CUY-90-14.90

PID 82119

APPENDIX EX-10

Willow Innerbelt Freeway Part 6 (CUY-42-18.29)

(Reference Document)

State of Ohio
Department of Transportation
Jerry Wray, Director

Innerbelt Bridge
Construction Contract Group 2 (CCG2)

Revision Date: 1960

3-15

01-0

CUY-90-16.24±

MICROFILMED JUL 8 1985

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	
2	OHIO	I-71-5(6)247		1 / 175

CUY-42-18.29

MAR 5 1965 GROUND PHOTOLAB

PART 6

[THIS IM]PROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR OF HIGHWAYS IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 REVISED CODE OF OHIO.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

CUY 42-18.29

CUYAHOGA COUNTY
CITY OF CLEVELAND

WILLOW ~ INNERBELT FREEWAY
PART 6

I-71-5(6)247
LIMITED ACCESS

NOTE

Since the Construction Plans for PART Nº 6, PART Nº 7-A and PART Nº 7-B are now Combined into ONE CONTRACT and PROJECT; the General Notes and Traffic Maintenance Notes of each of the aforesaid PARTS, shall apply in the general execution and completion of this COMBINED PROJECT.

For Part 7-A, see plans for CUY-21-15.32; CUY-42-18.42
For Part 7-B, see plans for CUY-42-18.77

INDEX OF SHEETS

LINE DATA

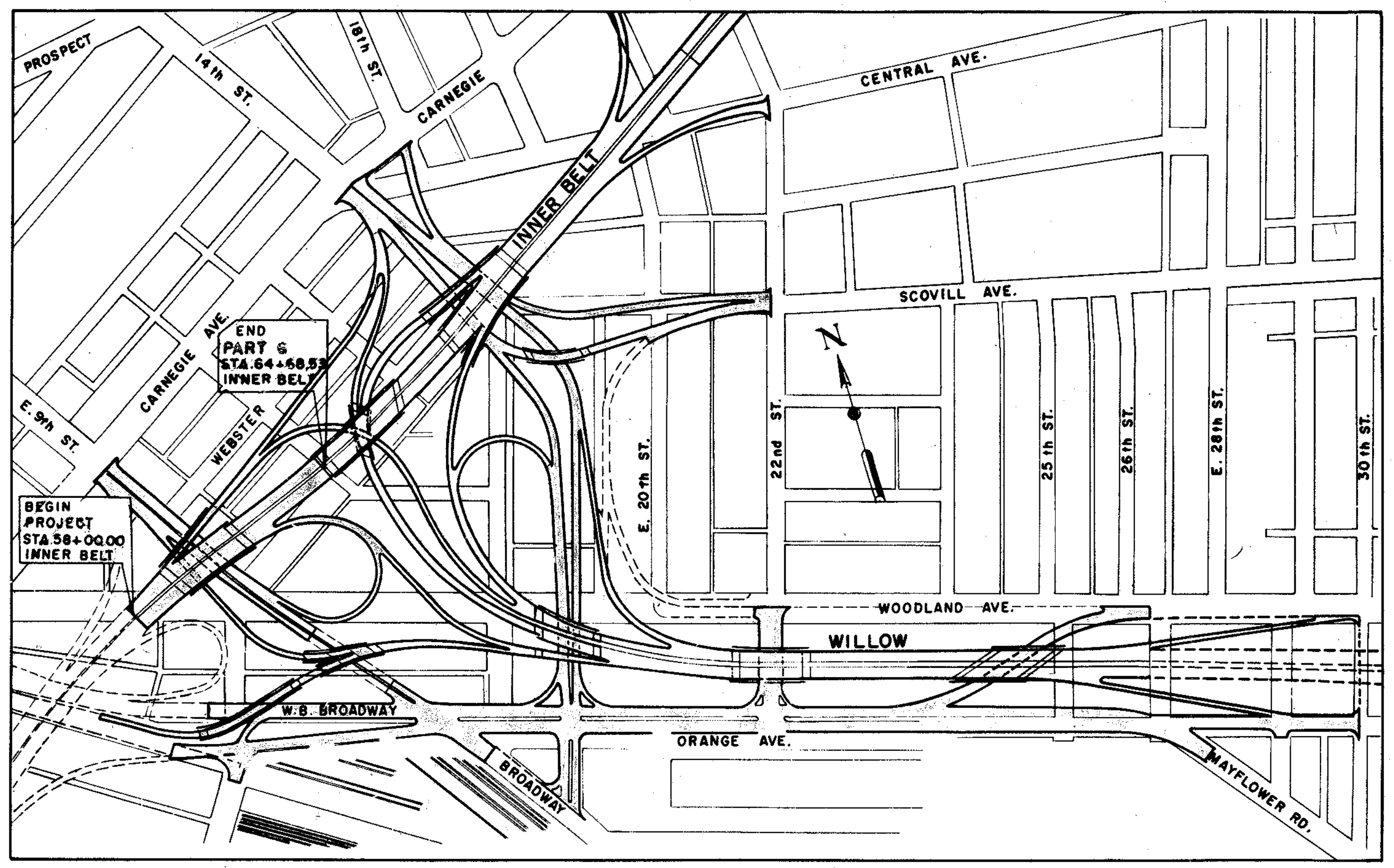
LENGTH OF PROJECT

℄ INNER BELT	STA. 58+00	TO	STA. 64+68.53	= 668.53'	= 0.126 MILE
I-71-5(6)247			LENGTH OF PROJECT	= 668.53'	= 0.126 MILE

LENGTH OF WORK

℄ INNER BELT	STA. 53+45	TO	STA. 64+68.53	= 1123.53'
ADD SCOVILL (EAST BOUND)	STA. 1+05	TO	STA. 9+97	= 892'
ADD E. 14th ST. (SOUTH BOUND)	STA 0+33	TO	STA. 7+85	= 752'
ADD E. 9th ST.	STA. 5+35	TO	STA. 14+00	= 865'
ADD RAMP E-18	STA. 7+85	TO	STA. 10+38	= 253'

I-71-5(6)247 LENGTH OF WORK = 3885.53' = 0.735 MILE



DELIVERY POINT—N.Y.C. ST.L. R.R. BROADWAY TEAM TRACKS

AVERAGE HAUL 1/2 MILE

LOCATION PLAN

CONVENTIONAL SIGNS

PAVEMENT PLANS	SHEET	16
DRAINAGE PLANS	SHEET	31
LIGHTING PLANS	SHEET	45
EXISTING UTILITIES	SHEET	54

0 400 800 1200 1600

SCALE IN FEET

PORTION TO BE IMPROVED

OTHER HIGHWAYS & STREETS

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 ESTIMATES.

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

APPROVED DATE 12/12/59 — Louis L. Drasler — DIRECTOR OF PUBLIC SERVICE, CITY OF CLEVELAND

APPROVED DATE 12/11/59 — Wm B. Henry — DIVISION DEPUTY DIRECTOR

APPROVED DATE 3-11-60 — Guy E. Kepfer — DEPUTY DIRECTOR OF PLANNING AND PROGRAMMING

APPROVED DATE 3-4-60 — DH Overman — ENGINEER OF BRIDGES

APPROVED DATE 3-9-60 — ENGINEER OF LOCATION AND DESIGN

APPROVED DATE 3-9-60 — C.W. Maughay — DEPUTY DIRECTOR OF DESIGN AND CONSTRUCTION

APPROVED DATE 3-9-60 — B.A. Berry — FIRST ASSISTANT DIRECTOR

APPROVED DATE 3-9-60 — E.S. Preston — DIRECTOR OF HIGHWAYS

Sheets 134 & 140 revised 6-14-60.
Sheet 131 revised 6-16-60.
Sheets 123 & 124 revised 6-29-60.
Sheets 109, 110 & 112 revised 7-15-60.
Sheet 149 revised 7-22-60.
Sheets 14, 45-50 revised 8-22-60 REC.
Sheets 148 & 149 revised 9-21-60.
Sheet 98 revised 12-8-60.

MAR 5 1965 GROUND PHOTOLAB

Revised As-Built

PREPARED AND RECOMMENDED BY
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

H.G. SOURS
ASSOCIATE
COLUMBUS

00124-1

SUPPLEMENTAL SPECIFICATIONS

VOID

NUMBER	DATE	NUMBER	DATE
		S 207	4-28-55
		B-119	3-12-59
M 206.14	7-15-49	SS-18	6-15-59
CE-101.04	5-22-56		

STANDARD DRAWINGS

VOID

NUMBER	DATE	NUMBER	DATE
L-3	4-1-50		
L-3-A	4-1-50	I-15 NO.	5-21-59
RI-1	7-15-58	BT-50-70-71 E NO.	10-1-47
B-T-71 R	3-1-53	AS-1-54	12-1-54
LJ NO. 1	7-1-55	G-107	6-1-56
I-1, 2, 3, 4, -5	4-24-58		
I-8CB NO2-2A-B	3-2-59	I-2	7-1-54
I-8CB2-3 2-4	1-26-59	L-1	4-1-50
DR-I	3-3-59	TJ	5-1-56
I-8 MH NO. 1	1-26-59	T-35	1-2-56
I-8 MH NO. 2	1-26-59	I-140	1-22-52
I-15 NO.	5-21-59	I-21-23	6-1-56
I-8CB NO. 3	1-26-59	I-8CB NO. 7	3-2-59
I-8CB NO. 3-A	1-26-59	I-8 I NO 2-A	4-23-59
I-8MH NO. 1-A	1-26-59	I-8 I NO. 2	4-23-59

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED:

DIVISION ENGINEER DATE

FILE NO.	CUYAHOGA COUNTY	
	SEC. CUY-42-18.29	
	DATE OF LETTING	19
	CONTRACT NO.	

MICROFILMED
JUL 8 1985

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS

2
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
SCHEMATIC PLAN

E. B. SCOVILL OVER N.B. 14TH ST.

BRIDGE NUMBER 1

TYPE: Continuous steel beam with reinforced concrete deck and substructure.
SPANS: 42'-1-5/16", 70'-7-1/16' & 42'-6½" (along ℄ E.B. Scovill)
ROADWAY: 24'-0" f./f. 2'-0" safety curbs
LOADING: CF 2000 - Adequate for A.A.S.H.O. alternate loading.
SKEW: Varies
SURFACE COURSE: 1" Monolithic Concrete
ALIGNMENT: 20°00' curve left.
APPROACH SLABS: AS-1-54 (25' Long)
SUPERELEVATION: Varies

CUY-42-1832

BRIDGE NUMBER 2

TYPE: Continuous rolled beam with reinforced concrete deck and substructure.
SPANS: 87'-9", 88'-9" & 55'-0" along ℄ I.B.
ROADWAY: 114'-0" (nominal) f./f. parapets
LOADING: CF 2000 - Adequate for A.A.S.H.O. alternate loading.
SURFACE COURSE: 1" Monolithic Concrete
ALIGNMENT: 2°00' R. Tangent.
APPROACH SLABS: AS-1-54 (25' Long)
SUPERELEVATION: Varies

E-15 OVER W.B. BROADWAY

BRIDGE NUMBER 6

TYPE: Continuous welded steel girder with reinforced concrete deck and substructure.
SPANS: 71.65', 120.00', and 72.00' (along ℄ E-15)
ROADWAY: 20'-0" f./f. 2'-0" safety curbs.
LOADING: CF 2000 - Adequate for A.A.S.H.O. alternate loading.
SKEW: Varies
SURFACE COURSE: 1" Monolithic Concrete
APPROACH SLABS: AS-1-54 (25'-0" long)
SUPERELEVATION: Varies
ALIGNMENT: 17°-00' Curve Lt. & Tangent

E-15 & E-18 OVER 9TH. ST.

BRIDGE NUMBER 7

TYPE: Continuous steel beam with reinforced concrete deck and substructure.
SPANS: 66'-0", 93'-5-7/8", & 58'-2-1/8" along ℄ Ramp E-18.
51'-0", 81'-0", & 54'-0" along ℄ Ramp E-15.
ROADWAYS: Varies
LOADING: CF 2000 - Adequate for A.A.S.H.O. alternate loading.
SKEW: Varies
SURFACE COURSE: 1" Monolithic Concrete
ALIGNMENT: 20°00" Rt. ℄ E-18 & 7°00 Rt. ℄ E-15
APPROACH SLABS: AS-1-54 (25' Long)
SUPERELEVATION: Varies

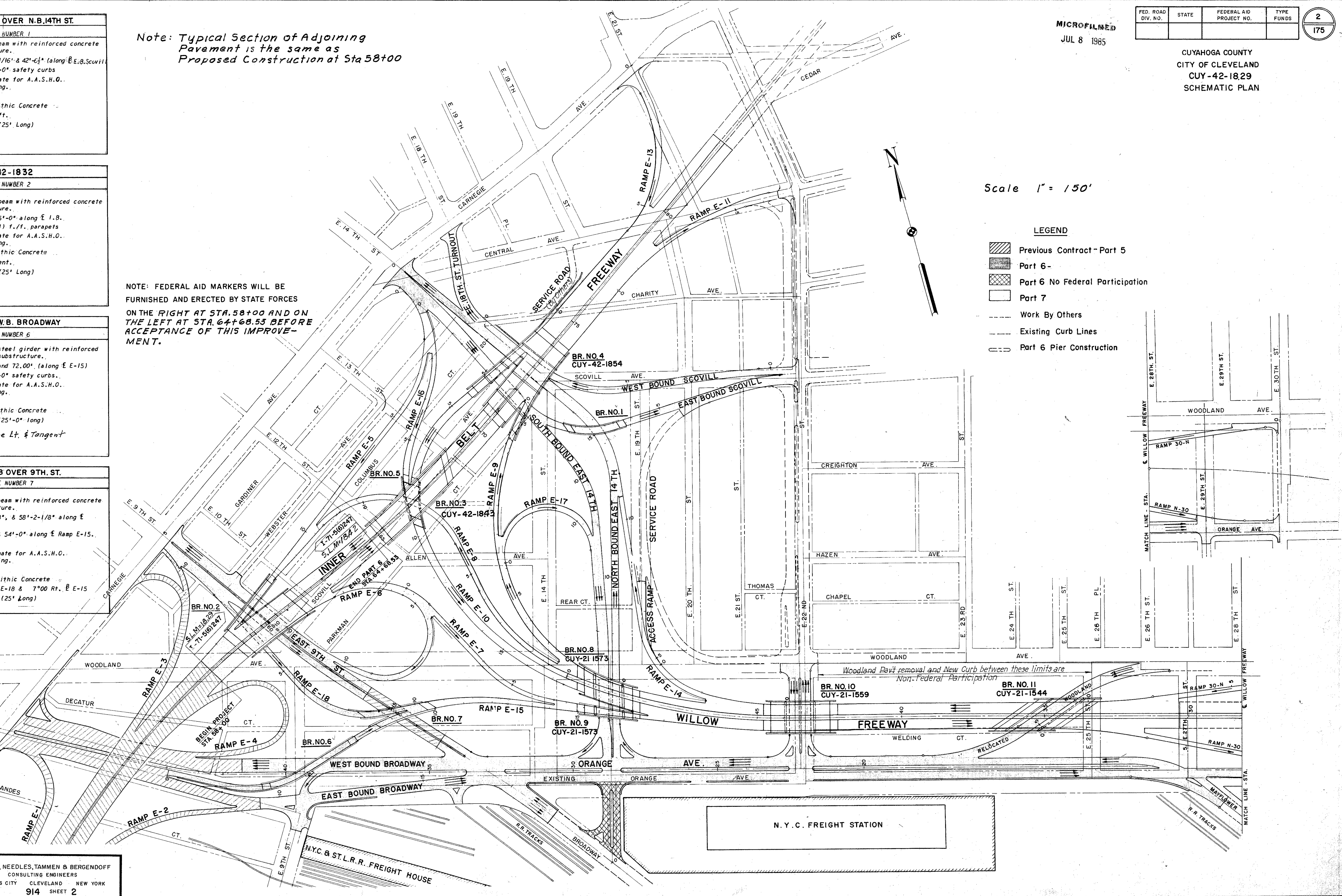
Note: Typical Section of Adjoining Pavement is the same as Proposed Construction at Sta 58+00

NOTE: FEDERAL AID MARKERS WILL BE FURNISHED AND ERECTED BY STATE FORCES ON THE *RIGHT AT STA. 58+00 AND ON THE LEFT AT STA. 64+68.53 BEFORE ACCEPTANCE OF THIS IMPROVEMENT.*

Scale 1" = 150'

LEGEND

- Previous Contract - Part 5
- Part 6 -
- Part 6 No Federal Participation
- Part 7
- Work By Others
- Existing Curb Lines
- Part 6 Pier Construction



SCALE 1" = 50'
MADE J.L.C. DATE 1-16-59
TRCD. RR DATE 1-
CKD. ______ DATE ______

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

FED. ROAD DIV. NO.	STATE		
2	OHIO		

3
175

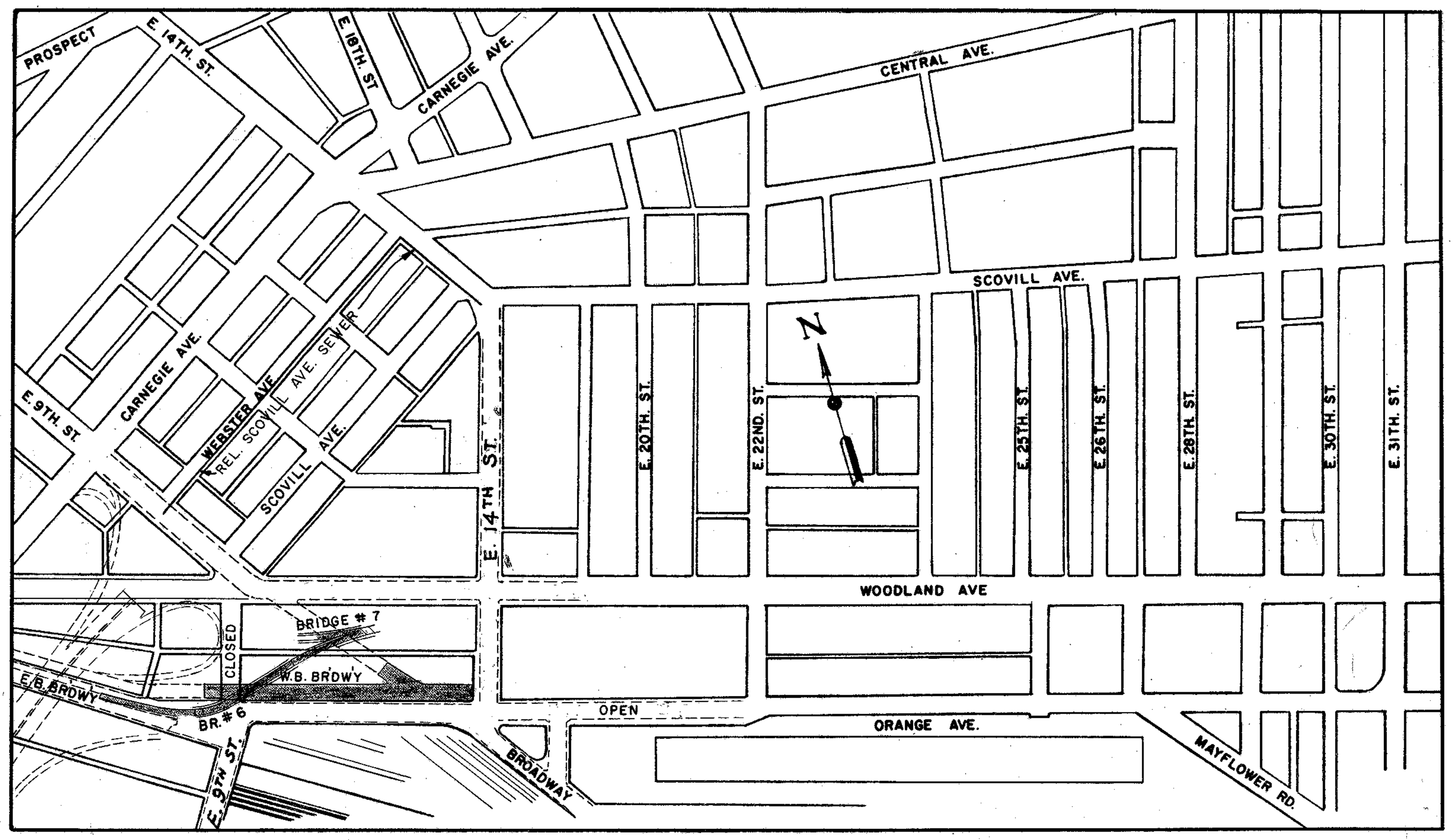
CUY - 42 - 18.29

SUGGESTED
SEQUENCE OF CONSTRUCTION

LEGEND

CONST. THIS STAGE

KEY STREETS REMAINING OPEN



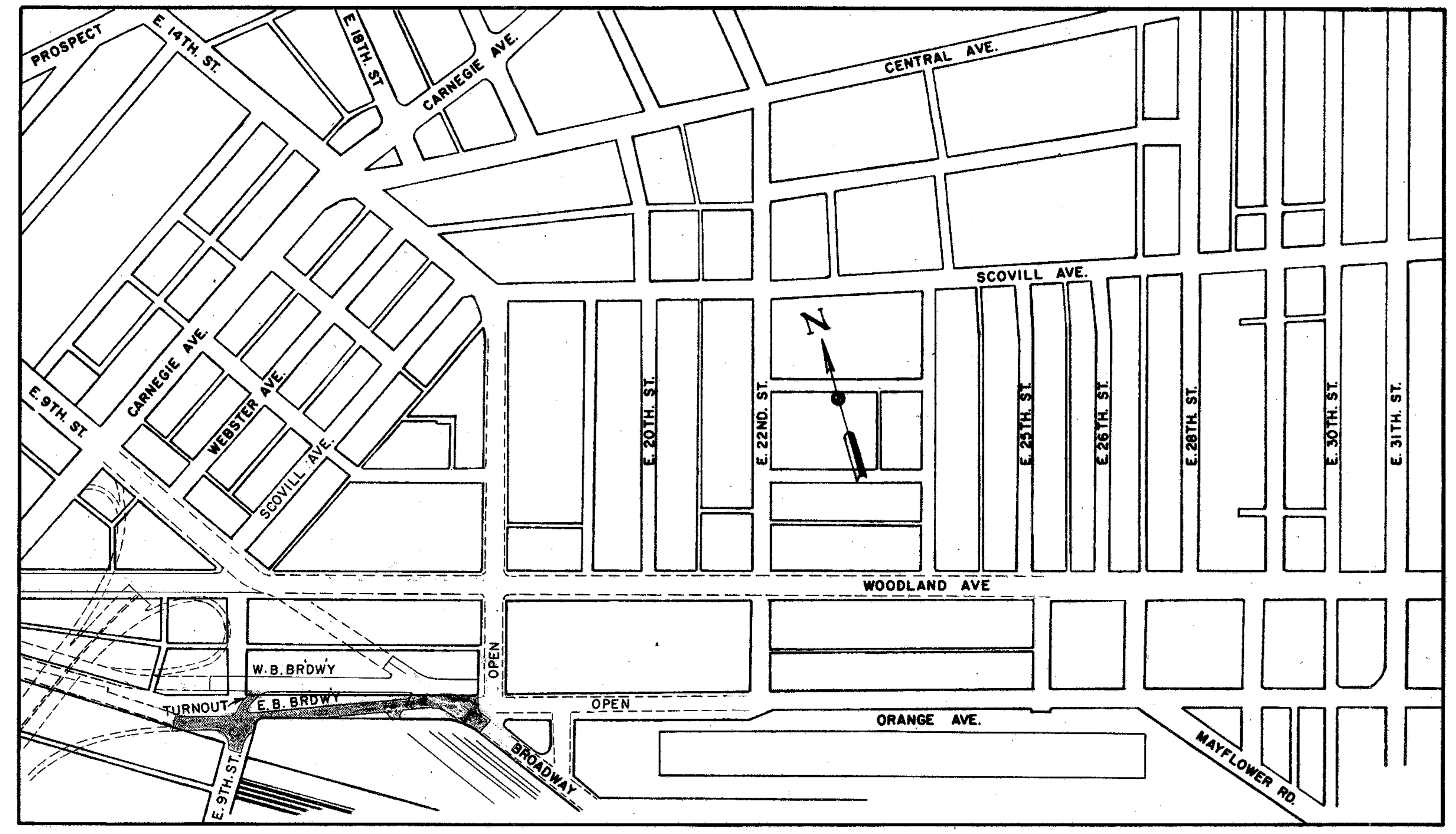
STAGE I

1. Construct crossover between E.B. Broadway & W.B. Broadway from approximately Sta. 44+60 to Sta. 45+70. (See Sheet 16 for Detail)
2. Eastbound traffic to be routed over existing E.B. Broadway and existing Broadway; Westbound traffic to be routed over existing Broadway then E.B. Broadway up to the Crossover at approximately Sta. 44+60 where it will be transferred to W.B. Broadway.
3. Construction to include W.B. Broadway to Sta. 31+30, Ramp E-15 thru Bridge 6, Bridge #6 and #7 and Relocated Scovill Ave. Sewer. (See note below)
4. The intersection of E. 9th St. and W.B. Broadway to be constructed in such a manner as to permit one lane of traffic in each direction at all times. (See note on this sheet pertaining to High Early Strength Cement)

NOTE:

During the construction of the Relocated Scovill Ave. sewer at E. 9th. St. and E. 14th St., traffic shall be maintained as follows:

E. 9th. St. - 2 lanes
E. 14th. St. - 3 lanes (entire easterly portion of undisturbed pavement)



STAGE II

1. E.B. traffic to be routed over existing E.B. Broadway up to the crossover constructed in stage I where it will be transferred to W.B. Broadway, W.B. traffic to be routed over newly constructed W.B. Broadway.
2. Construction to include E.B. Broadway to Sta. 31+30 and E. 9th St. turnout.
3. E. 9th. St. pavement South of turnout to be placed in such a manner as to permit access to existing E. 9th St. south of Broadway at all times. Further, Orange and Brdwy intersection is to be completed as soon as possible after beginning of Stage II.
4. Existing Broadway, new E. 9th St. intersection to be constructed in such a manner as to permit one lane of traffic in each direction at all times.

NOTE:

The Contractor shall use High Early Strength Portland Cement for his concrete mix in the following areas:

(1) W. B. Broadway and E. 9th. St. intersection - (Stage I)

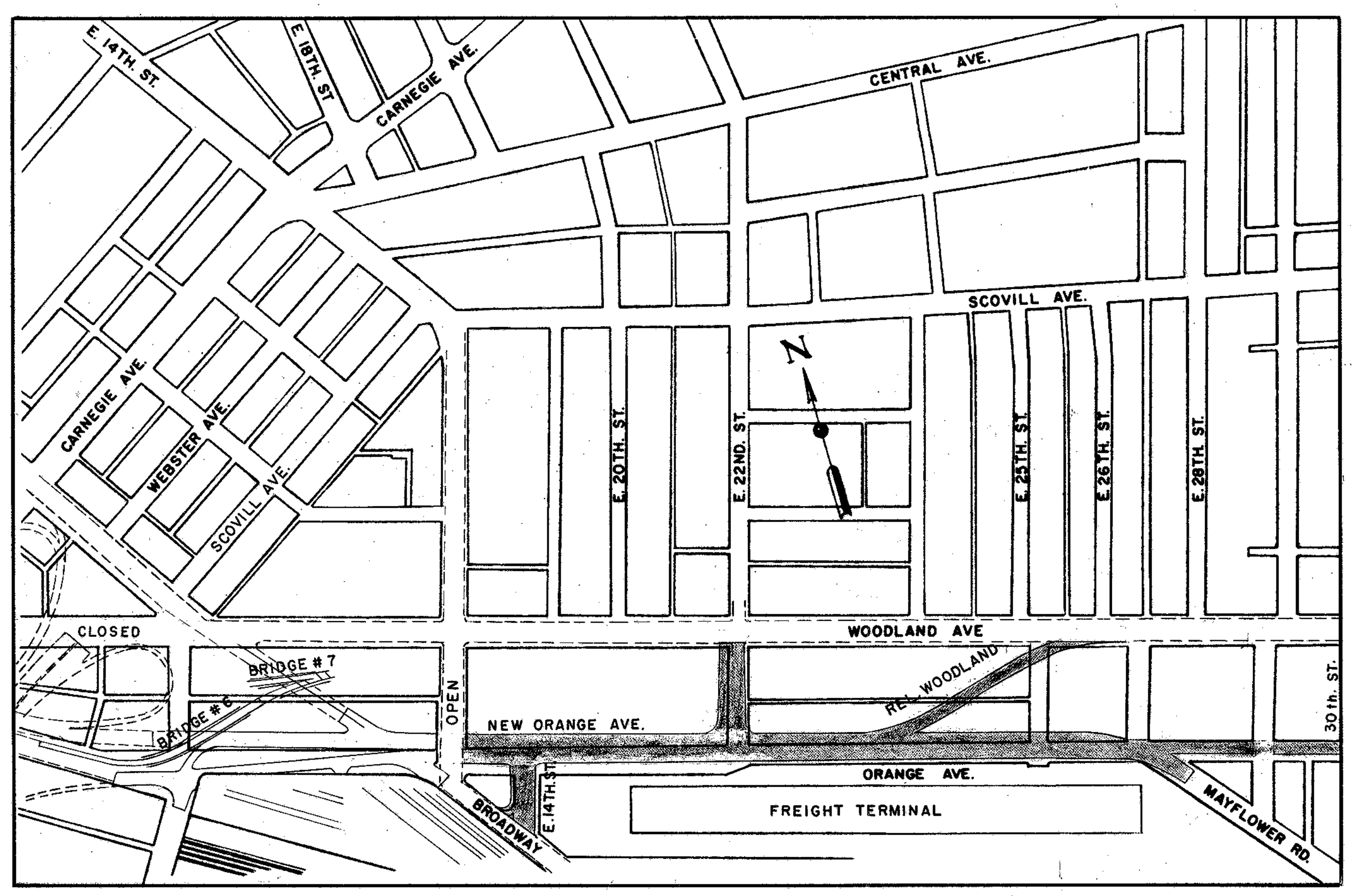
(2) All pavement areas in Stage II

(3) Woodland Ave. pavement mergers - (Stage IV)

(4) Orange Ave. from Sta. 30+50 to Sta. 31+30 - (Stage V)

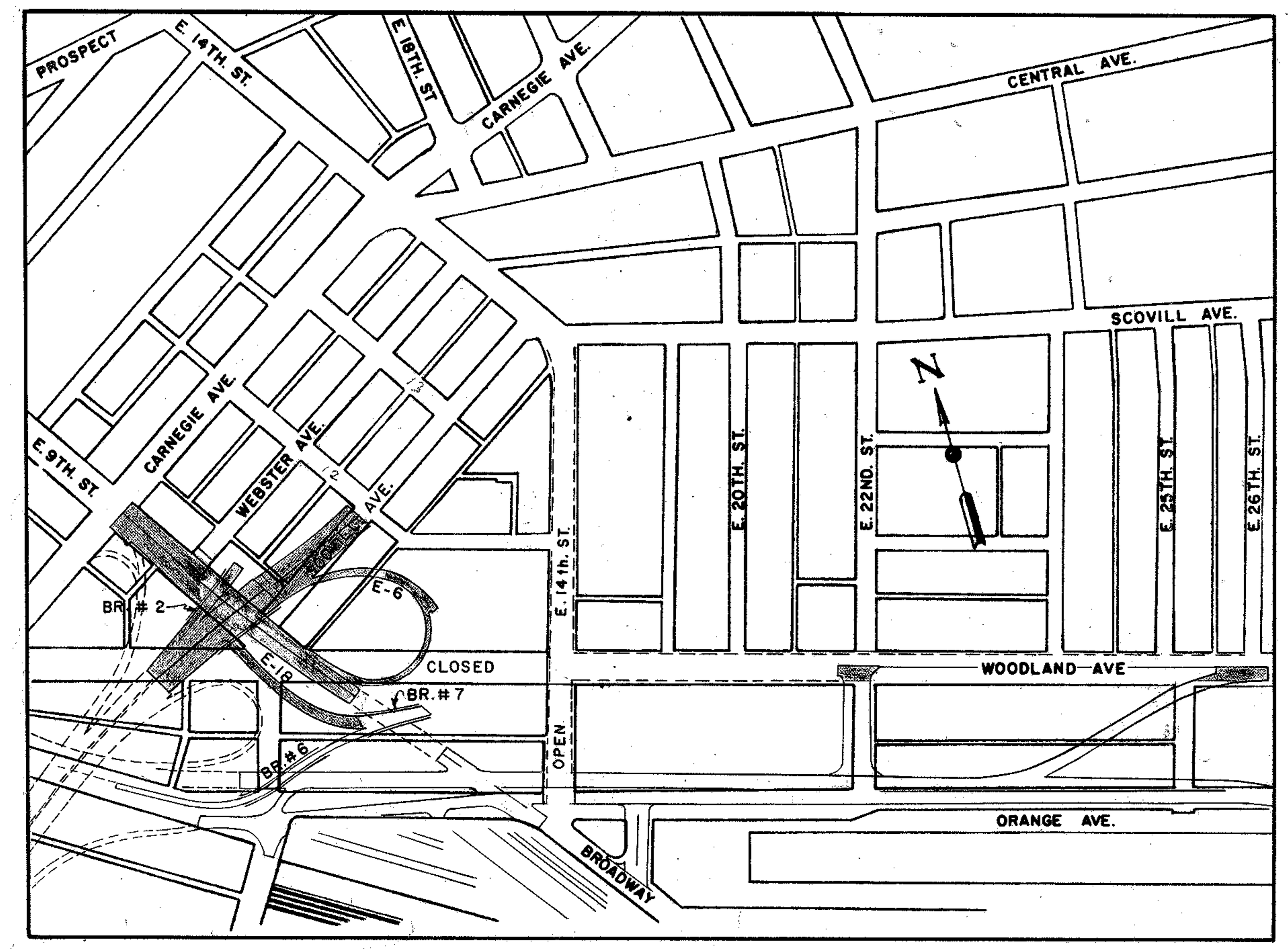
This cement shall meet the requirements of Sec. M-1.2 or Sec. M-1.4. If Sec. M-1.4 is used, an admixture as provided by Sec. M-1.5 Shall be incorporated in the mixture.

The cost of furnishing the High-Early Strength Concrete shall be included in the Unit Price Bid for Item T-71. and B-70



STAGE III

1. Construction to include Orange Ave. from Sta. 2+08.95 to Sta. 30+50, E. 14th. St. So. of Orange, East 22nd. St. from Woodland to Orange and Relocated Woodland Ave. in Part as shown.
2. Provision to be made for truck movements in the freight terminal area.
3. Curb along Woodland Ave. and No. side of Rel. Woodland to be delaved until Stage IV



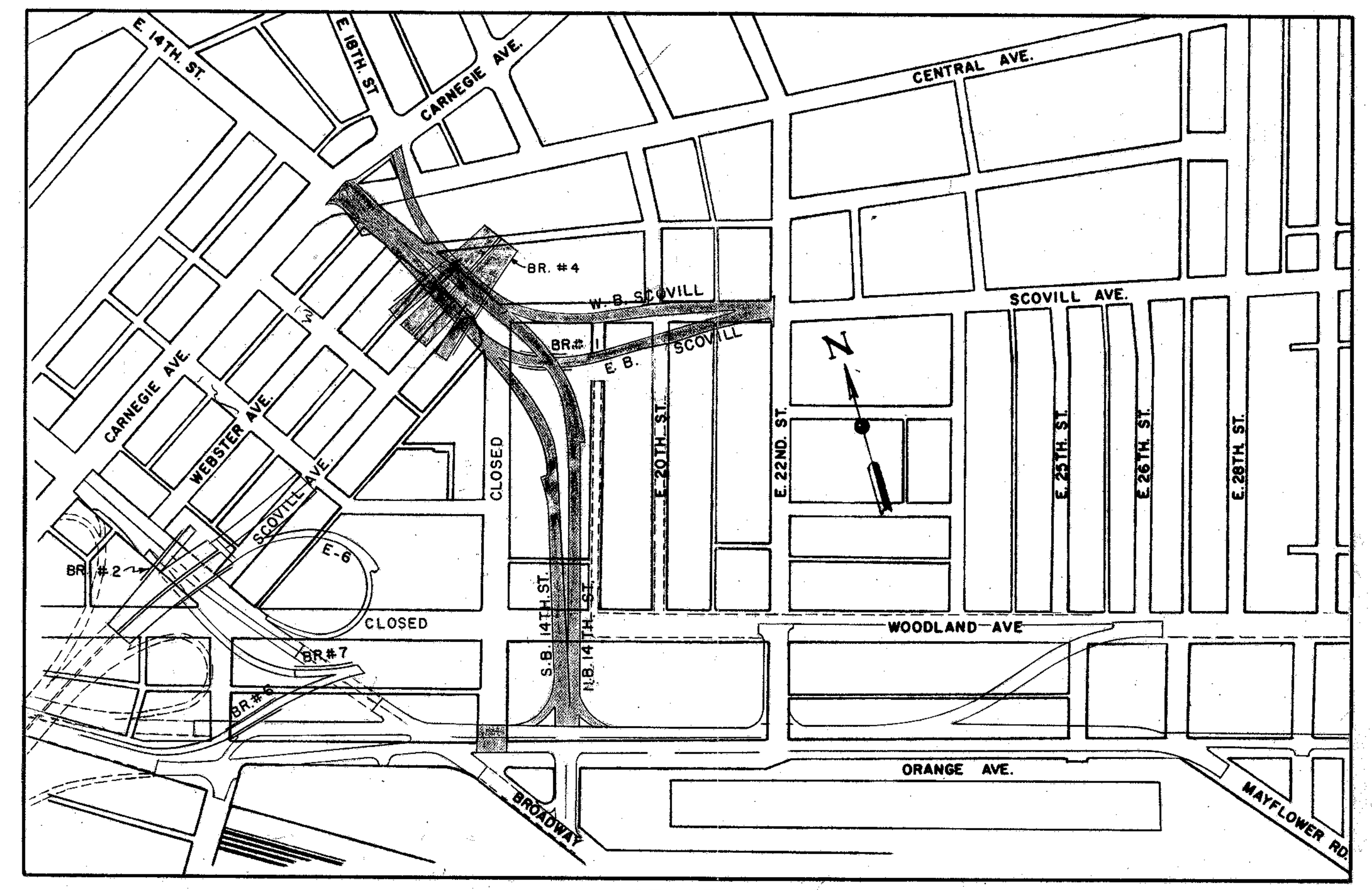
STAGE IV

1. Broadway - Orange reopened to traffic.
2. Woodland closed to traffic between E. 9th. St. and E. 14th. St.
3. Construction to include remaining pav't of E. 9th. St., Ramps E-6 and E-18, Inner Belt from Sta. 58+00 to Sta. 64+68, Bridge #2 and Woodland Ave. pavement mergers.

NOTE:

The Contractor, upon securing approval from the Director, can go from one stage to the next without having completed all the construction called for in that stage.

For additional traffic notes, See General Notes on Sheet 10.



STAGE V

1. East 14th. St. from Carnegie to Orange and Woodland Ave. between E. 14th. St. and E. 19th. St. closed to traffic.
2. Construction to include E.B. & W.B. Scovill Ave., N.B. & S.B. E. 14th. Sts., Bridge #1 and Bridge #4.
3. Complete pavement and curbing on Orange Ave., approximately from Sta. 30+50 to Sta. 31+30. (See note above pertaining to High Early Strength Cement.)

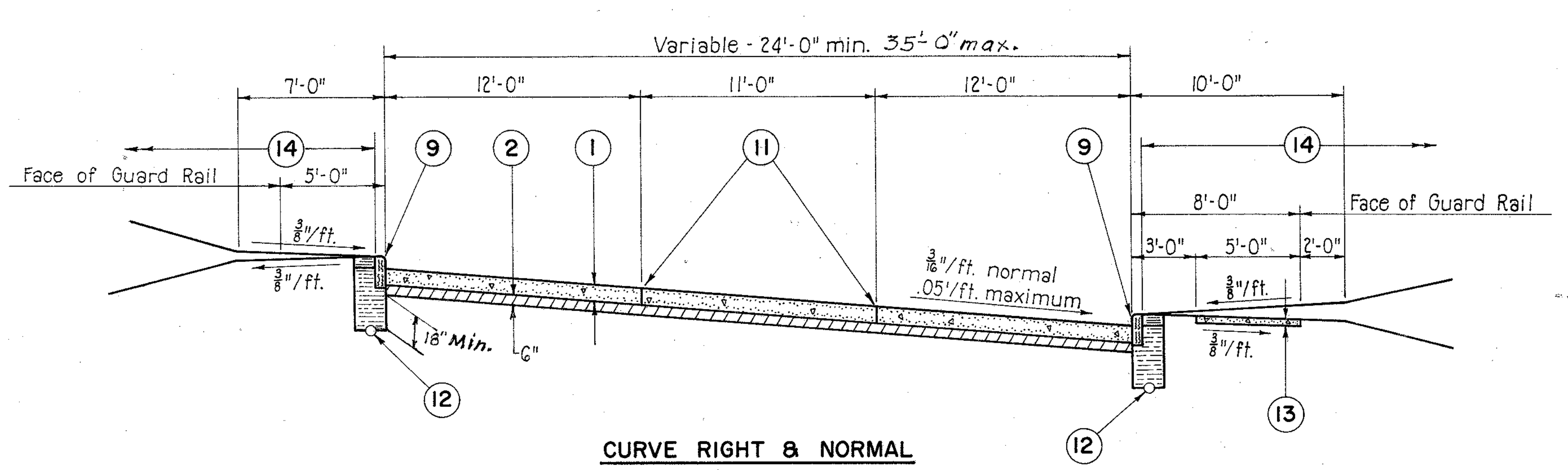
SCALE 1" = 400'	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE J.L.C. DATE 8-11-59	CONSULTING ENGINEERS
TRCD. R.R. DATE 8-23-59	KANSAS CITY CLEVELAND NEW YORK
CKD J.L.C. DATE 11-2-59	914 SHEET 3

Rev. JCT 1-7-60

TYPICAL SECTIONS TYPE T-71

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
TYPICAL SECTIONS



CURVE RIGHT & NORMAL

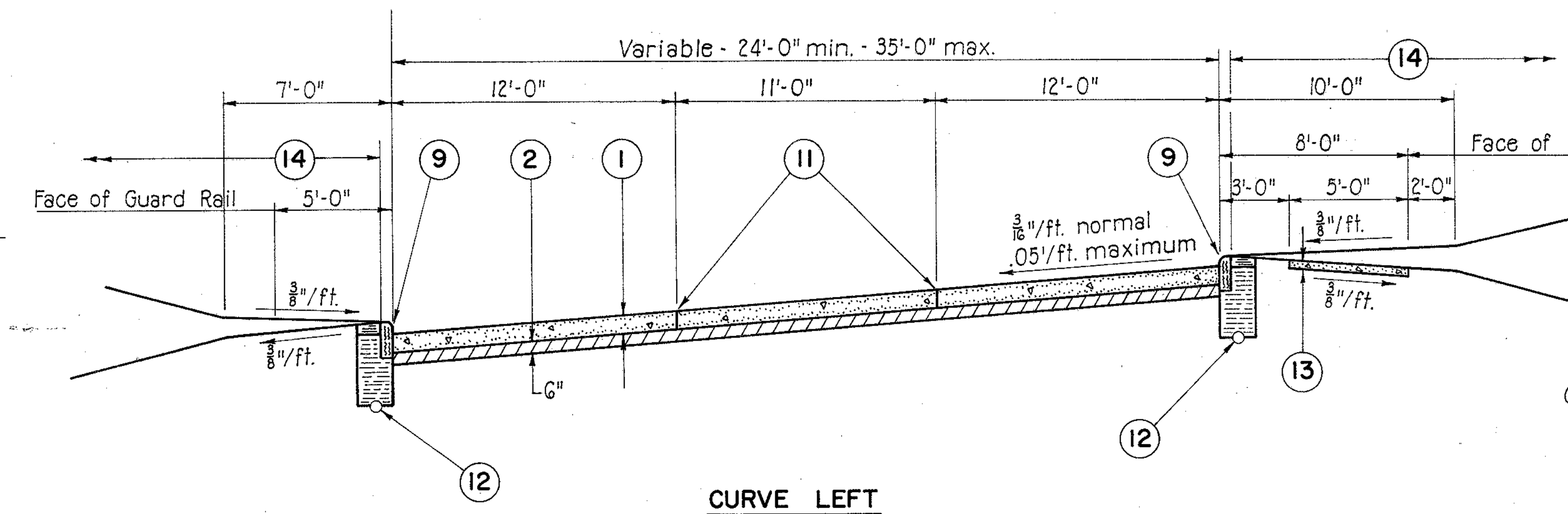
NORTHBOUND E.-14th ST.	WIDTH
STA. 7+10.79 TO STA. 12+94.50	24'
STA. 16+05.36 TO STA. 18+09.46	35'
STA. 18+09.46 TO STA. 20+58.49	VAR.
STA. 20+58.49 TO STA. 24+25.02	24'

SOUTHBOUND E.-14th ST.	WIDTH
STA. 0+00.00 TO STA. 6+71.92	35'
STA. 6+71.92 TO STA. 12+50.36	24'

EASTBOUND SCOVILL	WIDTH
STA. 3+30.02 TO STA. 6+70.36	24'
STA. 6+70.36 TO STA. 9+87.92	35'

WESTBOUND SCOVILL	WIDTH
STA. 2+85.53 TO STA. 8+23.16	24'

RELOCATED WOODLAND AVE.	WIDTH
STA. 3+57.90 TO STA. 9+23.34	35'



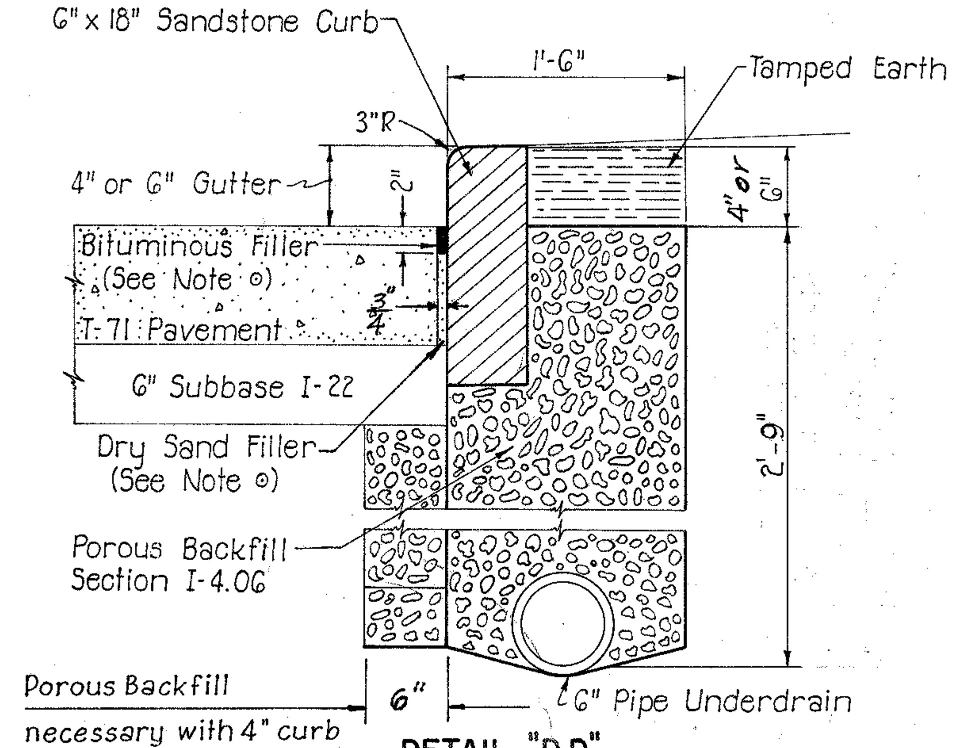
CURVE LEFT

NORTHBOUND E.-14th ST.	WIDTH
STA. 12+94.50 TO STA. 13+47.91	24'
STA. 13+47.91 TO STA. 16+05.36	35'

EASTBOUND SCOVILL	WIDTH
STA. 0+00.00 TO STA. 3+30.02	24'

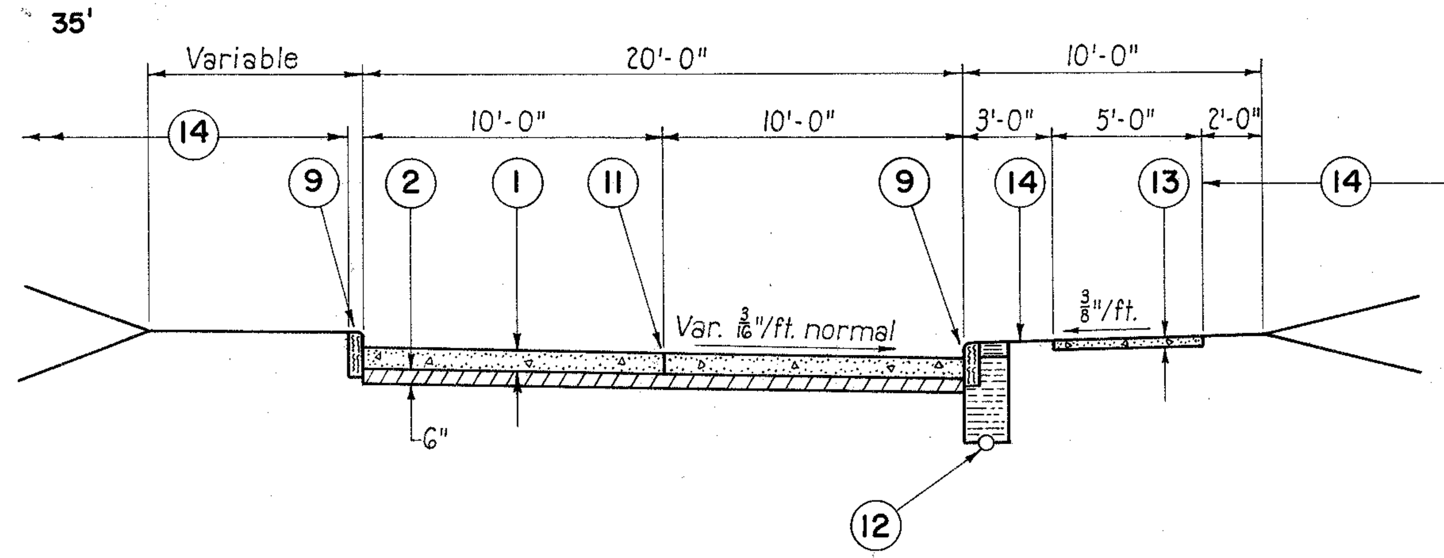
RELOCATED WOODLAND AVE.	WIDTH
STA. 0+00 TO STA. 3+57.90	35'

WESTBOUND SCOVILL	WIDTH
STA. 0+00 TO STA. 2+85.53	24'

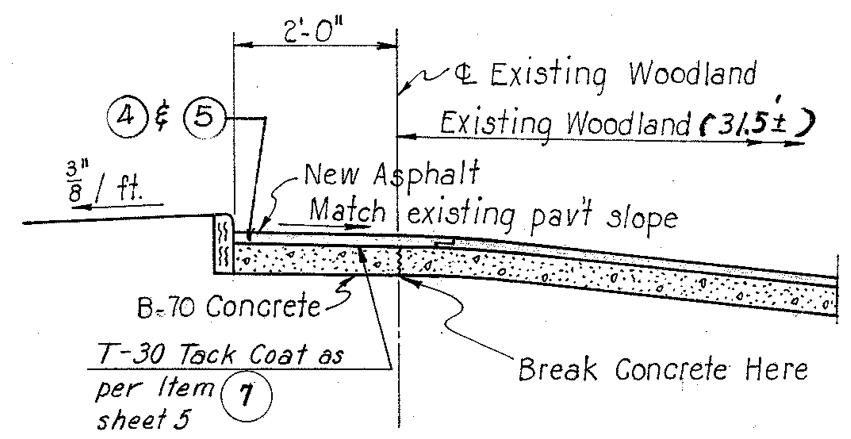


DETAIL "DD"
STRAIGHT CURB DETAIL
Scale: 1" = 1'-0"

⊙ Note: If pavement is built before the curb is placed, it shall be built full width and any opening between curb and pavement shall be filled with dry sand to within two (2) inches of the surface; the remaining space shall be filled with Bituminous Filler meeting the requirements of Section M-5.6F2 of the Standard Specifications. Sand to meet the requirements of Section M 2.1. The cost of Joint to be included in the price bid per lineal foot of curb.



