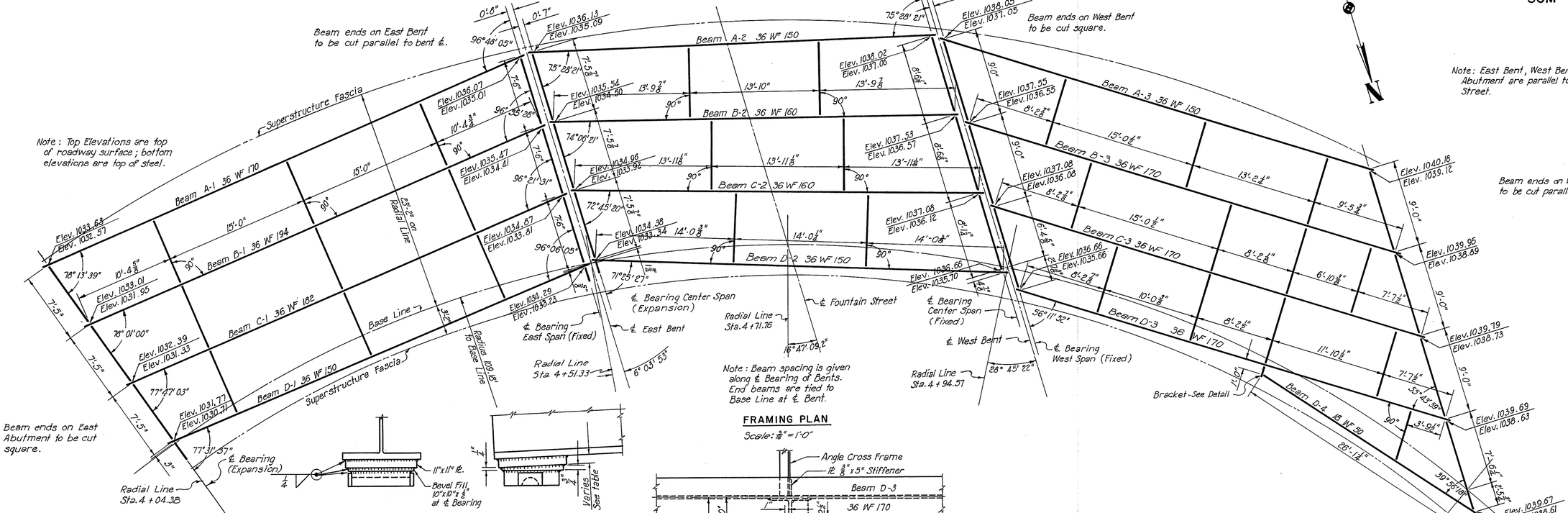
846-U SHEET- 124

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

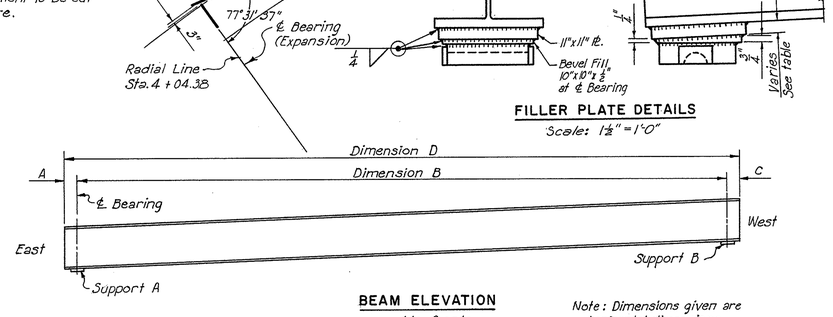
125
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY—PART 5
SUM-5-10.95



FRAMING PLAN
Scale: 1/8" = 1'-0"



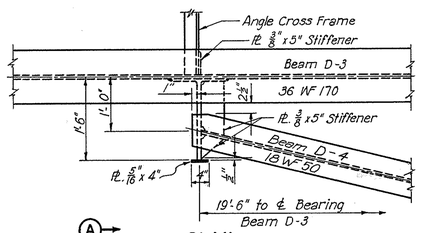
FILLER PLATE DETAILS
Scale: 1½" = 1'-0"

BEAM ELEVATION
No Scale

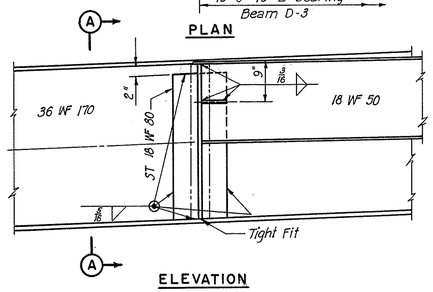
Note: Dimensions given are horizontal dimensions.

BEAM	TYPE	A	B	C	D	SUPPORT A	SUPPORT B	FILL A	FILL B
A-1	36 WF 170	5"	53'-2¼"	5⅛"	54'-1"	R-100	B-100	------	------
B-1	36 WF 194	5"	50'-9⅜"	5⅛"	51'-8⅝"	R-100	B-100	------	------
C-1	36 WF 182	5"	48'-4⅝"	5⅛"	49'-3¼"	R-100	B-100	------	------
D-1	36 WF 150	5"	45'-11¼"	5⅛"	46'-10½"	R-100	B-100	------	------
A-2	36 WF 150	6⅜"	41'-2⅝"	5"	42'-2¼"	R-100	B-100	1¼"	------
B-2	36 WF 160	6⅜"	41'-5⅞"	5"	42'-5⅜"	R-100	B-100	1⅛"	3"
C-2	36 WF 160	6¾"	41'-9⅜"	5"	42'-9¾"	R-100	B-100	1⅜"	2⅝"
D-2	36 WF 150	7"	42'-1"	5"	43'-1"	R-100	B-100	1⅜"	2"
A-3	36 WF 150	7⅛"	45'-11⅜"	9"	47'-3⅞"	B-100	R-100	------	------
B-3	36 WF 170	7⅛"	45'-11⅜"	9"	47'-3⅞"	B-100	R-100	------	------
C-3	36 WF 170	7⅛"	45'-11⅜"	9"	47'-3⅞"	B-100	R-100	------	------
D-3	36 WF 170	7⅛"	45'-11⅜"	9"	47'-3⅞"	B-100	R-100	------	------
D-4	18 WF 50	----	26'-1¼"	11¼"	27'-0⅝"	----	S-30	------	------

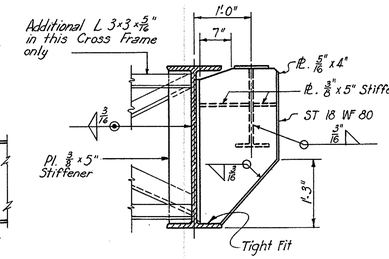
PLAN



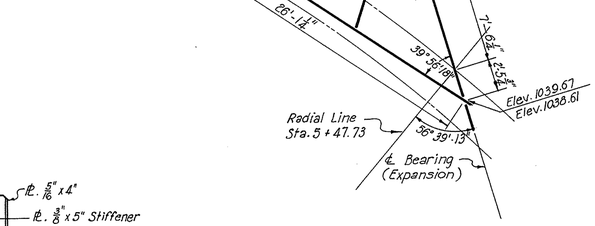
ELEVATION



SECTION A-A

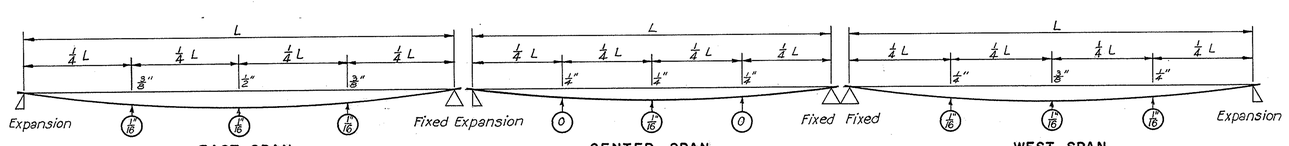


BRACKET DETAIL
Scale: ¾" = 1'-0"

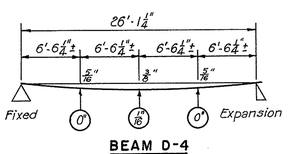


Note:
For Shoe Details and expansion joint details see sheets 127 and 103.
For typical cross frame details see sheet 124.

Dimensions in ( ) are deflections which may be expected in the steel beams when in place.
Dimensions above base line are additional deflections to be expected when concrete is in place.



DEAD LOAD DEFLECTION DIAGRAM



BEAM D-4
No Scale

AKRON EXPRESSWAY SYSTEM

RAMP "U" OVERPASS

FRAMING PLAN

AKRON SUMMIT COUNTY, OHIO

SCALE As Noted
MADE MJK DATE 11-25-52
TRCD MJK/AH DATE 12-26-52
CKD. MJK DATE 12-27-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846 U SHEET-125

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

126
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95

NORTHWEST WINGWALL

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
6011	6	8	8'-7"	123					103
602	6	3	5'-1"	124	2'-0"	3'-1"	3'-0"		23
603	6	3	6'-0"	124	2'-0"	4'-0"	3'10"		27
604	6	5	4'-6"	124	2'-0"	2'-6"	3'-0"		23
605	6	5	5'-3"	124	2'-0"	3'-3"	3'-0"		39
606	6	16	22'-6"	Str.					541
607	6	8	26'-9"	Str.					321
608	6	2	6'-0"	130	3'-0"	3'-0"	4		18
609	6	2	26'-0"	Str.					78
610	6	2	25'-3"	Str.					76
611	6	35	5'-3"	Str.					184
612	6	2	4'-9"	Str.					14
613	6	2	5'-11"	125					18
614	6	1 Spec of 12	9'-9"to10'-9"	Str.					200
615	6	14	5'-0"	Str.					105
616	6	1	9'-9"	Str.					15
692	6	2	3'-6"	121	3'-6"				11
693	6	1	1'-7"	121	1'-7"				2
694	6	2	3'-6"	122	2'-8"				11
695	6	1	1'-3"	121	1'-3"				2
696	6	2	4'-6"	Str.					14
697	6	2	4'-4"	Str.					13
698	6	2	3'-9"	Str.					11
699	6	2	3'-3"	Str.					10
701	7	17	5'-3"	Str.					182
702	7	1 Spec of 12	9'-9"to10'-9"	Str.					356
703	7	1	10'-9"	Str.					22
704	7	3	9'-9"	Str.					60
705	7	21	4'-9"	Str.					204
			TOTAL FOR NORTHWEST WINGWALL						2,683

EAST ABUTMENT

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
401	4	16	2'-0"	Str.					21
402	4	12	2'-6"	Str.					20
601	6	3	28'-0"	Str.					126
602	6	7	21'-9"	Str.					229
603	6	1 Spec of 12	10'-3"to11'-9"	104	9'-3"to10'-9"	1'-0"			215
604	6	2	9'-10"	129	3'-9"	2'-4"	3'-9"		30
605	6	2	9'-3"	126	8'-0"	1'-3"	7		28
606	6	20	7'-1"	126	3'-3"	3'-10"	4½		213
607	6	20	5'-6"	130	3'-9"	1'-9"	4½		166
608	6	3	7'-6"	104	6'-0"	1'-6"			34
609	6	6	10'-9"	104	9'-3".	1'-6"			97
610	6	1	22'-6"	104	21'-0"	1'-6"			34
611	6	1	17'-9"	Str.					27
612	6	4	9'-0"	Str.					55
613	6	2	9'-3"	Str.					28
614	6	2	6'-0"	Str.					18
615	6	4	26'-0"	Str.					156
616	6	16	9'-8".	132	6'-9"	2'-6"	5"		232
617	6	3	11'-9".	104	10'-9"	1'-0"			53
618	6	10	7'-0"	Str.					105
619	6	1 Spec of 2	8'-9"to 9'-9"	130	6'-9" to 7'-9"	2'-0"	7		42
620	6	4	8'-6"	124	5'-6"	1'-0"	3'-0"		39
621	6	1 Spec of 2	9'-3" to 10'-0"	104	8'-3" to 9'-0"	1'-0"			72
622	6	2	12'-0"	Str.					36
623	6	1 Spec of 2	3'-0" to 6'-3"	Str.					21
624	6	3	7'-6".	Str.					34
625	6	1	7'-9"	130	5'-0"	2'-9"	4½		12
626	6	1	9'-3"	130	7'-6"	1'-9"	10½		14
627	6	1	12'-0"	130	8'-9"	3'-3"	7½		18
628	6	2 Spec of 8	3'-3" to 4'-0"	Str.					74
629	6	2 Spec of 8	6'-9" to 8'-6"	Str.					70
630	6	6	10'-3"	Str.					94
631	6	1	11'-7"	129	6'-0"	2'-4"	3'-3"		17
632	6	1	11'-1"	129	6'-0"	2'-4"	2'-9"		17
633	6	4	7'-10"	124	6'-0"	1'-10"	3'-0"		47
634	6	1	15'-0"	Str.					8
635	6	1	4'-7"	124	2'-9"	1'-10"	3'-0"		7
636	6	6	8'-6"	Str.					77
637	6	1	8'-3"	Str.					12
638	6	3	11'-0"	Str.					50
639	6	1	11'-0"	130	8'-0"	3'-0"	4½		17
640	6	2 Spec of 8	3'-3" to 6'-0"	Str.					43
641	6	2 Spec of 8	6'-6" to 8'-0"	Str.					65
642	6	2 Spec of 8	8'-0" to 8'-6"	Str.					74
643	6	14	8'-9"	105	5'-3"	1'-9"			184
644	6	1	9'-9"	104	6'-5"	3'-4"			15
645	6	1	7'-9"	Str.					12
646	6	1	8'-3"	130	6'-5"	1'-10"	10		12
647	6	1 Spec of 2	3'-0" to 4'-6"	105	1'-3"to2'-9"	1'-9"			41
648	6	1	8'-9"	108	5'-6"	2'-6"			12
649	6	1	8'-3"	104	6'-0"	2'-3"			12
650	6	1	8'-9"	108	5'-9"	3'-0"			13
651	6	3	3'-0"	Str.					13
652	6	4	3'-9"	Str.					23
692	6	2	3'-6"	121	3'-6"				24
693	6	2	1'-7"	121	1'-7"				4
694	6	4	3'-6"	122	2'-8"				22
695	6	2	1'-3"	121	1'-3"				4
696	6	4	4'-6"	Str.					28
697	6	4	4'-4"	Str.					26
698	6	4	3'-9"	Str.					22
699	6	4	3'-3"	Str.					20
701	7	2	8'-0"	133					33
702	7	2	7'-6".	105	1'-0".	3'-3"			31
703	7	2	3'-10"	100	1'-6"				16
704	7	2	11'-6"	126	10'-6"	1'-0"	3¾		47
705	7	2	7'-3"	Str.					30
706	7	10	10'-2"	130	7'-6"	2'-8"	4½		208
707	7	1 Spec of 2	2'-9" to 6'-3"	Str.					46
708	7	4	7'-6"	Str.					61
709	7	1	6'-0"	Str.					12
710	7	1	7'-9"	130	5'-0"	2'-9"	4½		16
711	7	1	9'-3"	130	7'-6".	1'-9"	10½		19
712	7	7	13'-6".	130	10'-9"	2'-9".	3¾		193
713	7	1	7'-9"	124	6'-3"	1'-6"	4½-2"		16
714	7	3	5'-9".	Str.					36
715	7	1	5'-6".	124	2'-9".	2'-9"	4½-2"		11
716	7	4	11'-0".	Str.					90
717	7	1 Spec of 2	3'-9". to 8'-10".	Str.					48
718	7	3	9'-3".	Str.					57
719	7	1	12'-0"	130	8'-9".	3'-3".	7½		25
720	7	1	11'-0".	130	8'-0".	3'-0".	4½		23
801	8	15	28'-0"	Str.					374
			TOTAL FOR EAST ABUTMENT						4709

WEST ABUTMENT

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
401	4	15	2'-6"	Str.					25
402	4	20	2'-0"	Str.					27
601	6	1 Spec of 8	44'-3" to 43'-3"	Str.					199
602	6	2	15'-2"	127					45
603	6	26	3'-0"	Str.					117
604	6	6	36'-0"	Str.					324
605	6	1 Spec of 8	10'-7" to 12'-7".	128	2'-0"	2'-0" to 4'-0"			87
606	6	7	13'-0"	104	12'-0"	1'-0"			137
607	6	1 Spec of 8	5'-6". to 6'-0".	Str.					26
608	6	1	7'-9"	Str.					12
609	6	5	11'-9"	Str.					88
610	6	1	9'-9"	Str.					8
611	6	1	7'-3"	Str.					11
612	6	32	10'-0"	104	9'-0"	1'-0"			5
613	6	1	7'-9"	131	2'-0".				11
614	6	31	5'-9"	130	1'-6".	3'-9"	3		268
615	6	31	7'-6".	130	3'-3"	3'-9"	3		349
616	6	13	40'-6"	Str.					183
617	6	12	32'-6"	Str.					98
618	6	12	10'-9"	Str.					194
619	6	1	7'-3"	Str.					11
620	6	1	10'-6"	118					16
621	6	1	6'-0"	124	3'-6"	2'-6"	3'-0"		9
622	6	1	8'-2"	124	5'-9"	2'-5"	3'-0"		12
623	6	2	9'-5"	124	7'-0"	2'-4"	3'-0"		28
624	6	1	8'-9"	124	6'-6"	2'-3"	3'-0"		13
625	6	1	12'-0"	129	6'-0"	2'-3"	3'-9"		18
626	6	1 Spec of 2	10'-9"to11'-3"	Str.					66
627	6	2	6'-3"	Str.					19
628	6	2	9'-0"	Str.					27
629	6	2	5'-6"	Str.					17
630	6	1	4'-6"	Str.					7
631	6	25	10'-3"	132	7'-6"	2'-0"	9"		385
632	6	1	11'-9"	129	5'-0"	2'-3"	3'-6"		18
633	6	11	7'-0"	Str.					116
634	6	1 Spec of 8	4'-6"to6'-0"	Str.					24
635	6	1	4'-9"	Str.					7
636	6	4	12'-6"	104	9'-6"	3'-0"			75
637	6	1 Spec of 12	9'-0"to9'-9"	105	5'-6"to6'-3"	1'-0"			70
638	6	26	8'-9"	105	5'-3"	1'-9"			34
639	6	1	8'-0"	105	4'-6"	1'-9"			12
640	6	1	6'-6"	105	3'-0"	1'-9"			10
641	6	1	11'-0"	105	7'-6"	1'-9"			17
642	6	1	13'-1"	128	2'-6"	4'-0"			20
643	6	1 Spec of 8	4'-6"to6'-6"	105	1'-0"to2'-0"	1'-9"			23
644	6	1	6'-0"	105	2'-6"	1'-9"			9
645	6	1	5'-9"	105	2'-3"	1'-9"			9
646	6	1	4'-9"	105	1'-3"	1'-9"			7
647	6	2	5'-0"	105	1'-6"	1'-9"			8
648	6	8	4'-3"	104	3'-3"	1'-0"			32
649	6	1	3'-6"	Str.					5
692	6	2	3'-6"	121	3'-6"				12
693	6	1	1'-7"	121	1'-7"				2
694	6	2	3'-6"	122	2'-8"				11
695	6	1	1'-3"	121	1'-3"				2
696	6	2	4'-6"	Str.					14
697	6	2	4'-4"	Str.					13
698	6	2	3'-9"	Str.					11
699	6	2	3'-3"	Str.					10
701	7	1 Spec of 8	3'-3" to 5'-9"	Str.					46
702	7	3	6'-0"	Str.					37
703	7	1	7'-9"	Str.					16
704	7	1	6'-0"	124	3'-8"	2'-4"	3'-0"		12
705	7	1	10'-6"	118					21
706	7	1	7'-9"	131	2'-6"				16
801	8	1	44'-3"	Str.					118
802	8	1 Spec of 2	44'-0"to41'-6"	Str.					358
803	8	1	43'-3"	Str.					116
			TOTAL FOR WEST ABUTMENT						4154

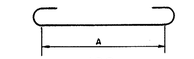
BENTS

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
401	4	18	3'-0"	Str.					36
402	4	51	2'-9"	Str.					94
403	4	12	3'-6"	105	2'-2"	0'-8"			28
404	4	19	5'-6"	105	3'-6"	1'-0"			70
405	4	6	7'-0"	105	5'-0"	1'-0"			28
501	5	18	14'-2"	109	2'-8".	4'-2".			266
502	5	118	13'-10"	109	3'-0"	3'-8"			1702
601	6	6	26'-0"	Str.					234
602	6	14	9'-6"	100	7'-6"				202
603	6	16	9'-3"	101	8'-3"				222
604	6	10	20'-10".	120	3'-6"	12'-9"			309
605	6	20	15'-9"	105	2'-3"	6'-9"			473
606	6	16	9'-0"	104	2'-3"	6'-9"			216
607	6	80	8'-6"	Str.					1021
608	6	6	31'-0"	Str.					279
801	8	4	13'-2"	119	8'-3"	2'-6"			141
901	9	3	18'-0"	Str.					184
1101	11	6	12'-2"	119	8'-3"	2'-6"			389
1102	11	9	18'-6"	Str.					1482
1103	11	22	15'-6"	Str.					3039
1104	11	13	28'-9"	Str.					1988
1105	11	13	27'-0"	Str.					1865
1106	11	52	7'-3"	Str.					2003
1107	11	18	17'-4"	100	13'-2"				1657
1108	11	6	13'-2"	119	8'-3"	2'-6"			420
1109	11	13	27'-3"	Str.					1882
1110	11	4	23'-0"	Str.					489
			TOTAL FOR BENT						21,716

SUPERSTRUCTURE SLAB

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
401	4	145	7'-0"	109	2'-0"	0'-11"			678
402	4	146	7'-4"	109	2'-2"	0'-11"			715
403	4	8	34'-0"	Str.					289
404	4	16	42'-0"	Str.					449
405	4	8	46'-0"	Str.					249
406	4	8	46'-0"	Str.					246
407	4	8	55'-9"	Str.					298
601	6	1 Spec of 12	45'-9"to53'-9"	Str.					1121
602	6	1 Spec of 20	45'-9"to53'-9"	Str.					1495
603	6	35	41'-9"	Str.					2195
604	6	4	28'-9"	Str.					173
605	6	1 Spec of 12	46'-3" to 55'-6"	Str.					1146
606	6	1 Spec of 20	46'-3" to 55'-6"	Str.					1528
607	6	345	26'-0"	Str.					13473
608	6	1 Spec of 2	3'-0" to 26'-0"	Str.					65
609	6	1 Spec of 2	3'-0" to 26'-0"	Str.					87
610	6	1 Spec of 2	3'-0" to 26'-0"	Str.					109
611	6	1 Spec of 8	3'-0" to 26'-0"	Str.					131
612	6	1 Spec of 16	3'-0" to 26'-0"	Str.					349
613	6	1 Spec of 20	3'-0" to 26'-0"	Str.					457
614	6	1 Spec of 16	3'-0" to 26'-0"	Str.					414
615	6	1 Spec of 20	3'-0" to 26'-0"	Str.					566
616	6	1 Spec of 16	3'-0" to 26'-0"	Str.					806
617	6	1 Spec of 16	3'-0" to 26'-0"	Str.					1089
			TOTAL FOR SUPERSTRUCTURE SLAB						28128

100



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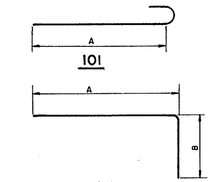

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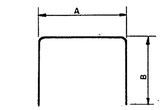

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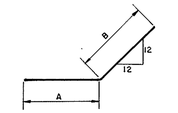

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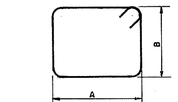

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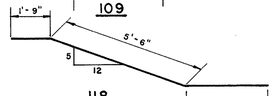

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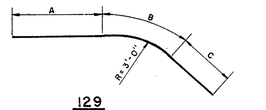

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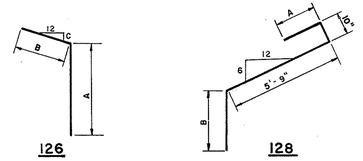

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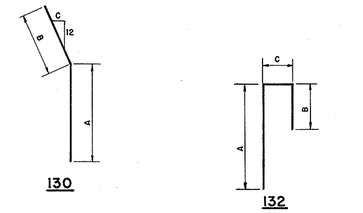

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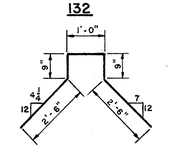

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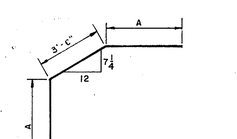

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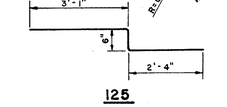

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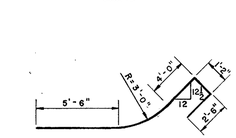

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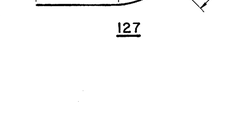

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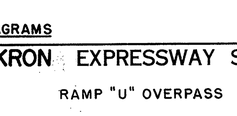

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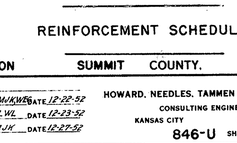


123

124

125

127

BENDING DIAGRAMS

AKRON EXPRESSWAY SYSTEM

RAMP "U" OVERPASS

REINFORCEMENT SCHEDULE

AKRON SUMMIT COUNTY, OHIO

SCALE
MADE MJK/WRS DATE 12-22-52
TRCD LWL DATE 12-23-52
CKD MJK DATE 12-27-52

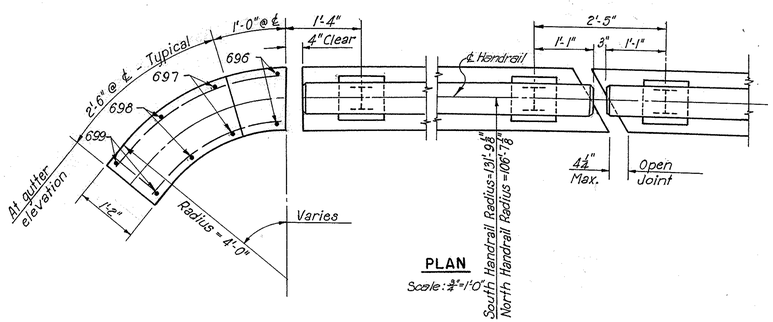
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET 126

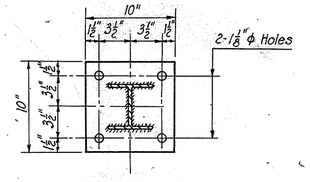
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

127
172

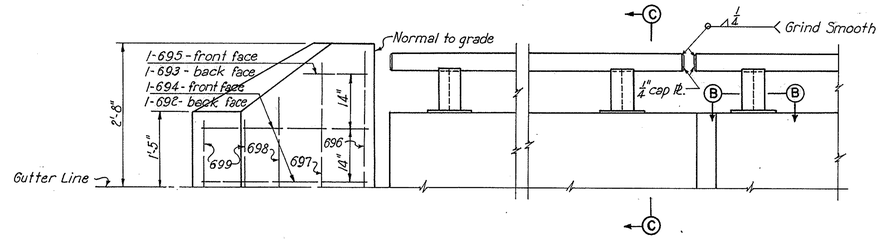
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY – PART 5
SUM-5-10.95



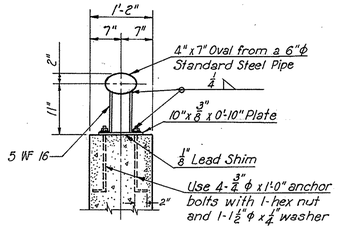
PLAN
Scale: ¾"=1'-0"



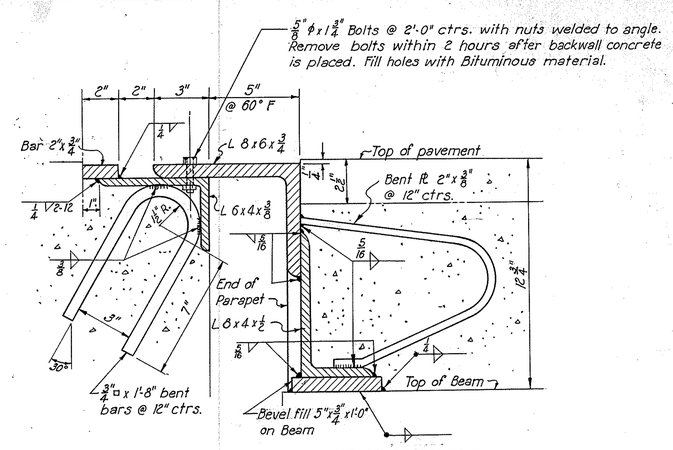
SECTION B-B
Scale: 1½"= 1'-0"



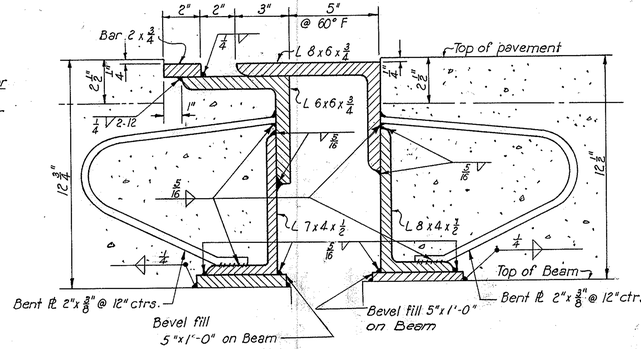
END POST AND HANDRAIL DETAIL FOR RAMP "U"
Scale: ¾"= 1'-0"



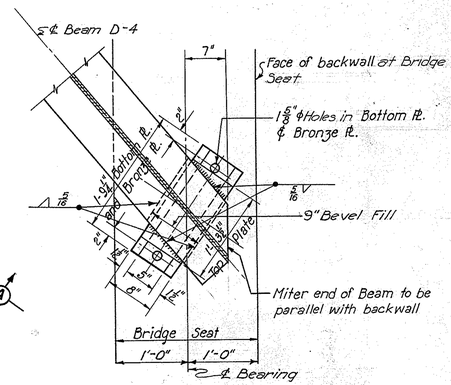
SECTION C-C
Scale: ¾"=1'-0"



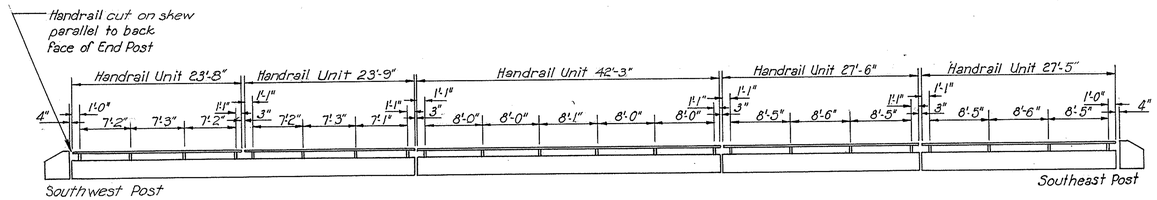
ROADWAY EXPANSION JOINT AT ABUTMENT
Scale: 3"=1'-0"



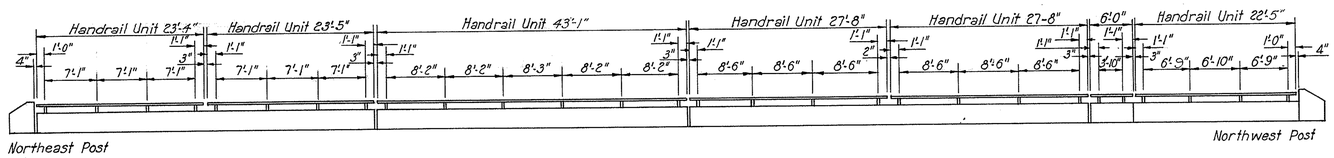
ROADWAY EXPANSION JOINT AT PIERS
Scale: 3"=1'-0"



PLAN
(At West Abutment)
Scale: 1"=1'-0"

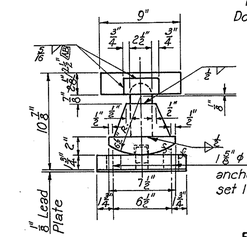


SOUTH RAILING



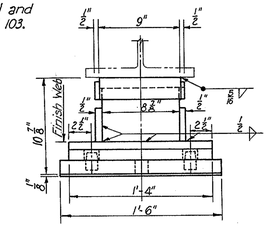
NORTH RAILING

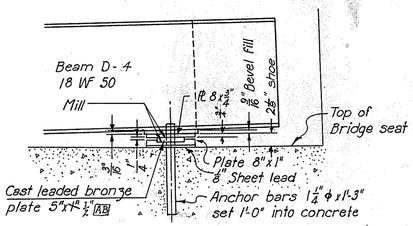
RAMP "U" HANDRAIL
Scale: 1"=10'-0"



ROCKER R-100 "A" AB
Scale: 1½"=1'-0"

Note:
This Rocker is identical to R-100 as shown on Sheet 103 except for anchor bolt holes in base plate.
For Top Bearing Detail and Dowel Detail see Sheet 103.





VIEW A-A
Scale: 1"=1'-0"
SLIDING SHOE S-30

Noted 8-21-53
C.R.

7-24-53
C.R.

709

AKRON EXPRESSWAY SYSTEM

RAMP "U" OVERPASS

COMMON DETAILS

AKRON SUMMIT COUNTY, OHIO

SCALE As shown
MADE FHG-WEG DATE 12-11-52
TRCD AH DATE 12-19-52
CKD MJK DATE 12-26-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

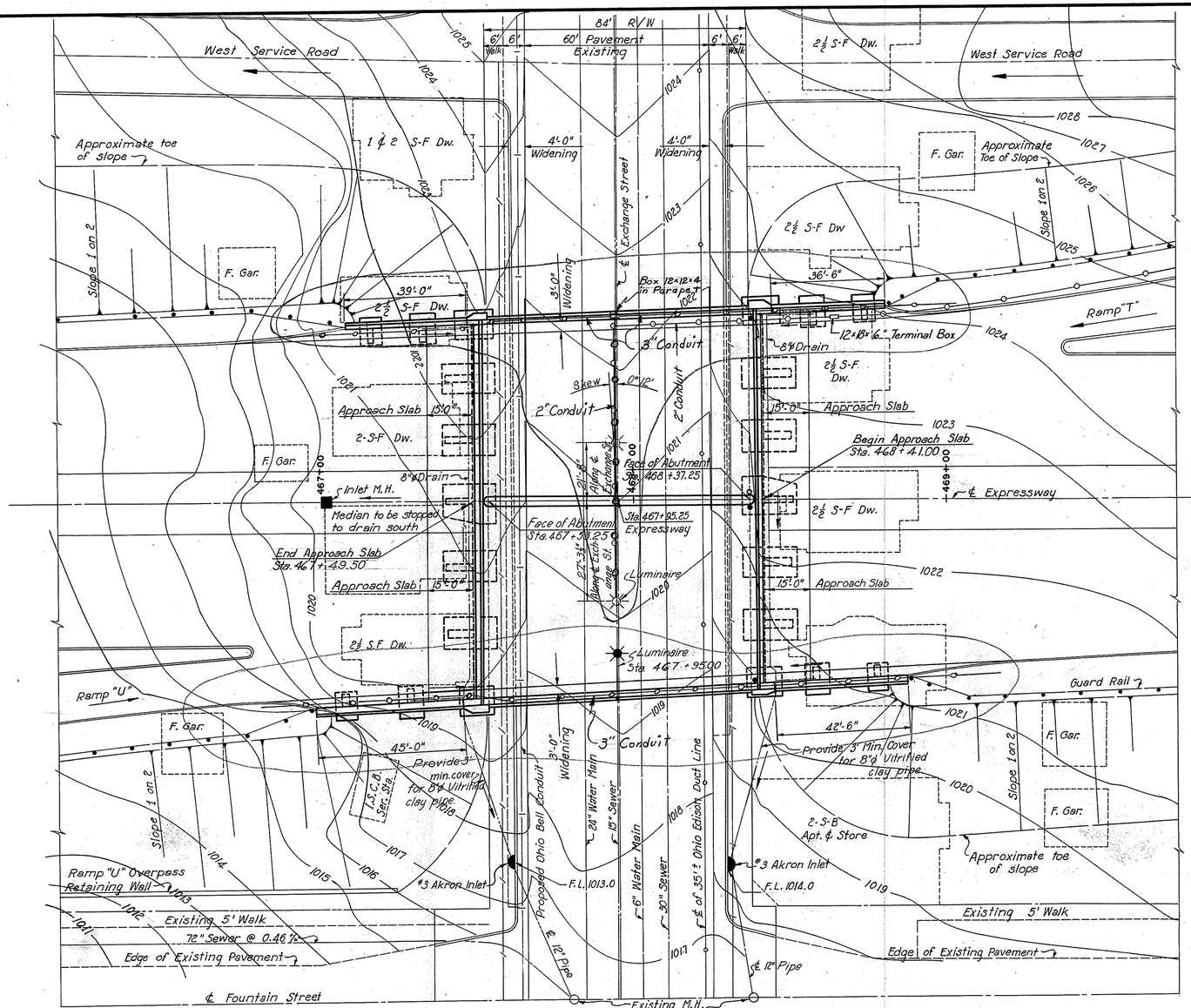
846-U SHEET 127

Revised As-Built PG 6/23/55

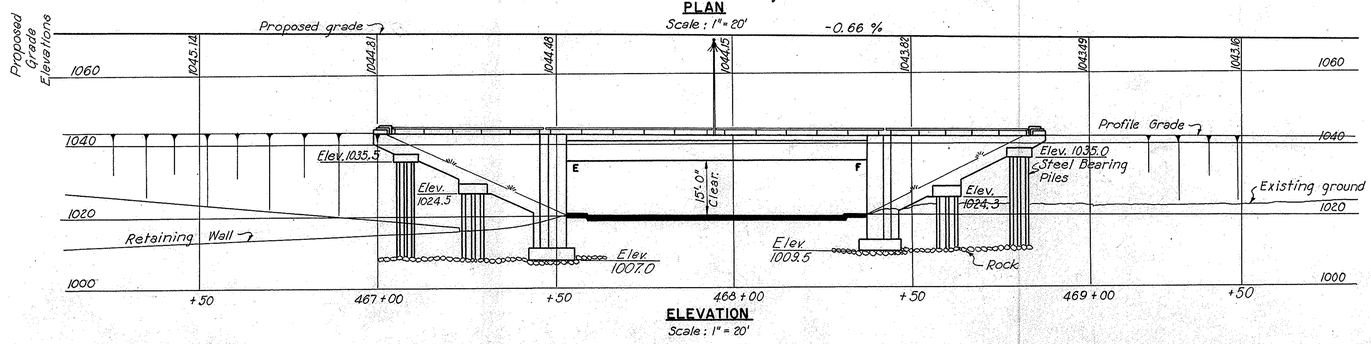
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

128
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95



PLAN
Scale : 1" = 20'



ELEVATION
Scale : 1" = 20'

PROPOSED STRUCTURE

Type : Simple span steel girder with concrete deck and substructure.
Span : 86'-6" ±
Roadway Varies
Loading : CF 1000
Surface Course : 2½" Asphaltic concrete
Skew : 0°-12"

Pencil Revision - 3-15-54

AKRON EXPRESSWAY SYSTEM

EXCHANGE STREET OVERPASS
BR. NO. SU-5-112

SITE PLAN

AKRON SUMMIT COUNTY, OHIO

SCALE 1" = 20'
MADE GRC DATE 11-5-52
TRCD CAH & JH DATE 11-15-52
CKD W. B. C. DATE 12-3-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

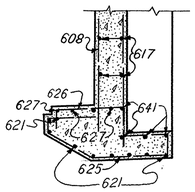
846-U SHEET- 128

601

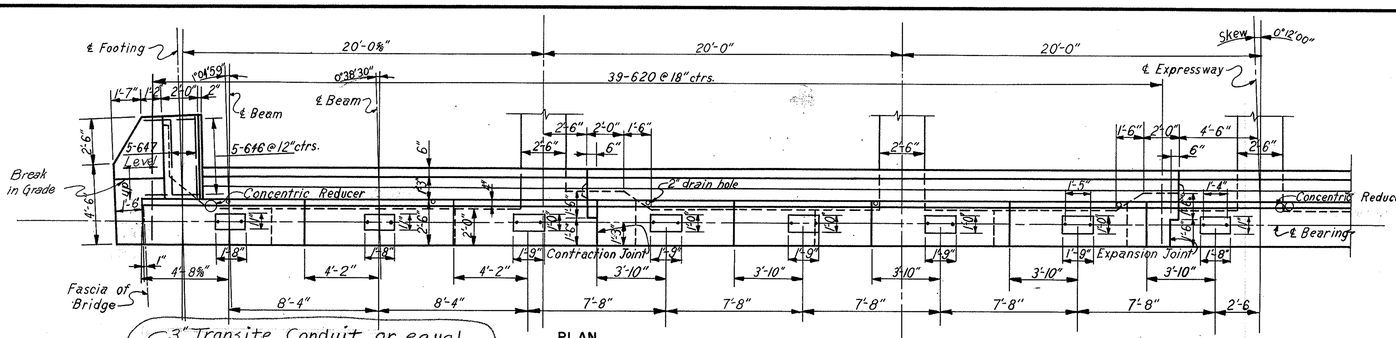
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

129
172

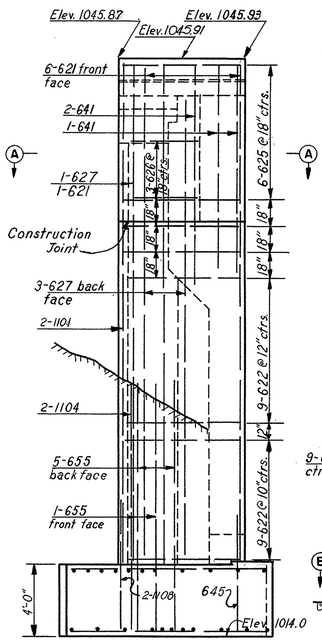
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95



SECTION A-A
Scale ¼"=1'-0"

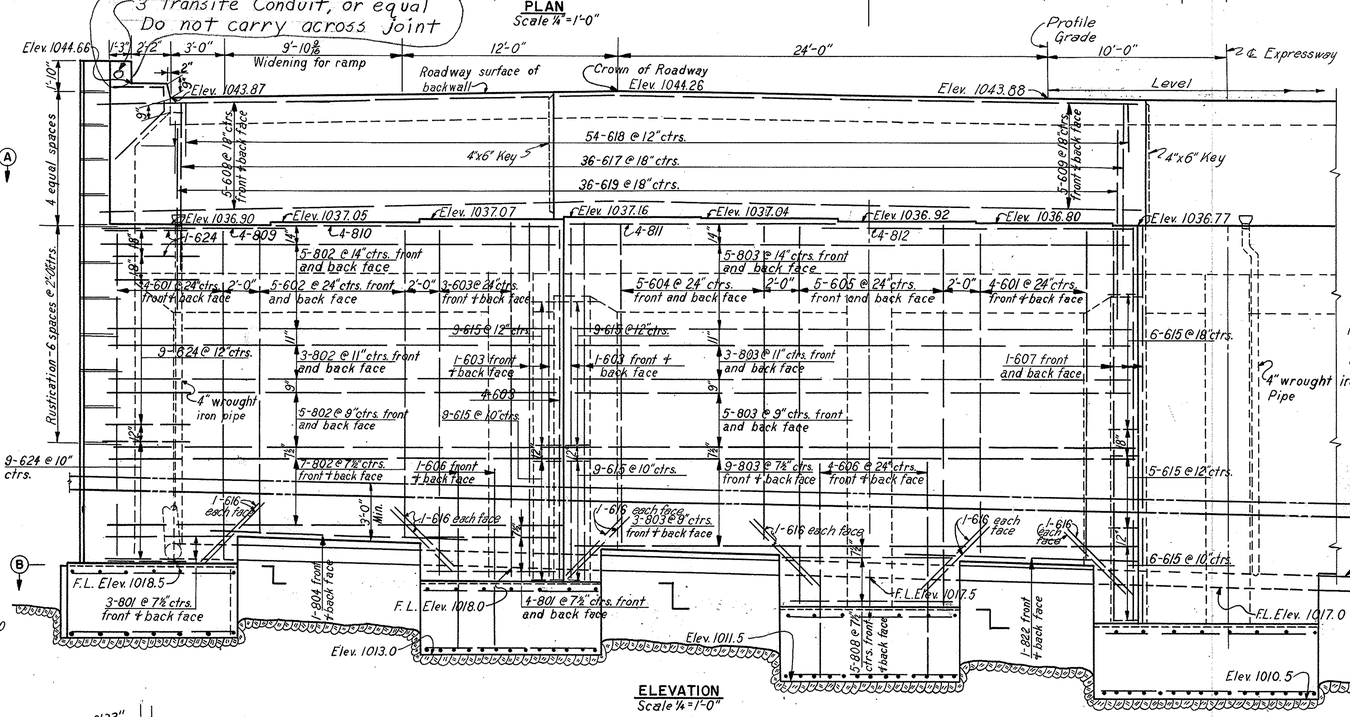


PLAN
Scale ¼"=1'-0"

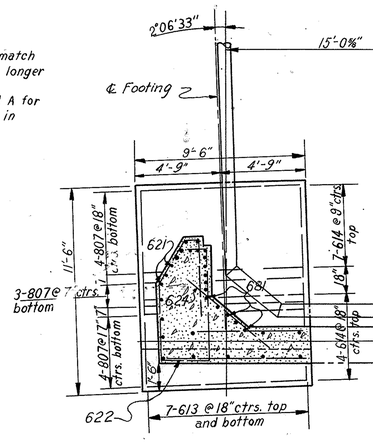


END VIEW
Scale ¼"=1'-0"

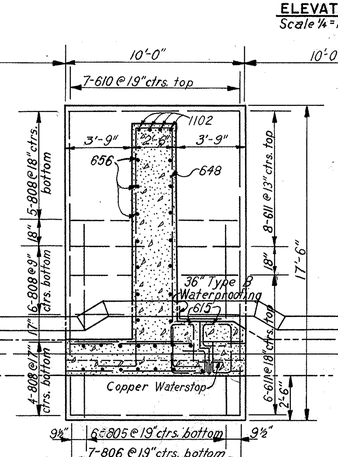
Note: Add dowels in footing to match vertical reinforcing bars longer than 10'-0". See Sheet 130 Detail A for spacing of vertical bars in buttress.



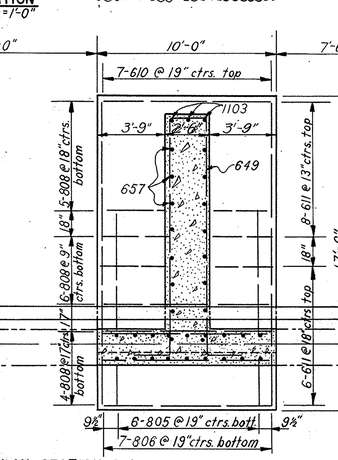
ELEVATION
Scale ¼"=1'-0"



C-A

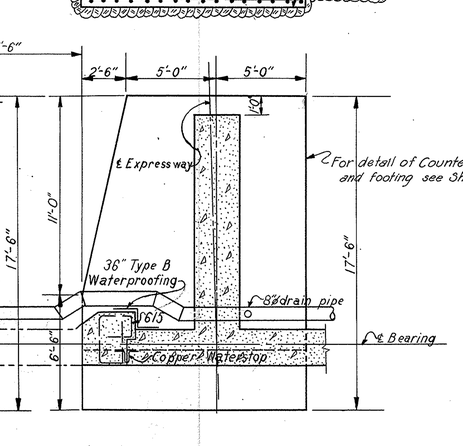


C-B

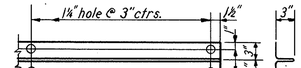


C-C

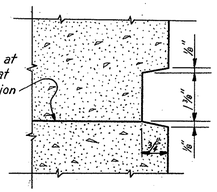
FOOTING PLAN SECTION B-B
Scale ¼"=1'-0"



C-D

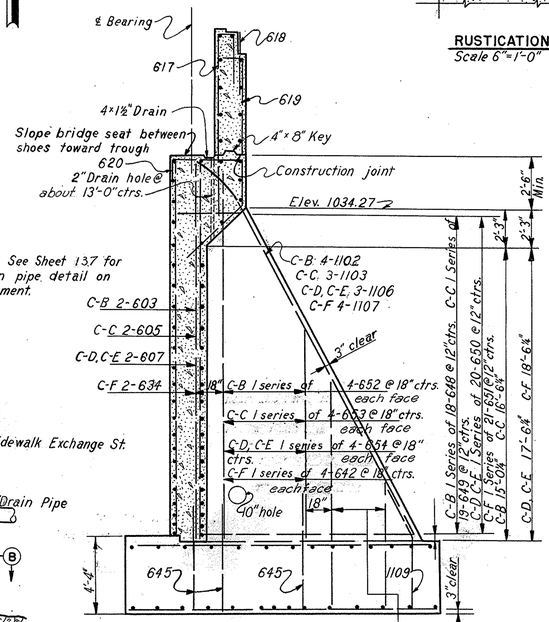


CONTRACTION JOINT WATER STOP
Scale 1"=1'-0"



Construction Joint at bridge seat to be at bottom of rustication

RUSTICATION
Scale 6"=1'-0"



TYPICAL COUNTERFORT
Scale ¼"=1'-0"

C-B 1 series of 3-656 @ 18" ctrs. each face
C-C 1 series of 3-657 @ 18" ctrs. each face
C-D, CE 1 series of 3-658 @ 18" ctrs. each face
C-F 1 series of 3-623 @ 18" ctrs. each face

Pencil revision 3-15-54

AKRON EXPRESSWAY SYSTEM

EXCHANGE STREET OVERPASS
BR. NO. S U-5-112

NORTH ABUTMENT-WEST SIDE

AKRON SUMMIT COUNTY, OHIO

SCALE As shown
MADE A.K. DATE 10-29-52
TRCD E.N. DATE 12-4-52
CKD J.G.S. DATE 12-4-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846 U SHEET 129

209

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

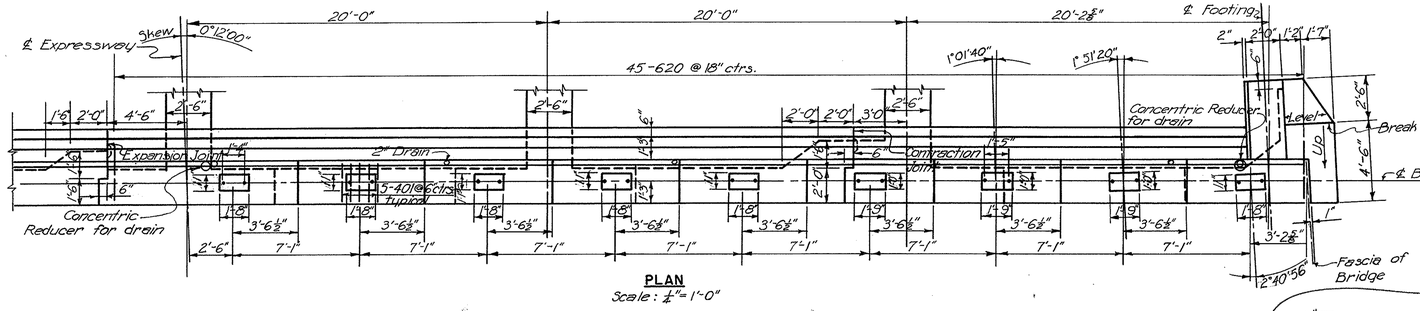
130
172

SUMMIT COUNTY
CITY OF AKRON

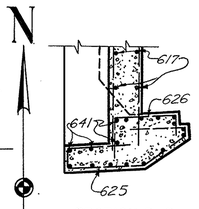
AKRON EXPRESSWAY SYSTEM

EXPRESSWAY-PART 5

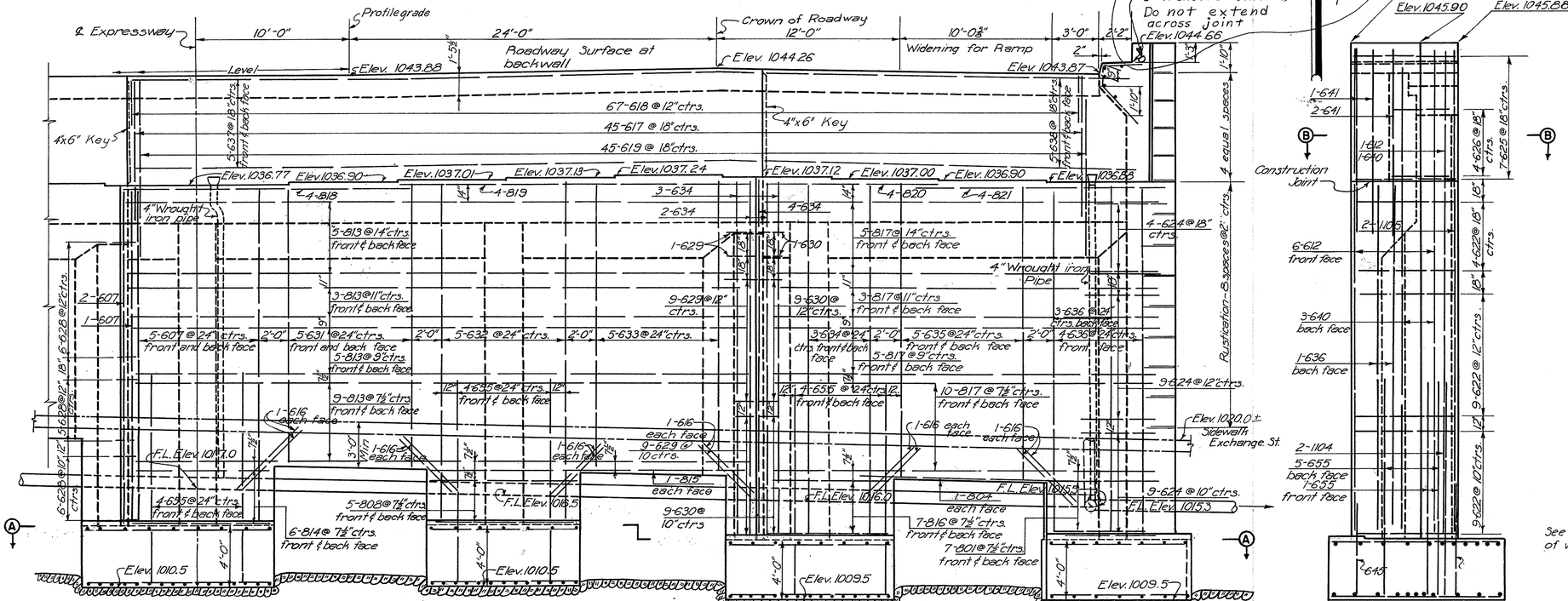
SUM-5-10.95



PLAN
Scale: 1/4"=1'-0"

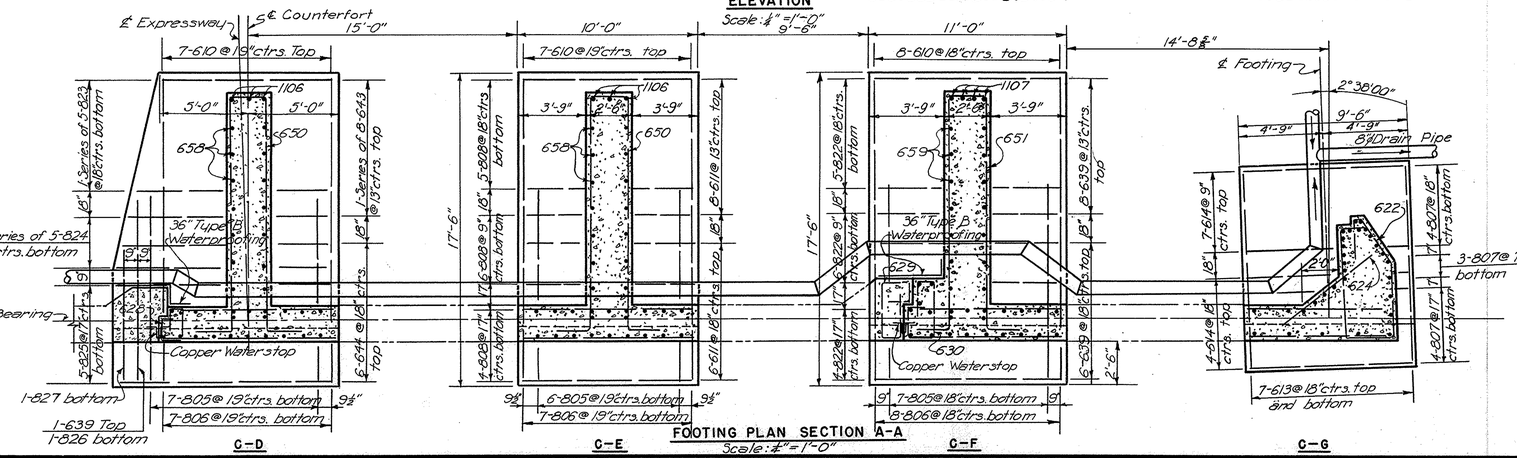


SECTION B-B
Scale: 1/4"=1'-0"

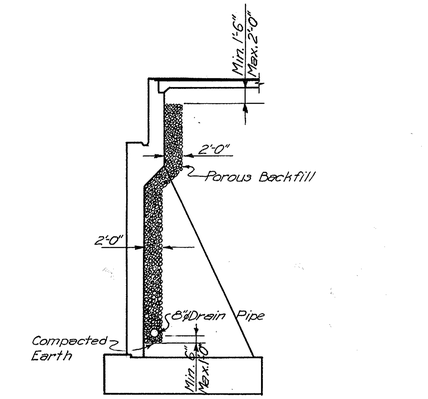


ELEVATION
Scale: 1/4"=1'-0"

END VIEW
Scale: 1/4"=1'-0"



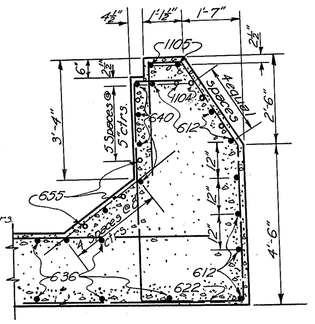
FOOTING PLAN SECTION A-A
Scale: 1"=1'-0"



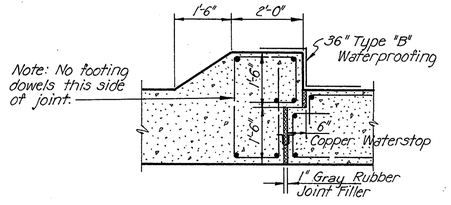
SECTION SHOWING POROUS BACKFILL
Not to scale

Note: For Reinforcing bars in sidewalk on buttress, see sidewalk on Sheet 129.
For Counterfort detail, see Sheet 129.
For Drain pipe detail on abutment, see Sheet 137.