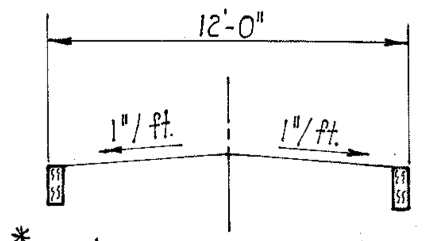
TYPICAL TURNOUT



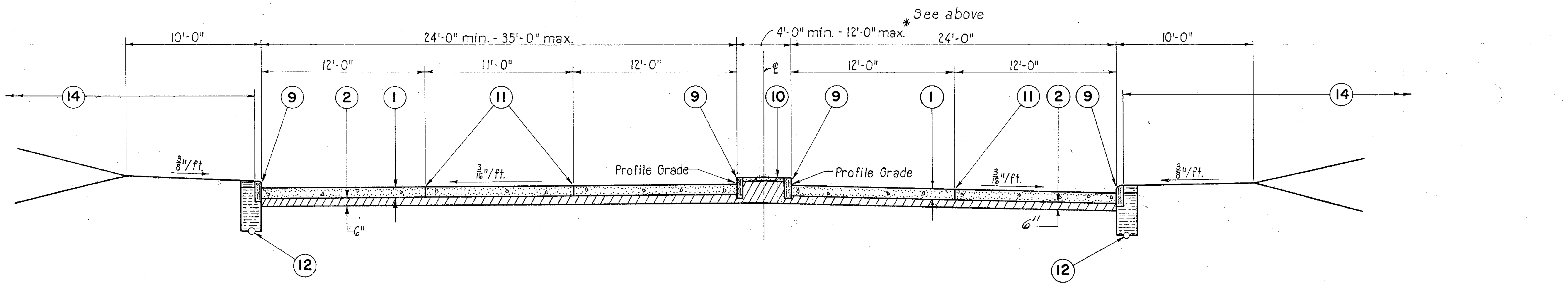
WOODLAND AVE. REMOVAL **

From 22nd St. to Relocated Woodland
No Scale

** For typical of existing tracks under surface see Utilities and Existing Conditions sheet number 56.



* 12' MEDIAN SECTION
STA. 0+42 TO 2+81



EAST 14th STREET
STA. 0+42 TO STA. 2+81
STA. 3+69 TO STA. 7+10.79

LEGEND

1. 9" Reinforced Portland Cement Concrete Pavement, Item T-71.
2. Subbase, Item I-22.
4. 1¼" Asphaltic Concrete Surface Course, Type C(60-70), Item T-35.
5. 1¾" Asphaltic Concrete Leveling Course, (60-70), Item B-35.
6. Bituminous Prime Coat, Item T-30, Sec. M5.7 (RT-2 or RT-3) Applied at rate of 0.4 Gal. per Sq. Yd.
9. 6" x 18" Sandstone Curb, Item I-11.
10. Standard Type I Median Pavement, Item I-21.
11. Standard Longitudinal Joint
12. 6" Underdrain, Item I-4.
13. 4" Concrete Sidewalk, Item I-13.
14. Seeding and Protecting, Item L-9.

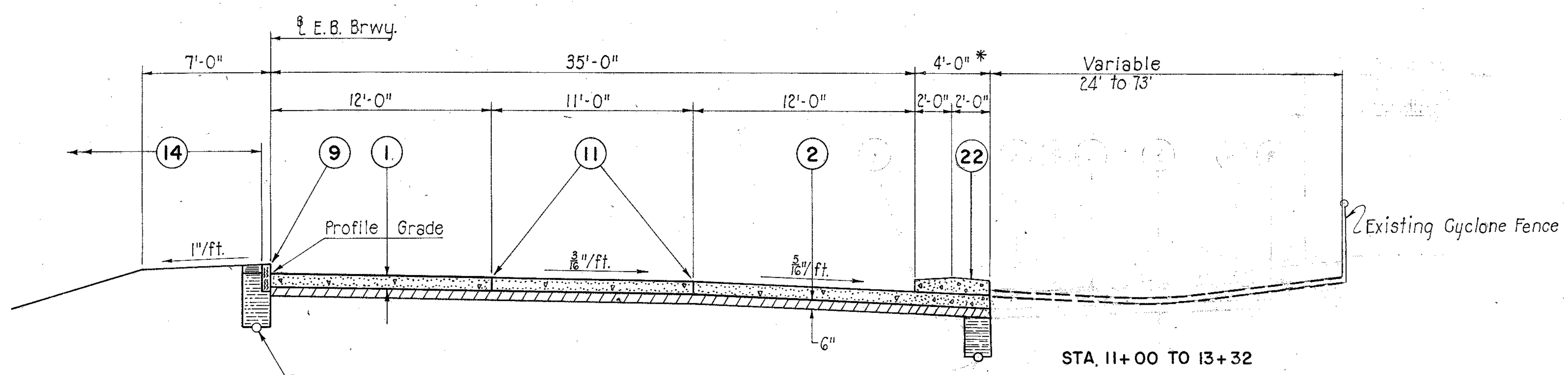
SCALE 3/8" = 1'-0"
MADE G.M.G. DATE 8-15-58
TRCD. J.V.R. DATE 8-17-58
CKD. J.L.C. DATE 12-20-58

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

TYPICAL SECTIONS TYPE T-71

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

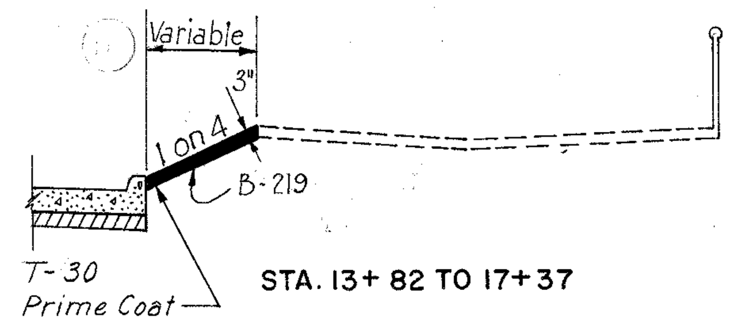
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
TYPICAL SECTIONS



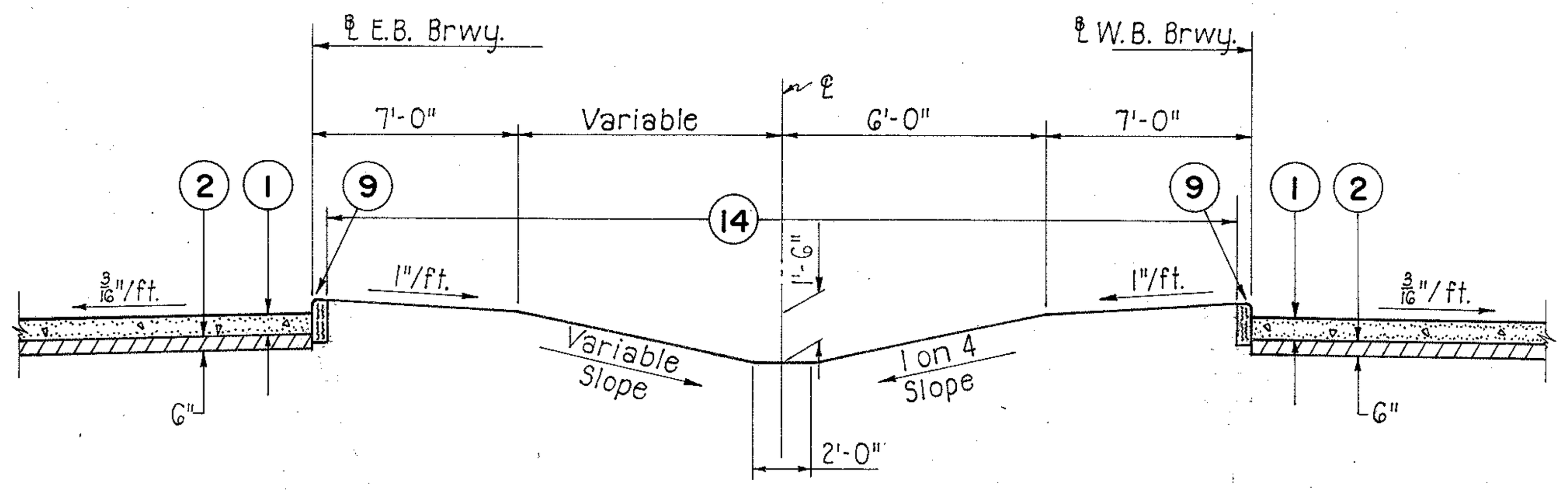
EAST BOUND BROADWAY

STA. 9+41.36 TO STA. 17+37.22

STA. 11+00 TO 13+32



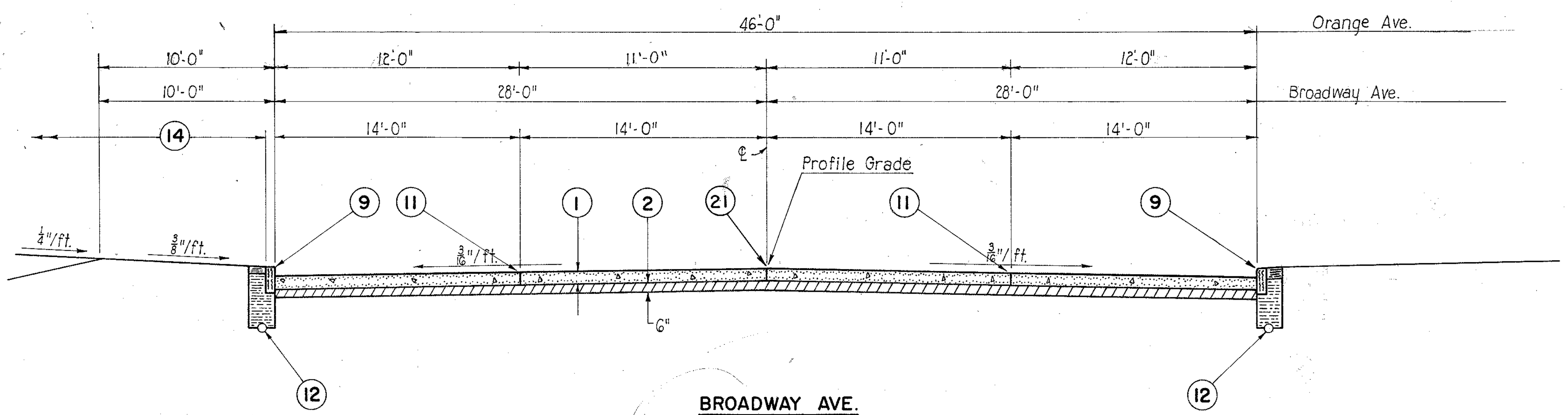
STA. 13+82 TO 17+37



DEPRESSED MEDIAN

EAST & WEST BOUND BROADWAY

STA. 33+59.90 ℄ W.B. TO 38+19.12 ℄ W.B.

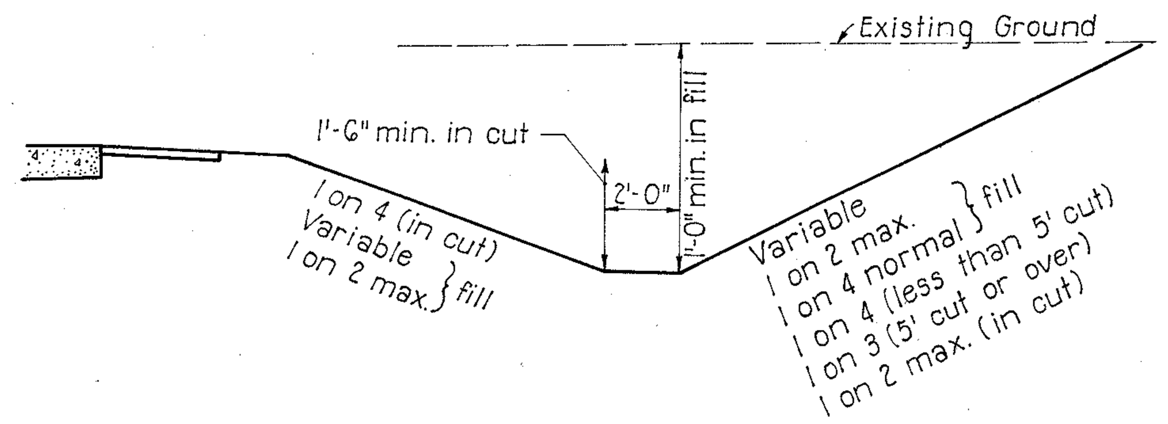


BROADWAY AVE.

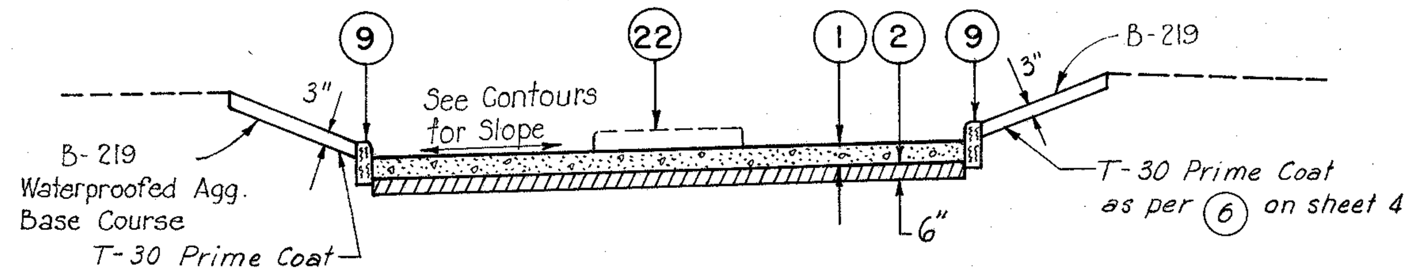
STA. 0+00 TO STA. 1+85.00

ORANGE AVE.

STA. 1+95.96 TO STA. 4+78.71



DITCH SECTION
Not to Scale



RAILROAD YARD TURNOUT

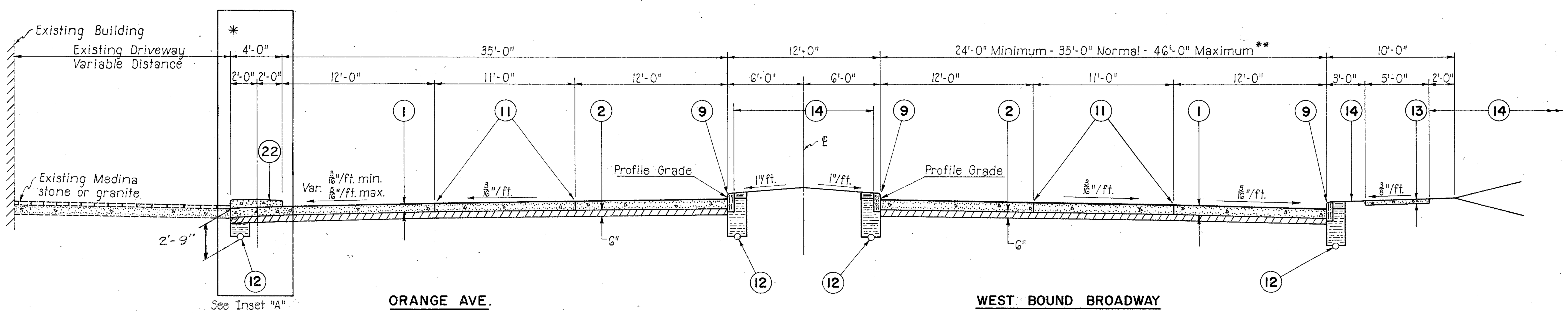
*** Note:
The Portland Cement Concrete Median, Item I-21, Type 2, as per plan, shall be placed according to specification Item I-12 with the exception that the 5/8 inch round deformed rods if required shall be placed 2 feet inside of and parallel to the edge forms.

LEGEND

1. 9" Reinforced Portland Cement Concrete Pavement, Item T-71.
2. Subbase, Item I-22.
4. 1½" Asphaltic Concrete Surface Course, Type C(60-70), Item T-35.
5. 1½" Asphaltic Concrete Leveling Course, (60-70), Item B-35.
7. Bituminous Tack Coat, Item T-30, Sec. M5.5, MS-2 or RS-1 or Sec. M-5.2, RC-1, RC-2 or RC-3 as per Sec. T-30.02 applied at rate of 0.10 gal. per sq. yd.
8. 9" Portland Cement Concrete Base Course, Item B-70.
9. 6" x 18" Sandstone Curb, Item I-11.
10. Standard Type I Median Pavement, Item I-21.
11. Standard Longitudinal Joint
12. 6" Underdrain, Item I-4.
13. 4" Concrete Sidewalk, Item I-13.
14. Seeding and Protecting, Item L-9.
21. Standard Longitudinal Key Joint without tie bars.
22. Standard Type 2 Median, Pavement, Item I-21.*** (4' Wide unless otherwise shown)

** Note:
Center joint shall be Standard Longitudinal Key Joint without tie bars when pavement width exceeds 36'-0" unless otherwise shown.

Note: Top of curb elevations for left side of median are given on Orange Ave. profile.



ORANGE AVE.

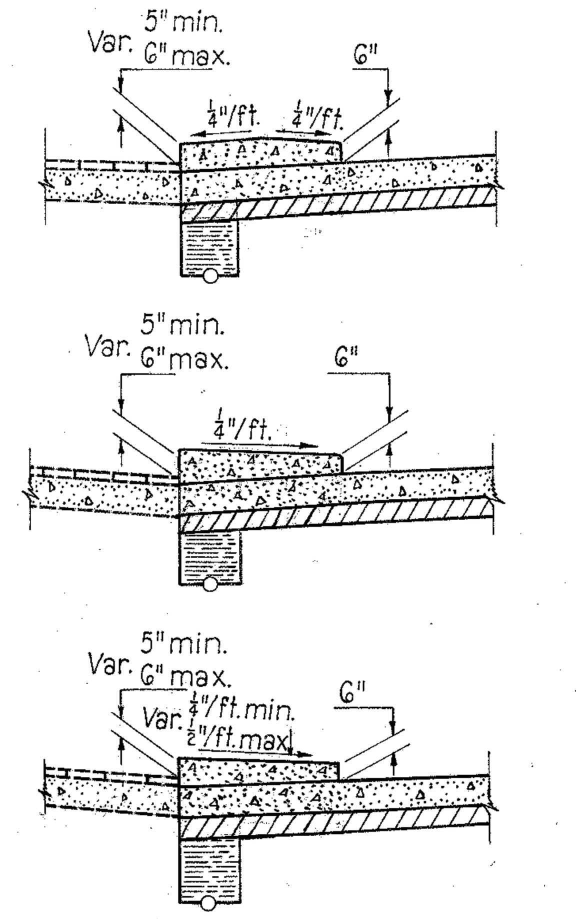
STA. 4+78.71 TO STA. 9+47.27

ORANGE AVENUE

STA. 9+47.27 TO STA. 32+87.63

WEST BOUND BROADWAY

STA. 32+87.63 TO STA. 41+50 W.B. BR'DW'Y
*(See depressed median detail & E.B. Broadway Section in these limits.)



STA.	TO STA.
8+62	15+95
16+49	17+00
21+50	21+68
22+56	22+75

17+50	19+75
21+00	21+25
23+50	25+35
25+89	28+38

19+75	21+00
23+00	23+50

INSET "A"

SCALE 3/8" = 1'-0"
MADE GMG DATE 8-15-58
TRCD. JVR DATE 8-17-58
CKD. JLC DATE 11-2-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 5

TYPICAL SECTIONS TYPE T-71

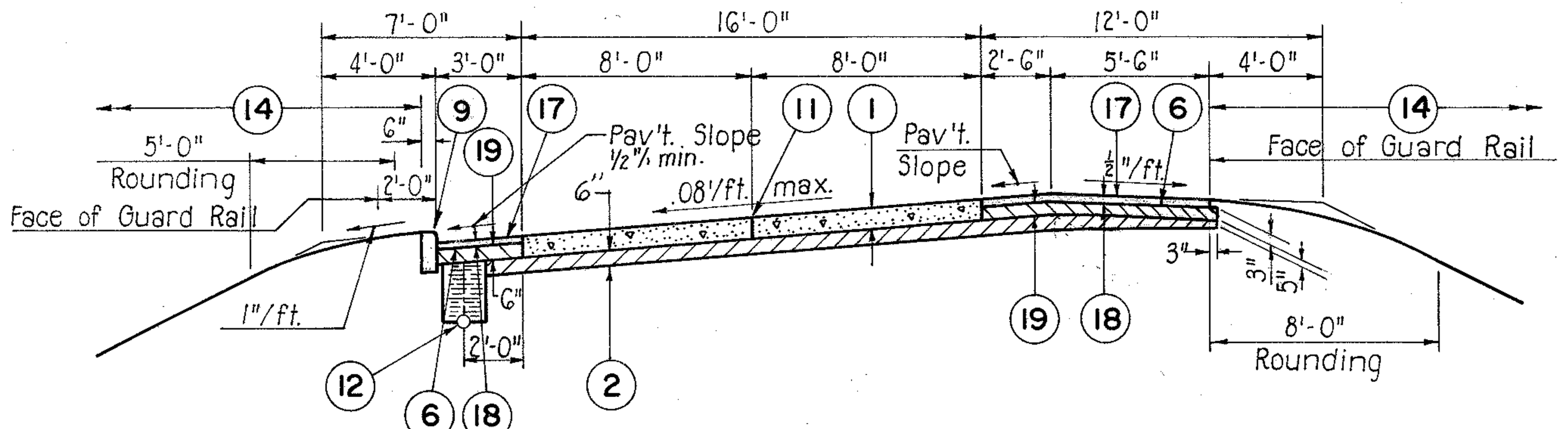
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

6
175

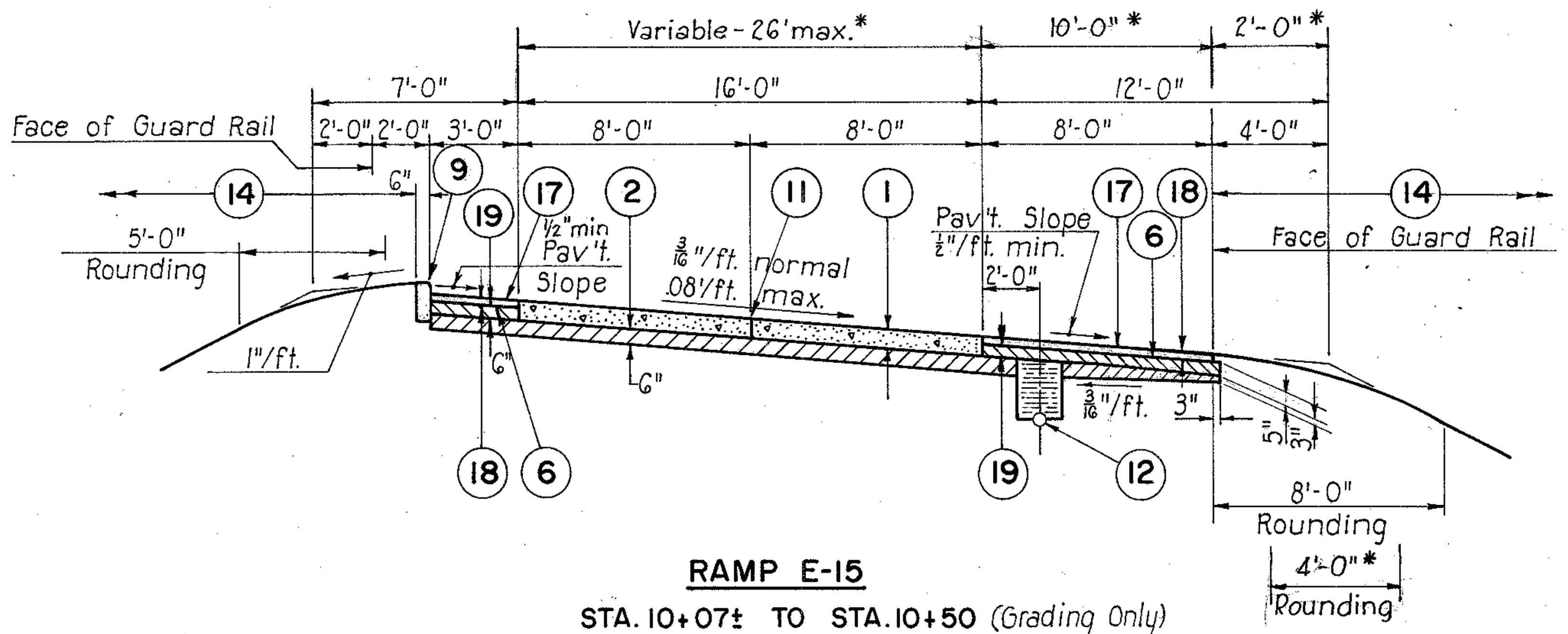
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
TYPICAL SECTIONS

LEGEND

1. 9" Reinforced Portland Cement Concrete Pavement, Item T-71.
2. Subbase, Item I-22.
6. Bituminous Prime Coat, Item T-30, Sec. M5.7 (RT-2 or RT-3) Applied at Rate of 0.4 Gal. per Sq. Yd.
9. 6" x 18" Sandstone Curb, Item I-11.
10. Standard Type I Median Pavement, Item I-21.
11. Standard Longitudinal Joint.
12. 6" Underdrain, Item I-4.
14. Seeding and Protecting, Item L-9.
16. Standard Type 2A Modified Concrete Curb, Item I-12.
17. Bituminous Surface Treatment Using 0.008 Cu. Yd. No. 6 Aggregate and 0.25 Gal. Bituminous Material per sq. yd. (See Note in Proposal), Item T-31.
18. 3" Waterproofed Aggregate Base Course Item B-219.
19. Stabilized Crushed Aggregate Shoulder, Item I-18.
20. Guard Rail, Steel Beam, Barrier Type (Deep), Item I-15.
21. Standard Longitudinal Key Joint without tie bars ** (See Note on Sheet 5)



RAMP E-18
STA. 5+79.02 TO STA. 7+74± (App. Slab)

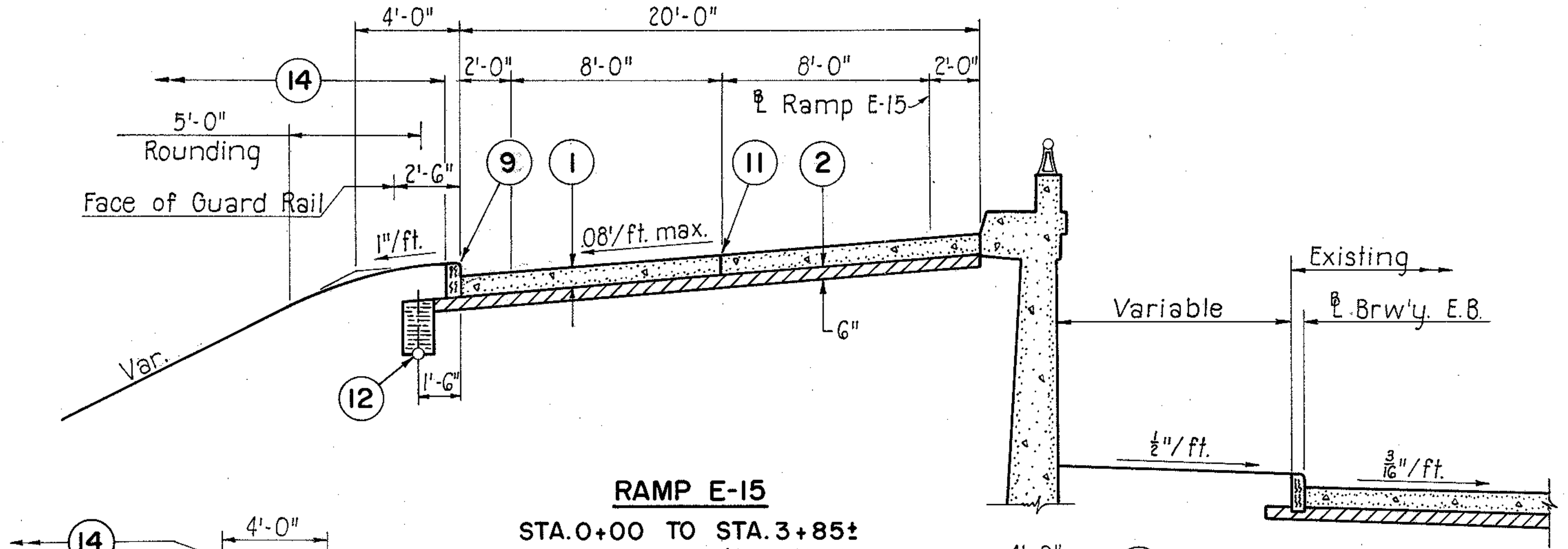


RAMP E-15
STA. 10+07± TO STA. 10+50 (Grading Only)
(App. Slab)

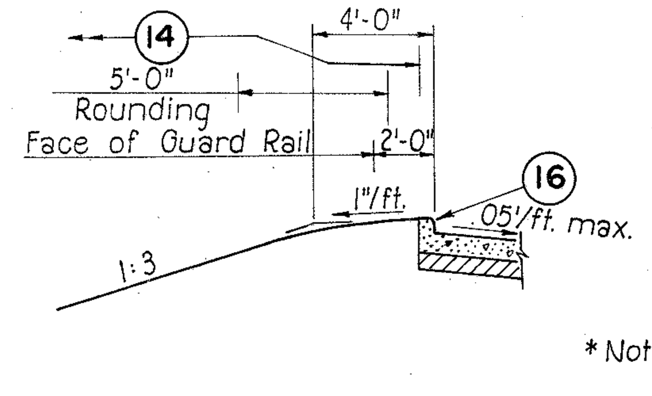
RAMP E-18
STA. 0+00 TO STA. 5+79.02

RAMP E-6
STA. 1+09± TO STA. 5+68.20*
STA. 5+68.20 TO STA. 11+96.77

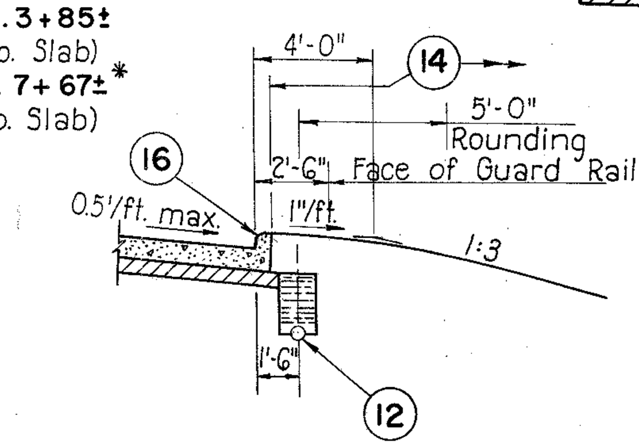
*Note: Two Lane Ramp



RAMP E-15
STA. 0+00 TO STA. 3+85± (App. Slab)
STA. 7+12 (App. Slab) TO STA. 7+67±* (App. Slab)

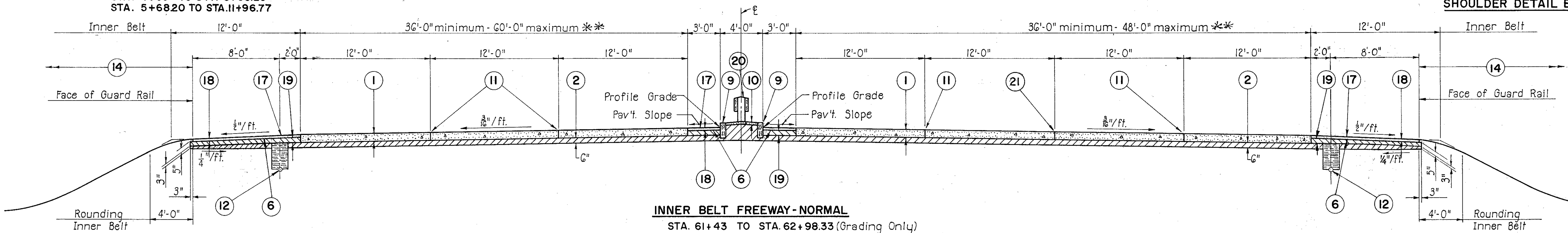


SHOULDER DETAIL A

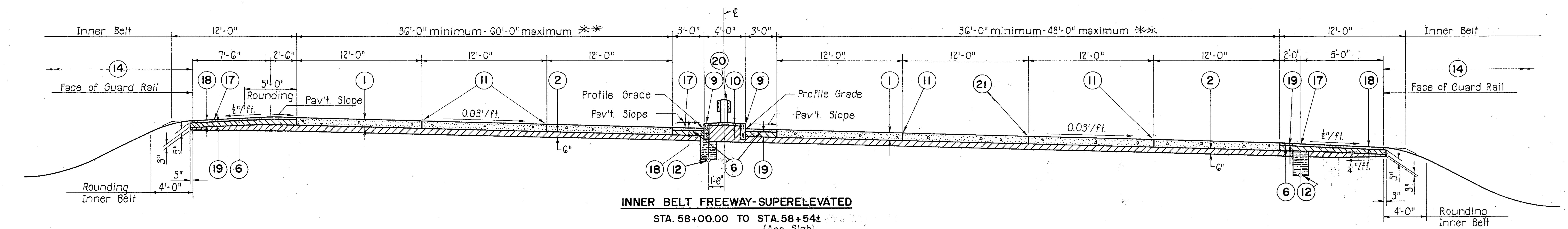


*Note: See Shoulder Details A & B for this section.

SHOULDER DETAIL B



INNER BELT FREEWAY - NORMAL
STA. 61+43 TO STA. 62+98.33 (Grading Only)
(App. Slab)



INNER BELT FREEWAY - SUPERELEVATED
STA. 58+00.00 TO STA. 58+54± (App. Slab)
STA. 62+98.33 TO STA. 64+68.53

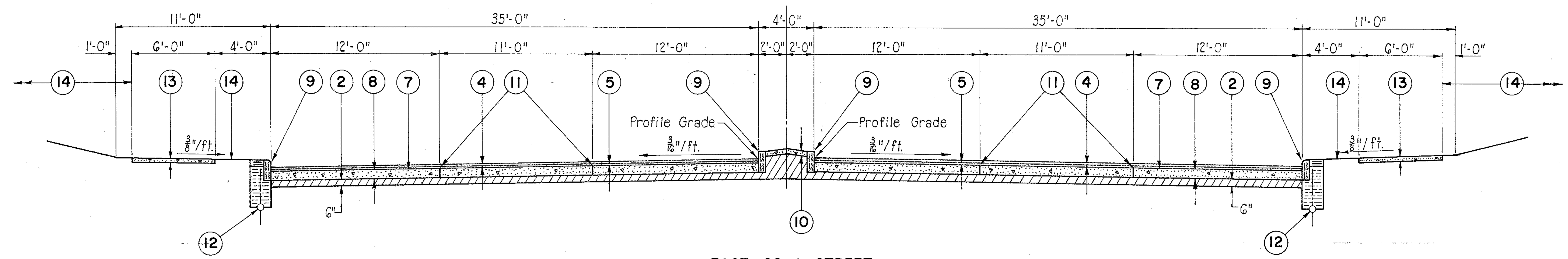
SCALE 1/8" = 1'-0"
MADE GMG DATE 8-15-58
TRCD. JVR DATE 8-17-58
CKD. JLC DATE 12-22-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 6

TYPICAL SECTIONS TYPE T-71 & T-35 ON B-70

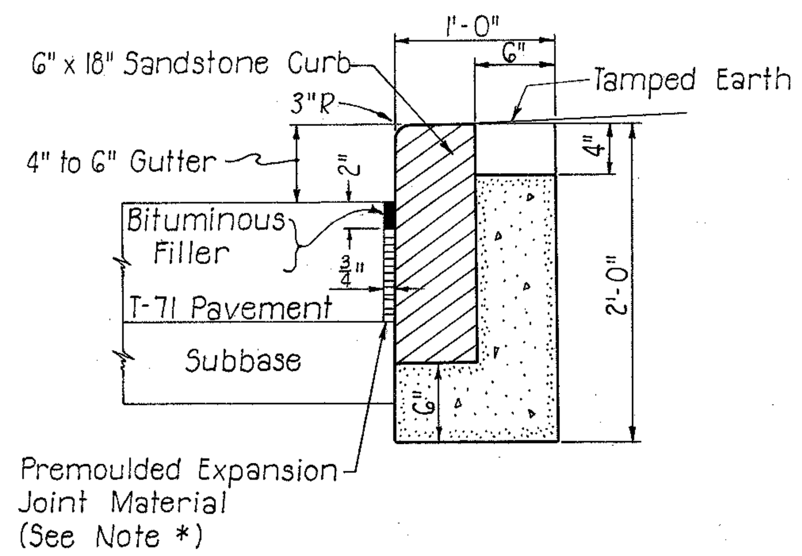
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	
2	OHIO			7 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29
TYPICAL SECTIONS



EAST 22nd STREET

STA. 0+00 TO STA. 3+67.79



DETAIL "CC"

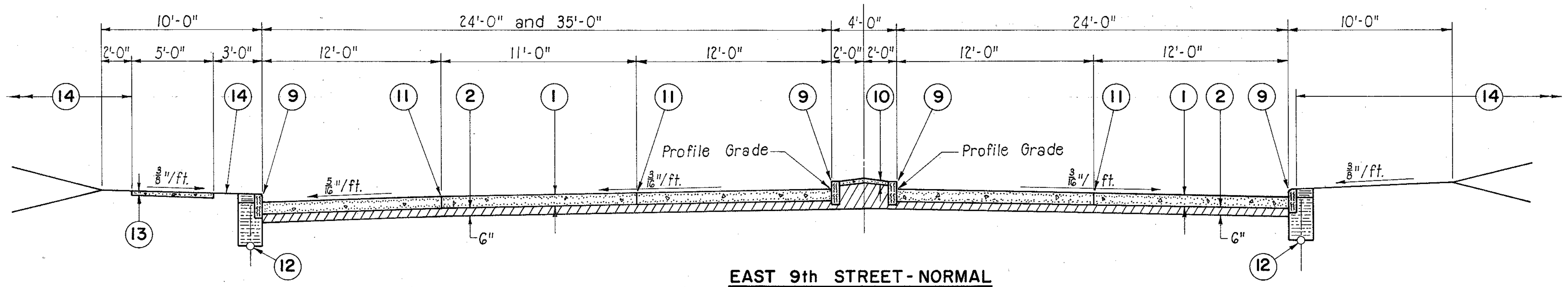
RADIAL CURB DETAIL

For radii, 55' and less
Scale: 1" = 1'-0"

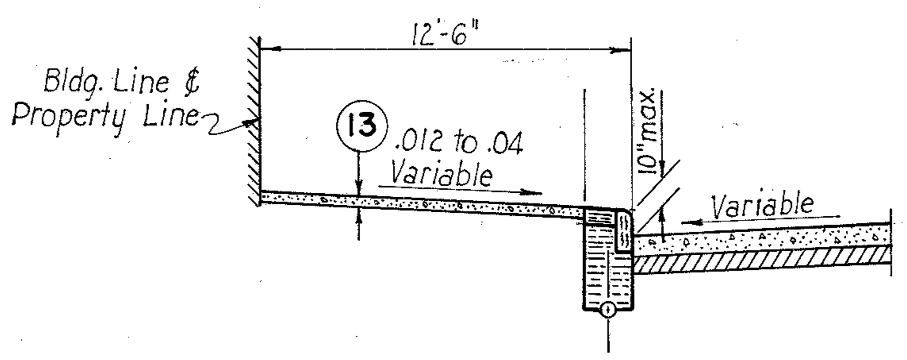
*Note: The three quarter (3/4) inch Premoulded Joint Material shall meet the requirements of Section M-10.02 of the Standard Specifications. It shall be placed in front of the Radial Curb to within two (2) inches of the surface. The remaining space shall be filled with Bituminous Filler meeting the requirements of Section M-5.6 F2 of the Standard Specifications.
The cost of the Joint and the cost of the Class "E" Concrete to be included in price bid per lineal foot of curb.

LEGEND

1. 9" Reinforced Portland Cement Concrete Pavement, Item T-71.
2. Subbase, Item I-22.
4. 1¼" Asphaltic Concrete Surface Course, Type C (60-70), Item T-35.
5. 1¾" Asphaltic Concrete Leveling Course, (60-70), Item B-35.
7. Bituminous Tack Coat to Sec. M-5.5, MS-2 or RS-1 or Sec. M-5.2, RC-1, RC-2 or RC-3 as per Sec. T-30.02 applied at rate of 0.10 gal. per Sq. yd.
8. 9" Portland Cement Concrete Base Course, Item B-70.
9. 6" x 18" Sandstone Curb, Item I-11.
10. Standard Type I Median Pavement, Item I-21.
11. Standard Longitudinal Joint.
12. 6" Underdrain, Item I-4.
13. 4" Concrete Sidewalk, Item I-13.
14. Seeding and Protecting, Item L-9.



EAST 9th STREET - NORMAL

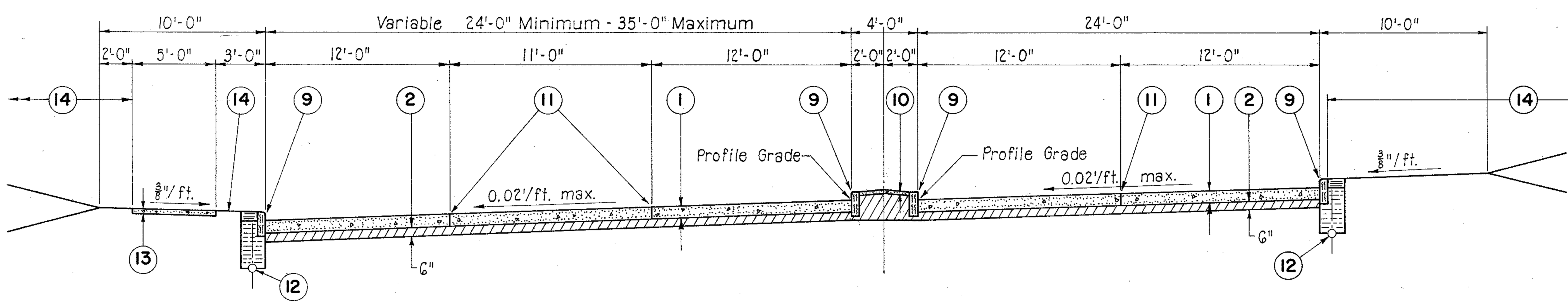


SPECIAL CURB & SIDEWALK *

STA. 5+37.50 TO STA. 7+25.00

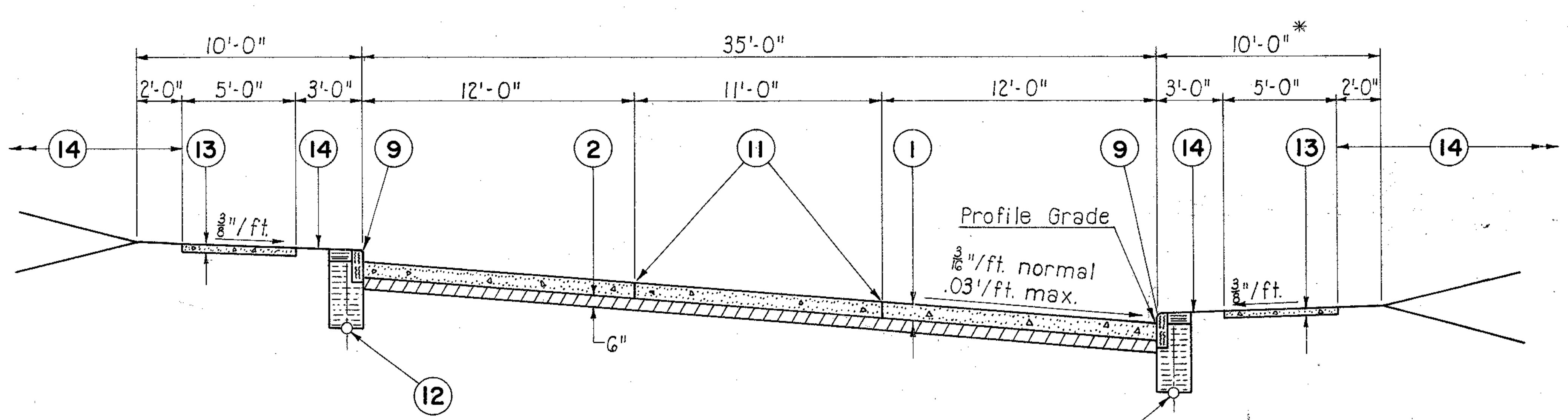
* Note:
For Variable curb height see profile sheet number 25

LEFT SIDE	WIDTH	RIGHT SIDE	WIDTH
STA. 5+00.00 TO STA. 10+93.13	35'	STA. 5+00.00 TO STA. 10+93.13	24'
STA. 12+48.69 TO STA. 18+12.93	24'	STA. 12+48.69 TO STA. 17+30.39	24'



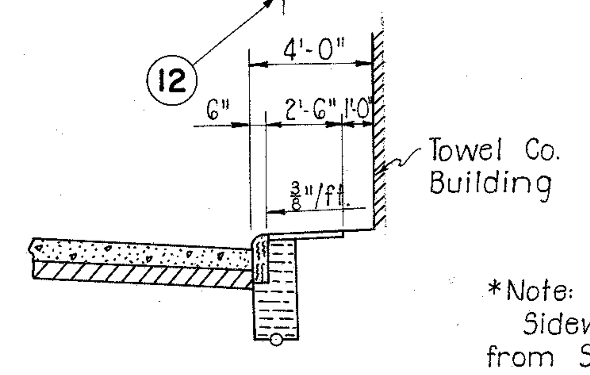
EAST 9th STREET - CURVE LEFT

LEFT SIDE	WIDTH	RIGHT SIDE	WIDTH
STA. 10+93.13 TO STA. 12+48.69	VAR.	STA. 10+93.13 TO STA. 12+48.69	24'



18th STREET TURNOUT

STA. 0+00 TO STA. 3+69.88



SIDEWALK SECTION

STA. 0+00

*Note:
Sidewalk transitions from Sta. 0+00 to normal section at Sta. 1+38.36.

SCALE 3/8" = 1'-0"
MADE GMG DATE 8-15-58
TRCD. JVR DATE 8-17-58
CKD. JLC DATE 12-16-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 7

FED-ROAD DIV. NO. | STATE | FEDERAL AID PROJECT NO. | TYPE FUNDS
2 | OHIO
8
175
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29
GEOMETRICS
INSET I
INSET II
℄ ORANGE
℄ BROADWAY
℄ E 14th ST.
℄ CARNEGIE
℄ CENTRAL AVE.
℄ CHARITY AVE
℄ SCOVILL
℄ W.B. Scovill
℄ E.B. Scovill
℄ INNER BELT
℄ E. 9th ST.
℄ W. B. BROADWAY
℄ E. B. BROADWAY
℄ SER. ROAD
℄ WOODLAND
℄ WILLOW
℄ ORANGE (existing)
RAMP E 5
RAMP E 6
RAMP E 7
RAMP E 8
RAMP E 9
RAMP E 10
RAMP E 11
RAMP E 13
RAMP E 14
RAMP E 15
RAMP E 16
RAMP E 17
RAMP E 18
Match Line X-X
Match Line Y-Y
Match Line Z-Z
Match Line Sta 39+50 ℄ Willow Freeway (See Sheet 10)
Existing Base Lines
Note: For centerline traverse data of existing streets, see TRAVERSE DATA sheet on file in Division Office or see City Engineer.
SCALE 1" = 100'
MADE SWF DATE 5-6-58
TRCD. DATE
CKD. GMG DATE 9-4-58
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 8

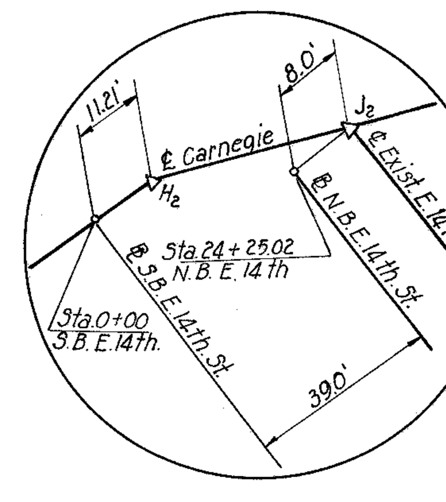
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

CURVE DATA TABULATION

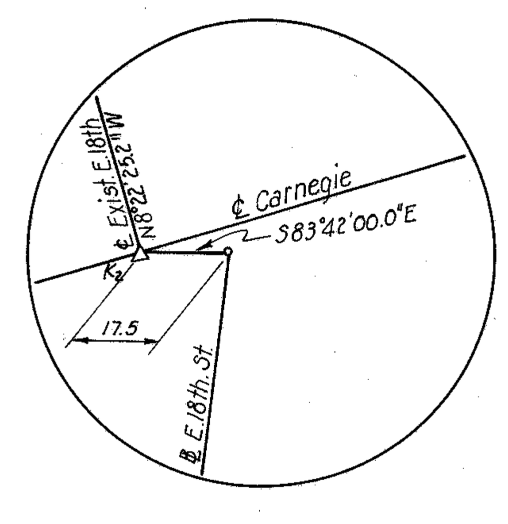
DESCRIPTION	CURVE	BEGINNING OF CURVE STATION	BEGINNING OF CURVE COORD.	P.I. OF CURVE STATION	P.I. OF CURVE COORD.	ENDING OF CURVE STATION	ENDING OF CURVE COORD.	Δ	D	R	T	L	REMARKS
FREEWAYS													
INNER BELT	"A"	45+28.225	N 86831.706 E 88267.935	52+70.170	N 87410.112 E 88732.616	59+80.200	N 87690.243 E 89419.645	29°02'23.0"	2°00'	2864.789'	741.945'	1451.980'	
	"B"	62+98.330	N 87810.354 E 89714.228	67+00.601	N 87962.236 E 90086.725	70+99.918	N 88188.383 E 90419.411	12°01'25.7"	1°30'	3819.719'	402.271'	801.588'	
WILLOW	"A"	44+07.286	N 86887.127 E 91073.603	47+97.821	N 86990.476 E 90696.991	51+77.735	N 87233.368 E 90391.179	23°06'48.5"	3°00'	1909.859'	390.535	770.499'	
RAMPS													
RAMP E 5	"A"	0+00.000	N 88692.144 E 90207.567	1+09.796	N 88601.340 E 90269.292	2+04.877†	N 88496.247 E 90237.501	51°02'14.3"	—	230.000'	109.796	204.877'	
	"B"	2+04.877†	N 88496.247 E 90237.501	3+41.346	N 88365.624 E 90197.986	4+68.324	N 88284.859 E 90087.983	36°52'57.4"	14°00'	409.256	136.469	263.447	
	"C"	13+53.866	N 87760.775 E 89374.176	15+29.084	N 87657.079 E 89232.937	17+03.866	N 87571.367 E 89080.115	7°00'00.0"	2°00'	2864.789	175.218'	350.000	
RAMP E 6	"A"	0+00.000	N 87666.462 E 89501.697	1+09.690	N 87707.877 E 89603.268	2+18.423†	N 87725.182 E 89711.585	13°06'19.3"	6°00'	954.930	109.690	218.423	
	"B"	2+18.423†	N 87725.182 E 89711.585	3+41.446	N 87744.590 E 89833.067	4+48.286†	N 87663.085 E 89925.217	50°34'11.3"	22°00'	260.435	123.023	229.863'	
	"C"	4+48.286†	N 87663.085 E 89925.217	—	N 87550.729 E 89825.838 ‡	9+03.238†	N 87428.265 E 89739.220	173°46'43.8"	—	150.000	—	454.952	
	"D"	9+03.238†	N 87428.265 E 89739.220	10+51.595	N 87513.934 E 89618.098	11+96.766	N 87636.664 E 89534.749	20°32'48.9"	7°00'	818.511'	148.357	293.528	
RAMP E 7	"A"	0+00.000	N 87681.062 E 89941.118	0+54.287	N 87645.095 E 89981.781	1+07.302	N 87596.745 E 90006.467	21°27'37.5"	20°00'	286.479'	54.287	107.302	
	"B"	3+73.218	N 87359.898 E 90127.392	5+20.736	N 87228.514 E 90194.471	6+57.922	N 87163.982 E 90327.124	37°00'41.3"	13°00'	440.737'	147.518	284.704	
RAMP E 8	"A"	0+00.000	N 87238.965 E 90396.994	2+26.383	N 87379.663 E 90219.644	4+33.137	N 87602.309 E 90178.677	41°08'52.7"	9°30'	603.113	226.383	433.137'	
	"B"	6+17.137	N 87783.262 E 90145.379	—	N 87732.593 E 89870.002 ‡	11+60.353	N 87971.121 E 89723.358	111°09'25.2"	—	280.000'	408.601'	543.216'	
RAMP E 9	"A"	0+00.000	N 87674.137 E 90289.687	1+95.640	N 87869.485 E 90300.374	3+81.963†	N 88032.271 E 90408.891	30°33'25.3"	8°00'	716.197	195.640	381.963	
	"B"	3+81.963†	N 88032.271 E 90408.891	5+68.492	N 88187.475 E 90512.355	7+50.384	N 88292.337 E 90666.618	22°06'18.9"	6°00'	954.930'	186.529	368.421'	
RAMP E 10	"A"	0+00.000	N 88466.382 E 90712.756	0+81.629	N 88420.493 E 90645.247	1+62.862	N 88386.727 E 90570.929	9°46'18.3"	6°00'	954.930'	81.629'	162.862'	
	"B"	5+06.536	N 88244.565 E 90258.037	7+83.798	N 88129.875 E 90005.608	9+90.072†	N 87853.486 E 90027.590	70°06'45.9"	14°30'	395.143	277.262	483.536	
	"C"	9+90.072†	N 87853.486 E 90027.590	13+88.623	N 87456.189 E 90059.188	17+41.980	N 87208.311 E 90371.277	46°59'39.2"	6°15'	916.732	398.551'	751.908'	
RAMP E 11	"A"	0+00.000	N 88473.756 E 90933.501	3+24.879	N 88656.394 E 91202.182	6+26.297	N 88637.288 E 91526.498	37°34'40.3"	6°00'	954.930	324.879'	626.297'	
RAMP E 13	"A"	1+41.058	N 89073.603 E 91200.250	3+21.916	N 88894.670 E 91226.567	4+83.653†	N 88750.281 E 91117.656	45°23'37.8"	13°15'00.0"	432.421	180.858'	342.595'	
	"B"	4+83.653†	N 88750.281 E 91117.656	5+48.689	N 88698.360 E 91078.492	6+12.323	N 88663.525 E 91023.571	20°35'13.9"	16°00'00.0"	358.099	65.036	128.670'	
RAMP E 14	"A"	0+00.000	N 86927.309 E 91093.444	1+50.205	N 86967.058 E 90948.594	2+97.969†	N 87049.355 E 90822.942	17°52'41.4"	6°00'	954.930'	150.205'	297.969'	
	"B"	2+97.969†	N 87049.355 E 90822.942	4+76.159	N 87146.986 E 90673.878	6+16.786	N 87323.853 E 90695.552	63°45'48.5"	20°00'	286.479'	178.190'	318.817'	
RAMP E 15	"A"	2+03.697	N 87186.161 E 89145.497	3+46.125	N 87116.283 E 89269.605	4+73.210	N 87156.582 E 89406.213	45°49'01.8"	17°00'	337.034	142.428'	269.513	
	"B"	7+04.496	N 87222.024 E 89628.047	9+91.858	N 87303.332 E 89903.667	12+57.214	N 87194.503 E 90169.625	38°41'24.8"	7°00'	818.511	287.362'	552.718'	
RAMP E 16	"A"	0+00.000	N 88623.659 E 90247.451	1+85.243	N 88444.566 E 90294.786	3+44.957	N 88296.505 E 90183.462	51°44'36.8"	15°00'	381.972	185.243'	344.957	
	"B"	4+98.379	N 88173.878 E 90091.262	5+88.238	N 88102.055 E 90037.260	6+73.539†	N 88012.596 E 90028.788	31°31'43.9"	18°00'	318.310'	89.859	175.160'	
	"C"	6+73.539†	N 88012.596 E 90028.788	7+53.397	N 87933.094 E 90021.259	8+32.854	N 87853.486 E 90027.590	9°57'25.9"	6°15'	916.732	79.858'	159.315'	
RAMP E 17	"A"	0+00.000	N 87146.369 E 90568.094	3+43.126	N 87331.086 E 90278.931	6+21.139†	N 87673.700 E 90297.675	60°33'39.6"	9°45'	587.649	343.126'	621.139'	
	"B"	6+21.139†	N 87673.700 E 90297.675	—	N 87665.507 E 90447.448 ‡	11+14.366	N 87635.525 E 90594.421	188°23'55.4"	—	150.000'	—	493.227	
	"C"	13+98.352	N 87357.269 E 90537.657	14+48.394	N 87308.237 E 90527.654	14+98.396	N 87260.022 E 90514.254	04°00'06.3"	4°00'	1432.395	50.042'	100.044'	
RAMP E 18	"A"	0+00.000	N 87964.453 E 89222.690	0+68.893	N 87907.461 E 89261.395	1+37.547	N 87845.503 E 89291.519	8°15'10.2"	6°00'	954.930'	68.893'	137.547'	
	"B"	5+79.017	N 87455.467 E 89498.942	7+40.040	N 87310.653 E 89569.350	8+72.410	N 87295.520 E 89729.660	58°40'42.7"	20°00'	286.479'	161.023'	293.393'	
	"C"	10+38.156	N 87279.943 E 89894.673	11+79.691	N 87266.641 E 90035.581	13+19.180	N 87213.040 E 90166.573	16°51'41.1"	6°00'	954.930'	141.535'	281.024'	
STREETS													
EAST 9th ST.	"A"	10+93.130	N 87603.028 E 89512.868	11+71.005	N 87538.606 E 89556.620	12+48.686	N 87479.996 E 89607.896	7°00'00.0"	4°30'	1273.240'	77.875	155.556'	
N. B. E. 14th ST.	"A"	12+94.497	N 87809.828 E 90715.839	14+60.486	N 87969.755 E 90760.286	16+05.361	N 88107.031 E 90666.971	49°44'17.5"	16°00'	358.099'	165.989	310.864	
S. B. E. 14th ST.	"A"	0+89.740	N 88695.448 E 90219.831	1+91.758	N 88611.077 E 90277.183	2+93.432	N 88519.430 E 90321.999	08°08'51.6"	4°00'	1432.395	102.018'	203.692'	
	"B"	9+08.700	N 87966.706 E 90592.281	10+38.692	N 87849.928 E 90649.385	11+59.292	N 87722.559 E 90623.402	37°35'19.6"	15°00'	381.972'	129.992	250.592	
18th ST. Turnout	"A"	0+00.000	N 88511.078 E 90455.340	72.375	N 88570.099 E 90413.451	1+38.363	N 88642.058 E 90421.197	41°30'32.4"	30°00'	190.986'	72.375	138.363	
W.B. SCOVILL	"A"	0+40.671	N 88078.725 E 91323.705	1+63.173	N 88105.063 E 91204.068	2+85.526	N 88121.094 E 91082.619	4°53'49.6"	2°00'	2864.789	122.502	244.855	
	"B"	5+09.058	N 88150.347 E 90861.009	6+75.603	N 88172.142 E 90695.897	8+23.162	N 88307.956 E 90599.504	47°06'56.2"	15°00'	381.972	166.545	3.14.104	
E.B. SCOVILL	"A"	0+00.000	N 88194.791 E 90519.708	1+86.053	N 88027.652 E 90601.439	3+30.016	N 88034.346 E 90787.371	66°00'11.2"	20°00'	286.479	186.053	330.016	
	"B"	7+71.761	N 88050.239 E 91228.831	8+52.627	N 88053.148 E 91309.645	9+32.632	N 88035.760 E 91388.620	14°28'42.3"	9°00'	636.620	80.866	160.871	
SERVICE ROAD	"A"	2+71.000	N 87148.145 E 90923.558	3+69.437	N 87174.195 E 90828.630	4+50.336†	N 87268.847 E 90801.597	58°42'55.8"	—	175.000'	98.437	179.336	
	"B"	4+50.336†	N 87268.847 E 90801.597	6+51.028	N 87461.823 E 90746.482	8+41.684	N 87655.339 E 90799.671	31°18'28.3"	8°00'	716.197'	200.692	391.348'	
	"C"	9+68.761	N 87777.874 E 90833.349	12+02.454	N 88003.210 E 90895.283	13+71.927	N 88011.618 E 91128.825	72°34'11.6"	18°00'	318.310'	233.693	403.166'	
ACCESS	"A"	0+00.000	N 87182.476 E 90713.970	0+83.833	N 87260.297 E 90682.795	1+61.734	N 87341.132 E 90705.013	37°11'56.1"	23°00'	249.112'	83.833'	161.734'	
E.B. BROADWAY	"A"	8+02.580	N 87176.590 E 89133.263	9+06.179	N 87122.896 E 89221.862	10+07.340	N 87105.410 E 89323.975	21°30'00.0"	10°30'	545.674	103.599'	204.760'	
BROADWAY	"A"	0+20.760	N 86901.661 E 90113.859	0+74.677	N 86861.081 E 90149.360	1+28.514	N 86817.348 E 90180.895	5°23'15.8"	5°00'	1145.916'	53.917'	107.754'	

Note: † = P.C.C.
‡ = Center of Curve

DESCRIPTION	CURVE	BEGINNING OF CURVE STATION	BEGINNING OF CURVE COORD.	P.I. OF CURVE STATION	P.I. OF CURVE COORD.	END OF CURVE STATION	END OF CURVE COORD	Δ	D	R	T	L
Relocated Woodland	"A"	0+00.000	N 86680.881 E 92416.604	1+84.390	N 86729.676 E 92238.787	3+57.895	N 86670.695 E 92064.084	34°00'00.0"	9°30'	603.113	184.390	357.895
	"B"	5+65.516	N.86637.444 E.91856.175	7+49.870	N 86578.475 E 91681.507	9+23.344	N.86627.241 E.91503.720	33°59'37.3"	9°30'	603.113	184.354	357.828
RAMP N-30	"A"	0+00.000	N.86606.956 E.91928.320	1+83.898	N.86558.291 E.92105.662	3+66.667	N.86476.682 E.92270.460	11°00'00.0"	3°00'	1909.859	183.898	366.667
	"B"	9+41.743	N.86235.815 E.92792.908	9+96.944	N.86211.318 E.92842.376	10+51.806	N.86196.716 E.92895.611	11°00'22.7"	10°00'	572.958	55.201	110.063
30-N	"A"	7+95.695	N.86606.207 E.92328.691	9+24.252	N.86623.307 E.92201.276	10+52.423	N.86657.327 E.92077.302	7°42'06.6"	3°00'	1909.859	128.557	256.728



DETAIL A



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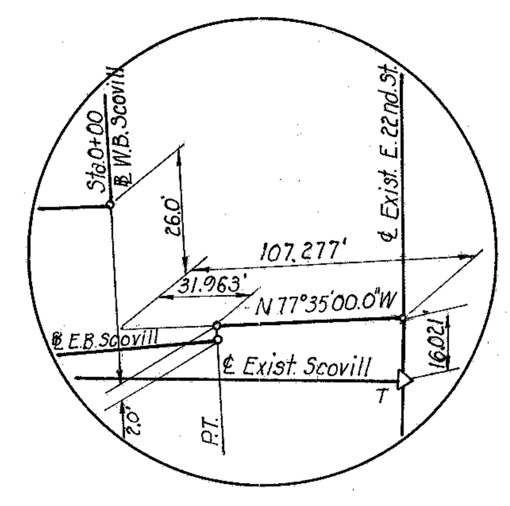
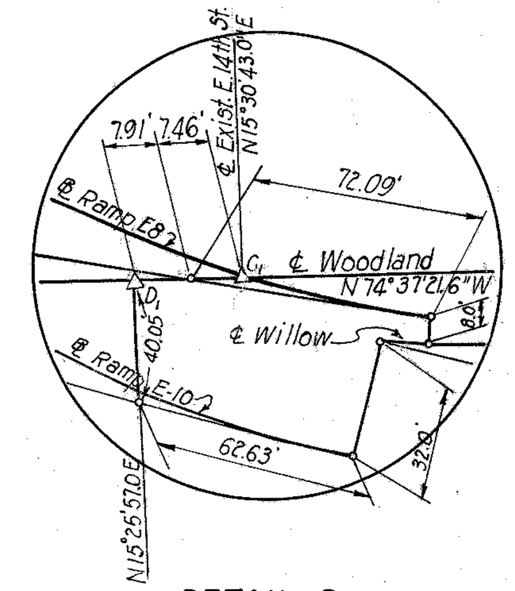
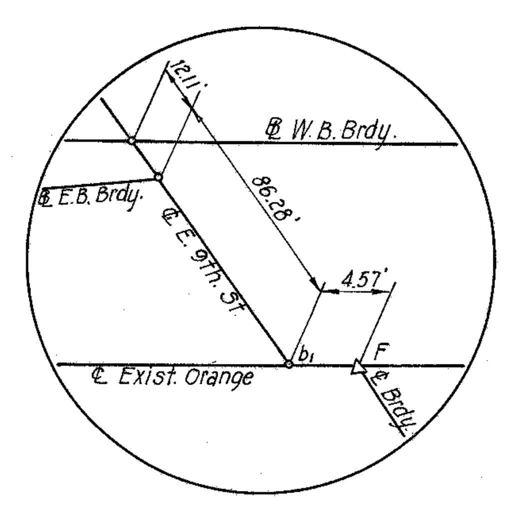


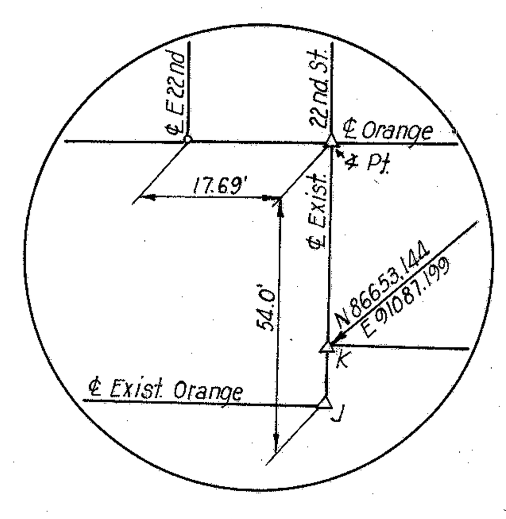
DETAIL C



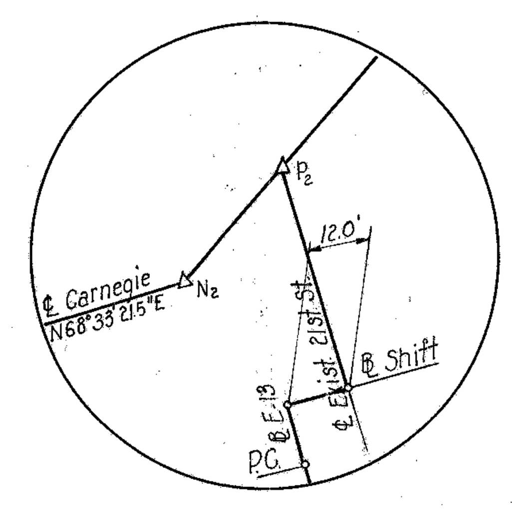
DETAIL D



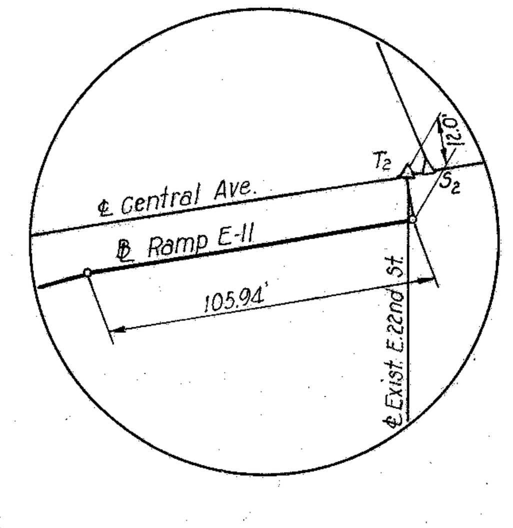
DETAIL E



DETAIL F



DETAIL G



DETAIL H

INTERSECTION DETAILS
No Scale

SCALE No scale
MADE SWF DATE 4-16-58
TRCD. ____ DATE ____
CKD. GMG DATE 7-8-58

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

914 SHEET 9

GENERAL NOTES

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

ITEM I-15 TEMPORARY GUARD RAIL (COMBINED PROJECT)

AN ESTIMATED QUANTITY OF 1500 LIN. FT. IS CARRIED TO THE GENERAL SUMMARY FOR CHANNELING TRAFFIC DURING CONSTRUCTION, WHERE AND AS DIRECTED BY THE ENGINEER. SEE NOTE IN PROPOSAL DESCRIBING THIS I-15 ITEM.

MANHOLE ADJUSTMENT

IT IS THE INTENT OF THIS PLAN THAT ANY MANHOLE ADJUSTMENT NOT SPECIFICALLY DETAILED FOR WHICH THE GRADE IS RAISED MORE THAN 12 INCHES OR LOWERED MORE THAN 6 INCHES SHALL BE CONSIDERED AS "RECONSTRUCTED TO GRADE".

DESIGN STANDARDS

THE DESIGN SPEED FOR THIS PROJECT IS 50 M.P.H.

SUBGRADE COMPACTION (COMBINED PROJECT)

THE SUBGRADE FOR DRIVES AND MAILBOX TURNOUTS PAVED WITH B-19 AND T-70 MATERIAL SHALL BE COMPACTED FOR A DEPTH OF SIX (6) INCHES TO THE DENSITY REQUIREMENTS SHOWN IN TABLE III, ITEM E-1. PAYMENT FOR SUBGRADE COMPACTION, AS SPECIFIED ABOVE, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM E-1 ROADWAY EXCAVATION.

PERMITS, LAWS AND REGULATIONS

THE CONTRACTOR SHALL SECURE, AT HIS OWN EXPENSE, ALL NECESSARY PERMITS FROM THE MUNICIPAL OR OTHER PUBLIC AUTHORITIES, SHALL GIVE ALL NOTICES REQUIRED BY LAW OR MUNICIPAL ORDINANCES, AND SHALL PAY ALL FEES AND CHARGES INCIDENT TO THE DUE AND LAWFUL PROSECUTION OF THE WORK COVERED BY THIS CONTRACT.

UTILITIES

FOLLOWING, IS A LIST OF THE UTILITIES WITHIN THE LIMITS OF CONSTRUCTION.

EAST OHIO GAS COMPANY
CITY OF CLEVELAND WATER DEPARTMENT
CLEVELAND ELECTRIC ILLUMINATING COMPANY
MUNICIPAL ELECTRIC LIGHT AND POWER COMPANY
OHIO BELL TELEPHONE COMPANY
WESTERN UNION
AMERICAN TELEPHONE & TELEGRAPH COMPANY

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED BY DILIGENT FIELD CHECKS AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THEY ARE ESSENTIALLY CORRECT, BUT THE STATE OF OHIO MAKES NO GUARANTEES AS TO THEIR ACCURACY OR COMPLETENESS.

UTILITY NOTE

ANY AND ALL WORK REQUIRED FOR REMOVING, RELOCATING AND CONSTRUCTION OF NEW FACILITIES FOR PRIVATE OR PUBLIC UTILITIES WILL BE DONE BY AND AT THE EXPENSE OF THE RESPECTIVE OWNERS UNLESS OTHERWISE NOTED ON THE PLANS.

WATER METER BOXES

THE CITY WATER DEPARTMENT WILL RELOCATE ALL PRIVATELY OWNED WATER METER BOXES AND THIS ITEM WILL NOT BE INCLUDED AS A PART OF THE WORK TO BE PERFORMED BY THE CONTRACTOR.

CONNECTIONS TO EXISTING SEWERS

AT PLACES WHERE THE PLANS PROVIDE FOR PROPOSED DRAINAGE PIPE TO BE CONNECTED TO EXISTING PIPES, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE, BEFORE HE STARTS TO LAY THE PROPOSED SEWER. THE COST OF THIS OPERATION SHALL BE INCLUDED IN THE COST BID FOR ITEM I-2 STORM SEWERS.

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 OR BY ANY OTHER APPROVED METHOD WHICH IS NECESSARY FOR THE COMPLETION OF THIS PROJECT SHALL BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF STORM SEWERS, ITEM I-2. SEE DRAINAGE NOTE 2, SHEET 32.

WORK BY THE CITY OF CLEVELAND (COMBINED PROJECT)

THE CITY WILL PROVIDE FOR THE REMOVAL OR DISPOSAL OF ALL EXISTING BUILDINGS WITHIN THE LIMITS OF THE RIGHT OF WAY LINES AS FOLLOWS:

BUILDINGS WITH BASEMENTS – TO THE LEVEL OF EXISTING GROUND
BUILDINGS WITHOUT BASEMENTS – TO THE GROUND FLOOR
BUILDING FLOOR SLABS TO BE REMOVED BY CONTRACTOR AND PAID FOR AS ITEM E-1, ROADWAY EXCAVATION.

TRAFFIC

THE CONTRACTOR, AT ALL TIMES, MUST COOPERATE WITH THE CITY OF CLEVELAND TRAFFIC ENGINEERING AND PARKING DIVISIONS IN THE PERFORMANCE OF HIS WORK, AND SHALL PRESENT ONE WEEK IN ADVANCE A PROPOSED WORK SCHEDULE, INCLUDING TIME ESTIMATES TO THE PROJECT ENGINEER, AND SECURE WRITTEN APPROVAL OF SAME BEFORE ANY WORK IS UNDERTAKEN THAT WOULD DISRUPT NORMAL FLOW OF TRAFFIC.

WHERE ANY OF THE WORK CALLED FOR UNDER THIS CONTRACT INVOLVES THE CLOSING OF EXISTING STREETS AND/OR THE RE-ROUTING OF TRAFFIC, THE CONTRACTOR FOR THIS PROJECT SHALL PROSECUTE TO THE FULLEST EXTENT THE WORK INVOLVED SO AS TO REDUCE TO A MINIMUM THE LENGTH OF TIME THAT THE STREETS CONCERNED WILL BE CLOSED TO TRAFFIC. FOR SUGGESTED SEQUENCE OF CONSTRUCTION, SEE SHEET 3.

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

ATTENTION IS DIRECTED PARTICULARLY TO THE NEED FOR PROVIDING ADEQUATE FACILITIES TO ACCOMMODATE SCHOOL CHILDREN AND OTHER PEDESTRIAN TRAFFIC IN THE VICINITY OF THE PROJECT. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SUCH TEMPORARY BOARD WALKS, CINDER WALKS, HANDRAILS ADJACENT TO EXCAVATIONS, ETC. AS MAY BE NECESSARY TO ACCOMMODATE IN A REASONABLE AND SAFE MANNER PEDESTRIAN TRAFFIC IN THE VICINITY OF THE PROJECT.

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

AGGREGATE AND CALCIUM CHLORIDE ARE CARRIED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER, FOR THE MAINTENANCE OF LOCAL TRAFFIC.

OVERHEAD CONSTRUCTION SHALL NOT BE CONSIDERED SUFFICIENT REASON TO CLOSE A STREET TO TRAFFIC, IF IN THE OPINION OF THE PROJECT ENGINEER THE CONSTRUCTION MAY BE ADEQUATELY ISOLATED AND TRAFFIC PROTECTED FROM FALLING OBJECTS OF WHATEVER NATURE. IN ORDER TO INSURE THAT TRAFFIC BE FULLY PROTECTED, BELOW THE STRUCTURES, FROM FALLING OBJECTS, THE CONTRACTOR SHALL PROVIDE NECESSARY PROTECTIVE NETTING OR PLATFORMS.

SURVEY DATA

FOR CENTERLINE DATA OF EXISTING STREETS, SEE SHEET SD-1 (ADJUSTED ℄ SURVEY DATA) ON FILE IN DIVISION OFFICE.

REMOVAL OF TREES AND STUMPS

THE NUMBER OF TREES INDICATED FOR REMOVAL IS APPROXIMATE AND THE STATE OF OHIO RESERVES THE RIGHT TO ORDER REMOVAL OF ADDITIONAL TREES OR STUMPS. PAYMENT FOR THE REMOVAL OF THESE ADDITIONAL TREES AND STUMPS IS INCLUDED IN THE LUMP SUM BID FOR REMOVAL OF TREES AND STUMPS, ITEM E-9.

REMOVAL OF REFUSE AND DEBRIS

ANY EXISTING REFUSE, DEBRIS OR ANY OTHER UNSUITABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR IN ACCORDANCE WITH ITEM E-1. THE QUANTITY 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 AND DISPOSAL OF EXISTING PAVEMENT

THE EXTENT OF RIGID PAVEMENT REMOVAL, SHOWN ON EXISTING UTILITIES SHEETS 54 THROUGH 60, MAY BE MODIFIED AS NECESSARY BY THE ENGINEER. RIGID PAVEMENT LOCATED WITHIN THE LIMITS OF PROPOSED CONSTRUCTION AND NOT INDICATED FOR REMOVAL, IS TO BE BROKEN UP INTO PORTIONS NOT TO EXCEED 1 SQUARE FOOT IN AREA BUT NEED NOT BE REMOVED; PAYMENT FOR THIS WORK TO BE CONSIDERED INCLUDED IN THE PRICE BID FOR ITEM E-1, ROADWAY EXCAVATION.

CONTRACTION JOINTS (Combined Project)

Although specific locations of certain contraction joints have been detailed on these plans, no waiver of the specifications is intended and the maximum distance between contraction joints shall in all cases be in accordance with Standard Drawing T. J.

VOID

SHEET 85

PARCELS	
97,98	
110LA THROUGH 117LA	

SHEET 86

PARCELS	
151LA THROUGH 153LA	169LA
155LA THROUGH 161LA	170LA THROUGH 176LA
163LA	178LA THROUGH 183LA
166LA	184LA (WEST HALF)

SHEET 87

PARCELS	
195LA	232LA
196LA (NORTH 130 FT.)	235LA THROUGH 242LA (EAST HALF)
198LA THROUGH 200LA	244LA (EAST HALF)
202LA	245LA (EAST HALF)
203LA	246LA THROUGH 251LA
204LA	253LA THROUGH 269LA
205LA (NORTH 140 FT.)	271LA THROUGH 281LA
208LA	297LA
210LA (NORTH 130 FT.)	298LA
211LA	300LA
212LA	301LA
213LA	307LA
214LA	317
218LA	319
219LA	334
228LA	
229LA	

SHEET 88

PARCELS	
359LA	423LA THROUGH 426LA
368 – 370LA	437LA
371LA	452LA
375LA NORTH 50 FEET	454LA
376LA	455LA
385LA NORTH 50 FEET	456LA (SOUTH HALF)
387LA – 391LA	457LA – 460LA (SOUTH 40 FEET)
392LA – 393LA	461LA
399LA (EAST 70 FEET)	

SHEET 89

PARCELS	
461LA	470
467LA	471
468LA	476 THROUGH 479
469LA	

SHEET 90

PARCELS	
547LA	565LA THROUGH 567LA
563LA (SOUTH HALF)	570LA
564LA (SOUTH HALF)	572LA
579LA	803LA (NORTH 30 FT.)
583LA	804LA (SOUTH HALF)
585LA THROUGH 588LA	805LA (SOUTH 60 FT.)
801LA	817LA THROUGH 821LA (SOUTH 60 FT.)
802LA	

PROVISIONS OF SEC. E-1.03 SHALL ALSO BE APPLICABLE WHERE THE CONDUCT OF THE CONTRACTOR'S OPERATIONS REQUIRES UTILIZATION OF OTHER PROPERTIES NOT NORMALLY AFFECTED BY CONSTRUCTION UNDER THIS CONTRACT.

SALVAGED SANDSTONE CURB

SALVABLE SANDSTONE CURB IS TO BE RESET ALONG CITY STREETS IN LOCATIONS INDICATED IN THE PLANS. SALVAGED CURB IS NOT TO BE INTERSPERSED WITH NEW CURB. THE AMOUNT OF SALVABLE CURB HAS BEEN ESTIMATED BY FIELD OBSERVATION, AS INDICATED ON SHEETS, 54 THROUGH 60; HOWEVER IF MORE OR LESS CURB IS DETERMINED USABLE, THE LIMITS AND LOCATIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER. PAYMENT FOR THE REMOVAL OF ALL SANDSTONE CURB SHALL BE MADE UNDER ITEM E-8, REMOVAL FOR RE-USE OF EXISTING CURB. PAYMENT FOR SALVAGED CURB RESET WILL BE MADE IN ACCORDANCE WITH ITEM I-11, SANDSTONE CURB RESET.

PAVEMENT REMOVAL

REMOVAL AND DISPOSAL OF ALL EXISTING PAVEMENT WHERE REQUIRED, EXCEPT THAT SET UP FOR REMOVAL ON THE PLANS AS ITEM E-8 SHALL BE REMOVED AND PAID FOR AS ITEM E-1 ROADWAY EXCAVATION.

EARTHWORK

THE TOP 2 FEET OF ALL EMBANKMENT SHALL BE CONSTRUCTED OF SOIL MATERIAL FREE FROM ROCKS, BOULDERS AND OTHER SIMILAR MATERIALS WHICH ARE RESTRICTIVE TO VEGETATIVE GROWTH OR HANDICAP MAINTENANCE OPERATIONS.

DURING THE EXCAVATION AND EMBANKMENT CONSTRUCTION OPERATIONS, THE ROADWAY SECTION SHALL BE MAINTAINED AT ALL TIMES IN SUCH A SHAPE THAT NO CONCENTRATION OF WATER WILL DISCHARGE IN A CONCENTRATED FLOW OVER THE SLOPES.

L-9 SEEDING AND PROTECTING

THE QUANTITY SHOWN IN THE PLANS FOR SEEDING AND PROTECTING OF PART 6 IS BASED GENERALLY UPON THE AREA OF ACTIVE GRADING FOR PART 6 AS APPEARING ON THE CROSS SECTIONS. PROVISION HAS BEEN MADE IN THE QUANTITY TOTAL FOR SEEDING AREAS UP TO THE RIGHT OF WAY LINE WHERE SUCH SEEDING WILL NOT BE DISTURBED BY GRADING OPERATIONS IN PARTS 7-A AND 7-B.

THE QUANTITY AND LIMITS FOR SEEDING MAY BE REVISED WHERE CONSIDERED NECESSARY BY THE ENGINEER.

THE SEED MIX FOR ALL AREAS IS AS FOLLOWS;

30 PER CENT KENTUCKY BLUE GRASS
30 PER CENT KENTUCKY, 31 FESCUE
20 PER CENT CREEPING RED FESCUE
15 PER CENT RED TOP
5 PER CENT WHITE DUTCH CLOVER

SEED IS TO BE APPLIED AT THE RATE OF 3 LBS. PER 1,000 SQ. FT.

L-9 AGRICULTURAL LIMING MATERIALS

AGRICULTURAL LIMING MATERIALS SHALL BE USED IN CONNECTION WITH SEEDING AND SODDING AT THE RATE OF 100 POUNDS PER 1000 SQ. FT.

ADDITIONAL NOTES

STRUCTURES SHEETS 91 AND 91A
DRAINAGE SHEET 32
LIGHTING SHEET 51

SUGGESTED CONSTRUCTION PROCEDURE FOR COMBINED PROJECT

SEE NOTE ON SHEET NO. 7 OF PART 7-A.

COMPACTION USING HEAVY PNEUMATIC TIRED ROLLER-ITEM SPECIAL

THIS OPERATION CALLED FOR IN THE PLANS CONSISTS OF FURNISHING AND OPERATING SUCH HEAVY PNEUMATIC TIRED COMPACTION EQUIPMENT OVER AREAS WHERE EMBANKMENT IS TO BE PLACED, AS INDICATED IN THE PROPOSAL.

PARTICULAR ATTENTION SHALL BE EXERCISED IN BACKFILLED BASEMENT AREAS ENCLOSED BY E. 9th ST.-WEBSTER AVE.-E. 14th ST. AND SCOVILL AVE. LIMITS.

IF UNSUITABLE FOUNDATION MATERIAL SHOULD BE ENCOUNTERED DURING THESE ROLLING OPERATIONS, IT SHALL BE REMOVED AND REPLACED WITH A SUITABLE MATERIAL IN ACCORDANCE WITH SEC. E-1.08 OF THE SPECS. REMOVAL OF UNSUITABLE MATERIAL SHALL BE PAID FOR PER ITEM E-1-ROADWAY EXCAVATION, METHOD B, AS PER PLAN.

ASPHALTIC CONCRETE SURFACE COURSE OR AN APPROVED BITUMINOUS PREMIXED SURFACE COURSE FOR MAINTAINING TRAFFIC

FOR DESCRIPTION OF THIS ITEM, SEE NOTE IN PROPOSAL. AN ESTIMATED QUANTITY OF ASPHALTIC CONCRETE SURFACE COURSE OR AN APPROVED BITUMINOUS PREMIXED SURFACE COURSE FOR MAINTAINING TRAFFIC HAS BEEN ENTERED IN THE GENERAL SUMMARY.

For additional notes, see sheet 7 of part 7-A and sheet 7 of part 7-B.

SCALE None
MADE J.L.C. DATE 9-27-59
TRCD. ___ DATE ___
CKD. J.L.C. DATE 10-2-59

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

Rev. R.J.K. 1-11-60

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	II. 175
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
QUANTITY CALCULATIONS

T-71 9" REINFORCED P.C.C. PAVEMENT

ROADWAY	STATION TO STATION	LENGTH ft.	CALCULATION width ft. ÷ 9 sq. yds.	AREA sq. yds.
East 9th St.	5+35.50 to 12+41.97	706.47	(24 + 35) ÷ 9	4631
	12+41.97 to 14+00	158.03	(24 + 24) ÷ 9	843
	Summary of Extra Areas			955
			Sub Total	6429
South Bound E. 14th St.	0+30 to 6+71.92	641.92	35 ÷ 9	2460
	6+71.92 to 12+02.66	530.74	24 ÷ 9	1434
	12+02.66 to 4+84 N.B. E. 14th St.	560.00	35 ÷ 9	2170
	Sum. Ex. Areas			1102
			Sub Total	7166
Northbound E. 14th St.	3+66 to 13+47.91	981.91	24 ÷ 9	2610
	13+47.91 to 18+09.46	461.55	35 ÷ 9	1790
	18+09.46 to 20+58.49	249.03	(57.16 + 52.12) ÷ 2 × 9	1510
	20+58.49 to 23+93	334.01	24 ÷ 9	893
	Sum. Ex. Areas			438
			Sub Total	7241
Westbound Scovill	0-98 to 7+69.32	867.32	24 ÷ 9	2313
	Sum. Ex. Areas			183
			Sub Total	2496
Eastbound Scovill	1+05 to 1+56	51	24 ÷ 9	136
	3+75 to 5+62	187	24 ÷ 9	499
	5+62 to 9+96	434	35 ÷ 9	1688
	Sum. Ex. Areas			281
			Sub Total	2604
Northbound E. 14th St. (100 % City)	0+64 to 2+83	219	(24 + 24) ÷ 9	1168
	Sum. Ex. Areas			369
			Sub Total	1537*
18th St. Turnout	0+63 to 3+34	271	35 ÷ 9	1050
	Sum. Ex. Areas			350
			Sub Total	1400
Ramp E-18	1+00 to 7+75	675	16 ÷ 9	1200
	Sum. Ex. Areas			301
			Sub Total	1501
Inner Belt Freeway	58+00 to 58+44	44	(48 + 48) ÷ 9	471
	61+64 to 64+68	304	(36 + 36) ÷ 9	2512
	Sum. Ex. Areas			283
			Sub Total	3266
Ramp E-15	0+00 to 1+00	100	(18.5 + 20.5) ÷ 2 × 9	217
	1+00 to 3+56	256	20.5 ÷ 9	583
	7+12 to 7+66	54	20.5 ÷ 9	123
	Sum. Ex. Areas			77
			Sub Total	1000
Orange Avenue	2+07 to 4+83	276	46 ÷ 9	1411
	4+83 to 10+25	542	35 ÷ 9	2108
	10+25 to 17+87	762	(39 + 24) ÷ 9	5330
	17+87 to 32+98	1511	(39 + 35) ÷ 9	12,425
	Sum. Ex. Areas			2832
			Sub Total	24,106
E. 22nd St.	0+77 to 1+16	75	(24 + 24) ÷ 9	400
	Sum. Ex. Areas			333
			Sub Total	733
Westbound Broadway	32+98 to 41+50	852	46 ÷ 9	4355
Eastbound Broadway	11+40 to 16+65	525	39 ÷ 9	2270
	Sum. Ex. Areas			1093
			Sub Total	7718
Broadway		165	(28 + 28) ÷ 9	1025
	Sum. Ex. Areas			317
			Sub Total	1342
Relocated Woodland	1+04.04 to 7+44.30	652	35 ÷ 9	2536
	Sum. Ex. Areas			53
			Sub Total	2589
Ramp E-6	1+98.47 to 4+48.29	249.82	(16 + 27) ÷ 2 × 9	597
	4+48.29 to 5+68.20	120	27 ÷ 9	360
	5+68.20 to 8+38.11	370	19 ÷ 9	570
	8+38.11 to 9+38	100	(23 + 27.5) ÷ 2 × 9	280
	9+38 to 10+38	100	(23 + 14.5) ÷ 2 × 9	208
	Sum. Ex. Areas			122
			Sub Total	2137
Railroad Turnout	Summary of Irregular Areas			372
			TOTAL	73,637*

* Total includes 1537 sq. yds 100 % City.