See Detail A for spacing of vertical bars in buttress.



DETAIL A
Scale: 1/2"=1'-0"



TYPICAL EXPANSION JOINT
Scale: 1/2"=1'-0"

Pencil revision 3-15-54

AKRON EXPRESSWAY SYSTEM

EXCHANGE STREET OVERPASS
BR. NO. SU-5-112

NORTH ABUTMENT-EAST SIDE

AKRON SUMMIT COUNTY, OHIO

SCALE As shown
MADE R.K. DATE 10-31-52
TRCD WEG DATE 12-3-52
CKD W.M. DATE 12-4-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET 130

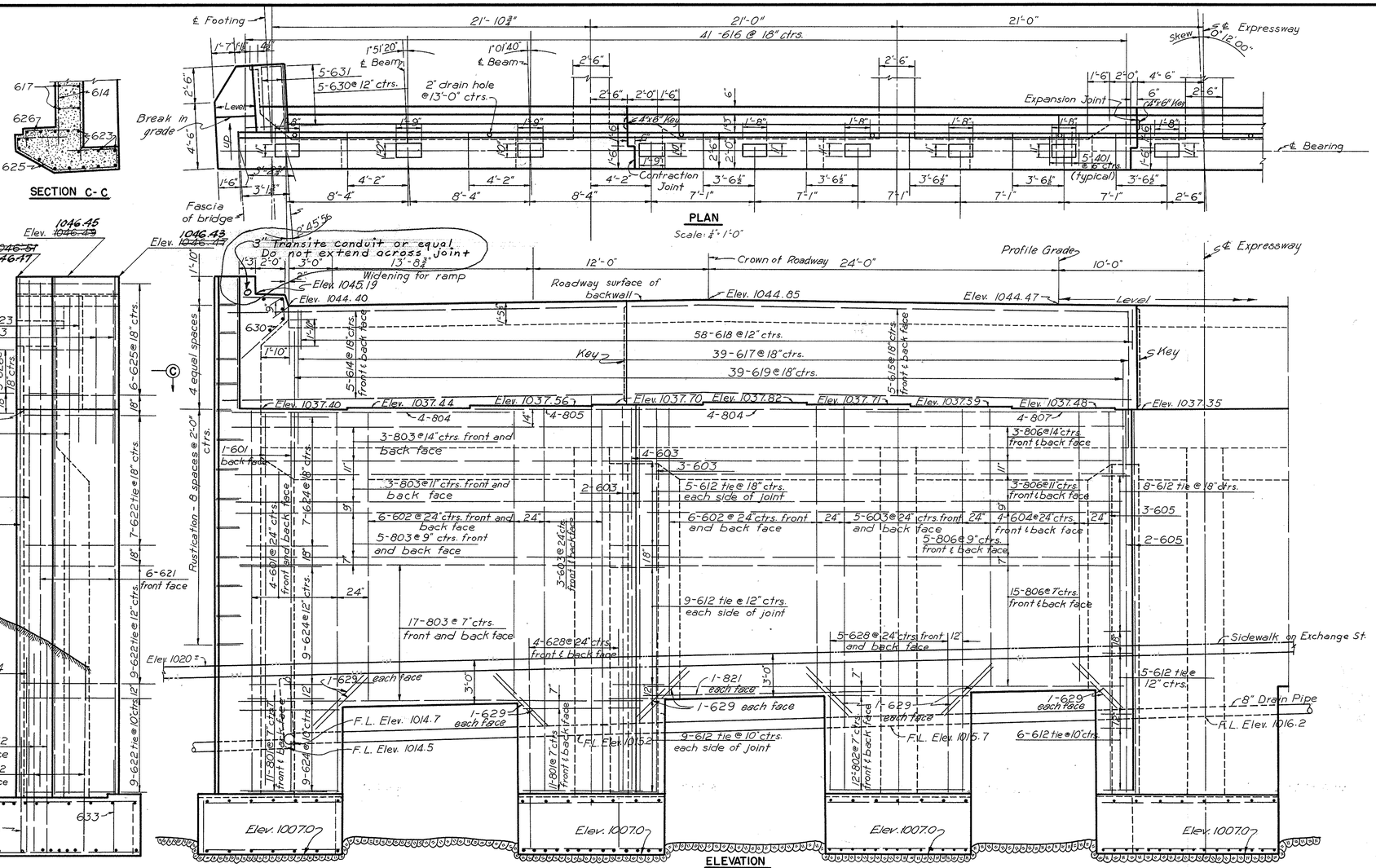
603

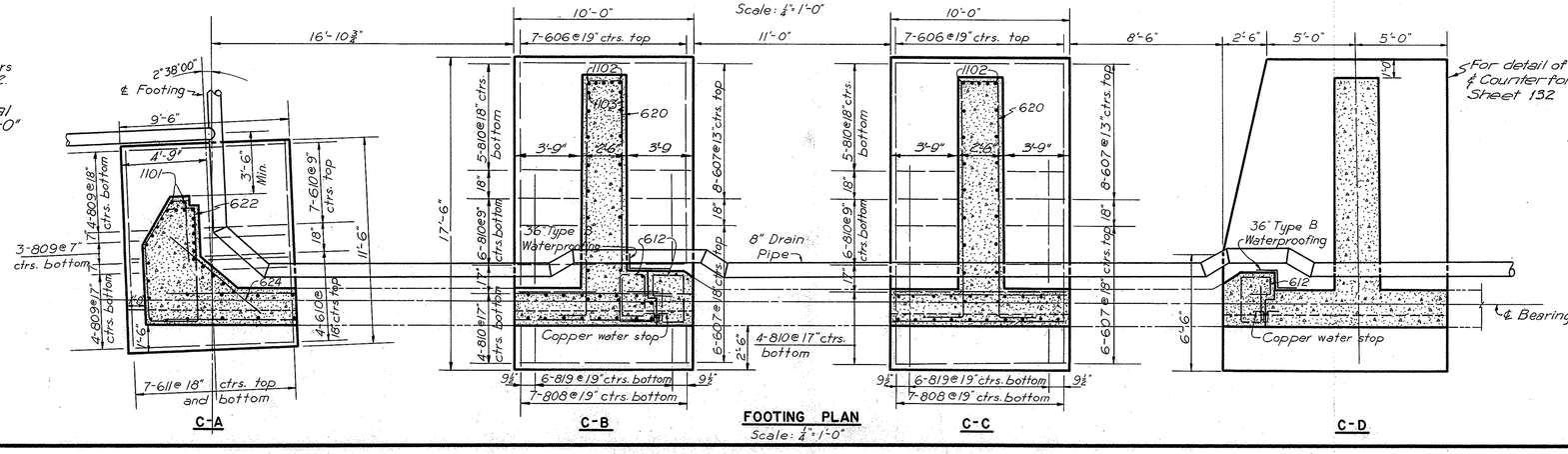
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

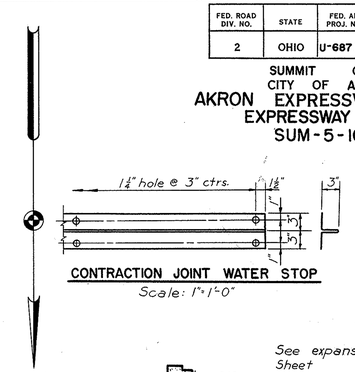
131
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95







Revised 8-6-53
Pencil revision 3-15-54

AKRON EXPRESSWAY SYSTEM
EXCHANGE STREET OVERPASS
BR. NO. SU-5-112

SOUTH ABUTMENT - EAST SIDE

AKRON SUMMIT COUNTY, OHIO

SCALE As shown
MADE R.K. DATE 10-22-52
TRCD L.W.L. DATE 12-1-52
CKD J.G.S. DATE 12-2-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

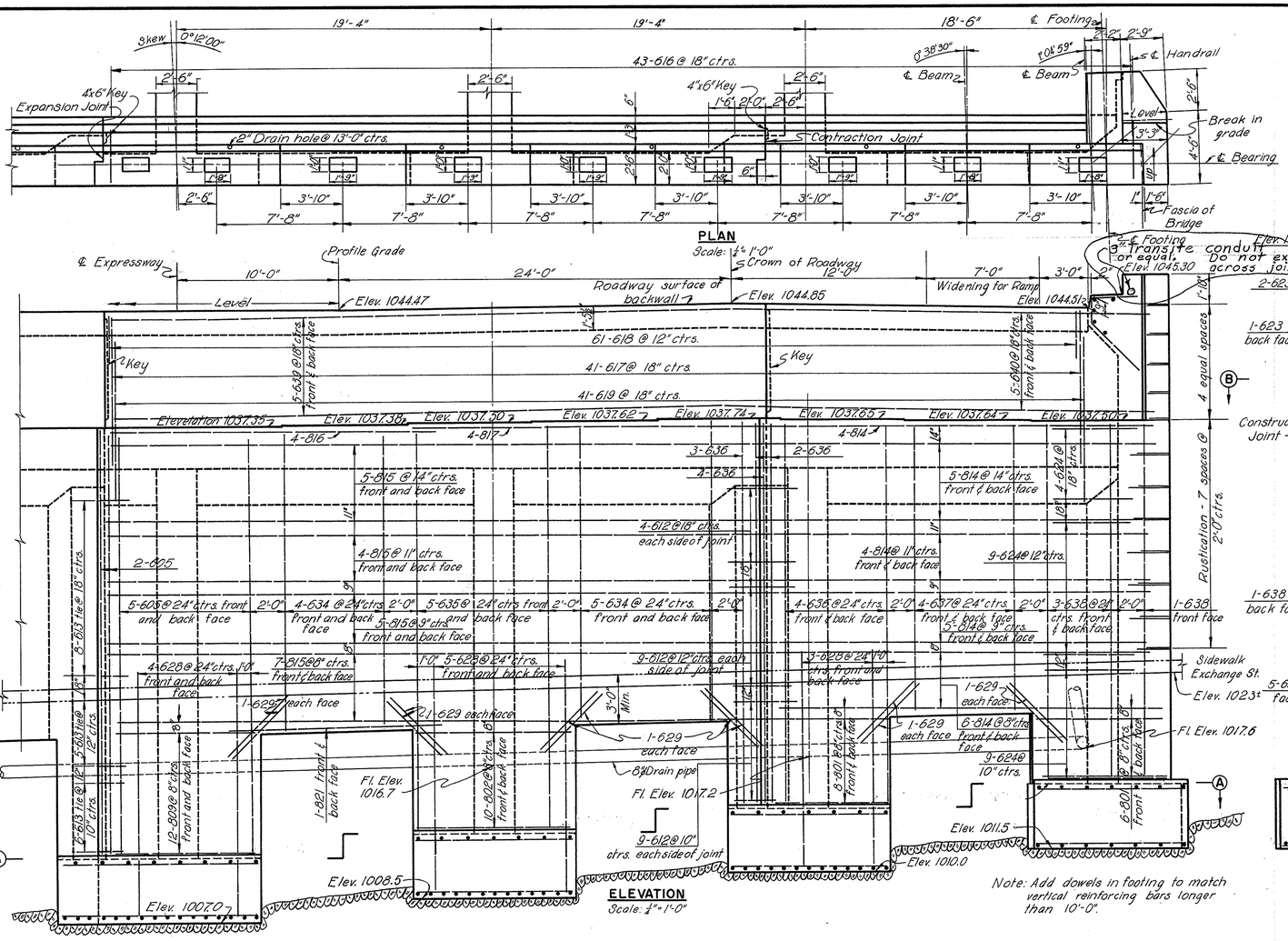
846-U SHEET 131

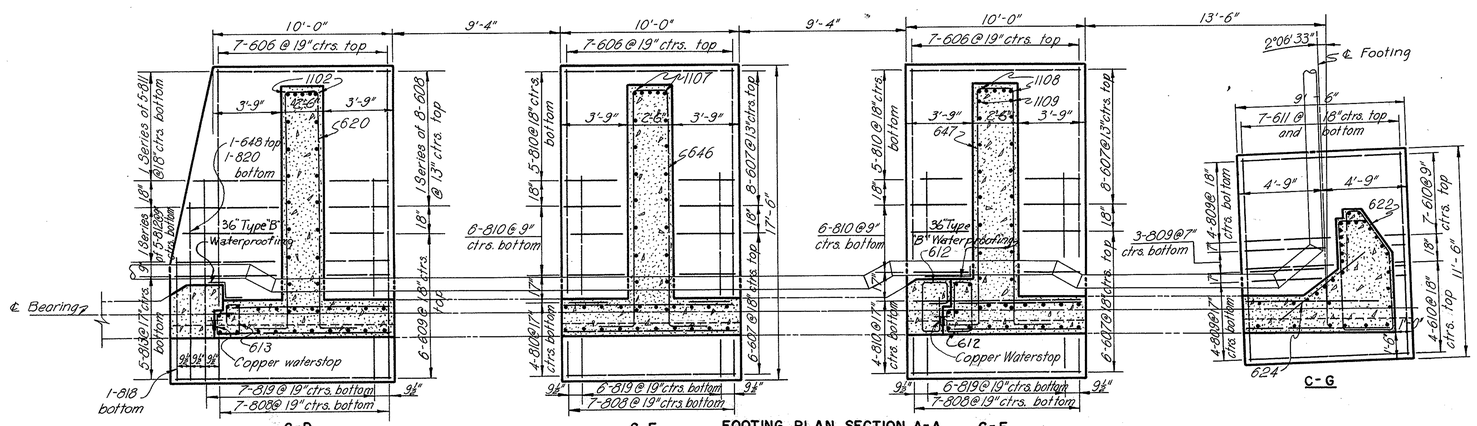
604

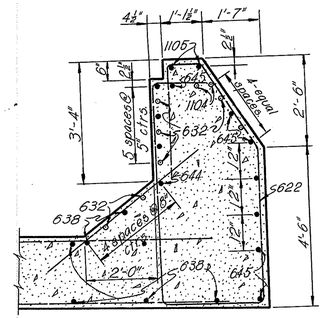
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

132
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95

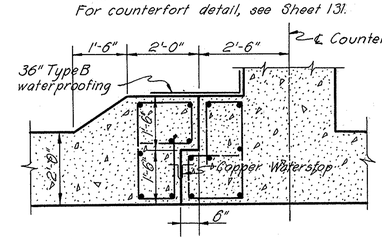






Bars marked ⊙ stop 10' above footing.

Note: For reinforcing bars in sidewalk on buttress see Sheet 131.
For counterfort detail, see Sheet 131.



TYPICAL CONTRACTION JOINT
Scale: 1/2" = 1'-0"

Pencil revision 3-15-54

AKRON EXPRESSWAY SYSTEM
EXCHANGE STREET OVERPASS
BR. NO. SU-5-112
SOUTH ABUTMENT - WEST SIDE

AKRON SUMMIT COUNTY, OHIO

SCALE As shown
MADE R. K. DATE 10-25-52
TRCD. C. A. H. DATE 11-29-52
CKD. M. J. K. DATE 12-1-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

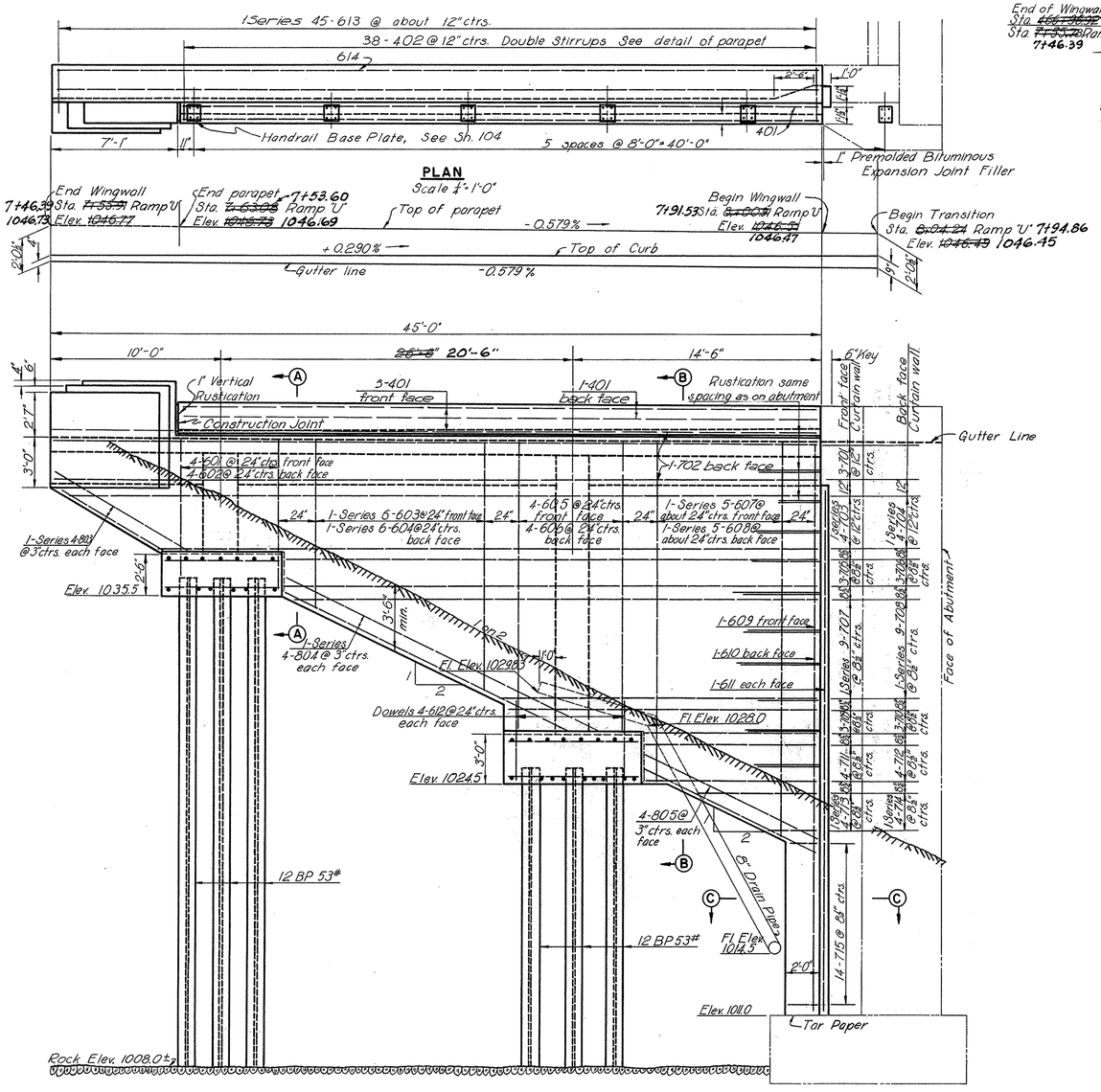
846-U SHEET- 132

605

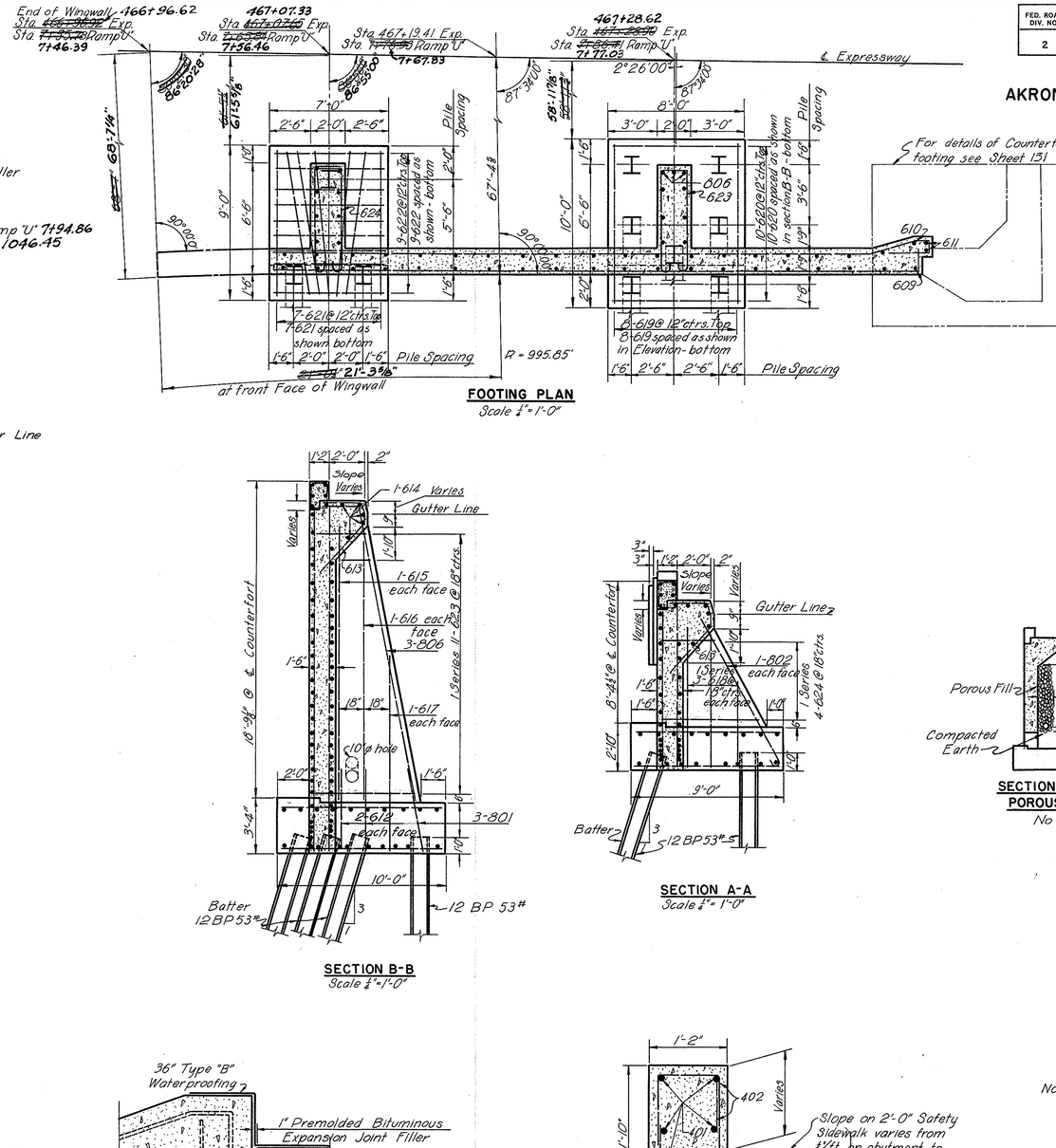
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

133
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95



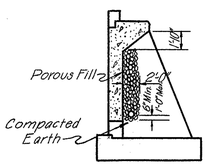
ELEVATION
Scale: 1/4"=1'-0"



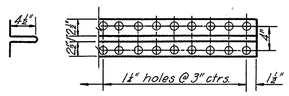
FOOTING PLAN
Scale 1"=1'-0"

SECTION B-B
Scale 1/4"=1'-0"

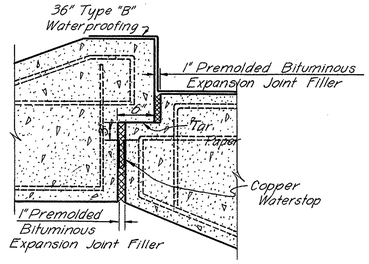
SECTION A-A
Scale 1/4"=1'-0"



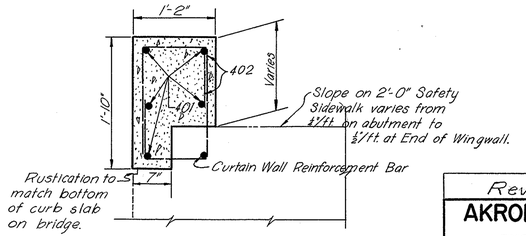
SECTION SHOWING POROUS BACKFILL
No Scale



EXPANSION JOINT WATER STOP
Material: 24 oz. copper
Scale: 1"=1'-0"



SECTION C-C
Scale: 1"=1'-0"



DETAIL OF PARAPET
Scale: 1"=1'-0"

Notes:
For end post details, see sh. 104
For drainage location, see sh. 126

Revised 8-6-53

AKRON EXPRESSWAY SYSTEM
EXCHANGE STREET OVERPASS
BR. NO. SU-5-112
SOUTHEAST WINGWALL

AKRON SUMMIT COUNTY, OHIO

SCALE 1/4" = 1'-0"
MADE J.G.S. DATE 10-28-52
TRCD. C.A.H. DATE 11-22-52
CKD. J.G.S. DATE 11-24-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

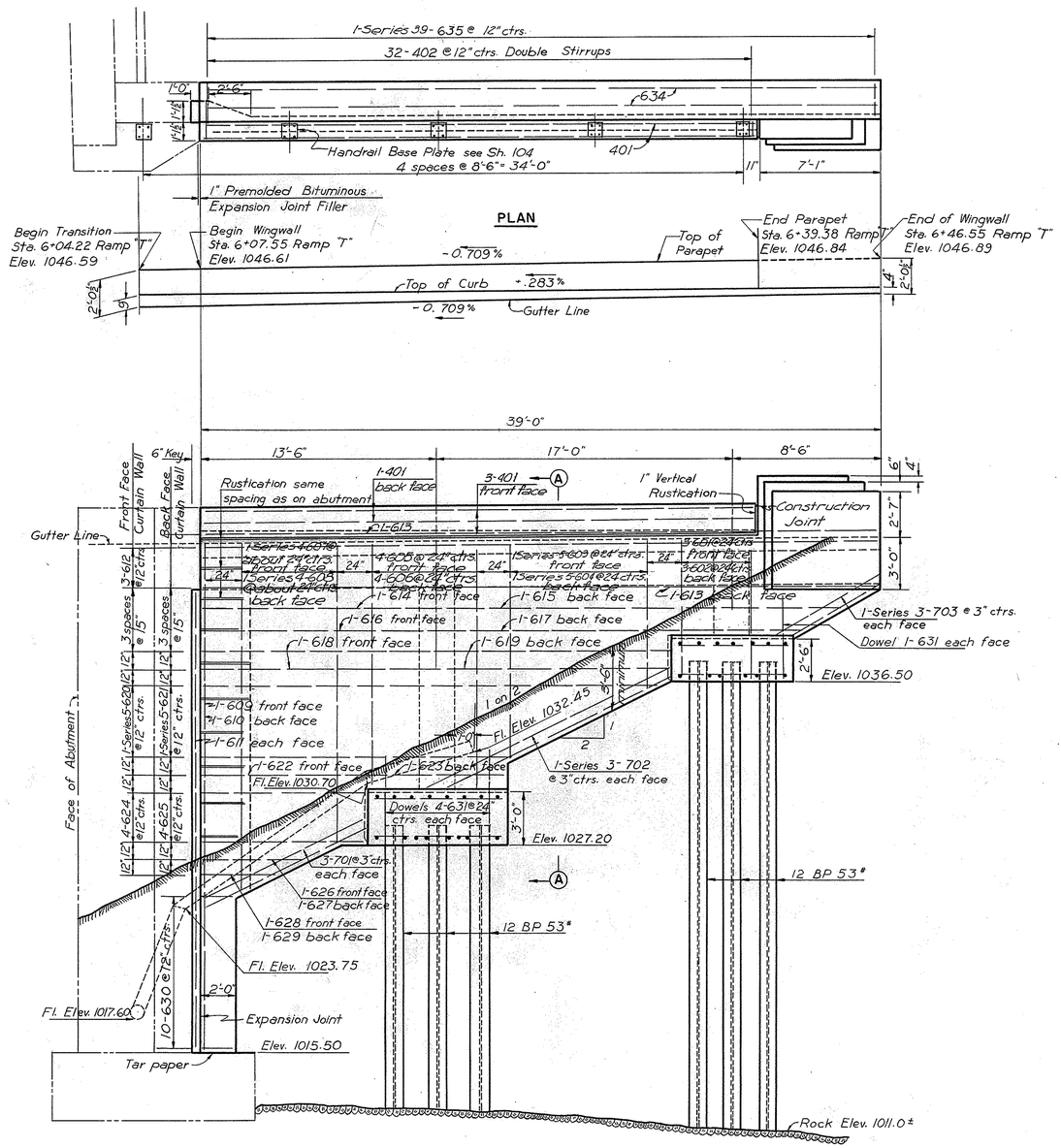
846-U SHEET- 133

606

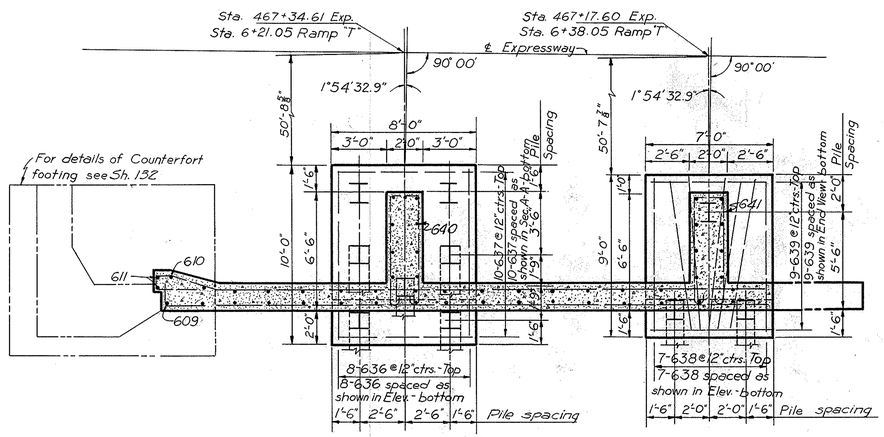
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

134 / 172

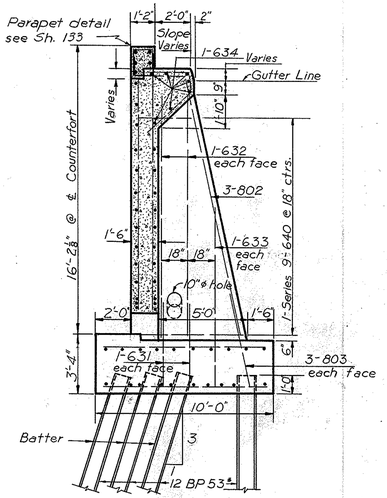
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95



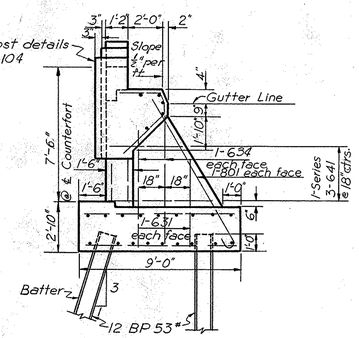
ELEVATION



FOOTING PLAN



SECTION A-A



END VIEW

Note:
For details of Expansion Joint see sheet 134.
For drainage location see sheet 128.
For porous backfill section see sheet 133.

AKRON EXPRESSWAY SYSTEM
EXCHANGE STREET OVERPASS
BR. NO. SU-5-112
SOUTHWEST WINGWALL
AKRON SUMMIT COUNTY, OHIO

SCALE 1/4"=1'-0"
MADE J.G.S. DATE 11-4-52
TRCD L.W.L. DATE 11-22-52
CKD W.C.M. DATE 12-2-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

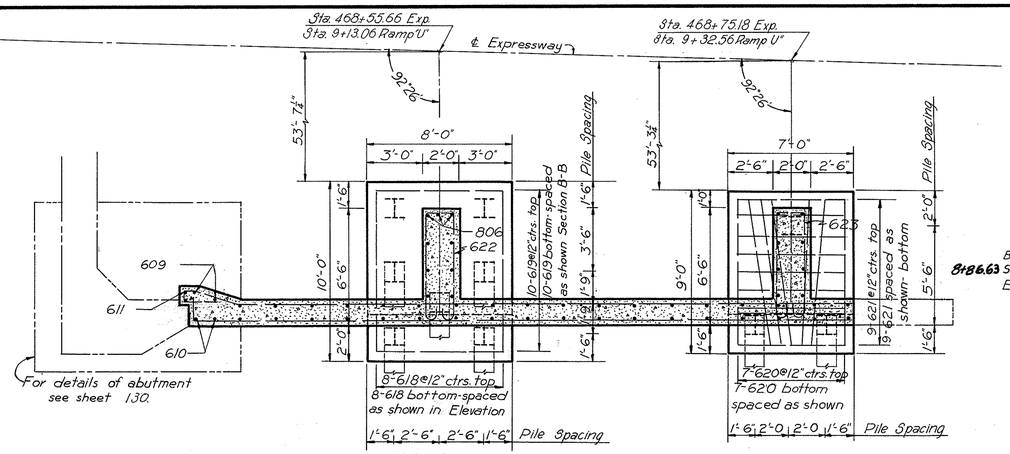
846-U SHEET- 134

607

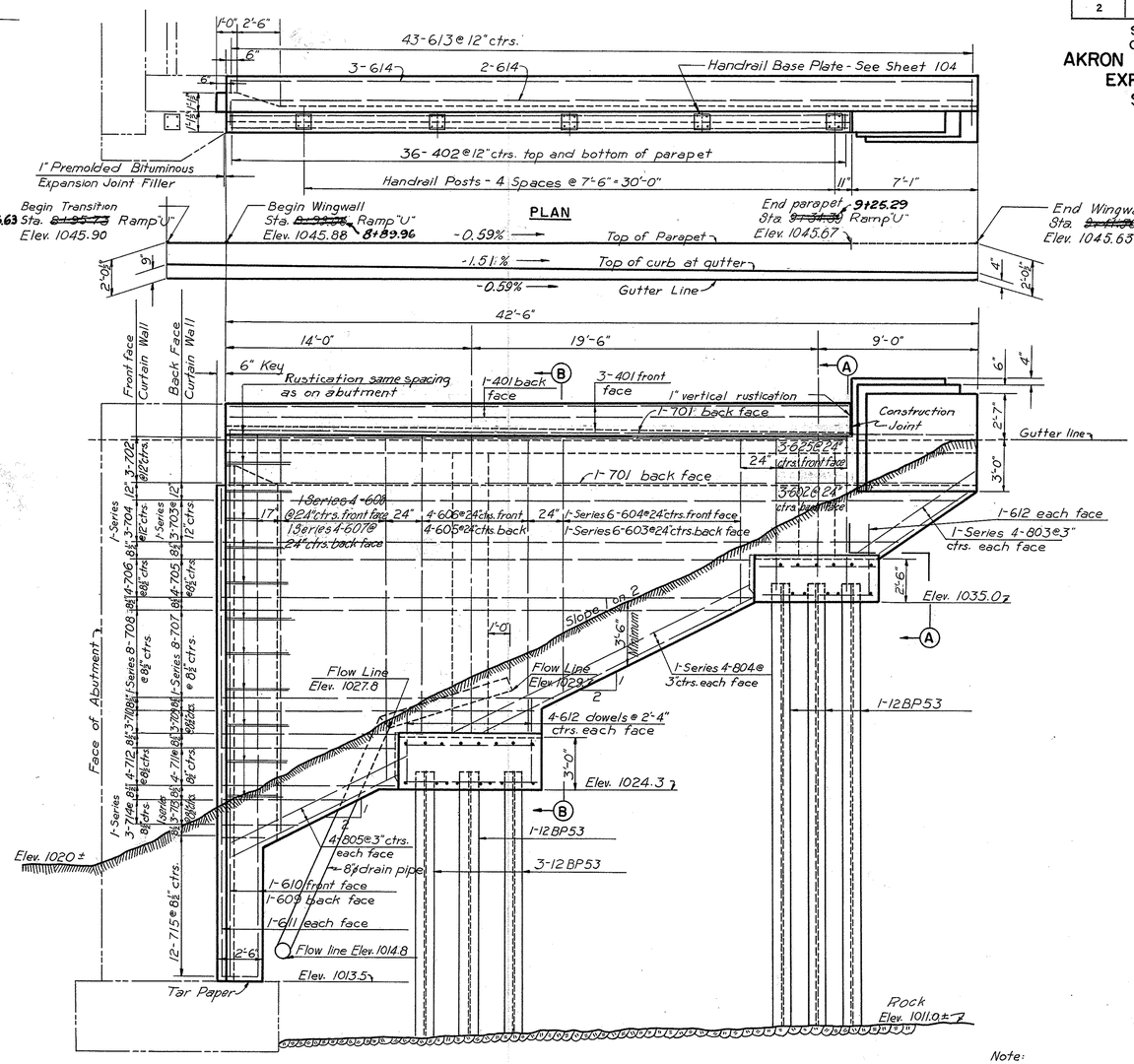
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

135
172

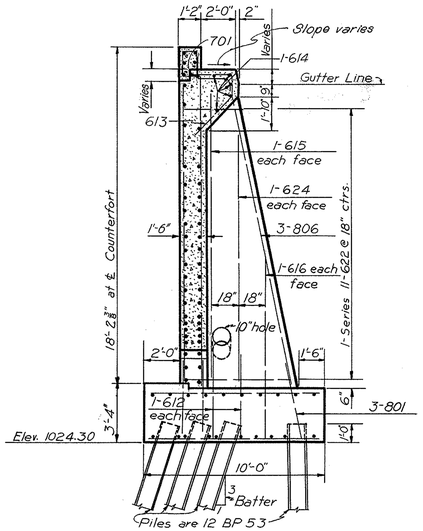
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY PART 5
SUM-5-10.95



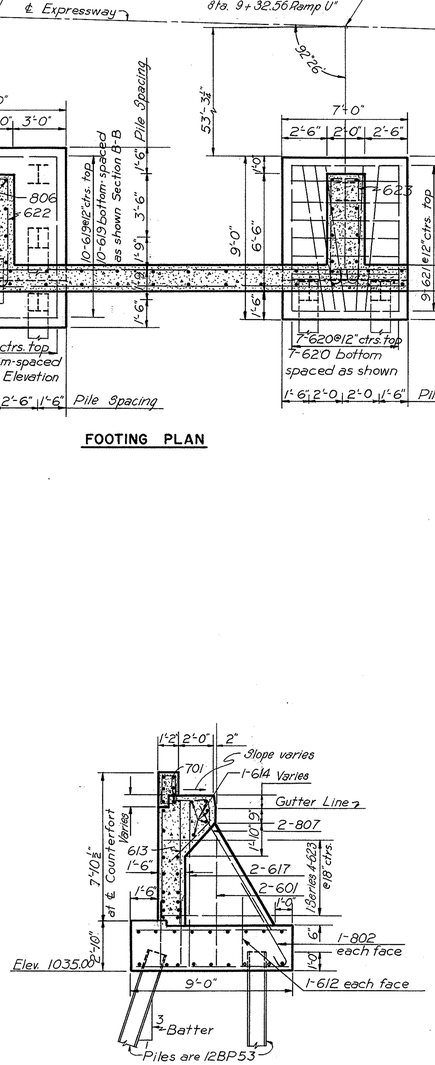
FOOTING PLAN



ELEVATION



SECTION B-B



SECTION A-A

Note:
For end post details see sheet 104.
For details of parapet see sheet 133.
For details of expansion joint see sheet 133.
For drainage location see sheet 128.

Revised 8-6-53

AKRON EXPRESSWAY SYSTEM
EXCHANGE STREET OVERPASS
BR. NO. SU-5-112

NORTHEAST WINGWALL

AKRON SUMMIT COUNTY, OHIO

SCALE 1" = 1'-0"
MADE MJK DATE 11-3-52
TRCD LWL DATE 11-25-52
CKD WBC DATE 11-28-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

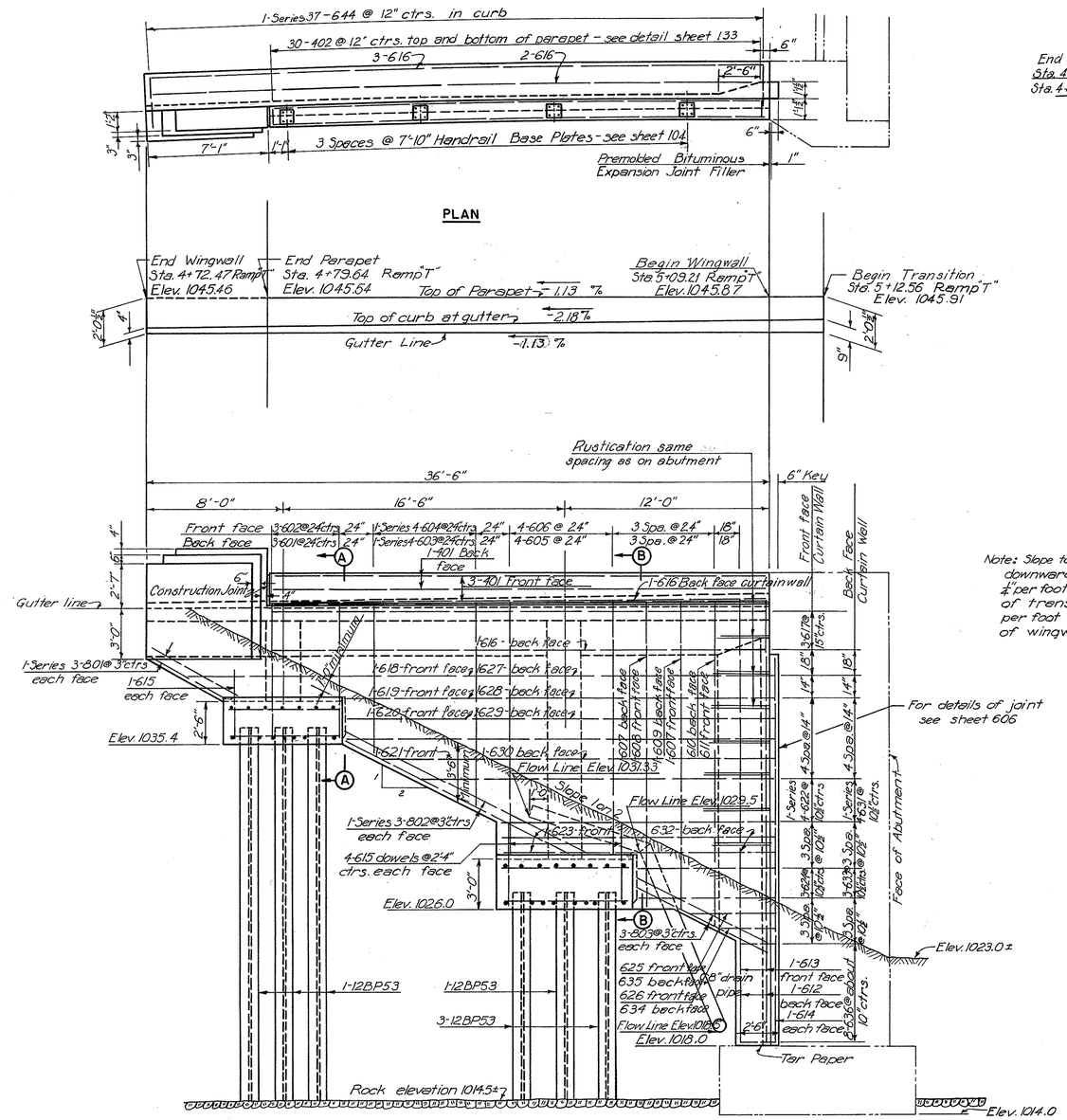
846-U SHEET- 135

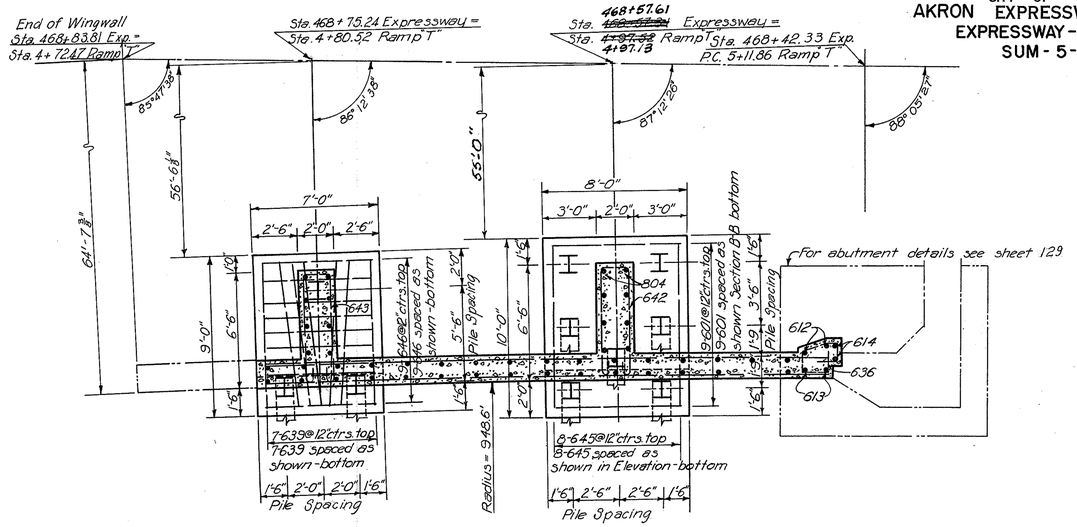
608

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

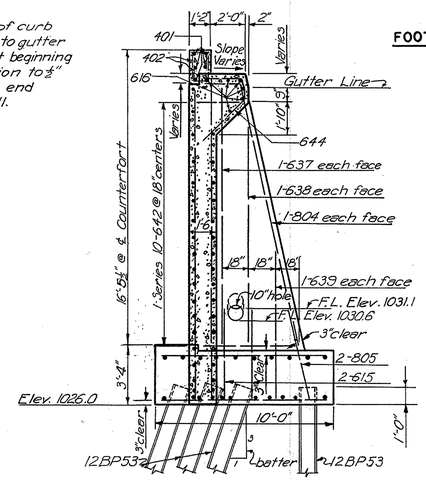
136
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95

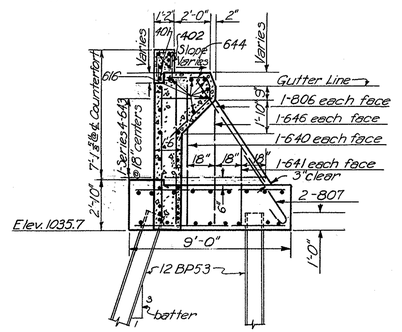




Note: Slope top of curb downward to gutter ¼" per foot at beginning of transition to ½" per foot at end of wingwall.



SECTION B-B



SECTION A-A

Note: For end post details see sheet 104.
For parapet details see sheet 133.
For drainage location see sheet 128.

Revised 8-6-53

AKRON EXPRESSWAY SYSTEM

EXCHANGE STREET OVERPASS

BR. NO. SU-5-112

NORTHWEST WINGWALL

AKRON SUMMIT COUNTY, OHIO

SCALE 1" = 1'-0"
MADE MJK DATE 11-7-52
TRCD WEG DATE 11-28-52
CKD WBC DATE 12-3-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET- 136

609

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

137
172

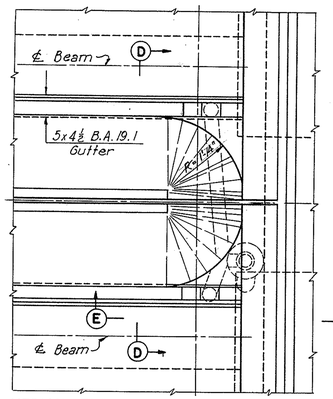
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95

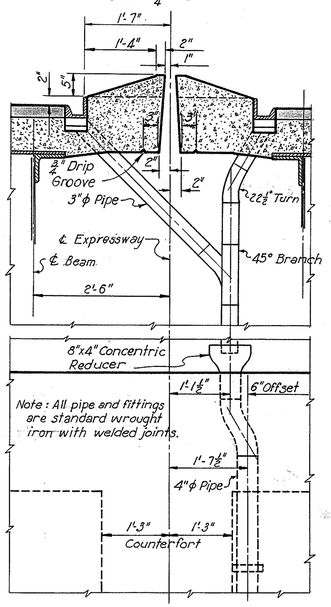
11" to End finish
86'-6" Center to center bearings
89-402 @ 12" ctrs. in parapet top and bottom
163-610 @ 6⅛" ctrs. top
60-610 @ 18" ctrs. bottom
2-401 in parapet
3-601 @ 18" ctrs. top
4-601 @ 12" ctrs. bottom
2-601 in slab
24'-0"
℄ Exchange Street
614 bottom
Stop 614
615 top
613 bottom
Scupper
54'-5" Roadway on ℄ of Bearing
44-601 @ 16" ctrs. top
37-601 @ 13" ctrs. between beams bottom
163-611 @ 6½" ctrs. in curb
1-Series of 133-606 @ 8" ctrs. top of slab
1-Series of 163-607 @ 6⅝" ctrs. bottom of slab
3-401 @ 6⅛" ctrs.
133-612 @ 8" ctrs. top of slab
163-616 @ 6⅝" ctrs. bottom of slab
87-403 @ 12" ctrs. in median curb
1'-7" median
℄ Expressway
61'-1⅜" Roadway on ℄ of Bearing
605 bottom
604 top
46-601 @ 16" ctrs. top
32-601 @ abour 13" ctrs. between beams bottom
Stop 602
25'-0"
602 top
Stop 603
11'-0"
603 bottom
1-Series of 133-608 @ 8" ctrs. top of slab
1-Series of 163-609 @ 6⅝" ctrs. bottom of slab
163-611 @ 6½" ctrs. in curb
44-601 @ 16" ctrs. top
5-601 @ abour 13" ctrs. between beams bottom
57'-3⅜" Roadway on ℄ of Bearing
57'-5⅝" Roadway on ℄ of Bearing
46-601 @ 16" ctrs. top
32-601 @ abour 13" ctrs. between beams bottom
2-401 (parapet)
2-601 in slab
3-601 @ 18" ctrs. top
4-601 @ 12" ctrs. bottom
163-610 @ 6⅛" ctrs. top
60-610 @ 18" ctrs. bottom
89-402 @ 12" ctrs. in parapet top and bottom

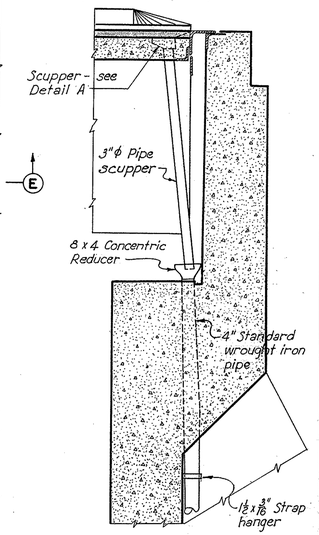
SLAB PLAN
Scale: 1" = 1'-0"

Note: 8"x4" Concentric reducer to be Crane Type Steel Butt-Weld Reducer or equal.

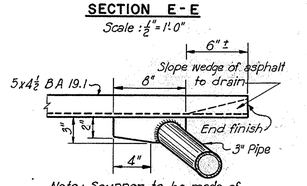


MEDIAN END FINISH AND DRAINS
Scale: ⅜" = 1'-0"





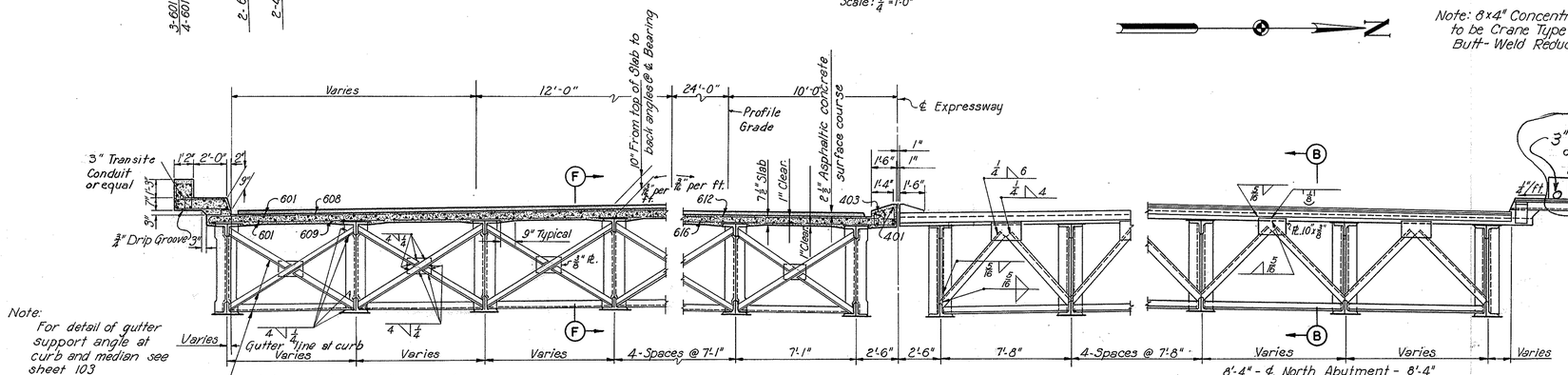
SECTION E - E
Scale: ½" = 1'-0"



Note: Scupper to be made of ⅜" material.

DETAIL A
Scale: 1½" = 1'-0"

Note: West drain has no lateral offset and is a single vertical drain. Other details as shown for median drain.

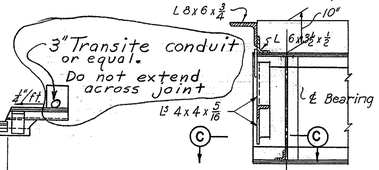


Note: For detail of gutter support angle at curb and median see sheet 103

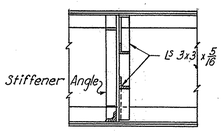
Intermediate cross frame angles are 3" x 3" x 5/16". Weld diagonals as shown. Weld both sides of vertical and top side of horizontal leg of bottom angle to beam with continuous ¼" fillet weld.

SECTION A - A
Scale: ¼" = 1'-0"

End cross frame angles are 4" x 4" x 5/16".

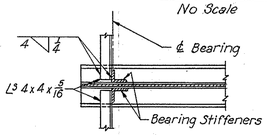


SECTION D - D
Scale: ¾" = 1'-0"



SECTION F - F
No Scale

SECTION B - B
No Scale



SECTION C - C
Scale: ½" = 1'-0"

Pencil revision 3-15-54

AKRON EXPRESSWAY SYSTEM
EXCHANGE STREET OVERPASS
BR. NO. SU - 5 - 112

SLAB PLAN AND CROSS SECTION

AKRON — SUMMIT COUNTY, — OHIO

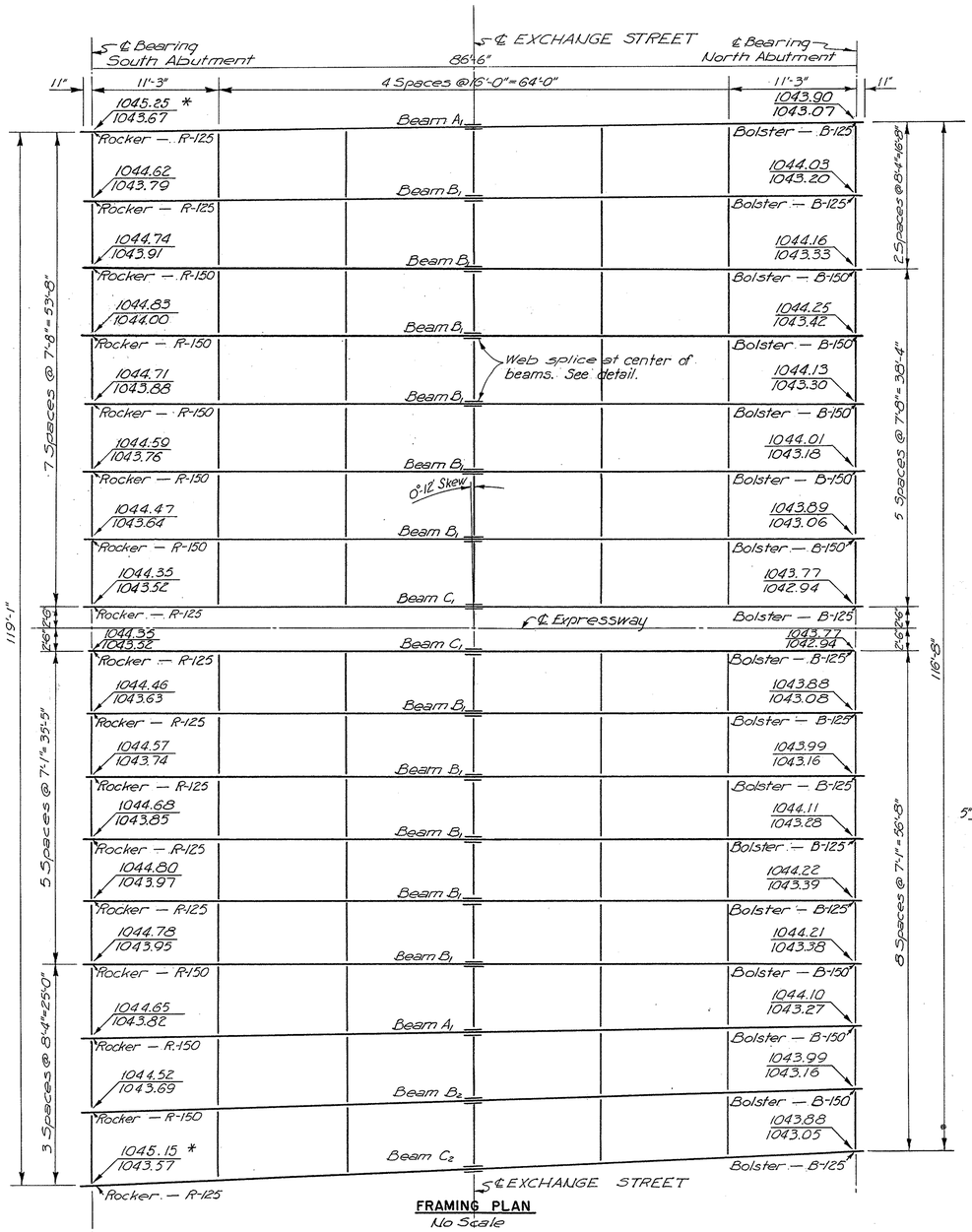
SCALE As shown
MADE MJK DATE 10-28-52
TRCD WL & SF DATE 11-18-52
CKD LET DATE 11-22-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

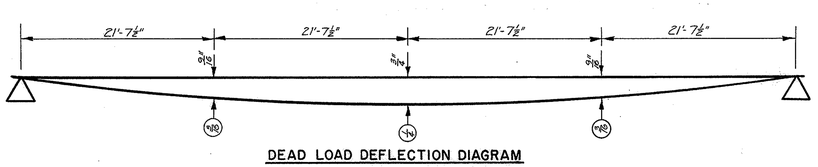
846-U SHEET- 137

610

P.G. 6/23/55

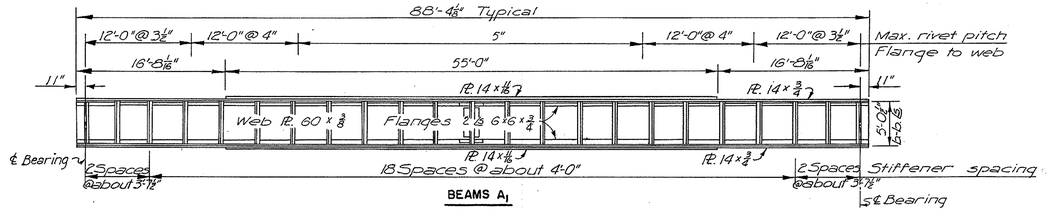


FRAMING PLAN
No Scale

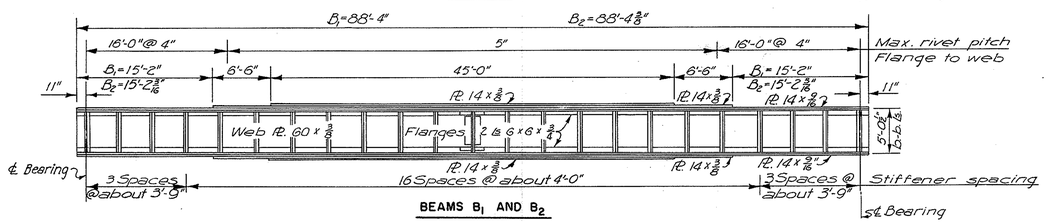


DEAD LOAD DEFLECTION DIAGRAM

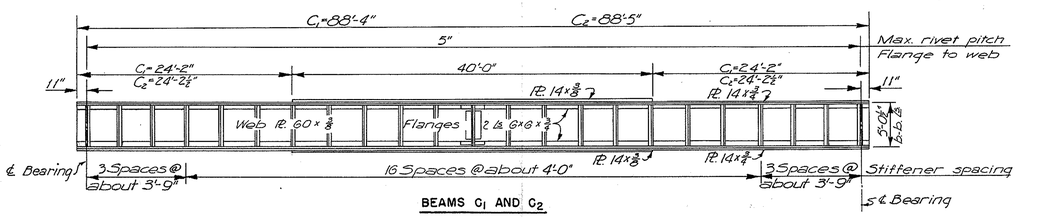
Note:
Dimensions in ◯ are deflections which may be expected in the steel beams when in place.
Dimensions above base line are additional deflections to be expected when the concrete is in place.