I-22 SUBBASE

ROADWAY	STATION TO STATION	AREA sq. yds.	THICKNESS ft.	VOLUME Cu. Yds.
East 9th St.	5+35.50 to 12+41.97	4631	0.5	772
	12+41.97 to 14+00	843	0.5	141
	Summary of Extra Areas	922	0.5	160
	Area Not Under T-71 Pvm't.	383	Variable	160
			Sub Total	1233
S.B. E. 14th St.	0+30 to 6+71.92	2460	0.5	411
	6+71.92 to 12+02.66	1434	0.5	239
	12+02.66 to 4+84 N.B. E. 14th St.	2170	0.5	362
	Sum. Ex. Areas	1102	0.5	184
			Sub Total	1196
N.B. E. 14th St.	3+66 to 13+47.91	2610	0.5	436
	13+47.91 to 18+09.46	1790	0.5	299
	18+09.46 to 20+58.49	1510	0.5	252
	20+58.49 to 23+93	893	0.5	149
	Sum. Ex. Areas	438	0.5	73
	Area Not Under T-71 Pvm't.		Variable	189
			Sub Total	1398
W.B. Scovill	0-98 to 7+69.32	2313	0.5	385
	Sum. Ex. Areas	183	0.5	31
			Sub Total	416
E.B. Scovill	1+05 to 1+56	136	0.5	23
	3+75 to 5+62	499	0.5	83
	5+62 to 9+96	1688	0.5	281
	Sum. Ex. Areas	281	0.5	47
	Area Not Under T-71 Pvm't.			22
			Sub Total	456
N.B. E. 14th St. (100 % City)	0+64 to 2+83	1168	0.5	195
	Sum. Ex. Areas	369	0.5	62
			Sub Total	257*
18th St. Turnout	0+63 to 3+34	1050	0.5	175
	Sum. Ex. Areas	350	0.5	58
			Sub Total	233
Ramp E-18	1+00 to 7+75	1200	0.5	200
	Sum. Ex. Areas	301	0.5	50
	Area Not Under T-71 Pvm't.		Variable	114
			Sub Total	364
Inner Belt Frwy	58+00 to 58+44	471	0.5	79
	61+64 to 64+68	2512	0.5	420
	Sum. Ex. Areas	283	0.5	47
	Area Not Under T-71 Pvm't.		Variable	250
			Sub Total	796
Ramp E-15	0+00 to 1+00	217	0.5	35
	1+00 to 3+56	583	0.5	97
	7+12 to 7+66	123	0.5	20
	Sum. Ex. Areas	77	0.5	13
	Area Not Under T-71 Pvm't.		Variable	30
			Sub Total	195
E. 22nd St.	0+41 to 3+09.34	1904	0.5	317
	Sum. Ex. Areas	916	0.5	153
	Area Not Under B-70 Conc.		Variable	50
			Sub Total	520
Orange Ave.	2+07 to 4+83	1411	0.5	237
	4+83 to 10+25	2108	0.5	351
	10+25 to 17+87	5330	0.5	890
	17+87 to 32+98	12,425	0.5	2075
	Sum. Ex. Areas	2832	0.5	473
			Sub Total	4026
W.B. Broadway	32+98 to 41+50	4355	0.5	727
E.B. Broadway	11+40 to 16+65	2270	0.5	379
	Sum. Ex. Areas	1093	0.5	183
			Sub Total	1289
Broadway		1025	0.5	171
	Sum. Ex. Areas	317	0.5	53
			Sub Total	224
Rel. Woodland	1+04.04 to 7+44.30	2536	0.5	424
	Sum. Ex. Areas	53	0.5	9
			Sub Total	433
Ramp E-6	1+98.47 to 4+48.29	597	0.5	100
	4+48.29 to 5+68.20	360	0.5	60
	5+68.20 to 8+38.11	570	0.5	95
	8+38.11 to 9+38	280	0.5	47
	9+38 to 10+38	208	0.5	35
	Sum. Ex. Areas	122	0.5	20
	Area not Under T-71 Pvm't.		Variable	131
			Sub Total	488
Railroad Turnout	Sum. of Irregular Areas			62
			TOTAL	13,586*

* Total includes 257 cu. yds. 100% City.

I-13 4" P.C.C. SIDEWALK

ROADWAY	STATION TO STATION	LENGTH ft.	WIDTH ft.	AREA Sq. ft.
E.B. Broadway	9+38 to 10+42	144	5	720
Orange	4+80 to 6+75	Var.	5	1098
	6+75 to 18+10	1100±	5	5652
	18+10 to 21+00	290	5	1450
	23+24 to 27+18	394	5	1970
	28+00 to 29+72	Var.	Var.	2700
	30+05 to 32+95	290	5	1450
			Sub Total	14,320
E. 9th St.	5+35 to 5+68	Var.	Var.	333
	5+68 to 7+80	190	12	2280
	8+20 to 10+78	258	5	1290
	13+05 to 14+00	96	5	480
	17+00 to 18+13	210	5	1050
			Sub Total	5433
Ramp E-6	9+59 to 9+84	25	8	200
	9+84 to 11+97	213	5	1065
			Sub Total	1265
E. B. Scovill	6+10 to 9+95	382	5	1910
W. B. Scovill	0-95 to 2+75	385	5	1925
	3+05 to 4+00	100	5	500
	4+00 to 8+23	424	5	2120
			Sub Total	4545
22nd St.	0+90 to 3+65	670	5	3350
18th St. Turnout	0+00 to 1+32	132	Var.	657
	1+32 to 3+50	236	5	1180
	0+80 to 3+50	250	5	1250
			Sub Total	3087
N.B. E. 14th St.	18+09 to 19+31	122	5	610
	19+31 to 20+59	128	Var.	702
	21+52 to 23+95	243	5	1215
			Sub Total	2527
		TOTAL		37,157

B-35 ASPHALTIC CONC. LEVELING COURSE

ROADWAY	STATION TO STATION	AREA sq. yds.	DEPTH in.	VOLUME Cu. Yds.
P-28 ⊄ P-123		67	1¾	3
East 22nd St.	1+16 to 3+68	2129	1¾	103
Woodland	26th St. to 22nd St.	249	1¾	12
		TOTAL		118*

*Total includes 13 cu. yds. 100 % City.

T-35 ASPHALTIC CONCRETE SURFACE COURSE

ROADWAY	STATION TO STATION	AREA sq. yds.	DEPTH in.	VOLUME Cu. Yds.
P-28 ⊄ P-123		67	1¼	2
East 22nd St.	1+16 to 3+68	2129	1¼	74
Woodland	26th St. to 22nd St.	249	1¼	8
		TOTAL		84*

* Total includes 9 cu. yds. 100 % City.

I-7 APPROACH SLABS

BRIDGE	LOCATION	AREA sq. yds
1	East	68
	West	65
2	West	303
	East (Inner Belt Freeway)	263
6	East	57
	West	62
7	West (Ramp E-15)	57
	West (Ramp E-18)	53
	TOTAL	928

SCALE None HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE BAS DATE 11/2/59 CONSULTING ENGINEERS
TRCD.___ DATE___ KANSAS CITY CLEVELAND NEW YORK
CKD. JFS DATE 11-6-59 914 SHEET. II

Rev. RJK 1-11-60

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
QUANTITY CALCULATIONS

6"x 18" I-11 SANDSTONE CURB

ROADWAY	SIDE	STATION TO STATION	LENGTH ft.
Orange (W.B.)	Left	22+54 to 27+17.53	467
	Left	27+17.53 to 28+22	107
	Left	29+06 to 32+42	342
	Right	30+38.53 to 32+95.5	257
		Sub Total	1173
W. B. Broadway	Right	34+54 to 41+50	696
	Left	33+54 to 38+19.12	474
	Left	39+00 to 41+50	259
		Sub Total	1429
Orange (E.B.)	Right	22+54 to 27+17.53	467
	Right	27+17.53 to 28+22	107
	Right	29+06 to 32+42	342
	Left	29+36 to 31+62	229
		Sub Total	1145
E.B. Broadway	Right	9+36 to 10+50	147
	Left	9+36 to 10+79	142
	Left	11+05 to 16+75	570
		Sub Total	859
E. 9th St. Turnout	Left	0+00 to 1+36	136
	Right	0+70 to 1+43	81
		Sub Total	217
Broadway	Right	0-74 to 1+85	225
	Left	0+41 to 1+85	150
		Sub Total	375
Ramp E-15	Left	0+00 to 3+55	355
	Right	0+00 to 0+40	40
		Sub Total	395
East 14th St.	Right	3+67 to 4+84	444
100% City	Left	0+00 to 2+81	602*
	Left	3+67 to 4+84	765
	Rt. & Lt.	4+84 to 7+10.79	908
		Sub Total	271[illegible]
N. B. E. 14th St.	Right	7+10.79 to 14+00	689
	Left	7+10.79 to 14+00	704
	Right	14+00 to 17+47.93	371
	Right	18+09.46 to 20+58.49	249
	Right	21+32.05 to 23+90	268
	Left	14+00 +23+67	968
		Sub Total	3249
S.B.E. 14th St.	Right	0+00 to 0+85	82
	Right	2+09.75 to 10+00	797
	Left	0+60 to 6+71.92	705
	Left	7+84.91 to 10+00	224
	Right	10+00 to 12+02.66	209
	Left	10+00 to 12+50.36	250
		Sub Total	2267
East 9th St.	Right	5+42 to 14+00	1442
	Left	5+36 to 14+00	1520
	Right	17+00 to 18+04	166
	Left	17+00 to 18+75	273
	Left	Median Island	72
		Sub Total	3473
Ramp E-18	Right	0-15 to 0+85	106
	Left	1+92.54 to 7+76	576
		Sub Total	682
22nd Street	Right	0+70 to 3+68	744
	Left	0+70 to 3+68	710
		Sub Total	1454
Inner Belt Frwy.	Right	58+00 to 58+53	53
	Right	61+43 to 64+68.53	429
	Left	58+00 to 58+53	53
	Left	61+43 to 64+68.53	326
		Sub Total	861

Table continued above.

6"x 18" I-11 SANDSTONE CURB (CON'T)

ROADWAY	SIDE	STATION TO STATION	LENGTH ft.
Ramp E-17	Right	10+70.65 to 14+98.40	428
	Left	11+14.37 to 14+98.40	384
		Sub Total	812
18th St. Turnout	Right	0+00 to 3+55	372
	Left	0+63.20 to 3+55	282
		Sub Total	654
Ramp E-5	Right	0+00 to 1+13.65	114
Railroad Turnout	East		270
	West		135
		Sub Total	405
W.B. Scovill	Right	0-98 to 2+53	361
	Right	3+32 to 4+00	68
	Left	0-47 to 4+00	450
	Right	4+00 to 8+23.16	424
	Left	4+00 to 7+69.32	390
		Sub Total	1693
E. B. Scovill	Right	0+00 to 1+56	156
	Right	3+69 to 5+00	131
	Left	1+05.28 to 1+75	78
	Left	3+75 to 5+00	125
	Right	5+00 to 9+37	440
	Left	5+00 to 5+63.57	70
	Left	6+34 to 9+97	361
		Sub Total	1361
Ramp E-6	Left	1+98.47 to 4+48.29	275
	Left	5+68.20 to 10+38.11	538
	Right	8+38.11 to 11+96.77	359
		Sub Total	1172
Ramp E-7	Left	0+00 to 1+36.63	137
		TOTAL	26,[illegible]46 *

* Total includes 602 ft. 100% City.

I-21 P.C.C. MEDIAN PAVEMENT (4")

ROADWAY	STATION TO STATION	LENGTH ft.	AREA sq. yds
East 22nd St.	0+44 to 3+15	271	90
Inner Belt Frwy.	58+00 to 58+79	79	26
	61+17 to 64+68.53	352	117
	Sub Total		143
East 9th St.	5+41 to 14+00	859	286
	17+00 to 17+97	97	32
	8+25.62 (Nose)	45	30
	12+41.97 (Nose)	60	20
	Sub Total		368
S.B. East 14th St.	2+09.75 (Nose)	18	12
	7+84.91 (Nose)	18	12
	Sub Total		24
N.B. East 14th St.	22+00 to 23+66	166	111
	17+47.93 (Nose)	50	32
	21+32.05 (Nose)	20	13
	Sub Total		156
Ramp E-6	1+98.47 (Nose)	42	28
East 14th St.	3+68 to 7+10.8	343	328
Ramp E-15	0+00 (Nose)	253	173
Orange Ave.	7+73.90 (Nose)	7	6
	8+50 (Island)	46	20
	15+98 (Nose)	28	19
	Sub Total		45
Rel. Woodland	1+04 (Nose)	38	25
	TOTAL		1380

I-21 TYPE 2 MEDIAN PAVEMENT

ROADWAY	STATION TO STATION	LENGTH ft.	AREA sq. yds.
E.B. Broadway	E 9th St. to 13+32	257	114
Railroad Turnout	Median Island		21
	TOTAL		135

T-30 BITUMINOUS TACK COAT

ROADWAY	STATION TO STATION	AREA sq. yds.	T-30 gals
East 22nd St.	1+16 to 3+68	1960	196
	Summary of Extra Areas	169	17
Woodland Ave.	1,120 x 2.5 ÷ 2800	311	31
P-28 & P-123		33	3
		Total	247

B-70 9" PCC BASE COURSE

ROADWAY	STATION TO STATION	LENGTH	CALCULATION width ft. ÷ 9 sq. yds.	AREA sq. yds.
East 22nd St.	1+16 to 3+68	252	(35 + 35) ÷ 9	1960
	Summary of Extra Area			169
Woodland	26th St. to 22nd St.	1121	2 ÷ 9	249*
			TOTAL	2411 *

* Total includes 249 sq. yds. 100 % City, and 33 sq. yds. for P-28 & P-123

I-11 SANDSTONE CURB RESET

ROADWAY	SIDE	STATION TO STATION	LENGTH ft.
Woodland Ave.	South	E. 22nd St. to E. 26th St.	1121*
Orange Ave.	Right	2+07 to 9+47	746
	Left	2+07 to 7+74	713
Orange (W.B.)	Right	9+47 to 15+98.37	660
	Right	17+85.61 to 18+11	25
	Left	9+47.27 to 18+11	866
	Right	18+11 to 20+99.86	289
	Right	23+24.25 to 27+17.53	393
	Left	18+11 to 21+70	362
Orange (E.B.)	Right	9+47.27 to 18+11	866
	Right	18+11 to 21+70	362
E. 14th St.	Right	0+00 to 2+81	359*
Rel. Woodland	Right	1+04.04 to 9+23.34	840
	Left	0+00 to 7+44.30	761
		TOTAL	8597 *

* Total includes 1480 ft. 100% City.

SANDSTONE CURB FOR REUSE

SHEET	LENGTH ft.
Sheet 54	4681
Sheet 55	4784
Sheet 56	2477
Sheet 57	2575
Sheet 58	4291
Sheet 59	4417
Sheet 60	244
TOTAL	23,469

GUARD RAIL

SHEET	LENGTH ft.
Sheet 16	482
Sheet 19	487
Sheet 20	2134
Sheet 21	639
TOTAL	3742

BARRIER RAIL

SHEET	LENGTH
Sheet 20	437.5

SHOULDER MATERIALS

ROADWAY	SIDE	STATION TO STATION	LENGTH ft.	AREA sq. yds.	T-30 PRIME COAT gals	T-31 NO.6 AGG Cu. Yds.	T-31 BIT MAT'L gals	B-219 AGG BASE cu. yds.	I-18 AGG SH. Cu. Yds.
Ramp E-18	Right	0+71 to 7+00	635	564	225.6	4.5	141.0	46.8	80.8
	Right	7+00 to 8+10	119	82	32.8	0.7	20.5	6.8	11.8
	Left	1+92.54 to 7+00	507	169	67.6	1.4	42.3	14.0	23.5
	Left	7+00 to 7+68	69	15	6.0	0.2	3.8	1.2	2.1
		Sub Total			332.0	6.8	207.6	68.8	118.2
Ramp E-6	Right	0+86 to 8+38	752	776	310.4	6.2	194.0	64.4	110.8
	Left	1+98.47 to 1+36.37 (E-7)	407	136	54.4	1.1	34.0	11.3	18.9
	Left	5+68.20 to 9+36	368	123	49.2	1.0	30.8	10.2	17.1
		Sub Total			414.0	8.3	258.8	85.9	146.8
Inner Belt	Right	58+00 to 58+88	142	116	46.4	0.9	29.0	9.6	16.5
	Right	61+43 to 64+68.53	446	242	96.8	1.9	60.5	20.1	34.1
	Left	58+00 to 58+75	125	87	34.8	0.7	21.8	7.2	12.4
	Left	61+08 to 64+68.53	687	510	204.0	4.1	127.5	42.3	72.3
		Sub Total			382.0	7.6	238.8	79.2	135.3
Ramp N-30	Left	8+06 to 9+04.2	98	33	13.2	0.3	8.3	2.7	4.6
		TOTAL			1280⊛	23	714	262*	405

* Total includes 25 cu. yds. for R.R. Yard Turnout.
⊛ Total includes 139 gals. for R.R. Yard Turnout.

SCALE None HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE BAS DATE 11/2/59 CONSULTING ENGINEERS
TRCD. ___ DATE ___ KANSAS CITY CLEVELAND NEW YORK
CKD. JFS DATE 11-6-59 914 SHEET. 12

Rev. RJK. 1-11-60

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

13
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
QUANTITY CALCULATIONS

E-8 REMOVAL & DISPOSAL EXISTING SIDEWALK

ROADWAY	SIDE	LIMITS	LENGTH	WIDTH	AREA Sq. ft.
Woodland	N	E. 9th St. - E. 14th St.	647	10	6470
	S	" "	540	10	5400
	N	E. 14th St. - E. 19th St.	198	18	3564
	S	" "	198	18.5	3663
100% City	S	E. 22nd St. - E. 25th St.	950	18	17,100*
	S	E. 25th St. - E. 27th St.	285	18	5130
		Sub Total			41,327
Broadway	N	E. 9th St. - E. 14th St.	557	13.5	7520
	S	" "	90	5	450
		Sub Total			7970
Orange	N	E. 14th St. - E. 22nd St.	803	12	9636
	N	E. 22nd St. - E. 25th St.	951	10	9510
	N	E. 25th St. - E. 30th St.	1048	10	10,480
	S	Mayflower - E. 29th St.	260	10	2600
		Sub Total			32,226
E. 14th St.	E	Orange - Woodland	205	10	2050
	W	" "	205	10	2050
	E	Woodland - Allen	248	12	2976
	W	" "	235	12	2820
	E	Allen - Scovill	421	12	5052
	W	" "	421	12	5052
	E	Scovill - Carnegie	667	10 & 12	6966
	W	" "	659	10 & 12	6939
		Sub Total			33,905
E. 9th St.	E	Broadway - Woodland	372	5	1860
	W	" "	436	Var.	2511
	Median		127	3	381
	E	Wooland - Carnegie	646	22	14,212
	W	" "	562	22	12,364
		Sub Total			31,328
Scovill	N	E. 9th St. - E. 12th St.	32	11	352
	S	" "	35	12	420
	N	E. 12th St. - E. 14th St.	240	6	1440
	S	" "	215	6	1290
	N	E. 14th St. - E. 20th St.	289	10	2890
	N	E. 14th St. - E. 20th St.	131	7	917
	S	E. 14th St. - E. 19th St.	124	11	1364
	S	E. 14th St. - E. 19th St.	136	6	816
	S	E. 19th St. - E. 20th St.	145	6	870
	N	E. 20th St. - E. 22nd St.	343	6	2058
	S	E. 20th St. - E. 22nd St.	148	16	2368
	S	" "	134	6	804
	S	" "	53	10	530
		Sub Total			16,119
Allen	N	Parkman - E. 14th St.	74	5.5	407
	N	" "	267	4	1068
	S	" "	450	4	1800
		Sub Total			3275
E. 12th St.	E	Parkman - Scovill	19	4.5	86
	W	" "	19	4	76
	E	Scovill - Webster	178	6	1068
	W	" "	178	6	1068
		Sub Total			2298
E. 19th St.	E	Woodland - Scovill	160	6	960
	W	" "	160	6	960
		Sub Total			1920
Central	N	E. 14th St. - E. 18th St.	154	13	2002
	S	" "	150	12	1800
		Sub Total			3802
E. 18th St.	E	Central - Carnegie	112	10	1120
	W	" "	105	10	1050
		Sub Total			2170
E. 13th St.	E	Webster - Columbus	90	6	540
	W	" "	90	6	540
		Sub Total			1080
E. 30th St.	W	Orange - Woodland	34	6	204
E. 22nd St.	E	Orange - Woodland	316	6	1896
	W	" "	345	6	2070
		Sub Total			3966
E. 25th St.	E	Orange - Woodland	106	15	1590
	E	" "	91	6	546
	W	" "	180	6	1080
		Sub Total			3216
E. 20th St.	E	Woodland - Scovill	130	6	780
	W	" "	107	6	642
	E	Scovill - Charity	42	5	210
	W	" "	40	5	200
		Sub Total			1832

Table continued above.

E-8 REMOVAL & DISPOSAL EXISTING SIDEWALK (CON'T.)

ROADWAY	SIDE	LIMITS	LENGTH	WIDTH	AREA Sq. ft.
E. 27th St.	E	Orange - Woodland	56	6	336
	E	" "	19	15	285
	W	" "	75	6	450
		Sub Total			1071
E. 29th St.	E	Orange - Woodland	77	6	462
	W	" "	77	6	462
		Sub Total			924
Webster Ave.	E	E. 13th St. - E. 14th St.	305	6	1830
	W	" "	305	6	1830
		Sub Total			3660
			TOTAL		192,293*

* Total includes 17,100 sq. ft. 100% City.

E-8 REMOVAL & DISPOSAL EXISTING RIGID PAVEMENT

ROADWAY	LIMITS	LENGTH ft.	WIDTH ft.	AREA sq. yds
Woodland	E. 9th St. - E. 14th St.	707	63	4902
	E. 14th St. - E. 19th St.	198	63	1386
100% City	E. 22nd St. - E. 25th St.	1109	29.5	3663*
	E. 25th St. - E. 27th St.	152	29.5	522
	Sub Total			10,473
Scovill	E. 9th St. - E. 12th St.	54	36	250
	E. 12th St. - E. 14th St.	216	36	864
	E. 14th St. - E. 22nd St.	830	38	3643
	Sub Total			4757
Orange	E. 14th St. - E. 22nd St.	801	12 - Var.	2059
	E. 22nd St. - E. 25th St.	1062	21.5	2530
	E. 25th St. - E. 30th St.	962	21.5 - 42	2324
	Sub Total			6913
Broadway	E. 9th St. - E. 14th St.	1115	Var.	8227
E. 14th St.	Orange - Woodland	220	55	2526
	Woodland - Allen	272	55	1737
	Allen - Scovill	421	55	2573
	Scovill - Carnegie	795	60	6478
	Sub Total			13,314
E. 9th St.	Broadway - Woodland	295	52	1511
	Woodland - Carnegie	640	55	4237
	Sub Total			5748
Central	E. 14th St. - E. 18th St.	142	40	631
E. 18th St.	Central - Carnegie	115	47	528
E. 15th St.	Orange - Broadway	200	11	216
Parcel 184	Woodland to Allen	Var.	Var.	1578
		TOTAL		52,385*

* Total includes 3663 sq. yds. 100% City.

I-12 STD. TYPE 2A CONCRETE CURB-MOD.

ROADWAY	SIDE	STATION TO STATION	LENGTH ft.
Ramp E-15	Right	7+20 to 7+74	55
	Left	6+70 to 7+66	96
		TOTAL	151

L-10 SODDING

TYPE	AREA Sq. yds.
Sodding	55
Sodding, including 2" Galv. wire mesh.	22
Total	77

L-9 QUANTITIES

ITEM	CALCULATION	QUANTITY
SEEDING & PROTECTION	From Planimeter	120,507 Sq. Yd.
SODDING		72 Sq. Yd.
AGRICULTURAL LIMING MATERIALS	100#/1000 Sq. ft.	54.23 Tons
COMMERCIAL FERTILIZER	20#/1000 Sq. ft.	10.85 Tons

E-11 WATER

CALCULATION	M.GAL.
6.5 gal./Cu. Yd. - 6.5 x 150,166 Emb.	976
5 gal./Cu. Yd. - 5 x 13,586 (I-22)	68
5 gal./Cu. Yd. - 5 x 462 (I-18)+B-19)	2
TOTAL	1046

E-1 COMPACTED SUBGRADE

ITEM	AREA sq. yds.
I-7 Approach Slabs	928
T-71 9" P.C.C. Pavement	73,637
Shoulders	2853
B-70 9" P.C.C. Base Course	2378
TOTAL	79,796*

* Total includes 1786 sq. yds. 100% City

T-70 & B-19 QUANTITIES

ITEM	STATION TO STATION	T-70 PCC Pvmt.	B-19 Agg.
Driveways	3+15 Orange Ave.	44	7.3
	3+90 Orange Ave.	33	5.5
	2+15 E. 9th St. Turnout	97	16.2
	6+25 E. 9th St.	20	3.3
Crossover	44+60 to 45+70 W.B. Broadway	147	25.0
	TOTAL	341	57.3

E-9 TREE REMOVAL

SHEET	SIZE 12"	18"	24"	36"
Sheet 85	2			
Sheet 86	2	1		
Sheet 87	30	7	1	
Sheet 88	8	3		1
Sheet 89	4	1		
TOTAL	46	12	1	1

SCALE None HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE BAS DATE 11/5/59 CONSULTING ENGINEERS
TRCD ___ DATE ___ KANSAS CITY CLEVELAND NEW YORK
CKD JFS DATE 11/6/59 914 SHEET. 13

FOR EARTHWORK SUMMARY, SEE
CROSS SECTION LAYOUT SHEET NO. 61

GENERAL SUMMARY
ESTIMATED QUANTITIES

TYPE CODE 7221

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

PAVEMENT

SHEET NUMBER	PROJECT	100% CITY	GRAND TOTAL		UNIT	ITEM NO.	DESCRIPTION
11	105	13	118		Cu. Yds.	B-35	Asphaltic Concrete Leveling Course (60-70)
12	2,162	249	2,411		Sq. Yds.	B-70	9" Portland Cement Concrete Base Course
13	57		57		Cu. Yds.	B-19	Aggregate Base Course
12	262		262		Cu. Yds.	B-21.9	Water Proofed Aggregate Base Course
11	928		928		Sq. Yds.	I-7	Reinforced Concrete Approach Slabs (T=13")
12	7,117	1480	8,597		Lin. Ft.	I-11	Sandstone Curb reset, as per plan
12	26,044	602	26,646		Lin. Ft.	I-11	6" X 18" Sandstone Curb, as per plan
13	151		151		Lin. Ft.	I-12	Standard Type 2-A Concrete Curb, modification "A" as per plan
12	405		405		Cu. Yds.	I-18	Stabilized Crushed Aggregate Shoulders and Approaches
12	1,380		1,380		Sq. Yds.	I-21	Portland Cement Concrete Median Pavt 4" Standard Type I
12	135		135		Sq. Yds.	I-21	Portland Cement Median Pavement, Standard Type 2, as per plan
11	13,329	257	13,586		Cu. Yds.	I-22	Subbase
12	247		247		Gals.	T-30	Bituminous Tack Coat, Sec. M-55, MS-2 or RS-1 or Sec. M-5.2, RC-1, RC-2, or RC-3, as per Sec. T-30.02
12	1,280		1,280		Gals.	T-30	Bituminous Prime Coat, Sec. M-5.7, Rt 2 or 3
12	23		23		Cu. Yds.	T-31	Bituminous Surface Treatment, No. 6 Aggregate
12	714		714		Gals.	T-31	Bituminous Surface Treatment, Bituminous Material, as per plan
11	75	9	84		Cu. Yds.	T-35	Asphaltic Concrete Surface Course Type "C" (60-70)
13	341		341		Sq. Yds.	T-70	8" Portland Cement Concrete Pavement, as per plan
11	72,100	1,537	73,637		Sq. Yds.	T-71	9" Reinforced Portland Cement Concrete Pavement, as per plan

STRUCTURES OVER 20 FOOT SPAN

For Quantities see sheets no. 92 and 92A - Part 6, and sheets no. 99 and 99A - Part 7A.

ROADWAY

SHEET NUMBER	PROJECT	100% CITY	GRAND TOTAL		UNIT	ITEM NO.	DESCRIPTION
	149,337	829	150,166		Cu. Yds.	E-1	Roadway Excavation, Method B, as per plan
13	78,010	1,786	79,796		Sq. Yds.	E-1	Compacted Subgrade
	2000		2000		Cu. Yd.	E-4	Borrow using Granular Material, as per plan
12	23,469		23,469		Lin. Ft.	E-8	Removal for Re-use of Existing Sandstone Curb
13	48,722	3,663	52,385		Sq. Yds.	E-8	Removal and Disposal of Existing Pavement
13	175,193	17,100	192,293		Sq. Ft.	E-8	Removal and Disposal of Existing Sidewalk
13	Lump				Lump Sum	E-9	Removal of Trees and Stumps
13	1,046		1,046		M. Gals.	E-11	Water
	2		2		Each	I-8	Monument Assemblies Standard
	2		2		Each	I-8	Monument Boxes Standard
11	37,157		37,157		Sq. Ft.	I-13	4" Portland Cement Concrete Sidewalk, as per plan
12	3,742		3,742		Lin. Ft.	I-15	Guard Rail, Steel Beam Std. Type (Deep)
12	437.5		437.5		Lin. Ft.	I-15	Guard Rail Steel Beam Barrier Type (Deep)
	1000		1000		Lin. Ft.	I-15	Guard Rail, Temporary Steel Beam, as per plan
13	120,507		120,507		Sq. Yds.	L-9	Seeding and Protecting, as per plan
13	10.85		10.85		Tons	L-9	Commercial Fertilizer (12-12-12)
13	54.23		54.23		Tons	L-9	Agricultural Liming Materials
13	22		22		Sq. Yds.	L-10	Sodding, Including 2" Galvanized Wire Mesh, as per plan
13	55		55		Sq. Yds.	L-10	Sodding, as per plan
	2		2		Each	Special	Interstate & Defense Highway Signs Furnished & Erected
10	10		10		Ton	M-10	Calcium Chloride Furnished and Applied for Maintaining Traffic
10	500		500		Cu. Yds.	T-10	Traffic Compacted Surface Course for Maintaining Traffic
10	100		100		Cu. Yds.	T-35	Asphaltic Concrete Surface Course or an Approved Bituminous Premixed Surface Course for Maintaining Traffic
10	100		100		Hours	Special	Fill Compaction Using Heavy Pneumatic Tire Roller
			Lump Sum		Lump Sum		Construction Layout Stakes

LIGHTING

SHEET NUMBER	PROJECT	100% CITY	GRAND TOTAL		UNIT	ITEM NO.	DESCRIPTION
		20	20		Each	S-25	15,000 Lumen Luminaire and Insulating Transformer, as per plan
		205	205		Each	S-25	10,000 Lumen Luminaire and Insulating Transformer, as per plan
	30	51	81		Each	S-25	Standard 10 Foot Bracket, as per plan
		26	26		Each	S-25	Standard 10 Ft. Duplex Bracket, as per plan
	31	143	174		Each	S-25	Concrete Pole Base, as per plan
	3 ~~7~~	22 ~~18~~	25		Each	S-25	Pull Boxes, Concrete as per plan
		20,550	20,550		Lin. Ft.	S-25	No. 8 AWG, 5 KV Lighting Cable, as per plan
	3210 ~~6945~~	11,230 ~~7495~~	14,440		Lin. Ft.	S-25	1-Way Duct, 2 inch, as per plan
		1230	1,230		Lin. Ft.	S-25	1-Way Duct, 4 inch, as per plan
		890	890		Lin. Ft.	S-25	2-Way Duct, 4 inch, as per plan
	150	55	205		Lin. Ft.	S-25	3-Way Duct, 4 inch, as per plan
	175		175		Lin. Ft.	S-25	4-Way Duct, Two-4 inch, and Two-2 inch, as per plan
	1		1		Each	S-25	Removing Wood Pole, as per plan
		8	8		Each	S-25	Fluorescent Underdeck Light, as per plan
		150	150		Each	S-25	Multiple Feeders, as per plan (No 6 Conductor)
		2	2		Each	S-25	Regulator Vault, 8 foot by 22 foot, as per plan
		1	1		Each	S-25	Regulator Vault, 8 foot by 11 foot, as per plan
	350 ~~1810~~	3735 ~~2275~~	4,085		Lin. Ft.	S-25	2-Way Duct, 2 inch, as per plan
		6	6		Each	I-8	Manhole (5'x8') as per plan
		750	750		Each	S-25	No. 10 AWG, 600 V. Branch Conductors, as per plan
		1	1		Each	S-25	Remove and Reinstall Lighting Unit, as per plan
		65	65		Each	S-25	Trolley Pole, 10 foot bracket, as per plan
		2	2		Each	S-25	Trolley Pole, 10 foot Duplex Bracket, as per plan

SCALE None
MADE J.L.C. DATE 11-5-59
TRCD. R.R. DATE
CKD. G.M.G. DATE 11-5-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 14

PART 6

Rev. REC 8-22-60
Rev. JAG 1-11-60

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

GENERAL SUMMARY
ESTIMATED QUANTITIES

FEDERAL PARTICIPATION

TYPE CODE 7221

DRAINAGE

31	32	33	34	35	36	100% CITY Sheet No.	100% CITY	GRAND TOTAL	UNIT	ITEM NO.	DESCRIPTION
26								26	Lin. Ft.	I-2	12"Class B Storm Sewers; Sec M-6.5(b) or Sec. M-6.8(b)
122	56	703	34	343	58			1316	Lin. Ft.	I-2	12" Class B Storm Sewer
772	360	970	670	893	338	Sh-34	122	4125	Lin. Ft.	I-2	12" Class B Storm Sewer, under Pavement or Approaches
			226					226	Lin. Ft.	I-2	12" Class B Storm Sewer, Sec. M-6.6 (c)
		176	56	168	78			478	Lin. Ft.	I-2	15" Class B Storm Sewer
150	118	74	54	164		Sh-35	98	658	Lin. Ft.	I-2	15" Class B Storm Sewer, under Pavement or Approaches
74								74	Lin. Ft.	I-2	15" Class B Storm Sewers, Sec. M-6.5 (b) or Sec M-6.8 (b)
98		20			270			388	Lin. Ft.	I-2	18" Class B Storm Sewer
388				186	174			748	Lin. Ft.	I-2	18" Class B Storm Sewer, under Pavement or Approaches
				204				204	Lin. Ft.	I-2	18" Class B Storm Sewer, Under Pavement, or Approaches, Sec. M-6.6 (c)
		264						264	Lin. Ft.	I-2	21" Class B Storm Sewer
		70						70	Lin. Ft.	I-2	21" Class B Storm Sewer, Under Pavement or Approaches
				146				146	Lin. Ft.	I-2	18" Class B Storm Sewers, Sec M-6.5 (b) or Sec. M-6.8 (b)
					70			70	Lin. Ft.	I-2	24" Class B Storm Sewer
						Sh-36	106	106	Lin. Ft.	I-2	24" Class B Storm Sewer, Under Pavt. or Appr's Sec. M-6.6(b) or M-6.8(b)
				212	52			264	Lin. Ft.	I-2	24" Class B Storm Sewers, Sec. M-6.6(b) or Sec. M-6.8 (b)
					16			16	Lin. Ft.	I-2	66" (Radius Pipe) Class B Storm Sewer Under Pavt. or Appr's. Sec. M-6.6(b)
		76						76	Lin. Ft.	I-2	30" Class B Storm Sewer, Under Pavement or Approaches
						Sh-35	105	105	Lin. Ft.	I-2	30" Class B Storm Sewers Under Pavt. or Appr's Sec. M-6.6(b) or M-6.8 (b)
			122		588			710	Lin. Ft.	I-2	66" Class "B" Storm Sewer, Under Pavement or Approaches, Sec. M-6.6(c)
			430					430	Lin. Ft.	I-2	66" Class "B" Storm Sewer, Under Pavement or Approaches, Sec. M-106.6(d)
					64			64	Lin. Ft.	I-2	66" (Radius Pipe) Class "B" Storm Sewer, U.P. or Approaches, Sec. M-6.6(c)
			40					40	Lin. Ft.	I-2	66" (Radius Pipe) Class "B" Storm Sewer, U.P. or Approaches, Sec. M-106.6(d)
					260			260	Lin. Ft.	I-2	66" Class B Storm Sewers, Under Pavement or Approaches Sec. M-6.6(b)
3525	2975	4608	3313	5075	4825	Sh-31	850	25,171	Lin. Ft.	I-4	6" Underdrain, as per plan
28		72	20		110	Sh-31	10	240	Lin. Ft.	I-4	8" Pipe Outlet for Underdrains, Sec. M-6.4 (a)
110								110	Lin. Ft.	I-2	21" Class B Storm Sewer Under Pavt. or Appr's Sec. M-6.6(b) or M-6.8 (b)
7	4	4	3	7	8	Sh-31	2	35	Each	I-5	6" Pipe Specials For Underdrain, as per plan
6	1	6	3	8	7			31	Each	I-8	Standard No. 2-6 Median Inlet
			4					4	Each	I-8	Standard No. 2-6 Paved Shoulder Inlet
3	2		1	2	1			9	Each	I-8	Standard No. 2-8 Median Inlet
		2		1				3	Each	I-8	Standard No. 2-10 Median Inlet
4	2	6	5	6	5			28	Each	I-8	Standard No. 2-2-A Catch Basin
4	4		1	4		Sh-31	2	15	Each	I-8	Standard No. 3 Catch Basin
1		7	2		1			11	Each	I-8	Standard No. 3-A Catch Basin
		1						1	Each	I-8	Standard No. 6 Catch Basin
2	1	1			2			6	Each	I-8	Standard No. 7 Catch Basin
1		3		3	1			8	Each	I-8	Standard No. 1 Manhole, using City type castings, as per plan
	1	1	5	2	1			10	Each	I-8	Standard No. 2 Manhole, using City type castings, as per plan
11	10	8	5	3	5			42	Each	I-8	Manhole Adjusted to Grade
6		1						7	Each	I-8	Inlets Adjusted to Grade
			1					1	Each	I-8	Junction Chamber, as per plan
	1				1			2	Each	I-8	Manholes Reconstructed to Grade, as per plan
3	12	1	9		8			33	Each	I-16	Manholes Abandoned, as per plan
10	20	8	21		29			88	Each	I-16	Inlets Abandoned
			90		120			210	Lin. Ft.	E12	No. 9 Sewer Removed, as per plan
20			20	60	70			170	Lin. Ft.	I-14	Paved Apron, as per plan
			1200					1200	Lin. Ft.	Special	No. 9 Sewer Sand Filled, as per plan

SCALE None
MADE H.K.M. DATE 11/10/59
TRCD. R.R. DATE 11/12/59
CKD. G.M.G. DATE 11-13-59

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

Rev. AEK 1-11-60

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	16 / 175
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY 42-18.29

GUARD RAIL		
LOCATION	SIDE	LENGTH
Ramp E-15 2+06 to 3+61	Left	144
Ramp E-15 6+71 to 7+67	Left	96
Ramp E-15 7+22 to 7+78	Right	56
Ramp E-18 7+00 to 7+69	Left	67
Ramp E-18 7+00 to 8+09	Right	119

LEGEND

- Existing Pavement Curb & Sidewalk
- Previous Contract
- I-21 Std. Type Portland Cement Concrete Median Pavement
- Project CUY 42-18.29 (Part 6)
- Project CUY 42-18.42 (Part 7) CUY 21-15.32

NOTE:
For Pavement Joints & Contours. See Sheet No. 22.

Note:*
For use of Salvaged Sandstone Curb, see General Notes.

NOTE
For detail of "Typical Joint Layout" See:
Exit Ramps, Sheet 20 of Part 7B
Entrance Ramps, Sheet 21 of Part 7B

PAVEMENT DETAILS

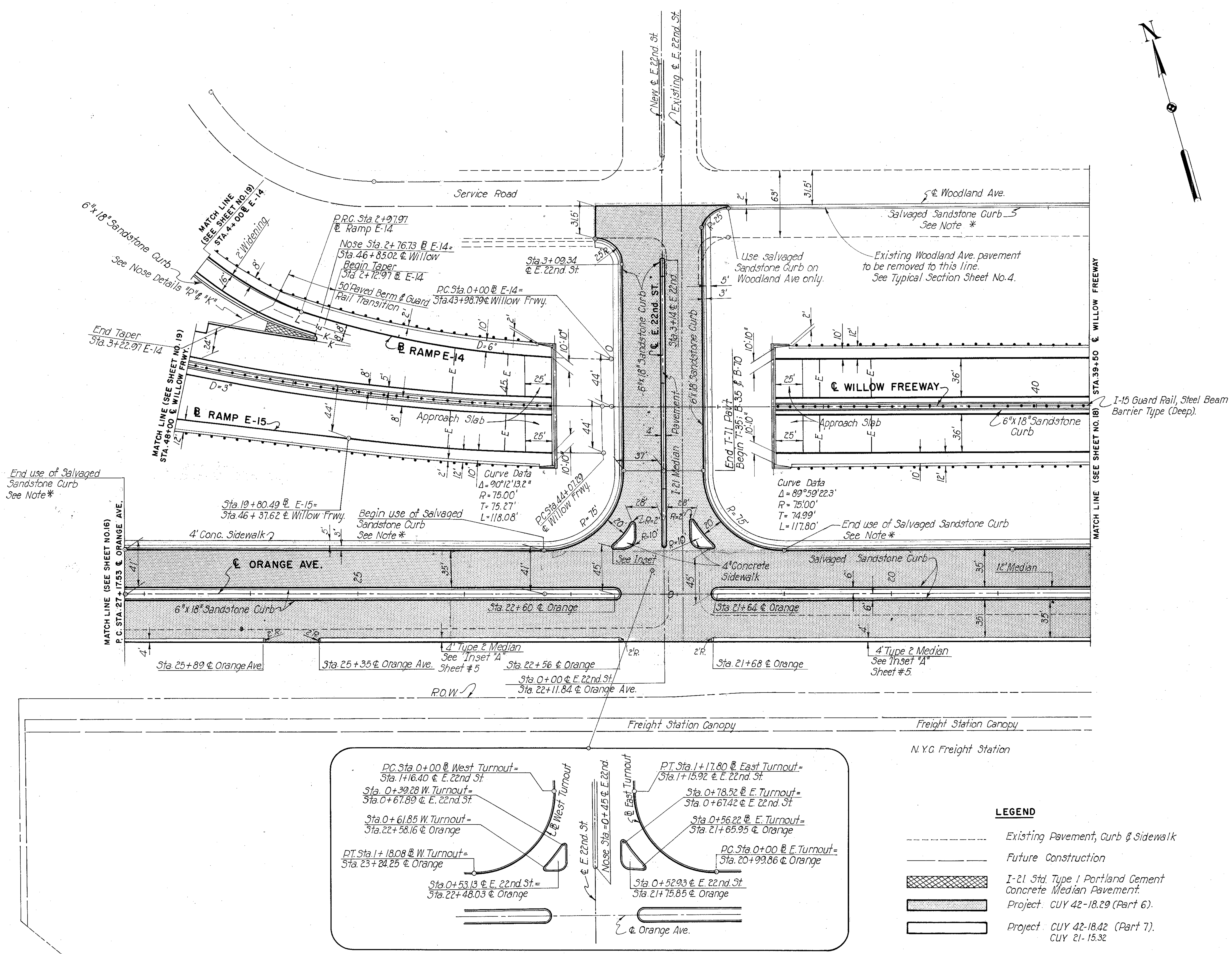
Rev. F.S.J. 12-16-59

SCALE 1" = 50'	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE J.F.S. DATE 12.15.58	CONSULTING ENGINEERS
TRCD. R.R. DATE 3.1.59	KANSAS CITY CLEVELAND NEW YORK
CKD. J.L.C. DATE 4.1.59	914 SHEET 16

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	17
2	OHIO			175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY 42-18.29

Note: For Contours and Joints, see Sheet No. 22.



LEGEND

- Existing Pavement, Curb & Sidewalk
- Future Construction
- I-21 Std. Type I Portland Cement Concrete Median Pavement.
- Project: CUY 42-18.29 (Part 6).
- Project: CUY 42-18.42 (Part 7). CUY 21-15.32

Note: For Orange Ave. Joint Layout and contours, see Sheet 22.

Note: * For use of Salvaged Sandstone Curb, see General Notes.

PAVEMENT DETAILS

SCALE 1" = 50'
MADE J.F.S. DATE 12.15.58
TRCD. R.R. DATE 3.1.59
CKD. J.L.G. DATE 4.1.59

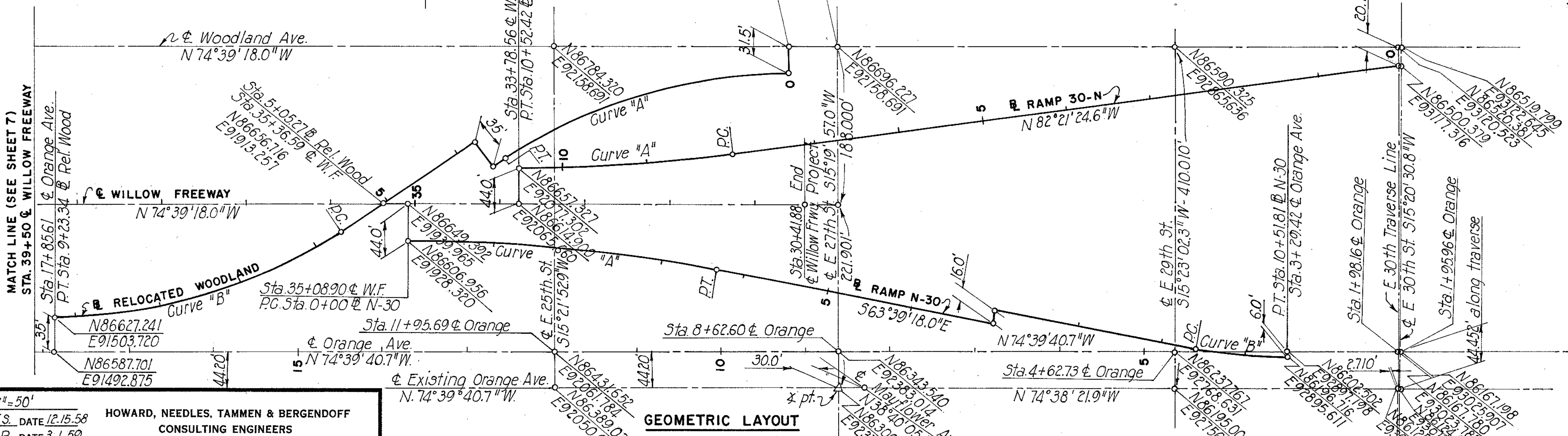
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 17

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

18 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART
CUY 42-18.29

NOTE: For joint Layout on Orange Ave. and relocated Woodland, see Sheet 22.



GEOMETRIC LAYOUT
Scale: 1" = 100'

Note: For use of Salvaged Sandstone Curb, see General Notes.

LEGEND

Existing Pavement, Curb & Sidewalk

I-21 Std. Type I Portland Cement Concrete Median Pavement.

Project CUY 42-18.29 (Part 6)

Project CUY 42-18.42 (Part 7) CUY 21-15.32

Note: For Orange Ave. Pavement Joints and Contours, see Sheet # 22.

PAVEMENT DETAILS

SCALE 1" = 50'
MADE J.F.S. DATE 12-15-58
TRCD. R.R. DATE 3-1-59
CKD. J.L.C. DATE 4-1-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 18

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	19 / 175
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY 42-18.29

GUARD RAIL		
LOCATION	SIDE	LENGTH
E.B. Scovill 5+00 to 7+27	Left	227
S.B.-E.14th St. 10+00 to 12+50	Left	260

LEGEND

(dashed line)	Existing Pavement, Curb & Sidewalk.
(long dash line)	Future Construction.
(crosshatched)	I-21 Std. Type I Portland Cement Concrete Median Pavement.
(open box)	Project CUY 42-18.29 (Part 6)
(open box)	Project CUY 42-18.42 (Part 7) CUY 21-15.32

Note: For Pavement Joint Legend See Sheet No. 22.