BEAMS A_1



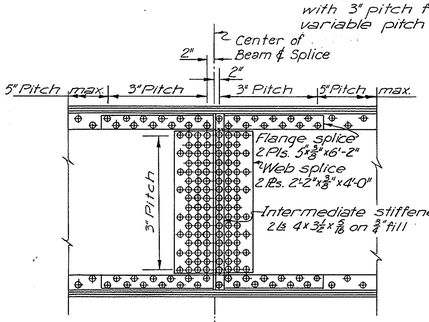
BEAMS B_1 AND B_2



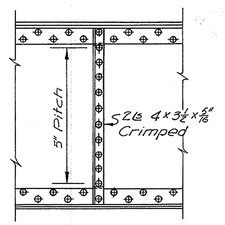
BEAMS C_1 AND C_2

BEAM ELEVATIONS
Scale : 1/8" = 1'-0"

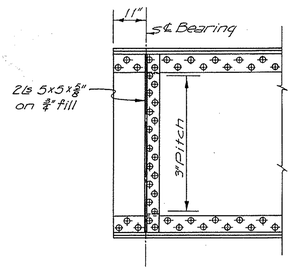
Note:
Maximum cover plate rivet spacing 5" with 3" pitch for 21" and then 1'-9" of variable pitch each end.



WEB SPLICE

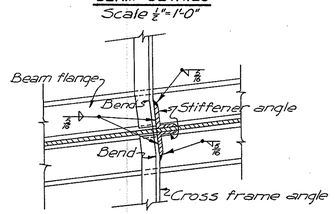


INTERMEDIATE STIFFENER



BEARING STIFFENER

BEAM DETAILS
Scale 1/2" = 1'-0"



SECTION THROUGH CROSS FRAMES AT BEAMS A_1, B_2, & C_2.
Scale 1" = 1'-0"

Note : Upper elevations are top of slab.
Lower elevations are back of top flange angles.
Elevations marked * are top of curb.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

138
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95

AKRON EXPRESSWAY SYSTEM
EXCHANGE STREET OVERPASS
BR. NO. SU-5-112
FRAMING PLAN
AKRON SUMMIT COUNTY, OHIO

SCALE As Noted
MADE W.B.G. DATE 10-27-52
TRCD G.R.C. DATE 11-29-52
CKD J.G.S. DATE 12-3-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846-U SHEET-138

611

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

139
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM

EXPRESSWAY - PART 5

SUM-5-10.95

SOUTHEAST WINGWALL

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
401	4	5	37'-0"	Str.					123
402	4	76	3'-4"	127	0'-10"	1'-0"	1'-6"		169
601	6	4	9'-0"	Str.					54
602	6	4	9'-6"	Str.					57
603	6	13/16 OF 6	9'-0" to 14'-6"	Str.					109
604	6	13/16 OF 6	10'-3" to 15'-0"	Str.					114
605	6	4	16'-0"	Str.					101
606	6	4	17'-3"	Str.					104
607	6	13/16 OF 6	19'-0" to 23'-0"	Str.					160
608	6	13/16 OF 6	20'-3" to 23'-6"	Str.					164
609	6	1	33'-0"	Str.					50
610	6	1	33'-6"	Str.					50
611	6	2	30'-3"	Str.					91
612	6	12	4'-9"	Str.					86
613	6	1 OF 12	6'-9" to 7'-3"	120	2'-3"	4'-0"	0'-6"		400
614	6	5	44'-6"	Str.					334
615	6	2	16'-0"	Str.					48
616	6	2	15'-3"	Str.					46
617	6	2	11'-6"	Str.					34
618	6		5'-0" to 8'-3"	Str.					60
619	6	16	9'-6"	Str.					228
620	6	20	7'-6"	Str.					225
621	6	14	8'-6"	Str.					179
622	6	18	6'-6"	Str.					176
623	6	1 OF 11	9'-6" to 15'-6"	133	1'-6"	340'-6" to 341'-0"	1'-0"		206
624	6	1 OF 6	10'-0" to 15'-6"	133	1'-6"	343'-6" to 344'-0"	1'-0"		77
701	7	3	45'-9"	104	44'-0"	1'-9"			281
702	7	2	44'-0"	Str.					180
703	7	1 OF 2	40'-3" to 45'-3"	104	386'-6" to 403'-6"	1'-9"			349
704	7	1 OF 4	42'-6" to 47'-6"	124	354'-6" to 401'-6"	0'-8"	0'-8"		378
705	7	3	32'-9"	104	31'-0"	1'-9"			201
706	7	3	35'-0"	124	28'-0"	0'-8"	0'-8"		214
707	7	1 OF 6	20'-3" to 32'-3"	108	184'-6" to 307'-6"	1'-9"			483
708	7	1 OF 6	22'-6" to 34'-6"	124	154'-6" to 277'-6"	0'-8"	0'-8"		526
709	7	3	19'-9"	104	18'-0"	1'-9"			121
710	7	3	32'-0"	124	15'-0"	0'-8"	0'-8"		135
711	7	4	11'-9"	104	10'-0"	1'-9"			96
712	7	4	14'-0"	124	7'-0"	0'-8"	0'-8"		115
713	7	1 OF 6	4'-9" to 9'-0"	108	34'-0" to 71'-3"	1'-9"			156
714	7	1 OF 6	7'-0" to 11'-3"	124	0'-0" to 4'-3"	0'-8"	0'-8"		75
715	7	14	9'-1"	121					259
801	8	3	5'-3"	Str.					42
802	8	2	11'-4"	101	10'-0"	1'-4"			60
803	8	1 OF 2	7'-6" to 8'-9"	Str.					87
804	8	1 OF 4	18'-3" to 20'-0"	Str.					204
805	8	4	11'-0"	Str.					117
806	8	3	19'-6"	122	17'-6"	2'-0"	17	3/4	156
BARS IN END POST									
684	6	2	9'-0"	Str.					27
685	6	2 OF 4	7'-0" to 9'-0"	Str.					96
686	6	1	6'-3"	Str.					9
687	6	3	5'-9"	Str.					26
688	6	3	5'-3"	Str.					24
689	6	3	6'-9"	Str.					30
690	6	6	8'-0"	Str.					54
691	6	1	5'-6"	Str.					8
692	6	2	5'-0"	Str.					15

NORTHEAST WINGWALL

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
401	4	5	35'-0"	Str.					117
402	4	72	3'-4"	127	0'-10"	1'-0"	1'-6"		160
601	6	2	7'-0"	Str.					21
602	6	3	8'-9"	Str.					39
603	6	13/16 OF 6	9'-6" to 14'-6"	Str.					108
604	6	13/16 OF 6	9'-0" to 14'-0"	Str.					104
605	6	4	17'-0"	Str.					102
606	6	4	16'-6"	Str.					99
607	6	13/16 OF 6	19'-6" to 22'-6"	Str.					126
608	6	13/16 OF 6	19'-0" to 22'-0"	Str.					123
609	6	2	30'-9"	Str.					92
610	6	2	30'-3"	Str.					91
611	6	2	27'-6"	Str.					83
612	6	16	4'-9"	Str.					113
613	6	1 OF 12	6'-9" to 7'-3"	120	2'-3"	4'-0"	0'-6"		469
614	6	5	42'-0"	Str.					315
615	6	2	15'-9"	Str.					47
616	6	2	9'-9"	Str.					29
617	6	2	9'-0"	Str.					27
618	6	16	9'-6"	Str.					228
619	6	20	7'-6"	Str.					226
620	6	14	8'-6"	Str.					179
621	6	18	6'-6"	Str.					176
622	6	1 OF 11	9'-6" to 15'-0"	133	1'-6"	219'-6" to 349'-0"	1'-0"		198
623	6	1 OF 2	10'-4" to 14'-10"	133	1'-6"	345'-6" to 518'-0"	1'-0"		75
624	6	2	14'-0"	Str.					42
625	6	3	9'-3"	Str.					42

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
701	7	2	42'-0"	Str.					172
702	7	3	43'-0"	104	42'-0"	1'-0"			269
703	7	1 OF 3 OF 5	41'-9" to 45'-4"	124	34'-0" to 38'-4"	0'-8"	0'-8"		278
704	7	1 OF 6	39'-6" to 43'-1"	104	37'-6" to 41'-1"	1'-0"			253
705	7	4	33'-0"	124	26'-0"	0'-8"	0'-8"		275
706	7	4	31'-5"	104	29'-8"	1'-9"			257
707	7	1 OF 6 OF 8	22'-3" to 32'-6"	124	154'-3" to 254'-6"	0'-8"	0'-8"		451
708	7	1 OF 6 OF 8	20'-0" to 30'-3"	104	184'-3" to 286'-6"	1'-9"			411
709	7	3	21'-9"	124	14'-8"	0'-8"	0'-8"		133
710	7	3	19'-3"	104	17'-8"	1'-9"			119
711	7	4	13'-9"	124	6'-8"	0'-8"	0'-8"		111
712	7	4	11'-3"	104	9'-8"	1'-9"			92
713	7	1 OF 6 OF 8	8'-0" to 11'-0"	124	11'-0" to 61'-0"	0'-8"	0'-8"		98
714	7	1 OF 6 OF 8	5'-9" to 8'-9"	104	41'-0" to 71'-0"	1'-9"			45
715	7	12	9'-1"	121					222
801	8	3	5'-3"	Str.					42
802	8	2	6'-1"	101	4'-9"	1'-4"			33
803	8	2 OF 2 OF 4	6'-3" to 8'-0"	Str.					152
804	8	2 OF 2 OF 4	17'-6" to 19'-0"	Str.					390
805	8	8	10'-9"	Str.					230
806	8	3	19'-3"	122	17'-3"	2'-0"	17	3/4	154
807	8	2	7'-9"	Str.					41
BARS IN END POST									
684	6	2	9'-6"	Str.					28
685	6	2 OF 4	7'-0" to 9'-0"	Str.					96
686	6	1	8'-3"	Str.					9
687	6	3	5'-9"	Str.					26
688	6	3	5'-3"	Str.					24
689	6	3	6'-9"	Str.					30
690	6	6	8'-0"	Str.					54
691	6	1	5'-6"	Str.					8
692	6	2	5'-0"	Str.					15

SOUTHWEST WINGWALL

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
401	4	5	31'-6"	Str.					105
402	4	64	3'-4"	127	0'-10"	1'-0"	1'-6"		142
601	6	3	7'-9"	Str.					35
602	6	3	8'-3"	Str.					37
603	6	13/16 OF 6	8'-6" to 12'-6"	Str.					75
604	6	13/16 OF 6	9'-0" to 13'-0"	Str.					83
605	6	4	14'-3"	Str.					86
606	6	4	14'-9"	Str.					89
607	6	13/16 OF 6	17'-3" to 20'-0"	Str.					112
608	6	13/16 OF 6	17'-9" to 20'-6"	Str.					115
609	6	1	28'-0"	Str.					43
610	6	1	29'-3"	Str.					44
611	6	2	26'-0"	Str.					78
612	6	3	40'-3"	104	38'-6"	1'-9"			183
613	6	7	38'-6"	Str.					405
614	6	1	38'-3"	104	35'-6"	1'-9"			58
615	6	1	40'-6"	124	33'-6"	0'-8"	0'-8"		62
616	6	1	36'-0"	104	34'-3"	1'-9"			55
617	6	1	38'-3"	124	31'-3"	0'-8"	0'-8"		59
618	6	2	28'-3"	104	26'-6"	1'-9"			86
619	6	12	30'-6"	124	23'-6"	0'-8"	0'-8"		94
620	6	1 OF 6 OF 8	19'-6" to 27'-9"	104	17'-9" to 26'-0"	1'-9"			172
621	6	1 OF 6 OF 8	21'-3" to 30'-9"	124	14'-9" to 23'-0"	0'-8"	0'-8"		188
622	6	1	19'-0"	104	17'-3"	1'-9"			29
623	6	1	21'-3"	124	14'-3"	0'-8"	0'-8"		33
624	6	4	10'-9"	104	9'-0"	1'-9"			66
625	6	4	13'-0"	124	6'-0"	0'-8"	0'-8"		82
626	6	1	7'-6"	104	5'-9"	1'-9"			12
627	6	1	9'-3"	124	2'-3"	0'-8"	0'-8"		16
628	6	1	6'-0"	104	4'-3"	1'-9"			10
629	6	1	8'-6"	124	1'-3"	0'-8"	0'-8"		13
630	6	10	9'-1"	121					144
631	6	16	4'-9"	Str.					114
632	6	4	13'-3"	Str.					80
633	6	2	10'-3"	Str.					30
634	6	4	7'-0"	Str.					42
635	6	13/16 OF 6	6'-9" to 7'-3"	120	2'-3"	4'-0"	0'-6"		425
636	6	16	9'-6"	Str.					228
637	6	20	7'-6"	Str.					218
638	6	14	8'-6"	Str.					179
639	6	18	6'-6"	Str.					176
640	6	1 OF 6 OF 8	9'-6" to 14'-6"	133	1'-6"	31'-0" to 54'-6"	1'-0"		177
641	6	1 OF 3	11'-0" to 14'-6"	133	1'-6"	34'-0" to 54'-9"	1'-0"		53
701	7	6	10'-3"	Str.					126
702	7	2 OF 3	14'-3" to 15'-3"	Str.					181
703	7	2 OF 3	5'-6" to 6'-6"	Str.					75
801	8	2	10'-4"	101	9'-0"	1'-4"			57
802	8	3	16'-9"	122	14'-9"	2'-0"	14	3	134
803	8	3	5'-3"	Str.					42
BARS IN END POSTS									
684	6	2	9'-0"	Str.					27
685	6	2 OF 4	7'-0" to 9'-0"	Str.					96
686	6	1	6'-3"	Str.					9

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
687	6	3	5'-9"	Str.					26
688	6	3	5'-3"	Str.					24
689	6	3	6'-9"	Str.					30
690	6	6	8'-0"	Str.					54
691	6	1	5'-6"	Str.					8
692	6	2	5'-0"	Str.					15

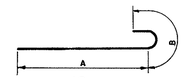
NORTHWEST WINGWALL

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
401	4	5	29'-0"	Str.					97
402	4	60	3'-4"	127	0'-10"	1'-0"	1'-6"		134
601	6	21	7'-6"	Str.					237
602	6	3	7'-3"	Str.					33
603	6	1 OF 2	8'-0" to 11'-9"	Str.					62
604	6	1 OF 4	9'-0" to 12'-0"	Str.					63
605	6	4	15'-0"	Str.					90
606	6	4	14'-9"	Str.					89
607	6	2	17'-9"	Str.					53
608	6	1	17'-6"	Str.					26
609	6	1	18'-3"	Str.					27
610	6	1	19'-3"	Str.					29
611	6	1	18'-9"	Str.					28
612	6	2	26'-3"	Str.					79
613	6	2	25'-0"	Str.					74
614	6	2	22'-6"	Str.					68
615	6	14	4'-6"	Str.					95
616	6	7	36'-0"	Str.					379
617	6	3	37'-0"	104	36'-0"	1'-9"			172
618	6	1	35'-9"	104	34'-0"	1'-9"			155
619	6	1	33'-6"	104	31'-9"	1'-9"			151
620	6	2	26'-3"	104	24'-6"	1'-9"			180
621	6	1	23'-3"	104	22'-6"	1'-9"			37
622	6	1 OF 2 OF 4	17'-6" to 22'-0"	104	115'-9" to 120'-3"	1'-9"			82
623	6	2	17'-3"	104	15'-6"	1'-9"			153
624	6	3	9'-3"	104	7'-6"	1'-9"			43
625	6	1	6'-9"	104	5'-0"	1'-9"			11
626	6	1	4'-6"	104	2'-9"	1'-9"			8
627	6	1	37'-10"	124	30'-10"	0'-8"	0'-8"		98
628	6	1	35'-8"	124	28'-6"	0'-8"	0'-8"		54
629	6	2	28'-6"	124	25'-6"	0'-8"	0'-8"		88
630	6	1	26'-1"	124	19'-3"	0'-8"	0'-8"		40
631	6	1 OF 6	17'-11" to 26'-10"	124	11'-11" to 16'-10"	0'-8"	0'-8"		134
632	6	2	19'-6"	124	12'-6"	0'-8"	0'-8"		61
633	6	3	11'-6"	124	4'-6"	0'-8"	0'-8"		55
634	6	1	7'-3"	124	0'-3"	0'-8"	0'-8"		12
635	6	1	9'-0"	124	1'-2"	0'-8"	0'-8"		14
636	6	8	9'-1"	121					115
637	6	2	14'-6"	Str.					44
638	6	2	13'-6"	Str.					41
639	6	16	8'-6"	Str.					204
640	6	2	7'-9"	Str.					23
641	6	2	4'-0"	Str.					12
642	6	13/16 OF 10	9'-0" to 15'-2"	133	1'-6"	324'-9" to 510'-8"	1'-0"		182
643	6	13/16 OF 10	9'-0" to 15'-0"	133	1'-6"	324'-9" to 504'-6"	1'-0"		72
644	6	13/16 OF 6	6'-9" to 7'-3"	120	2'-3"	4'-0"	0'-6"		402
645	6	16	9'-6"	Str.					231
646	6	20	6'-6"	Str.					195
801	8	2 OF 3 OF 5	5'-3" to 6'-3"	Str.					92
802	8	2 OF 3 OF 5	15'-3" to 16'-6"	Str.					254
803	8	6	8'-6"	Str.					136
804	8	2	17'-5"	122	15'-6"	2'-0"	15	3/4	93
805	8	2	5'-0"	Str.					27
806	8	2	7'-0"	Str.					37
807	8	2	6'-3"	101	4'-11"	1'-4"			33
BARS IN END POST									
684	6	2	8'-6"	Str.					25
685	6	2 OF 2	7'-0" to 8'-6"	Str.					93
686	6	1	6'-3"	Str.					9
687	6	3	5'-9"	Str.					26
688	6	3	5'-3"	Str.					24
689	6	3	6'-9"	Str.					30
690	6	6	8'-0"	Str.					54
691	6	1	5'-6"	Str.					8
692	6	2	5'-0"	Str.					15

SUPERSTRUCTURE SLAB

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
401	4	28	45'-0"	Str.					842
402	4	356	3'-2"	105	1'-0"	1'-1"			754
403	4	174	4'-3"	135					494
601	6	436	45'-0"	Str.					29469
602	6	1	35'-0"	Str.					53
603	6	1	30'-0"	Str.					45
604	6	2	21'-0"	Str.					63
605	6	2	35'-0"	Str.					105
606	6	13/16 OF 13 OF 16	29'-6" to 32'-6"	101	28'-6" to 31'-6"	1'-0"			6193
607	6	13/16 OF 16	28'-6" to 31'-6"	Str.					7345
608	6	13/16 OF 13	32'-6" to 35'-6"	101	31'-6" to 35'-6"	1'-0"			6900
609	6	13/16 OF 16	31'-6" to 35'-6"	Str.					8202
610	6	445	3'-8"	101	2'-8"	1'-0"			2456
611	6	326	3'-8"	107					1795
612	6	266	3'-1"	101	3'-0"	1'-0"			12385
613	6	2	22'-0"	Str.					66
614	6	1	32'-0"	Str.					48
615	6	1	46'-0"	Str.					69
616	6	326	30'-0"	Str.					1690

612



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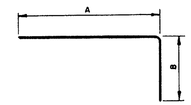

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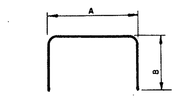

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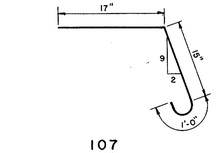

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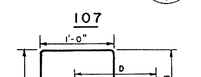

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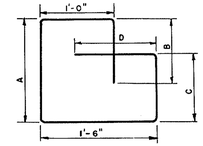

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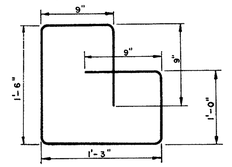

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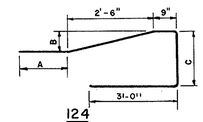

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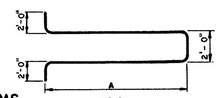

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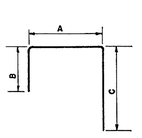

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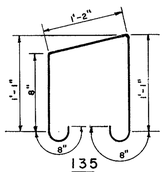

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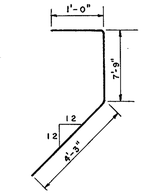

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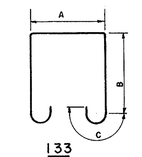

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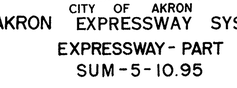
BENDING DIAGRAMS



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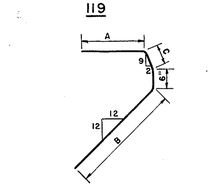

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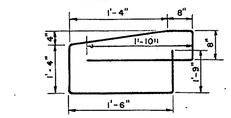

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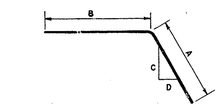

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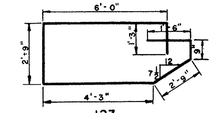

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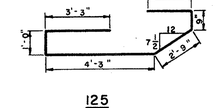


125

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

AKRON EXPRESSWAY SYSTEM

EXCHANGE STREET OVERPASS

BR. NO. SU-5-112

REINFORCEMENT SCHEDULE

AKRON SUMMIT COUNTY, OHIO

SCALE
MADE W.C.M. DATE 11-25-52
TRCD W.C.M. DATE 12-1-52
CKD J.G.S. DATE 12-3-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET 139

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
SOUTH ABUTMENT									
401	4	85	21'-0"	Str.					114
601	6	10	26'-0"	Str.					391
602	6	24	19'-6"	Str.					703
603	6	27	26'-3"	Str.					1065
604	6	8	18'-9"	Str.					225
605	6	27	25'-9"	Str.					1044
606	6	35	17'-0"	Str.					894
607	6	56	9'-6"	Str.					799
608	6	1 @ 8 @ 8	9'-6" to 10'-0"	Str.					122
609	6	6	12'-0"	Str.					108
610	6	22	9'-0"	Str.					297
611	6	28	11'-0"	Str.					453
612	6	109	10'-0"	112	2'-6"	2'-0"	1'-0"	2'-0"	1638
613	6	19	8'-0"	113					229
614	6	10	27'-0"	Str.					406
615	6	10	34'-6"	Str.					518
616	6	84	5'-3"	104	3'-9"	1'-6"			652
617	6	80	14'-0"	106	10'-2"	0'-10"	3'-0"		1682
618	6	119	3'-0"	Str.					536
619	6	90	13'-0"	128					1562
620	6	55 @ 2 @ 54	14'-0" to 32'-6"	126	4'-0" to 13'-3"				2341
621	6	7	35'-0"	Str.					370
622	6	47	20'-9"	123					1437
623	6	8	11'-0"	Str.					132
624	6	47	6'-6"	Str.					459
625	6	12	15'-0"	125					270
626	6	6	7'-0"	127	3'-6"	1'-3"	2'-3"		63
627	6	4	33'-6"	Str.					201
628	6	42	15'-6"	Str.					978
629	6	48	5'-0"	Str.					361
630	6	10	7'-0"	120	2'-6"	3'-6"			105
631	6	10	4'-0"	Str.					60
632	6	14	13'-9"	Str.					289
633	6	147	5'-9"	Str.					1270
634	6	18	18'-0"	Str.					487
635	6	12	24'-6"	Str.					442
636	6	21	23'-3"	Str.					733
637	6	8	17'-3"	Str.					207
638	6	9	21'-6"	Str.					291
639	6	10	39'-6"	Str.					593
640	6	10	23'-6"	Str.					353
641	6	2 @ 2 @ 2	12'-9" to 28'-3"	Str.					222
642	6	2 @ 2 @ 2	12'-0" to 32'-9"	Str.					209
643	6	2 @ 2	13'-9" to 25'-9"	Str.					712
644	6	4	29'-0"	Str.					174
645	6	7	30'-6"	Str.					321
646	6	1 @ 2 @ 2	14'-0" to 32'-6"	126	4'-0" to 13'-3"				776
647	6	1 @ 1	14'-0" to 32'-6"	126	4'-0" to 13'-3"				742
648	6	1	10'-0"	Str.					15
649	6	6 @ 2 @ 6	8'-0" to 15'-0"	Str.					311
650	6	2 @ 2 @ 2	7'-6" to 14'-0"	Str.					97
651	6	2 @ 2 @ 2	7'-0" to 13'-3"	Str.					91
801	8	72	7'-0"	Str.					1346
802	8	44	9'-6"	Str.					1116
803	8	56	27'-6"	Str.					4172
804	8	8	18'-0"	Str.					385
805	8	4	11'-0"	Str.					118
806	8	52	33'-6"	Str.					4651
807	8	4	16'-0"	Str.					171
808	8	35	18'-2"	101	16'-10"				1698
809	8	46	9'-0"	Str.					1105
810	8	60	9'-6"	Str.					1522
811	8	1 @ 2 @ 2	9'-6" to 10'-10"	Str.					150
812	8	2 @ 2	11'-3" to 12'-0"	Str.					155
813	8	5	12'-0"	Str.					160
814	8	44	24'-0"	Str.					2820
815	8	42	39'-6"	Str.					4432
816	8	4	19'-6"	Str.					211
817	8	4	21'-0"	Str.					224
818	8	1	8'-0"	101	6'-8"				21
819	8	31	12'-0"	101	10'-8"				993
820	8	1	11'-0"	101	9'-8"				29
821	8	4	28'-0"	Str.					150
1101	11	2	35'-0"	Str.					372
1102	11	15	29'-0"	119	26'-0"	3'-0"			2311
1103	11	2	28'-6"	119	25'-6"	3'-0"			303
1104	11	4	13'-9"	Str.					292
1105	11	2	30'-6"	Str.					324
1106	11	4	7'-3"	Str.					154
1107	11	5	27'-6"	119	24'-6"	3'-0"			731
1108	11	5	26'-6"	119	23'-6"	3'-0"			704
1109	11	2	26'-0"	119	23'-0"	3'-0"			276
1110	11	29	7'-0"	108	3'-8"	3'-4"	5	12	1079
NORTH ABUTMENT									
401	4	85	21'-0"	Str.					114
601	6	19	18'-3"	Str.					521
602	6	10	16'-9"	Str.					252
603	6	24	19'-9"	Str.					712
604	6	10	17'-9"	Str.					267
605	6	12	21'-0"	Str.					378
606	6	12	10'-9"	Str.					194
607	6	23	21'-9"	Str.					751
608	6	10	25'-0"	Str.					375
609	6	10	32'-3"	Str.					484
610	6	36	17'-0"	Str.					919
611	6	42	9'-6"	Str.					599
612	6	7	31'-9"	Str.					338
613	6	28	11'-0"	Str.					463
614	6	22	9'-0"	Str.					297
615	6	53	10'-0"	112	2'-6"	2'-0"	1'-0"	2'-0"	797
616	6	48	5'-0"	104	3'-6"	1'-6"			361
617	6	81	14'-6"	106	10'-8"	0'-10"	3'-0"		1763
618	6	121	3'-0"	Str.					545
619	6	81	13'-0"	128					1593
620	6	81	5'-0"	104	3'-9"	1'-3"			608
621	6	7	27'-6"	Str.					289
622	6	42	20'-9"	123					1309
623	6	2 @ 2 @ 3	8'-3" to 14'-3"	Str.					102
624	6	42	6'-6"	Str.					410
625	6	13	15'-0"	125					298
626	6	7	7'-0"	127	3'-6"	1'-3"	2'-3"		74
627	6	4	27'-6"	Str.					165
628	6	17	8'-0"	113					204
629	6	20	9'-9"	112	3'-0"	2'-3"	1'-0"	1'-0"	293
630	6	20	10'-6"	112	3'-0"	2'-0"	1'-6"	2'-0"	316
631	6	10	16'-3"	Str.					244
632	6	10	21'-9"	Str.					327
633	6	10	17'-3"	Str.					259
634	6	22	23'-0"	Str.					760
635	6	10	17'-6"	Str.					263
636	6	7	22'-9"	Str.					237
637	6	10	41'-0"	Str.					616
638	6	10	24'-0"	Str.					361
639	6	15	10'-6"	Str.					237
640	6	4	30'-6"	Str.					183
641	6	8	11'-6"	Str.					138
642	6	2 @ 2 @ 2	12'-3" to 22'-9"	Str.					210
643	6	2 @ 2	9'-6" to 11'-3"	Str.					125
644	6	6	12'-0"	Str.					108
645	6	172	5'-9"	Str.					1486
646	6	10	7'-0"	Str.					105
647	6	10	6'-0"	Str.					60
648	6	1 @ 2 @ 2	12'-6" to 32'-6"	126	3'-3" to 13'-3"				604
649	6	1 @ 2 @ 2	12'-6" to 32'-6"	126	3'-3" to 13'-3"				639
650	6	2 @ 2 @ 2	12'-6" to 32'-6"	126	3'-3" to 13'-3"				1325
651	6	2 @ 2 @ 2	12'-6" to 32'-6"	126	3'-3" to 13'-3"				707
652	6	2 @ 2 @ 2	11'-6" to 19'-0"	Str.					188
653	6	2 @ 2 @ 2	11'-9" to 20'-6"	Str.					194
654	6	2 @ 2 @ 2	12'-0" to 22'-0"	Str.					408
655	6	38	13'-9"	Str.					785
656	6	2 @ 2 @ 2	6'-6" to 12'-6"	Str.					184
657	6	2 @ 2 @ 2	7'-0" to 13'-0"	Str.					90
658	6	2 @ 2 @ 3	7'-0" to 13'-9"	Str.					192
801	8	28	6'-9"	Str.					505
802	8	40	24'-0"	Str.					2563
803	8	44	31'-0"	Str.					3642
804	8	2	14'-0"	Str.					150
805	8	32	12'-0"	101	10'-8"				1025
806	8	36	18'-0"	101	16'-8"				1730
807	8	22	9'-0"	Str.					529
808	8	65	9'-6"	Str.					1549
809	8	4	10'-3"	Str.					109
810	8	4	15'-9"	Str.					168
811	8	4	14'-9"	Str.					157
812	8	4	17'-3"	Str.					184
813	8	44	40'-0"	Str.					4699
814	8	12	9'-0"	Str.					288
815	8	2	20'-6"	Str.					110
816	8	14	8'-0"	Str.					200
817	8	45	26'-0"	Str.					3450
818	8	4	18'-6"	Str.					198
819	8	4	23'-0"	Str.					245
820	8	4	14'-3"	Str.					120
821	8	4	18'-0"	Str.					171
822	8	17	10'-6"	Str.					477
823	8	1 @ 2 @ 2	9'-6" to 10'-9"	Str.					138
824	8	1 @ 2 @ 2	11'-3" to 12'-0"	Str.					155
825	8	5	12'-0"	Str.					160
826	8	1	11'-6"	101	10'-2"				31
827	8	1	9'-0"	101	7'-8"				24
1101	11	2	27'-6"	Str.					292
1102	11	4	23'-0"	119	20'-0"	3'-0"			489
1103	11	3	24'-6"	119	21'-6"	3'-0"			391
1104	11	4	13'-9"	Str.					292
1105	11	2	31'-9"	Str.					337
1106	11	6	23'-6"	119	20'-6"	3'-0"			749
1107	11	4	22'-6"	119	19'-6"	3'-0"			478
1108	11	4	7'-0"	Str.					149
1109	11	17	7'-0"	122	3'-8"	3'-4"	2	1	632

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS

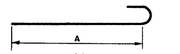
MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

140
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95

101



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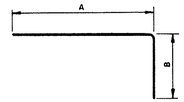

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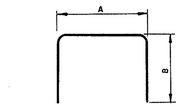

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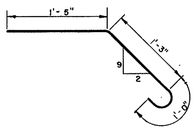

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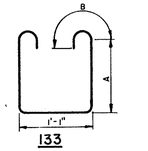

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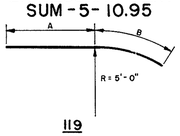

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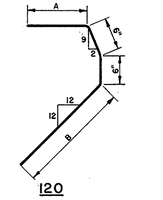

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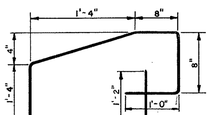

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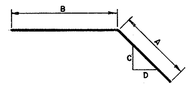

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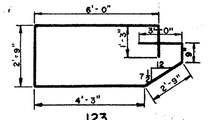

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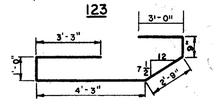

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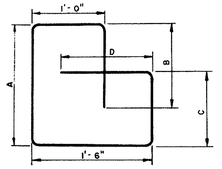

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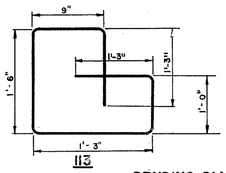

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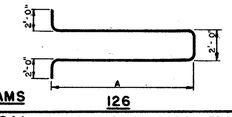

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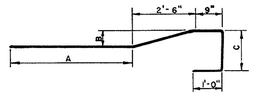

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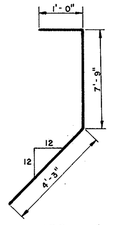

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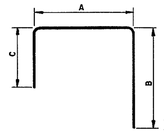

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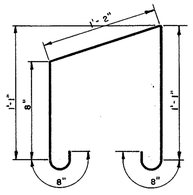


BENDING DIAGRAMS

AKRON EXPRESSWAY SYSTEM
EXCHANGE STREET OVERPASS
BR. NO. SU-5-112

REINFORCEMENT SCHEDULE

AKRON SUMMIT COUNTY, OHIO

SCALE
MADE MJK DATE 11-14-52
TRCD CAH DATE 12-1-52
CKD JGS DATE 12-5-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

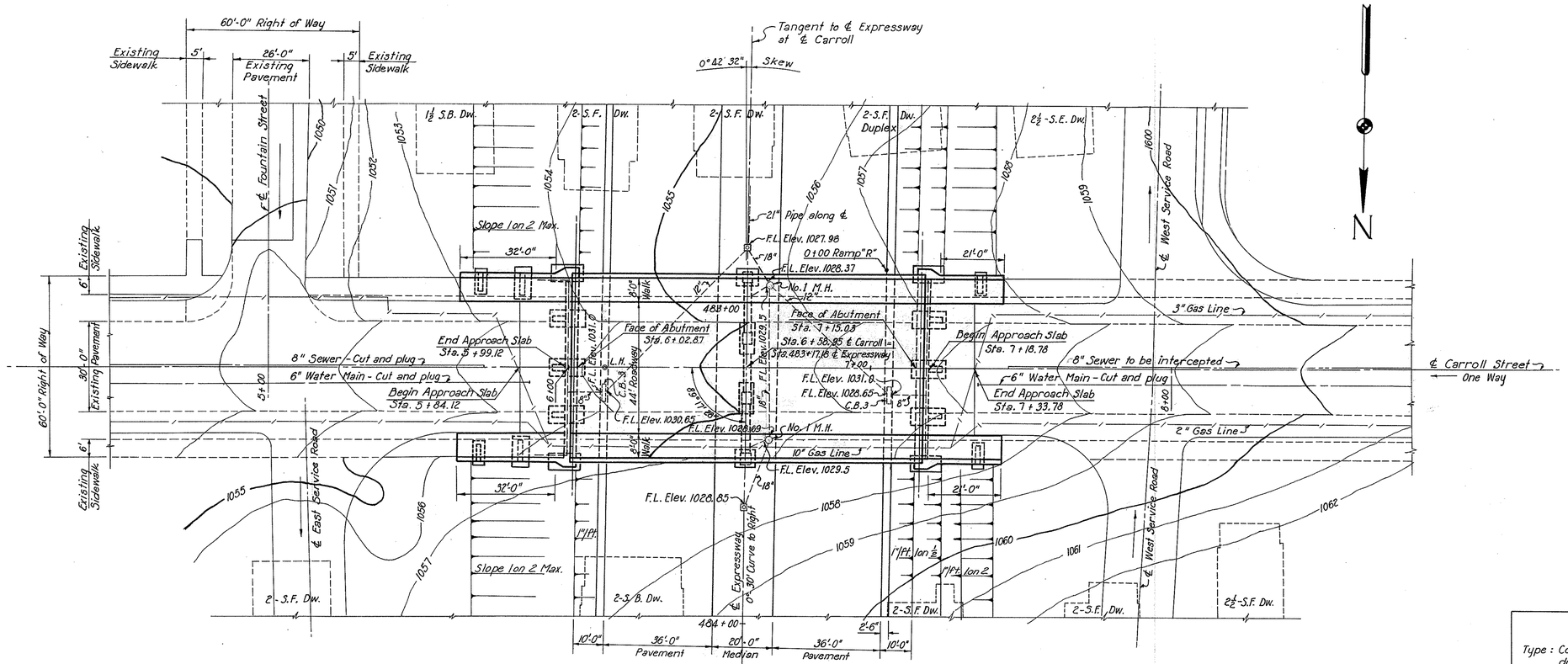
846-U SHEET-140

613

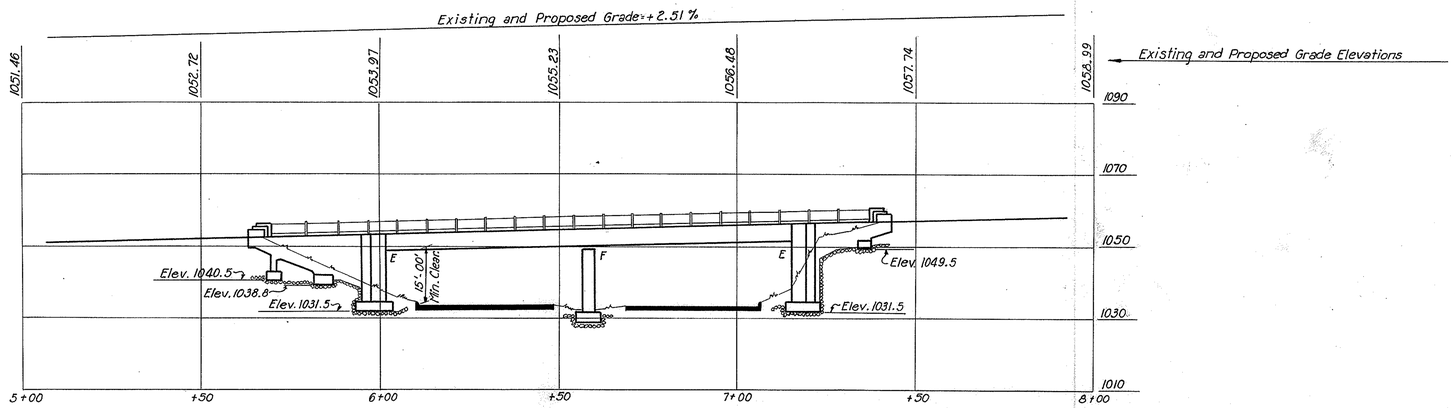
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

141
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95



PLAN



ELEVATION

PROPOSED STRUCTURE

Type : Continuous steel beam with concrete deck and substructure.
Spans : 2 at 57'-4"
Roadway : 44'-0" with two 8'-0" sidewalks
Loading : C.F 600
Skew : 0° 42' 32"
Surface course : 2½ asphaltic concrete surface course.

AKRON EXPRESSWAY SYSTEM
CARROLL STREET UNDERPASS
BR. NO. SU-5-115

SITE PLAN

AKRON SUMMIT COUNTY, OHIO

SCALE 1" = 20'-0"
MADE TKE DATE 10-7-52
TRCD SH DATE 11-5-52
CKD CP DATE 10-22-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

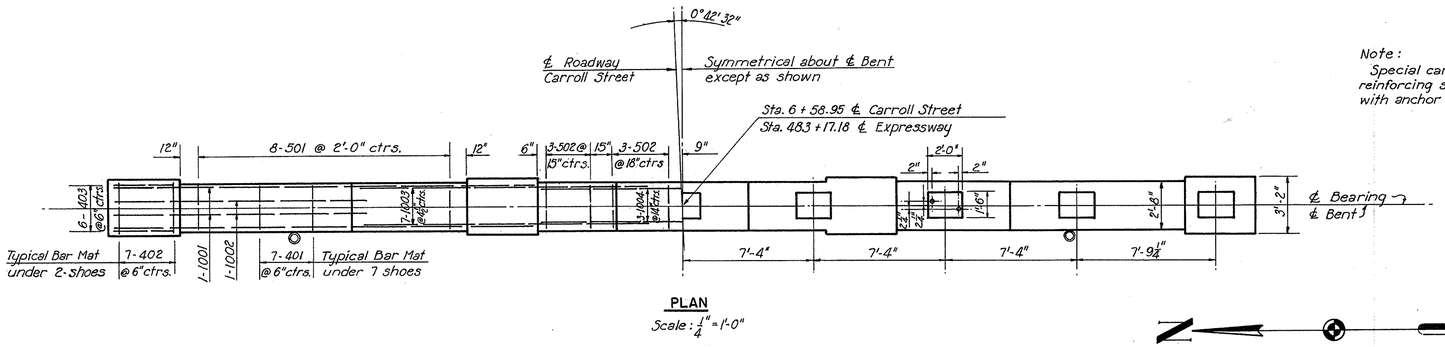
846-U SHEET 141

205

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

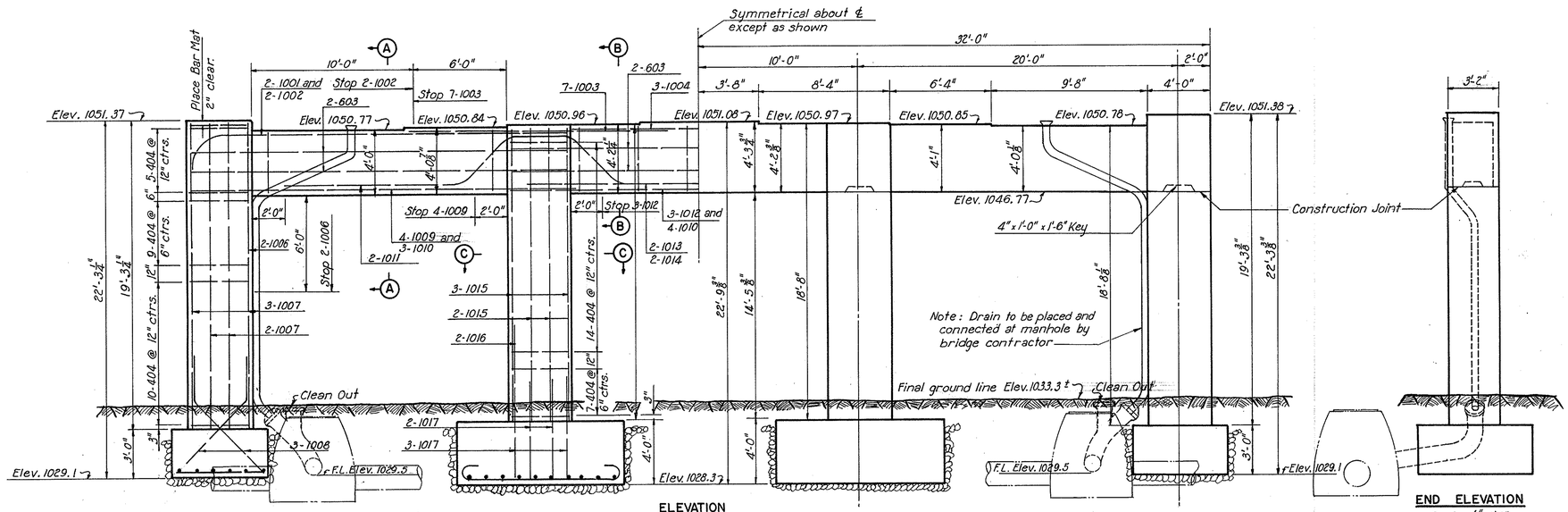
142
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95



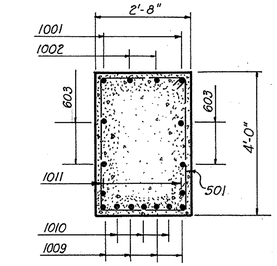
PLAN
Scale: 1/4" = 1'-0"

Note:
Special care shall be taken in placing top reinforcing steel so that it will not interfere with anchor bolt holes.

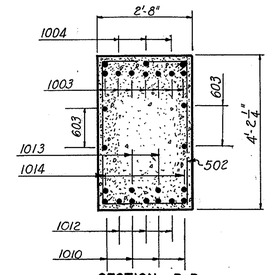


ELEVATION
Scale: 1/4" = 1'-0"

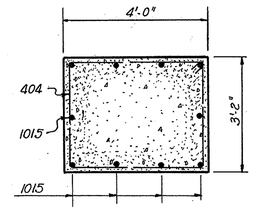
END ELEVATION
Scale: 1/4" = 1'-0"



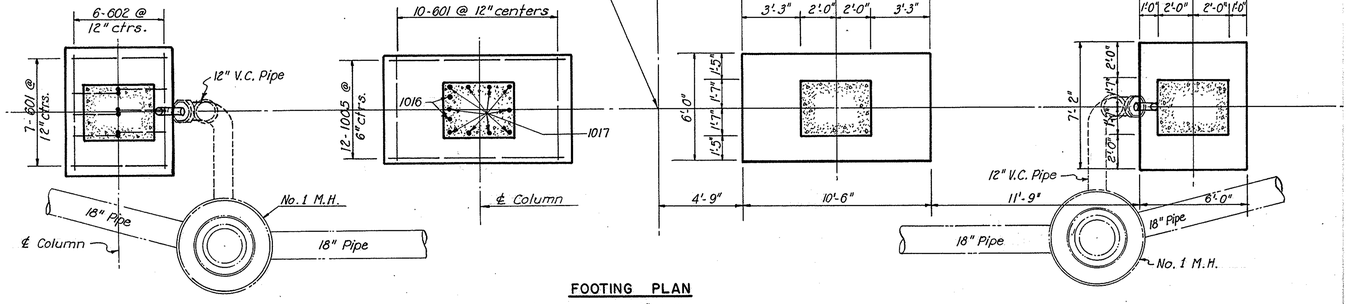
SECTION A-A
Scale: 1/2" = 1'-0"



SECTION B-B
Scale: 1/2" = 1'-0"



SECTION C-C
Scale: 1/2" = 1'-0"



FOOTING PLAN
Scale: 1/4" = 1'-0"

AKRON EXPRESSWAY SYSTEM
CARROLL STREET UNDERPASS
BR. NO. SU-5-115
CENTER BENT
AKRON SUMMIT COUNTY, OHIO

SCALE 1/4" & 1/2" = 1'-0"
MADE M.J.K. DATE 10-9-52
TRCD T.S.&H. DATE 11-6-52
CKD C.E. DATE 10-17-52

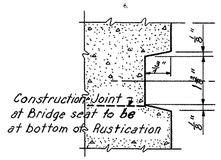
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846-U SHEET 142

206

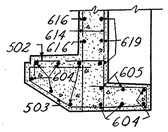
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

143
172

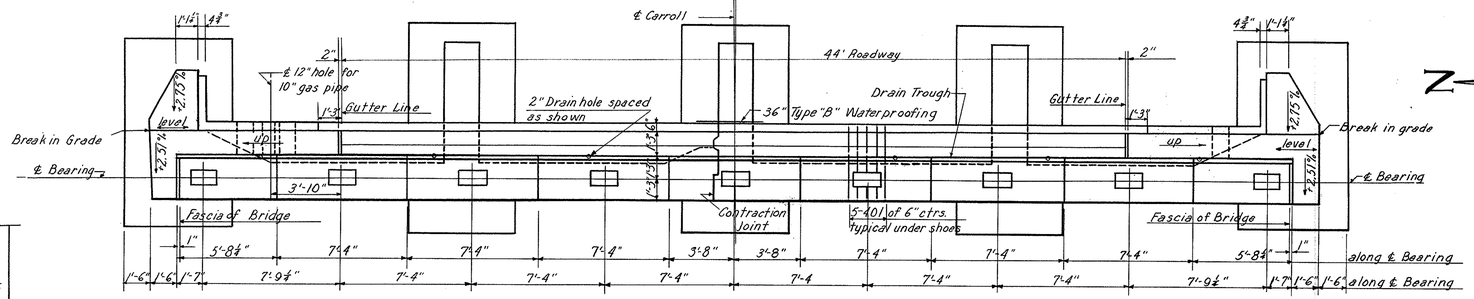
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95



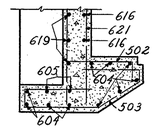
RUSTICATION
Scale: 6"=1'-0"



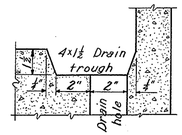
SECTION B-B
Scale: ¼"=1'-0"



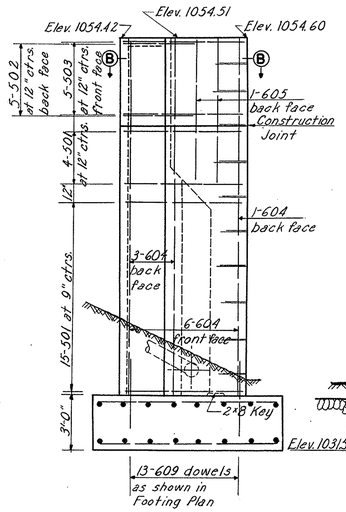
PLAN
Scale: ¼"=1'-0"



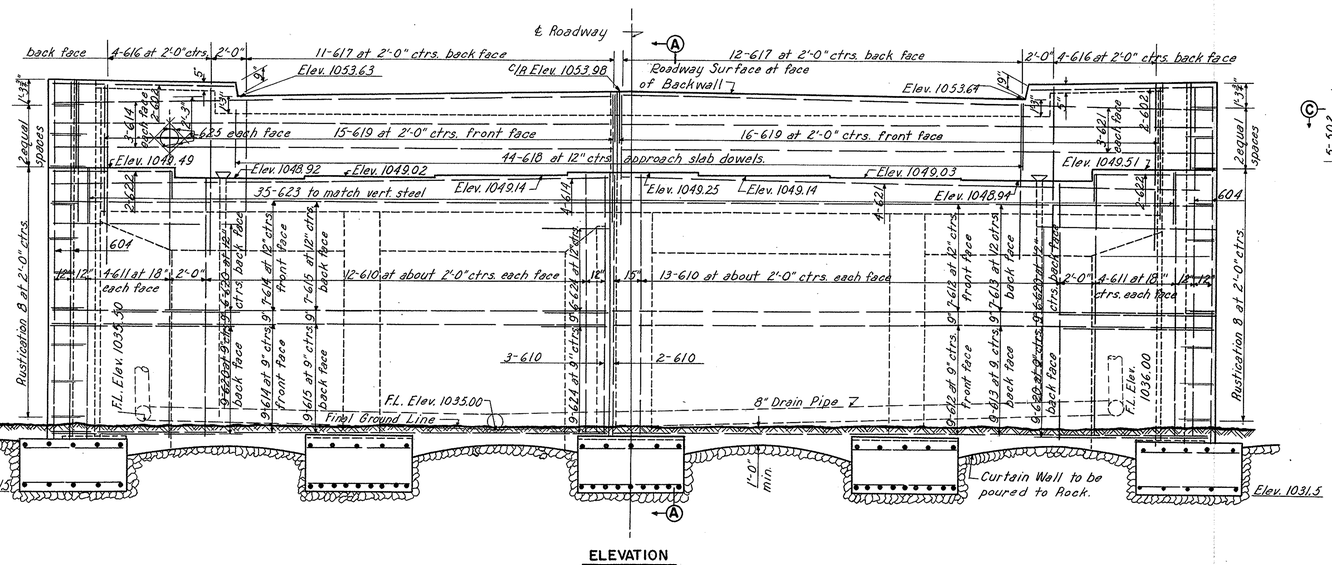
SECTION C-C
Scale: ¼"=1'-0"



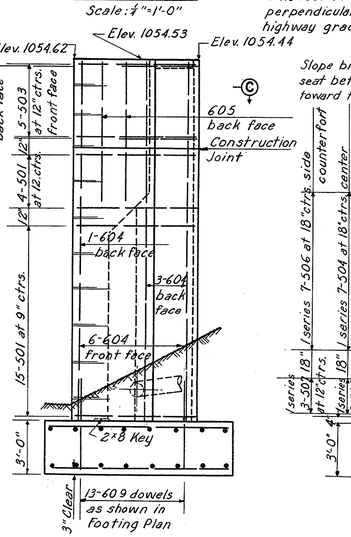
DRAIN HOLE DETAIL
Scale: 3"=1'-0"



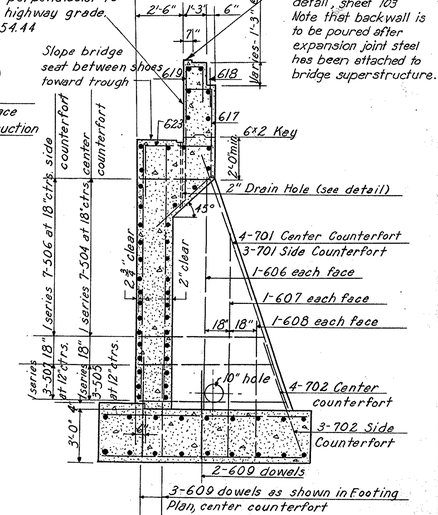
END VIEW
Scale: ¼"=1'-0"



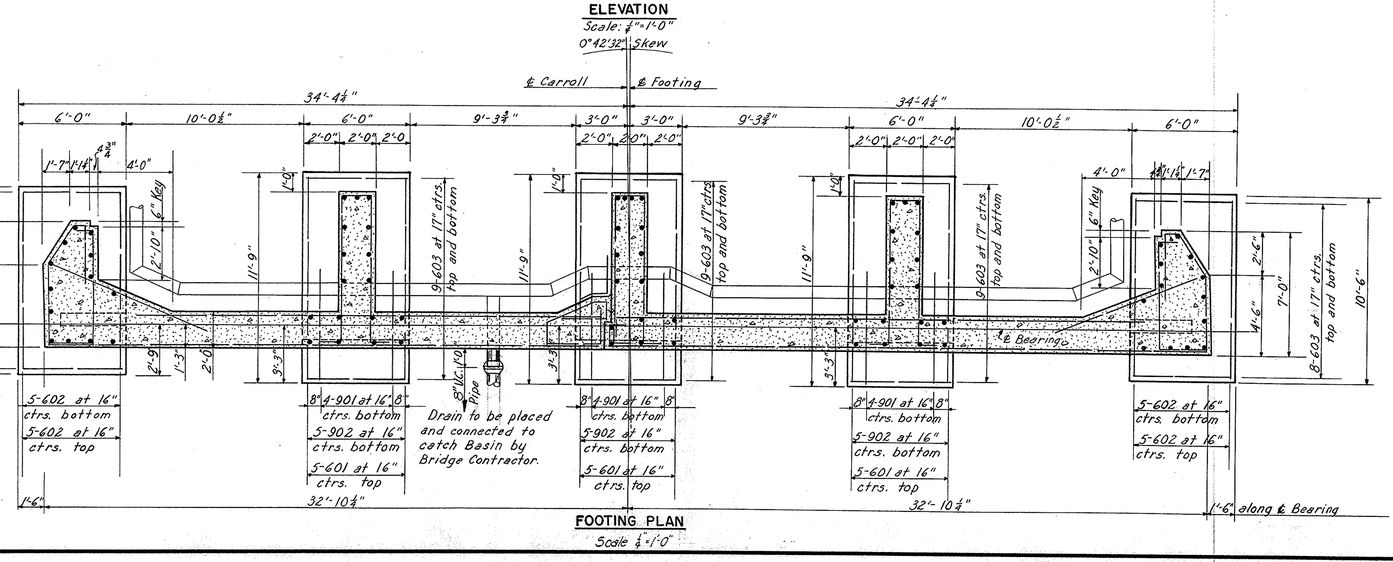
ELEVATION
Scale: ¼"=1'-0"



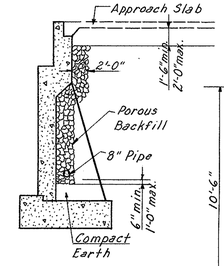
END VIEW
Scale: ¼"=1'-0"



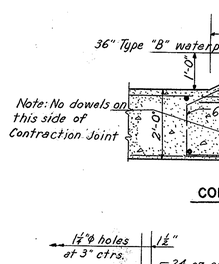
SECTION A-A
Scale: ¼"=1'-0"



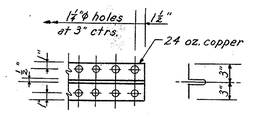
FOOTING PLAN
Scale ¼"=1'-0"



ABUTMENT SECTION
No Scale



CONTRACTION JOINT
Scale: ½"=1'-0"



CONTRACTION JOINT WATERSTOP
Scale: 1"=1'-0"

AKRON EXPRESSWAY SYSTEM
CARROLL STREET UNDERPASS
BR. NO. SU-5-115

EAST ABUTMENT

AKRON SUMMIT COUNTY, OHIO

SCALE As noted
MADE T.K.C. DATE 10-10-52
TRCD. N.A.M. DATE 11-10-52
CKD. C.R. DATE 10-21-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

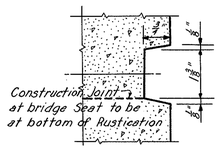
846-U SHEET: 143

207

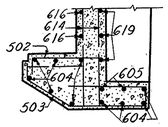
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

144
172

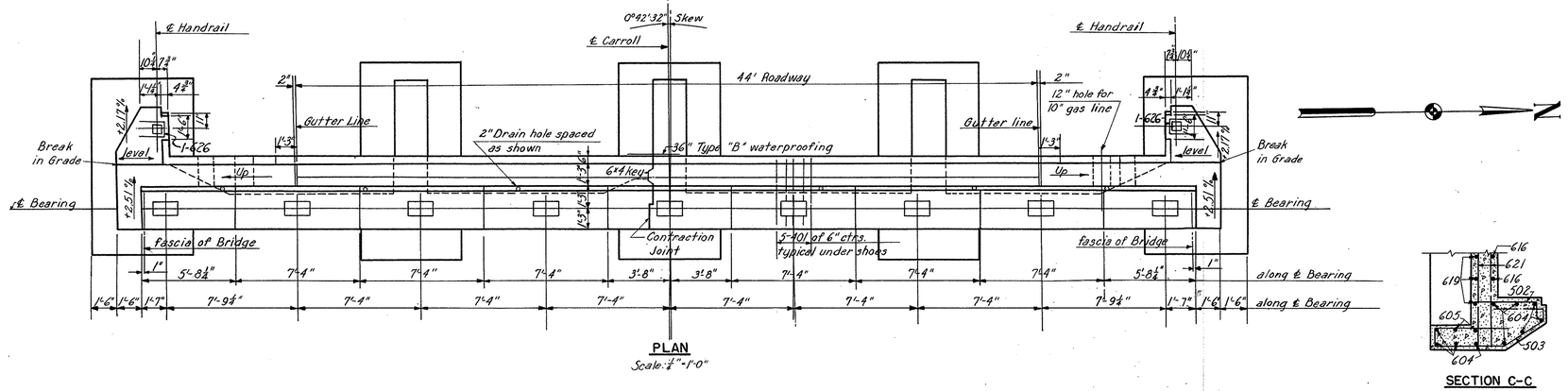
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95



RUSTICATION
Scale: 6"=1'-0"

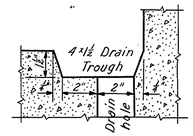


SECTION B-B
Scale: ¼"=1'-0"



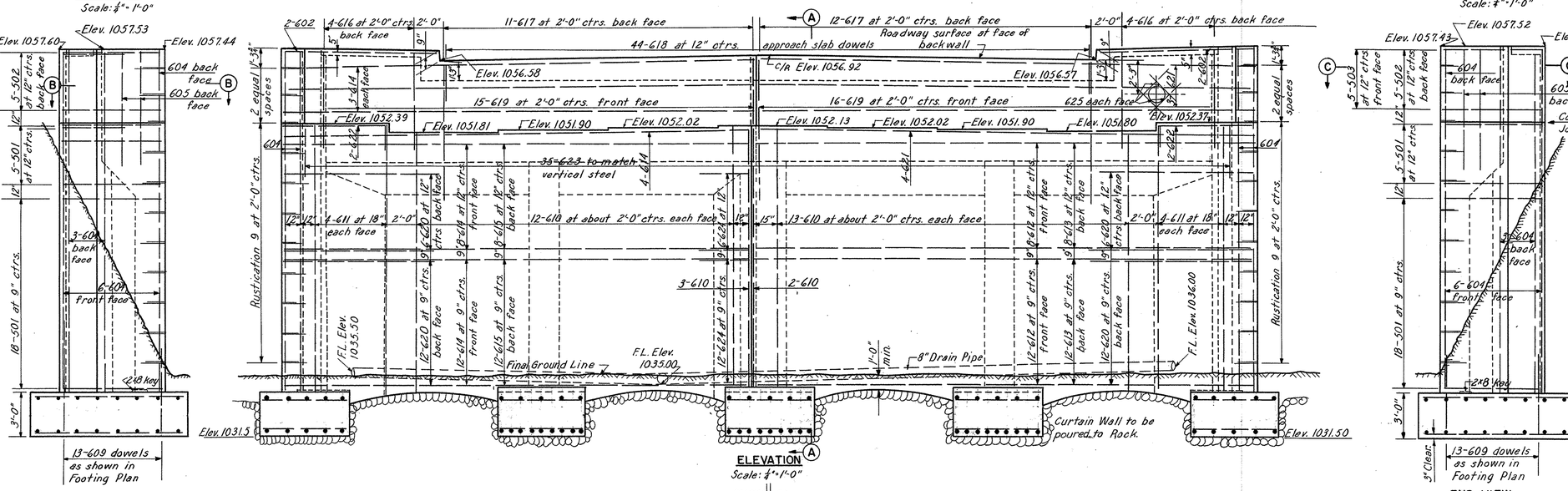
PLAN
Scale: ¼"=1'-0"

SECTION C-C
Scale: ¼"=1'-0"

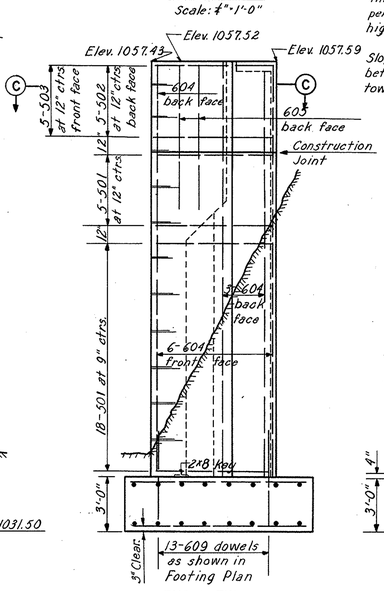


DRAIN HOLE DETAIL
Scale: 3"=1'-0"

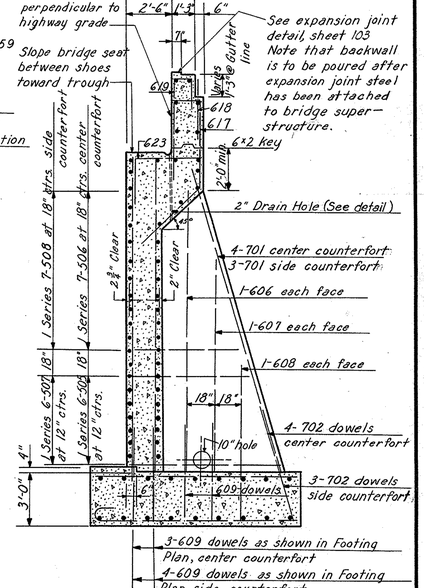
END VIEW
Scale: ¼"=1'-0"



ELEVATION
Scale: ¼"=1'-0"

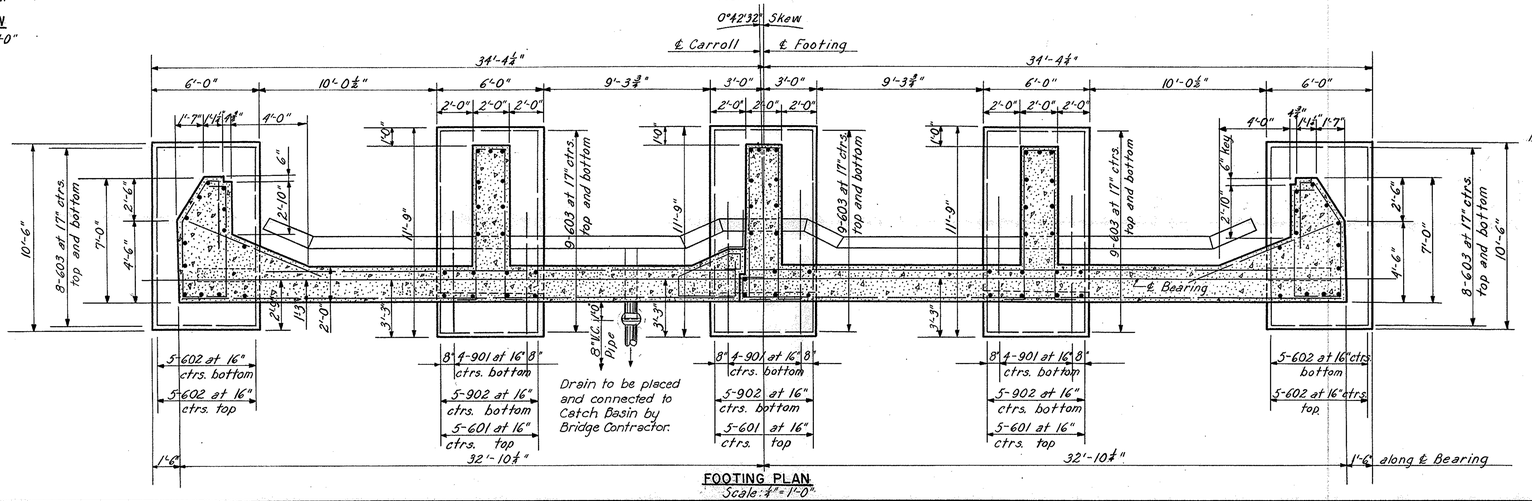


END VIEW
Scale: ¼"=1'-0"



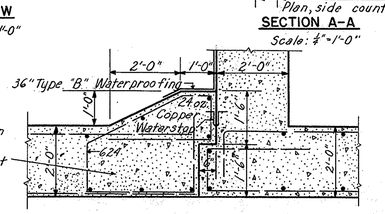
SECTION A-A
Scale: ¼"=1'-0"

Note:
For Abutment Section showing details of porous backfill, see sheet 143

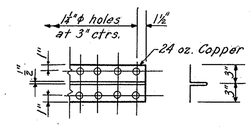


FOOTING PLAN
Scale: ¼"=1'-0"

Note: No dowels on this side of Contraction Joint



CONTRACTION JOINT
Scale: ½"=1'-0"



CONTRACTION JOINT WATERSTOP
Scale: 1"=1'-0"

AKRON EXPRESSWAY SYSTEM
CARROLL STREET UNDERPASS
BR. NO. SU-5-115
WEST ABUTMENT
AKRON SUMMIT COUNTY, OHIO

SCALE As Noted
MADE T.H.C. DATE 10-14-52
TRCD E.N. DATE 11-12-52
CKD C.P. DATE 10-22-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

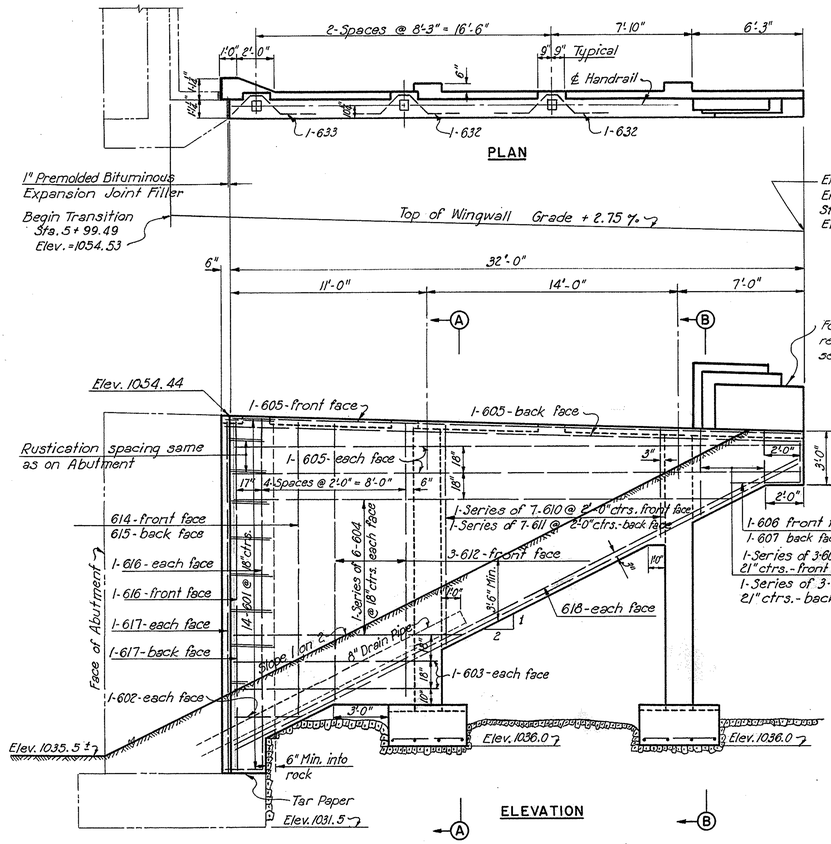
846-U SHEET 144

208

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

145
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95



AKRON EXPRESSWAY SYSTEM

CARROLL STREET UNDERPASS

BR. NO. SU-5-115

EAST WINGWALLS

AKRON SUMMIT COUNTY, OHIO

SCALE 1/4" = 1'-0"
MADE EBJ DATE 10-16-52
TRCD CAH&RH DATE 11-10-52
CKD TKC DATE 12-23-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

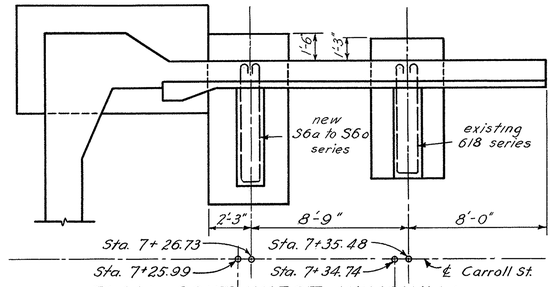
846-U SHEET 145

209

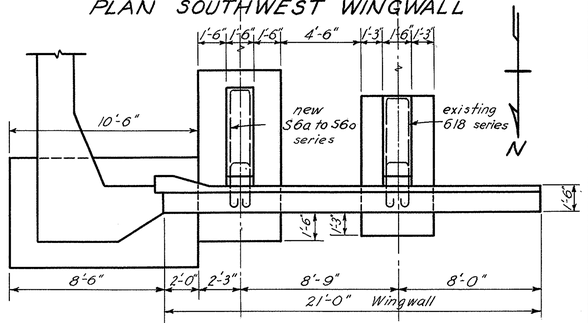
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

145A / 172

Submitted - 5 - 10.95



PLAN SOUTHWEST WINGWALL

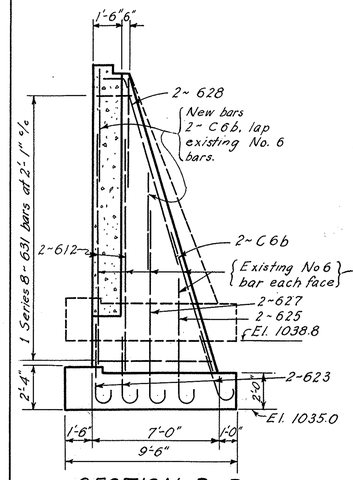


PLAN NORTHWEST WINGWALL

(See Sheet No. 146/172 for original plan of Northwest and Southwest Wingwall.)

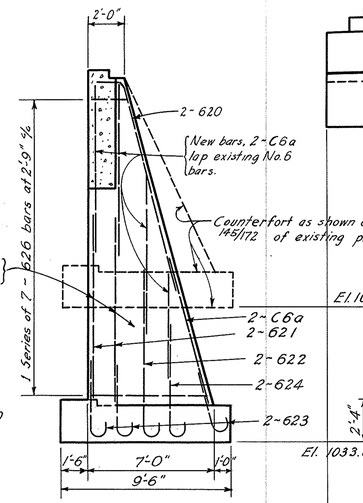
REINFORCING STEEL LIST

Mark	No	Length	Weight	Shp.	Diagram
N.W. and S.W. Wingwall					
F6a	8	9'-0"	108	St.	
F6b	16	4'-0"	96	St.	
F6c	22	4'-6"	149	Bt.	
C6c	8	5'-6"	66	St.	
C6d	4	7'-6"	45	St.	
C6e	4	15'-0"	90	St.	
C6f	4	21'-0"	126	St.	
C6g	6	25'-0"	225	Bt.	
W6a	20	5'-6"	168	St.	
W6c	4	22'-3"	134	St.	
W6d	8	14'-6"	174	St.	
W6e	38	6'-0"	342	St.	
W6f	8	18'-6"	222	St.	
					"a"
S6a	2	7'-1"	21	Bt.	2'-0"
S6b	2	7'-7"	23	Bt.	2'-3"
S6c	2	8'-1"	24	Bt.	2'-6"
S6d	2	8'-8"	26	Bt.	2'-9½"
S6e	2	9'-3"	28	Bt.	3'-1"
S6f	2	9'-10"	30	Bt.	3'-4½"
S6g	2	10'-5"	31	Bt.	3'-8"
S6h	2	11'-0"	33	Bt.	3'-11½"
S6i	2	11'-7"	35	Bt.	4'-3"
S6j	2	12'-2"	37	Bt.	4'-6½"
S6k	2	12'-9"	38	Bt.	4'-10"
S6l	2	13'-4"	40	Bt.	5'-1½"
S6m	2	13'-11"	42	Bt.	5'-5"
S6n	2	14'-6"	44	Bt.	5'-8½"
S6o	2	15'-1"	45	Bt.	6'-0"
Northeast Wingwall					
C6a	10	9'-6"	143	St.	
C6b	8	6'-0"	72	St.	
W6a	6	5'-6"	50	St.	
W6b	2	12'-6"	38	St.	



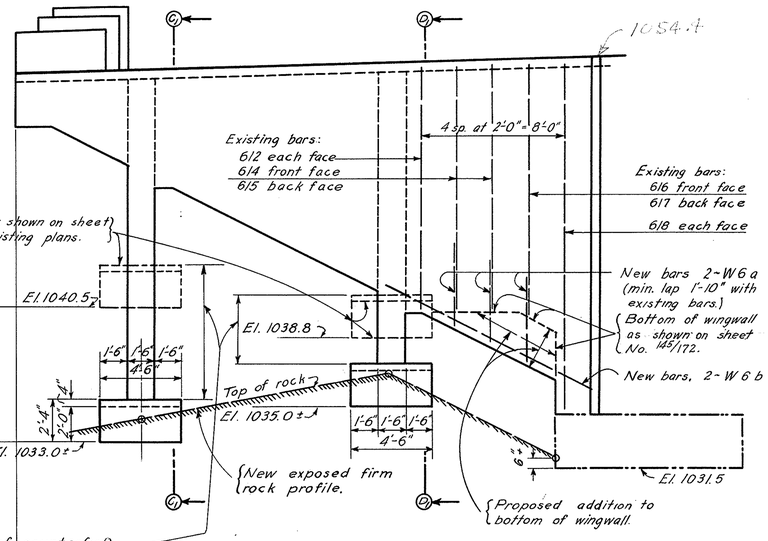
SECTION D_1-D_1

NOTE: In the reinforcing steel bar marks, the numeral following the first letter is the Bar Number, which indicates the size of the bar.

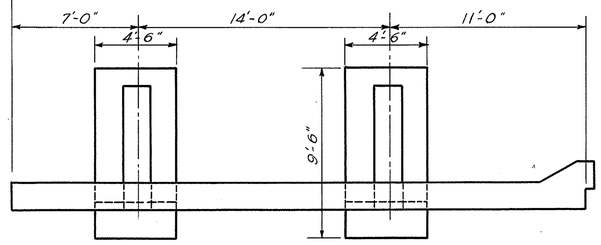


SECTION C_1-C_1

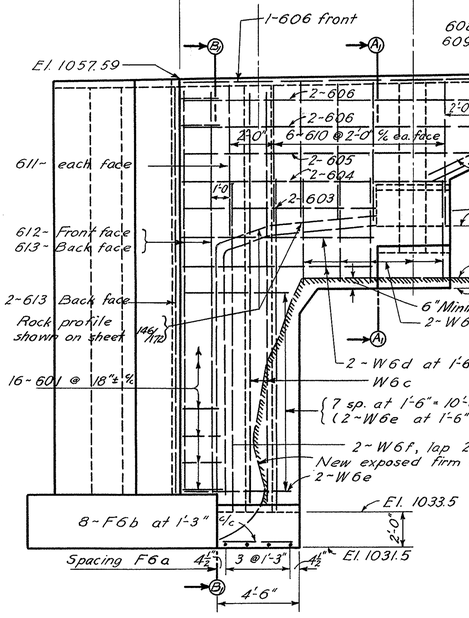
Proposed extension of counterfort walls to proposed new location of counterfort footings.



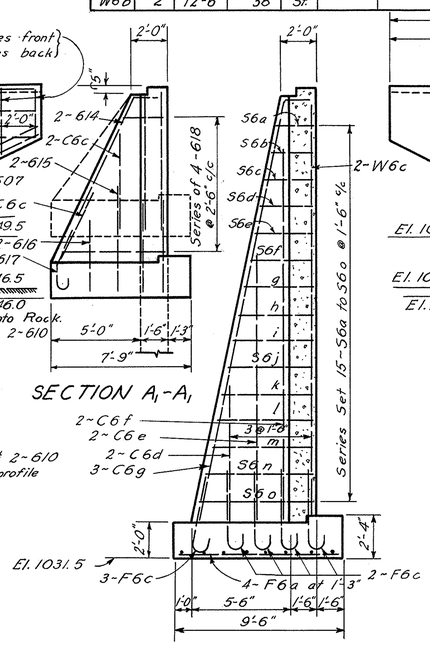
ELEVATION SHOWING N.E. WINGWALL AND FOOTING REVISIONS



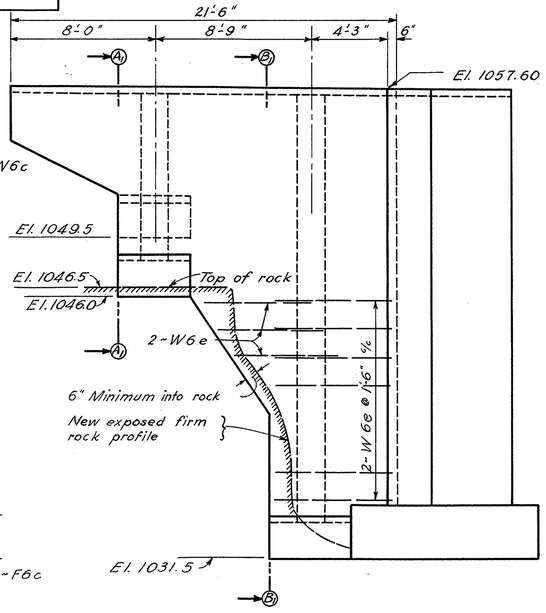
FOOTING PLAN
NORTHEAST WINGWALL REVISIONS
(Same as shown on sheet No. 145/172)



ELEVATION NORTHWEST WINGWALL



SECTION B_1-B_1



ELEVATION SOUTHWEST WINGWALL

NOTE: This sheet is supplemental to sheets 145, 146 and 149. The details and steel list show the additional construction and work required to found wingwalls and wingwall footings on firm rock foundation. The new rock profile was determined during foundation excavation.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES AND RAILROAD CROSSINGS

AKRON EXPRESSWAY SYSTEM
REVISIONS TO N.E., N.W., AND S.W. WINGWALLS ON CARROLL STREET UNDERPASS

BRIDGE No. SU-5-115

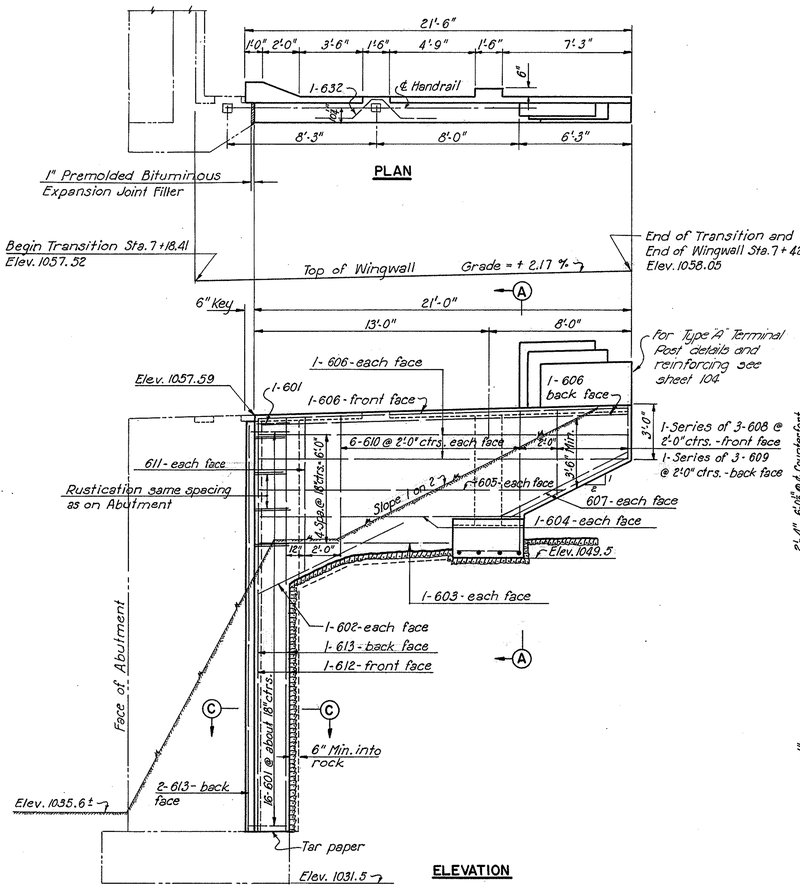
AKRON SUMMIT COUNTY OHIO

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
K.E.D.	K.E.D.	CPD	CMB	WHR	11-22-53	

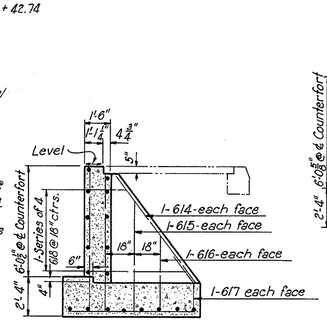
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

146
172

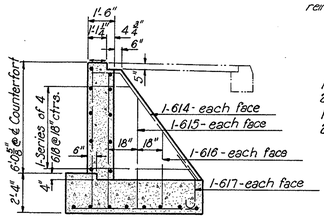
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95



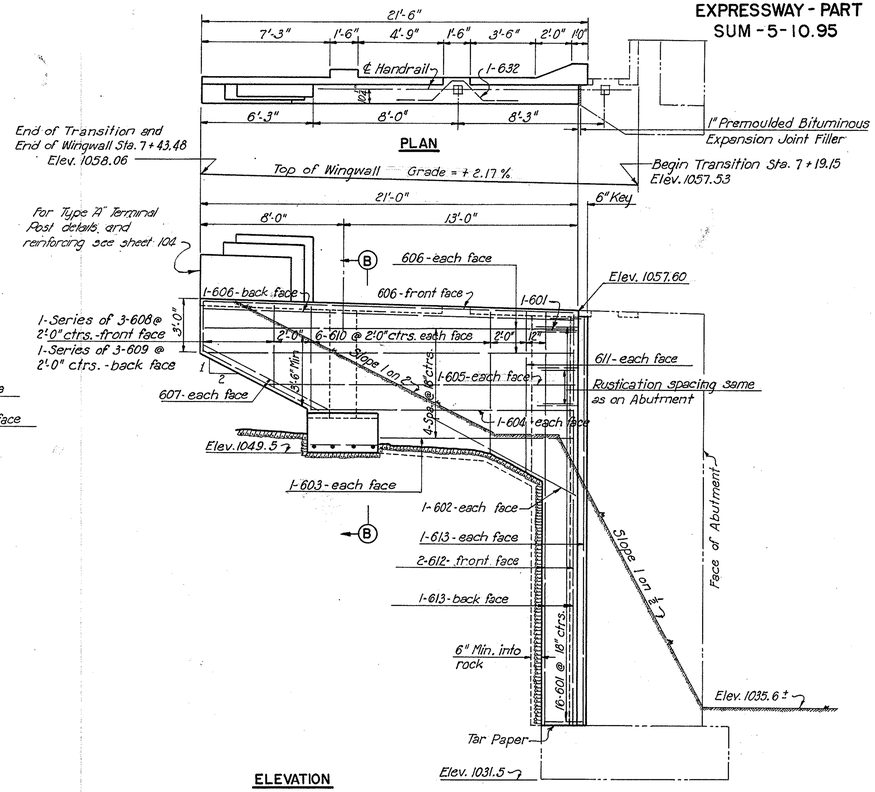
Note: Transition varies from a 9" curb and $\frac{1}{4}$" per foot sidewalk slope at the abutment to a 6" curb and $\frac{1}{4}$" per foot sidewalk slope at the end of wingwall.

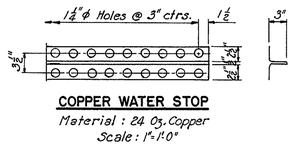


SECTION A-A

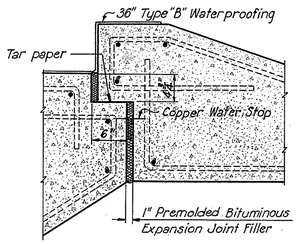


SECTION B-B

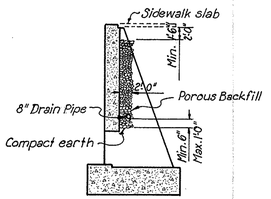




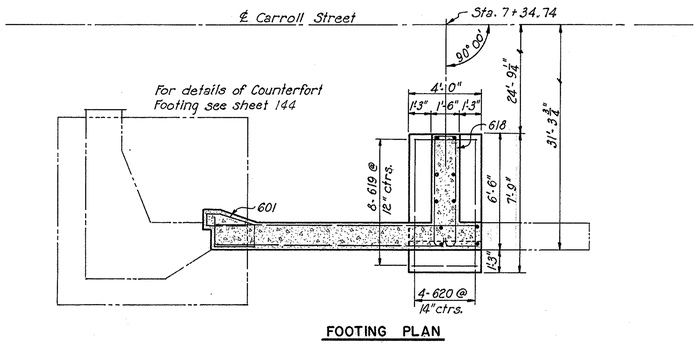
COPPER WATER STOP
Material : 24 Oz. Copper
Scale : 1"=1'-0"



SECTION C-C
Scale : 1"=1'-0"

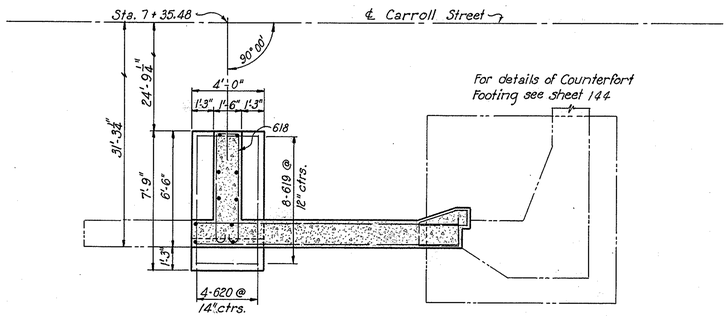


WINGWALL POROUS BACKFILL
Not to scale



FOOTING PLAN

NORTHWEST WINGWALL



FOOTING PLAN

SOUTHWEST WINGWALL

AKRON EXPRESSWAY SYSTEM
CARROLL STREET UNDERPASS
BR. NO. SU-5-115
WEST WINGWALLS
AKRON SUMMIT COUNTY, OHIO

SCALE 1/4" = 1'-0"
MADE EBJ DATE 10-14-52
TRCD EBJ & RH DATE 11-8-52
CKD TKC DATE 10-22-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET 146

210

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

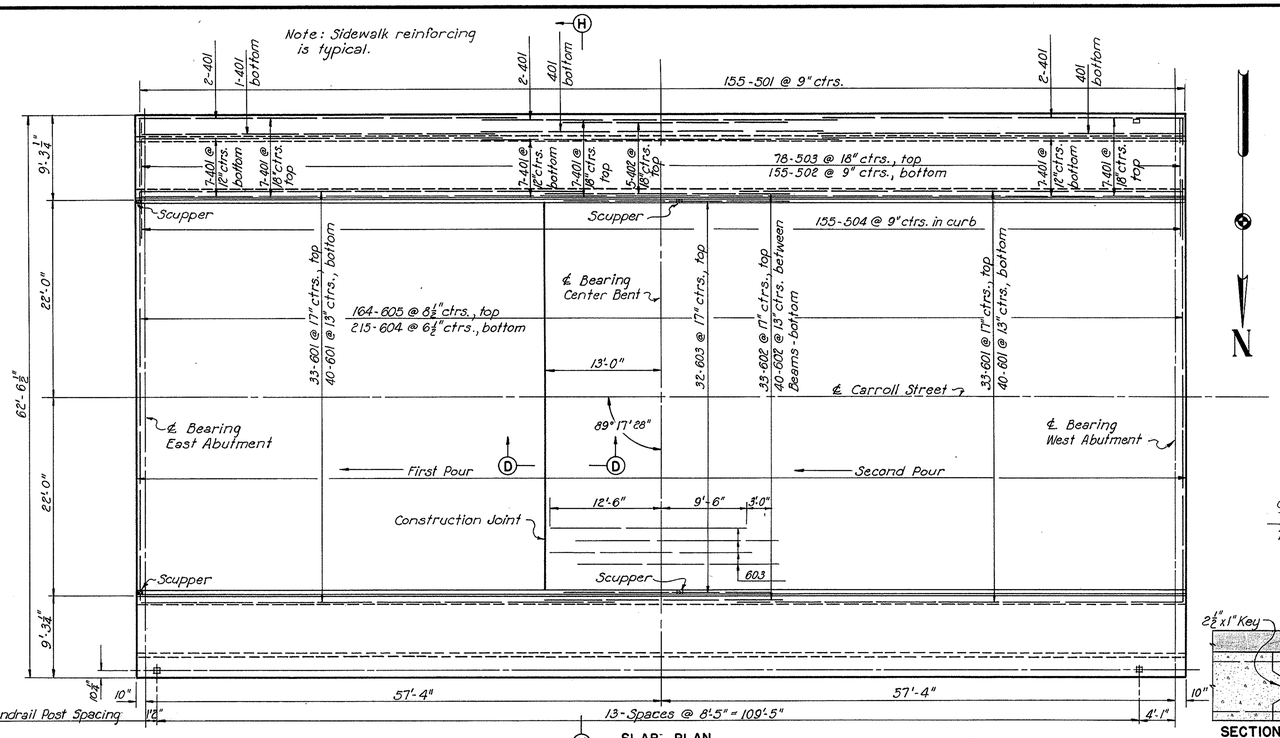
147
172

SUMMIT COUNTY
CITY OF AKRON

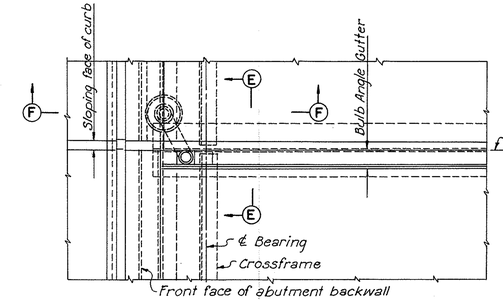
AKRON EXPRESSWAY SYSTEM

EXPRESSWAY - PART 5

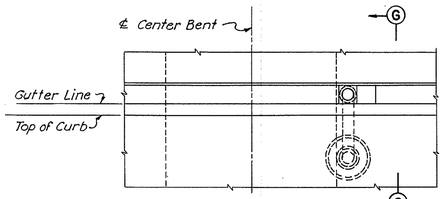
SUM-5-10.95



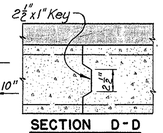
SLAB PLAN
Scale: ⅛" = 1'-0"



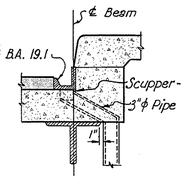
PART PLAN SHOWING SCUPPER DETAILS AT ABUTMENT
Scale: ¾" = 1'-0"



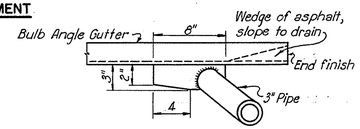
PART PLAN SHOWING SCUPPER DETAILS AT BENT
Scale: ¾" = 1'-0"



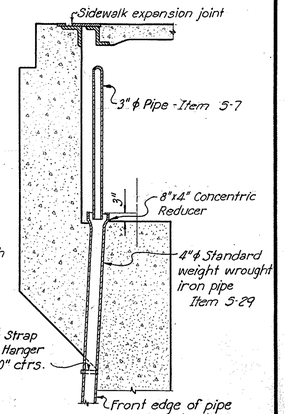
SECTION D-D
Scale: 1½" = 1'-0"



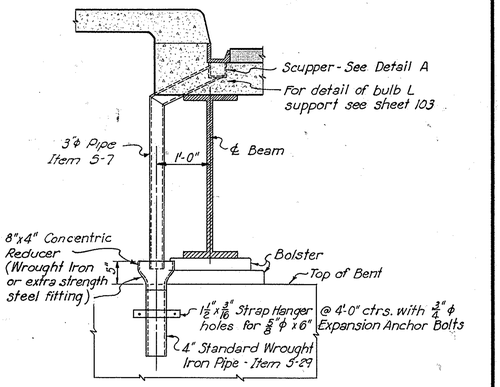
SECTION E-E
Scale: ¾" = 1'-0"



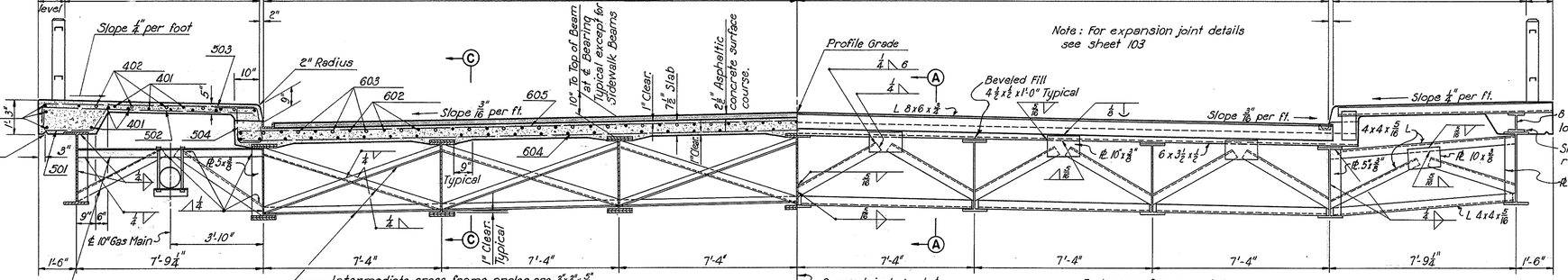
DETAIL A
Scale: 1½" = 1'-0"



SECTION F-F
Scale: ½" = 1'-0"



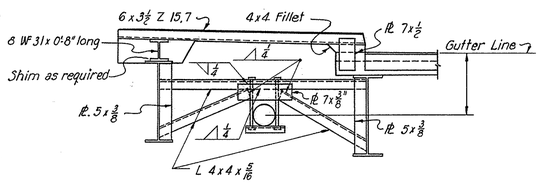
SECTION G-G
Scale: ¾" = 1'-0"



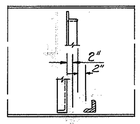
HALF SECTION H-H AT INTERMEDIATE CROSS FRAMES
Scale: ⅜" = 1'-0"

HALF SECTION THROUGH END FINISH
Scale: ⅜" = 1'-0"

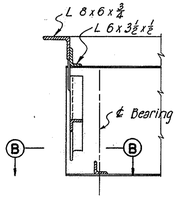
Note: 8"x4" Concentric Reducer to be Crane Type Steel Butt-Weld Reducer or equal.



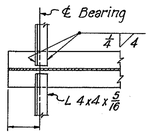
NORTH SIDE CROSS FRAME AT END FINISH
Scale: ⅜" = 1'-0"



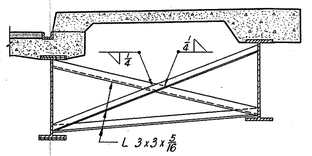
SECTION C-C
Scale: ½" = 1'-0"



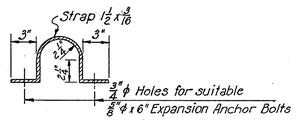
SECTION A-A
Scale: ½" = 1'-0"



SECTION B-B
Scale: ½" = 1'-0"



SOUTH SIDE INTERMEDIATE CROSS FRAMES
Scale: ⅜" = 1'-0"



STRAP PIPE HANGER
Scale: 1½" = 1'-0"

AKRON EXPRESSWAY SYSTEM

CARROLL STREET UNDERPASS

BR. NO. SU-5-115

SLAB PLAN AND CROSS-SECTION

AKRON SUMMIT COUNTY, OHIO

SCALE As noted
MADE MJK DATE 10-16-52
TRCD LWL & ER DATE 11-7-52
CKD CR DATE 10-24-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

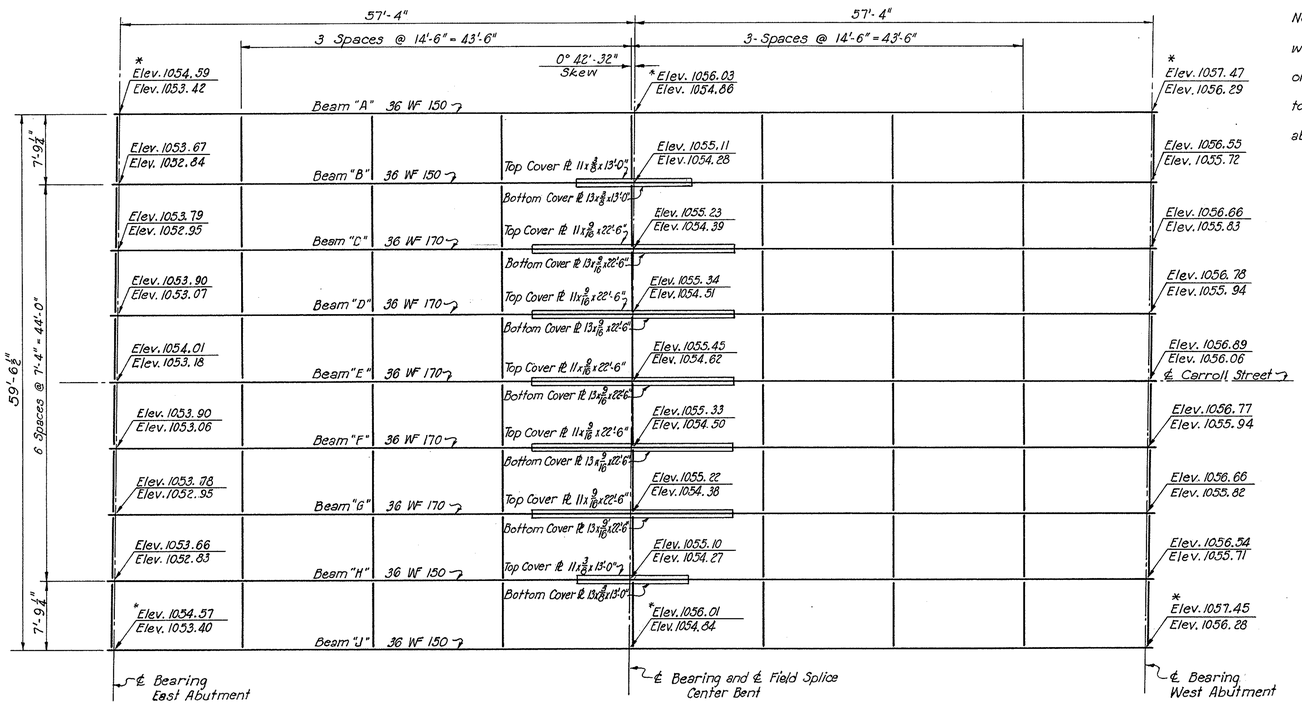
846-U SHEET 147

Revised As-Built P.G. 6/23/55

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

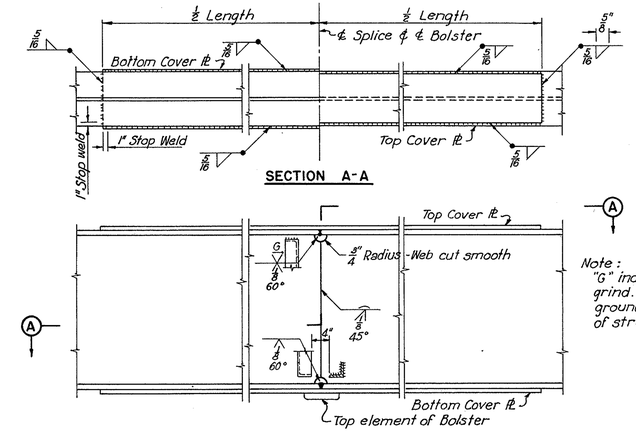
148
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95



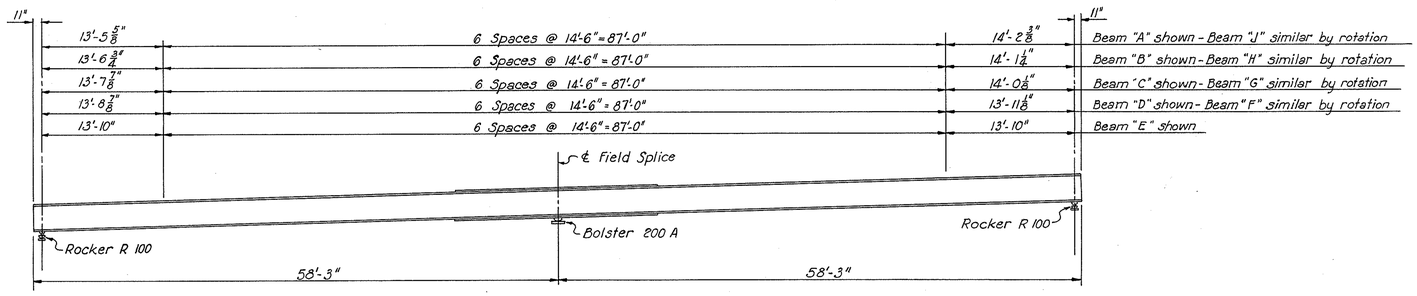
FRAMING PLAN
Scale: 1/8" = 1'-0"

Note:
Top elevations are given to top of wearing surface.
Bottom elevations are given to top of WF Beam.
Elevations marked thus * are to top of sidewalk.
Cover plates are placed symmetrical about ℄ bearing.
For cross frame details see sheet 147
For shoe details see sheet 103.

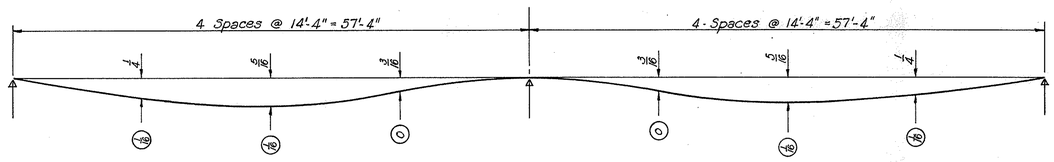


Note:
"G" indicates a flush grind. Welds shall be ground in the direction of stress.

TYPICAL BEAM SPLICE
Scale: 3/4" = 1'-0"



BEAM ELEVATION
Scale: 1/8" = 1'-0"



DEAD LOAD DEFLECTION DIAGRAM
No scale

Note
Dimensions in ◯ are deflections which may be expected in the steel beams when in place.
Dimensions above base line are additional deflections to be expected when concrete is in place.

BEAM SPLICE WELDING PROCEDURE

1 - Weld bottom flange cover plate to beam on one side of joint only.
* * 2 - Raise beam end at one abutment the following amount.
36 WF 150 - Beams A, B, H and J - 3/8 inch
36 WF 170 - Beams C, D, E, F and G - 5/8 inch
3 - Butt-weld the beam flanges and web.
4 - Weld the top cover plate on each side of joint.
5 - Complete welding of bottom cover plate.
6 - Lower the beam end to final position.
Note: Contractor may submit alternate scheme for welding connecting lower cover plate and top element of Bolster.
* * Beam is to be raised on span opposite the weld in step 1.

AKRON EXPRESSWAY SYSTEM
CARROLL STREET UNDERPASS
BR. NO. SU-5-115
FRAMING PLAN
AKRON SUMMIT COUNTY, OHIO

SCALE 1/8" & 3/4" = 1'-0"
MADE EDJ DATE 10-6-52
TRCD CR&AH DATE 11-7-52
CKD CP DATE 10-16-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET- 148

212

SOUTHEAST WINGWALL

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
601	6	14	10'-3"	131					229
602	6	2	3'-0"	Str.					11
603	6	4	11'-3"	Str.					68
604	6	2 Spc @ 8"	12'-6" to 27'-9"	Str.					362
605	6	6	31'-6"	Str.					284
606	6	1	6'-6"	104	2'-6"	4'-0"			10
607	6	1	6'-3"	104	2'-3"	4'-0"			9
608	6	1 Spc @ 3"	2'-9" to 4'-6"	Str.					16
609	6	1 Spc @ 3"	2'-3" to 4'-0"	Str.					14
610	6	1 Spc @ 6"	5'-9" to 12'-0"	Str.					93
611	6	1 Spc @ 7"	5'-3" to 11'-6"	Str.					88
612	6	3	15'-6"	Str.					70
613	6	3	15'-3"	Str.					72
614	6	1	16'-6"	Str.					25
615	6	1	16'-0"	Str.					24
616	6	3	19'-6"	Str.					88
617	6	3	19'-3"	Str.					87
618	6	4	35'-0"	Str.					210
619	6	4	15'-0"	Str.					90
620	6	2	11'-0"	Str.					33
621	6	2	8'-9"	101	7'-9"				26
622	6	2	17'-3"	132	15'-9"	4			52
623	6	16	4'-6"	101	3'-6"				108
624	6	1 Spc @ 8"	6'-9" to 15'-1"	110	1'-1"	1'-10" to 6'-6"			179
625	6	2	11'-0"	Str.					33
626	6	2	9'-0"	101	8'-0"				27
627	6	4	15'-6"	Str.					93
628	6	1 Spc @ 8"	7'-1" to 15'-5"	110	1'-1"	2'-0" to 6'-2"			169
629	6	8	9'-0"	Str.					108
630	6	16	4'-0"	Str.					96
631	6	2	17'-6"	132	16'-0"	4			53
632	6	2	7'-6"	115	2'-0"	0'-8"	1'-4"		23
633	6	1	5'-6"	130	2'-0"	0'-8"	1'-4"		8
Bars in End Post									
694	6	3	5'-9"	Str.					26
695	6	7	5'-6"	Str.					58
696	6	3	5'-0"	Str.					23
697	6	3	4'-3"	Str.					19
698	6	3	4'-0"	Str.					18
699	6	4	4'-6"	Str.					27

NORTHEAST WINGWALL

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
601	6	14	10'-3"	131					229
602	6	2	8'-6"	Str.					26
603	6	2 Spc @ 8"	12'-9" to 27'-3"	Str.					361
604	6	6	31'-6"	Str.					284
605	6	2	8'-6"	Str.					26
606	6	1	6'-6"	104	2'-6"	4'-0"			10
607	6	1	6'-3"	104	2'-3"	4'-0"			9
608	6	1 Spc @ 3"	2'-9" to 4'-6"	Str.					16
609	6	1 Spc @ 3"	2'-3" to 4'-0"	Str.					14
610	6	1 Spc @ 6"	6'-0" to 11'-0"	Str.					77
611	6	1 Spc @ 6"	5'-6" to 10'-6"	Str.					72
612	6	8	12'-9"	Str.					153
613	6	4	23'-0"	Str.					139
614	6	2	13'-3"	Str.					40
615	6	2	12'-9"	Str.					38
616	6	1	14'-3"	Str.					21
617	6	1	13'-9"	Str.					21
618	6	3	19'-9"	Str.					89
619	6	3	19'-3"	Str.					87
620	6	2	13'-3"	132	11'-9"	5½"			40
621	6	4	10'-6"	Str.					65
622	6	2	10'-3"	101	9'-3"				32
623	6	12	4'-6"	101	3'-6"				81
624	6	2	7'-0"	101	6'-0"				21
625	6	2	8'-0"	101	7'-0"				24
626	6	1 Spc @ 8"	7'-1" to 15'-1"	110	1'-1"	2'-0" to 6'-0"			179
627	6	2	11'-9"	101	10'-9"				36
628	6	2	15'-0"	132	13'-6"	4½"			41
629	6	8	9'-0"	Str.					108
630	6	16	4'-0"	Str.					96
631	6	1 Spc @ 8"	6'-9" to 15'-1"	110	1'-1"	1'-0" to 6'-6"	1'-0"		132
632	6	2	7'-6"	115	2'-0"	0'-8"	1'-0"		23
633	6	1	5'-6"	130	2'-0"	0'-8"	1'-0"		8
Bars in End Post									
694	6	3	5'-9"	Str.					26
695	6	7	5'-6"	Str.					58
696	6	3	5'-0"	Str.					23
697	6	3	4'-3"	Str.					19
698	6	3	4'-0"	Str.					18
699	6	4	4'-6"	Str.					27

SOUTHWEST WINGWALL

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
601	6	17	10'-3"	131					261
602	6	2	9'-0"	Str.					27
603	6	2	10'-9"	Str.					32
604	6	2	14'-6"	Str.					44
605	6	2	17'-0"	Str.					51
606	6	6	20'-6"	Str.					185
607	6	4	7'-6"	Str.					45
608	6	1 Spc @ 3"	2'-9" to 4'-6"	Str.					17
609	6	1 Spc @ 3"	2'-3" to 4'-0"	Str.					14
610	6	12	7'-6"	Str.					135
611	6	2	8'-6"	Str.					26
612	6	2	22'-9"	Str.					68
613	6	4	22'-3"	Str.					134
614	6	2	8'-9"	132	7'-3"	9			27
615	6	2	6'-0"	Str.					18
616	6	2	4'-0"	Str.					12
617	6	2	4'-6"	134					14
618	6	1 Spc @ 8"	7'-1" to 14'-1"	110	1'-1"	2'-0" to 6'-6"			63
619	6	8	3'-6"	Str.					42
620	6	4	7'-3"	Str.					44
632	6	1	7'-6"	115	2'-0"	0'-8"	1'-4"		11
Bars in End Post									
694	6	3	5'-9"	Str.					26
695	6	7	5'-6"	Str.					58
696	6	3	5'-0"	Str.					23
697	6	3	4'-3"	Str.					19
698	6	3	4'-0"	Str.					18
699	6	4	4'-6"	Str.					27

NORTHWEST WINGWALL

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
601	6	17	10'-3"	131					261
602	6	2	9'-0"	Str.					27
603	6	2	10'-9"	Str.					32
604	6	2	14'-6"	Str.					44
605	6	2	17'-0"	Str.					51
606	6	6	20'-6"	Str.					185
607	6	4	7'-6"	Str.					45
608	6	1 Spc @ 3"	2'-9" to 4'-6"	Str.					17
609	6	1 Spc @ 3"	2'-3" to 4'-0"	Str.					14
610	6	12	7'-6"	Str.					135
611	6	2	8'-6"	Str.					26
612	6	2	22'-9"	Str.					68
613	6	4	22'-3"	Str.					134
614	6	2	8'-9"	132	7'-3"	9			27
615	6	2	6'-0"	Str.					18
616	6	2	4'-0"	Str.					12
617	6	2	4'-6"	134					14
618	6	1 Spc @ 8"	7'-1" to 14'-1"	110	1'-1"	2'-0" to 6'-6"			63
619	6	8	3'-6"	Str.					42
620	6	4	7'-3"	Str.					44
632	6	1	7'-6"	115	2'-0"	0'-8"	1'-4"		11
Bars in End Post									
694	6	3	5'-9"	Str.					26
695	6	7	5'-6"	Str.					58
696	6	3	5'-0"	Str.					23
697	6	3	4'-3"	Str.					19
698	6	3	4'-0"	Str.					18
699	6	4	4'-6"	Str.					27

EAST ABUTMENT

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
401	4	45	6'-3"	104	3'-9"	2'-6"			188
501	5	38	20'-6"	123					814
502	5	10	4'-6"	104	3'-8"	1'-0"			49
503	5	10	15'-3"	124					159
504	5	1 Spc @ 6"	11'-8" to 17'-2"	125	4'-0" to 6'-9"				105
505	5	1 Spc @ 8"	18'-8" to 19-8"	125	7'-6" to 8'-0"				60
506	5	1 Spc @ 6"	11'-8" to 17'-2"	126	4'-0" to 6'-9"				211
507	5	1 Spc @ 8"	18'-8" to 19'-8"	126	7'-6" to 8'-0"				120
601	6	15	11'-3"	Str.					254
602	6	14	10'-0"	Str.					210
603	6	86	5'-6"	Str.					710
604	6	20	19'-9"	Str.					591
605	6	4	7'-0"	Str.					42
606	6	6	13'-6"	Str.					122
607	6	6	12'-6"	Str.					113
608	6	6	7'-6"	Str.					68
609	6	54	5'-0"	Str.					406
610	6	55	14'-0"	Str.					1157
611	6	16	14'-6"	Str.					348
612	6	16	37'-6"	127	33'-6"	1'-0"	3'-0"		900
613	6	16	31'-6"	104	30'-0"	1'-6"			756
614	6	26	31'-0"	Str.					1209
615	6	16	28'-0"	Str.					673
616	6	8	12'-3"	128	7'-0"				147
617	6	23	11'-3"	128	6'-0"				389
618	6	44	3'-0"	Str.					198
619	6	31	7'-10"	127	5'-6"	0'-10"	1'-6"		365
620	6	30	8'-0"	Str.					360
621	6	10	33'-0"	Str.					496
622	6	4	8'-0"	104	6'-6"	1'-6"			48
623	6	35	6'-3"	104	3'-9"	2'-6"			328
624	6	15	14'-2"	129					320
625	6	8	3'-0"	Str.					36
701	7	10	14'-6"	Str.					296
702	7	10	6'-0"	Str.					123
901	9	12	6'-9"	101	5'-1"				275
902	9	15	12'-9"	101	11'-1"				650