PAVEMENT DETAILS

SCALE 1"=50'
MADE L.I.B. DATE 12-15-58
TRCD. R.R. DATE 3-1-59
CKD. J.L.C. DATE 4-1-59

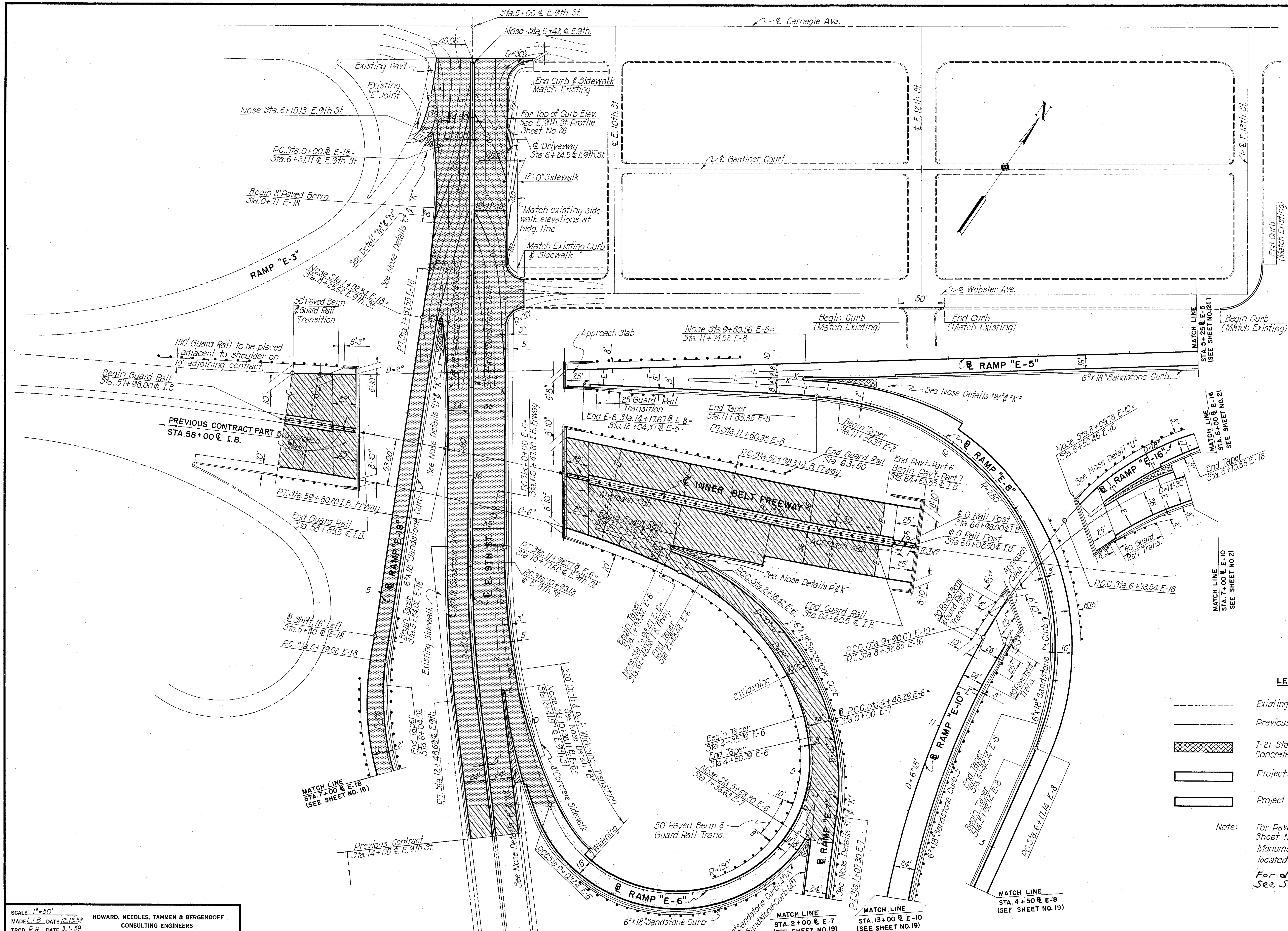
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 19

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY

CITY OF CLEVELAND

CUY 42-18.29



GUARD RAIL			
Location		Side	Length
Ramp E-18	5+18 to 7+00	Left	176'
Ramp E-18	5+95 to 7+00	Right	112'
Ramp E-6	1+12 to 6+72	Right	531'
Ramp E-6	3+50 to 4+48	Left	106'
Ramp E-6	6+20 to 8+13	Left	225'
Ramp E-7	0+00 to 1+37	Left	140'
Ramp E-8	7+45 to 8+71	Right	138'
Inner Belt Freeway	56+50 to 58+53	Left	203'
Inner Belt Freeway	58+06 to 58+76	Right	70'
Inner Belt Freeway	61+27 to 63+50	Left	225'
BARRIER RAIL			
Inner Belt Freeway	57+98 to 58+85.5	Center	87.5'
Inner Belt Freeway	61+10.5 to 64+60.5	Center	350'

LEGEND

- Existing Pavement, Curb & Sidewalk
- Previous Contract
- I-21 Std. Type 1 Portland Cement Concrete Median Pavement.
- Project CUY 42-18.29 (Part 6)
- Project CUY 42-18.42 (Part 7) CUY 21-15.32

Note: For Pavement Joint Legend, see Sheet No. 22.
Monument Assemblies to be located by the Engineer

For detail of Monument Assemblies, See Std. Dwg. RI-1.

PAVEMENT DETAILS

SCALE 1" = 50'
MADE L.I.B. DATE 12.15.58
TRCD. R.R. DATE 3.1.59
CKD. J.L.C. DATE 4.1.59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 20

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	21 / 175
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

GUARD RAIL			
LOCATION		SIDE	LENGTH
E.B. Scovill	0+00 to 1+55	Left	149'
E.B. Scovill	3+57 to 5+00	Left	142'
E.B. Scovill	1+71 to 1+90	Right	19'
E.B. Scovill	3+57 to 4+46	Right	81'
S.B. E. 14th St.	5+52 to 6+72	Left	120'
S.B. E. 14th St.	8+80 to 10+00	Left	128'

LEGEND

- - - - -	Existing Pavement, Curb & Sidewalk.
— — — —	Construction by others.
— - — - —	Future Construction.
(crosshatched)	I-21 Std. Type 1 Portland Cement Concrete Median Pavement
(box)	Project: CUY 42-18.29 (Part 6)
(box)	Project: CUY 42-18.42 (Part 7) CUY 21-15.32

Note: For Pavement Joint Legend, See Sheet # 22.

PAVEMENT DETAILS

SCALE 1" = 50'
MADE L.I.B. DATE 12-15-58
TRCD. R.R. DATE 3-1-59
CKD. J.L.C. DATE 4-1-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 21

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

22
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29
JOINT LAYOUT

PAVEMENT JOINT LEGEND

L = Standard Longitudinal Joint.
K = " Long. Key Joint without tie bars.
C = Construction Joint.
E = Standard Expansion Joint.
D = " " " without tie bars.
B = Plain Butt Joint.

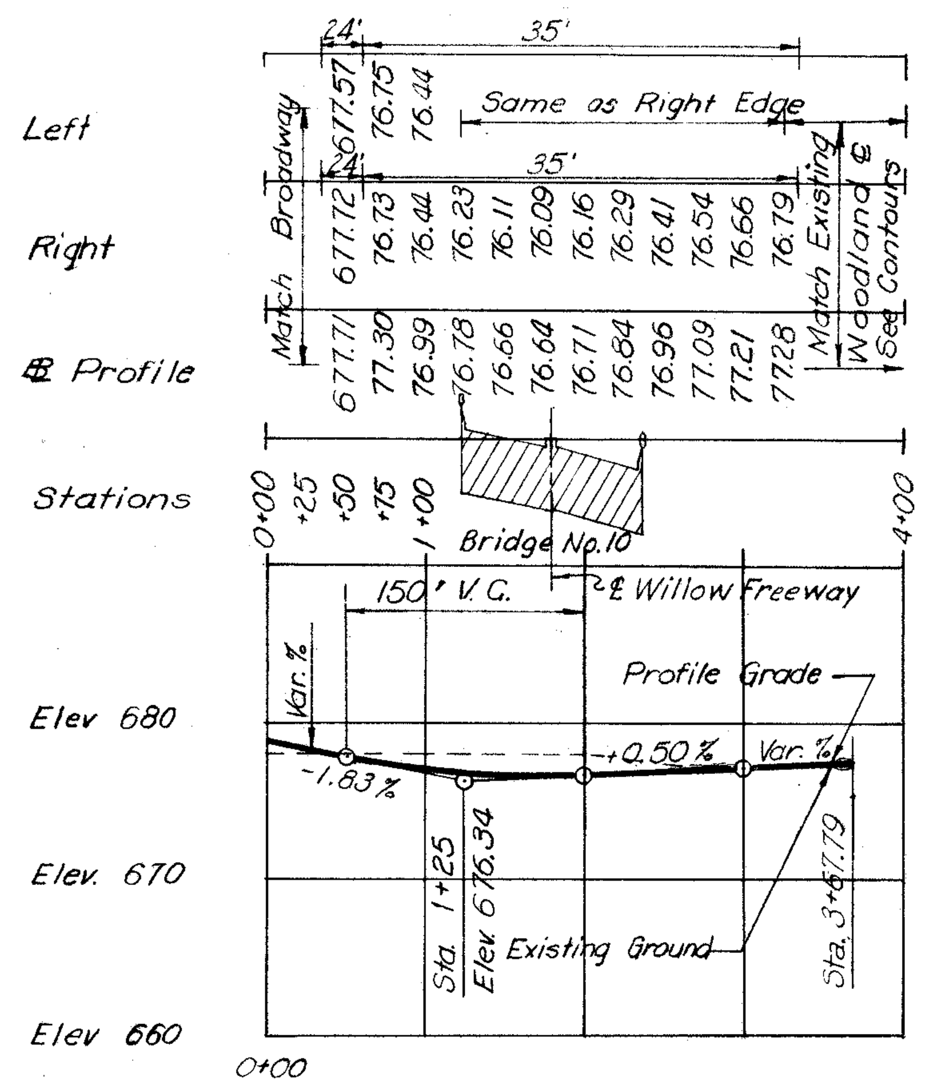
* An expansion Joint without dowels shall be placed at terminals of all "Standard Longitudinal Key Joints without Tie Bars," even though not specifically called for on the plans. They shall be two (2) feet in length and located on radial lines.

SCALE 1" = 50'
MADE L.I.B. DATE 3-1-59
TRCD.
CKD. J.L.C. DATE 3-4-59

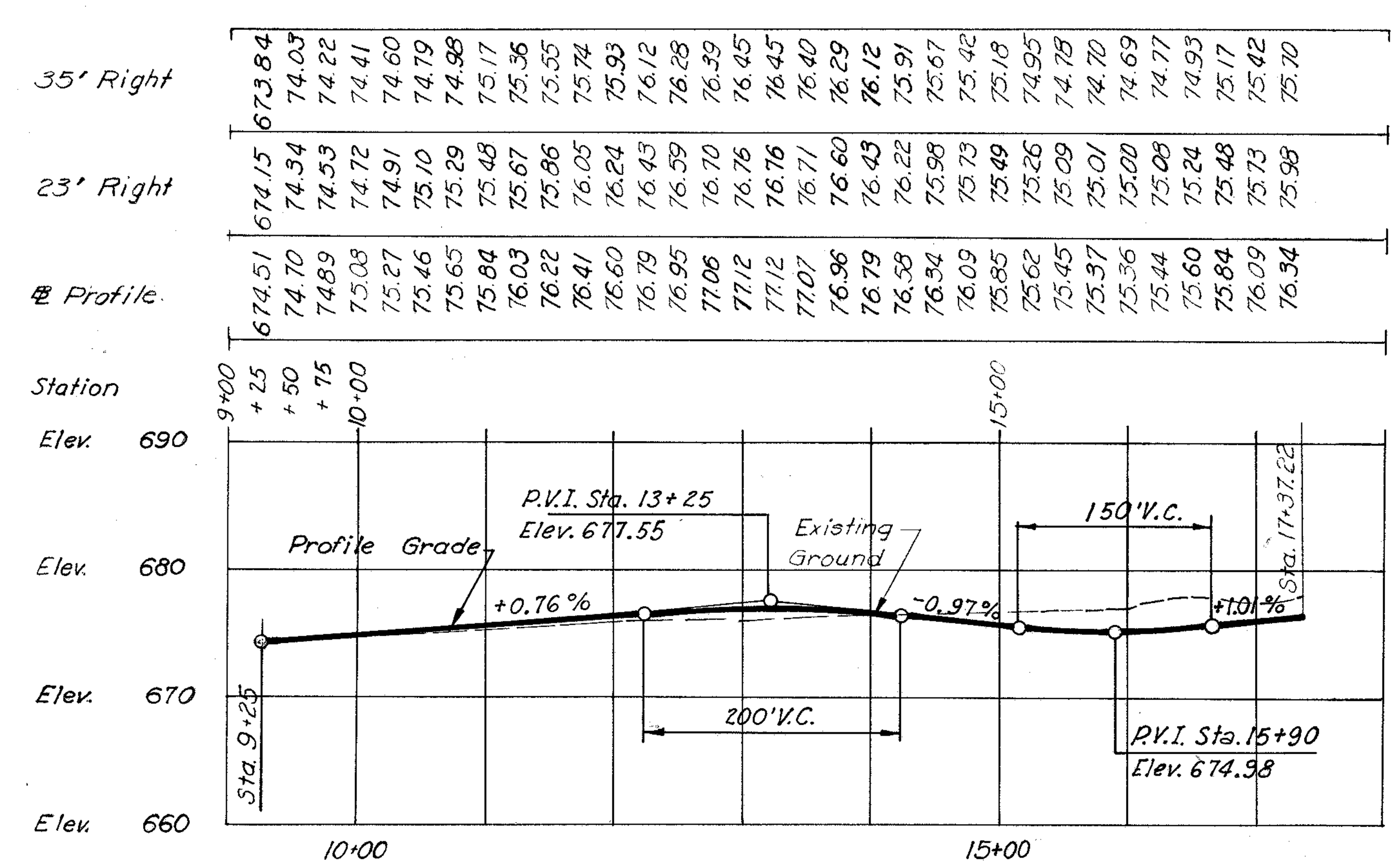
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 22

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

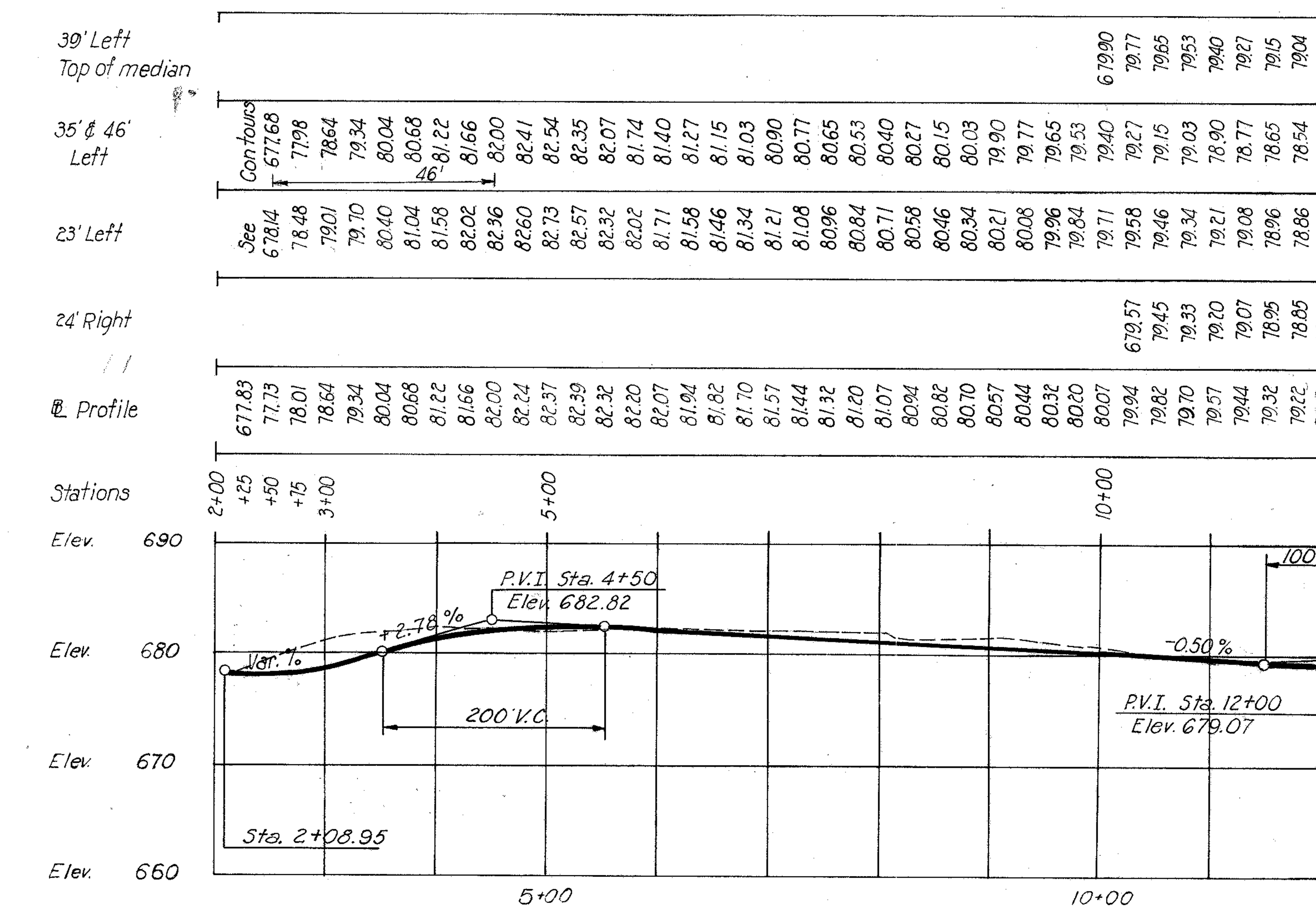
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29
PROFILES



EAST 22nd STREET



EAST BOUND BROADWAY



ORANGE

ORANGE

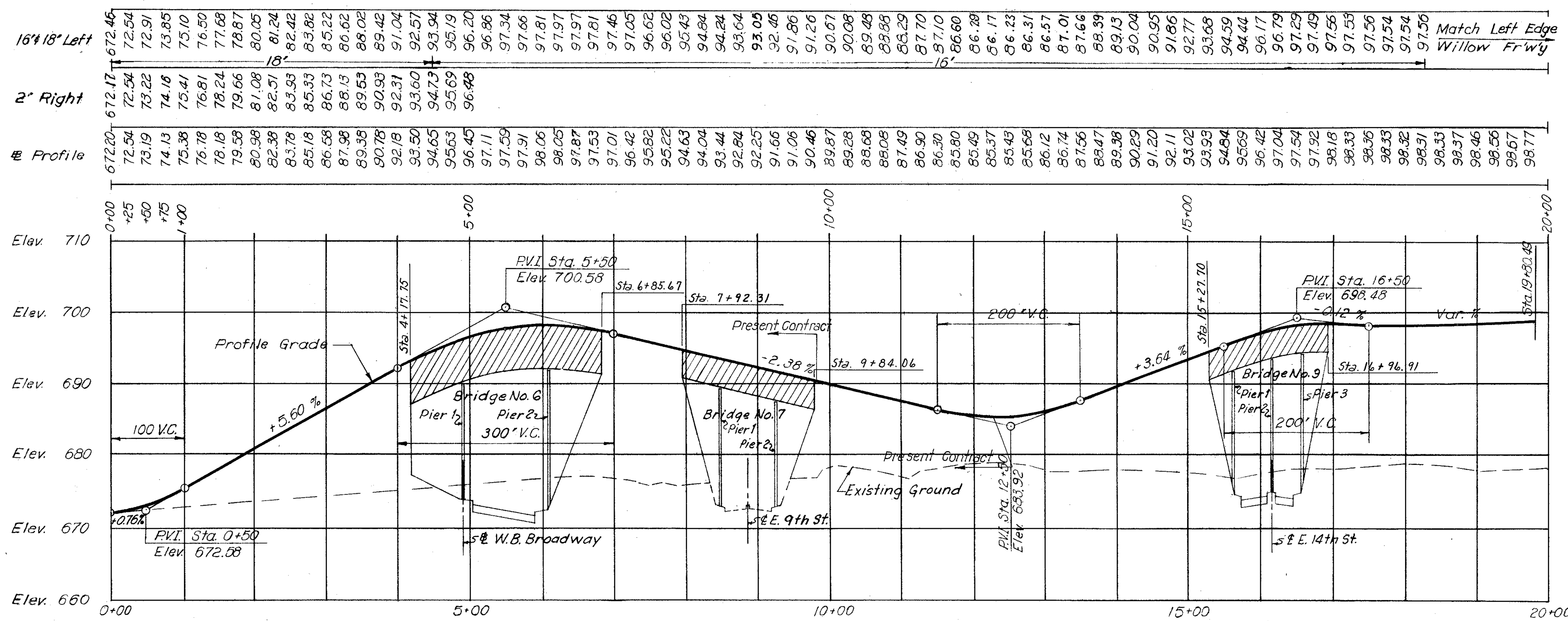
SCALE 1"=10' Vert. 1"=100' hor.
MADE DPH DATE 8-2-58
TRCD. ____ DATE ____
CKD. G.M.G. DATE 2-5-59

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

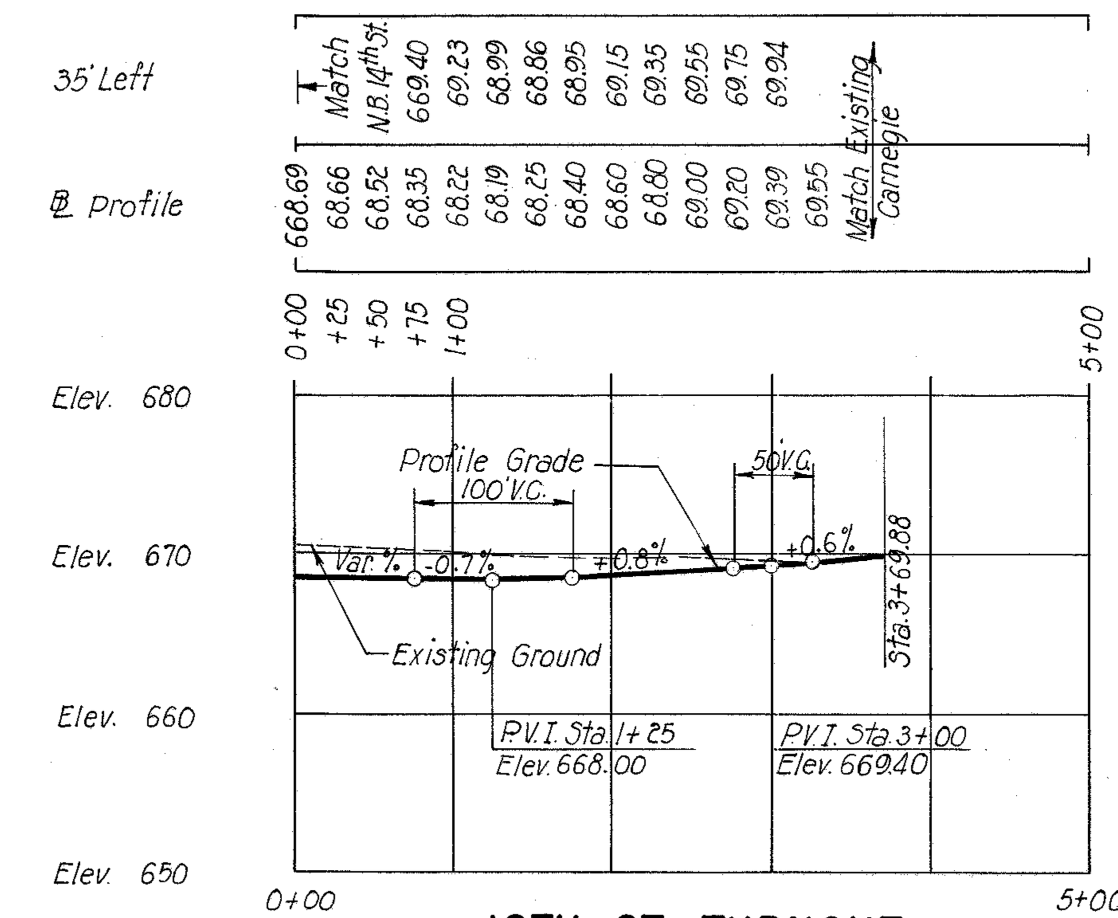
914 SHEET 23

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

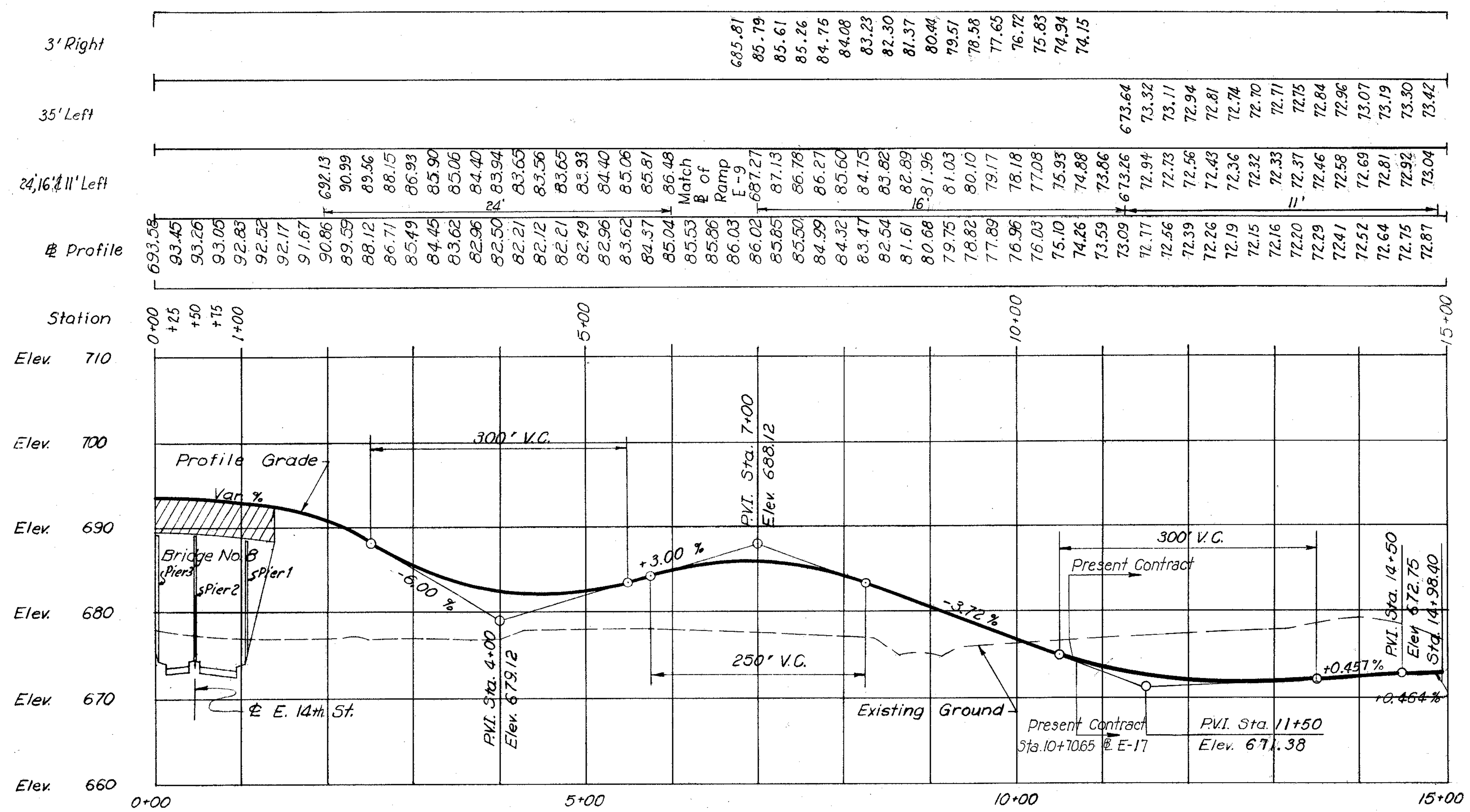
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29
PROFILES



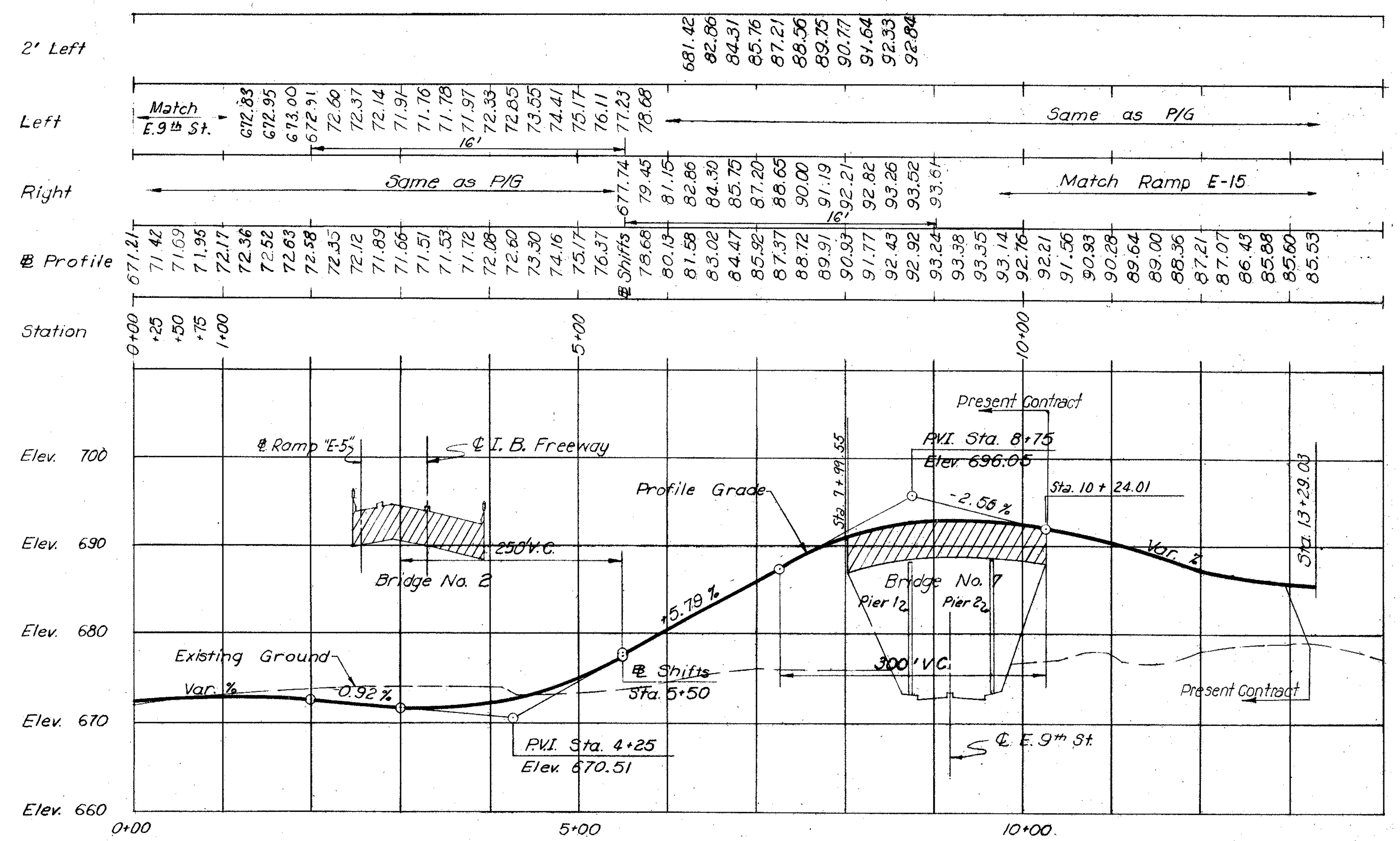
E-15



18TH ST. TURNOUT



E-17



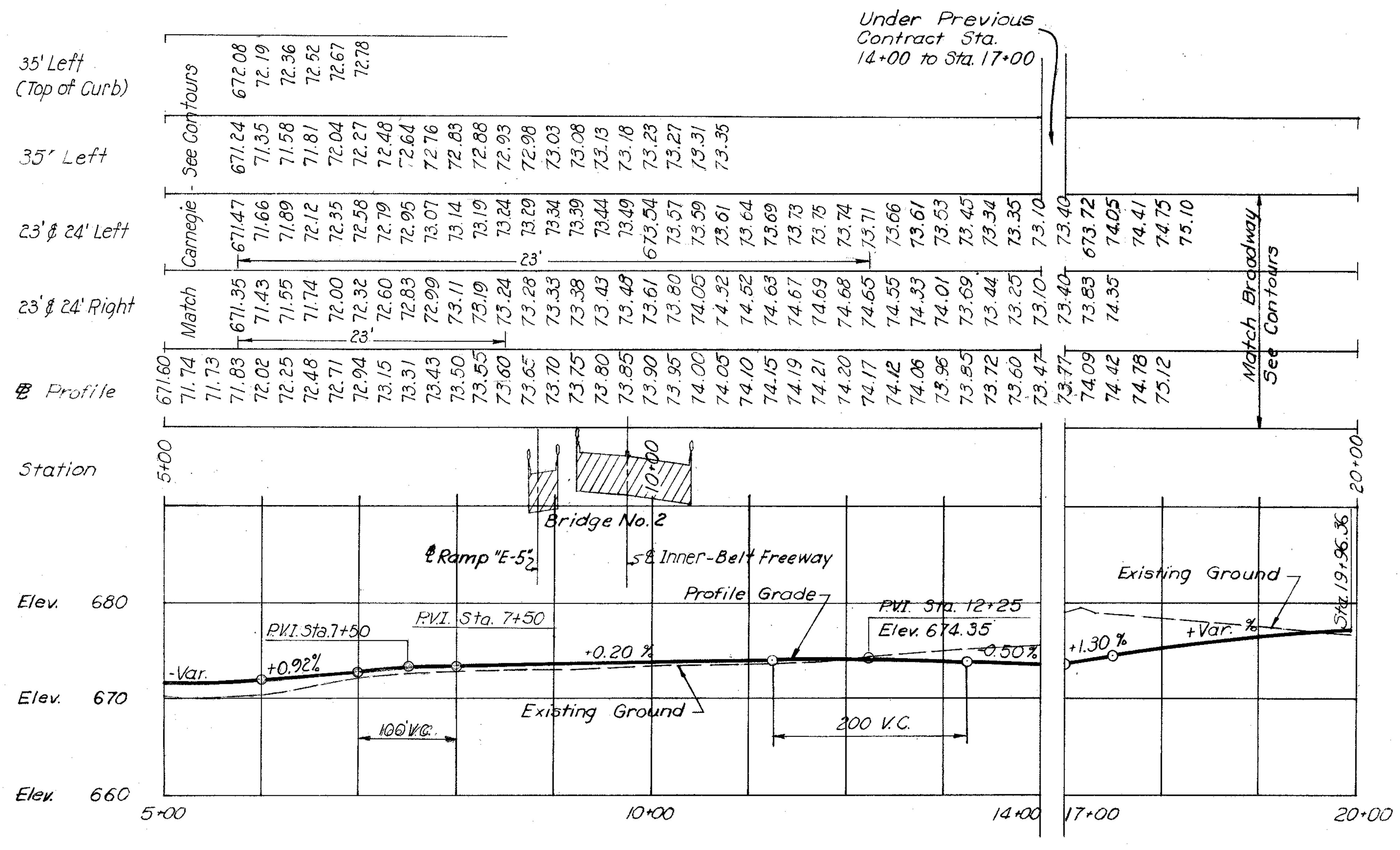
E-18

SCALE 1" = 10' Vert., 1" = 100' hor.
MADE DPH DATE 7-16-58
TRCD. ____ DATE ____
CKD. GMG DATE 12-18-58

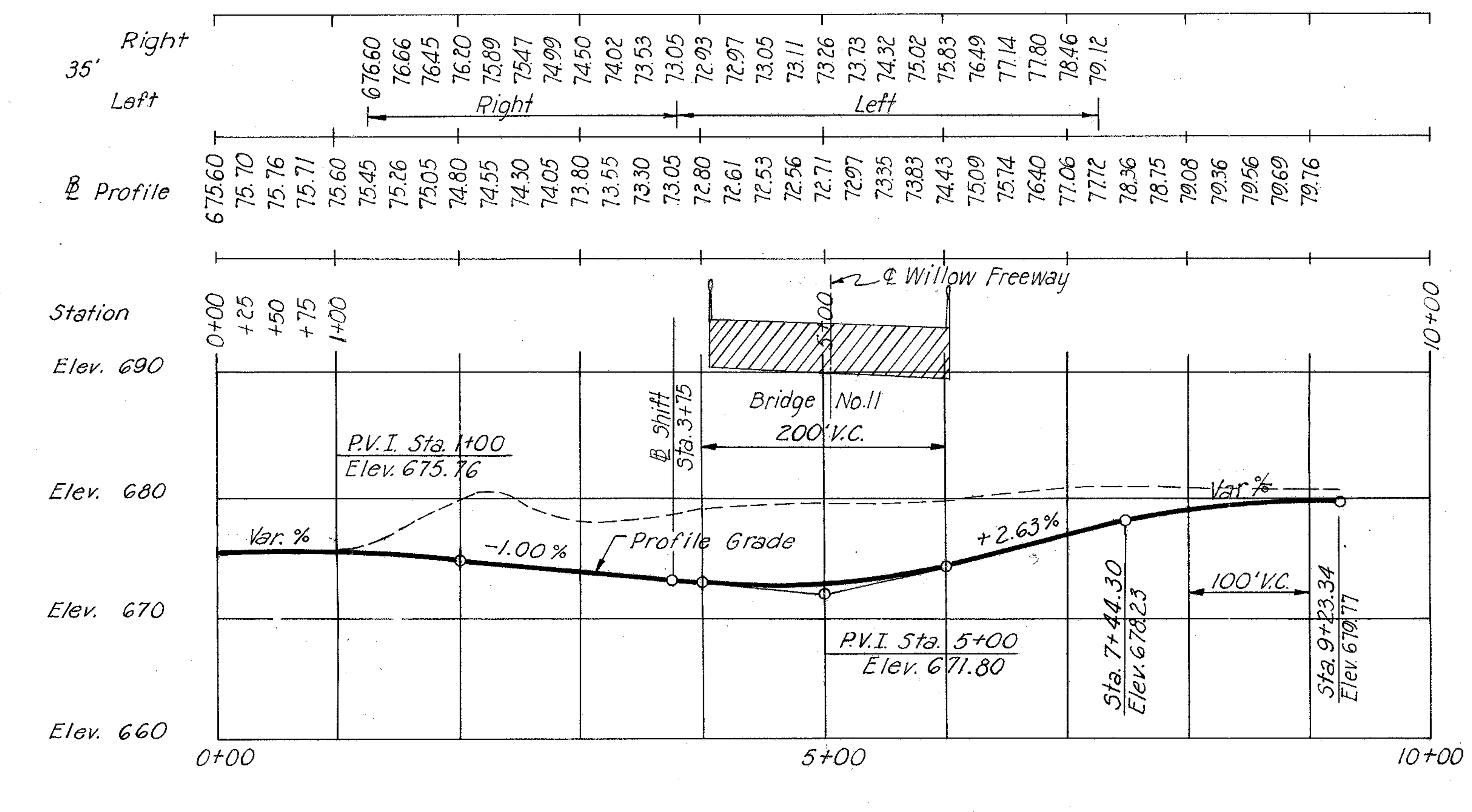
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 24

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	25 / 175
2	OHIO			

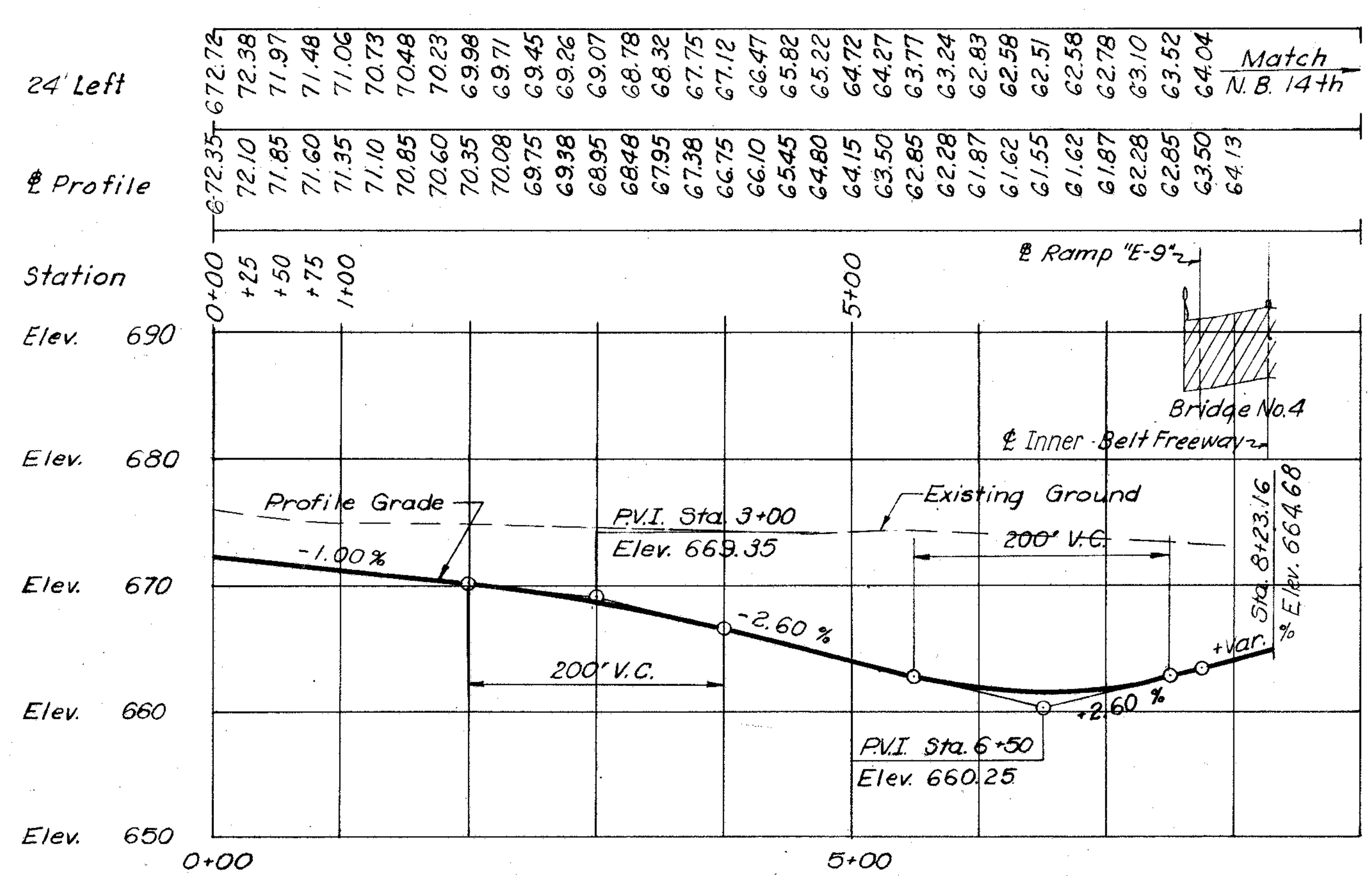
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
PROFILES



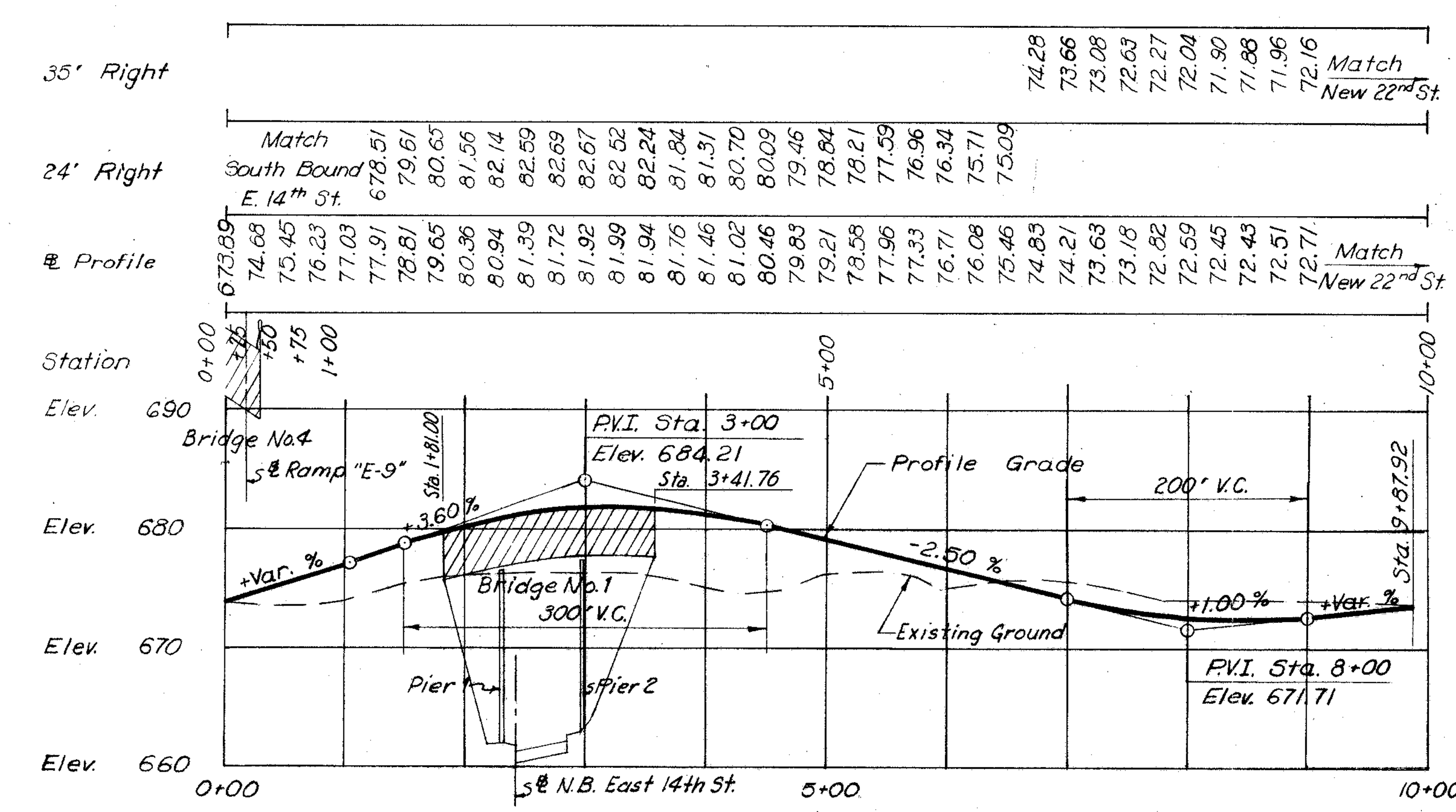
EAST 9TH ST.