WEST ABUTMENT

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
401	4	45	6'-3"	104	3'-9"	2'-6"			188
501	5	46	20'-6"	123					984
502	5	10	4'-8"	104	3'-8"	1'-0"			49
503	5	10	15'-3"	124					159
504	5	1 Spc @ 6"	11'-8" to 17'-2"	125	4'-0" to 6'-9"				105
505	5	1 Spc @ 8"	17'-8" to 19'-2"	125	7'-0" to 8'-3"				115
506	5	1 Spc @ 6"	11'-8" to 17'-2"	126	4'-0" to 6'-9"				211
507	5	1 Spc @ 8"	17'-8" to 19'-2"	126	7'-0" to 8'-3"				230
601	6	15	11'-3"	Str.					254
602	6	14	10'-0"	Str.					210
603	6	86	5'-6"	Str.					710
604	6	20	22'-9"	Str.					683
605	6	4	7'-0"	Str.					42
606	6	6	16'-0"	Str.					144
607	6	6	12'-6"	Str.					113
608	6	6	9'-6"	Str.					87
609	6	56	5'-0"	Str.					421
610	6	55	17'-0"	Str.					1404
611	6	16	17'-6"	Str.					421
612	6	20	37'-6"	127	33'-6"	1'-0"	3'-0"		1127
613	6	20	31'-6"	104	30'-0"	1'-6"			946
614	6	30	31'-0"	Str.					1397
615	6	20	28'-0"	Str.					840
616	6	8	12'-3"	128	7'-0"				147
617	6	23	11'-3"	128	6'-0"				389
618	6	44	3'-0"	Str.					198
619	6	31	7'-10"	127	5'-6"	0'-10"	1'-6"		365
620	6	36	8'-0"	Str.					433
621	6	10	33'-0"	Str.					496
622	6	4	8'-0"	104	6'-6"	1'-6"			48
623	6	35	6'-3"	104	3'-9"	2'-6"			328
624	6	18	14'-2"	129					383
625	6	8	3'-0"	Str.					36
626	6	2	4'-0"	127	1'-6"	1'-0"	1'-6"		12
701	7	10	17'-0"	Str.					347
702	7	10	6'-0"	Str.					123
901	9	12	6'-9"	101	5'-1"				275
902	9	15	12'-9"	101	11'-1"				650

CENTER BENT

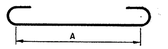
MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
401	4	49	2'-3"	Str.					74
402	4	14	2'-9"	Str.					26
403	4	12	3'-6"	Str.					28
404	4	90	13'-6"	109	2'-10"	3'-8"			812
501	5	16	12'-4"	109	2'-3"	3'-8"			206
502	5	12	12'-8"	109	2'-3"	3'-10"			157
601	6	34	5'-6"	Str.					281
602	6	12	6'-9"	Str.					122
603	6	12	23'-6"	Str.					424
1001	10	4	26'-8"	119	21'-6"	2'-0"			458
1002	10	4	18'-11"	119	13'-9"	2'-0"			326
1003	10	14	16'-0"	Str.					964
1004	10	3	15'-6"	Str.					200
1005	10	24	10'-0"	Str.					1033
1006	10	4	10'-3"	Str.					176
1007	10	20	19'-0"	Str.					1635
1008	10	12	9'-1"	108	2'-10"	6'-3"			469
1009	10	8	17'-9"	Str.					611
1010	10	10	23'-6"	Str.					1011
1011	10	4	18'-8"	118	3'-5"	11'-0"			322
1012	10	3	12'-0"	Str.					155
1013	10	2	20'-6"	Str.					176
1014	10	2	25'-4"	115	3'-5"	10'-0"	3'-5"		218
1015	10	20	18'-6"	Str.					1592
1016	10	4	9'-9"	Str.					168
1017	10	20	6'-9"	Str.					581

SIDEWALK APPROACHES

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
401	4	1 Spc @ 6"	4'-6" to 5'-0"	112	0'-8" to 0'-11"	A+5"			159
402	4	2 Spc @ 8"	4'-6" to 5'-0"	112	0'-8" to 0'-11"	A+5"			222
403	4	112	7'-0"	Str.					523
404	4	10	6'-6"	Str.					44
405	4	16	5'-0"	Str.					53
406	4	14	34'-9"	Str.					325
407	4	14	23'-9"	Str.					222

SUPERSTRUCTURE SLAB

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
401	4	102	40'-0"	Str.					2730
402	4	10	22'-0"	Str.					147
501	5	310	3'-11"	120					1267
502	5	310	8'-9"	Str.					2830
503	5	156	10'-4"	121					1683
504	5	310	5'-3"	122					1698
601	6	146	47'-0"	Str.					10370
602	6	73	26'-6"	Str.					2906
603	6	32	22'-0"	Str.					1057
604	6	215	45'-6"	Str.					14694
605	6	164	47'-2"	100	45'-2"				11618
801	8	18	34'-9"	Str.					1670
802	8	18	23'-9"	Str.					1140



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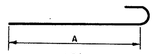

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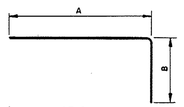

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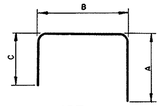

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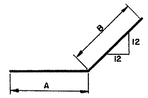

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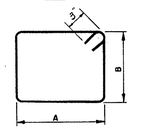

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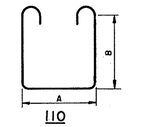

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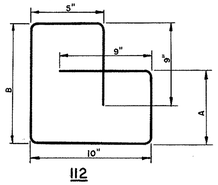

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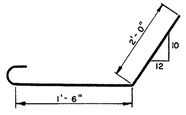

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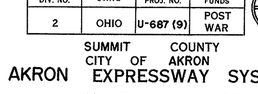

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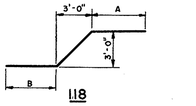

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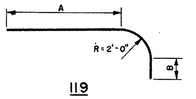

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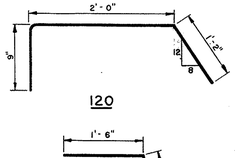

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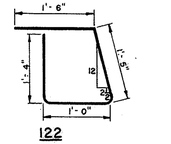

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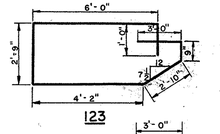

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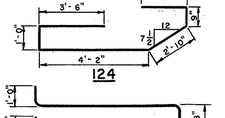

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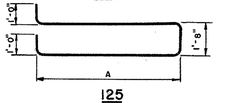

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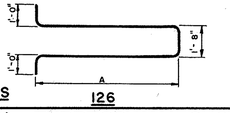

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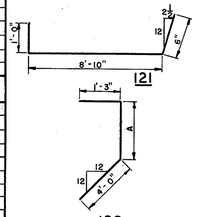

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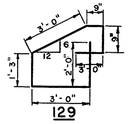

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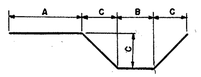

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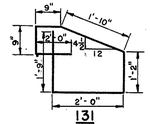

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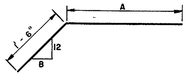


132

BENDING DIAGRAMS

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

149
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95

AKRON EXPRESSWAY SYSTEM
CARROLL STREET UNDERPASS
BR. NO. SU - 5 - 115
REINFORCEMENT SCHEDULE

AKRON SUMMIT COUNTY, OHIO

SCALE
MADE CAH DATE 10-31-52
TRCD CAH DATE 11-1-52
CKD TEC DATE 11-6-52

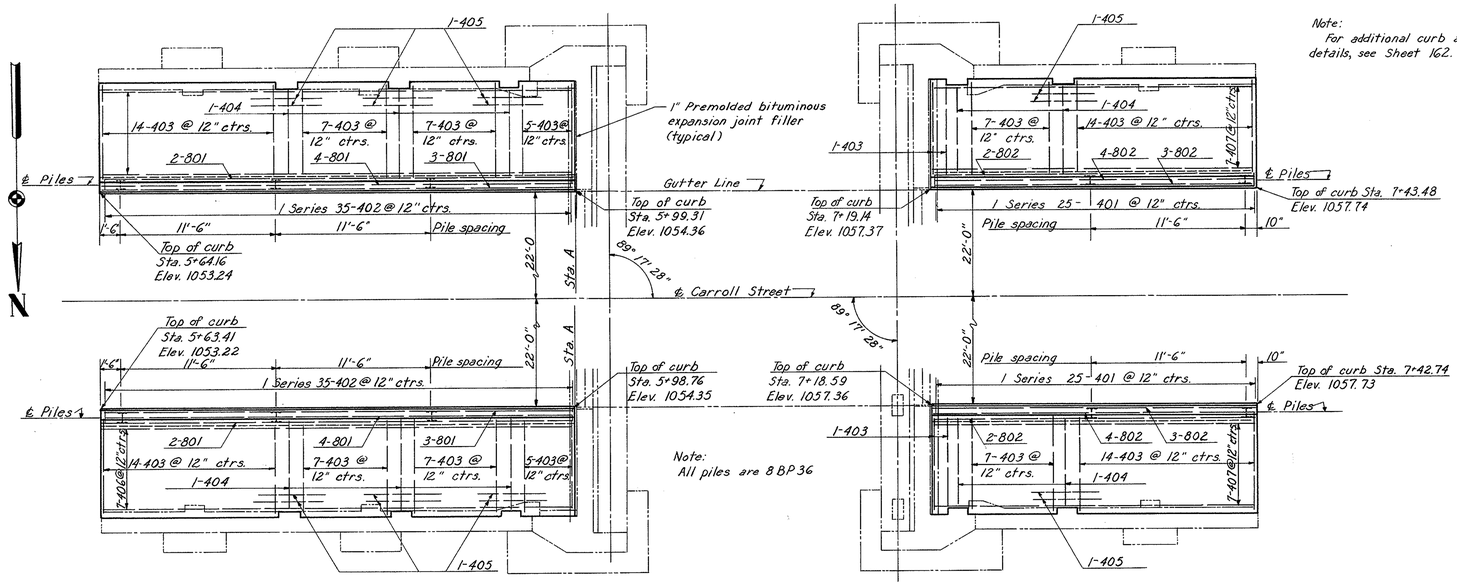
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846-U SHEET 149

215

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

150
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY — PART 5
SUM - 5 - 10.95



Note:
For additional curb and sidewalk details, see Sheet 162.

CARROLL STREET PLAN
Scale: 3/16" = 1'-0"

214

AKRON EXPRESSWAY SYSTEM
CARROLL STREET UNDERPASS
BR. NO. SU 5-115
APPROACH SIDEWALKS AND CURBS
AKRON SUMMIT COUNTY, OHIO

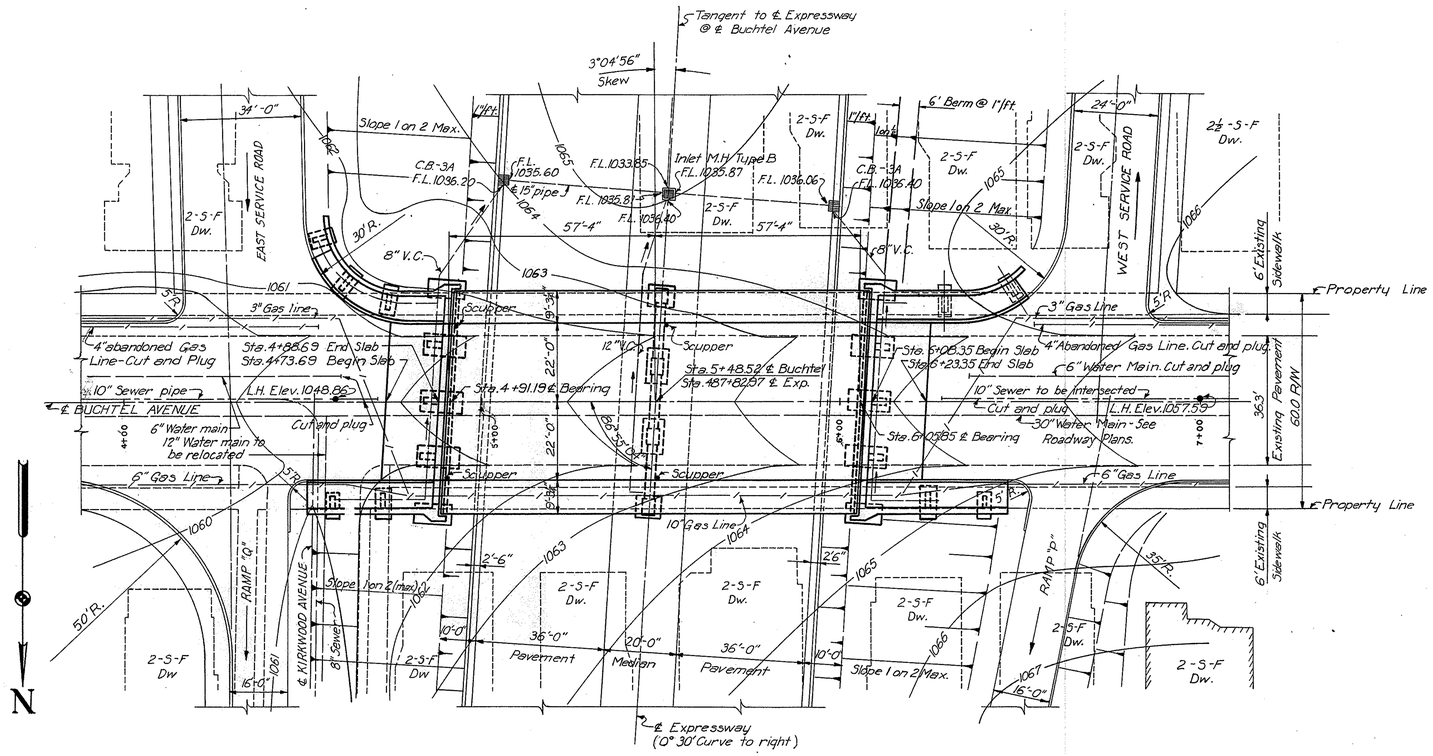
SCALE 3/16" = 1'-0"
MADE M.J.K. DATE 10-25-52
TRCD M.A.M. DATE 11-26-52
CKD C.R. DATE 10-25-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846-U SHEET- 150

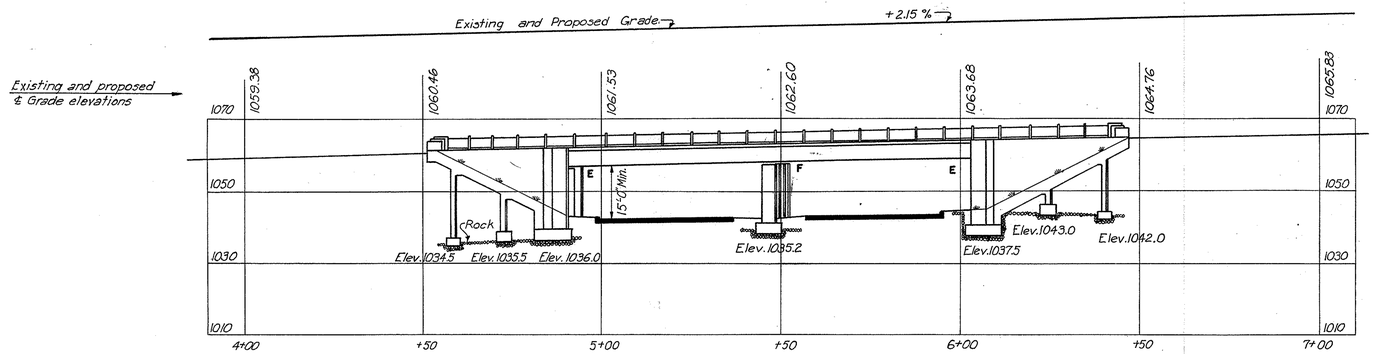
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

151
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95



PLAN



ELEVATION

PROPOSED STRUCTURE

Type: Continuous steel beam with concrete deck and substructure.
Spans: 2 @ 57'-4"
Roadway: 44'-0" with two 8'-0" sidewalks.
Loading: C.F. 600
Skew: 3°04'56"
Surface course: 2½" asphaltic concrete surface course.

AKRON EXPRESSWAY SYSTEM

BUCHTEL AVENUE UNDERPASS

BR. NO. SU-5-116

SITE PLAN

AKRON SUMMIT COUNTY, OHIO

SCALE 1" = 20'-0"
MADE I.E.T. DATE 10-6-52
TRCD CAH/WEB DATE 11-13-52
CKD J.H.G. DATE 10-21-52

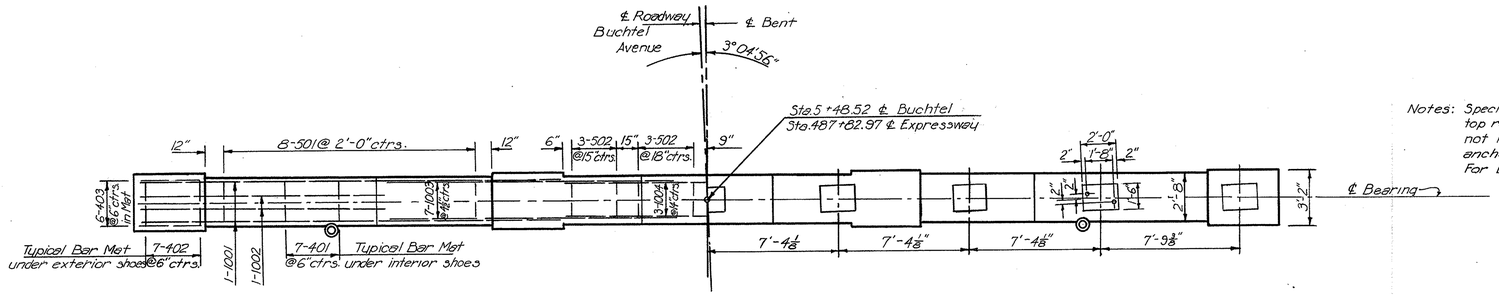
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846-U SHEET- 151

401

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

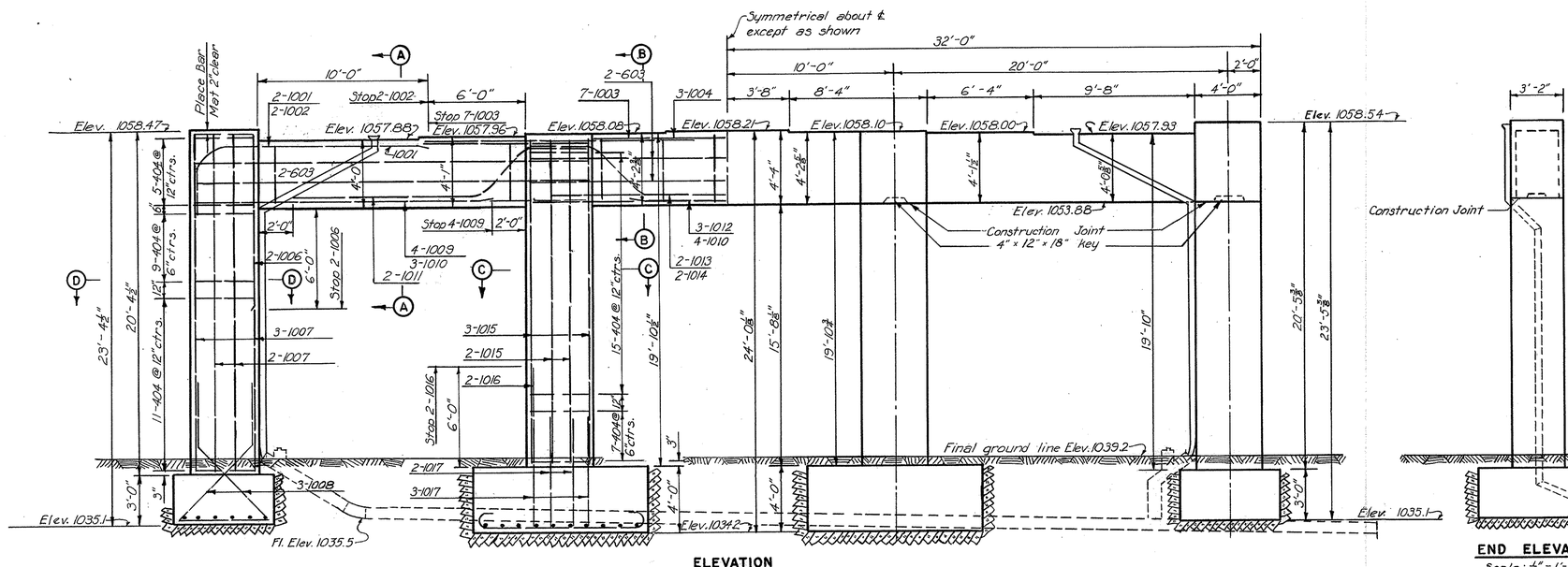
152
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

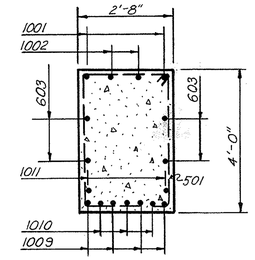


PLAN
Scale: 1/4"=1'-0"

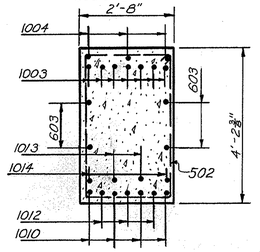
Notes: Special care shall be taken in placing top reinforcing steel so that it will not interfere with drilling for anchor bolt holes.
For Drainage Details see Sheet 159.



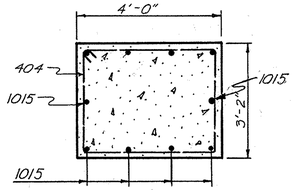
ELEVATION
Scale: 1/4"=1'-0"



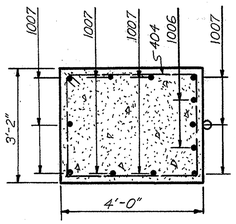
SECTION A-A
Scale: 1/2"=1'-0"



SECTION B-B
Scale: 1/2"=1'-0"



SECTION C-C
Scale: 1/2"=1'-0"



SECTION D-D
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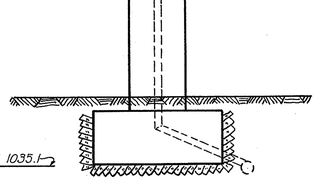
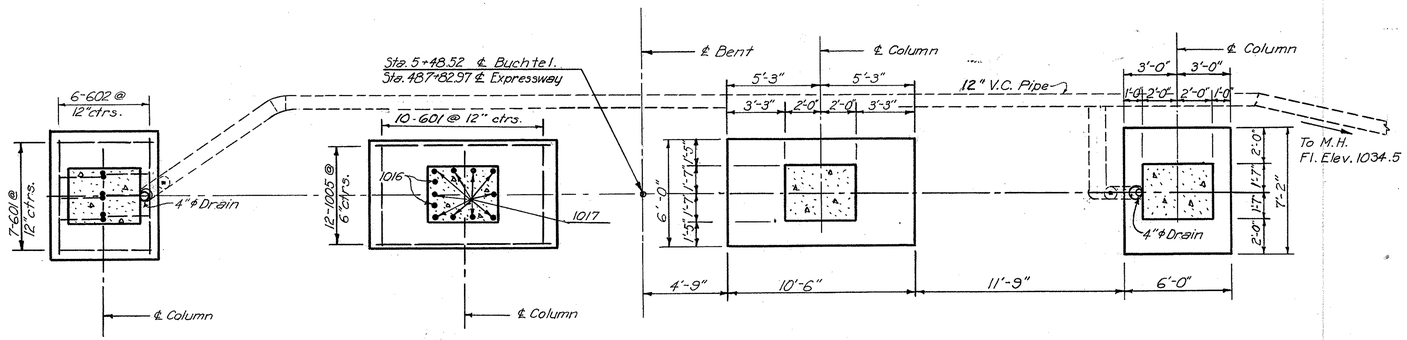


END ELEVATION
Scale: 1/4"=1'-0"



FOOTING PLAN
Scale: 1/4" =1'-0"

AKRON EXPRESSWAY SYSTEM
BUCHTEL AVENUE UNDERPASS
BR. NO. SU-5-116
CENTER BENT
AKRON SUMMIT COUNTY, OHIO

SCALE 1/4" = 1'-0"
MADE R.S.O. DATE 10-13-52
TRCD J.S.H. DATE 11-12-52
CKD. R.F.S. DATE 10-23-52

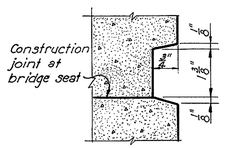
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846-U SHEET- 152

402

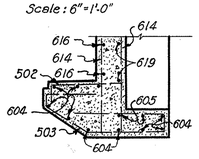
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

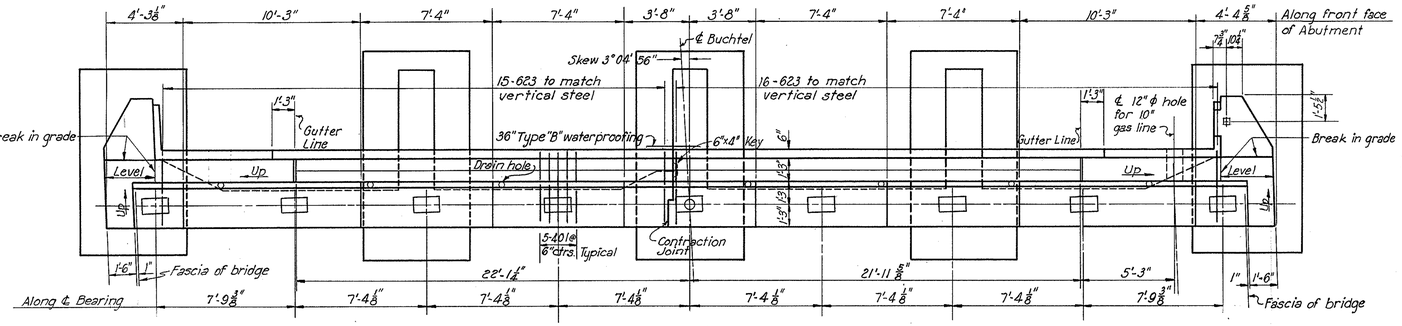
153
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY PART 5
SUM-5-10.95

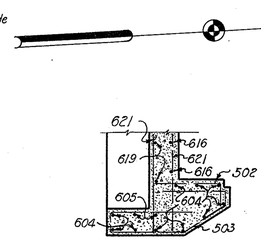


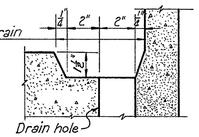
RUSTICATION
Scale: 6"=1'-0"



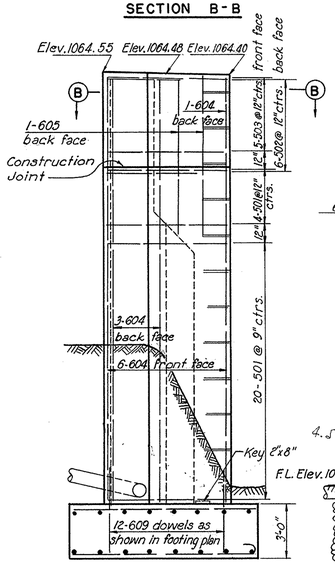


PLAN

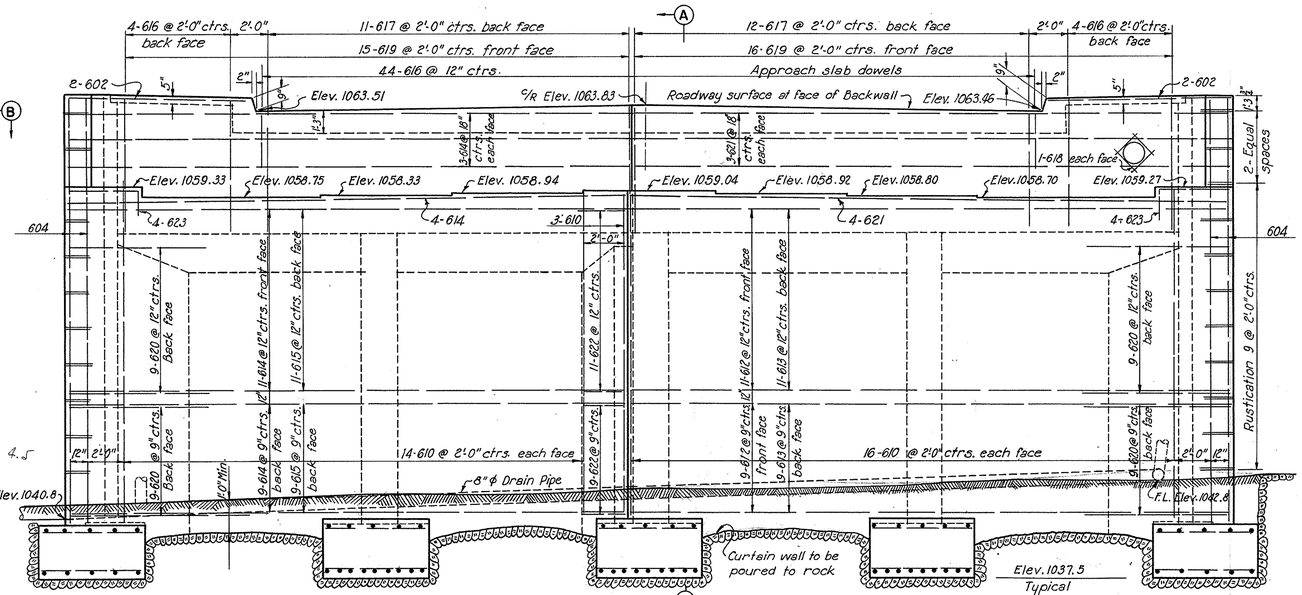




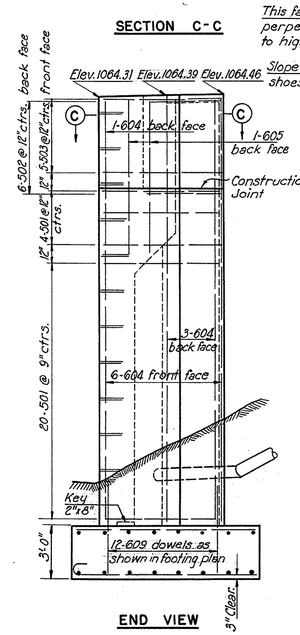
DRAIN HOLE DETAIL
Scale: 3"=1'-0"



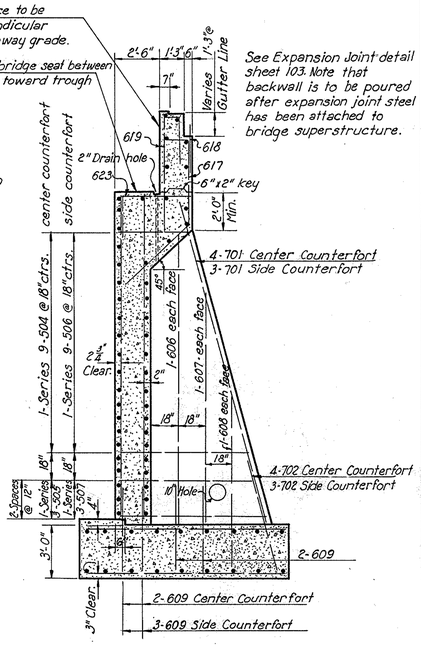
SECTION B-B



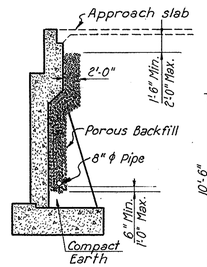
ELEVATION



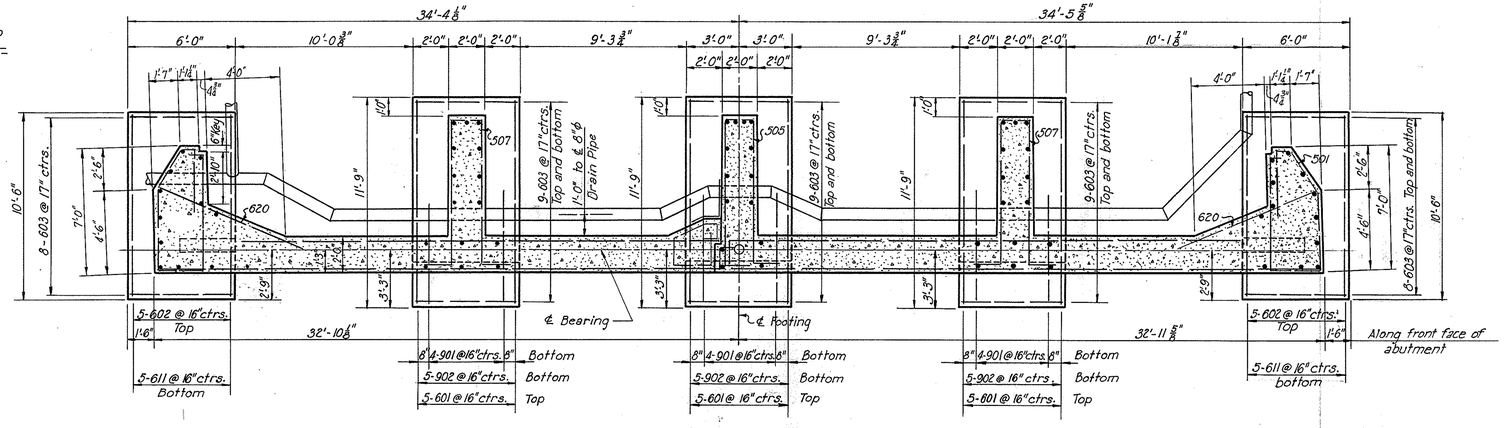
SECTION C-C



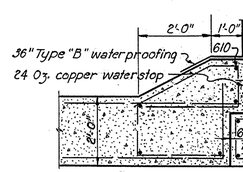
END VIEW



ABUTMENT SECTION
Not to scale

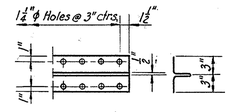


FOOTING PLAN



SECTION A-A

CONTRACTION JOINT
Scale: ½"=1'-0"



CONTRACTION JOINT WATERSTOP
Scale: 1"=1'-0"

AKRON EXPRESSWAY SYSTEM
BUCHTEL AVENUE UNDERPASS
BR. NO. SU-5-116
WEST ABUTMENT
AKRON SUMMIT COUNTY, OHIO

SCALE ½"=1'-0" except as shown
MADE LET DATE 10-23-52
TRCD LWL & SR DATE 11-13-52
CKD J.H.G. DATE 11-6-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET- 153

403

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

154
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

PLAN

SECTION B-B

END VIEW

ELEVATION

SECTION C-C

END VIEW

SECTION A-A

SECTION D-D

FOOTING PLAN

Note:
For Abutment Section see West Abutment.
For Contraction Joint see West Abutment.
For Contraction Joint waterstop see West Abutment.
For Rustication see West Abutment.
For Drain Hole Detail see West Abutment.

Note:
No dowels on this side of Contraction Joint

See expansion joint detail sheet 103. Note that backwall is to be poured after expansion joint steel has been attached to bridge superstructure

AKRON EXPRESSWAY SYSTEM
BUCHTEL AVENUE UNDERPASS
BR. NO. SU-5-116
EAST ABUTMENT
AKRON SUMMIT COUNTY, OHIO

SCALE 1/4"=1'-0"
MADE J.H.G. DATE 10-16-52
TRCD J.H.G. DATE 11-11-52
CKD L.E.T. DATE 11-11-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET-154

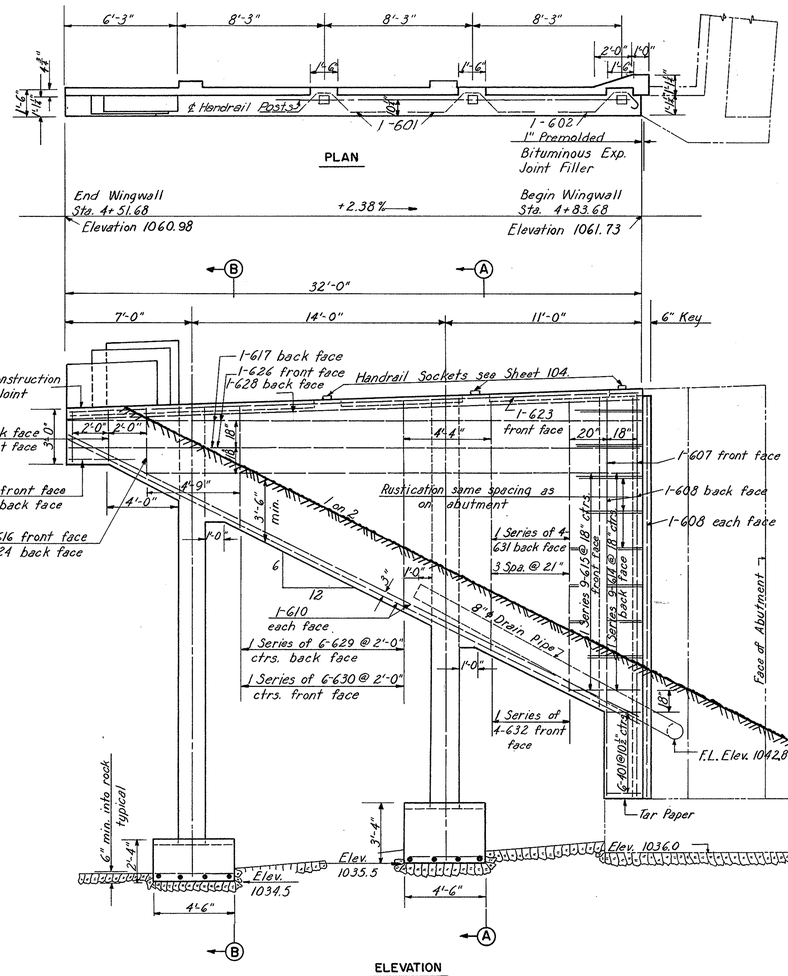
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

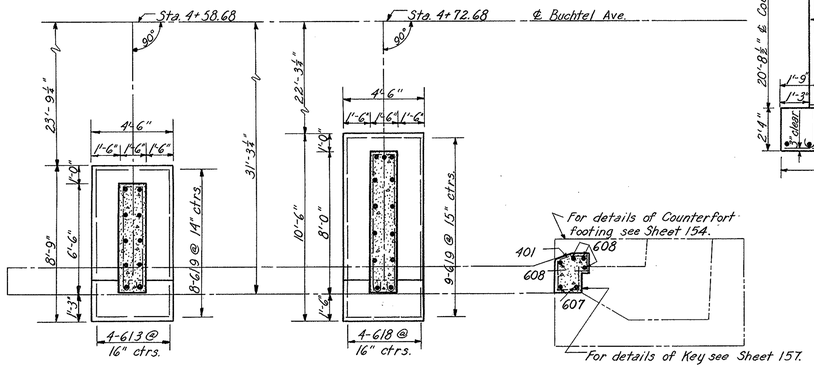
155
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM

EXPRESSWAY - PART 5
SUM-5-10.95





AKRON EXPRESSWAY SYSTEM

BUCHTEL AVENUE UNDERPASS
BR. NO. SU-5-116
NORTHEAST & NORTHWEST WINGWALLS

AKRON SUMMIT COUNTY, OHIO

SCALE 1" = 1'-0"
MADE R.S.O. DATE 10-21-52
TRCD N.A.M. DATE 11-19-52
CKD W.E.G.C.R. DATE 11-11-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

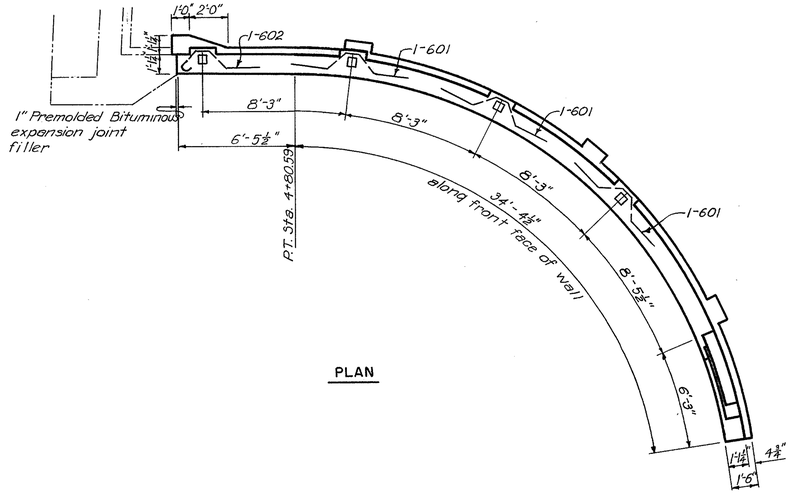
846-U SHEET. 155

407

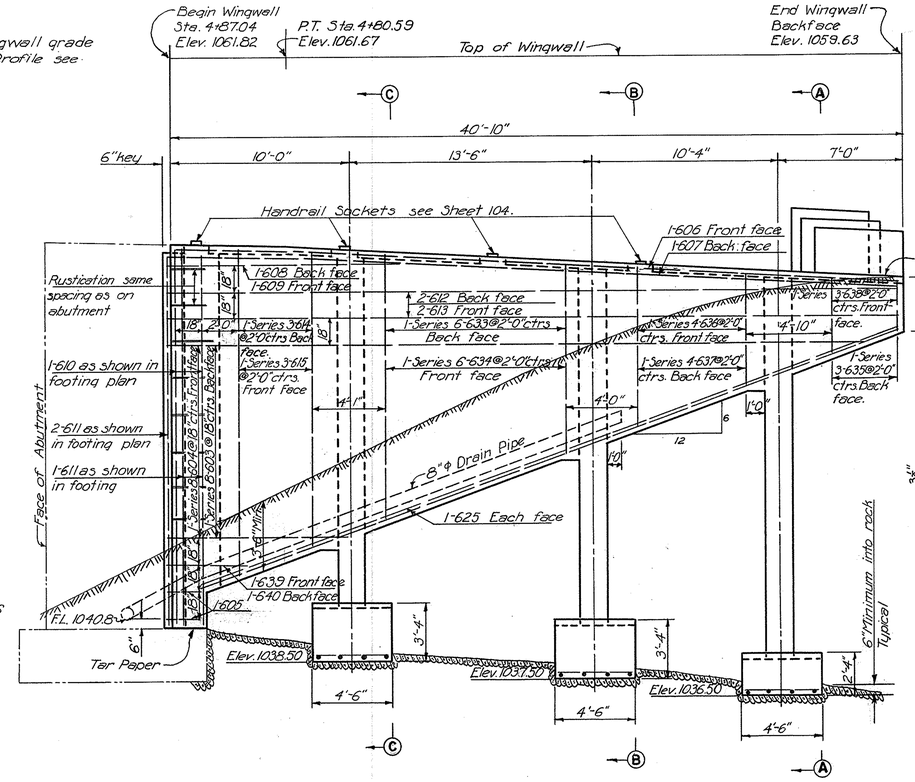
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

156
172

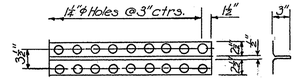
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95



PLAN

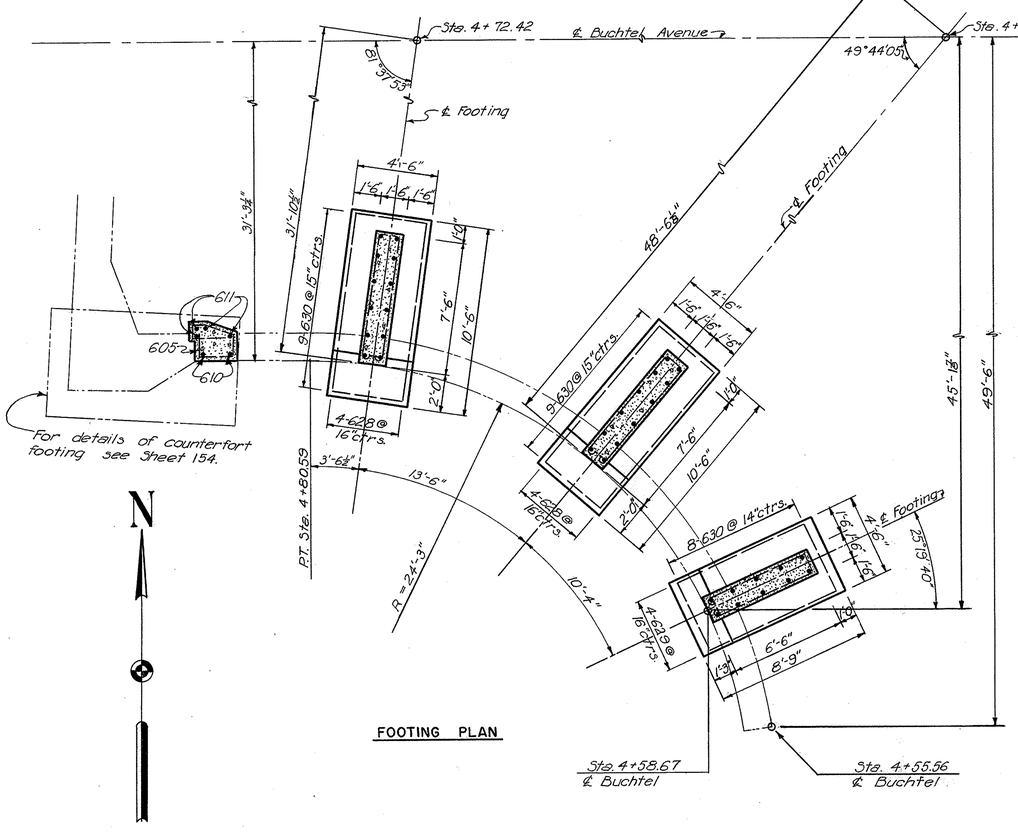


DEVELOPED SECTION

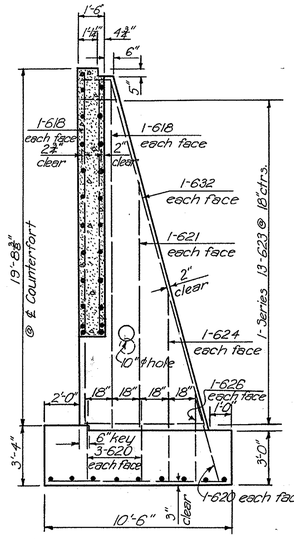


Material: 24 oz. Copper

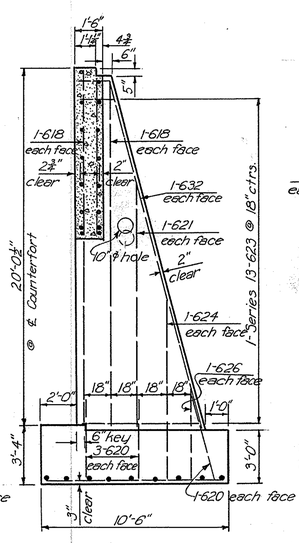
COPPER WATER STOP
Scale: 1"=1'-0"



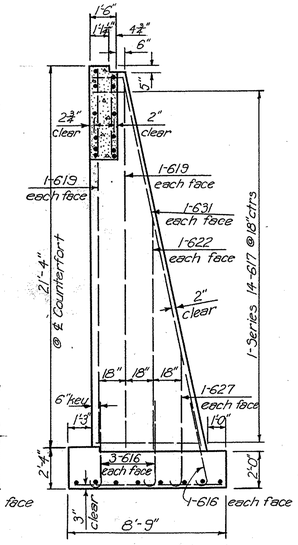
FOOTING PLAN



SECTION C-C



SECTION B-B



SECTION A-A

Note: For wingwall section see sheet 157.
For details of expansion joint key, see sheet 157.

AKRON EXPRESSWAY SYSTEM
BUCHTEL AVENUE UNDERPASS
BR. NO. SU-5-116
SOUTHEAST WINGWALL
AKRON SUMMIT COUNTY. OHIO

SCALE 1"=1'-0" or as shown
MADE R.F.S. DATE 10-26-52
TRCD K.S.O'NEIL DATE 11-18-52
CKD L.E.T. DATE 11-17-52

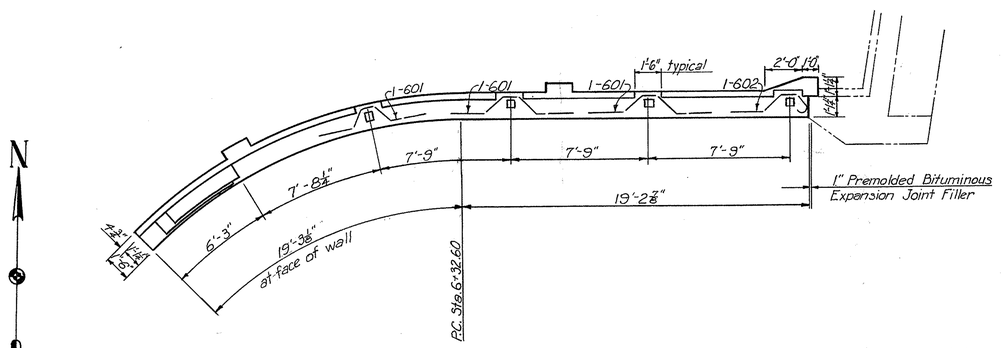
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET-156

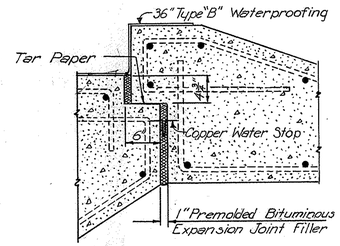
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

157
172

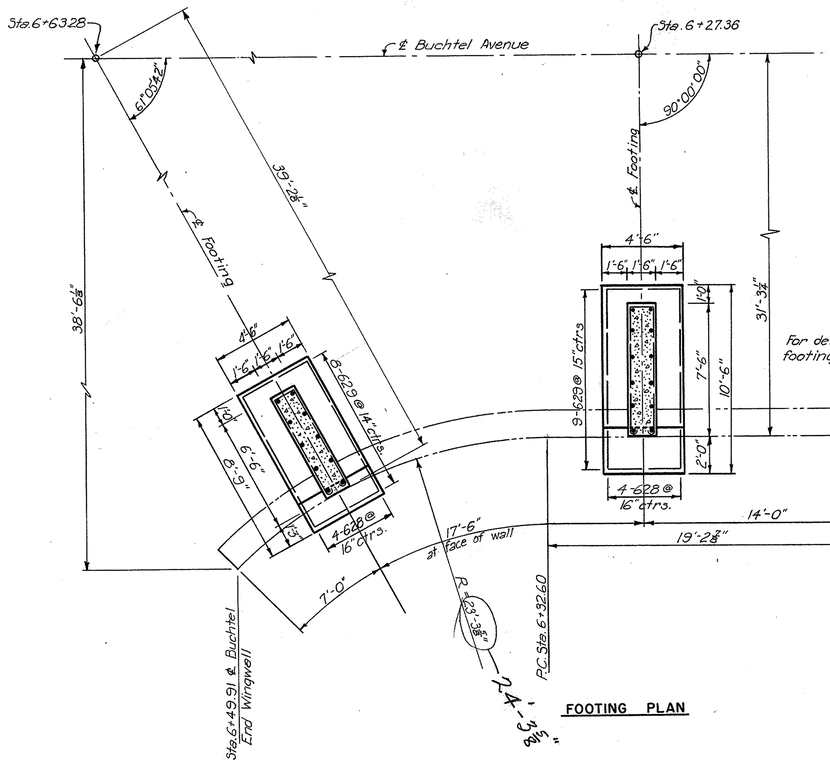
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95



PLAN

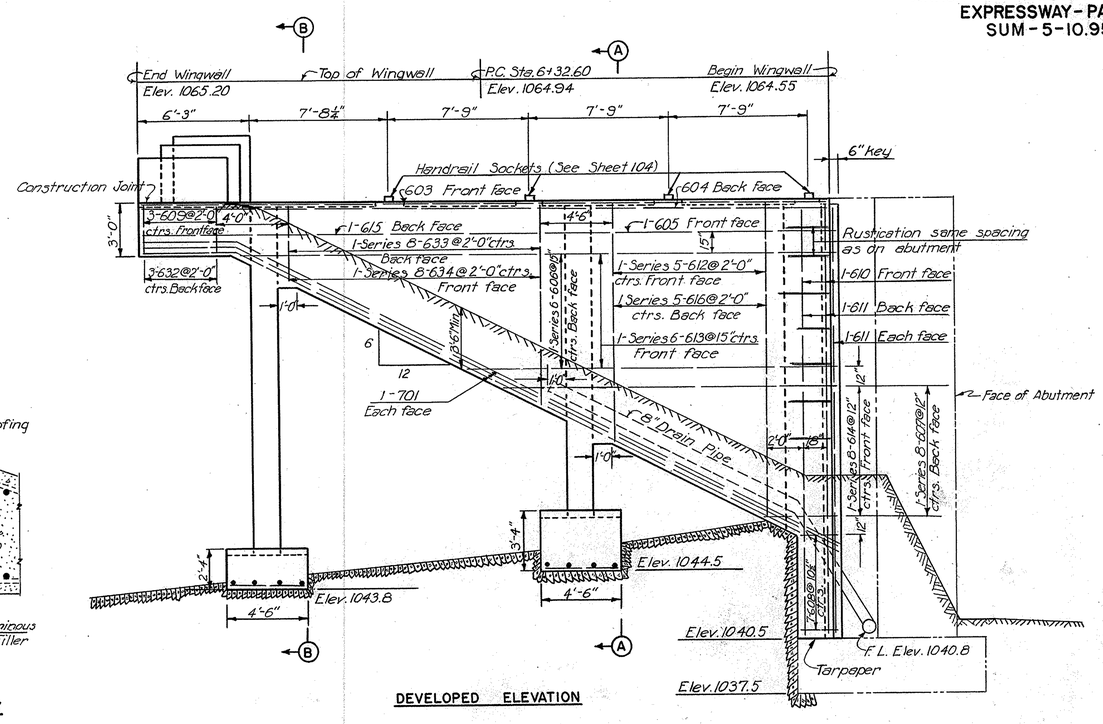


EXPANSION JOINT KEY
Scale 1"=1'-0"

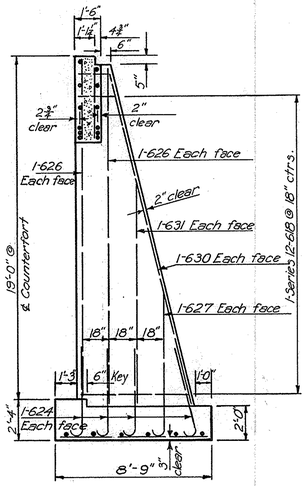


FOOTING PLAN

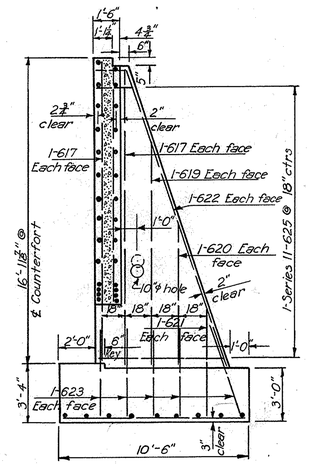
Note:
Top of wingwall grade varies. For profile see sheet 158.



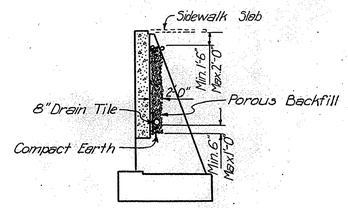
DEVELOPED ELEVATION



SECTION B-B



SECTION A-A



WINGWALL SECTION
No Scale

Notes:
For end post detail see Sheet 104.
For copper water stop see Sheet 156.

Radius in Footing Plan revised in pencil. 1-20-54
R. VanHorn

AKRON EXPRESSWAY SYSTEM
BUCHTEL AVENUE UNDERPASS
BR. NO. SU-5-116
SOUTHWEST WINGWALL

AKRON SUMMIT COUNTY, OHIO

SCALE 1/2"=1'-0" except as noted
MADE R.S.O. DATE 10-22-52
TRCD R.S.O. DATE 11-12-52
CKD L.F.T. DATE 11-8-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

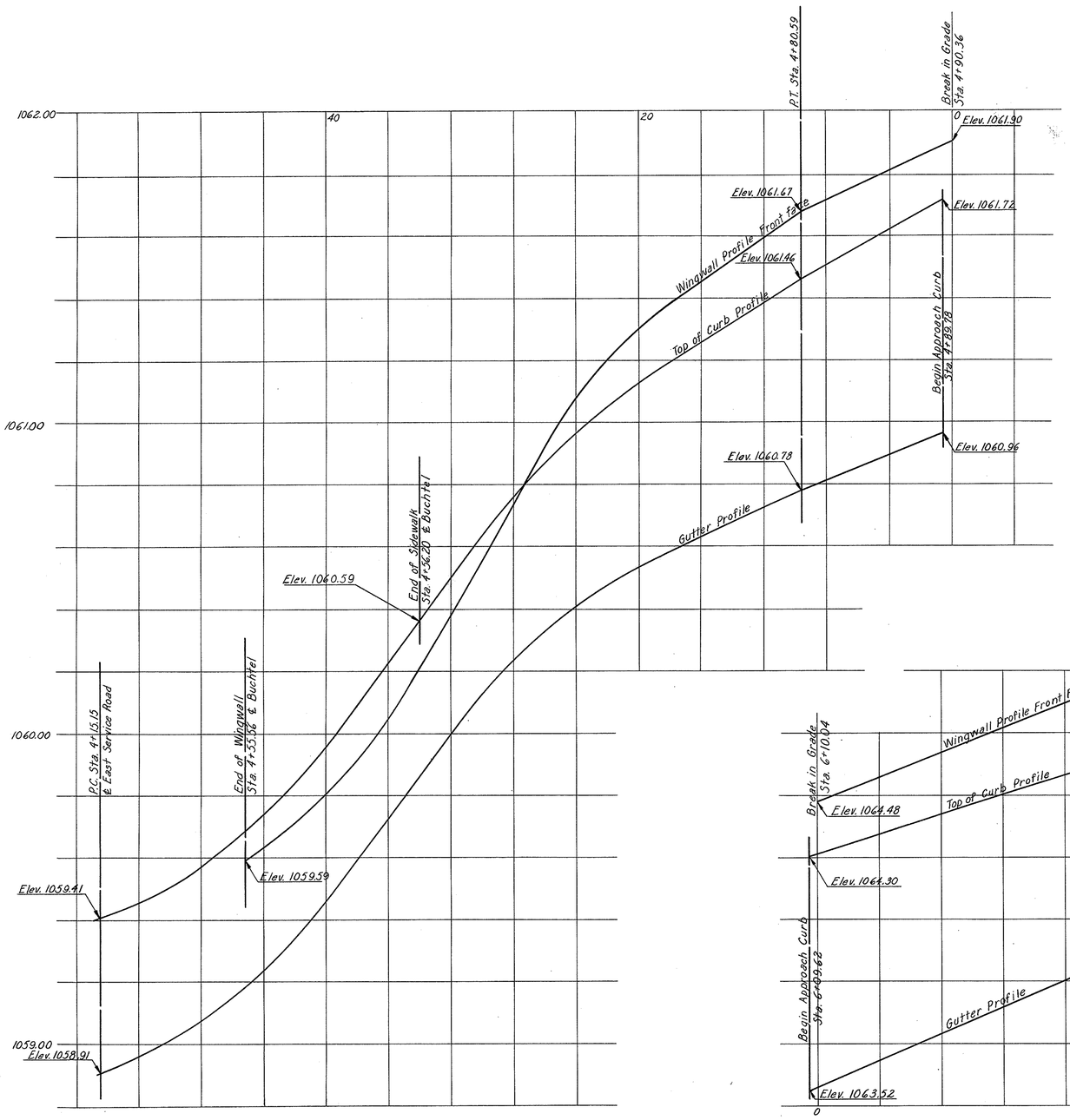
846-U SHEET 157

409

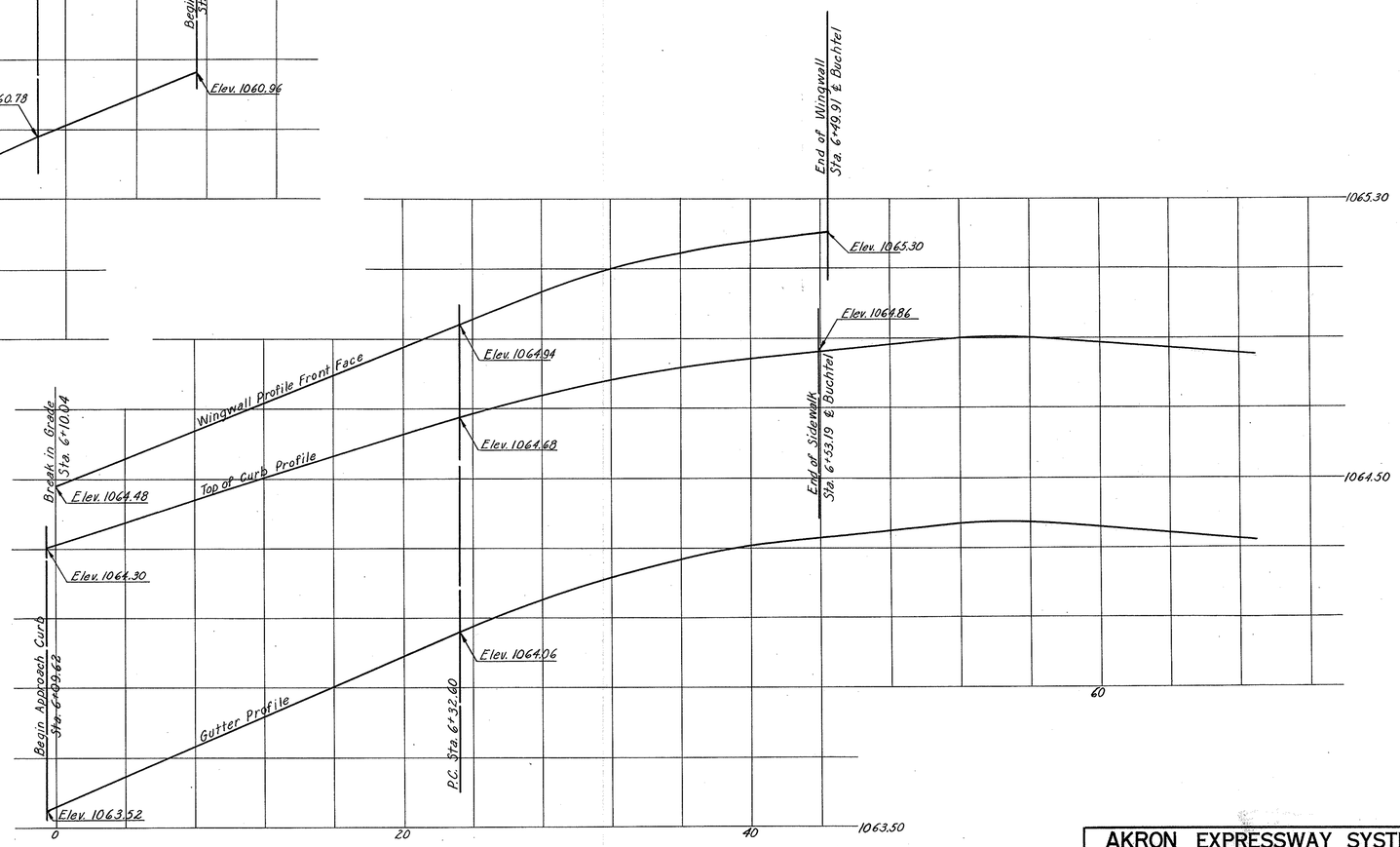
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

158
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM - 5-10.95



SOUTH EAST WINGWALL
Scale:
Horiz: 1"=4'-0" Vert: 1"=4'



SOUTH WEST WINGWALL
Scale:
Horiz: 1"=4'-0" Vert: 1"=4"

AKRON EXPRESSWAY SYSTEM

BUCHTEL AVENUE UNDERPASS

BR. NO. SU-5-116

PROFILE GRADES OF

SOUTHEAST & SOUTHWEST WINGWALL

AKRON SUMMIT COUNTY, OHIO

SCALE As Shown
MADE R.F.S. DATE 11-4-52
TRCD CAH&WM DATE 11-12-52
CKD L.E.T. DATE 11-13-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

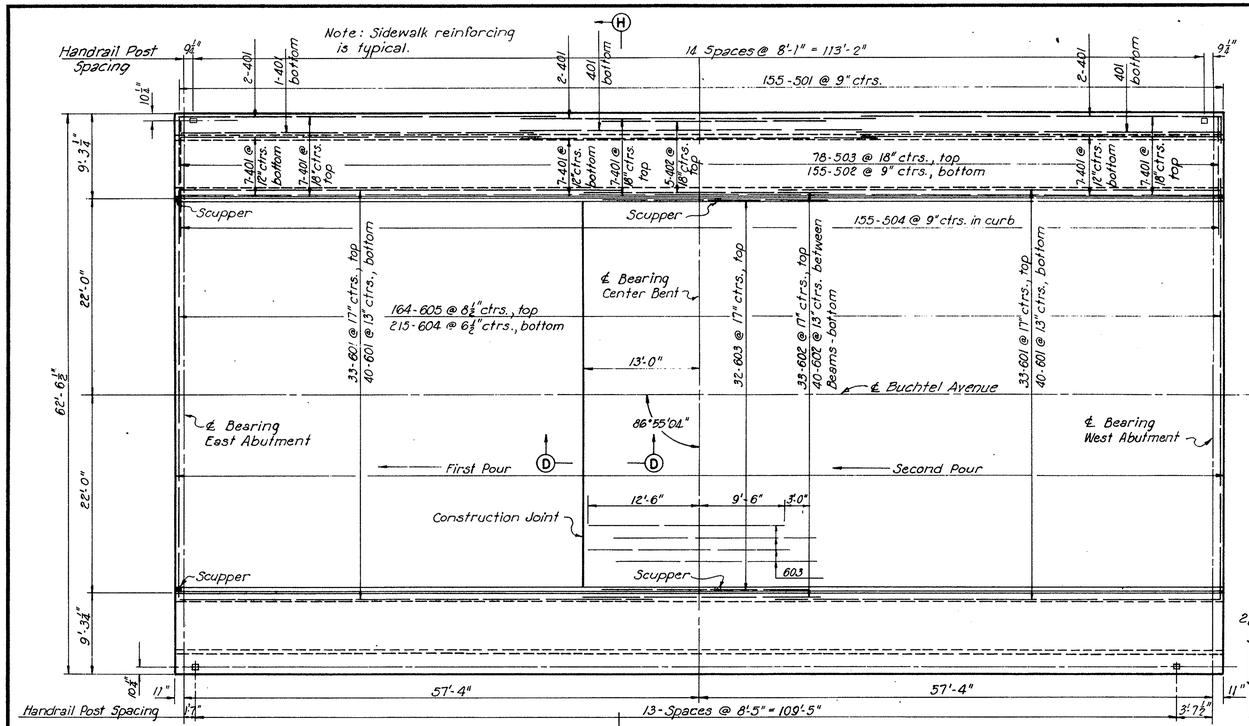
846-U SHEET- 158

411

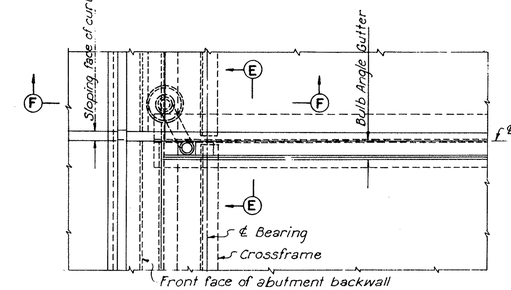
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

159 / 172

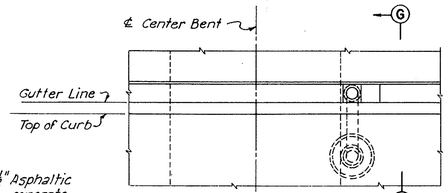
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95



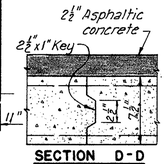
SLAB PLAN
Scale: 1" = 1'-0"



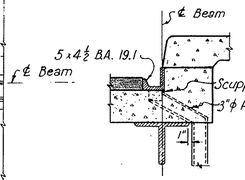
PART PLAN SHOWING SCUPPER DETAILS AT ABUTMENT
Scale: ¾" = 1'-0"



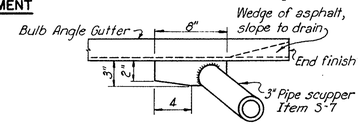
PART PLAN SHOWING SCUPPER DETAILS AT BENT
Scale: ¾" = 1'-0"



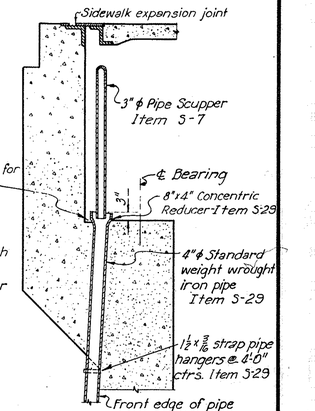
SECTION D-D
Scale: 1½" = 1'-0"



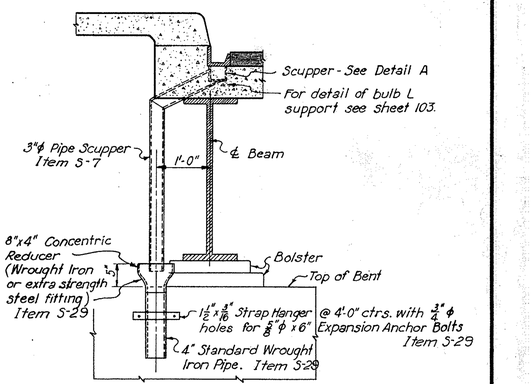
SECTION E-E
Scale: ¾" = 1'-0"



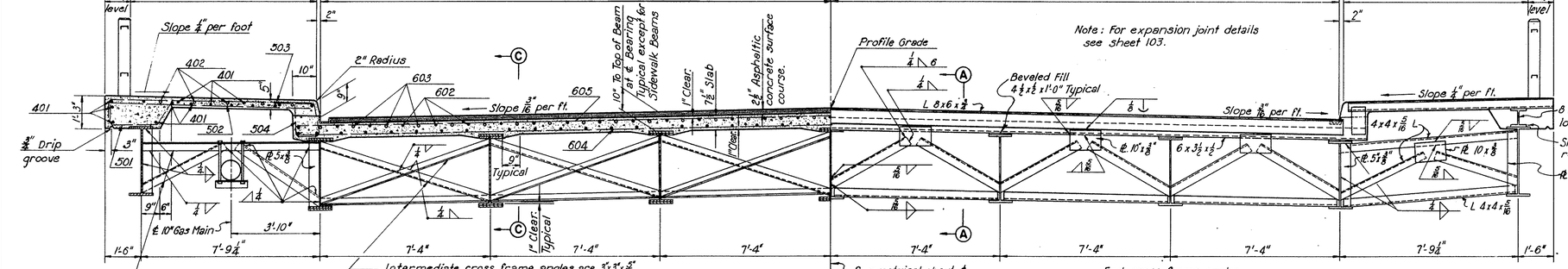
DETAIL A
Scale: 1½" = 1'-0"



SECTION F-F
Scale: ½" = 1'-0"



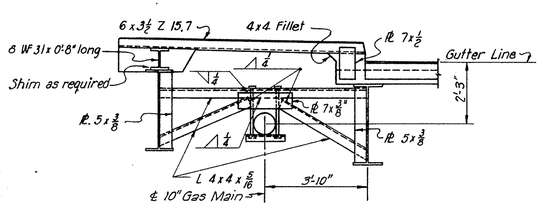
SECTION G-G
Scale: ¾" = 1'-0"



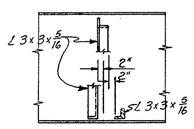
HALF SECTION H-H AT INTERMEDIATE CROSS FRAMES
Scale: ⅜" = 1'-0"

HALF SECTION THROUGH END FINISH
Scale: ⅜" = 1'-0"

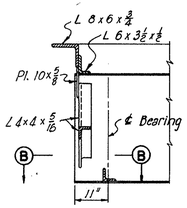
Note: 8"x4" Concentric reducer to be Crane Type Steel Butt-Weld Reducer or equal.



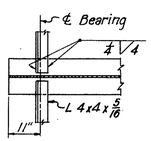
NORTH SIDE CROSS FRAME AT END FINISH
Scale: ⅜" = 1'-0"



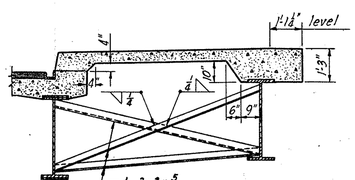
SECTION C-C
Scale: 1½" = 1'-0"



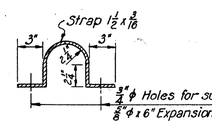
SECTION A-A
Scale: 1½" = 1'-0"



SECTION B-B
Scale: 1½" = 1'-0"



SOUTH SIDE INTERMEDIATE CROSS FRAMES
Scale: ⅜" = 1'-0"



STRAP PIPE HANGER
Scale: 1½" = 1'-0"

AKRON EXPRESSWAY SYSTEM
BUCHTEL AVENUE UNDERPASS
BR. NO. SU-5-116
SLAB PLAN AND CROSS-SECTION
AKRON SUMMIT COUNTY, OHIO

SCALE As noted
MADE MJK DATE 10-14-52
TRCD LWL & RM DATE 11-7-52
CKD J.H.G DATE 10-20-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET 159

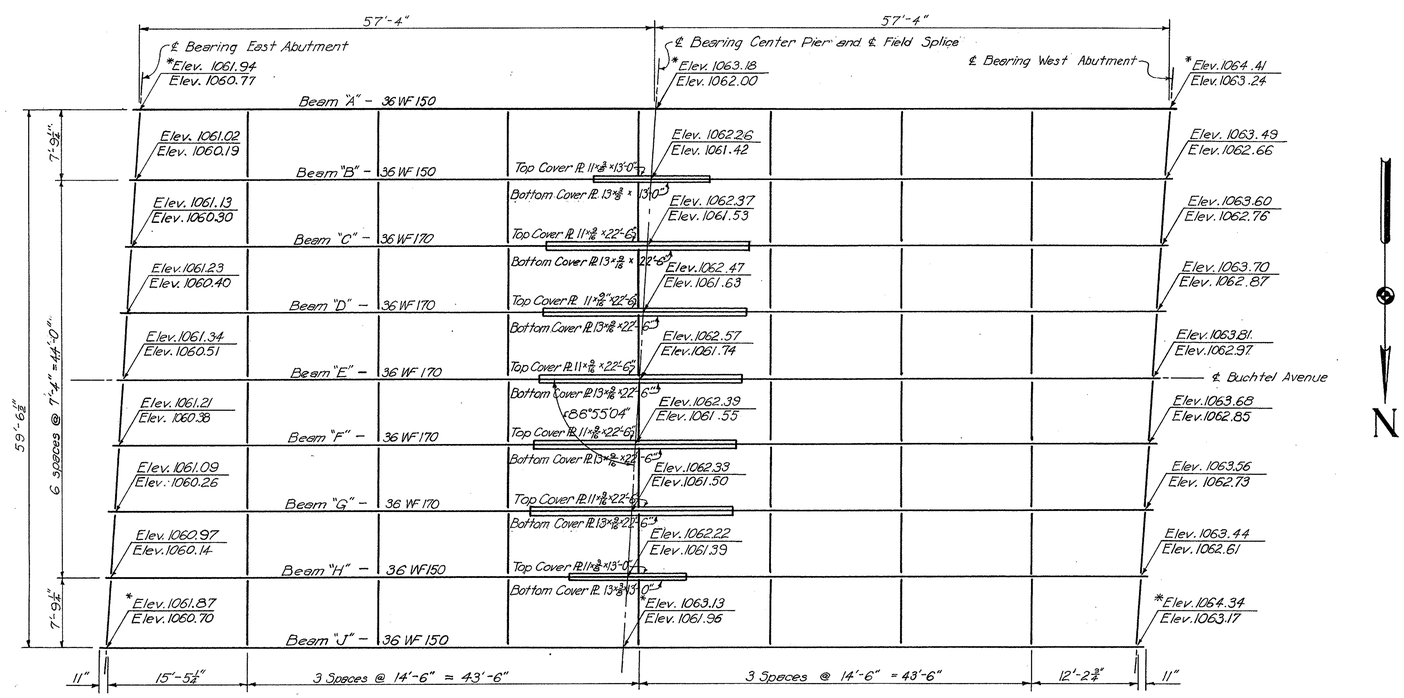
405

Revised As-Built P.G. 6/23/53

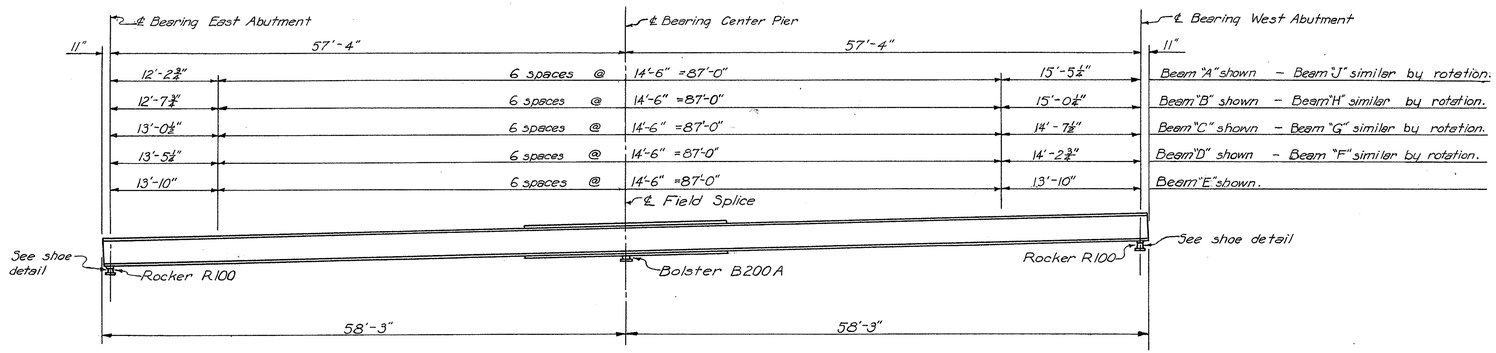
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

160
172

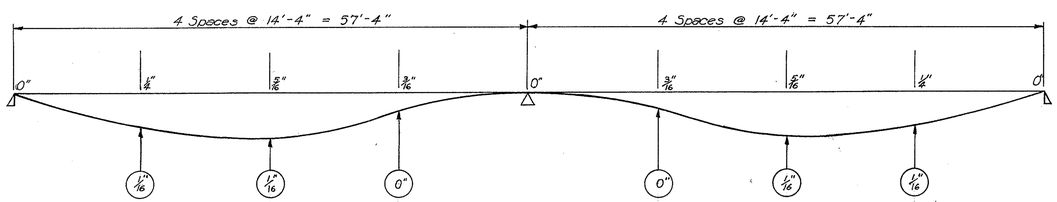
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95



FRAMING PLAN
Scale ⅛" = 1'-0"



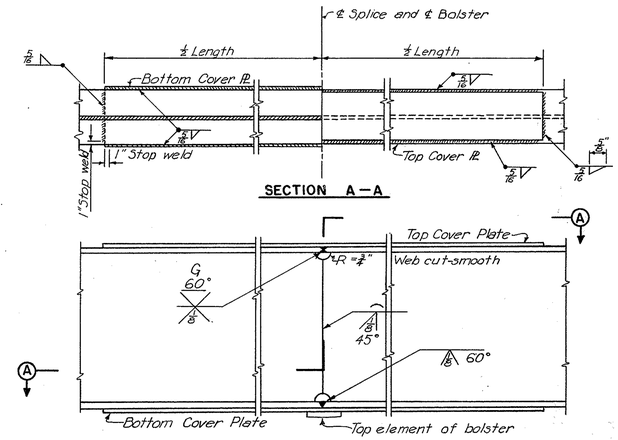
BEAM ELEVATION
Scale ⅛" = 1'-0"



DEAD LOAD DEFLECTION DIAGRAM
No Scale

Note: Dimensions in ○ are deflections which may be expected in the steel beams when in place. Dimensions above base line are additional deflections to be expected when concrete is in place.

Note: Top elevations given for top of wearing surface.
Bottom elevations for top of WF Beam.
Elevations marked * are top of sidewalk.



TYPICAL BEAM DETAILS
Scale ¾" = 1'-0"

Note:
"G" indicates a flush grind.
Welds shall be ground in the direction of stress.

BEAM SPLICE WELDING PROCEDURE

1. Weld bottom flange cover plate to beam on one side of joint only.
** 2. Raise beam end at one abutment the following amounts:
36WF150 - Beams A, B, H, and J - ⅜ inch.
36WF170 - Beams C, D, E, F and G - ⅝ inch.
3. Butt-weld the beam flanges and web.
4. Weld the top cover plate on each side of joint.
5. Complete welding of the bottom cover plate.
6. Lower the beam end to final position.
Note: Contractor may submit alternate scheme for weld connecting lower cover plate and top element of Bolster.

** Beam is to be raised on span opposite the weld in Step 1.
Note: Steps 1, 4 and 5 to be omitted for beams "A" and "J".

Notes:
For details of shoes and end finish see sheet 103.
For typical cross section thru deck see sheet 159.

AKRON EXPRESSWAY SYSTEM
BUCHTEL AVENUE UNDERPASS
BR. NO. SU-5-116
FRAMING PLAN
AKRON SUMMIT COUNTY, OHIO

SCALE As shown
MADE R.F.S. DATE 10-14-52
TRCD W.E.G. DATE 11-11-52
CKD J.M.G. DATE 11-29-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET- 160

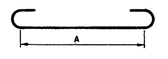
106

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
SOUTHEAST WINGWALL									
601	6	3	7'-4"	115	2'-0"	8"	11"		33
602	6	1	6'-4"	130	2'-0"	8"	11"		10
603	6	1	38'-8" to 43'-4"	137	1'-1" to 33'-10"	4'-3"	24'3"		297
604	6	1	10'-4" to 42'-0"	136	24'-3" to 34'-0"	1'-9"	6'-3"	28'3"	314
605	6	2	10'-3"	131					34
606	6	1	41'-0"	136	34'-0"	9"	5'-3"	24'3"	62
607	6	1	43'-7"	137	34'-0"	4'-3"	24'3"		66
608	6	1	16'-4"	137	6'-9"	4'-3"	24'3"		25
609	6	1	15'-0"	136	7'-0"	1'-9"	6'-3"	28'3"	23
610	6	1	21'-3"	Str.					31
611	6	3	21'-9"	Str.					95
612	6	2	43'-4"	137	33'-9"	4'-3"	24'3"		130
613	6	2	42'-0"	136	34'-0"	1'-9"	6'-3"	24'3"	126
614	6	5/8	16'-0" to 17'-9"	Str.					76
615	6	5/8	16'-6" to 18'-0"	Str.					78
616	6	8	5'-3"	101	4'-3"				63
617	6	1 3/4	61'-0" to 154'-0"	110	1'-6" to 66'-0"				221
618	6	8	19'-9"	Str.					237
619	6	4	20'-9"	Str.					125
620	6	16	4'-6"	Str.					108
621	6	4	13'-6"	Str.					81
622	6	2	13'-0"	Str.					39
623	6	2 3/8	61'-6" to 171'-0"	110	1'-9" to 74'-0"				458
624	6	4	10'-0"	101	9'-0"				60
625	6	4	41'-6"	Str.					249
626	6	4	51'-3"	Str.					32
627	6	2	8'-6"	101	7'-6"				26
628	6	8	10'-0"	Str.					120
629	6	4	8'-3"	Str.					50
630	6	26	4'-0"	Str.					156
631	6	2	22'-6"	132	21'-0"	2½	1'-6"		68
632	6	4	21'-3"	132	19'-9"	3	1'-6"		128
633	6	5/8	10'-0" to 14'-3"	Str.					109
634	6	3/8	10'-6" to 14'-9"	Str.					114
635	6	3/8	2'-6" to 4'-0"	Str.					15
636	6	5/8	6'-3" to 9'-0"	Str.					46
637	6	5/8	5'-9" to 8'-6"	Str.					43
638	6	3/8	3'-0" to 4'-6"	Str.					17
639	6	1	7'-7"	133	3'-3"				11
640	6	1	7'-9"	104	5'-0"	2'-0"			10
BARS IN END POST									
694	6	3	5'-9"	Str.					26
695	6	7	5'-6"	Str.					58
696	6	3	5'-0"	Str.					23
697	6	3	4'-3"	Str.					19
698	6	3	4'-0"	Str.					18
699	6	4	4'-6"	Str.					27
NORTHEAST WINGWALL									
401	4	6	10'-3"	131					46
501	5	5/8	54'-11" to 17'-1"	110	1'-7" to 7'-2"				180
502	5	5/8	61'-5" to 13'-5"	110	1'-10" to 65'-4"				151
601	6	2	7'-4"	115	2'-0"	8"	11"		22
602	6	1	6'-0"	130	2'-0"	8"	11"		9
603	6	1	6'-0"	104	3'-6"	2'-0"			9
604	6	2	11'-6"	Str.					35
605	6	1	5'-6"	104	3'-6"	2'-0"			8
606	6	2	17'-0"	Str.					51
607	6	2	22'-3"	Str.					66
608	6	4	21'-9"	Str.					131
609	6	4	23'-6"	Str.					141
610	6	4	35'-0"	Str.					210
611	6	2	16'-6"	Str.					50
612	6	2	9'-0"	101	8'-0"				27
613	6	4	8'-3"	Str.					50
614	6	3/8	64'-10" to 30'-10"	133	1'-6" to 25'-6"				255
615	6	5/8	54'-6" to 29'-6"	104	3'-9" to 27'-9"	1'-9"			237
616	6	1	4'-0"	Str.					60
617	6	2	34'-4"	133	29'-0"				103
618	6	4	10'-0"	Str.					60
619	6	17	4'-0"	Str.					102
620	6	4	22'-9"	Str.					132
621	6	2	25'-3"	132	23'-9"	3	1'-6"		76
622	6	8	5'-0"	101	4'-0"				72
623	6	1	32'-3"	104	31'-6"	9"			48
624	6	1	3'-6"	Str.					5
625	6	2	8'-0"	Str.					24
626	6	2	33'-3"	104	31'-6"	1'-9"			100
627	6	8	5'-0"	Str.					60
628	6	1	34'-7"	133	29'-3"				59
629	6	3/8	54'-9" to 10'-9"	Str.					74
630	6	5/8	64'-3" to 11'-3"	Str.					79
631	6	5/8	13'-6" to 16'-9"	Str.					91
632	6	1 3/4	14'-0" to 17'-3"	Str.					94
633	6	1	2'-0"	Str.					3
634	6	1	2'-6"	Str.					4
801	8	3	24'-0"	132	22'-6"	4½	1'-6"		192
802	8	3	6'-0"	Str.					48
BARS IN END POST									
694	6	3	5'-9"	Str.					26
695	6	7	5'-6"	Str.					58
696	6	3	5'-0"	Str.					23
697	6	3	4'-3"	Str.					19
698	6	3	4'-0"	Str.					18
699	6	4	4'-6"	Str.					27

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
SOUTHWEST WINGWALL									
601	6	3	7'-4"	115	2'-0"	8"	11"		33
602	6	1	6'-4"	130	2'-0"	8"	11"		10
603	6	1	38'-8" to 43'-4"	137	19'-0"	9"	19-0"	24'3"	158
604	6	1	41'-4"	137	19'-0"	17'-0"	28'3"		63
605	6	1	39'-11"	136	19'-0"	1'-9"	19-0"	24'3"	60
606	6	5/8	22'-7" to 35'-10"	137	3" to 13'-6"	17'-0"	28'3"		298
607	6	5/8	6'-10" to 20'-7"	133	1'-6" to 15'-3"				165
608	6	7	10'-3"	131					107
609	6	3	2'-6"	Str.					15
610	6	2	23'-0"	Str.					69
611	6	4	22'-6"	Str.					135
612	6	5/8	13'-0" to 17'-0"	Str.					113
613	6	5/8	30'-0" to 34'-3"	136	3" to 13'-6"	1'-9"	19-0"	24'3"	290
614	6	5/8	5'-3" to 19'-0"	104	3'-6" to 17'-3"	1'-9"			138
615	6	1	41'-6"	137	19'-2"	17'-0"	24'3"		63
616	6	5/8	13'-6" to 17'-6"	Str.					116
617	6	4	16'-6"	Str.					99
618	6	1 3/4	54'-1" to 15'-1"	110	2'-0" to 66'-0"				182
619	6	2	12'-6"	Str.					38
620	6	2	7'-9"	Str.					23
621	6	2	6'-0"	Str.					18
622	6	2	19'-0"	132	17'-6"	4½	1'-6"		57
623	6	10	5'-0"	Str.					75
624	6	8	6'-0"	101	5'-0"				72
625	6	5/8	7'-1" to 17'-1"	110	2'-0" to 7'-0"				200
626	6	4	18'-6"	Str.					111
627	6	2	9'-0"	101	8'-0"				27
628	6	5/8	8'-3" to 10'-0"	Str.					110
629	6	17	4'-0"	Str.					102
630	6	2	20'-6"	132	19'-0"	3	1'-6"		62
631	6	2	18'-6"	Str.					56
632	6	3	2'-0"	Str.					12
633	6	8	31'-9" to 10'-6"	Str.					86
634	6	8	4'-3" to 11'-0"	Str.					94
701	7	6	42'-6"	132	37'-6"	6	5'-0"		521
BARS IN END POST									
694	6	3	5'-9"	Str.					26
695	6	7	5'-6"	Str.					58
696	6	3	5'-0"	Str.					23
697	6	3	4'-3"	Str.					19
698	6	3	4'-0"	Str.					18
699	6	4	4'-6"	Str.					27
NORTHWEST WINGWALL									
401	4	6	10'-3"	131					46
501	5	5/8	61'-5" to 17'-4"	110	1'-10" to 7'-4"				149
502	5	5/8	61'-5" to 14'-1"	110	1'-10" to 65'-8"				139
601	6	3	7'-4"	115	2'-0"	8"	11"		33
602	6		37'-9"	104	37'-0"	9"			57
603	6	1	21'-0" to 41'-6"	Str.					20
604	6	1	39'-10"	133	34'-6"				60
605	6	5/8	21'-6" to 39'-0"	Str.					23
606	6	2	14'-3"	Str.					43
607	6	2	23'-8"	Str.					71
608	6	4	23'-9"	Str.					138
609	6	4	17'-9"	Str.					107
610	6	2	14'-0"	Str.					42
611	6	2	9'-6"	Str.					29
612	6	1 1/4	7'-7" to 32'-4"	133	2'-3" to 27'-0"				420
613	6	3/8	35'-7" to 39'-10"	133	30'-3" to 36'-6"				227
614	6	2	8'-0"	Str.					24
615	6	4	20'-0"	Str.					120
616	6	3/8	34'-3" to 38'-9"	104	32'-6" to 36'-0"				219
617	6	3/8	6'-3" to 31'-3"	104	4'-6" to 29'-6"				394
618	6	4	10'-0"	Str.					60
619	6	17	4'-0"	Str.					102
620	6	5/8	7'-6" to 13'-3"	Str.					109
621	6	4	8'-3"	Str.					50
622	6	11	5'-0"	Str.					83
623	6	2	22'-0"	132	20'-6"	3½	1'-6"		66
624	6	2	10'-0"	101	9'-0"				30
625	6	5/8	7'-0" to 12'-9"	Str.					104
626	6	3	20'-0"	132	18'-6"	4	1'-6"		90
627	6	8	5'-0"	101	4'-0"				60
628	6	5/8	15'-3" to 18'-9"	Str.					102
629	6	5/8	15'-9" to 19'-3"	Str.					105
701	7	6	41'-0"	Str.					503
BARS IN END POST									
694	6	3	5'-9"	Str.					26
695	6	7	5'-6"	Str.					58
696	6	3	5'-0"	Str.					23
697	6	3	4'-3"	Str.					19
698	6	3	4'-0"	Str.					18
699	6	4	4'-6"	Str.					27
EAST ABUTMENT									
401	4	45	6'-3"	104	3'-9"	2'-6"			188
501	5	42	20'-6"	123					898
502	5	12	4'-8"	104	3'-8"	1'-0"			59
503	5	10	15'-3"	124					160

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
504	5	5/8	15'-2" to 17'-8"	125	3'-9" to 7'-0"				105
505	5	5/8	18'-8" to 20'-2"	126	7'-6" to 8'-3"				61
506	5	5/8	17'-2" to 17'-8"	126	3'-9" to 7'-0"				105
507	5	5/8	18'-8" to 20'-2"	126	7'-6" to 8'-3"				61
508	5	5/8	18'-8" to 19'-10"	126	7'-6" to 8'-1"				60
509	5	5/8	17'-8" to 17'-4"	126	4'-0" to 6'-10"				121
601	5	17	11'-3"	Str.					287
602	6	15	10'-0"	Str.					225
603	6	86	5'-6"	Str.					711
604	6	10	20'-9"	Str.					312
605	6	4	8'-0"	Str.					48
606	6	4	13'-6"	Str.					81
607	6	4	10'-3"	Str.					62
608	6	2	9'-3"	Str.					28
609	6	52	5'-0"	Str.					391
610	6	50	15'-0"	101	14'-0"				1127
611	6	10	10'-10"	101	9'-10"				163
612	6	17	37'-9"	127	33'-9"	1'-0"	3'-0"		964
613	6	17	30'-0"	104	28'-6"	1'-6"			766
614	6	27	30'-9"	Str.					1247
615	6	17	26'-6"	Str.					677
616	6	8	12'-3"	128	7'-0"				147
617	6	23	11'-3"	128	6'-0"				389
618	6	52	31'-0"	Str.					234
619	6	31	7'-9"	127	5'-6"	9"	1'-6"		351
620	6	40	8'-6"	Str.					511
621	6	10	33'-0"	Str.					496
622	6	2	14'-3"	Str.					43
623	6	39	6'-3"	104	3'-9"	2'-6"			366
624	6	18	14'-2"	129					383
625	6	6	17'-0"	Str.					153
626	6	8	16'-3"	Str.					195
627	6	1	20'-3"	Str.					44
628	6	1	14'-9"	Str.					22
629	6	10	22'-6"	Str.					338
701	7	7	16'-0"	Str.					229
702	7	10	6'-0"	Str.					123
703	7	3	16'-9"	Str.					103
901	9	12	6'-0"	101	5'-9"				275
902	9	15	12'-9"	101	11'-9"				650
WEST ABUTMENT									
401	4	45	6'-3"	104	3'-9"	2'-6"			188
501	5	49	20'-6"	123					1026
502	5	12	4'-8"	104	3'-8"	1'-0"			59
503	5	10	15'-3"	124					160
504	5	5/8	8'-8" to 16'-8"	125	2'-6" to 7'-0"				119
505	5	5/8	17'-8" to 19'-8"	125	7'-6" to 8'-0"				58
506	5	5/8	8'-8" to 16'-8"	126	2'-6" to 7'-0"				238
507	5	5/8	7'-8" to 19'-8"	126	7'-6" to 8'-0"				117
601	6	15	11'-3"	Str.					254
602	6	14	10'-0"	Str.					210
603	6	86	5'-6"	Str.					711
604	6	20	20'-9"	Str.					706
605	6	4	8'-0"	Str.					48
606	6	6	15'-6"	Str.					140
607	6	6	12'-3"	Str.					110
608	6	6	10'-3"	Str.					92
609	6	52	5'-0"	Str.					391
610	6	63	17'-6"	Str.					1655
611	6	10	6'-9"	101	5'-4"				101
612	6	20	37'-9"	127	33'-9"	1'-0"	3'-0"		1134
613	6	20	30'-0"	104	28'-6"	1'-6"			901
614	6	30	30'-9"	Str.					1386
615	6	20	26'-6"	Str.					796
616	6	8	12'-3"	128	7'-0"				147
617	6	23	11'-3"	128	6'-0"				389
618	6	52	31'-0"	Str.					234
619	6	31	7'-9"	127	5'-6"	9"	1'-6"		351
620	6	36	8'-6"	Str.					460
621	6	10	33'-0"	Str.					496
622	6	20	14'-2"	129					426
623	6	39	6'-3"	104	3'-9"	2'-6"			366
701	7	10	18'-6"	Str.					378
702	7	10	6'-0"	Str.					123
901	9	12	6'-9"	101	5'-4"				275
902	9	15	12'-9"	101	11'-4"				650
CENTER BENT									
401	4	49	2'-3"	Str.					74
402	4	14	2'-9"	Str.					26
403	4	12	3'-6"	Str.					28
404	4	94	13'-6"	109	2'-10"	3'-8"			848
501	5	16	12'-4"	109	2'-3"	3'-8"			206
502	5	12	12'-8"	109	2'-3"	3'-10"			157
601	6	34	5'-6"	Str.					281
602	6	12	6'-9"	Str.					122
603	6	12	23'-6"	Str.					424

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
1001	10	4	26'-9"	119	12'-6"	1'-1"			460
1002	10	4	17'-6"	119	12'-3"	1'-1"			301
1003	10	14	16'-0"	Str.					964
1004	10	3	16'-0"	Str.					207
1005	10	24	10'-0"	Str.					1032
1006	10	4	10'-3"	Str.					176
1007	10	20	20'-0"	Str.					1721
1008	10	12	9'-1"	108	2'-10"	6'-3"			469
1009	10	8	17'-9"	Str.					611
1010	10	10	23'-6"	Str.					1011
1011	10	4	20'-0"	118	3'-5"	11'-0"			344
1012	10	3	12'-0"	Str.					155
1013	10	2	20'-6"	Str.					176
1014	10	2	25'-4"	115	3'-5"	10'-0"	3'-5"		218
1015	10	20	19'-3"	Str.					1657
1016	10	4	10'-0"	Str.					172
1017	10	20	7'-0"	Str.					602
SIDEWALK APPROACHES									
401	4	41	6'-0"	Str.					164
402	4	5/8	40'-0" to 40'-3"	Str.					161
403	4		5'-0"	Str.					100
404	4	1/2	4'-6" to 5'-0"	112	8" to 11"	1'-4" to 1'-8"			130
405	4	35	6'-0"	Str.					144
406	4	5/8	34'-0" to 35'-0"	Str.					140
407	4	5/8	4'-6" to 5'-0"	112	8" to 11"	1'-4" to 1'-8"			114
408	4	7/8	32'-3" to 36'-6"	135	23'-3" to 27'-6"	28'-0"	9'-0"		161
409	4	5/8	4'-9" to 6'-0"	Str.					136
410	4	5/8	4'-6" to 5'-0"	112	8" to 11"	1'-4" to 1'-8"			121
411	4	5/8	4'-9" to 6'-0"	Str.					161
412	4	5/8	4'-6" to 5'-0"	112	8" to 11"	1'-4" to 1'-8"			143
413	4	5/8	39'-9" to 44'-3"	135	17'-3" to 21'-9"	28'-0"	22'-6"		196
801	8	8	40'-0"	Str.					854
802	8	8	33'-0"	Str.					748
803	8	8	36'-6"	135	27'-6"	28'-0"	9'-0"		780
804	8	8	44'-3"	135	21'-9"	28'-0"	22'-6"		945
SUPERSTRUCTURE SLAB									
401	4	102	40'-0"	Str.					2730
402	4	10	22'-0"	Str.					147
501	5	310	3'-11"	120					1267
502	5	310	8'-9"	Str.					2830
503	5	156	10'-4"	121					1683
504	5	310	5'-3"	122					1698
601	6	146	47'-0"	Str.					10370
602	6	73	26'-6"	Str.					2906
603	6	32	22'-0"	Str.					1057
604	6	215	45'-6"	Str.					14694
605	6	164	47'-2"	100	46'-1"				11618



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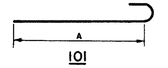

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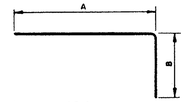

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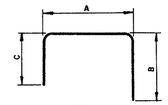

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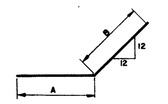

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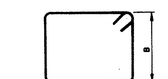

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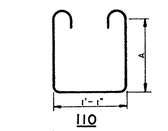

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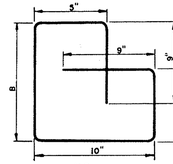

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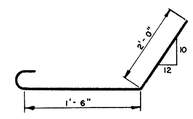

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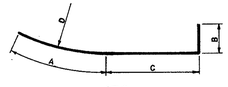

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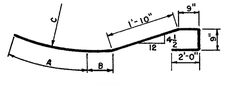

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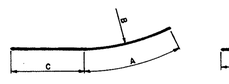

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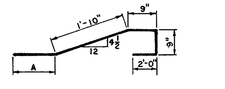

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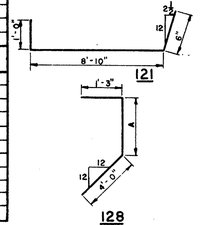

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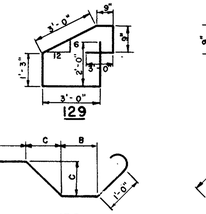

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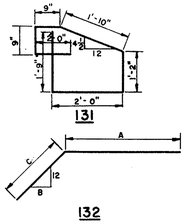

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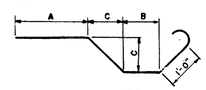

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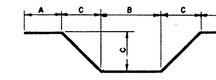

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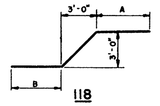

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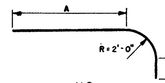

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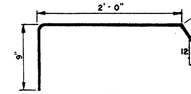

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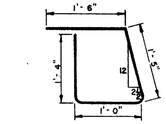

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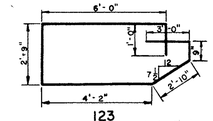

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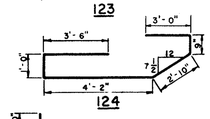

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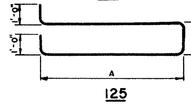

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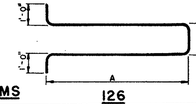


126

BENDING DIAGRAMS

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-667 (9)	POST WAR

161
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM

EXPRESSWAY - PART 5

SUM-5-10.95

AKRON EXPRESSWAY SYSTEM

BUCHTEL AVENUE UNDERPASS

BR. NO. SU-5-116

REINFORCEMENT SCHEDULE

AKRON SUMMIT COUNTY. OHIO

SCALE
MADE R.F.S. DATE 11-11-52
TRCD R.F.S. DATE 11-16-52
CKD. L.E.T. DATE 11-17-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

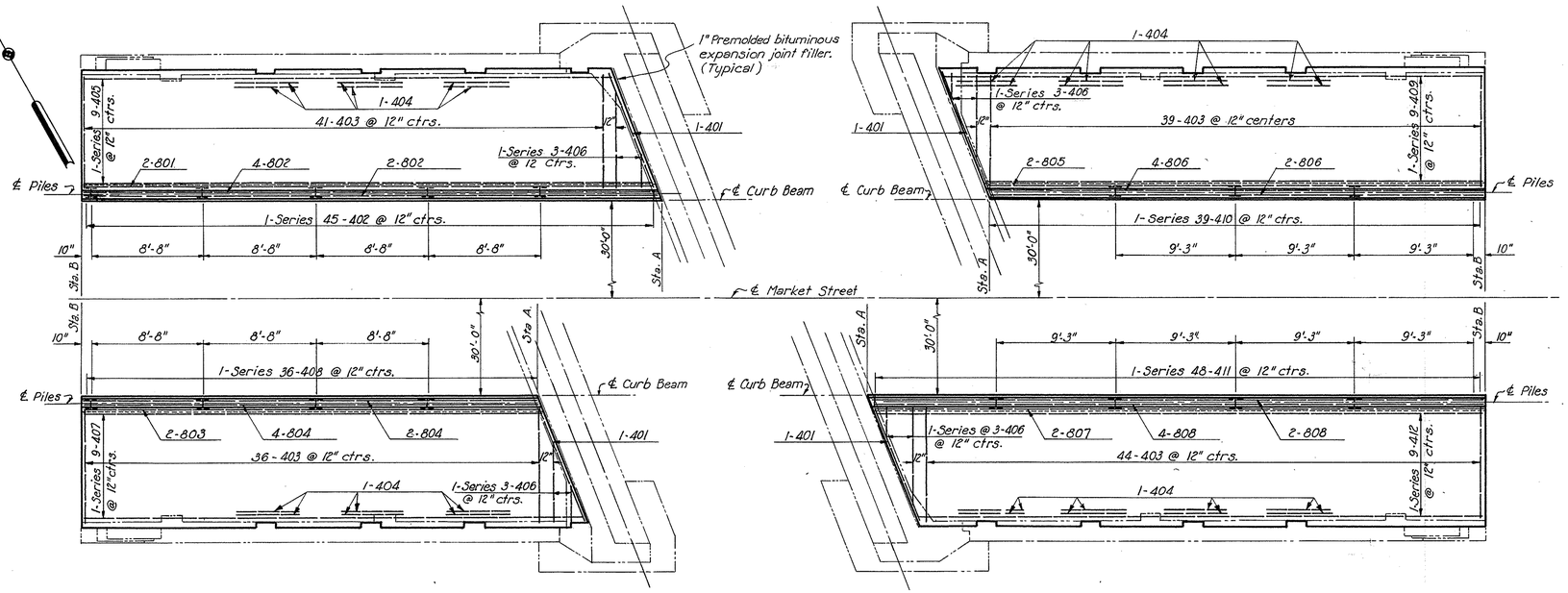
846-U SHEET- 161

410

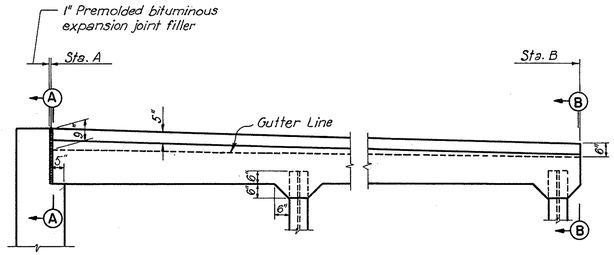
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

162
172

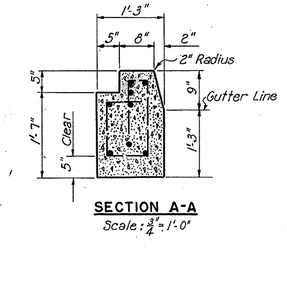
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95



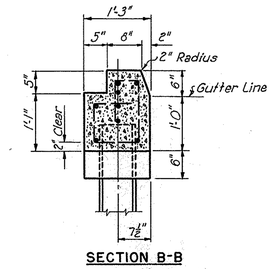
MARKET STREET PLAN
Scale: $\frac{3}{16}$" = 1'-0"



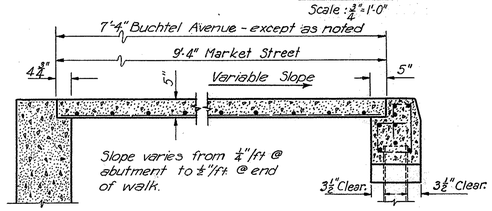
TYPICAL ELEVATION
Scale: $\frac{3}{8}$" = 1'-0"



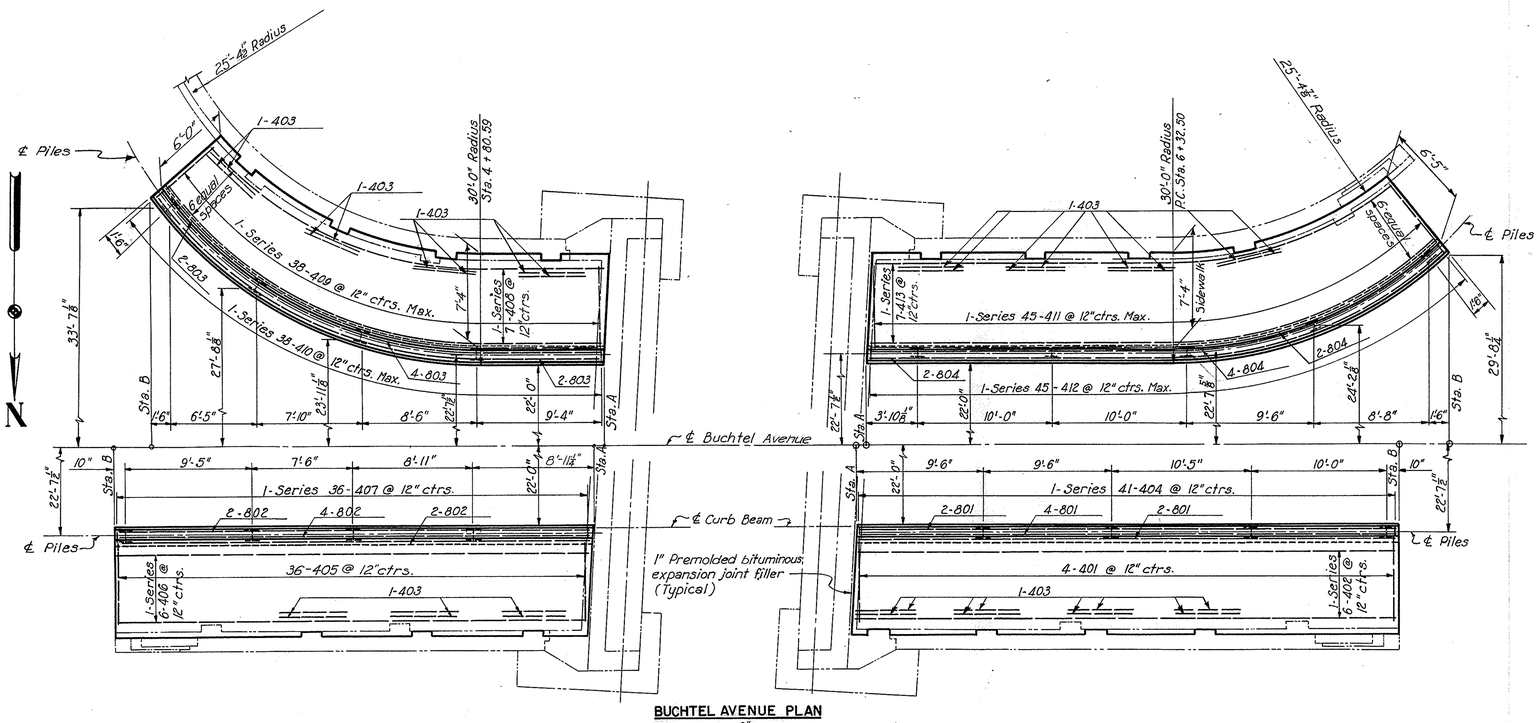
SECTION A-A
Scale: $\frac{3}{4}$" = 1'-0"



SECTION B-B
Scale: $\frac{3}{4}$" = 1'-0"



TYPICAL SECTION
No Scale



BUCHTEL AVENUE PLAN
Scale: $\frac{3}{16}$" = 1'-0"

TOP OF CURB ELEVATIONS				
Wall	Sta. A	Elev. A	Sta. B	Elev. B
Market Street				
N. E.	25+69.11	1048.35	26+07.53	1049.04
N. W.	24+40.21	1047.30	23+94.98	1047.27
S. E.	25+92.89	1049.15	26+41.13	1049.40
S. W.	24+63.60	1048.07	24+28.57	1047.55
Buchtel Avenue				
N E	4+87.42	1061.67	4+51.82	1060.65
N W	6+07.26	1064.24	6+47.48	1064.86
S E	4+89.78	1061.72	4+56.20	1060.59
S W	6+09.62	1064.29	6+53.19	1064.86

Elevations given are at the face of curb.

Note: All piles are 8 BP 36 driven to rock. Use tar paper between sidewalk slab and supporting members.

AKRON EXPRESSWAY SYSTEM

MARKET ST. & BUCHTEL AVE. UNDERPASSES
BR. NO. SU-5-119 AND BR. NO. SU-5-116

APPROACH SIDEWALKS AND CURBS

AKRON SUMMIT COUNTY, OHIO

SCALE As shown
MADE RFS DATE 10-8-52
TRCD CAH & AR DATE 11-11-52
CKD J.H.G. DATE 11-18-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

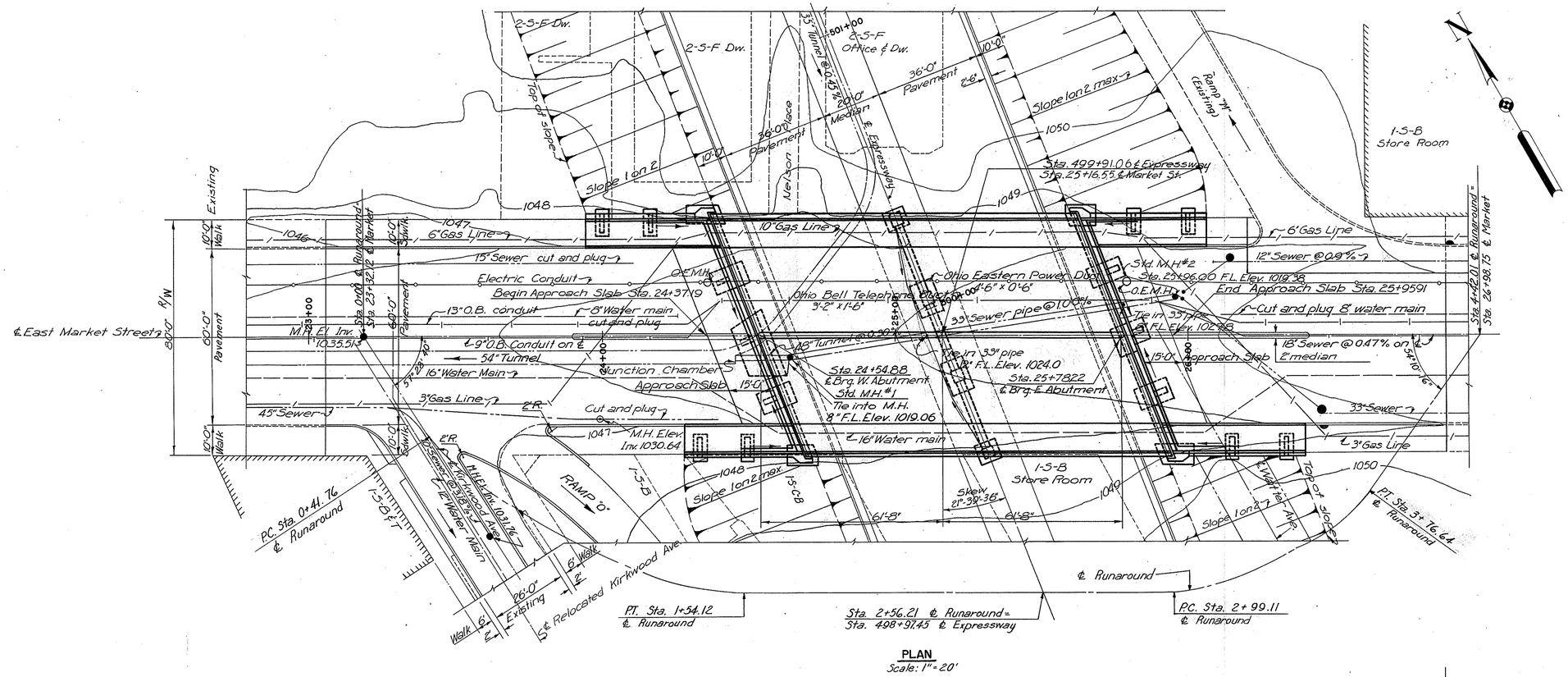
846-U SHEET 162

412

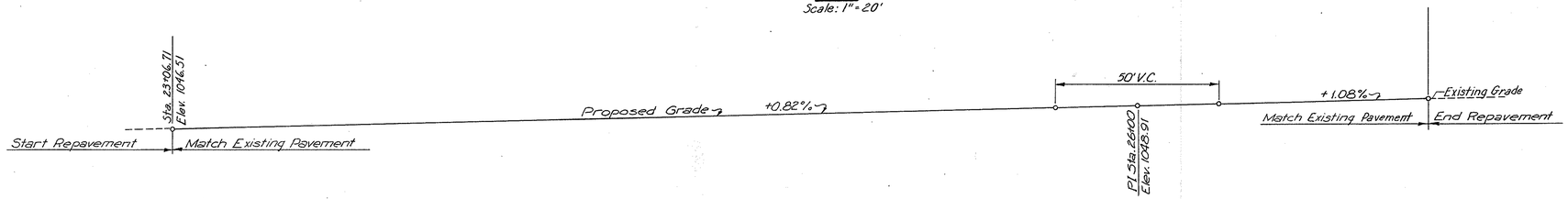
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

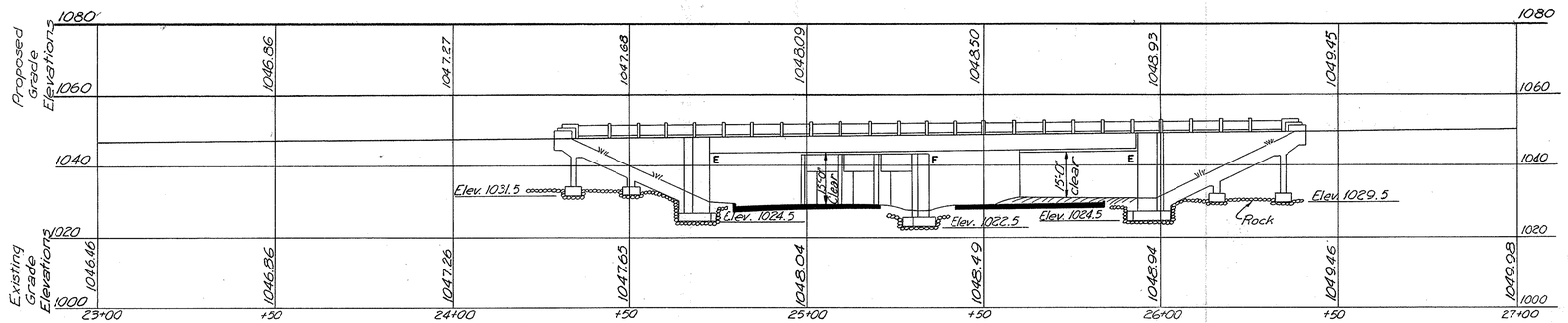
163
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95



PLAN
Scale: 1" = 20'





ELEVATION
Scale 1" = 20'

PROPOSED STRUCTURE
Type: Continuous steel beam with concrete deck and substructure.
Spans: 2 @ 61'-8"
Roadway: 60'-0" with two 10'-0" sidewalks.
Loading: CF 600
Skew: 21°-39'-36"
Surface course: 2½" asphaltic concrete.