RELOCATED WOODLAND AVE.



WEST BOUND SCOVILL



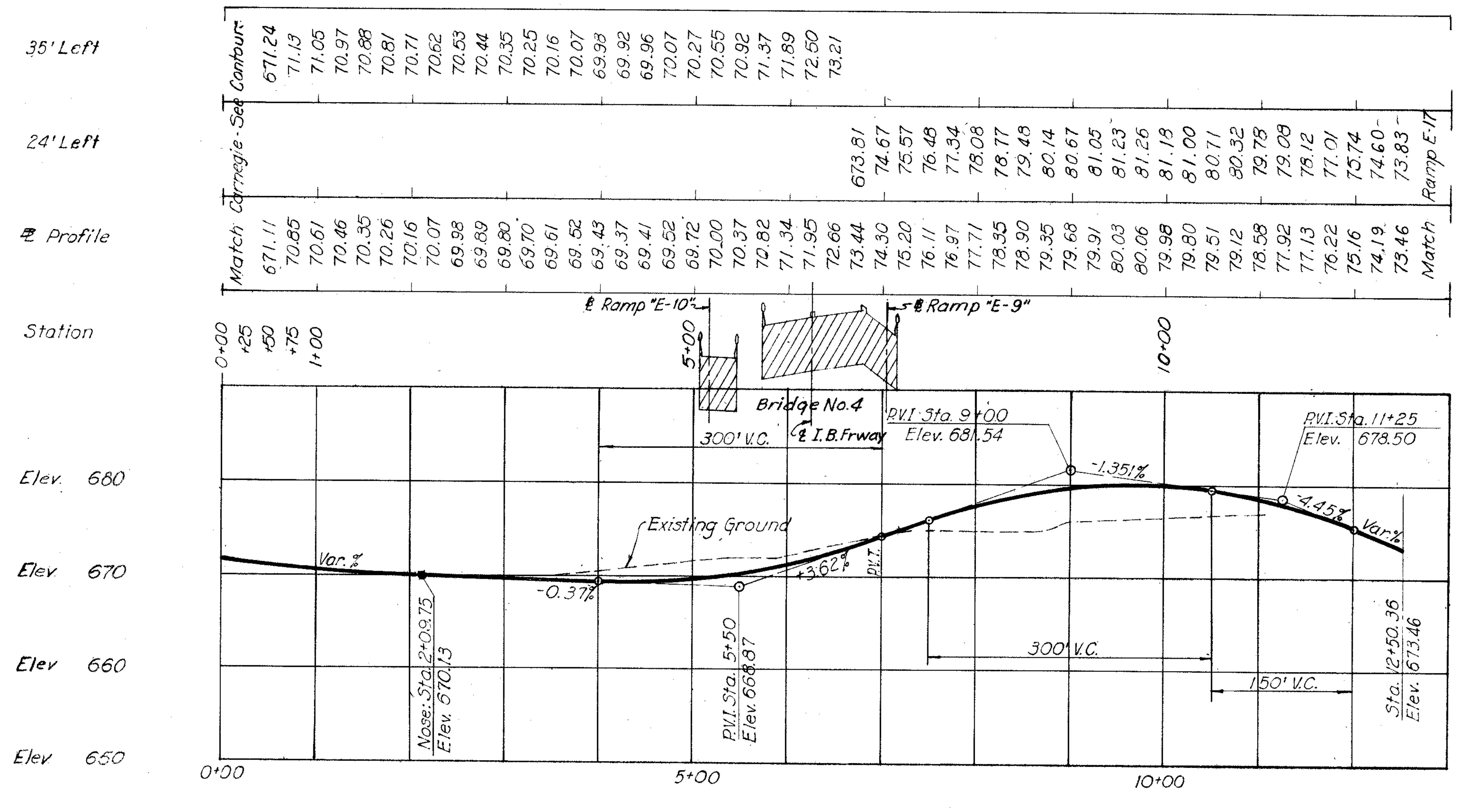
EAST BOUND SCOVILL

SCALE 1"=10' Ver.: 1"=100' Hor.
MADE D.P.H. DATE 7-4-58
TRCD. ____ DATE ____
CKD. G.M.G. DATE 2-26-59

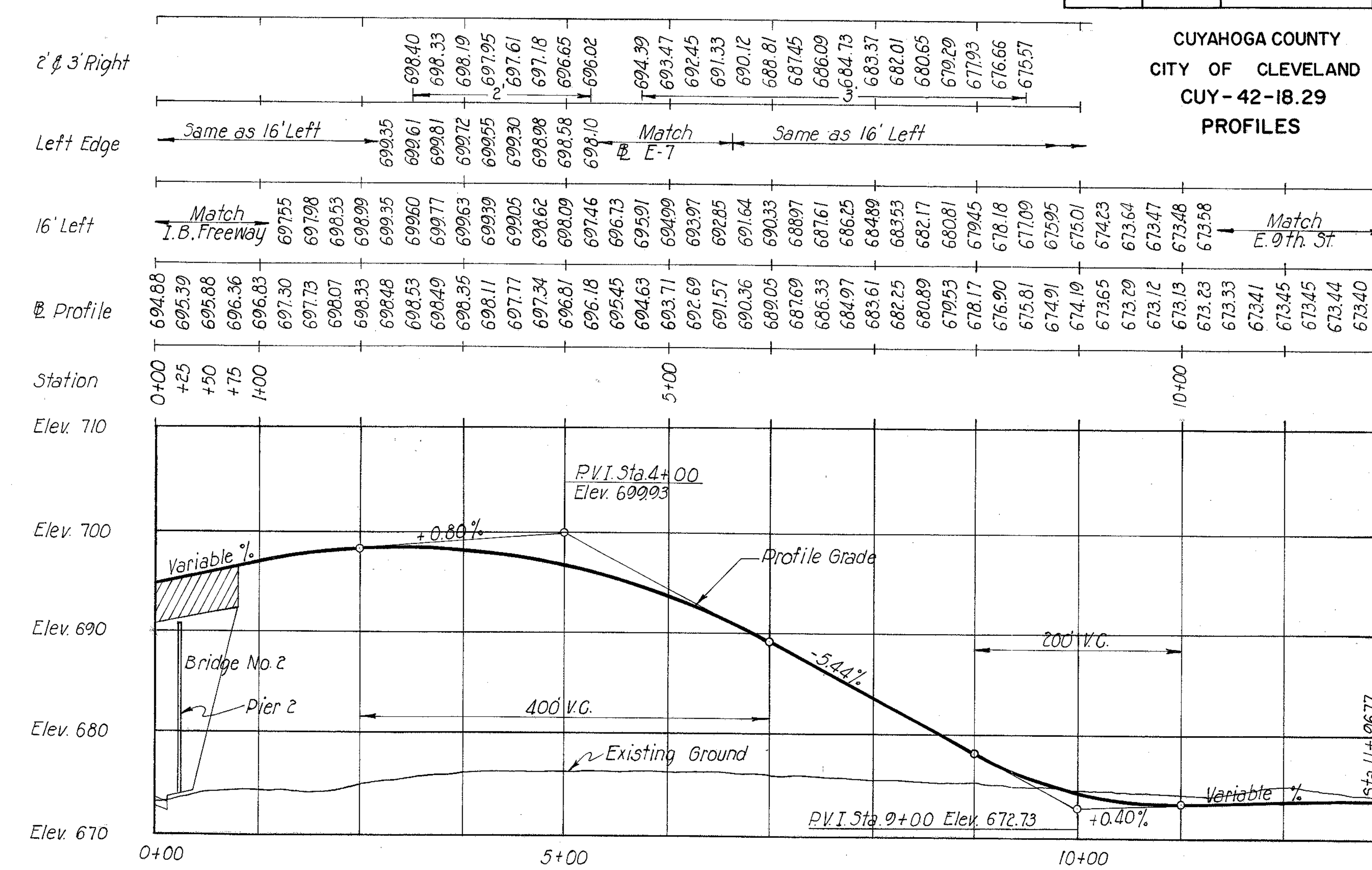
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 25

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	26 / 175
2	OHIO			

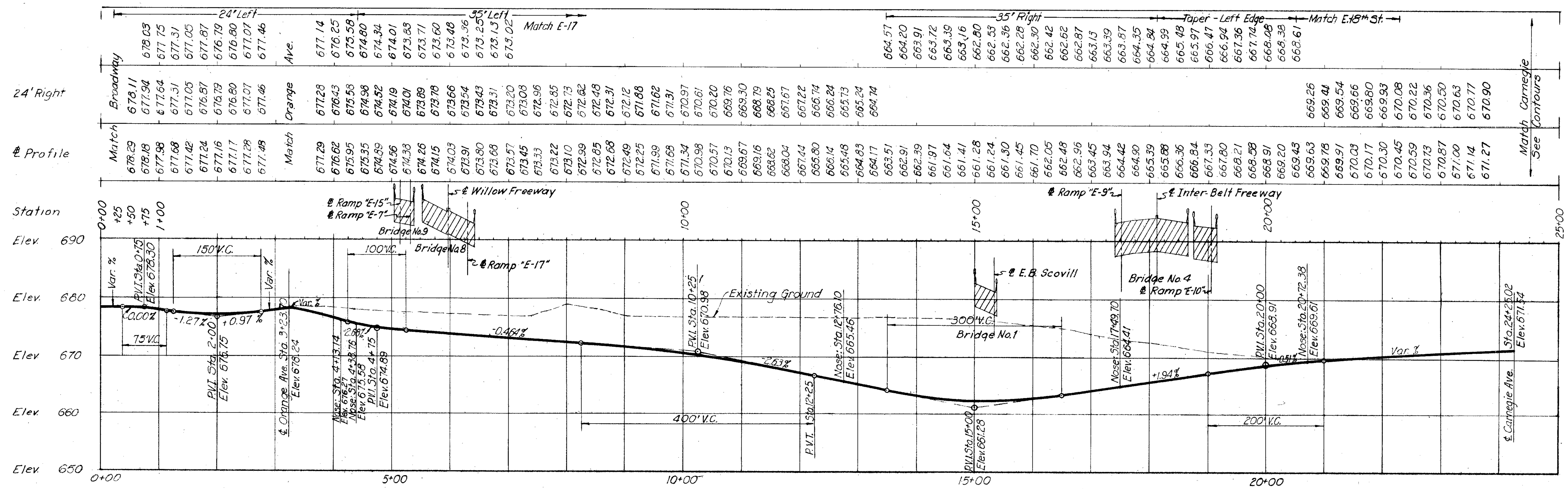
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
PROFILES



SOUTH BOUND 14TH ST.



E-6



NORTH BOUND 14TH ST.

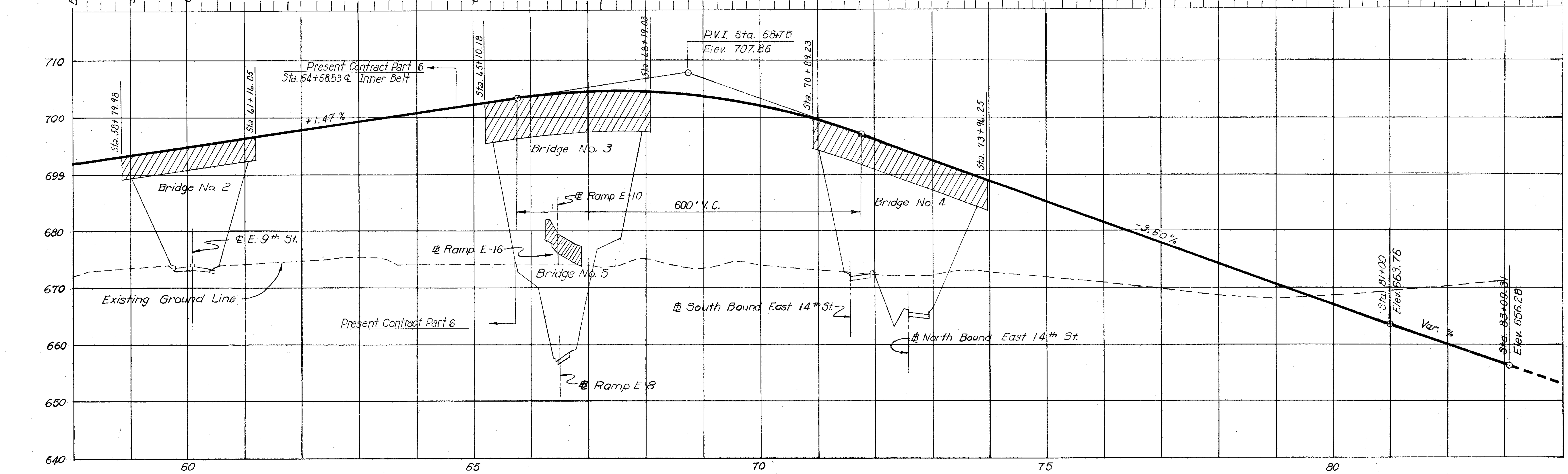
SCALE 1"=10' Vert., 1"=100' hor.
MADE DPH DATE 8-2-58
TRCD. R.R. DATE 8-14-58
CKD. G.M.G. DATE 2-5-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 26

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
PROFILES

Station	Var. Left at Taper	39' Left	3' Left	51' Right	39' Right	3' Right	Profile
58+00		693.22	692.14	690.52	690.88	691.96	692.05
+25		93.59	92.51	90.89	91.25	92.33	92.42
+50		93.90	92.88	91.26	91.62	92.70	92.79
+75		94.20	93.24	91.63	91.99	93.07	93.16
59+00		94.44	93.59	91.99	92.35	93.43	93.52
59+25		94.68	93.95	92.40	92.72	93.80	93.89
59+50		94.92	94.31	92.88	93.20	94.18	94.26
59+75		95.16	94.67	93.40	93.69	94.56	94.63
60+00		95.40	95.02	93.90	94.16	94.93	94.99
60+25		95.64	95.38	94.42	94.63	95.30	95.36
60+50		95.88	95.74		95.12	95.68	95.73
60+75		96.13	96.10		95.62	96.05	96.10
61+00		96.36	96.45		96.10	96.43	96.46
61+25		96.60	96.81		96.60	96.81	96.76*
61+50		96.85	97.17		97.10	97.19	97.07*
61+75		97.09	97.53		97.60	97.57	97.45*
62+00		97.36	97.88		98.08	97.94	97.82*
62+25		97.69	98.25		98.58	98.32	98.20*
62+50		97.92	98.61		99.08	98.70	98.58*
62+75		98.21	98.98		99.57	99.08	98.96*
63+00		98.46	99.33		700.06	99.45	99.33*
63+25		98.71	99.69		00.56	99.83	99.71*
63+50		99.01	700.05		01.06	700.21	700.09*
63+75		99.34	00.42		01.55	00.59	00.47*
64+00		99.70	00.78		02.00	00.96	00.84*
64+25		700.07	01.15		02.41	01.33	01.21*
64+50		00.44	01.52		02.78	01.70	01.58*
64+75		00.81	01.89		03.15	02.07	01.98
65+00		01.17	02.25		03.51	02.43	02.34
65+25		01.54	02.62		03.88	02.80	02.71
65+50		01.91	02.99		04.25	03.17	03.08
65+75		02.28	03.36		04.62	03.54	03.45
66+00		02.61	03.69		04.95	03.87	03.78
66+25		02.90	03.98		05.24	04.16	04.07
66+50		03.14	04.22		05.48	04.40	04.31
66+75		03.33	04.41		05.67	04.59	04.50
67+00		03.45	04.53		05.79	04.71	04.62
67+25		03.53	04.61		05.87	04.79	04.70
67+50		03.56	04.64		05.90	04.82	04.73
67+75		03.53	04.61		05.87	04.79	04.70
68+00		03.44	04.52		05.78	04.70	04.61
68+25		03.31	04.39		05.65	04.57	04.48
68+50		03.13	04.21		05.47	04.39	04.30
68+75		02.89	03.97		05.23	04.15	04.06
69+00		02.60	03.68		04.94	03.86	03.77
69+25		02.25	03.33		04.59	03.51	03.42
69+50		01.85	02.93		04.19	03.11	03.02
69+75		01.40	02.48		03.69	02.66	02.57
70+00		00.90	01.98		03.11	02.15	02.07
70+25		00.34	01.42		02.43	01.58	01.51
70+50		699.77	00.81		01.69	00.96	00.90
70+75		99.18	00.16		00.90	00.29	00.24
71+00		98.58	699.45		00.05	699.56	699.52
71+25		97.92	98.69		699.16	98.78	98.75
71+50		97.21	97.87		98.21	97.95	97.93
71+75		96.40	97.01		97.21	97.07	97.06
72+00		95.55	96.11		96.19	96.16	96.16
72+25		94.65	95.21		95.16	95.25	95.26
72+50		93.75	94.31		94.13	94.34	94.36
72+75		92.85	93.41		93.10	93.43	93.46
73+00		91.95	92.51		92.08	92.52	92.56
73+25		91.05	91.61		91.08	91.61	91.66
73+50		90.15	90.71		90.15	90.71	90.76
73+75		89.25	89.81	89.06	89.25	89.81	89.86
74+00		88.35	88.91	88.16	88.35	88.91	88.96
74+25		87.45	88.01	87.26	87.45	88.01	88.06
74+50		86.55	87.11	86.36	86.55	87.11	87.16
74+75		85.65	86.21	85.46	85.65	86.21	86.26
75+00	684.38	84.75	85.31	84.56	84.75	85.31	85.36
75+25	83.49	83.85	84.41	83.66	83.85	84.41	84.46
75+50	82.60	82.95	83.51	82.76	82.95	83.51	83.56
75+75	81.71	82.05	82.61	81.86	82.05	82.61	82.66
76+00	80.83	81.15	81.71	80.96	81.15	81.71	81.76
76+25	79.94	80.25	80.81	80.06	80.25	80.81	80.86
76+50	79.05	79.35	79.91	79.16	79.35	79.91	79.96
76+75	78.16	78.45	79.01	78.26	78.45	79.01	79.06
77+00	77.28	77.55	78.11		77.55	78.11	78.16
77+25	76.39	76.65	77.21		76.65	77.21	77.26
77+50	75.50	75.75	76.31		75.75	76.31	76.36
77+75	74.61	74.85	75.41		74.85	75.41	75.46
78+00	73.73	73.95	74.51		73.95	74.51	74.56
78+25	72.84	73.05	73.61		73.05	73.61	73.66
78+50	71.95	72.15	72.71		72.15	72.71	72.76
78+75	71.06	71.25	71.81		71.25	71.81	71.86
79+00	70.16	70.35	70.91		70.35	70.91	70.96
79+25	69.26	69.45	70.01		69.45	70.01	70.06
79+50	68.36	68.55	69.11		68.55	69.11	69.16
79+75	67.46	67.85	68.21		67.65	68.21	68.26
80+00		66.75	67.31		66.75	67.31	67.36
80+25		65.85	66.41		65.85	66.41	66.46
80+50		64.95	65.51		64.95	65.51	65.56
80+75		64.05	64.61		64.05	64.61	64.66
81+00		63.15	63.71		63.15	63.71	63.76
81+25		62.25	62.81		62.25	62.81	62.86
81+50		61.36	61.92		61.36	61.92	61.97
81+75		60.46	61.02		60.46	61.02	61.07
82+00		59.57	60.13		59.57	60.13	60.18
82+25		58.68	59.24		58.68	59.24	59.29
82+50		57.78	58.34		57.78	58.34	58.39
82+75		56.89	57.45		56.89	57.45	57.50
83+00		56.00	56.56		56.00	56.56	56.61

Variable Left Edge — 51' Left



INNER BELT

* Note:
Profile grade elevations were lowered to produce a .04 % super elevation in the 3' right area for drainage purposes.

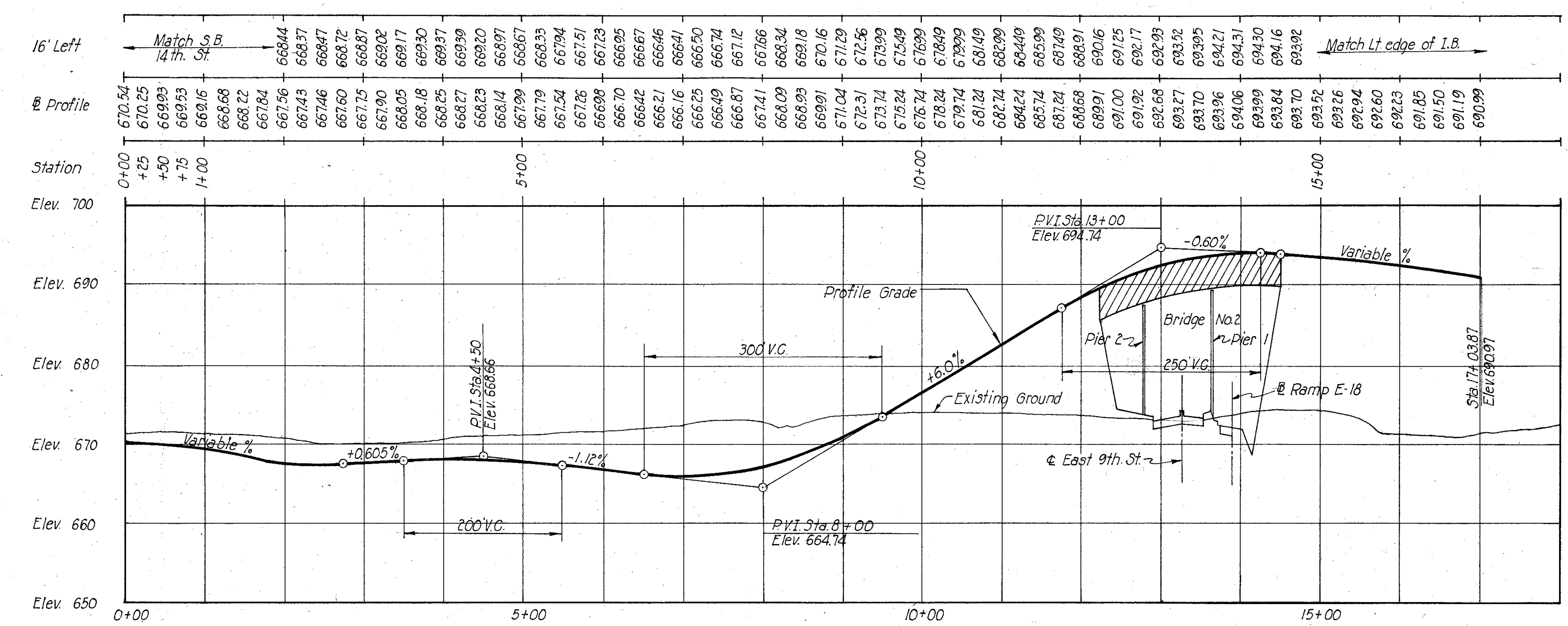
SCALE 1" = 10' hor. 1" = 100' Vert.
MADE DPH DATE 7/16/58
TRCD. R.R. DATE 8.2.58
CKD. GMG DATE 12-18-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 27

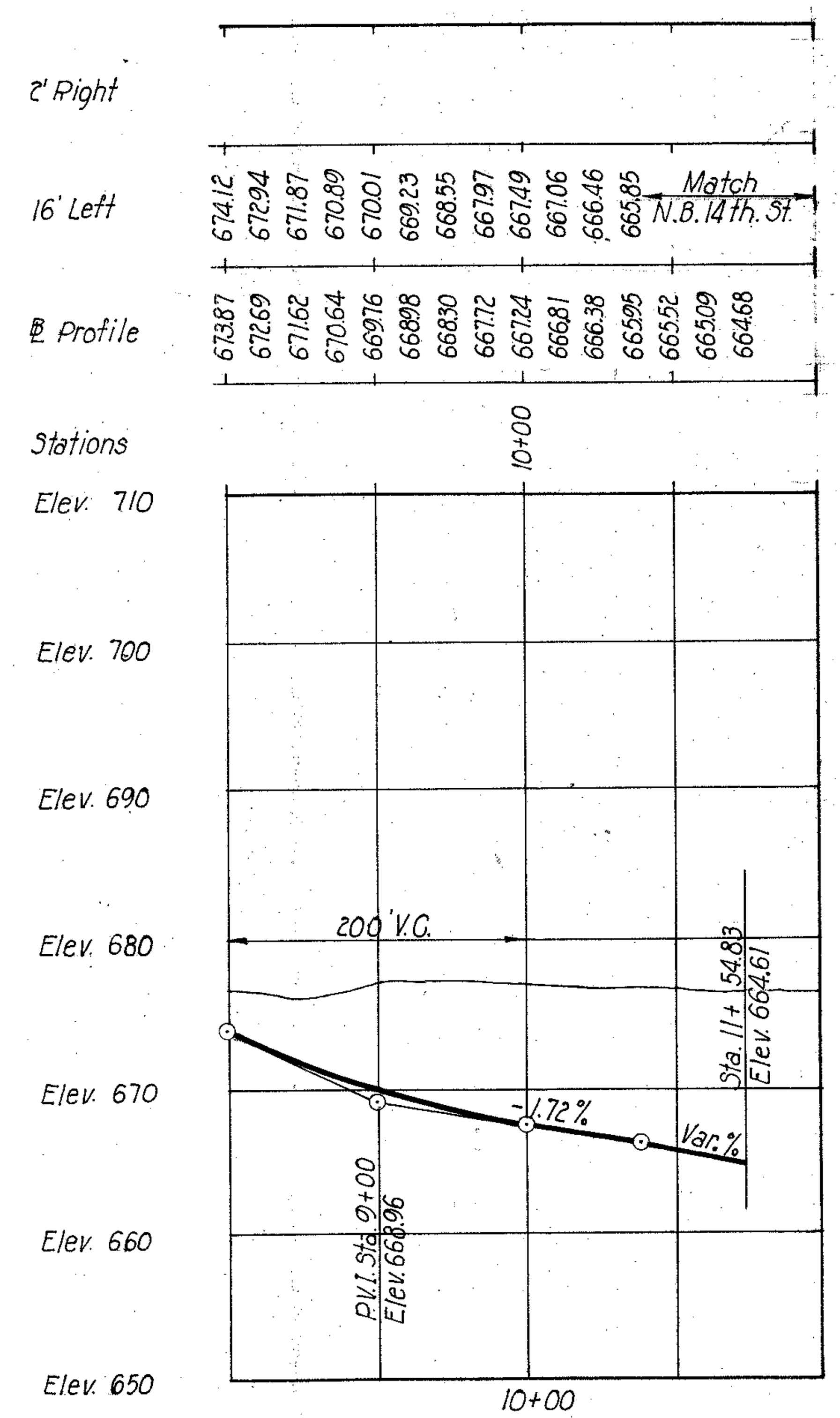
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

27A
175

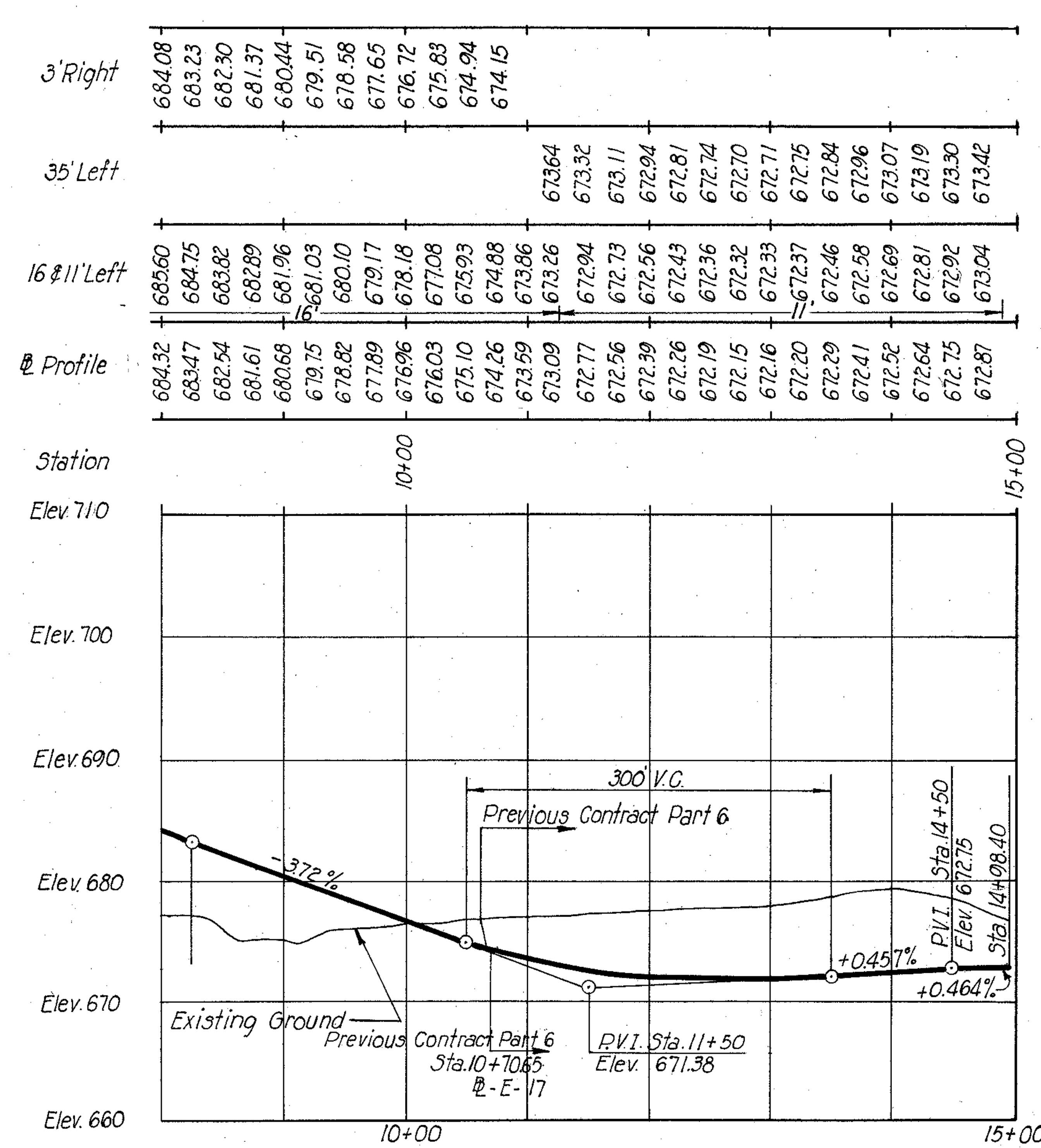
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
PROFILES & APPROACH SLABS



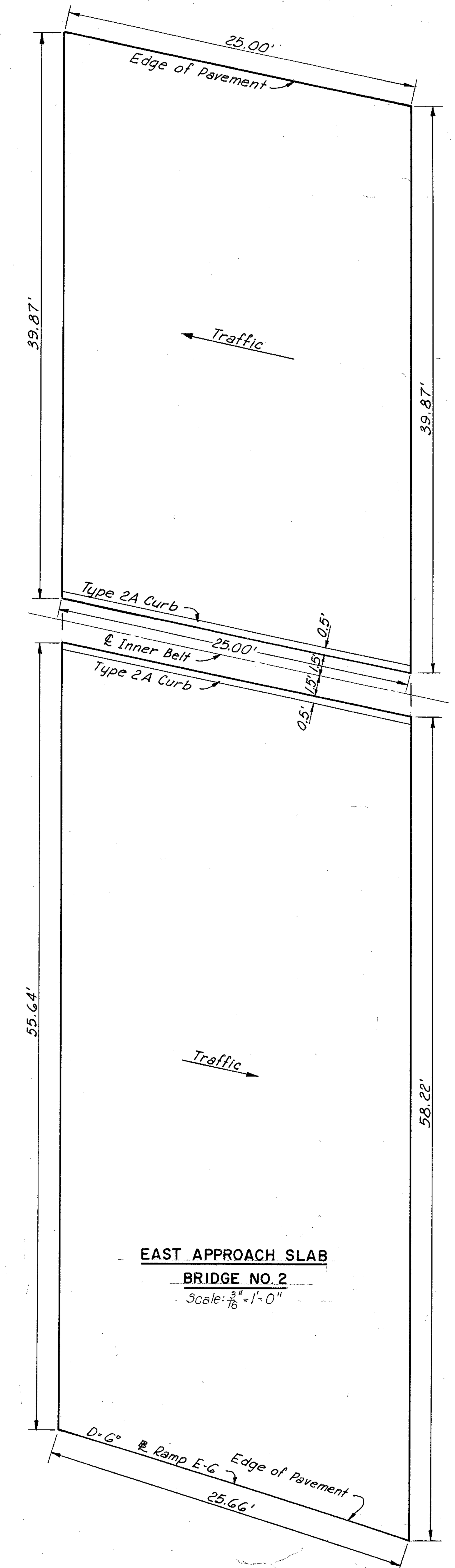
E-5



PARTIAL E-14 PROFILE



PARTIAL E-17 PROFILE



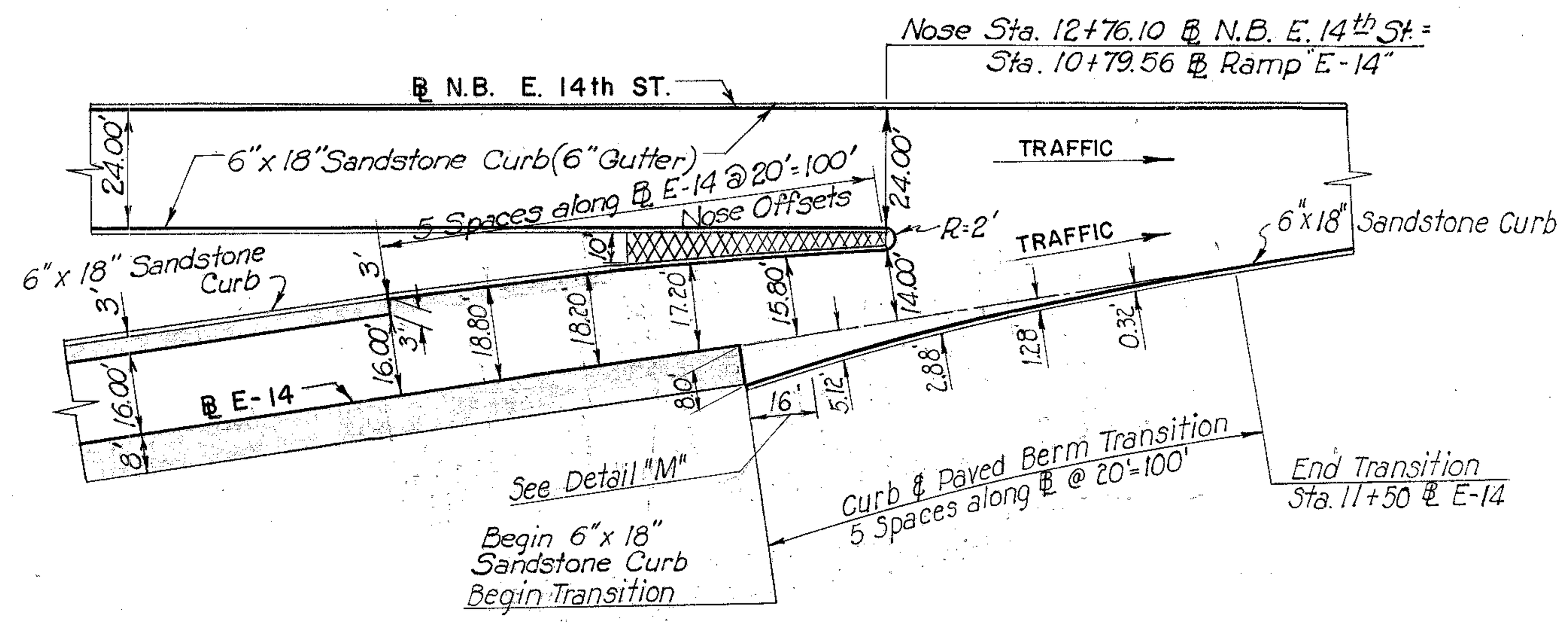
EAST APPROACH SLAB
BRIDGE NO. 2
Scale: 3/16" = 1'-0"

SCALE Hor. 1" = 100' Vert. 1" = 10'
MADE J.L.C. DATE 9.14.59
TRCD. R.R. DATE 9.23.59
CKD. G.M.G. DATE 9.15.59

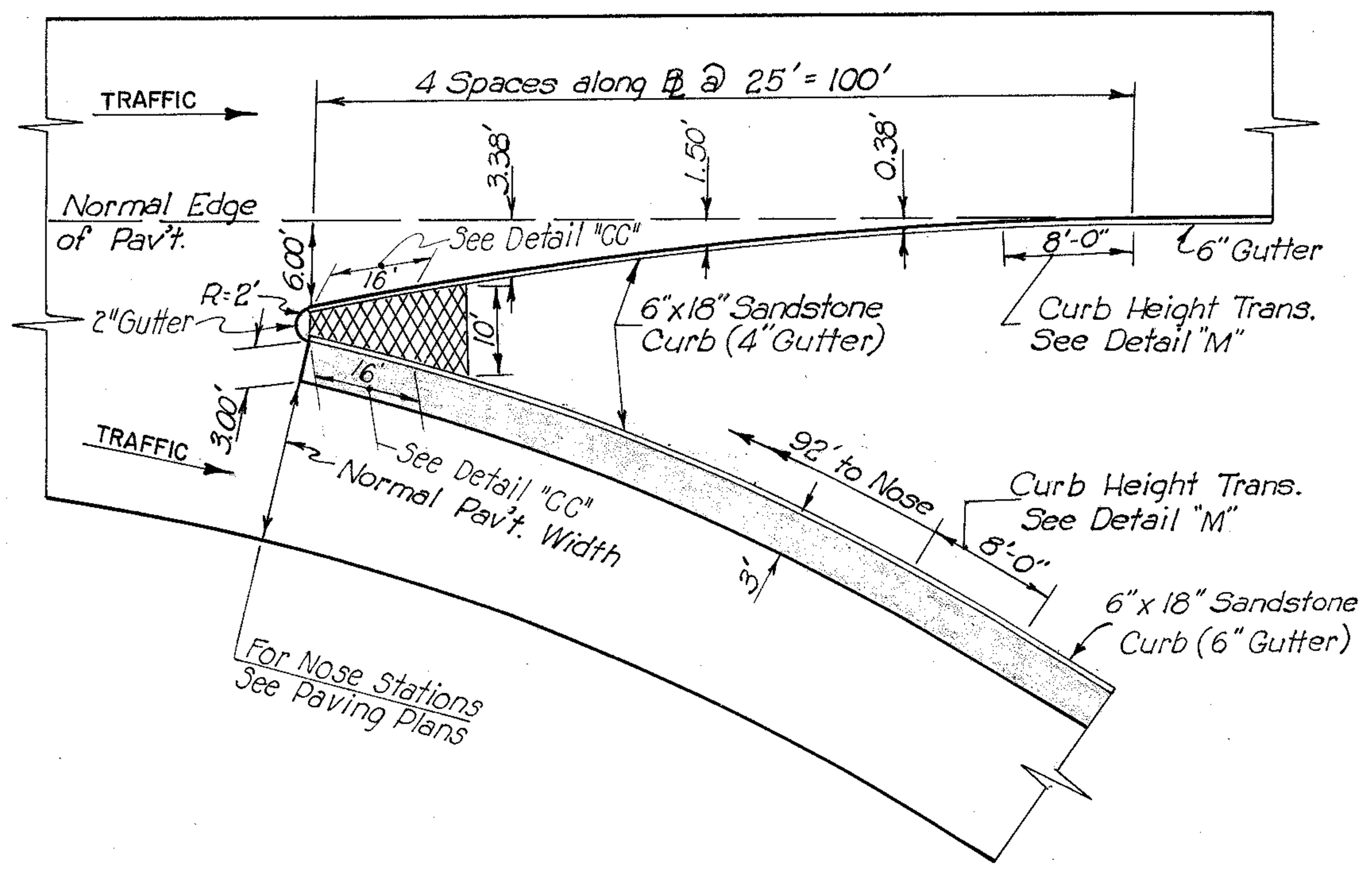
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 27A

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

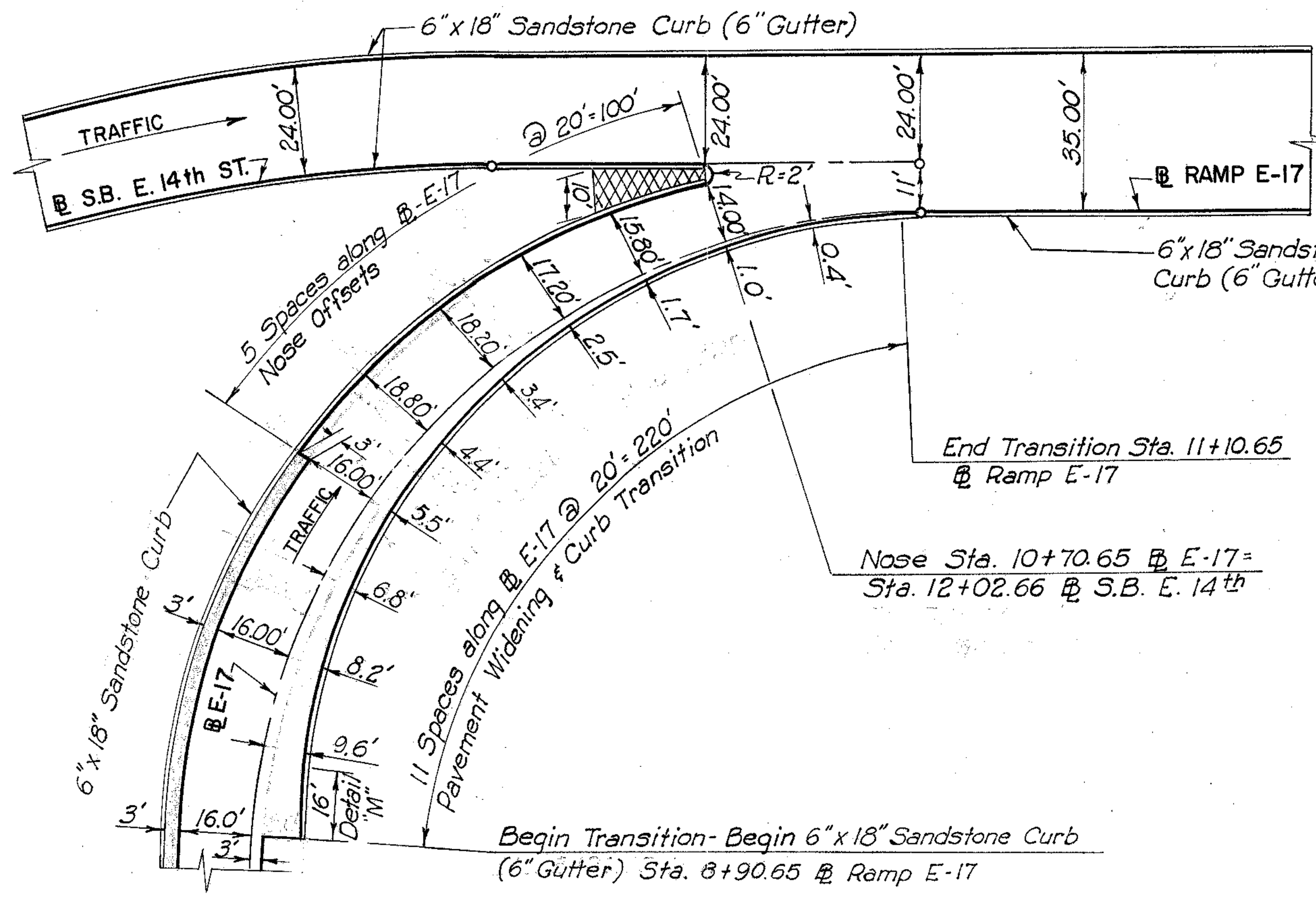
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29