AKRON EXPRESSWAY SYSTEM
MARKET STREET UNDERPASS
BR. NO. S U-5-119
SITE PLAN
AKRON SUMMIT COUNTY, OHIO

SCALE 1" = 20'
MADE R.F.J. DATE 9-17-52
TRCD G.R.C. DATE 11-13-52
CKD J.G.S. DATE 11-24-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

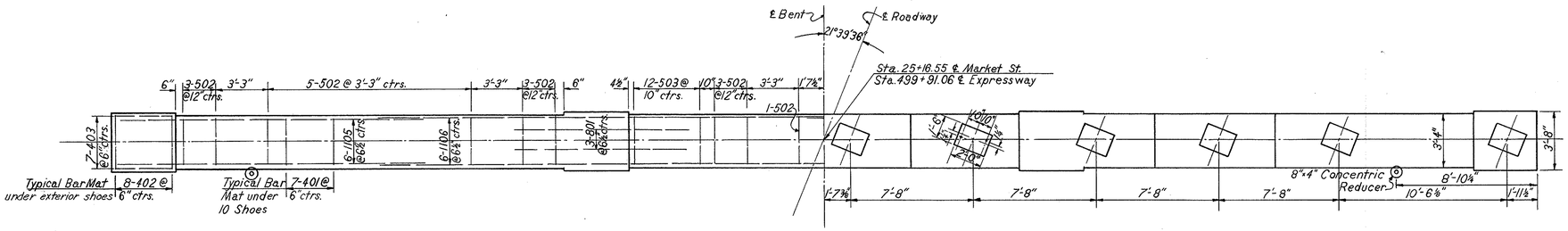
846-U SHEET 163

102

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

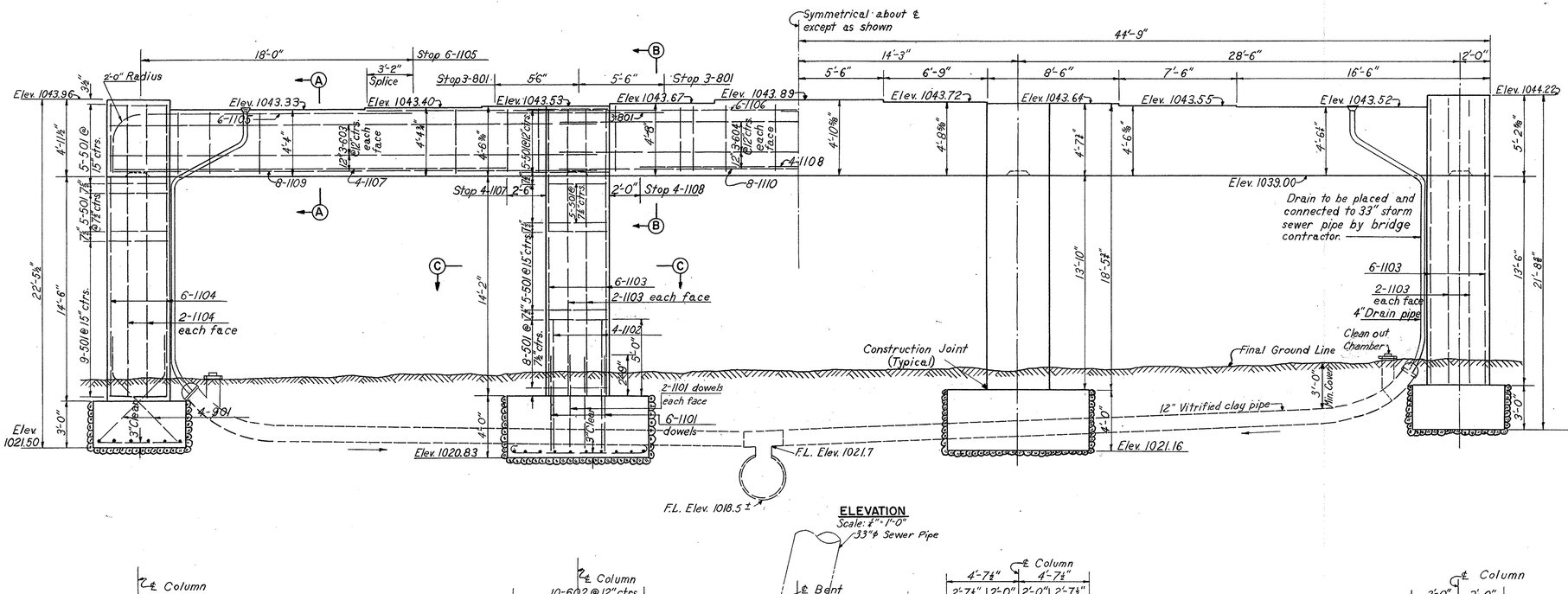
164
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

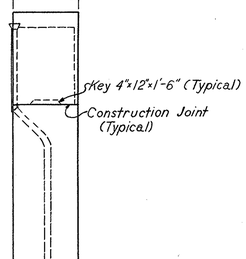


PLAN
Scale ¼"=1'-0"

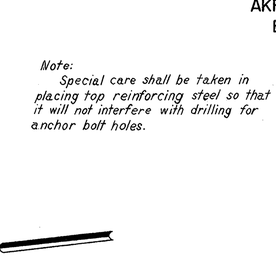
Note:
Special care shall be taken in placing top reinforcing steel so that it will not interfere with drilling for anchor bolt holes.



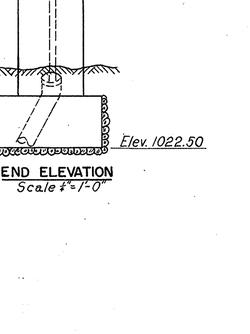
SECTION A-A
Scale ¼"=1'-0"



SECTION B-B
Scale ¼"=1'-0"

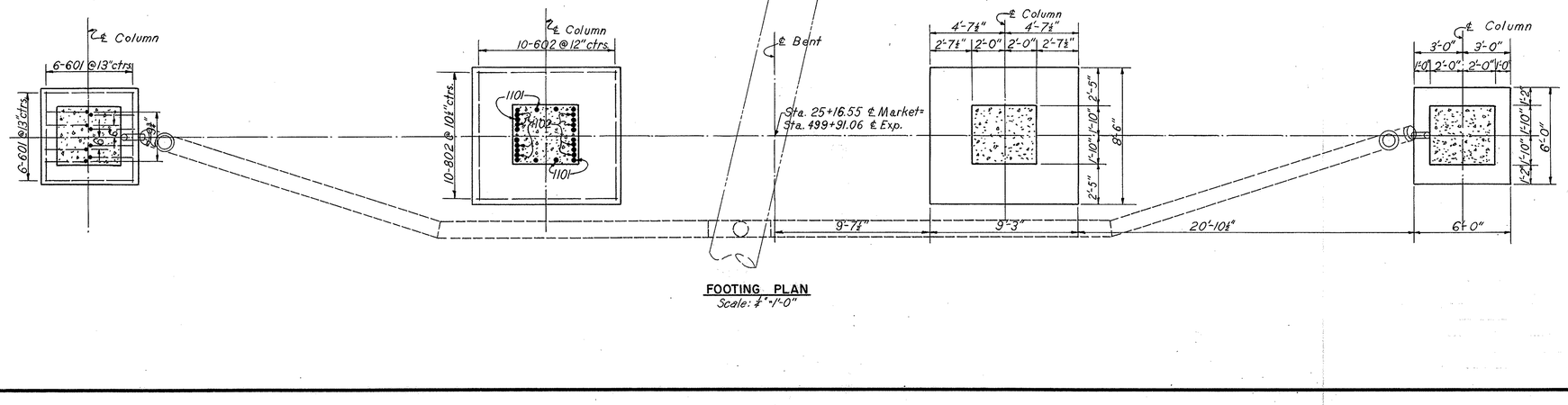


END ELEVATION
Scale ¼"=1'-0"



SECTION C-C
Scale ¼"=1'-0"

Note:
For drainage location, see Sheet 163.



FOOTING PLAN
Scale: ¼"=1'-0"

ELEVATION
Scale: ¼"=1'-0"
33"ϕ Sewer Pipe

AKRON EXPRESSWAY SYSTEM
MARKET STREET UNDERPASS
BR. NO. SU-5-119
CENTER BENT
AKRON SUMMIT COUNTY, OHIO

SCALE ¼", ½"=1'-0"
MADE J.G.S. DATE 9-24-52
TRCD E.N. DATE 11-13-52
CKD R.K. DATE 11-21-52

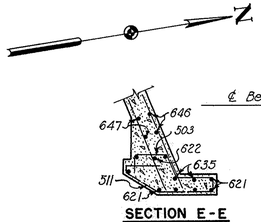
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846-U SHEET- 164

103

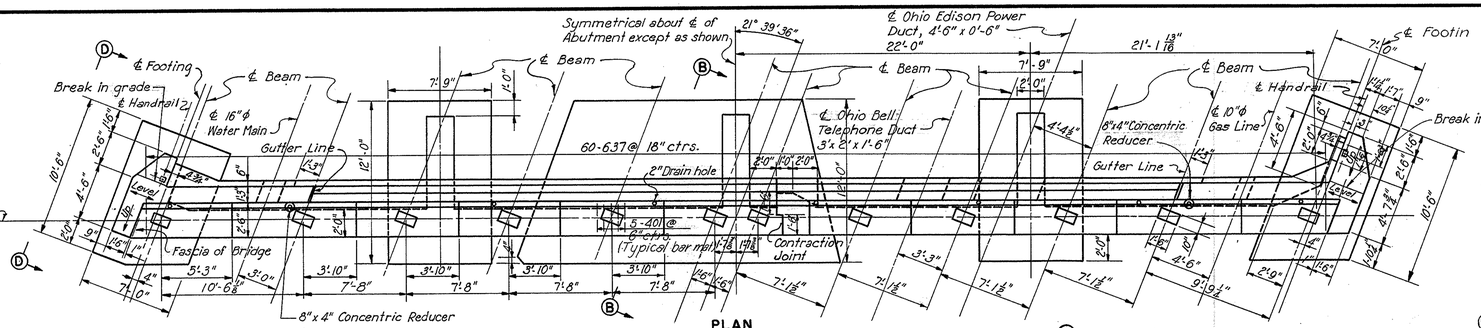
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

165
172

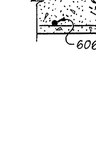
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95



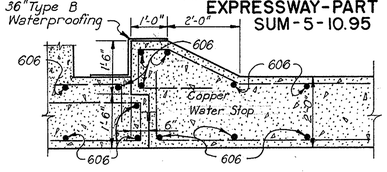
SECTION E-E
Scale: 3/16" = 1'-0"



PLAN
Scale: 3/16" = 1'-0"

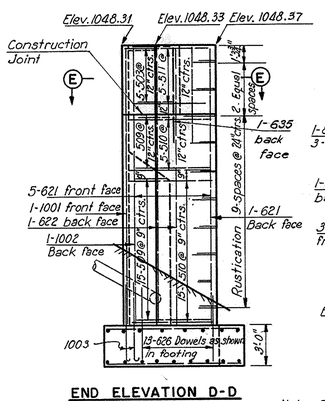


SECTION F-F
Scale: 3/16" = 1'-0"

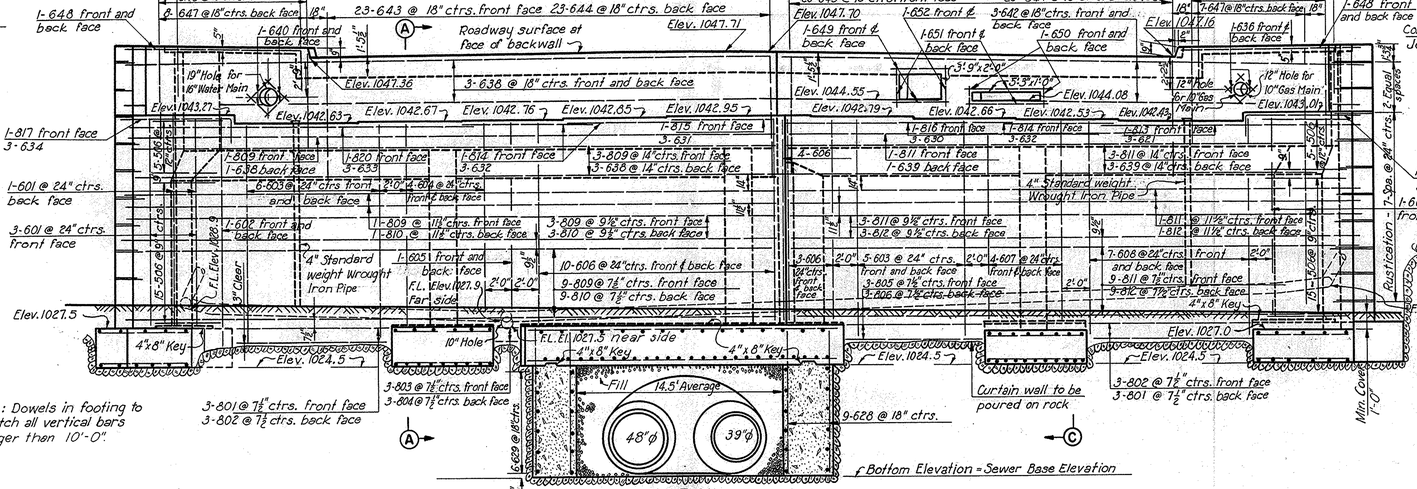


CONTRACTION JOINT
Scale: 1/2" = 1'-0"

See expansion joint detail, Sheet 103. Note that backwall is perpendicular to grade and is to be poured after expansion joint steel has been attached to bridge superstructure.

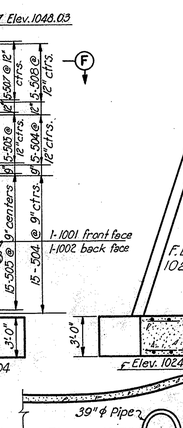


END ELEVATION D-D
Scale: 3/16" = 1'-0"

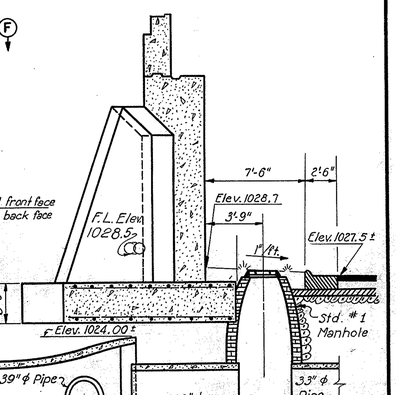


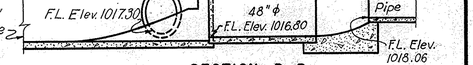
ELEVATION
Scale: 3/16" = 1'-0"

Note: Dowels in footing to match all vertical bars longer than 10'-0".

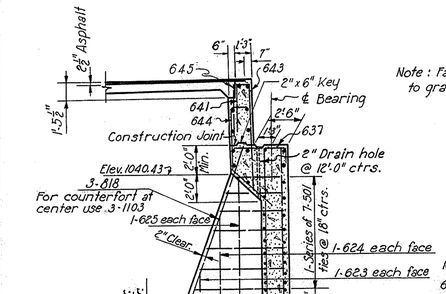


END VIEW
Scale: 3/16" = 1'-0"



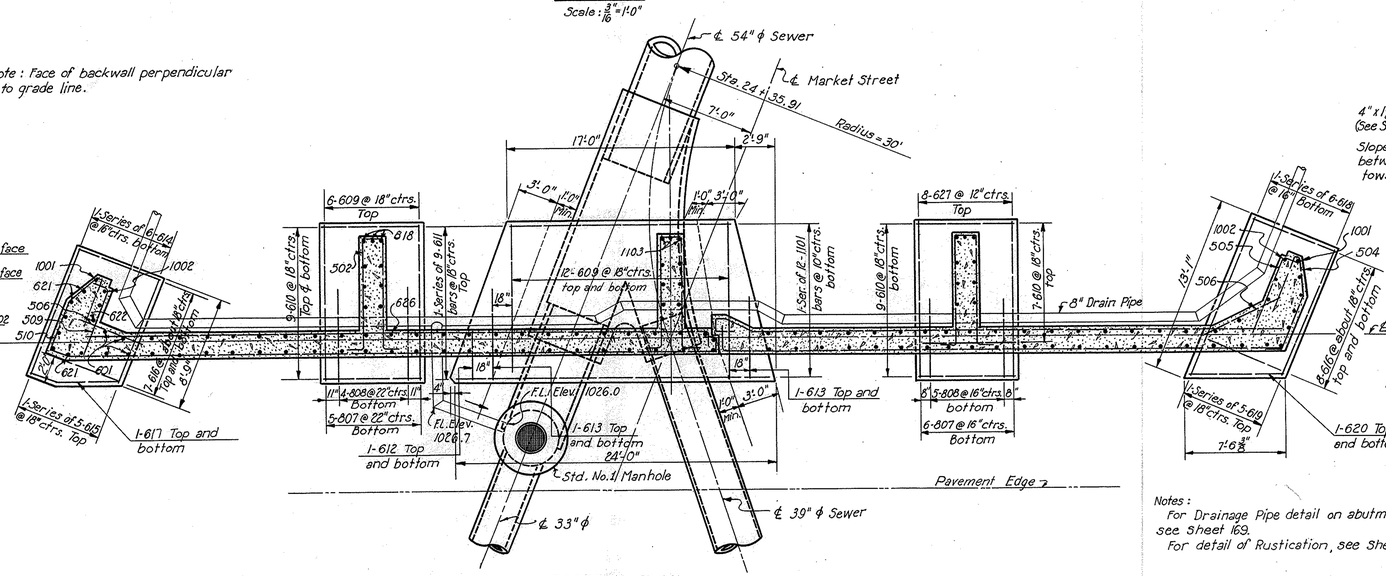


SECTION B-B
Scale: 3/16" = 1'-0"



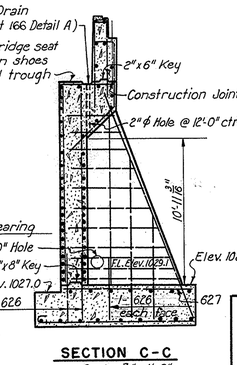
SECTION A-A
Scale: 3/16" = 1'-0"

Note: Face of backwall perpendicular to grade line.

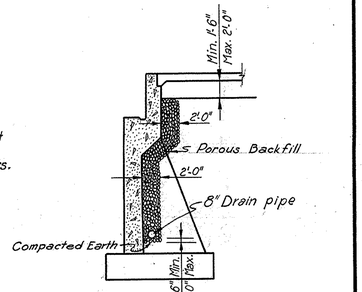


FOOTING PLAN
Scale: 3/16" = 1'-0"

Notes:
For Drainage Pipe detail on abutment seat, see Sheet 169.
For detail of Rustication, see Sheet 166.



SECTION C-C
Scale: 3/16" = 1'-0"



SECTION SHOWING POROUS BACKFILL
Not to scale

AKRON EXPRESSWAY SYSTEM
MARKET STREET UNDERPASS
BR. NO. SU-5-119
WEST ABUTMENT

AKRON — SUMMIT COUNTY. — OHIO

SCALE As shown
MADE R.K. DATE 10-1-52
TRCD C&B & RF DATE 11-21-52
CKD R.K. DATE 11-22-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET-165

104

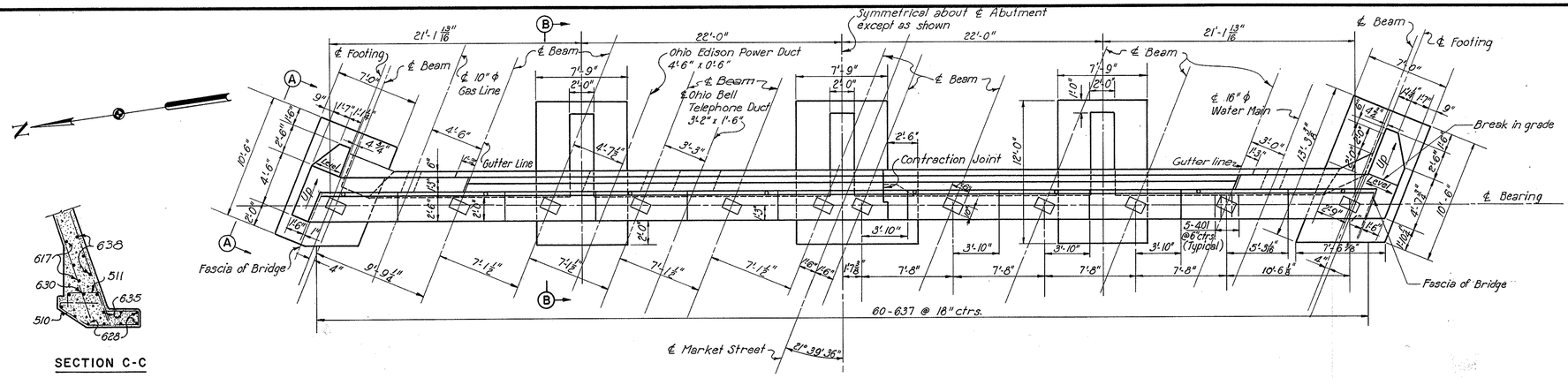
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

166
172

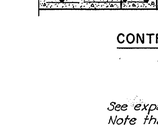
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM

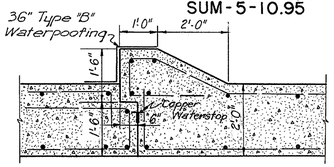
EXPRESSWAY - PART 5
SUM-5-10.95



SECTION C-C

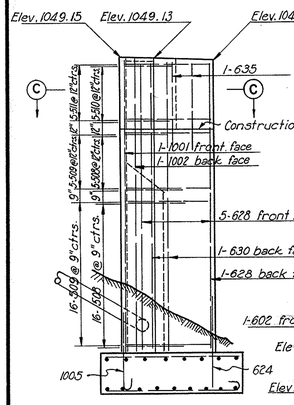


SECTION D-D

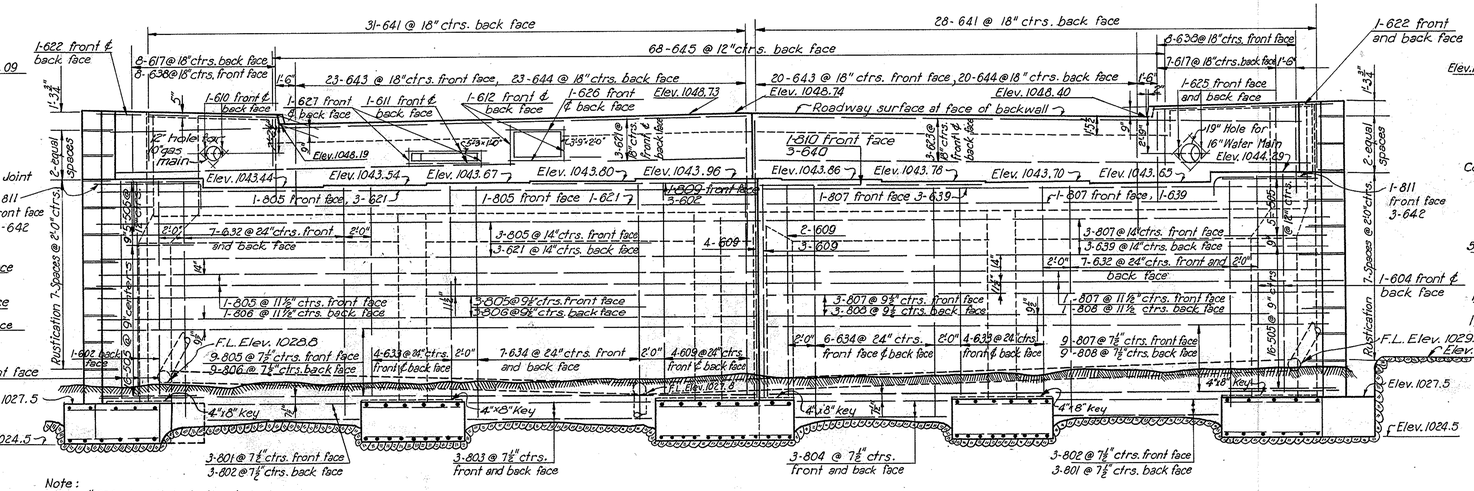


CONTRACTION JOINT
Scale: 1/2" = 1'-0"

See expansion joint detail, Sheet 103. Note that backwall is perpendicular to grade and is to be poured after expansion joint steel has been attached to bridge superstructure.



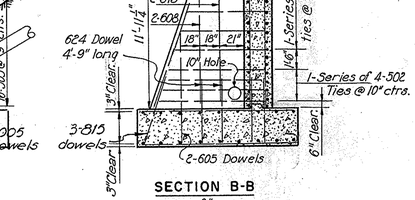
END ELEVATION A-A



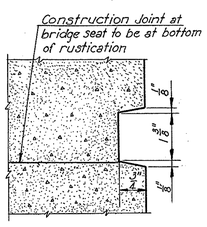
ELEVATION
Scale: 3/16" = 1'-0"

END VIEW
Scale: 3/16" = 1'-0"

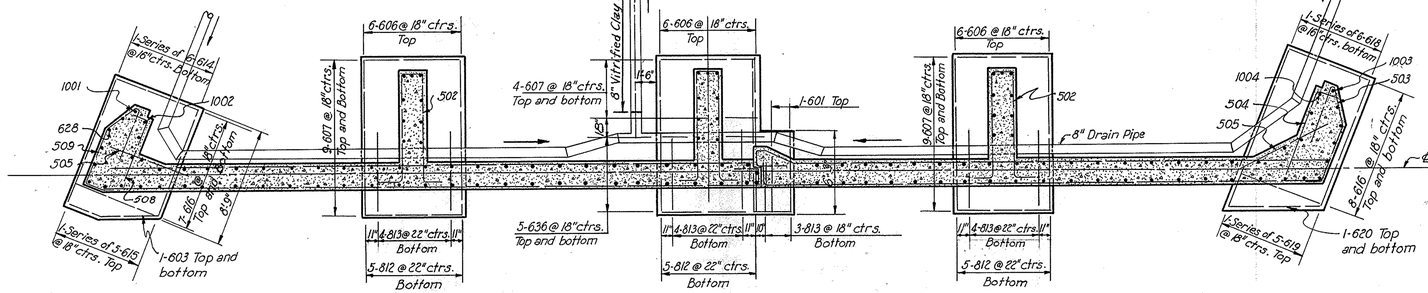
Note:
Add #624 dowels in footing to match vertical reinforcing bar longer than 10'-0"



SECTION B-B
Scale: 3/16" = 1'-0"

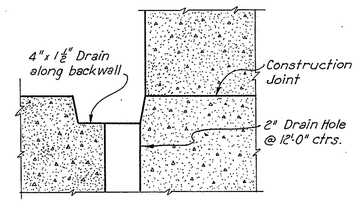


RUSTICATION
Scale: 6" = 1'-0"

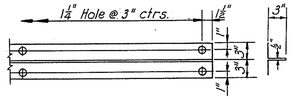


FOOTING PLAN
Scale: 3/16" = 1'-0"

Notes:
For Drainage Pipe detail on abutment seat, see Sheet 169.



DETAIL A
Scale: 3" = 1'-0"



CONTRACTION JOINT WATER STOP
Scale: 1" = 1'-0"

AKRON EXPRESSWAY SYSTEM

MARKET STREET UNDERPASS
BR. NO. SU-5-119

EAST ABUTMENT

AKRON SUMMIT COUNTY, OHIO

SCALE As shown
MADE R.K. DATE 10-6-52
TRCD LW & SH. DATE 11-14-52
CKD W.B.C. DATE 11-19-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET- 166

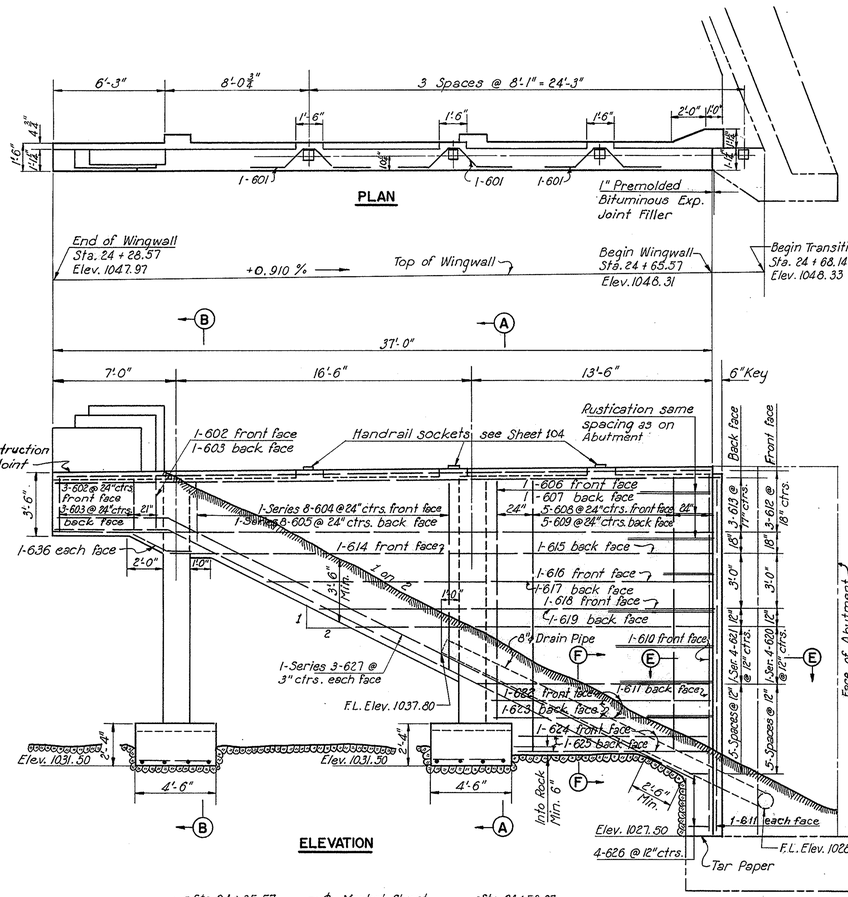
105

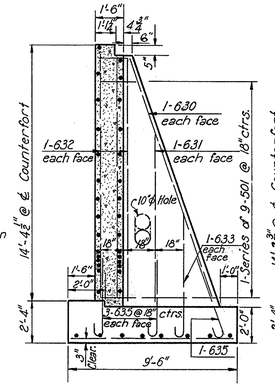
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

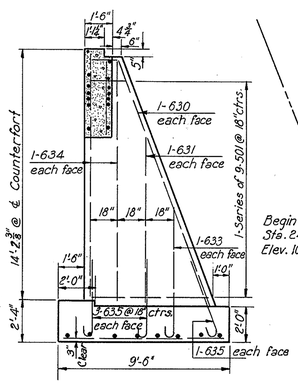
167
172

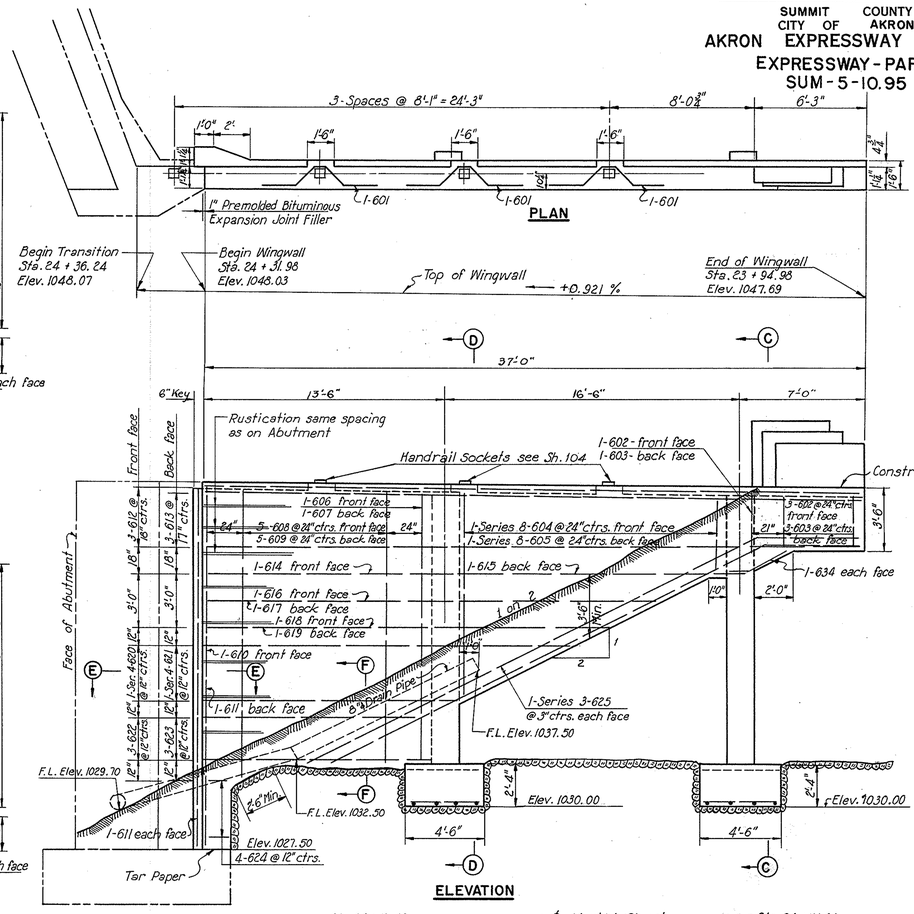
SUMMIT COUNTY
CITY OF AKRON

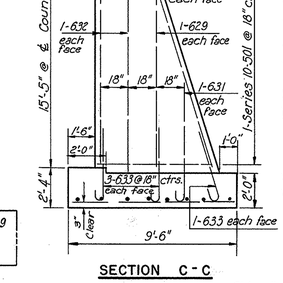
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM - 5 - 10.95

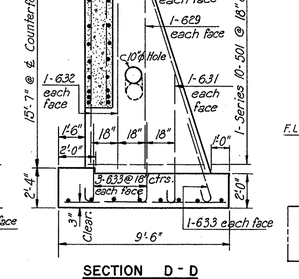


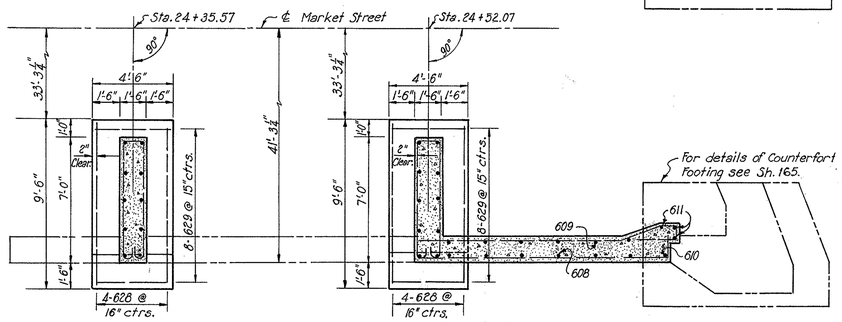




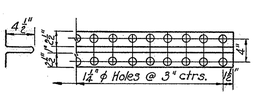




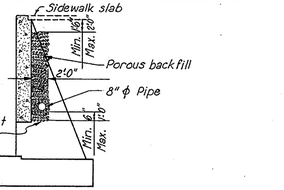




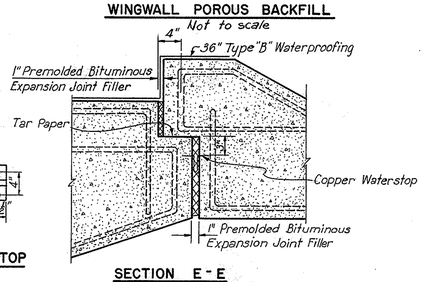
SOUTHWEST WINGWALL
Scale: 1" = 1'-0"



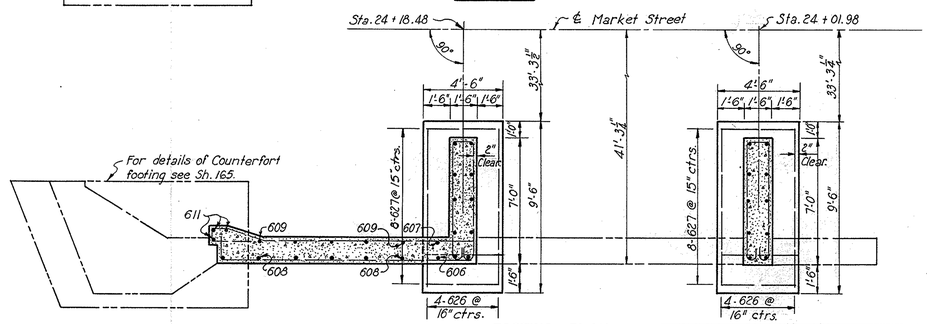
EXPANSION JOINT WATERSTOP
Material: 24 Oz. Copper
Scale: 1" = 1'-0"



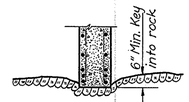
WINGWALL POROUS BACKFILL
Not to scale



SECTION E-E
Scale: 1" = 1'-0"



NORTHWEST WINGWALL
Scale: ¼ = 1'-0"



SECTION F-F
Not to scale

Note:
For end post details, see Sh. 104.
For drainage details, see Sh. 163.

AKRON EXPRESSWAY SYSTEM
MARKET STREET UNDERPASS
BR. NO. SU - 5 - 119

WEST WINGWALLS

AKRON SUMMIT COUNTY, OHIO

SCALE 1" = 1'-0"
MADE J.G.S. DATE 10-4-52
TRCD. W.L. & H.H. DATE 11-18-52
CKD. J.G.S. DATE 11-20-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

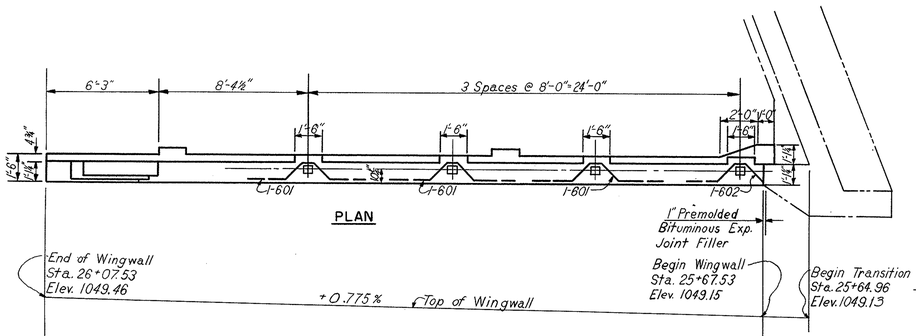
846-U SHEET 167

106

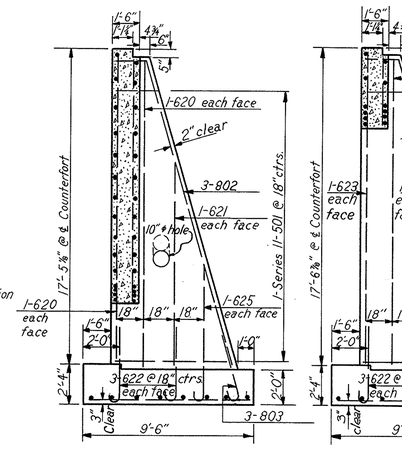
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

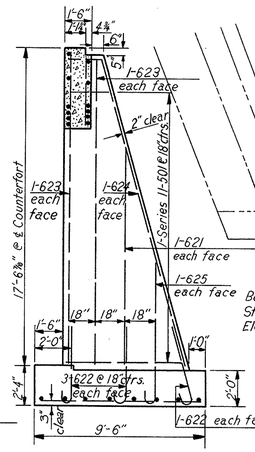
168
172

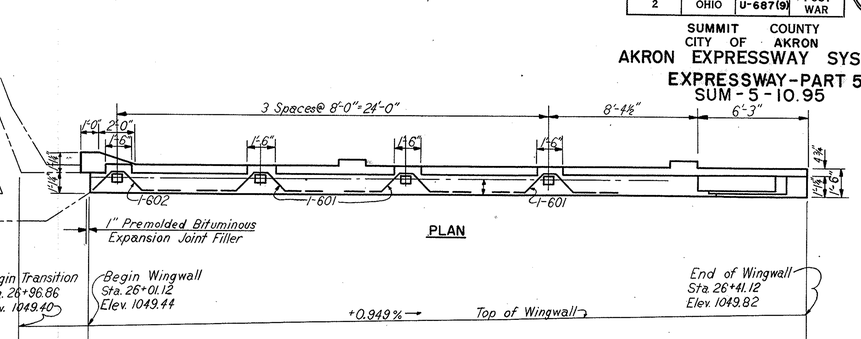
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 5
SUM-5-10.95

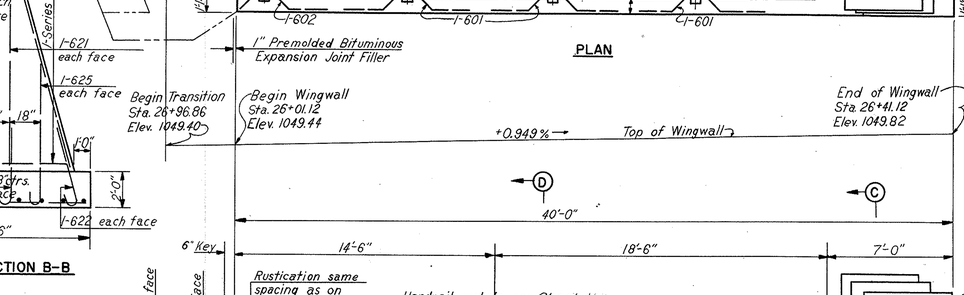


NORTHEAST WINGWALL
Scale ¼"=1'-0"



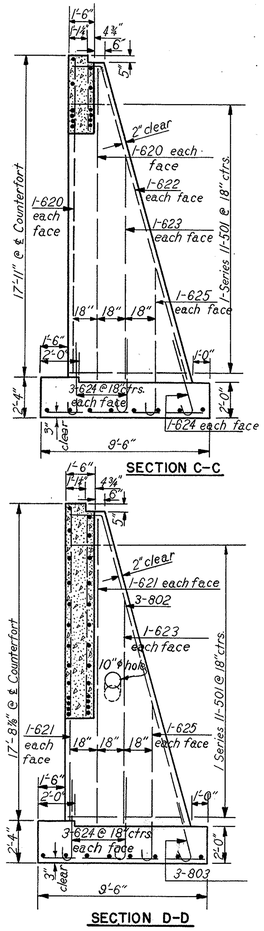






SOUTHEAST WINGWALL
Scale ¼"=1'-0"

Notes:
For end post details see Sheet 104.
For drainage details see Sheet 163.
For detail of porous backfill see Sheet 167.



AKRON EXPRESSWAY SYSTEM
MARKET STREET UNDERPASS
BR. NO. SU-5-119

EAST WINGWALLS

AKRON SUMMIT COUNTY. OHIO

SCALE 1"=1'-0"
MADE J.G.S. DATE 10-12-52
TRCD E.M. DATE 11-19-52
CKD L.E.F. DATE 11-20-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET- 168

113

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

169
172

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95

2-404 (as shown in cross section) | 2-403 | 163-501 @ 9" ctrs. (Bottom) | 2-404 (as shown in cross section)

1-404 Bottom | 1-403 Bottom | 1-404 Bottom

1-506 Top
1-Series of 4-507 @ 9"ctrs. Bottom
1-505 Top
1-508 Top
1-508 Bottom
1-Series of 14-606 @ 9"ctrs. Top
1-Series of 19-602 @ 6½"ctrs. Bottom

8-404 @ 18"ctrs. Top | 9-404 @ 12"ctrs. Bottom | 8-403 @ 18"ctrs. Top | 9-403 @ 12"ctrs. Bottom | 7-403 @ 18" ctrs. alternate and staggered 3'-0" as shown in Roadway Slab | 9-404 @ 12"ctrs. Bottom | 8-404 @ 18"ctrs. Top

81-503 @ 18" ctrs. Top
160-502 @ 9" ctrs. Bottom
163-504 @ 9" ctrs. Curb

1-508 Top
1-508 Bottom
1-505 Top
1-Series of 4-507 @ 9"ctrs. bottom
1-506 Top

1-607 Top
1-607 Bottom

21-603 @ 18" ctrs. Top
27-603 @ 13" ctrs. Bottom

150-605 @ 9" ctrs. Top
208-601 @ 6½" ctrs. Bottom

21-604 @ 18" ctrs. Top | 20-604 @ 18" ctrs. Top at Bent only alternate and staggered as shown | 27-604 @ 13" ctrs. Bottom

604-Top
10'-6" | 3'-0"

1-Series of 14-606 @ 9" ctrs. Top
1-Series of 19-602 @ 6½" ctrs. Bottom

Symmetrical by rotation about ℄ Market St. except for Construction Joint

Note: For sidewalk joint use 1¾ x 1" Key.

1-401 Top Median | 1-403 Top Median | 163-402 @ 9" ctrs. in Median | 1-401 Top Median

10½"

Skew 21° 39' 36"

First Pour ← → Second Pour

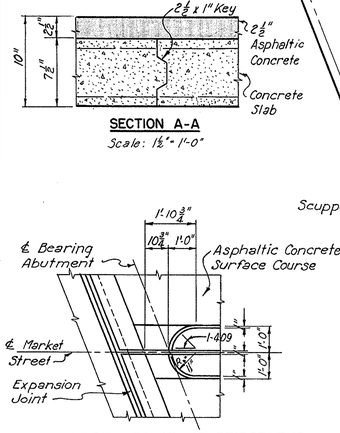
Construction Joint

12'-11"

Scupper

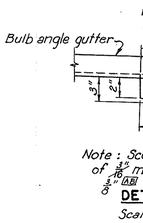
℄ Bearing West Abutment | ℄ Bearing Center Bent | ℄ Bearing East Abutment

SLAB PLAN
Scale: ⅛"=1'-0"



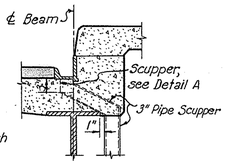
SECTION A-A
Scale: 1½"=1'-0"

MEDIAN DETAIL AT BRIDGE END
Scale: ⅜"=1'-0"

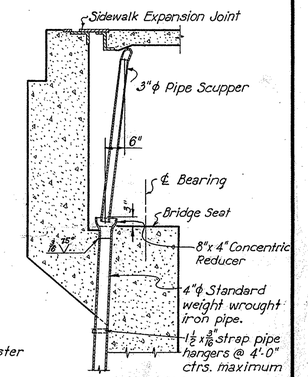


Note: Scupper to be made of ⅜" material.

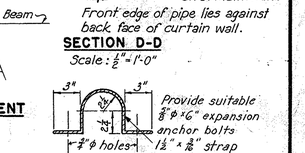
DETAIL A
Scale: 1½"=1'-0"



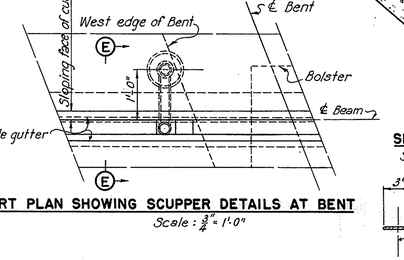
SECTION C-C
Scale: ¾"=1'-0"



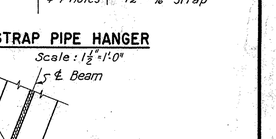
SECTION D-D
Scale: ½"=1'-0"



PART PLAN SHOWING SCUPPER DETAILS AT ABUTMENT
Scale: ¾"=1'-0"



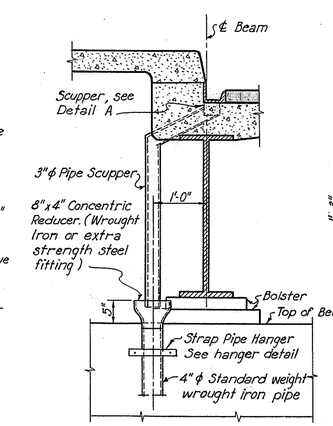
PART PLAN SHOWING SCUPPER DETAILS AT BENT
Scale: ¾"=1'-0"



STRAP PIPE HANGER
Scale: 1½"=1'-0"

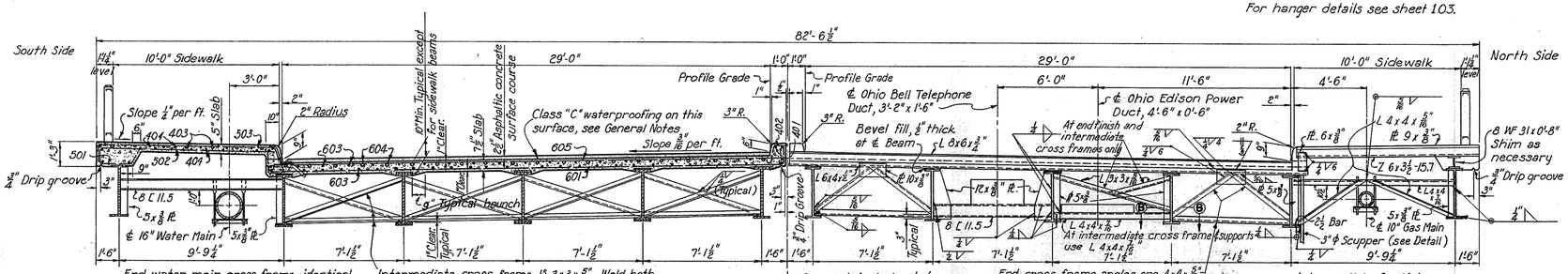
Note: Diagonal members not shown.

SECTION B-B
Scale: ¾"=1'-0"



SECTION E-E
Scale: ¾"=1'-0"

For hanger details see sheet 103.



HALF SECTION AT INTERMEDIATE CROSS FRAMES
Scale: ¼"=1'-0"

Bars marked ◊ are located over center bent only.

HALF SECTION THRU END FINISH
Scale: ¼"=1'-0"

Dimensions shown are normal to ℄ Bridge.

Note: 8"x4" Concentric Reducer to be Crane Type Steel Butt-Weld Reducer or equal.

Note: For handrail Details see sheet 104. For Gutter and Drain Pipe Details see sheet 103. Hangers for 16" water main are to be provided at each 8 L 11.5 cross frame.

Note: For details of conduit and telephone duct supports see sheet 103.

AKRON EXPRESSWAY SYSTEM
MARKET STREET UNDERPASS
BR. NO. SU-5-11.9

SLAB PLAN AND CROSS-SECTION

AKRON SUMMIT COUNTY, OHIO

SCALE As shown
MADE RFC DATE 9-27-52
TRCD DLC & EH DATE 11-12-52
CKD WBC DATE 11-19-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET 169

Revised As-Built P.G. 6/23/55

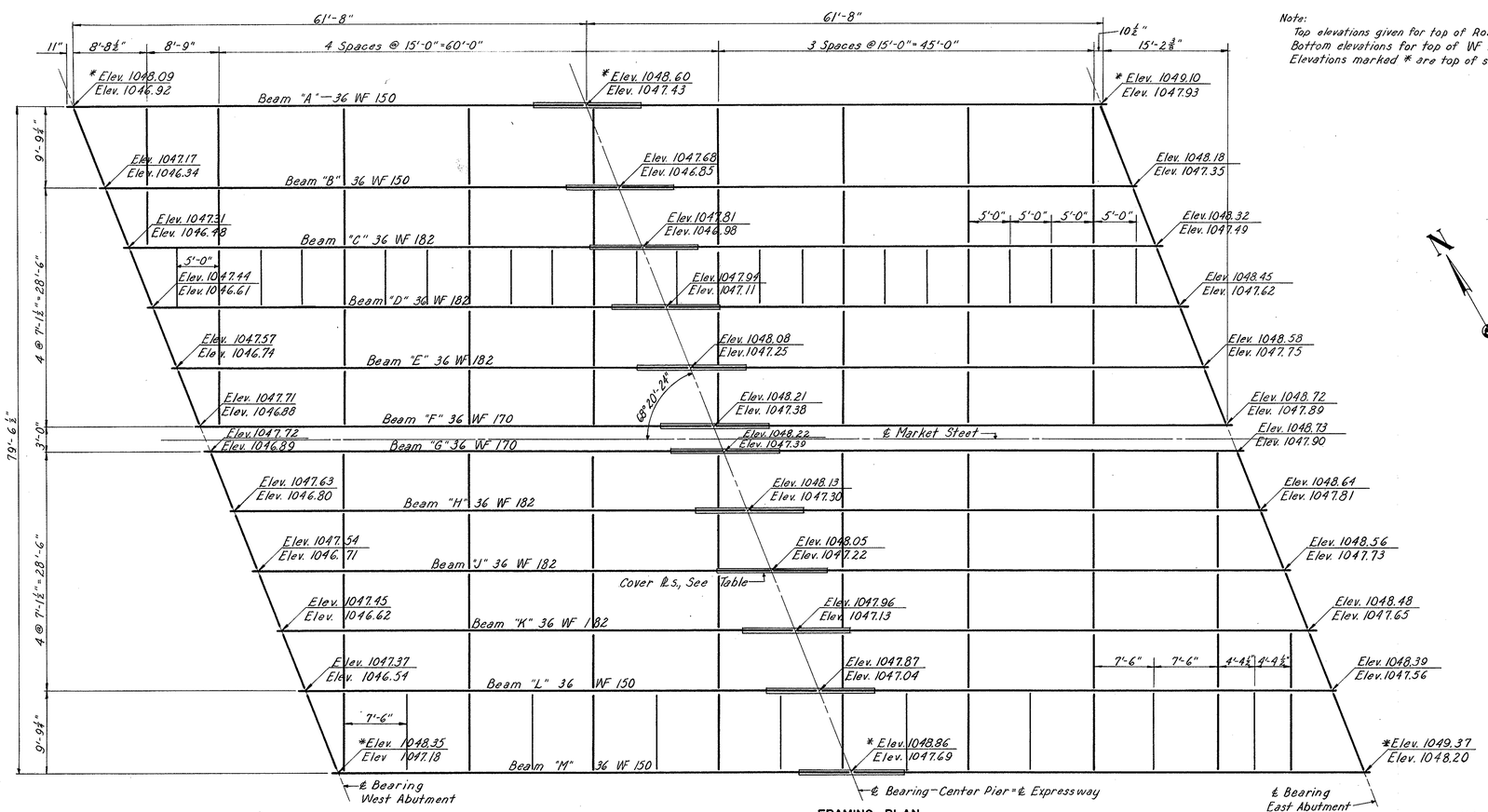
107

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

170
172

SUMMIT COUNTY
CITY OF AKRON

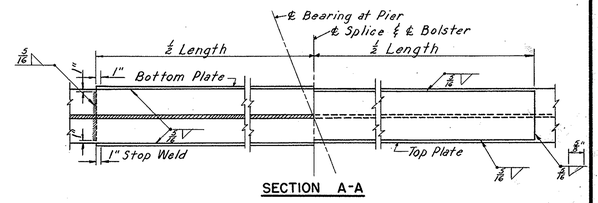
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM-5-10.95



FRAMING PLAN
Scale ⅛"=1'-0"

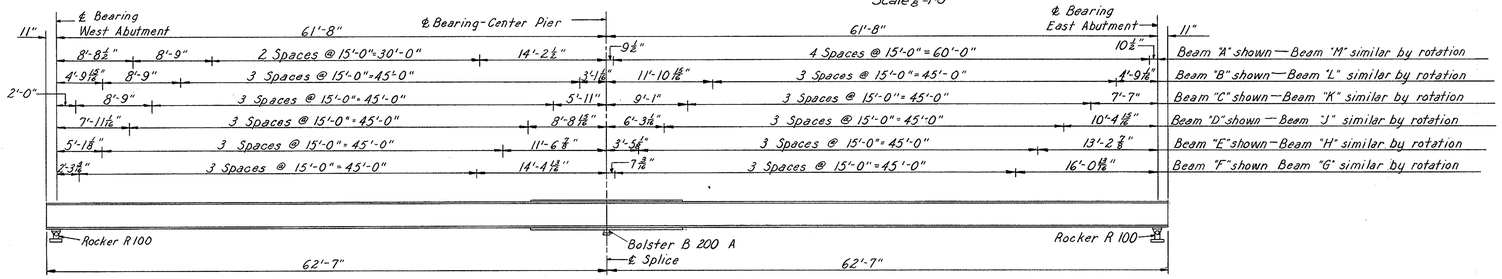
Note:
Top elevations given for top of Roadway.
Bottom elevations for top of WF Beam.
Elevations marked * are top of sidewalk elevation.

BEAM	TOP COVER PLATE	BOTTOM COVER PLATE
A, M — 36 WF 150	None	None
B, L — 36 WF 150	11" x ⅜" x 13'-0"	13" x ⅝" x 13'-0"
C, K 36 WF 182	11" x ⅜" x 17'-0"	13" x ⅝" x 17'-0"
D, J — 36 WF 182	11" x ⅜" x 17'-0"	13" x ⅝" x 17'-0"
E, H — 36 WF 182	11" x ⅜" x 17'-0"	13" x ⅝" x 17'-0"
F, G — 36 WF 170	None	None



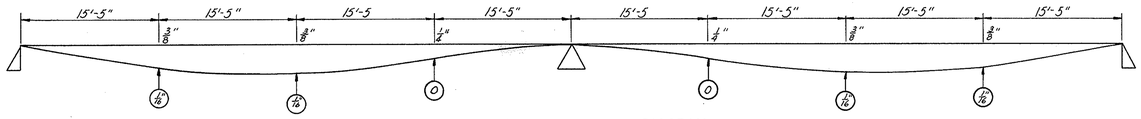
BEAM DETAILS
Scale: ¾"=1'-0"

Note:
"G" indicates a flush grind.
Welds shall be ground in the direction of stress.



BEAM ELEVATION
Scale ⅛"=1'-0"

Note: Hangers for 16" water main are to be provided at each B C 11.5 cross frame.



DEAD LOAD DEFLECTION DIAGRAM

Note:
Dimensions in ◯ are deflections which may be expected in the steel beams when in place.
Dimensions above base line are additional deflections to be expected when concrete is in place.

BEAM SPLICE WELDING PROCEDURE

1. Weld bottom flange cover ℄ to beam on one side of joint only.
** 2. Raise beam end at one abutment the following amount:
36 WF 150 Beams "A", "B", "L" and "M" 1⅛ inches
36 WF 182 Beams "C", "D", "E", "H", "J", "K" 1⅛ inches
36 WF 170 Beams "F" and "G" 1⅛ inches
3. Butt-weld the beam flanges and web.
4. Weld the top cover plate on each side of joint.
5. Complete welding of bottom cover plate.
6. Lower the beam end to final position.
Note: Contractor may submit alternate scheme for weld connecting lower cover plate and top element of bolster.

** Beam is to be raised on span opposite the weld in step 1.
Note: Steps 1, 4, and 5 to be omitted for beams "A", "F", "G", and "M".

For details of shoes and end finish, see sheet 103
For typical cross section through deck, see sheet 169

AKRON EXPRESSWAY SYSTEM
MARKET STREET UNDERPASS
BR. NO. SU-5-119
FRAMING PLAN
AKRON SUMMIT COUNTY, OHIO

SCALE ⅛" & ¾" = 1'-0"
MADE R.F.S. DATE 9-20-52
TRCD L.L.FINK DATE 11-10-52
CKD. M.J.K. DATE 11-14-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
846-U SHEET 170

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

171
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM

EXPRESSWAY - PART 5
SUM-5-10.95

SOUTHEAST WINGWALL

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
501	5	2 SEE SHT 11	7'-6" to 16'-0"	110	2'-3" to 6'-6"	1'-0"			271
601	6	3	7'-4"	115	2'-0"	0'-8"	0'-11"		33
602	6	1	5'-4"	116	2'-0"	0'-8"	0'-11"		8
603	6	4	3'-0"	STR.					18
604	6	4	2'-6"	STR.					15
605	6	1 SEE SHT 9	3'-6" to 11'-3"	STR.					100
606	6	1 SEE SHT 9	3'-0" to 10'-9"	STR.					93
607	6	1	19'-0"	STR.					29
608	6	1	18'-6"	STR.					28
609	6	1	21'-6"	STR.					32
610	6	3	21'-0"	STR.					95
611	6	3	42'-0"	117	37'+3"	0'-8"	0'-7"		193
612	6	3	40'-6"	104	39'+6"	1'-0"			182
613	6	1 SEE SHT 9	24'-6" to 33'-0"	117	18'-0" to 27'+3"	0'-8"	0'-7"		219
614	6	1 SEE SHT 9	21'+3" to 30'-6"	104	20'-3" to 29'-6"	1'-0"			195
615	6	1 SEE SHT 10	7'+3" to 22'-9"	117	0'-9" to 16'+3"	0'-8"	0'-7"		233
616	6	1 SEE SHT 10	4'-0" to 19'-6"	104	3'-0" to 18'-6"	1'-0"			176
617	6	4	7'-8"	131					46
618	6	8	9'-0"	STR.					108
619	6	16	4'-0"	STR.					96
620	6	4	17'-0"	STR.					102
621	6	4	12'-6"	STR.					75
622	6	14	5'-0"	101	4'-0"	1'-0"			105
623	6	4	17'+3"	STR.					103
624	6	2	19'+3"	108	17'-9"	1'-6"	17	4½	58
625	6	4	9'-9"	101	8'-9"	1'-0"			58
626	6	1 SEE SHT 9	13'-3" to 19'+3"	STR.					171
627	6	1 SEE SHT 9	12'-9" to 18'-9"	STR.					166
801	8	6	43'+3"	108	36'-6"	6'-9"	1	2	694
802	8	3	19'+3"	108	17'-6"	1'-6"	17	4½	154
803	8	3	5'-6"	101	4'-2"	1'-4"			44
BARS IN END POST									
694	6	3	5'-9"	STR.					26
695	6	7	5'-6"	STR.					58
696	6	3	5'-0"	STR.					23
697	6	3	4'+3"	STR.					18
698	6	3	4'-0"	STR.					18
699	6	4	4'-6"	STR.					27

NORTHEAST WINGWALL

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
501	5	2 SEE SHT 11	7'-6" to 16'+0"	110	2'-3" to 6'-6"	1'-0"			271
601	6	3	7'+4"	115	2'-0"	0'-8"	0'-11"		33
602	6	1	5'+4"	116	2'-0"	0'-8"	0'-11"		8
603	6	4	3'-0"	STR.					18
604	6	4	2'-6"	STR.					15
605	6	1 SEE SHT 9	3'-6" to 12'+0"	STR.					105
606	6	1 SEE SHT 9	3'-0" to 11'+6"	STR.					98
607	6	1	21'+3"	STR.					32
608	6	3	20'+9"	STR.					94
609	6	3	42'+9"	117	37'+3"	0'+8"	0'-7"		193
610	6	3	40'+6"	104	39'+6"	1'-0"			182
611	6	1	31'+0"	104	30'-0"	1'-0"			47
612	6	1	33'+3"	117	27'+3"	0'+8"	0'+7"		50
613	6	1 SEE SHT 9	24'-6" to 33'+6"	117	18'-0" to 27'+3"	0'+8"	0'-7"		219
614	6	1 SEE SHT 9	21'+3" to 30'+6"	104	20'+3" to 29'+6"	1'-0"			195
615	6	1 SEE SHT 10	8'+3" to 23'+0"	117	2'-9" to 17'+6"	0'+8"	0'-7"		235
616	6	1 SEE SHT 10	6'+0" to 20'+9"	104	5'+0" to 19'+9"	1'+0"			201
617	6	4	7'+8"	131					46
618	6	8	9'+0"	STR.					108
619	6	16	4'+0"	STR.					96
620	6	4	17'+0"	STR.					102
621	6	4	12'+6"	STR.					75
622	6	14	5'+0"	101	4'+0"	1'+0"			105
623	6	4	17'+3"	STR.					103
624	6	2	19'+3"	108	17'+9"	1'+6"	17	4½	58
625	6	4	9'+9"	101	8'+9"	1'+0"			58
626	6	1 SEE SHT 9	13'+3" to 19'+3"	STR.					171
627	6	1 SEE SHT 9	12'+9" to 18'+9"	STR.					166
801	8	6	43'+3"	108	36'+6"	6'+9"	1	2	693
802	8	3	19'+3"	108	17'+6"	1'+6"	17	5	152
803	8	3	5'+6"	101	4'+2"	1'+4"			44
BARS IN END POST									
694	6	3	5'+9"	STR.					26
695	6	7	5'+6"	STR.					58
696	6	3	5'+0"	STR.					23
697	6	3	4'+3"	STR.					18
698	6	3	4'+0"	STR.					18
699	6	4	4'+6"	STR.					27

SOUTHWEST WINGWALL

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
501	5	2 SEE SHT 9	7'+0" to 15'+6"	110	2'+0" to 6'+3"	1'+0"			211
601	6	3	7'+4"	115	2'-0"	0'+8"	0'+11"		33
602	6	4	3'+0"	STR.					18
603	6	4	2'+6"	STR.					15
604	6	1 SEE SHT 9	4'-0" to 11'+0"	STR.					90
605	6	1 SEE SHT 9	3'-6" to 10'+6"	STR.					84
606	6	1	13'+9"	STR.					21
607	6	1	13'+3"	STR.					20

NORTHWEST WINGWALL

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
501	5	2 SEE SHT 10	7'+0" to 16'+0"	110	2'+0" to 6'-8"	1'+0"			240
601	6	3	7'+4"	115	2'+0"	0'+8"	0'+11"		33
602	6	4	3'+0"	STR.					18
603	6	4	2'+6"	STR.					15
604	6	1 SEE SHT 9	4'+3" to 11'+6"	STR.					95
605	6	1 SEE SHT 9	3'+9" to 11'+0"	STR.					89
606	6	1	15'+3"	STR.					23
607	6	1	14'+9"	STR.					22
608	6	5	15'+6"	STR.					117
609	6	5	15'+0"	STR.					112
610	6	1	20'+0"	STR.					30
611	6	3	19'+6"	STR.					88
612	6	3	37'+6"	104	36'-6"	1'+0"			170
613	6	3	40'+11"	117	34'+7"	0'+8"	0'+7"		181
614	6	1	30'+6"	104	29'+6"	1'+0"			46
615	6	1	33'+0"	117	27'+6"	0'+8"	0'+7"		50
616	6	1	26'-0"	104	25'-0"	1'+0"			39
617	6	1	28'+0"	117	22'+6"	0'+8"	0'+7"		43
618	6	1	23'-0"	104	22'-0"	1'+0"			35
619	6	1	26'+6"	117	20'+0"	0'+8"	0'+7"		39
620	6	1 SEE SHT 9	15'+0" to 21'-0"	104	14'+0" to 20'+6"	1'+0"			104
621	6	1 SEE SHT 9	16'+6" to 23'+0"	117	11'+0" to 17'+6"	0'+8"	0'+7"		119
622	6	2	12'+3"	STR.					37
623	6	2	15'+9"	117	10'+3"	0'+8"	0'+7"		47
624	6	2	10'+9"	STR.					32
625	6	2	14'+3"	117	8'+9"	0'+8"	0'+7"		43
626	6	4	7'+8"	131					46
627	6	2 SEE SHT 9	34'-0" to 35'+9"	108	27'+9" to 29'+6"	6'+3"	1	2	314
628	6	8	9'+0"	STR.					108
629	6	16	4'+0"	STR.					96
630	6	4	15'+9"	109	14'+3"	1'-6"	14	5	95
631	6	4	9'-6"	STR.					57
632	6	4	14'+0"	STR.					84
633	6	4	8'+0"	101	7'+0"	1'+0"			86
634	6	4	13'+9"	STR.					83
635	6	16	5'+0"	101	4'-0"	1'-0"			120
636	6	2	5'+0"	108	2'+0"	3'+0"	1	2	15
BARS IN END POST									
694	6	3	5'+9"	STR.					26
695	6	7	5'+6"	STR.					58
696	6	3	5'+0"	STR.					23
697	6	3	4'+3"	STR.					19
698	6	3	4'+0"	STR.					18
699	6	4	4'+6"	STR.					27

EAST ABUTMENT

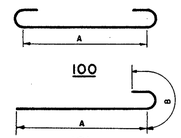
MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
401	4	60	2'+0"	STR.					80
501	5	3 SEE SHT 9	11'+0" to 17'+6"	126	3'+9" to 7'+0"				313
502	5	3 SEE SHT 9	18'+6" to 20'+0"	126	7'+6" to 8'+3"				241
503	5	21	11'+3"	125	112°				247
504	5	21	8'+0"	104	6'+9"	1'+3"			175
505	5	42	7'+0"	STR.					307
506	5	5	6'+6"	120	4'+0"	1'-6"	68°		39
507	5	5	15'+0"	123	112°				78
508	5	21	6'+6"	104	5'+3"	1'+3"			143
509	5	21	11'+3"	125	90°				247
510	5	5	15'+0"	123	90°				78
511	5	5	6'-0"	120	2'+6"	2'-6"	112°		31

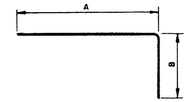
MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
601	6	2	5'+9"	STR.					17
602	6	8	18'-0"	STR.					192
603	6	2	6'+9"	108	4'-6"	2'-3"	2	5	20
604	6	4	18'+3"	STR.					98
605	6	6	8'+3"	STR.					74
606	6	18	11'+6"	STR.					311
607	6	44	7'+3"	STR.					479
608	6	6	10'+0"	STR.					90
609	6	17	15'+9"	STR.					818
610	6	8	2'+8"	STR.					24
611	6	4	6'+0"	STR.					36
612	6	4	3'+0"	STR.					18
613	6	6	14'-0"	STR.					126
614	6	1 SEE SHT 9	9'+3" to 11'+0"	101	8'+3" to 10'+0"	1'-0"			91
615	6	1 SEE SHT 9	8'+3" to 10'+0"	STR.					69
616	6	30	6'+6"	STR.					293
617	6	15	6'+3"	STR.					141
618	6	1 SEE SHT 9	11'+0" to 13'+6"	101	10'+0" to 12'+6"	1'+0"			109
619	6	1 SEE SHT 9	10'+0" to 12'+6"	STR.					101
620	6	2	7'+0"	STR.					21
621	6	13	47'+0"	104	46'+0"	1'+0"			424
622	6	4	13'+0"	STR.					78
623	6	6	43'+0"	104	42'+0"	1'+0"			388
624	6	76	4'+9"	STR.					542
625	6	8	24'-10"	STR.					34
626	6	4	5'+0"	STR.					30
627	6	4	1'+6"	STR.					9
628	6	6	21'-0"	STR.					189
629	6	6	21'+3"	STR.					191
630	6	2	20'-6"	STR.					62
631	6	2	20'+9"	STR.					62
632	6	28	17'+0"	STR.					715
633	6	16	15'+6"	STR.					373
634	6	26	17'+3"	STR.					674
635	6	4	7'+0"	STR.					42
636	6	10	9'+9"	STR.					146
637	6	60	6'+0"	104	3'+9"	2'+3"			541
638	6	16	7'+9"	STR.					186
639	6	7	43'+6"	117	37'+6"	0'+6"	1'+0"		457
640	6	3	18'+6"	STR.					74
641	6	59	4'+6"	104	3'-6"	1'+0"			399
642	6	6	7'+6"	104	6'+6"	1'+0"			68
643	6	43	7'+0"	STR.					452
644	6	43	10'+6"	133	5'+0"	1'+3"	4'+3"		678
645	6	68	3'+6"	STR.					359
801	8	6	13'+3"	STR.					212
802	8	6	12'+9"	STR.					204
803	8	3	13'+9"	STR.					220
804	8	6	11'+3"	STR.					180
805	8	19	53'+0"	127	49'+0"	1'+0"	3'+0"		2689
806	8	14	47'+0"	104	46'+0"	1'+0"			1757
807	8	19	43'+6"	104	41'+3"	2'-3"			2207
808	8	14	45'-0"	117	39'+0"	0'+6"	1'+0"		1682
809	8	1	16'+0"	STR.					43
810	8	1	16'+6"	STR.					44
811	8	2	9'+0"	104	7'+6"	1'+6"			48
812	8	15	12'+6"	101	11'+2"	1'+4"			501
813	8	15	6'+0"	101	5'+5"	1'+4"			270
814	8	9	15'+6"	STR.					373
815	8	9	5'+6"	STR.					132
1001	10	1	21'+0"	STR.					90
1002	10	1	20'+6"	STR.					88
1003	10	1	21'+3"	STR.					92
1004	10	1	20'+9"	STR.					89
1005	10	4	8'+0"	101	6'-1"	1'+11"			138

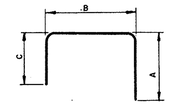
WEST ABUTMENT

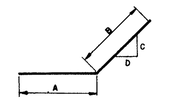
MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
401	4	60	2'+0"	STR.					80
501	5	3 SEE SHT 9	11'+0" to 16'+0"	126	3'+9" to 6'+3"				296
502	5	3 SEE SHT 9	17'-0" to 19'+0"	126	7'+3" to 8'+3"				238
503	5	5	8'+0"	120	2'+6"	2'+6"	112°		31
504	5	20	11'+3"	125	112°				235
505	5	20	8'+0"	104	7'+0"	1'+0"			167
506	5	40	7'+0"	STR.					292
507	5	5	6'+6"	120	4'+0"	1'+6"	68°		34
508	5	5	15'+0"	123	112°				78
509	5	20	6'+6"	104	5'+3"	1'+3"			135
510	5	20	11'+3"	125	90°				235
511	5	5	15'+0"	123	90°				78
601	6	5	15'+3"	STR.					115
602	6	2	17'+0"	STR.					51
603	6	22	16'-0"	STR.					529
604	6	8	14'-6"	STR.					174
605	6	2	16'+3"	STR.					45
606	6	27	14'+9"	STR.					599
607	6	12	13'+0"	STR.					271
608	6	14	15'+9"	STR.					331
609	6	30	11'+6"	STR.					518
610	6	33	7'+3"	STR.					359
611	6	2 SEE SHT 9	18'+6" to 23'+3"	STR.					270
612	6	2	3'+9"	STR.					11
613	6	4	8'-0"	STR.					48
614	6	1 SEE SHT 9	9'+0" to 10'+9"	101	8'+0" to 9'+9"	1'+0"			89
615	6	1 SEE SHT 9	8'+0" to 10'+0"	STR.					68
616	6	30	6'+6"	STR.					293
617	6	2	6'+6"	108	4'+6"	2'+0"	1	2	20

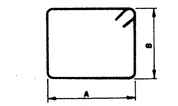
MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
618	6	1 SEE SHT 9	10'+9" to 13'+6"	101	9'+9" to 12'+6"	1'+0"			109
619	6	1 SEE SHT 9	10'+0" to 12'+6"	STR.					85
620	6	2	7'+0"	STR.					21
621	6	15	20'+0"	STR.					451
622	6	4	12'+6"	STR.					67
623	6	6	8'+3"	STR.					74
624	6	6	13'+3"	STR.					110
625	6	6	13'+6"	STR.					122
626	6	68	4'+9"	STR.					488
627	6	8	9'-6"	STR.					114
628	6	36	10'-9"	STR.					591
629	6	24	12'+0"	STR.					433
630	6	3	16'-6"	STR.					74
631	6	3	7'-6"	STR.					34
632	6	9	10'+0"	STR.					135
633	6	6	22'-6"	STR.					110
634	6	6	9'-6"	STR.					86
635	6	4	6'-0"	STR.					36
636	6	8	2'+0"	STR.					24
637	6	60	6'+0"	104	3'+9"	2'+3"			541
638	6	11	47'+0"	104	46'-0"	1'+0"			777
639	6	5	45'+0"	117		1'-0"	1'-0"		338
640	6	8	2'-6"	STR.					30
641	6	59	4'+6"	104	3'-6"	1'+0"			399
642	6	6	43'+0"	104	42'+0"	1'+0"			388
643	6	43	7'+0"	STR.					452
644	6	43	10'-6"	133	15'+0"	1'+3"	4'+3"		677
645	6	68	3'+6"	STR.					357
646	6	16	6'-9"	STR.					152
647	6	15	6'+3"	STR.					141
648	6	4	13'-0"	104	12'+0"	1'+0"			63
649	6	4	5'+0"	STR.					30
650	6	4	1'-6"	STR.					9
651	6	4	6'-6"	STR.					39
652	6	4	4'+0"	STR.					24
801	8	6	13'+3"	STR.					212
802	8	6	12'+9"	STR.					204
803	8	3	2'+0"	STR.					16
804	8	3	2'+6"	STR.					20
805	8	3	10'+3"	STR.					82
806	8	3	10'+9"	STR.					86
807	8	11	12'+6"	101	11'+2"	1'+4"			367
808	8	9	6'+9"	101	5'+5"	1'+4"			162
809	8	18	52'+0"	127	48'+0"	1'+0"	3'-0"		2899
810	8	14	47'+0"	104	46'+0"	1'+0"			1757
811	8	18	43'+6"	104	41'+3"	2'+3"			2089
812	8	14	46'+6"	117	40'+0"	0'+6"	1'+0"		1739
813	8	1	20'+0"	STR.					54
814	8	3	10'+0"	STR.					80
815	8	1	11'-6"	127	7'+6"	1'+0"	3'-0"		30
816	8	1	19'+0"	104	16'+9"	2'+3"			51
817	8	2	9'+0"	104	7'+6"	1'+6"			48
818	8	6	15'+6"	STR.					148
819	8	6	5'+6"	STR.					88
820	8	1	25'+0"	STR.					67
1001	10	2	20'+3"	STR.					174
1002	10	2	19'+0"	STR.					170
1003	10	4	8'+0"	101	6'+3"	1'+0"			138
1101	11	1 SEE SHT 10	16'+6" to 23'+6"	STR.					1275
1102	11	3	8'+0"	101	6'+3"	1'+0"			127
1103	11	3	15'+6"	STR.					247

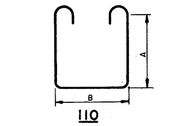


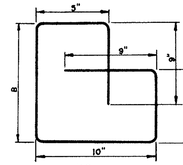


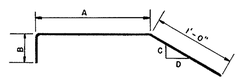


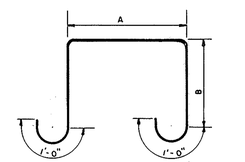


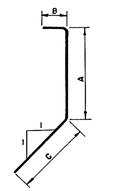


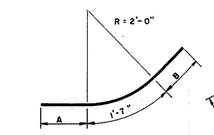


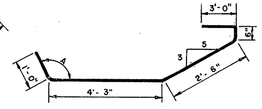


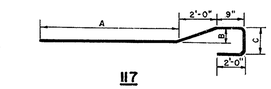


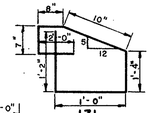


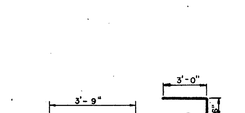


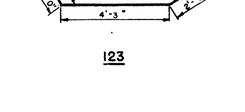


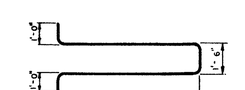


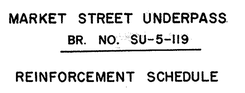


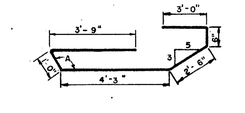












BENDING DIAGRAMS

AKRON EXPRESSWAY SYSTEM

MARKET STREET UNDERPASS
BR. NO. SU-5-119

REINFORCEMENT SCHEDULE

AKRON SUMMIT COUNTY, OHIO

SCALE
MADE R. K. DATE 11-20-52
TRCD C. A. H. DATE 11-24-52
CKD. J. G. S. DATE 11-24-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

846-U SHEET- 171

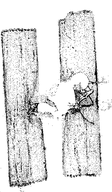
109

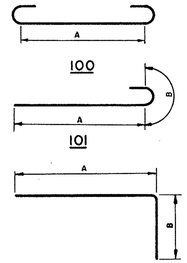
MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS
SIDEWALK APPROACHES									
401	4	4 (595', 0'-5")	9'-6"	Str.					25
402	4	4 (595', 0'-5")	41'-6" to 51'-0"	112	8" to 11"	13" to 16"			143
403	4	160	8'-6"	Str.					908
404	4	28	5'-0"	Str.					94
405	4	4 (595', 0'-4")	401'-9" to 431'-9"	Str.					254
406	4	4 (595', 0'-5")	21'-0" to 71'-0"	Str.					38
407	4	4 (595', 0'-5")	351'-6" to 381'-6"	Str.					222
408	4	4 (595', 0'-5")	41'-6" to 51'-0"	112	8" to 11"	13" to 16"			114
409	4	4 (595', 0'-5")	381'-6" to 411'-6"	Str.					241
410	4	4 (595', 0'-5")	41'-6" to 51'-0"	112	8" to 11"	13" to 16"			124
411	4	4 (595', 0'-5")	41'-6" to 51'-0"	112	8" to 11"	13" to 16"			152
412	4	4 (595', 0'-5")	431'-6" to 471'-0"	Str.					272
801	8	2	44'-0"	Str.					235
802	8	6	44'-3"	Str.					709
803	8	2	35'-3"	Str.					188
804	8	6	35'-0"	Str.					561
805	8	2	38'-3"	Str.					205
806	8	6	38'-0"	Str.					609
807	8	2	47'-3"	Str.					252
808	8	6	47'-6"	Str.					761
SUPERSTRUCTURE SLAB									
401	4	8	49'-0"	Str.					262
402	4	326	4'-3"	130	0'-0"	0'-9"			926
403	4	58	24'-0"	Str.					930
404	4	80	53'-0"	Str.					2779
501	5	326	3'-6"	128	2'-0"	0'-5"	6	10	1190
502	5	320	10'-6"	Str.					3504
503	5	162	13'-9"	128	10'-9"	1'-0"	9	2	2154
504	5	326	4'-9"	122					1615
505	5	4	8'-9"	128	6'-9"	1'-0"	9	2	37
506	5	4	5'-0"	128	3'-0"	1'-0"	9	2	21
507	5	4 (595', 0'-5")	5'-0" to 10'-9"	128	3'-0" to 8'-9"	1'-0"	9	2	131
508	5	8	13'-6"	100	11'-6"	1'-0"			113
601	6	416	32'-3"	100	30'-3"	1'-0"			20151
602	6	4 (595', 0'-5")	5'-0" to 30'-9"	100	3'-0" to 28'-9"	1'-0"			2040
603	6	192	52'-0"	Str.					15000
604	6	136	34'-0"	Str.					4900
605	6	300	30'-6"	Str.					13743
606	6	4 (595', 0'-5")	5'-0" to 30'-6"	100	3'-0" to 28'-6"	1'-0"			1493
607	6	8	34'-6"	100	32'-6"	1'-0"			414
CENTER BENT									
401	4	70	3'-0"	Str.					140
402	4	16	3'-3"	Str.					35
403	4	14	3'-6"	Str.					33
501	5	84	14'-6"	109	3'-9"	3'-4"			1270
502	5	30	14'-4"	109	3'-0"	3'-11"			448
503	5	24	12'-0"	109	1'-10"	3'-11"			302
601	6	24	5'-6"	Str.					199
602	6	20	8'-0"	Str.					240
603	6	12	31'-3"	Str.					565
604	6	6	30'-6"	Str.					275
801	8	6	11'-0"	Str.					176
802	8	20	10'-9"	100	8'-1"	1'-4"			574
901	9	16	8'-9"	132	5'-4"	1'-10"			476
1101	11	32	6'-6"	Str.					1105
1102	11	16	8'-9"	Str.					745
1103	11	48	18'-3"	Str.					4660
1104	11	16	19'-0"	Str.					1615
1105	11	12	23'-2"	119	18'-0"	3'-0"			1478
1106	11	12	29'-9"	Str.					1900
1107	11	8	25'-9"	Str.					1095
1108	11	4	20'-6"	Str.					436
1109	11	16	32'-0"	Str.					2720
1110	11	8	31'-9"	Str.					1350

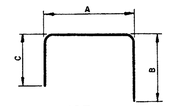
MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS

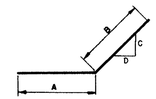
MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS

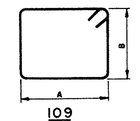
MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	WEIGHT POUNDS

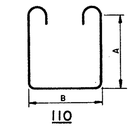


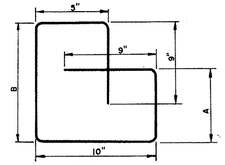


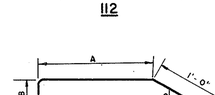


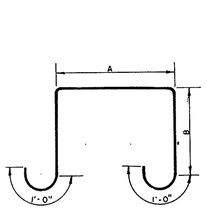


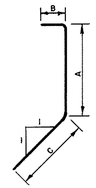


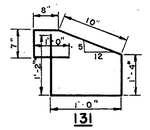


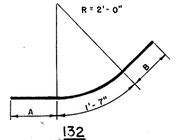


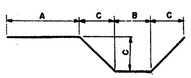


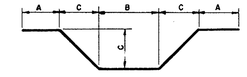


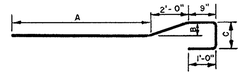


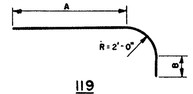


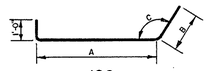


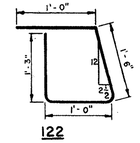


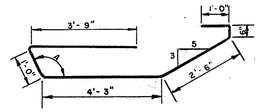


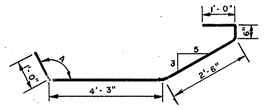


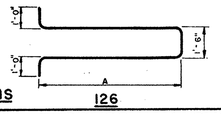












FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687 (9)	POST WAR

172
172

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM

EXPRESSWAY - PART 5

SUM-5-10.59

BENDING DIAGRAMS

AKRON EXPRESSWAY SYSTEM

MARKET STREET UNDERPASS
BR. NO. SU-5-119

REINFORCEMENT SCHEDULE

AKRON SUMMIT COUNTY. OHIO

SCALE
MADE P.K. DATE 11-22-52
TRCD C.A.H. DATE 11-24-52
CKD U.G.S. DATE 11-24-52

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

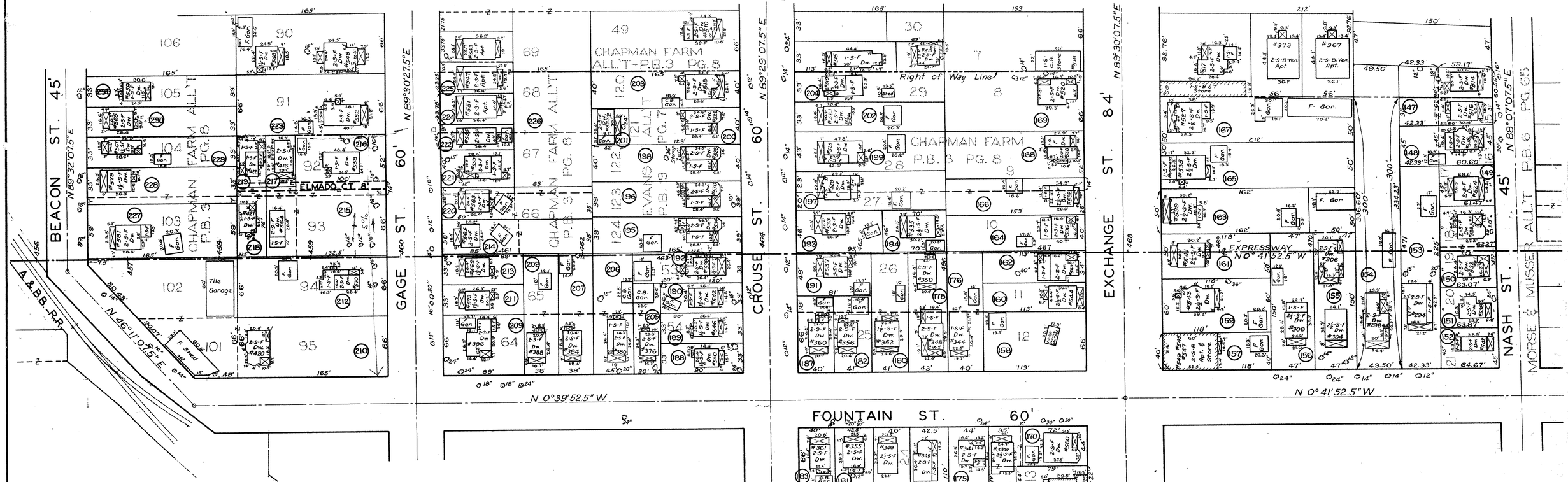
846-U SHEET- 172

114

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

5 / 172

SUMMIT COUNTY
CITY OF AKRON, OHIO
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY – PART 5
SUM.-5-10.95



PARCEL NO.	OWNER	AREA
147	E.J. & L.N. Hofer	
148	C.O. & I.T. Peterson	
149	L.L. Zahler	
150	C.F. Leroy	
151	L.L. Zahler	
152	J.O. Breehl	
153	L.L. Zahler	
154	M. & C. Giustino	
155	W.C. Tadlock	
156	J.F. & I. Cottle	
157	W.E. & F. Kuhn	
158	E.E. krumeich Et. Al.	
159	E.G. Clor	
160	E.J. Starkey	
161	V.D. & A.J. Moon	
162	E.C. Fisher	
163	A.M. Foland	
164	B. & P. Mianasion	
165	L.M. & B.J. Mack	
166	G.F. & A.E. Harvey	
167	H.C. Beckwith Sr.	
168	J.A. & R.L. Alexander	
169	Louise Meyer	
170	R. Davis	
171	J.C. & D. Mlotkowski	
172	J. & H. Waloskay	
173	A. & R. Kohn	
174	C.G. & M.M. Bolin	
175	A. Frederick	
176	W.N. & E. Westfall	
177	J.R. Shelter	
178	M. & W.G. Shimko	
179	M. Popio	
180	J.M. Leffler	
181	M. Miller & A. Saunders	

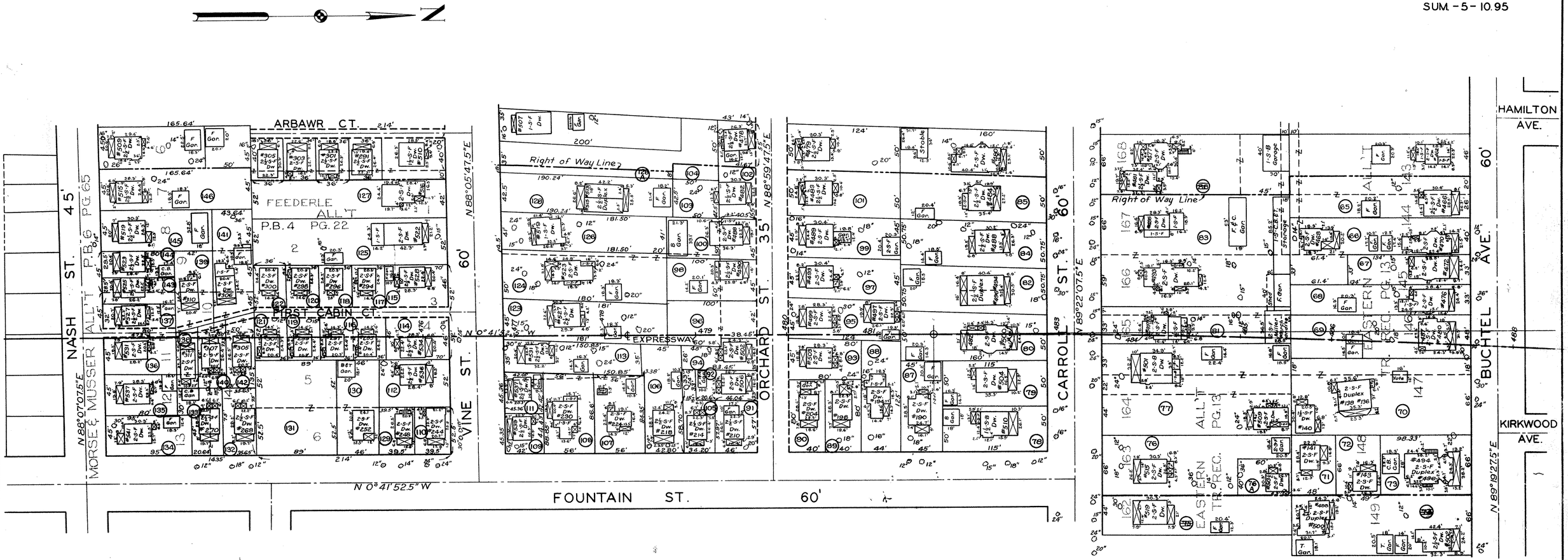
PARCEL NO.	OWNER	AREA
182	A.J. DiMascio	
183	G. Baird	
184	M. Miller & A. Saunders	
185	J. Essy	
186	A.E. & F.S. Crumm	
187	Henry Wingerter	
188	F.W. Bittner	
189	P.C. & O.B. Gamber	
190	A.G. & I. Kagenaar	
191	D. & C. Williams	
192	M. Callahan	
193	A.L. Mc Alonan	
194	J.J. Shea	
195	K. Scherzer Et. Al.	
196	I.L. Beck	
197	J.D. & E.M. Cawthorne	
198	S. & C. Savino	
199	B. Gilliland	
200	J. & E. Mulrooney	
201	H. Hutchens	
202	W.M. Fuller	
203	E.C. Hendricks	
204	W.M. Fuller	
205	C.E. & M.W. Wilkinson	
206	J.A. & C. Loftin	
207	E.E. (Markley) Walker	
208	E.T. & E.L. Jones	
209	Herbert & Gladys Poppenhouse	
210	W.E. & L.E. Wolford	
211	M. Gould	
212	J.D. & A.R. Hendrixson	
213	R. & C.E. Widder	
214	R.J. & M.M. Shea	
215	K.B. & S.R. Bucher	
216	E.H. Shuman	

PARCEL NO.	OWNER	AREA
217	C.M. & F. Anderson	
218	Mary Quinn	
219	D.L. Smith	
220	C.H. Webster	
221	S. Angus	
222	H.C. Holsinger Et. Al.	
~~223~~	~~C.A. Biffecuffer~~	
224	G.S. Mc Intyre	
225	L.A. Mosley	
226	I.F. Maranville	
227	J. & L. Parish	
228	R.A. Archer Sr.	
229	E.R. & W.I. Bloom	
~~230~~	~~A.R. & G.W. Opel~~	
~~231~~	~~P. Radcliff~~	

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-687(9)	POST WAR

6
172

SUMMIT COUNTY
CITY OF AKRON, OHIO
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM. - 5 - 10.95



PARCEL NO.	OWNER	AREA
65	W.E. Michael	
66	R.F. & G.A. Palmer	
67	R.A. Jones	
68	M. & A. Regal	
69	G. Roth	
70	S.A. & W.B. Huff, W.F. & E.R. Firick	
71	S.A. & M.J. Reed	
72	Ruby J. Pruitt	
73	L.M. Miller	
~~74~~	~~Ida Wagner~~	
~~75~~	~~Mary Mathias~~	
*76	F. Folmer	
77	J.A. Miller	
78	J.C. & E.C. Phillips	
79	E.P. & P.E. Brunswick	
80	M.J. Azar	
81	C.D. Miller & H.E. Miller	
82	V.E. Dimengo & E. Oberdier	
83	H.E. & C.D. Miller	
84	E.L. & L.M. Niham	
85	R.I. Bowman	
~~86~~	~~A.M. Huber~~	
87	M. Wagoner	
88	C.W. Noakes & H.M. Noakes	
89	F.M. Cottrill	
90	B.E. Cable	
91	I.J. & D.A. Schlosser	
92	V.C. Clarke	
93	N.B. & V. Reese	
94	R.E. & D.G. Wagner	

PARCEL NO.	OWNER	AREA
95	S. Karamelo	
96	J.J. & C. Schreiner	
97	R.C. & M.A. Opp	
98	J.J. Schreiner	
99	George D. Tolos	
100	L.M. Howes	
101	T.J. & L. Peach	
102	M.J. Steinel	
103	M.J. Steinel	
104	M.J. Steinel	
105	H.E. Rudd	
106	J.B. & L. Jones	
107	W.W. & A.L. Sawyers	
108	E. & D.L. Ecker Jr.	
109	A.C. France	
110	V.S. Back	
111	G.B. & G.F. Duncan	
112	J.W. & H.A. Parks	
113	P. & J.C. Harper	
114	L.C. & E. Hamilton	
115	M. & M. Dolly	
116	Clinton Gougler	
117	F.D. Ellison	
118	J.J. & E.L. Sichiner	
119	J.M. & R.L. Cheuvront	
120	M. & M. Wolfe	
121	P.N. & H.M. Mikalas	
122	P.R. & M.K. Faidley	
123	M.F. & M.L. Bridges	
124	J.M. & C. Flora	

PARCEL NO.	OWNER	AREA
125	Frank Joseph & Minnie Leicht	
126	P.E. Ritter	
127	L.B. & L.B. Rookstool	
*128	Bertha B. & O.E. Gormire	
129	V. Back	
130	D.W. & V.L. Smith	
131	C.S. Tutwiler	
132	Chester Tutwiler	
133	C. Beegle	
134	M.E. Shriber	
135	T.S. & E.G. Eveleth	
136	E.B. & J.F. Hartline	
137	R.W. & O.N. Kittle	
138	C.M. Beegle	
139	C. & M.O. Martin	
140	C. & L. Tanner	
141	E.O. & P.M. Brooks	
142	R.L. & M.A. Ferrell	
143	W.L. Wolfe	
144	T.P. & E. Thomas	
145	W.J. & B. Cowling	
146	C.F. & M.R. LeRoy	
*76A	L.C. Brooks & J.P. Brooks	
*128A	J.E. & M.E. Garver	

8-19-52 Revised property line - Parcel 105

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-68(19)	POST WAR

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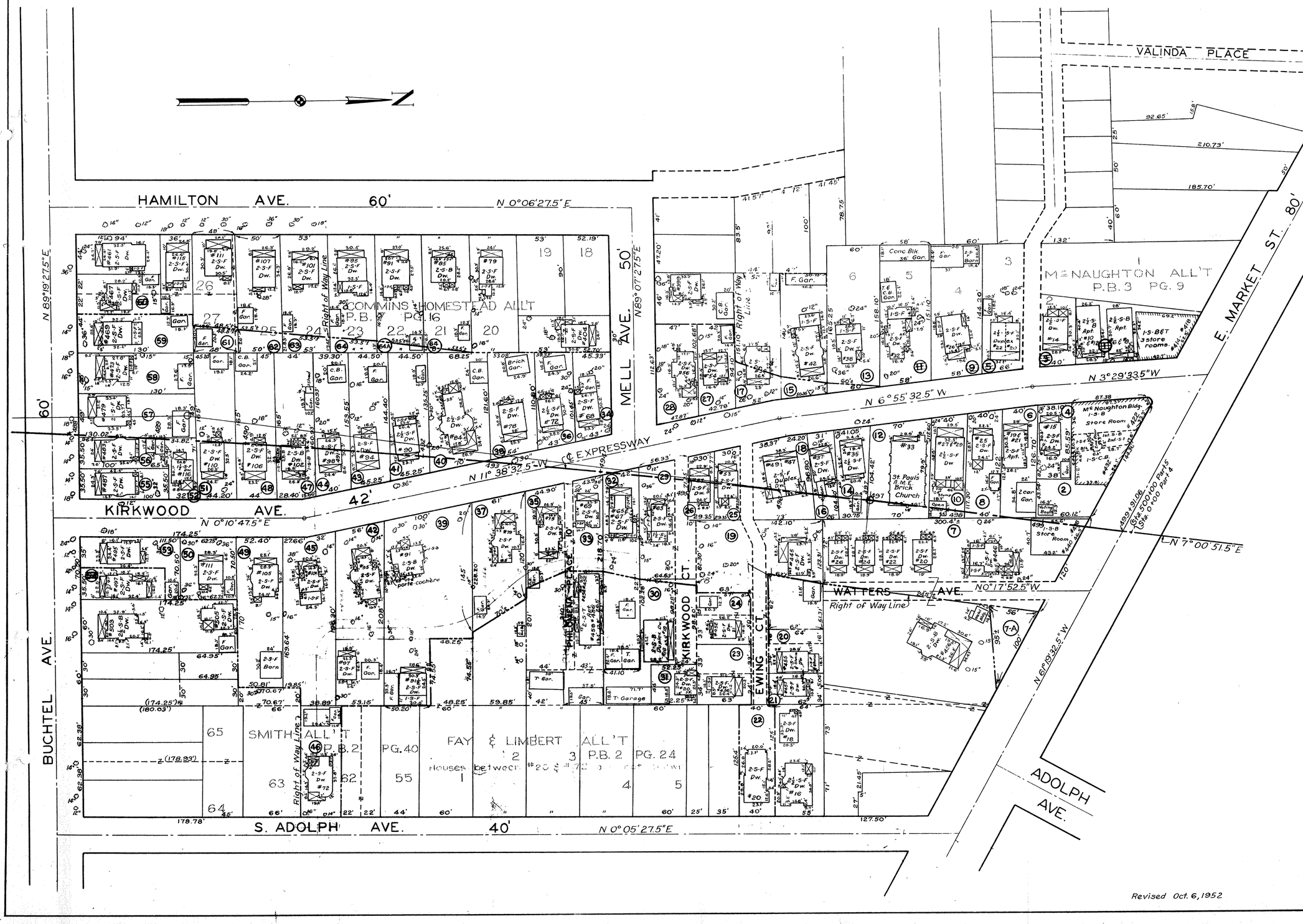
SUMMIT COUNTY
CITY OF AKRON, OHIO
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM.-5-10.95



PARCEL NO.	OWNER	AREA
1	~~D.E. Miller~~ ~~E.L.A.~~	
2	K. Miktarian	
3	M.G. Powell	
4	T.B. Jefferson	
5	~~C.G.E.~~ & A. ~~Hamline~~	
6	Mary E. McGill	
* 7	R.B. Watters	
8	B.B. Angello	
9	C.E. Kaufman	
10	John D. & Helen G. Miller	
11	R. J. & C.V. Grafton	
12	St. Paul A.M.E. Church	
13	C.J. & T.C. Harris	
14	N.M. Spencer & A. Arthur	
15	P.E. & M.A. Selby	
16	J.M. & M.E. Miller	
17	E. Hord	
18	M. Estelle Tennis	
19	R.I. Ewing	
20	E. Gerke	
21	E.D. Charlton	
22	Ida De Marco	
23	M. De Vaughn	
24	Z.V. Halacheff	
25	E.S. & E.C. Lyons	
26	R.P. Smith	
27	A.E. Roberts	
28	G. Salhany	
29	S.J. & A. Hobler	
30	D.E. & K.M. Hunt	
31	~~C.E. & D.M. Strassner~~	
32	J.A. & F. Braun	
33	F.J. & A. Archual	
34	B. Leveque & Huntington Nat'l Bank-Columbus	
35	Jennie Corey	
36	L.J. & Fred O'Neil & Bertha Herbruck	
37	E.V. Carter	
38	E.C. Tobias	
39	E. Lillibridge	
40	E.M. Paul	
41	J.M. Miller	
42	F.J. Manson Et. Al.	
43	C.A. & V.B. Noland	
44	J.E. Kennedy	
45	R.C. Halfen Jr.	
46	C. Smith	
47	A.M. Davidson	
48	H.B. Washer Sr.	
49	Lewis Patrick	
50	G.E. & M.W. Washer	
51	L.S. Oswald	
52	R. & O.L. Waddell	
53	C.B. Stock	
~~54~~	~~C.E. Smith & Et. Al.~~	
55	F.L. Martin	
56	G.R. & H.V. Kroker	
57	L.B. Rutherford	
58	L. Hoyman & M. Kuster	
59	W.H. & H.M. Graham	
~~60~~	~~M.G. Holt~~	
61	D.E. McKay	
62	W. Stahl	
63	Cora M. Douglas	
64	J.W. & E.B. Cain	
64 A	L. Leola Bradley	
64 B	Margaret E. Lasher	
* 7-A	R.B. Watters - Temporary Easement for Runaround during Market St. Bridge construction.	

FED ROAD DIV NO.	STATE	FED AID PROJ. NO.	TYPE FUNDS
2	OHIO	U-627(9)	POST WAR

8
172

SUMMIT COUNTY
CITY OF AKRON, OHIO
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
SUM.-5-10.95

WILSON ST. 45' — WILSON ALL'T P.B.5 PG. 29 — S 10° 38' 52.5" E

COVENTRY ST. 45' — S 0° 46' 07.5" W

JOHNSTON ST. 60' — N 51° 24' 07.5" E

MC QUEENEY ST. 30' — S 10° 39' 52.5" E

LUMIERE ST. 45'

BEACON ST. 45' — N 89° 32' 07.5" E

BETTIE ST. 45'

A & B B.R.

Right Of Way Line

℄ Probable ℄ of Future Expressway

℄ EXPRESSWAY N 8° 41' 52.5" W

OVERLOOK HEIGHTS ALL'T P.B. 15 PG. 7

PARCEL NO.	OWNER	AREA
232	Orr Thomas Oil Co.	
233	A. & B.B. R.R. Penna R.R.	
234	H. Budoff	
235	Orr Thomas Oil Co.	
236	E. & C. Mc Queeney	
237	Catherine M. Mc Queeney	
238	Joyce Downey Seven-Up Inc.	
239	A.C. Canfield	
240	C.A. & E. Wyzynski	
241	H. & M. Haury	
242	H.H. & W.L. Hall	
243	J.M. Hemli	
244	P. & A. Gredicak	
245	J. & W. Nagy	
246	R.D. & E.J. Hastings	
247	D.E. & G.K. Long	
248	M.L. Appelman	
249	E.C. Mc Queeney	
250	J.E. & E. Otto	
251	F. & D. Burnell	
252	Daisy S. Schufle	
253	V.F. & H. Bennett	
254	W.G. & S.L. Adrion	
255	S.A. Salenday	
256	C.A. Miller	
257	C.L. & C.E. Cook	
258	A.M. Miller	
259	J.A. & E.A. Buck	
260	M.G. & F.J. Adelman	
261	J.L. & E.L. Gill	
262	C.E. & M.F. Cooley	
263	R.W. & O.G. Berry	
264	E.H. & S.E. Zinkhann	
264-A	C.R. & F. Newton	
264-B	Scovill Manufacturing Co.	

SOIL PROFILE

SUMMIT COUNTY
SUM-5-AKRON EXPRESSWAY
MARKET ST. TO SOUTH ST.

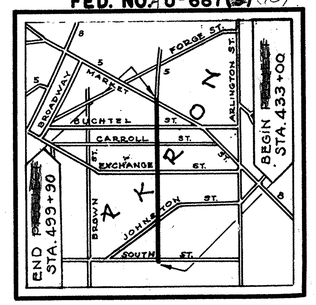
STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

SUM-5-10.93

1/2

NOTE: THE INFORMATION SHOWN BY THIS SUBGRADE PROFILE WAS SECURED FOR THE INFORMATION OF THE STATE OF OHIO. THE STATE DOES NOT GUARANTEE THE CORRECTNESS THEREOF AND DOES NOT INCLUDE IT AS A PART OF THE PLANS GOVERNING THE CONSTRUCTION OF THE PROJECT.

FED. NO. U-687(2) (10)



LOCATION MAP

LEGEND FOR PROJECT-AVERAGE RESULTS OF TESTS- 38 SAMPLES TESTED

DESCRIPTION	H. R. B. CLASS	S.H.T.L CLASS	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	SAMPLES TESTED
STONE FRAGMENTS, SAND & SOIL	A-2-4(0)	2	41	16	14	17	12	23	6	14	4
SAND	A-2-4(0)	4	21	43	23	6	7	21	1	9	3
BERM MATERIAL		7		CLASSIFIED BY VISUAL INSPECTION							
SILT	A-4(8)	8	2	6	8	57	27	27	7	18	7
SANDY SILT	A-4(6)	9	12	43	18	37	20	24	6	17	19
TOP SOIL		10		CLASSIFIED BY VISUAL INSPECTION							
SILT & CLAY	A-6(7)	11	8	11	12	43	26	33	16	22	4
CLAY	A-7-6(12)	16	6	5	7	34	48	44	19	20	1
SANDSTONE		23		CLASSIFIED BY VISUAL INSPECTION							
SHALE		24		CLASSIFIED BY VISUAL INSPECTION							

==EXISTING PAVEMENT

| AUGER BORINGS PLOTTED TO VERTICAL SCALE ONLY.

• MOISTURE CONTENT NEARLY EQUAL TO OR GREATER THAN THE LIQUID LIMIT.

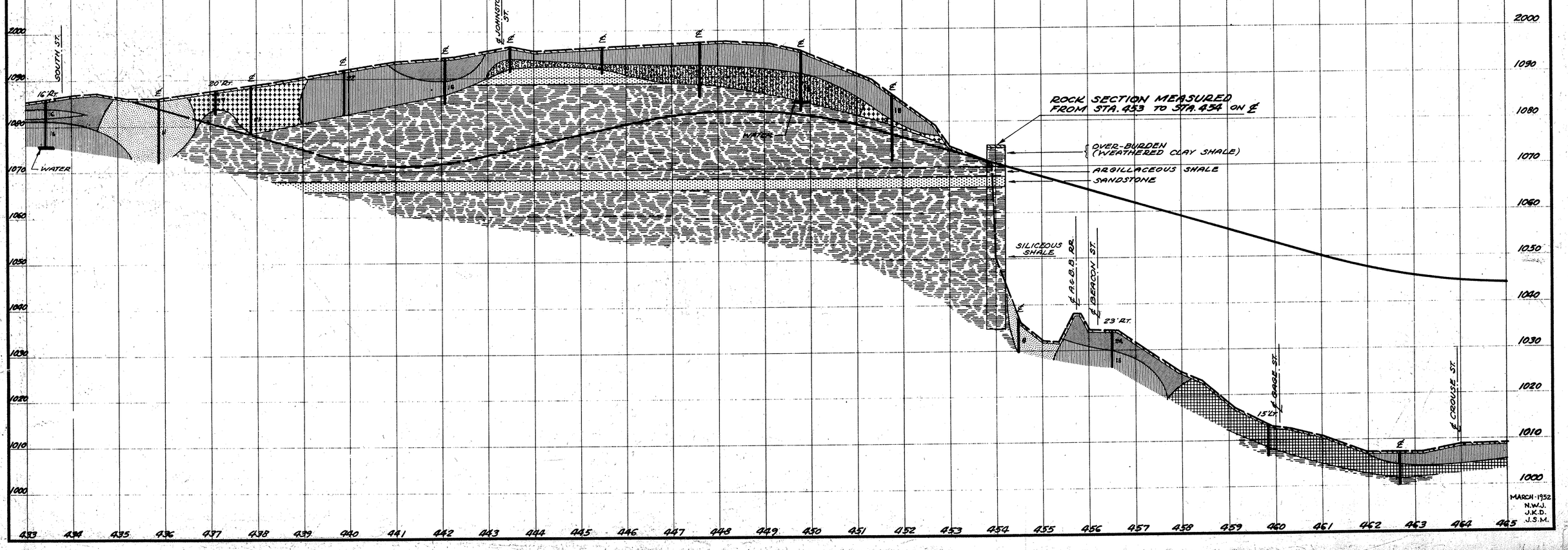
— SAMPLES TESTED —
LAB. NOS. SO.-86169 – 86203 INCL.
86344 – 86346 INCL.

— MOISTURE DENSITY SAMPLES —
LAB. NOS. SO.-86202 & 86203

NOTE :- FIGURES BESIDE BORINGS INDICATE WATER CONTENT IN PER CENT

— NOTE —

GROUND LINE SHOWN ON THIS PROFILE WAS ESTABLISHED BY THE ACTUAL ℄ LINE ELEVATIONS FROM HOLES DRILLED AND FROM PLANS FURNISHED BY THE CITY ENGINEER OF AKRON. THE DATA FOR THE AFORE MENTIONED PLANS WERE TAKEN FROM TOPOGRAPHIC MARS.



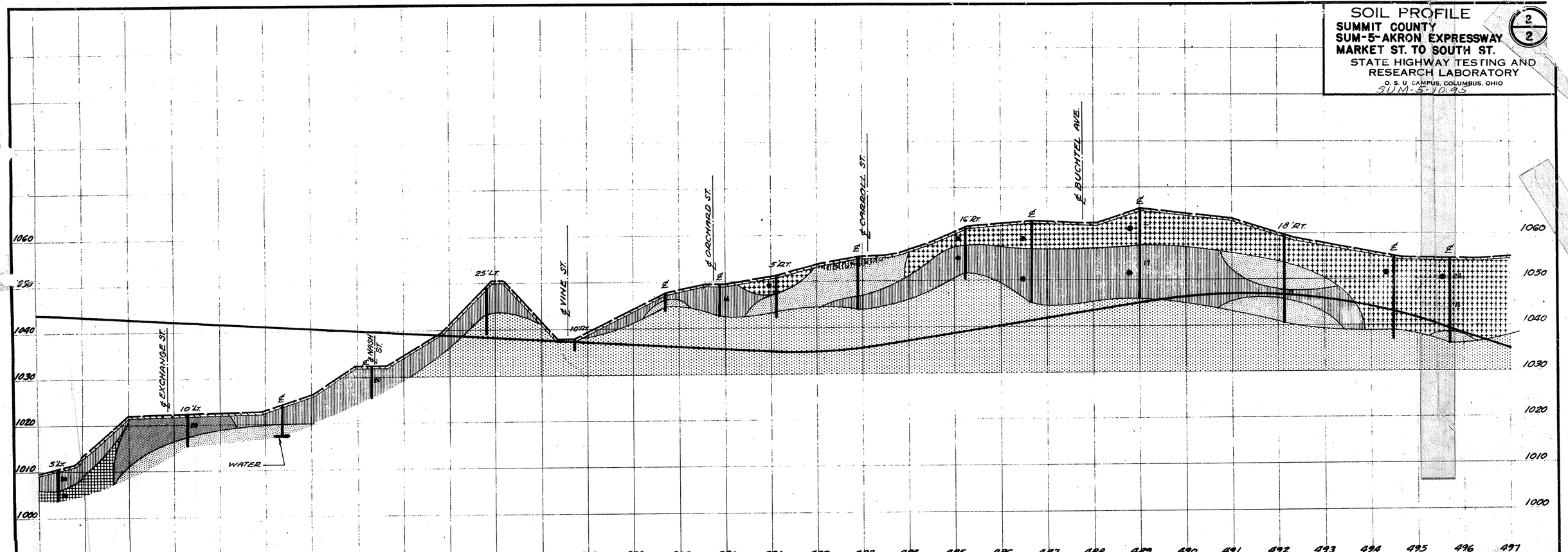
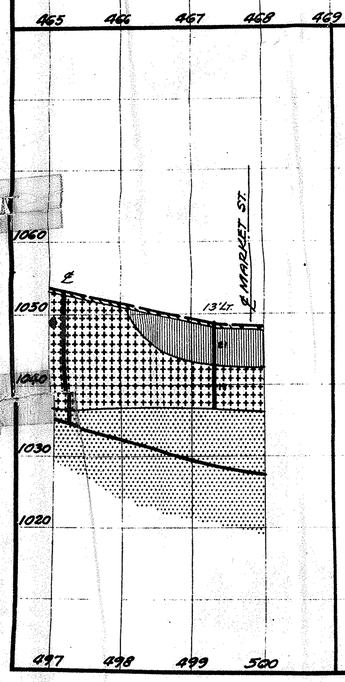
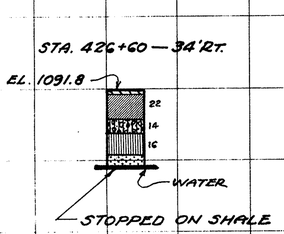
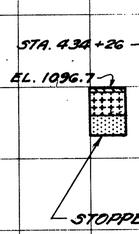
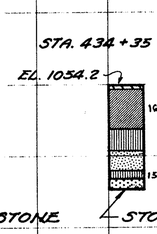
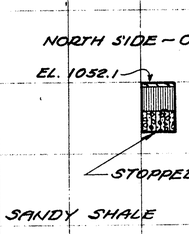
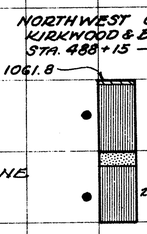
MARCH-1952
N.W.J.
J.K.D.
J.S.M.

TE 54 B
100 6 4u

SOIL PROFILE

SUMMIT COUNTY
SUM-5-AKRON EXPRESSWAY
MARKET ST. TO SOUTH ST.

STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

SUM-5-10.95

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