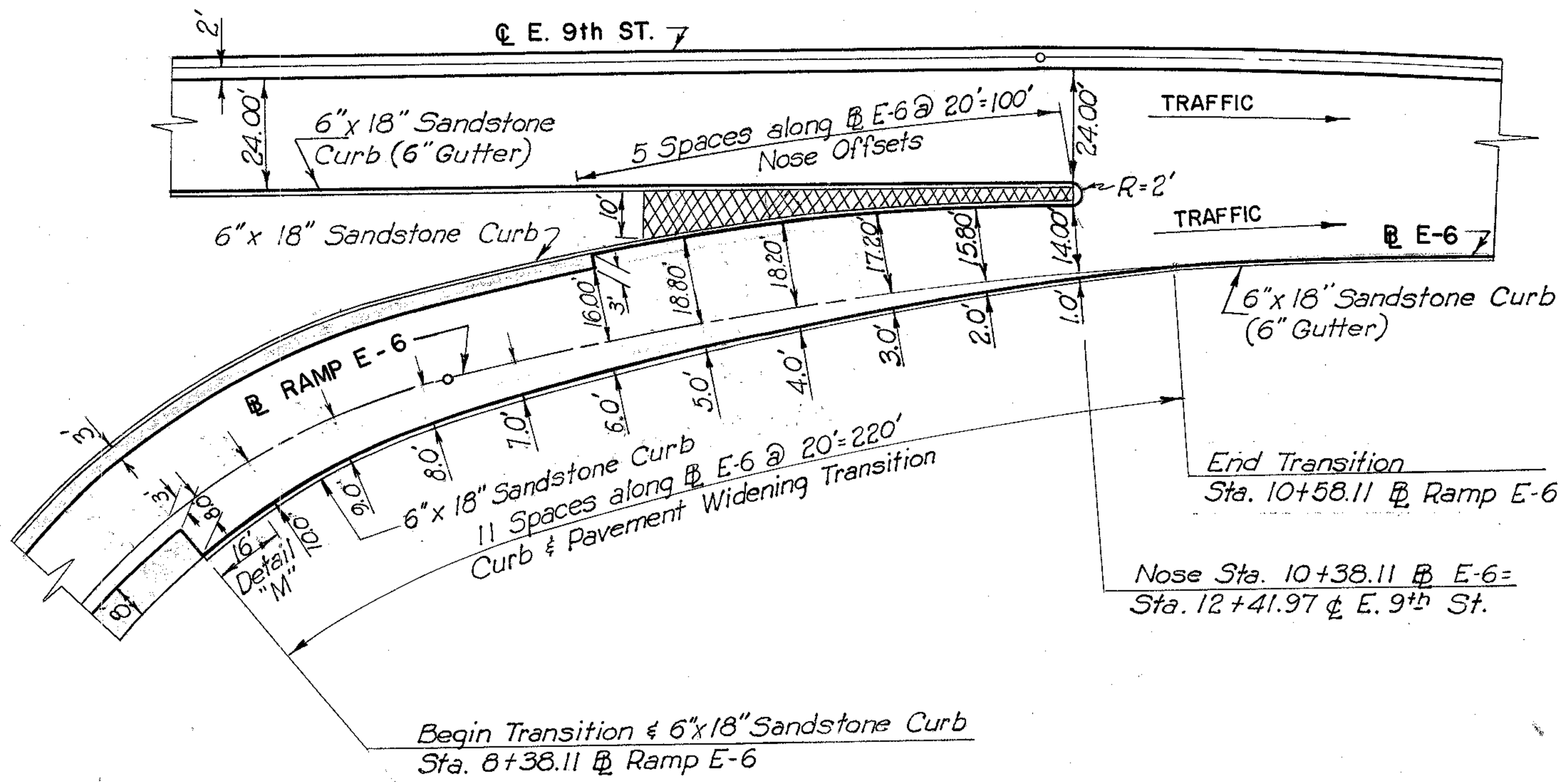
DETAIL "A"
Not to Scale



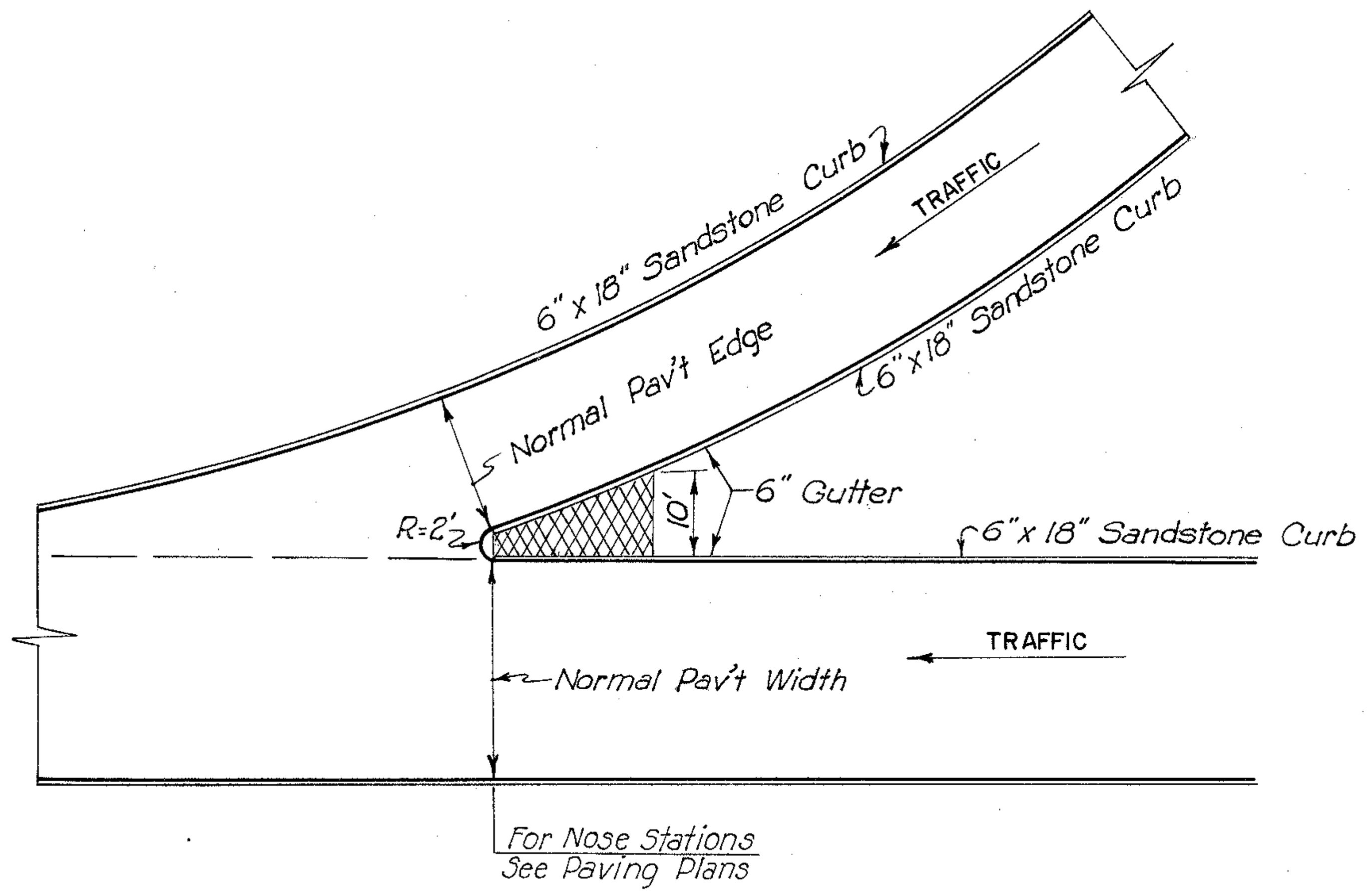
DETAIL "D"



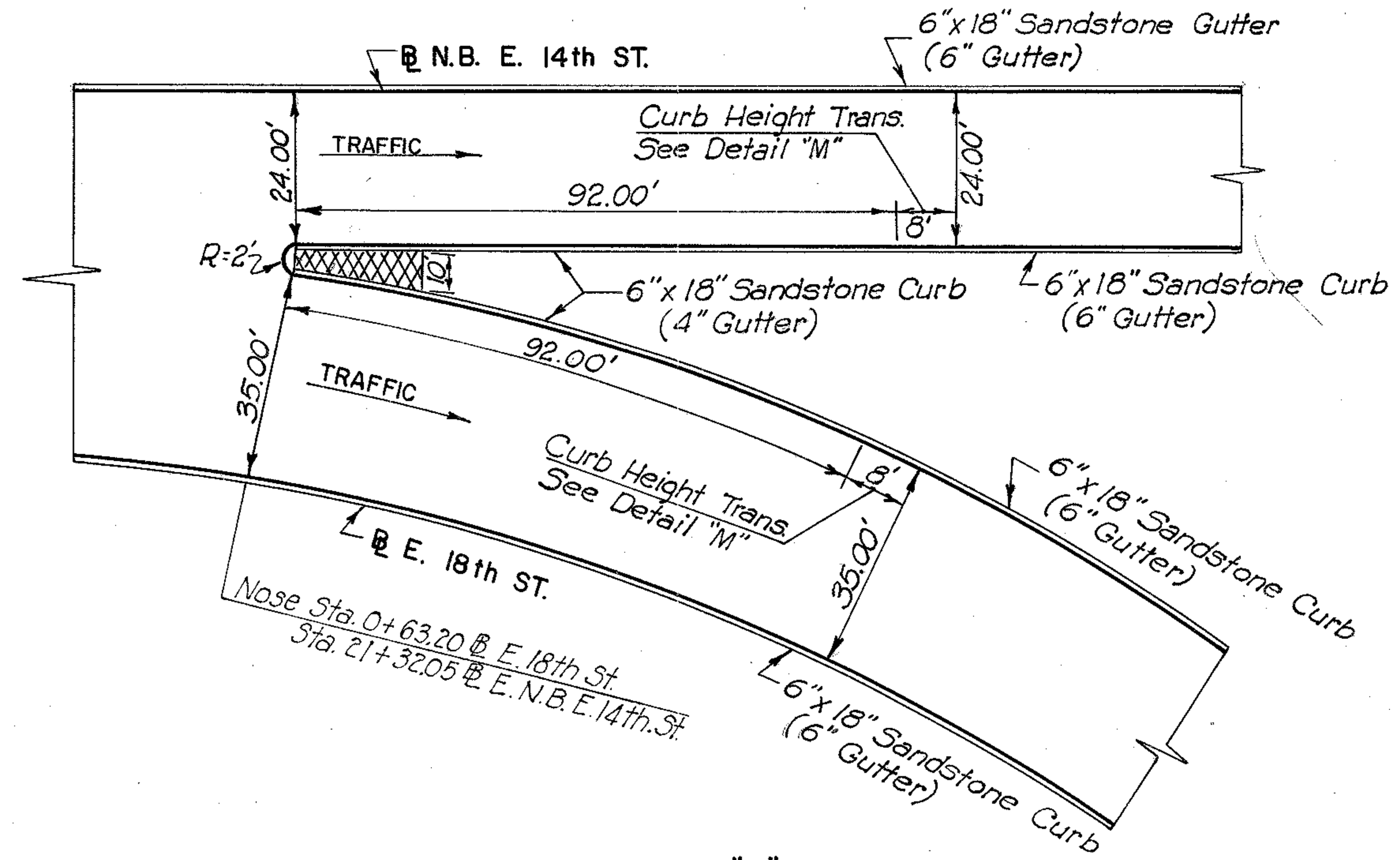
DETAIL "G"



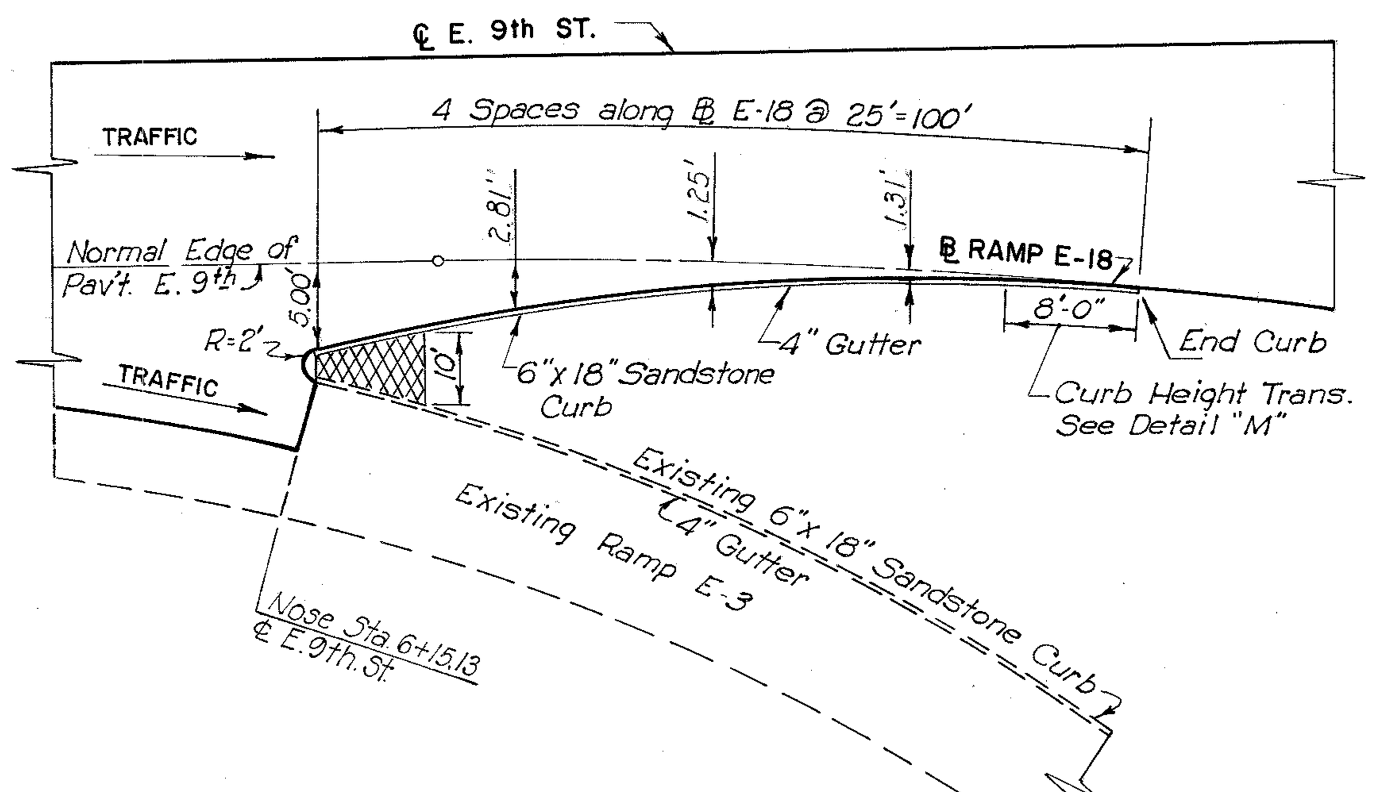
DETAIL "B"
Not to Scale



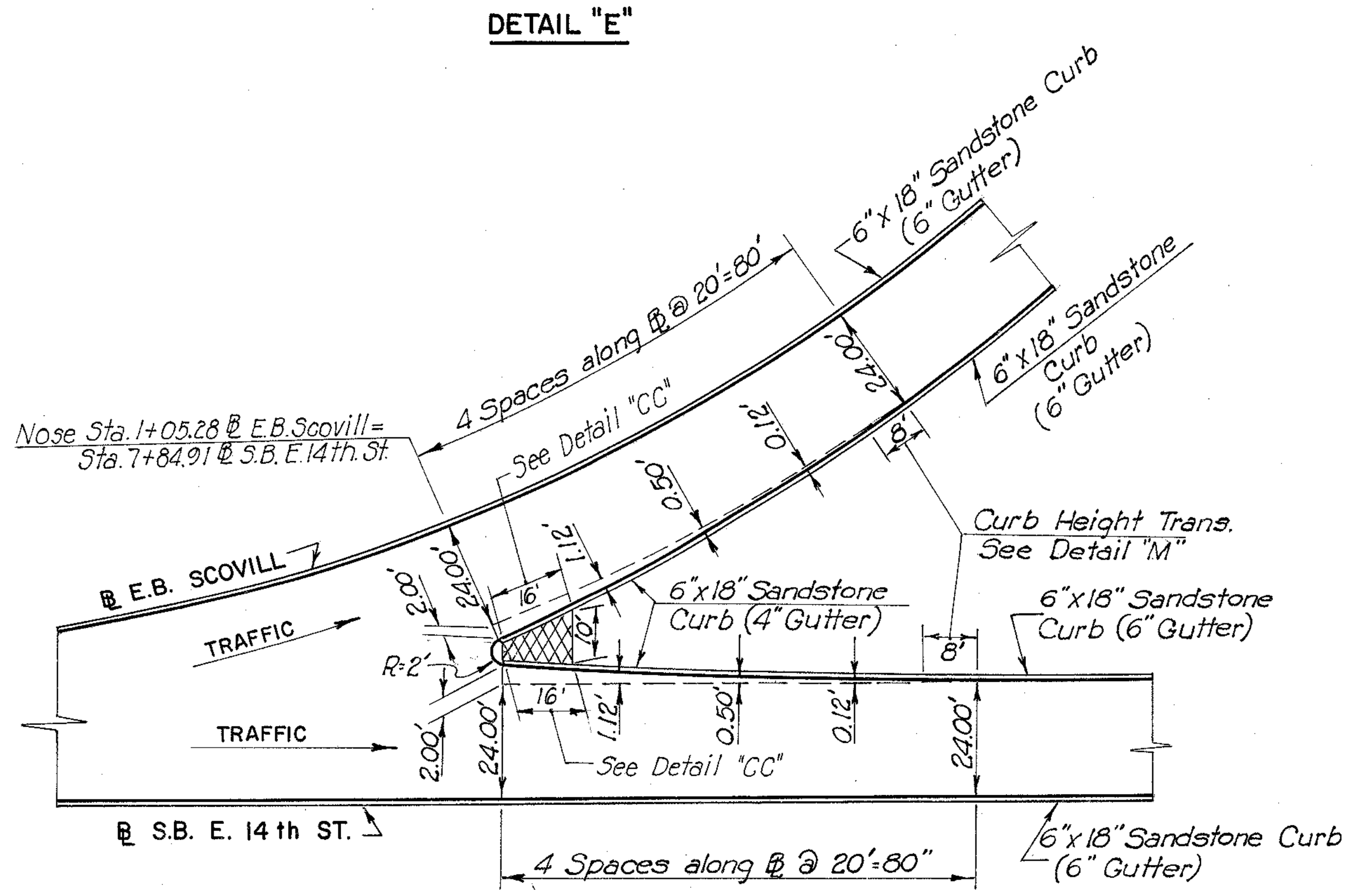
DETAIL "E"



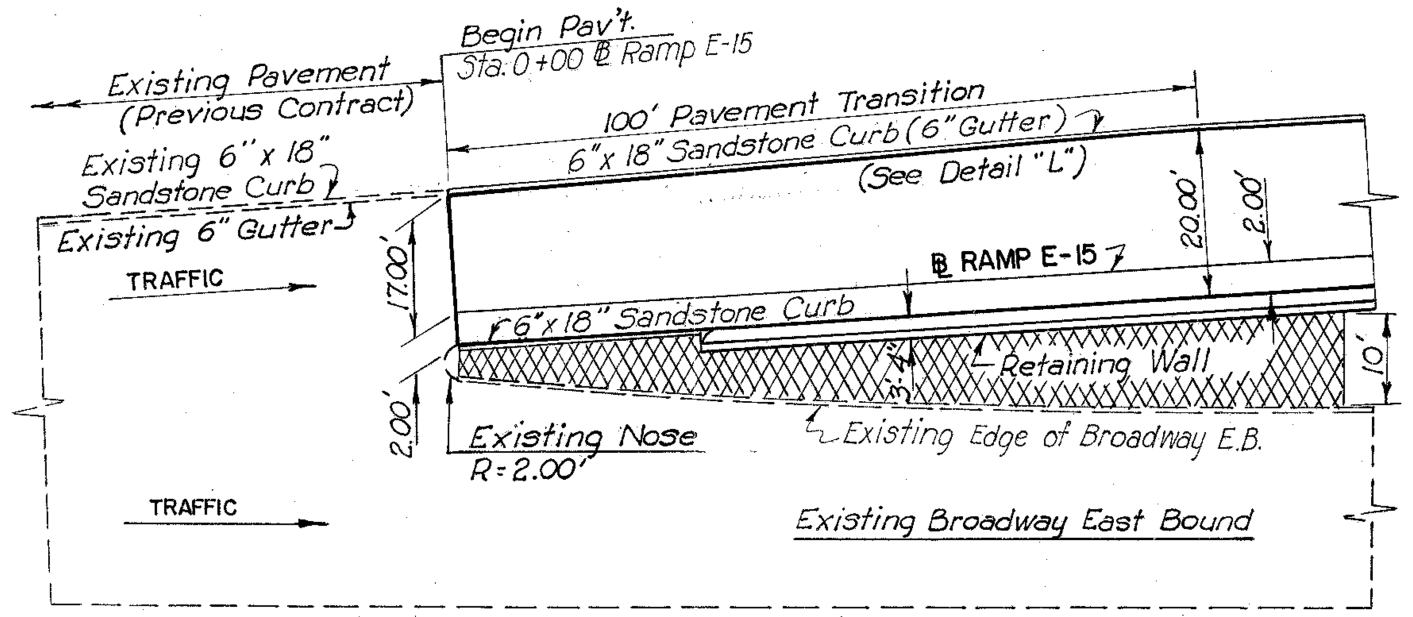
DETAIL "H"



DETAIL "C"



DETAIL "F"



DETAIL "J"

LEGEND

I-21 Standard Type I Portland Cement Concrete Median Pavement

Paved Berm

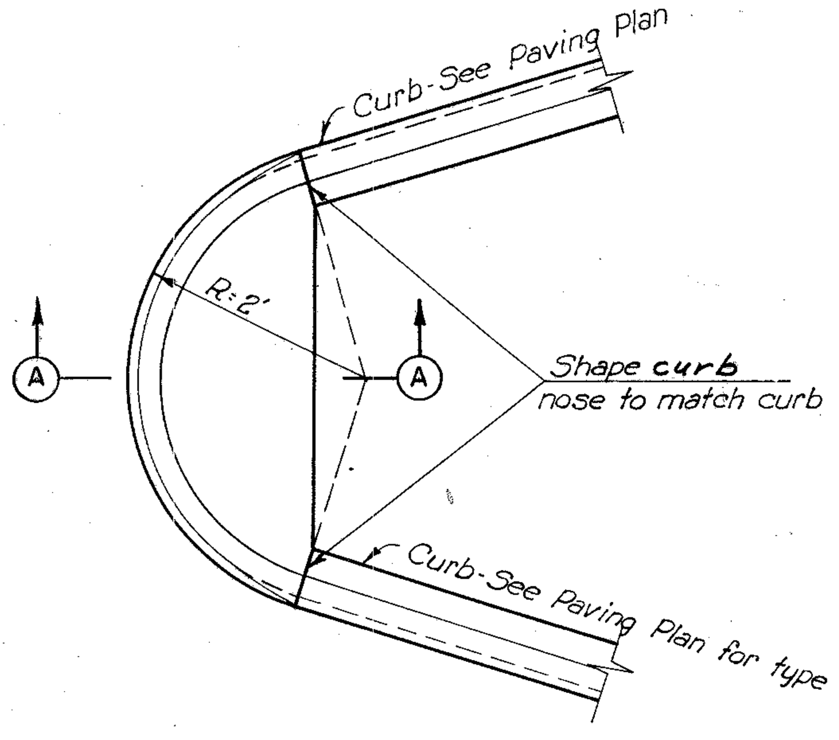
NOSE DETAILS

SCALE *Not to Scale*
MADE *J.F.S.* DATE *8-2-59*
TRCD. *BMQ* DATE *9-9-59*
CKD. *J.L.C.* DATE *11-2-59*

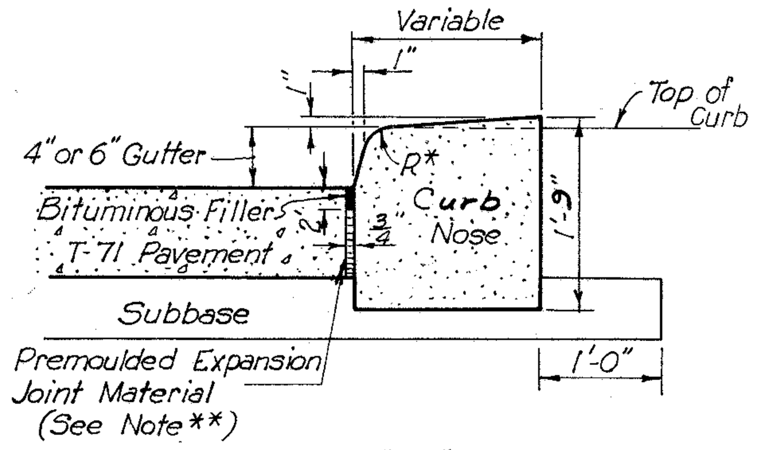
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29



PLAN



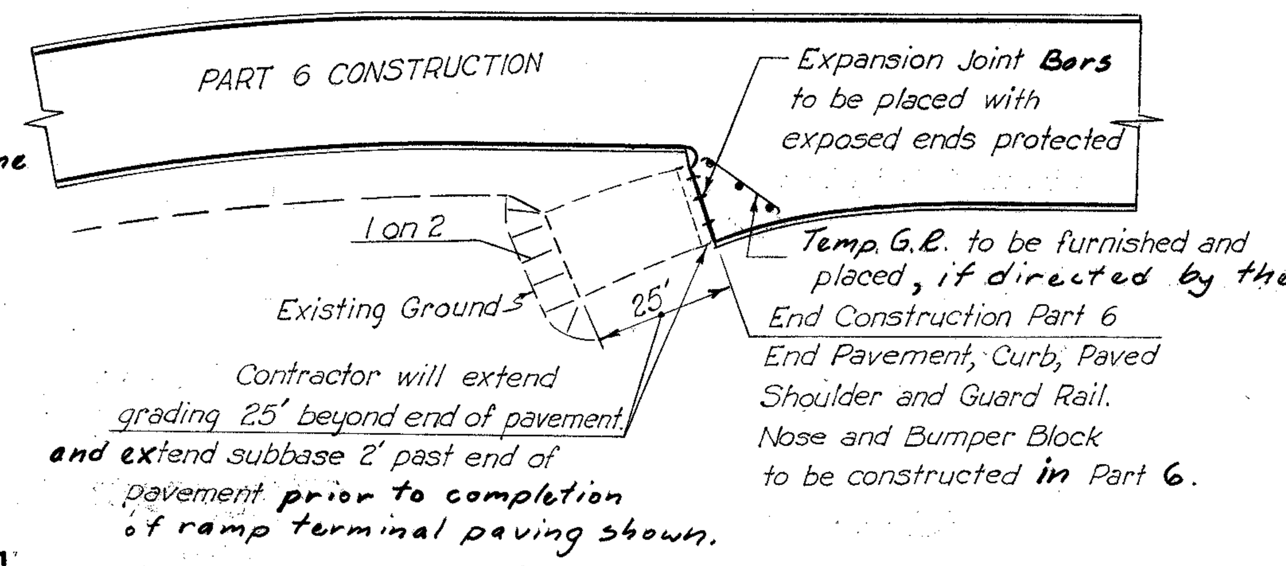
SECTION "A-A"

** Note:
The three quarter (3/4) inch Premoulded Joint Material shall meet the requirements of Section M-10.02 of the Standard Specifications. It shall be placed in front of the Bumper Block to within two (2) inches of the surface. The remaining space shall be filled with Bituminous Filler meeting the requirements of Section M-5.6 F2 of the Standard Specifications.
The cost of the Joint shall be included in price bid per lineal foot of curb.

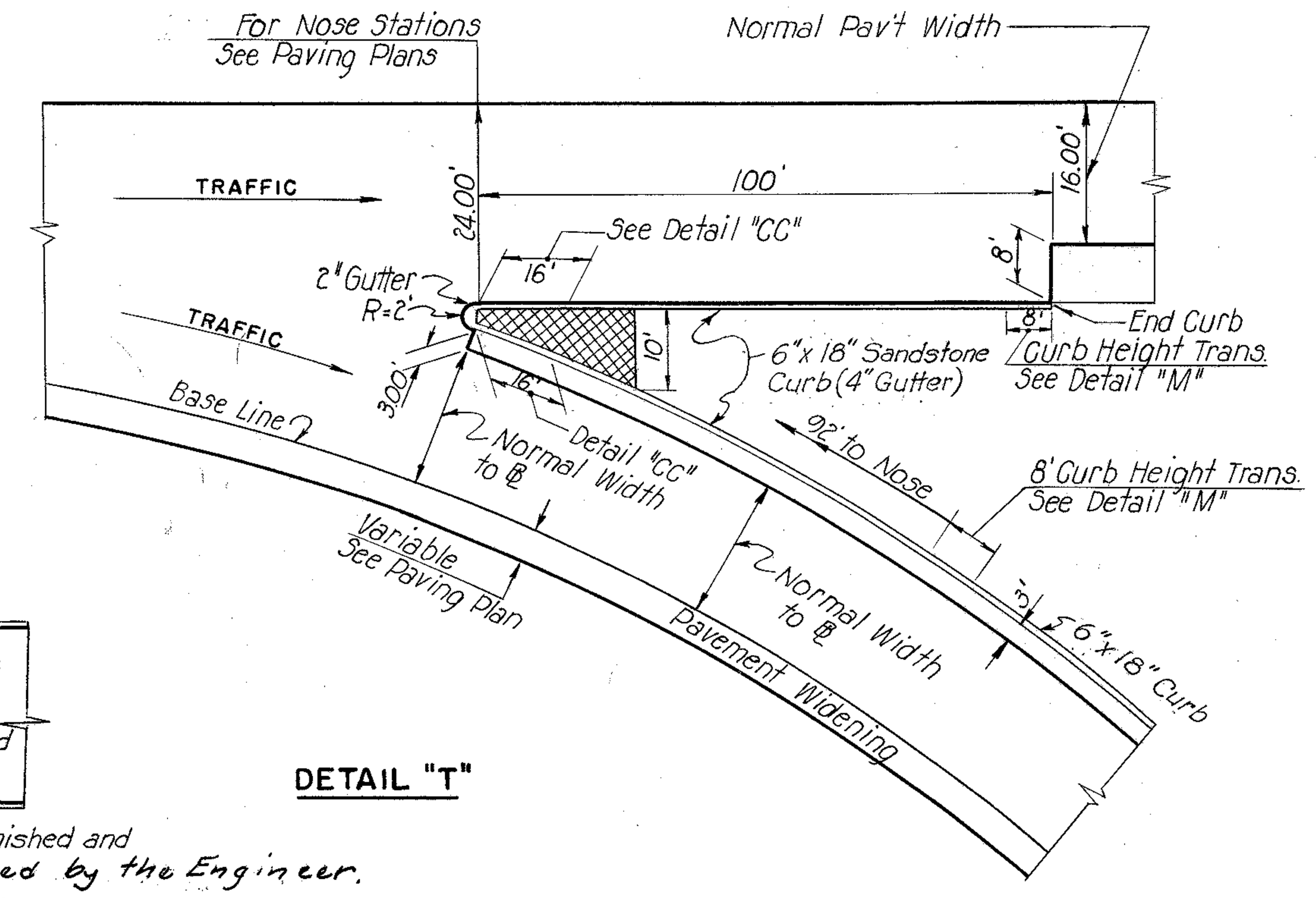
*Note:
1" Radius for 6" Gutter
3" Radius for 4" Gutter
Curb nose to be sand stone and shall be paid for at price bid per lineal foot of sandstone curb.

DETAIL "K"
CURB TERMINATION AT NOSE AND BUMPER BLOCK
Scale: 3/4" = 1'-0"

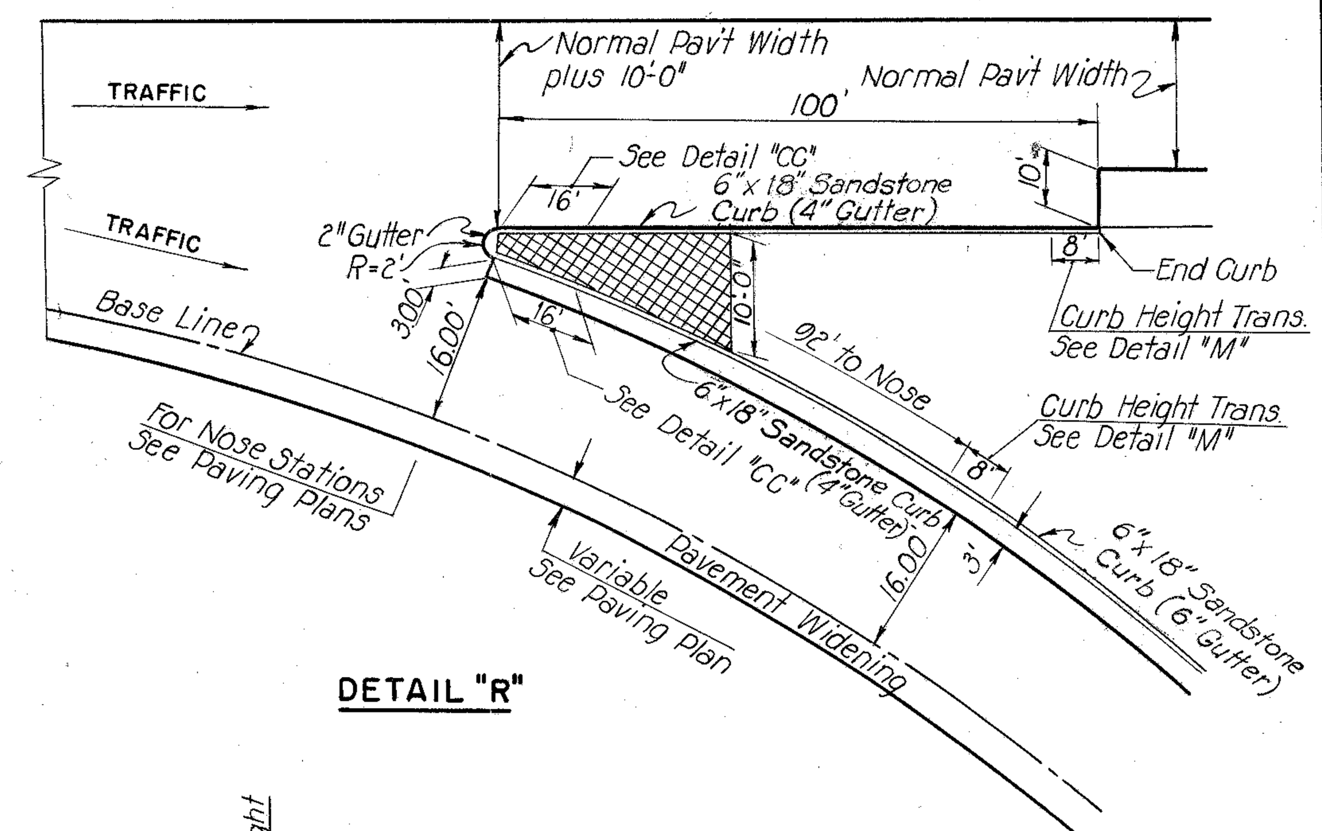
NOTE: FOR JOINT DETAIL AT GUARD RAIL POSTS IN CONCRETE MEDIAN, SEE SHEET No 4 OF PART 7-B.



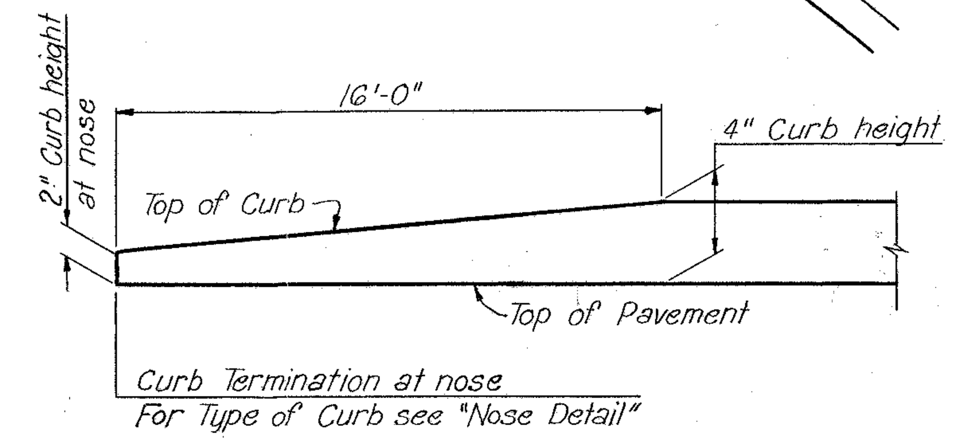
TYPICAL TERMINATION OF CONSTRUCTION
AT NOSE



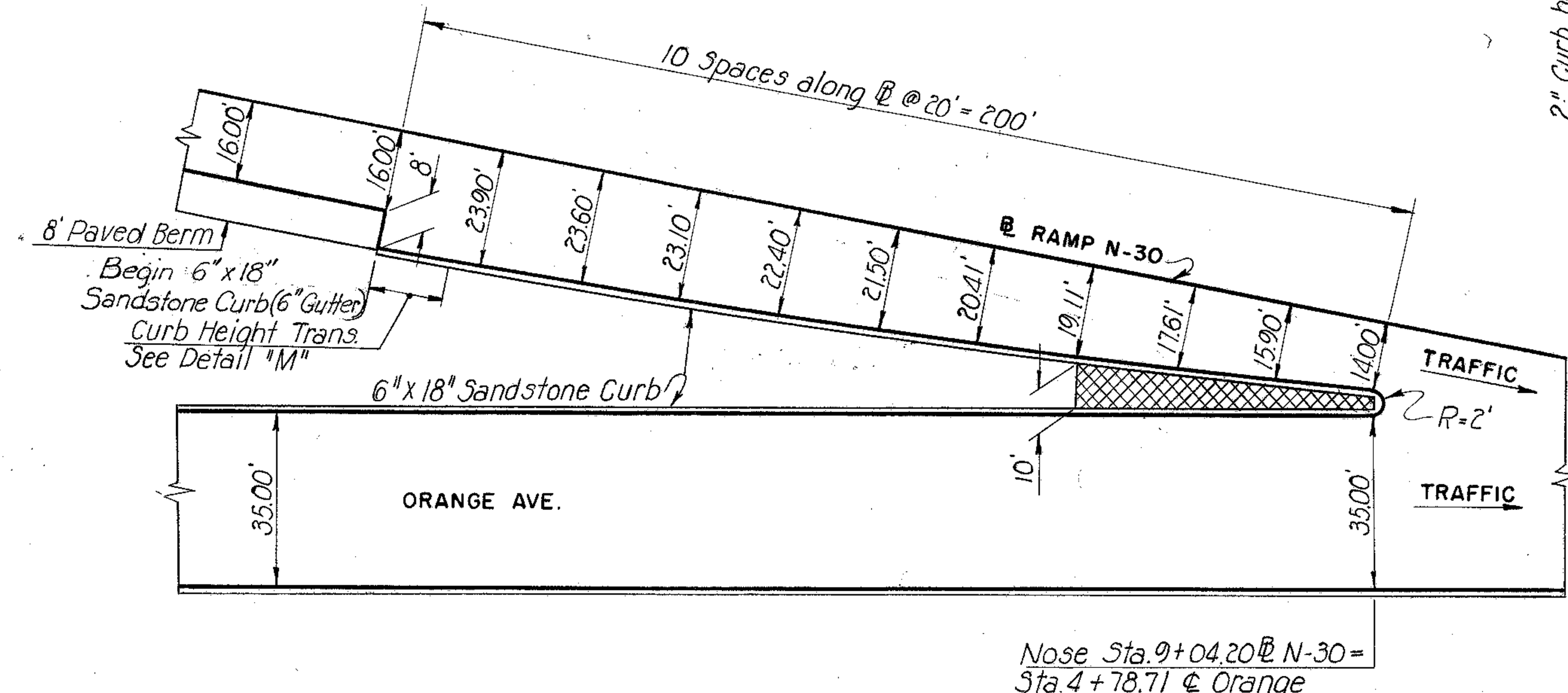
DETAIL "T"



DETAIL "R"



DETAIL "CC"
CURB HEIGHT TRANSITION AT NOSE
DIVERGING RAMPS & LANES
Not to Scale

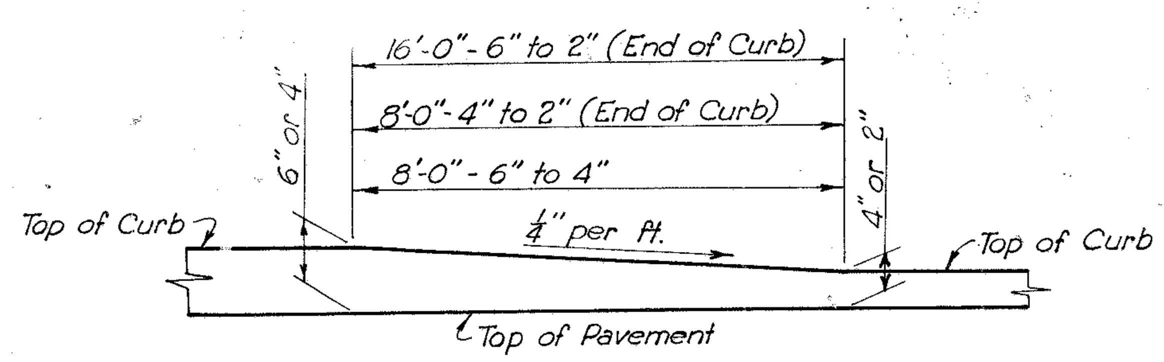


DETAIL "Z"
Not to Scale

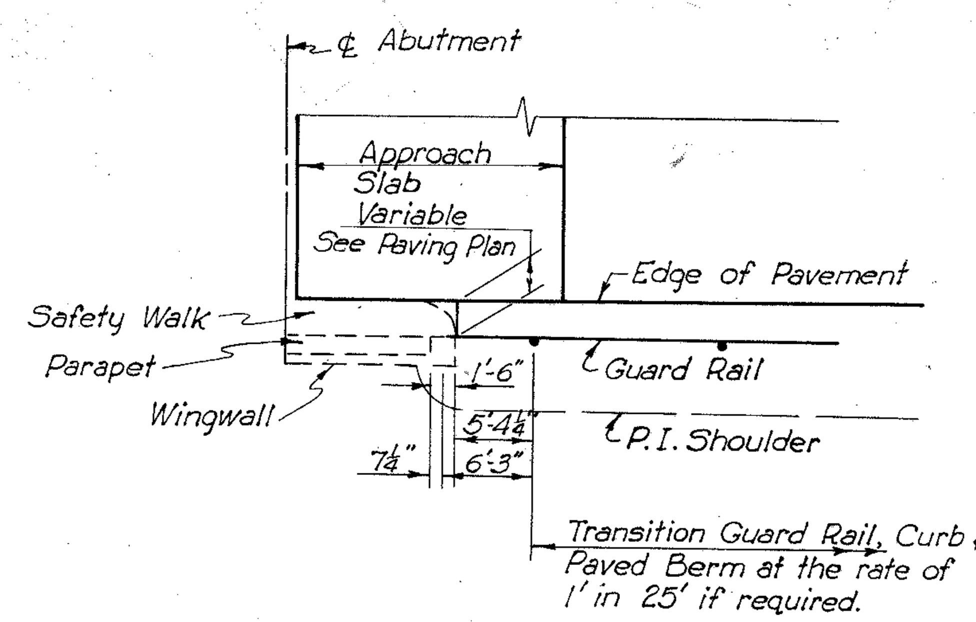
LEGEND

I-21 Standard Type 1 Portland Cement Concrete Median Pavement.

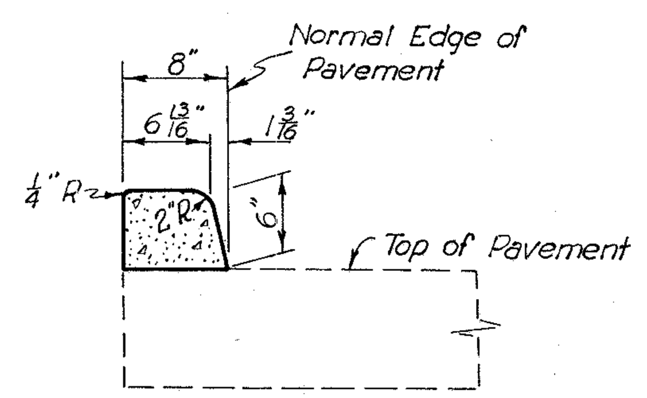
Paved Berm.



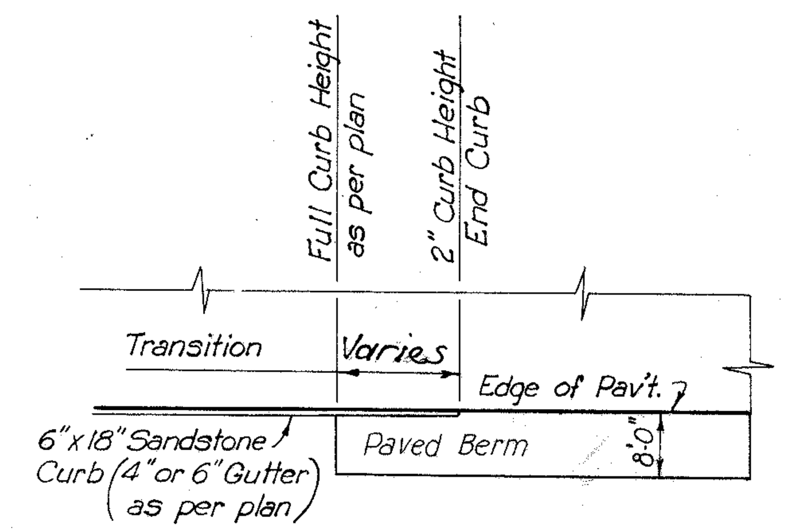
DETAIL "M"
CURB HEIGHT TRANSITION
Not to Scale.



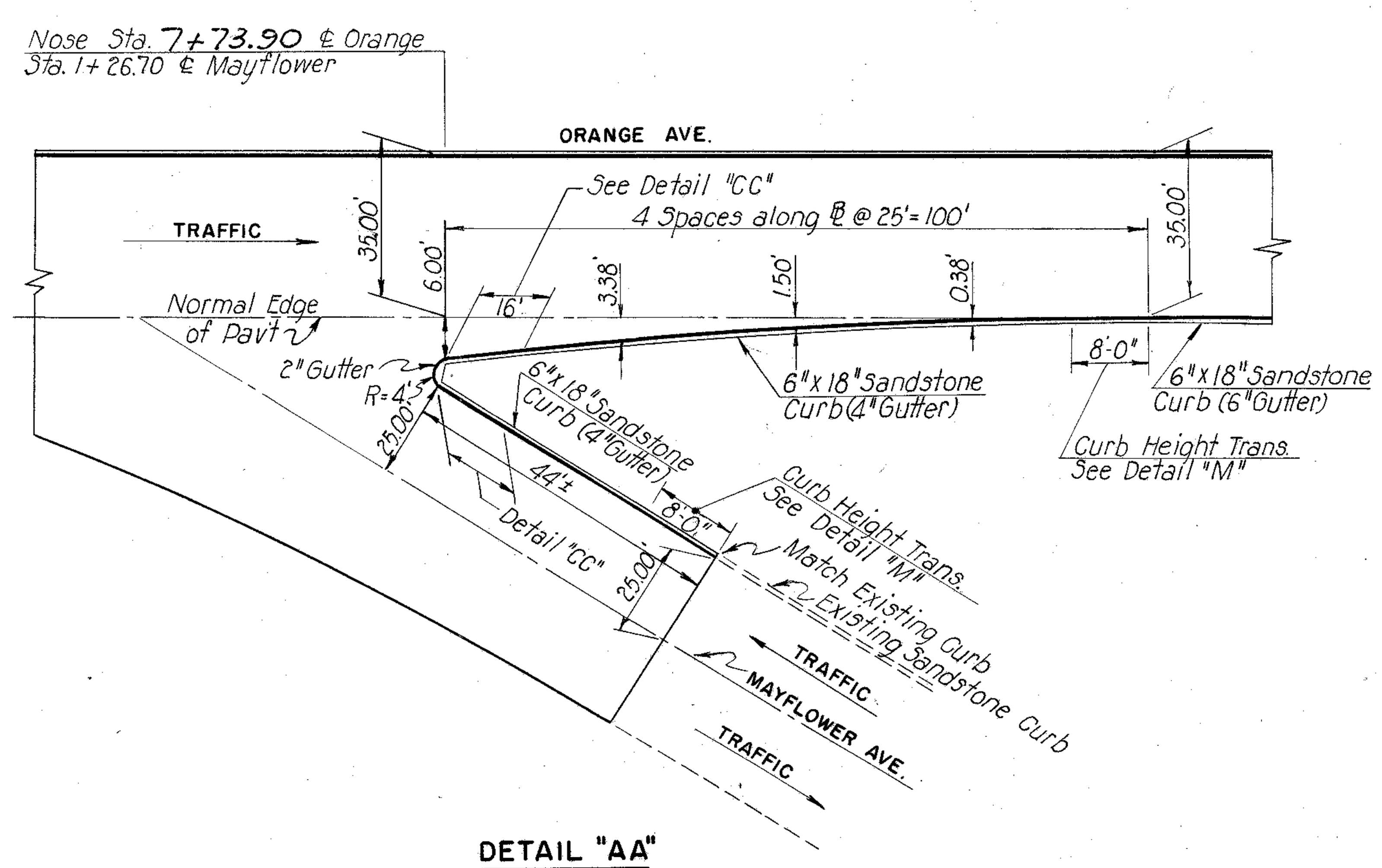
GUARD RAIL TREATMENT AT TERMINAL POST
Not to Scale.



TYPE 2A MODIFIED (6") CURB (MODIFICATION A)
Scale: 1" = 1'-0"



DETAIL "N"
CURB AND SHOULDER TRANSITION
Not to Scale.



DETAIL "AA"

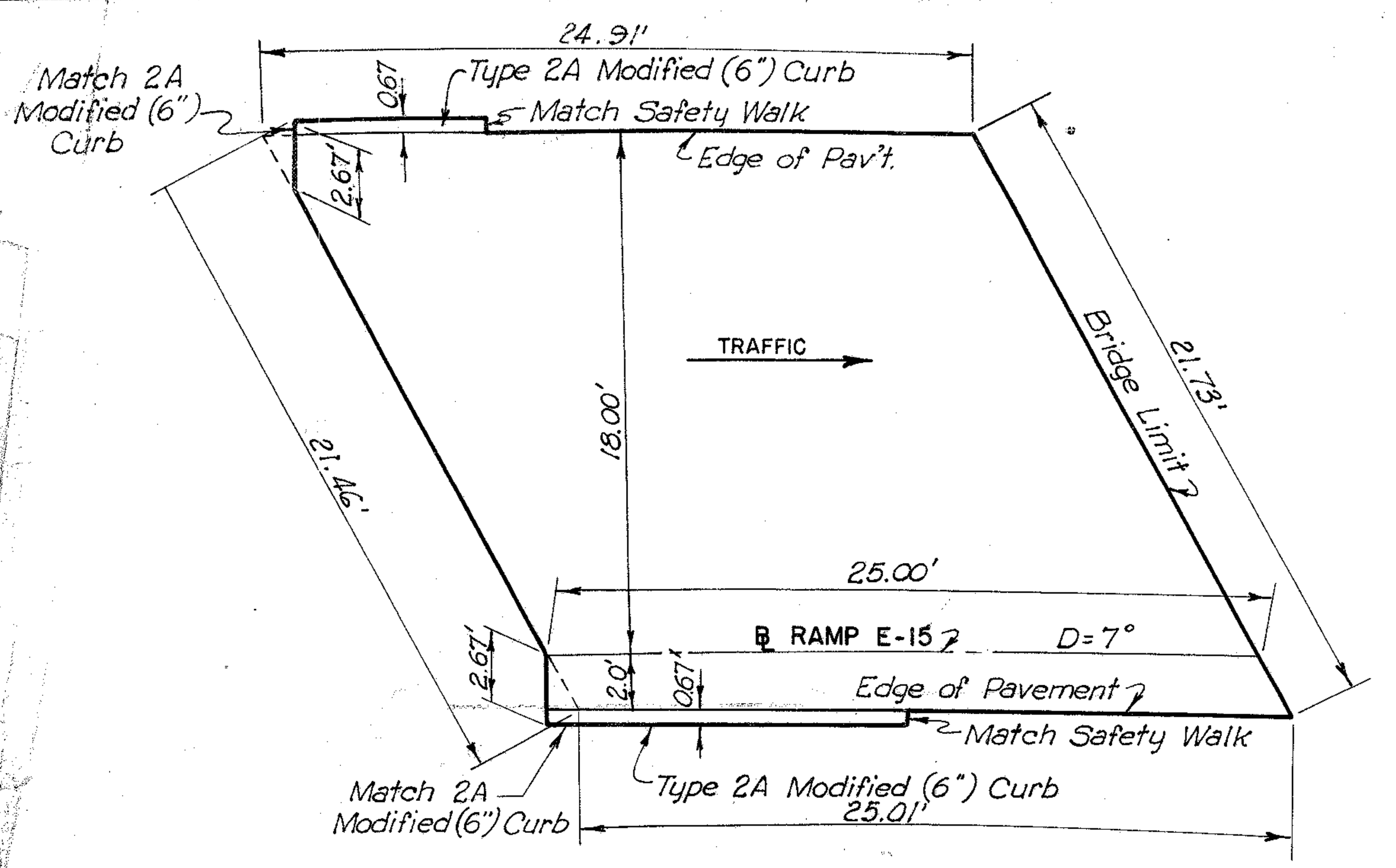
NOSE DETAILS
MISCELLANEOUS DETAILS

SCALE As Shown	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE J.F.S. DATE 8-2-59	CONSULTING ENGINEERS
TRCD. B.M.O. DATE 8-16-59	KANSAS CITY CLEVELAND NEW YORK
CKD. J.L.C. DATE 11-2-59	914 SHEET 29

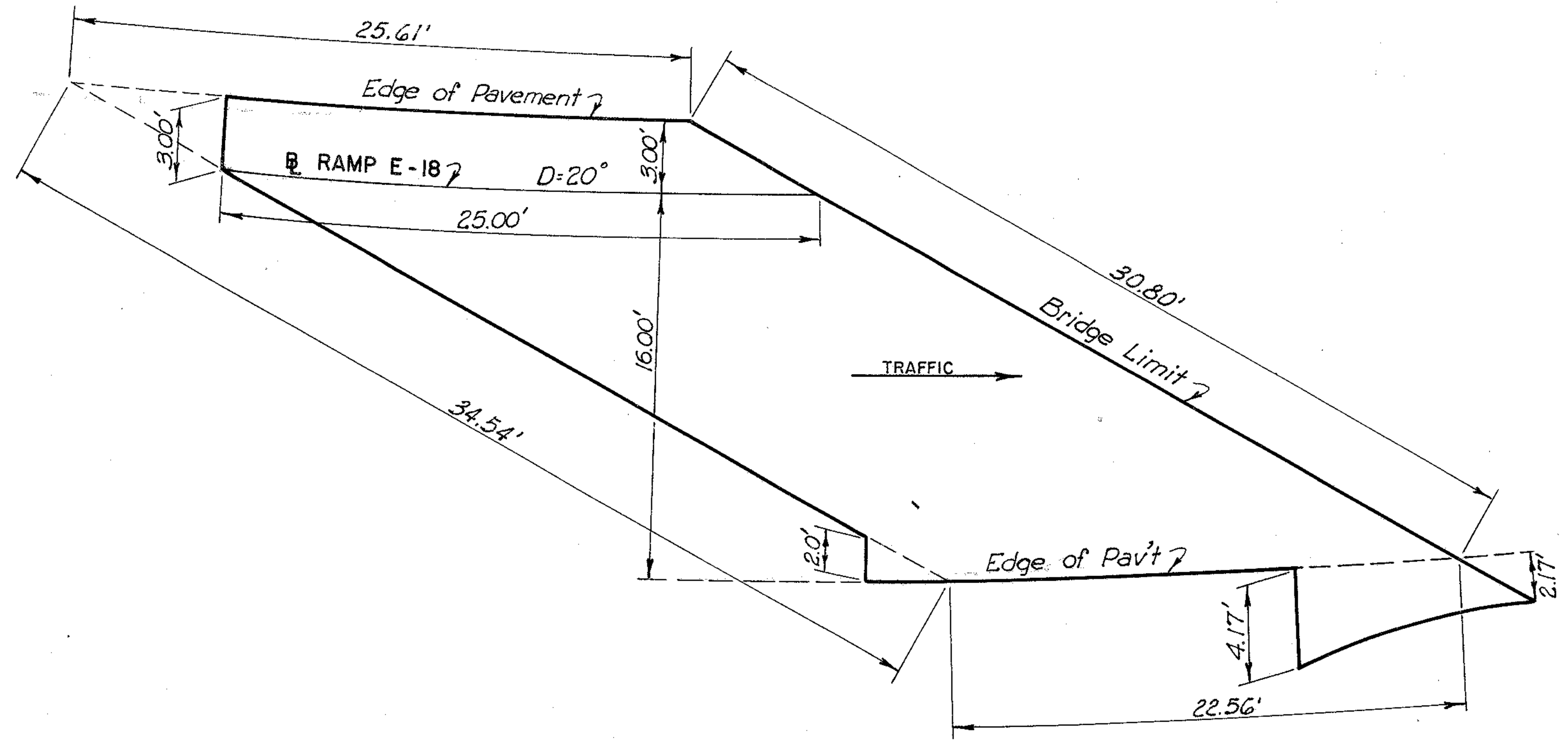
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

30
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
APPROACH SLABS



WEST APPROACH SLAB - RAMP E-15
BRIDGE NO. 7



WEST APPROACH SLAB - RAMP E-18
BRIDGE NO. 7

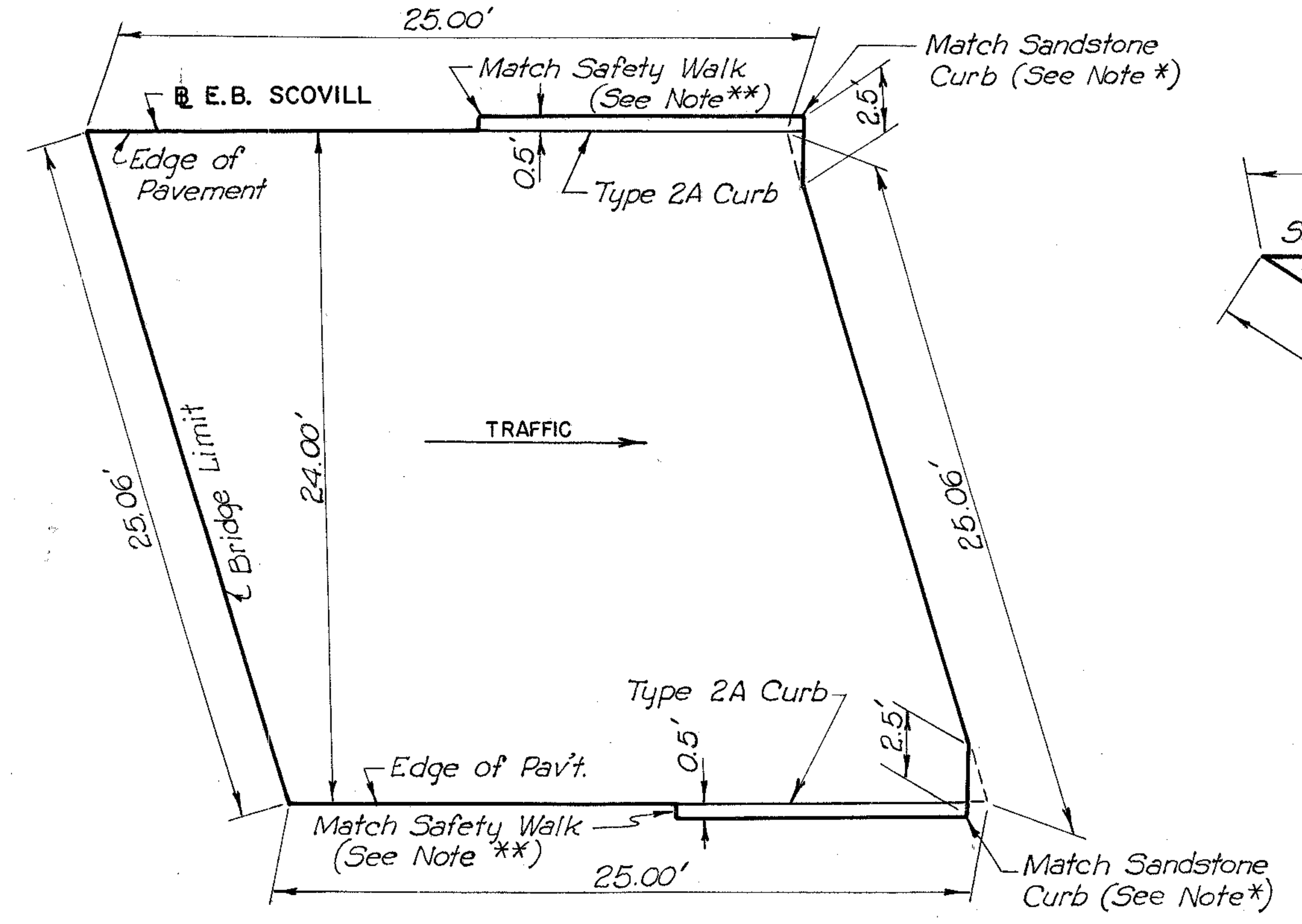
*Note:
Type 2A Curb to be transitioned uniformly in eight (8) feet to match 6"x 18" Sandstone Curb.

**Note:
The batter on Type 2A Curb to be transitioned uniformly in two (2) feet to match batter on Safety Walk.

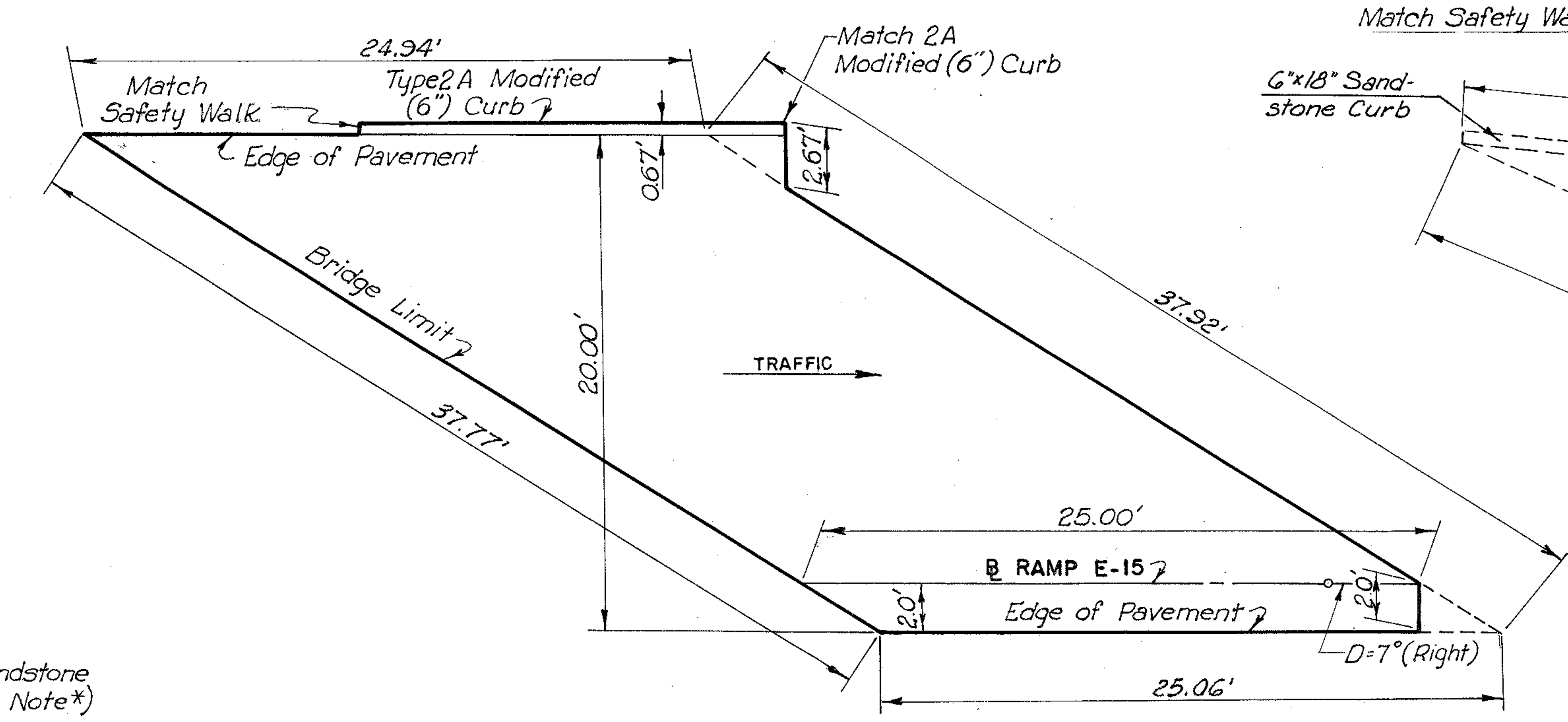
Note:
Approach Slabs shall meet construction requirements as shown on State of Ohio Standard Drawing AS-1-54.

Note:
For the East Approach Slab of Bridge No. 2, see sheet 27A.

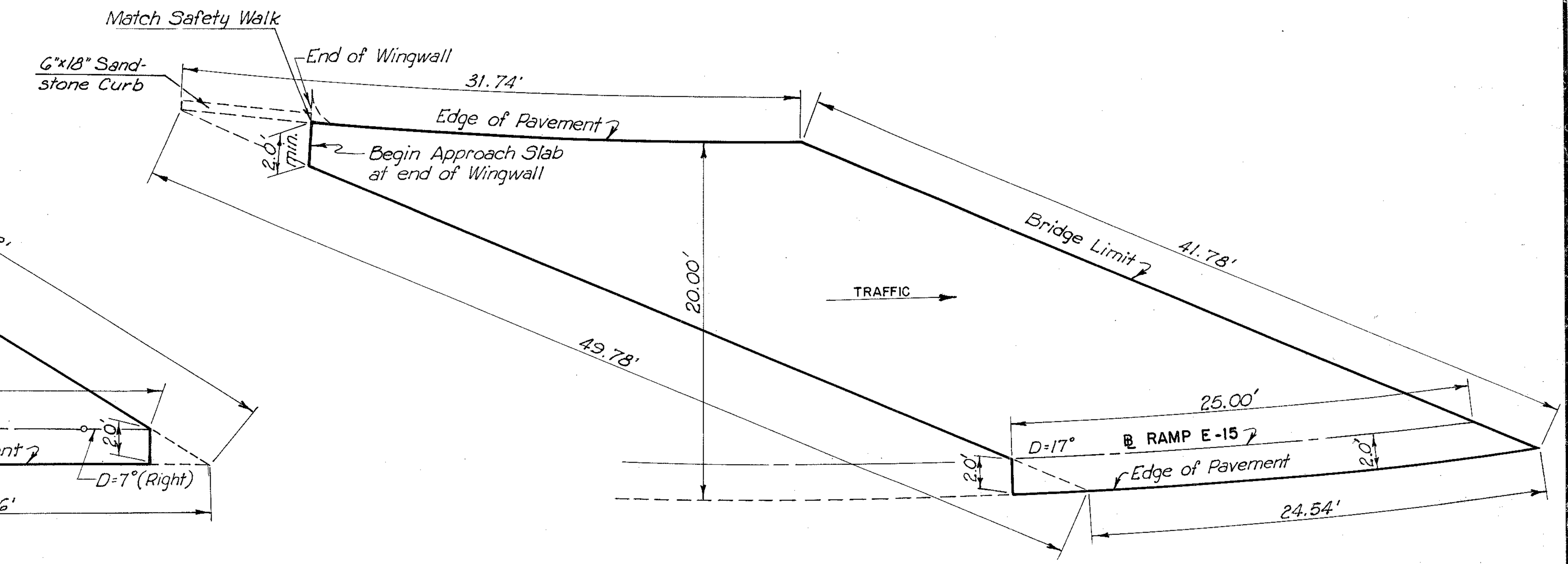
Note:
Payment for curb sections on approach slabs shall be included in the unit price bid for Item I-7.



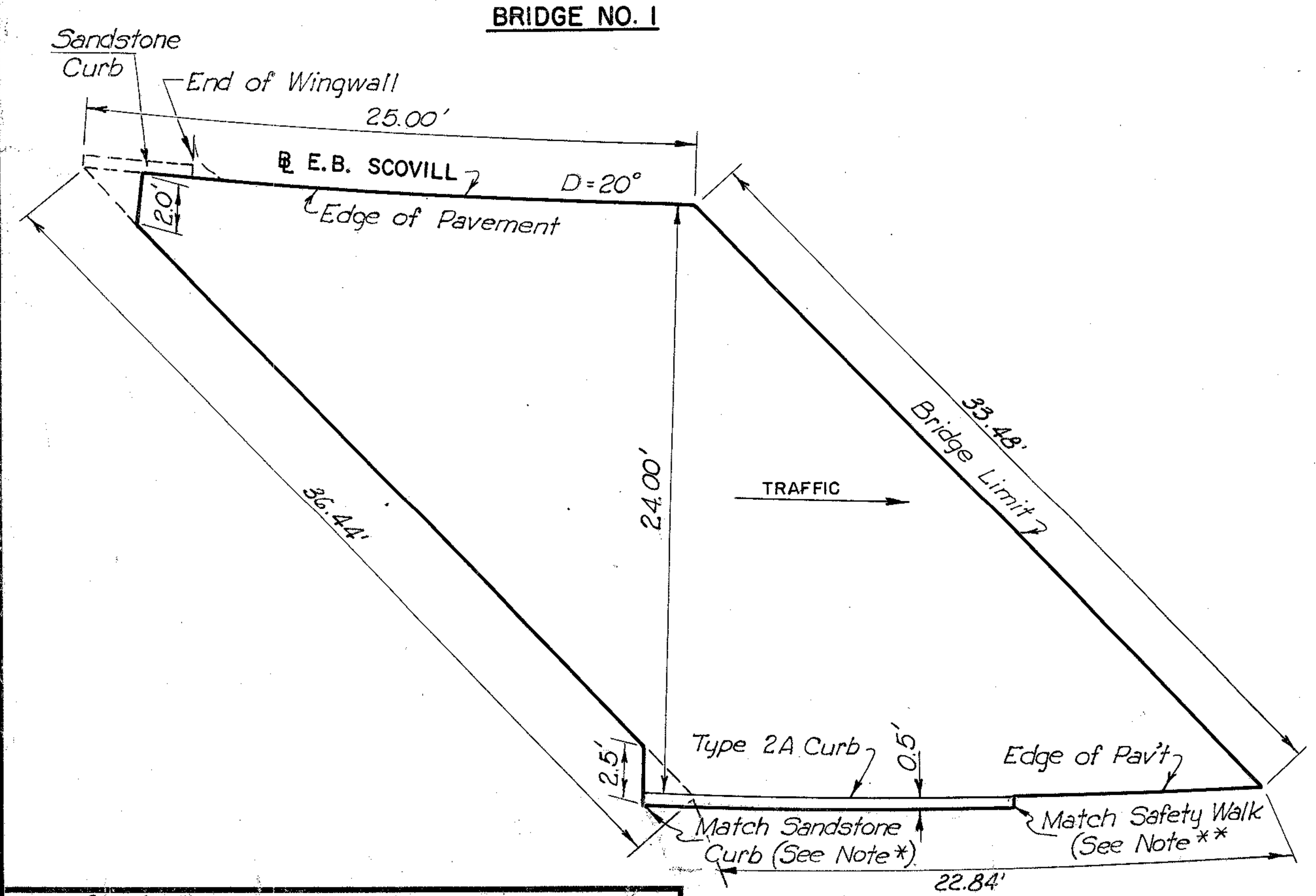
EAST APPROACH SLAB
BRIDGE NO. 1



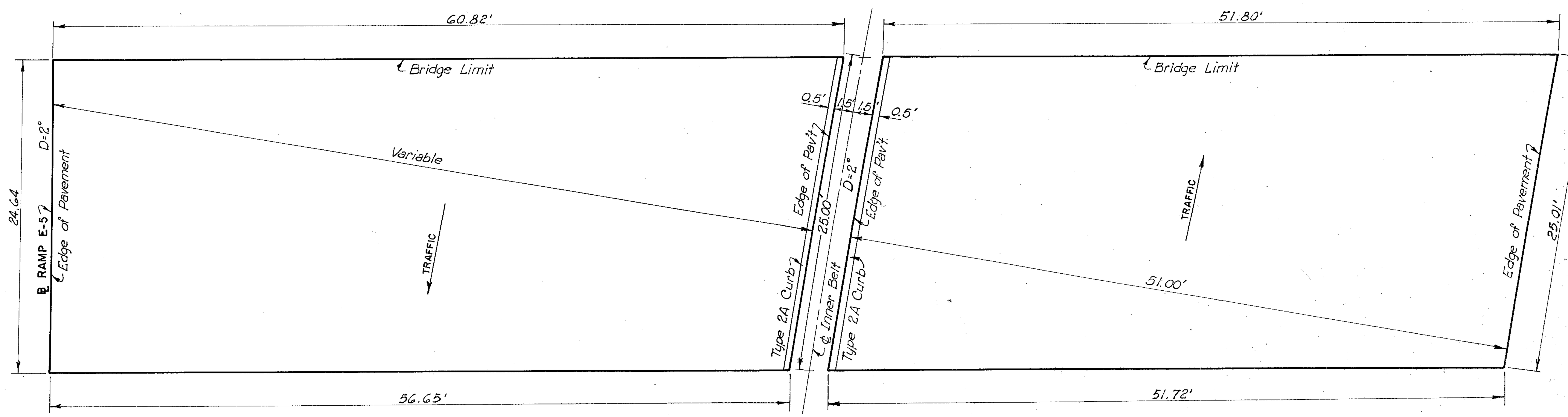
EAST APPROACH SLAB
BRIDGE NO. 6



WEST APPROACH SLAB
BRIDGE NO. 6



WEST APPROACH SLAB
BRIDGE NO. 1



WEST APPROACH SLAB
BRIDGE NO. 2

SCALE $\frac{3}{16}$" = 1'-0"
MADE J.F.S. DATE 8-2-59
TRCD. B.M.O. DATE 9-8-58
CKD. J.L.C. DATE 11-2-59

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

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
DRAINAGE PLAN

Note: The existing No. 1 Brick Sewer from M.H. "B-9" to M.H. "B-7" shall be removed. Payment for this removal shall be included in the unit price bid for Pipe "P-6", Item I-2.

ESTIMATED QUANTITIES - UNDERDRAINS		
I-4, 6" Pipe for Underdrain	L.F.	4375
I-4, 8" CMP Outlet for Underdrain	L.F.	38
I-5, 6" Pipe Special	Ea.	9

CODE	LOCATION		ESTIMATED QUANTITIES - INLETS, CATCH BASINS, MANHOLES							
			I-8 Std 2-6 Inlet Each	I-8 Std 2-8 Inlet Each	I-8 Std. 3 C.B. Each	I-8 Std. 3-A C.B. Each	I-8 Std. 2-2-A C.B. Each	I-8 Std. 7 C.B. Each	I-8 Std #1 M.H. Each	I-14 Special Paved Apron Lin. Ft.
A-2	11+40 BEB	35' Rt.				1				
A-3	37+00 BWB	52' Rt.		1						
A-4	37+84.95 BWB	52' Rt.			1					
A-5	37+85 BWB	14' Lt.					1			20
A-6	0+50 Ramp E-15	17' Lt.		1						
A-7	40+30 BWB	100' Rt.						1		
A-9	15+87.93 BEB	35' Rt.			1					
A-10	16+00 BEB	39' Rt.			1					
A-11	5+20 Brdwy	28' Lt.	1							
A-12	31+45 BWB	41' Rt.	1							
A-13	4+40 Brdwy	28' Rt.			1					
A-14	2+10 E-14th St.	30' Lt.			1					
A-15	2+07 E. 14th St.	30' Rt.			1					
A-16	32+95 BWB	52' Rt.		1						
A-17	33+00 BWB	95' Rt.					1			
A-18	32+00 BWB	100' Rt.					1			
A-19	4+35 N.B. 14 St.	33' Lt.	1							
A-20	4+05 N.B. 14 St.	31' Rt.	1							
A-23	27+75 Orange	41' Lt.	1							
A-24	27+25 BWB	80' Rt.					1			
A-103	3+40 E-15	19' Lt.	1							
A-104	3+40 E-15	41' Lt.							1	
A-138	15+00 E-9th St.	65' Lt.						1		
	Totals		6	3	6	1	4	2	1	20

ESTIMATED QUANTITIES, INLETS, C.B'S & M.H'S						
CODE	LOCATION		I-8 MH Adj. to Grade Each	I-16 M.H. Aban. Each	I-16 Inlets Aban. Each	I-8 Inlets Adj. to Grade Each
B-1	E. 9th. St.					1
B-2	E. 9th. St.					1
B-3	10+46 B.E.B.	58' Rt.	1			
B-4	11+05 B.E.B.	37' Rt.			1	
B-5	10+75 B.E.B.	25' Rt.		1		
B-6	10+56 B.E.B.	18' Rt.	1			
B-7	10+64 B.E.B.	12' Lt.	1			
B-8	11+30 B.E.B.	33' Lt.			1	
B-9	11+77 B.E.B.	9.5' Lt.	1			
B-10	13+14 B.E.B.	14' Lt.				
B-11	15+24 B.E.B.	28' Lt.	1			
B-12	15+31 B.E.B.	17' Rt.			1	
B-13	4+95 E-4	66' Lt.		1		
B-14	4+44 Brdwy.	15' Lt.	1			
B-15	31+32 B.W.B.	54' Lt.		1		
B-16	31+19 B.W.B.	℄			1	
B-17	30+62 B.W.B.	5.5' Lt.			1	
B-18	30+45 B.W.B.	53' Lt.	1			
B-19	30+38 B.W.B.	33' Lt.			1	
B-20	30+24 B.W.B.	88.5' Lt.			1	
B-21	3+74 Brdwy.	3' Lt.	1			
B-22	3+25 Brdwy.	26' Rt.				1
B-23	28+14 Br. & Org.	54' Lt.	1			
B-24	28+11 Br. & Org.	56' Lt.	1			
B-27	33+97 Br. & Org.	107' Lt.				1
B-35	5+22 E-4	45' Lt.			1	
B-36	40+00 B.W.B.	52' Rt.				1
B-37	8+27 B.E.B.	3' Lt.	1			
B-56	3+23 Brdwy.	23' Lt.				1
B-57	7+80 B.E.B.	31' Rt.			1	
	Totals		11	3	10	6

{ M-6.5(b)
M-6.8(b)

CODE	ROADWAY	FROM	TO	ESTIMATED QUANTITIES - PIPES						
				I-2 12" Class "B" L.F.	I-2 12" B-U.P. L.F.	I-2 15" M-6.5(b) M-6.8(b) L.F.	I-2 15" B-U.P. L.F.	I-2 18" Class "B" L.F.	I-2 18" B-U.P. L.F.	I-2 21" M-6.6(b) M-6.8(b) L.F.
P2	E.B. Broadway	A-2	B-9		54					
P3	W.B. Broadway	A-3	A-4		82					
P4	W.B. Broadway	A-4	A-5				58			
P5	W.B. Broadway	A-5	B-9			74				
P6	E.B. Broadway	B-9	B-7							110
P7	Ramp E-15	A-6	B-38		42					
P8	W.B. Broadway	A-7	No. 5	26.#						
P10	E.B. Broadway	A-9	B-25		30					
P11	E.B. Broadway	A-10	B-25		74					
P12	Broadway	A-11	B-14		78					
P13	W.B. Broadway	A-12	A-13	22						
P14	Broadway	A-13	B-14		42					
P15	E. 14th St.	A-14	A-15		60					
P16	East 14th St.	A-15	B-23		62					
P17	W.B. Broadway	A-16	A-17	42						
P18	W.B. Broadway	A-17	A-18					96		
P19	W.B. Broadway	A-18	A-19						296	
P20	East 14th St.	A-20	A-22				92			
P21	East 14th St.	A-19	A-22						92	
P24	Broadway W.B.	A-23	B-23		40					
P26	E. 14th St.	A-24	A-20		112					
P95	Ramp E-15	A-103	A-104	22						
P96	Broadway W.B.	A-104	B-36		96					
P97	E. 9th St.	A-138	B-30	36						
	Totals			122	772	74	150	98	388	110

LEGEND

- No. 3 — Existing Sewers
- Existing Catch Basins & Manholes
- Proposed Sewers
- Proposed Manholes
- Proposed Inlets
- FL 680.00 — Proposed Underdrains
- Existing Sewer to be abandoned.
- Existing Sewer to be Sand Filled.
- Existing Sewer to be removed.

A- PROPOSED DRAINAGE STRUCTURE
B- EXISTING DRAINAGE STRUCTURE
P- PROPOSED SEWER

SCALE 1" = 50'
MADE H.K.M. DATE 12-2-58
TRCD. R.R. DATE 3-4-59
CKD. ____ DATE ____

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 31

Rev. A.E.K. 1-11-60

910

CUY-90-16.24

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

32
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
DRAINAGE PLAN

GENERAL NOTES

1. ________ of existing manholes shall be in accordance with Section I-16.03 of the Construction and Material Specifications with the following exceptions: (1) The existing inlet and outlet pipes shall be sealed with brick. (2) After sealing of the existing pipes is completed and the walls removed to the required depth, the manhole shall be filled with granular material and compacted in accordance with Sec. I-16.03.

2. Where proposed sewer pipes are to be connected into existing sewers, the hole in the existing sewer shall be cut by the City of Cleveland forces.

3. Not all sewer pipes connected to existing catch basins are shown on the plans. Where sewer pipes not shown are encountered during construction, the pipes shall be cut at the limits of construction and sealed to the satisfaction of the Engineer. Payment for cutting and sealing in accordance with paragraph 4 of Item 16.03 shall be included in the unit price bid for Item E-1 Roadway Excavation.

4. Standard City Manhole Frames and Covers as shown on Sheet 42 shall be used on all new manholes.

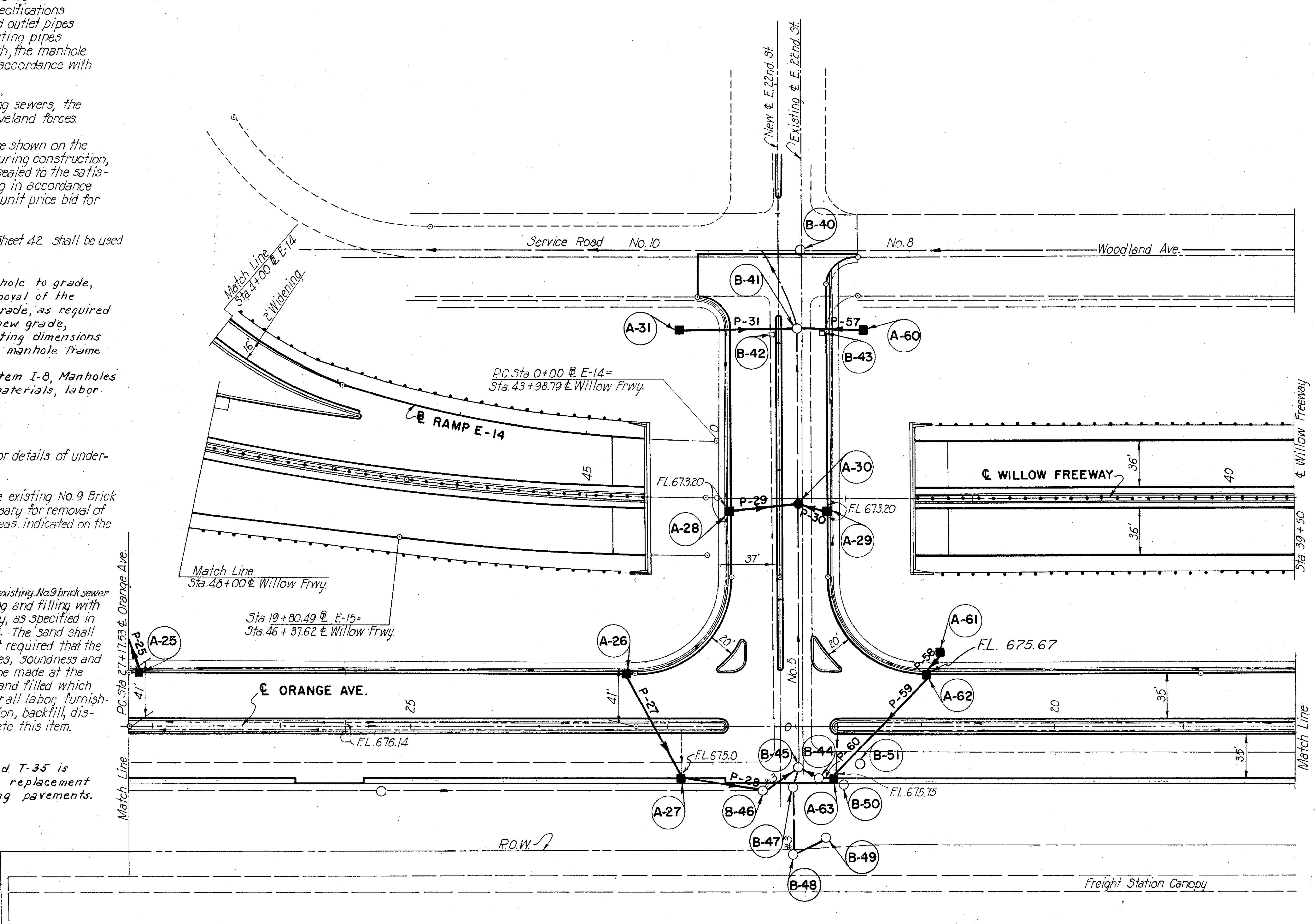
5. Where it is necessary to reconstruct an existing manhole to grade, the work involved shall consist of the careful removal of the existing manhole to an elevation below the new grade, as required and the reconstruction of the manhole to the new grade, conforming as nearly as practicable to the existing dimensions and type of construction and using the salvaged manhole frame and cover.
Payment shall be made at the unit price bid for "Item I-8, Manholes Reconstructed to Grade" and shall include all materials, labor and incidentals necessary to complete this item.

6. For the location of underdrains, see typical sections. For details of underdrain outlets, see Sheet 43.

7. The Contractor's attention is directed to the removal of the existing No. 9 Brick Sewer in the areas of bridge construction. All work necessary for removal of this egg-shaped sewer, including footing, if any, in the areas indicated on the plans, shall be paid for as "Item E-12, Pipe Removed."

8. Item Special-"Abandoning No.9 Brick Sewer." Abandoning of the existing No.9 brick sewer from Manhole A-84 to manhole B-63 shall include its bulkheading and filling with sand. The bulkheads shall be constructed of brick masonry, as specified in Sec. I-8.05 to the dimensions and at the locations indicated. The sand shall meet the grading requirements of Sec. M-2.1 but it is not required that the sand meet requirements pertaining to physical properties, soundness and sulfur limitations of the above section. Payment shall be made at the unit price bid per lineal foot of No.9 sewer abandoned and filled which price and payment shall constitute full compensation for all labor, furnishing and placing all materials, tools, equipment, excavation, backfill, disposal of materials and incidentals necessary to complete this item.

9. A quantity for Items 8-70, T-30 Tack Coat, B-35 and T-35 is provided in the General Summary for pavement replacement necessitated by drainage crossovers of existing pavements.



CODE	LOCATION	I-8 Std. 2-6 Inlet Each	I-8 Std. 2-8 Inlet Each	I-8 Std. 3 C.B. Each	I-8 Std. 2-2A C.B. Each	I-8 Std. 7 C.B. Each	I-8 Std. 2 MH Each		I-8 MH Adj to Grade Each		I-16 Inlets Aban. Each	CODE	LOCATION
	ESTIMATED QUANTITIES - INLETS, CATCH BASINS, MANHOLES												
A-25	27+10 BWB 41'Rt.			/									
A-26	23+30 Orge. 41'Rt.			/					/			B-40	3+72 E 22 St. 16'Rt.
A-27	22+89 BWB 41'Lt.	/							/			B-41	3+11 E 22 St. 15'Rt.
A-28	1+67.81 E 22 St. 37'Lt.			/							/	B-42	3+06 E 22 St. ℄
A-29	1+67.81 E 22 St. 37'Rt.			/							/	B-43	3+06 E 22 St. 32'Rt.
A-30	1+75 E 22 St. 14'Rt.						/		/			B-44	21+83 BWB 40'Lt.
A-31	3+10 E 22 St. 75'Lt.					/			/			B-45	21+98 BWB 31'Lt.
A-60	3+10 E 22 St. 65'Rt.				/				/			B-46	22+26 BWB 50'Lt.
A-61	20+90 Orge. 60'Rt.				/				/			B-47	22+02 BWB 47'Lt.
A-62	21+00 Orge. 41'Lt.		/										
A-63	21+70 Orge. 41'Lt.		/										
									/			B-50	21+64 BWB 45'Lt.
											/	B-51	21+51 BWB 28'Lt.
	Totals	1	2	4	2	1	1		7		3		

ESTIMATED QUANTITIES - PIPES

CODE	ROADWAY	FROM	TO	I-2 12" Class B L.F.	I-2 12" B-U.P. L.F.	I-2 15" B-UP L.F.	
P.25	Broadway W.B.	A-25	A-24	38			
P.27	Broadway W.B.	A-26	A-27		90		
P.28	Broadway W.B.	A-27	B-46		62		
P.29	East 22nd St.	A-28	A-30		50		
P.30	East 22nd St.	A-29	A-30		22		
P.31	East 22nd St.	A-31	B-41		88		
P.57	East 22nd St.	A-60	B-41		48		
P.58	Broadway W.B.	A-61	A-62	18			
P.59	Broadway W.B.	A-62	A-63			108	
P.60	Broadway W.B.	A-63	B-44			10	
	Totals			56	360	118	

EXISTING DRAINAGE QUANTITIES FOR SHEETS 33 & 35

CODE	LOCATION	EST. QUANTITIES - C.B. & M.H'S: I-8 M.H. Adj. to Grade Each	I-8 Inlet Adj. to Grade Each	I-16 M.H. Aband. Each	I-16 Inlets Aband. Each
B-96	4+69 E-14 52'Lt.				/
B-97	7+20 NB 14th 57'Rt.				/
B-98	7+87 NB 14th 14'Rt.			/	
B-99	6+30 E-14 7'Lt.			/	
B-100	6+70 E-14 14'Lt.				/
B-101	8+15 E-14 34'Rt.				/
B-102	9+43 E-14 38'Rt.			/	
B-103	13+27 E-17 138'Rt.				/
B-104	13+09 E-17 192'Rt.				/
B-105	11+71 E-17 182'Rt.				/
B-106	11+32 E-17 125'Rt.				/
B-108	13+02 E-17 154'Rt.			/	
B-109	11+00 E-17 145'Rt.			/	
B-111	4+76 W.B. Scovill 31'Lt.				/
B-112	4+65 W.B. Scovill 25'Lt.			/	
B-113	4+48 W.B. Scovill 34'Lt.				/
B-114	11+94 Orge 23'Lt.			/	
B-115	3+00 W.B. Scovill 51'Lt.				/
B-116	6+19 E.B. Scovill 25'Lt.	/ *			
B-117	2+72 W.B. Scovill 58'Lt.				/
B-118	2+96 W.B. Scovill 13'Lt.			/	
B-119	E. 20th St. ℄	/			
B-120	13+73 E-22nd St. 44'Lt.				/
B-121	13+54 E-22nd St. 25'Lt.	/			
B-123	13+35 E-22nd St. 39'Lt.				/
B-176	6+26 E-9 5'Rt.			/	
B-318	6+68 30-N 58'Rt.			/	
B-319	2+25 Rel. Woodland 42'Rt.				/
B-320	2+90 Rel. Woodland 75'Rt.				/
B-321	2+54 Rel. Woodland 92'Rt.	/			
B-322	38+00 Willow 155'Rt.				/
B-323	2+70 30-N 3'Rt.			/	
B-324	2+72 Rel. Woodland 36'Rt.			/	
	Totals	3		12	17

* Item I-8 Manhole Reconstructed to Grade, as per plan.

ESTIMATED QUANTITIES UNDERDRAINS

I-4, 6" Pipe for Underdrain	L.F.	2975
I-4, 8" C.M.P. Outlet for Underdrain	L.F.	0
I-5, Pipe Special		4

SCALE 1" = 50'
MADE H.M. DATE 12-3-58
TRCD. R.R. DATE 3-5-59
CKD. JLC DATE 11/11/59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 32

Rev. A.E.K. 1-11-60

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	33 / 175
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
DRAINAGE PLAN

ESTIMATED QUANTITIES-UNDERDRAINS			
I-4	6" Pipe for Underdrain	Lin. Ft.	4608
I-4	8" C.M.P. Outlet for Underdrain	Lin. Ft.	72
I-5	6" Pipe Specials	Each	4

CODE	LOCATION	I-8 Std 2-6 Inlet Each	I-8 Std. 2-10 Inlet Each	I-8 Std. 3-A C.B. Each	I-8 Std. #6 C.B. Each	I-8 Std. 2-2A C.B. Each	I-8 Std. 7 C.B. Each	I-8 Std. #1 M.H. Each	I-8 Std. #2 M.H. Each		CODE	LOCATION
		ESTIMATED QUANTITIES-INLETS, CATCH BASINS & M.H'S										
A-105	16+54 Orange 41'Lt.			1		1					A-126	2+42 Orange 11'Rt.
A-106	13+50 Orange 41'Lt.	1		1							A-127	0+20 30-N 42'Lt.
A-107	11+00 Orange 41'Lt.	1				1					A-130	1+50 Relo. Woodland 15'Lt.
A-108	12+15.8 Orange 41'Lt.			1		1					A-131	4+07 Relo. Woodland 51'Rt.
A-109	7+70 Orange 43'Lt.	1										
A-110	1+17 Mayflower 29'Rt.				1				1		A-133	2+95 Relo. Woodland 13'Lt.
A-111	9+15 N-30 3'Lt.	1						1			A-134	11+02 Orange 51'Rt.
A-112	2+43 Orange 6'Lt.			1				1			A-135	2+30 Orange 30'Rt.
A-113	2+39 Orange 52'Lt.			1				1			A-136	0+42 30-N 41'Lt.
A-114	14+00 Orange 30'Rt.	1										
A-115	11+25 Orange 30'Rt.	1										
A-116	12+15.8 Orange 30'Rt.			1								
A-117	6+25 Relo. Woodland ℄		1									
A-118	3+00 Relo. Woodland ℄		1									
A-119	4+55.10 Relo. Woodland ℄			1								
A-121	8+90 Reloc. Woodland 25'Rt.						1					
A-122	5+56 Reloc. Woodland 51'Lt.					1						
A-123	12+80 Orange 70'Rt.					1						
A-124	8+50 Orange 23'Rt.					1						
A-125	3+50 Orange 11'Rt.					1						
	Totals	6	2	7	1	6	1	3	1			

CODE	LOCATION	I-8 M.H. Adj. Each	I-8 Inlet Adj. Each	I-16 M.H. Aban. Each	I-16 Inlets Aban. Each
		EST. QUANT. C.B. & M.H'S			
B-300	14+42 Or. 45'Lt.	1			
B-301	12+12 Orge. 45'Lt.	1			
B-302	11+80 Orge. 45'Lt.	1			
B-303	8+82 Orge. 45'Lt.	1			
B-304	0+00 30-N 15'Rt.	1			
B-305	37+80 Willow 183'Rt.	1			
B-306	15+03 Orge. 30'Lt.				1
B-307	11+62 Orge. 28'Lt.				1
B-308	11+96 Orge. 23'Lt.			1	
B-309	8+24 Orge. 26'Lt.				1
B-310	6+00 Orge. 71'Lt.				1
B-311	4+85 Orge. 45'Lt.	1			
B-312	4+34 Orge. 45'Lt.	1			
B-313	2+24 Orge. 70'Lt.				1
B-314	2+22 Orge. 25'Lt.				1
B-315	0+18 30-N 21'Lt.				1
B-316	2+39 30-N 20'Rt.				1
B-317	6+95 30-N 80'Rt.		1		
	Totals	8	1	1	8

Note:
For disposition of structures B-318 thru B-324, see Sheet 32.

CODE	ROADWAY	FROM	TO	I-2 12" B-UP L.F.	I-2 12" Cl. B L.F.	I-2 15" Cl. B. L.F.	I-2 15" B-UP L.F.	I-8 18" Cl. B. L.F.	I-2 21" Cl. B L.F.	I-2 21" B-UP L.F.	I-2 30" Cl. B UP L.F.	CODE	FROM	TO	ROADWAY
				ESTIMATED QUANTITIES-PIPES											
P.100	Orange	A-121	B-53	136	18							P.120	A-127	A-136	30-N
P.101	Orange	A-105	B-53	16						70		P.123	A-136	B-304	30-N
P.102	Orange	A-106	B-300	90 84								P.124	A-117	A-122	Rel. Woodland
P.103	Orange	A-114	B-300	84	254							P.125	A-122	A-133	Rel. Woodland
P.104	Orange	A-123	A-116	156		72						P.126	A-119	A-118	Rel. Woodland
P.105	Orange	A-116	A-108		12		70					P.127	A-118	A-133	Rel. Woodland
P.106	Orange	A-108	B-301		136		4					P.128	A-130	A-133	Rel. Woodland
P.108	Orange	A-134	A-115		28 165							P.129	A-131	B.321	Rel. Woodland
P.109	Orange	A-115	A-107	74											
P.110	Orange	A-107	B-302	76							46	P.131	B-312	B-311	Orange
P.111	Orange	A-124	B-303	70							30	P.132	B-302	B-301	Orange
P.112	Mayflower	A-109	A-110	62											
P.113	Orange	A-110	B-303	78											
P.114	N-30	A-111	A-125		96										
P.115	N-30	A-125	A-126			104									
P.116	Orange	A-113	A-112	44											
P.117	Orange	A-112	A-126		14										
P-118	Orange	A-126	A-135					20							
P-119	Exist. 30th St.	A-135	A-136						264						
	Totals			970	703	176	74	20	264	70	76				

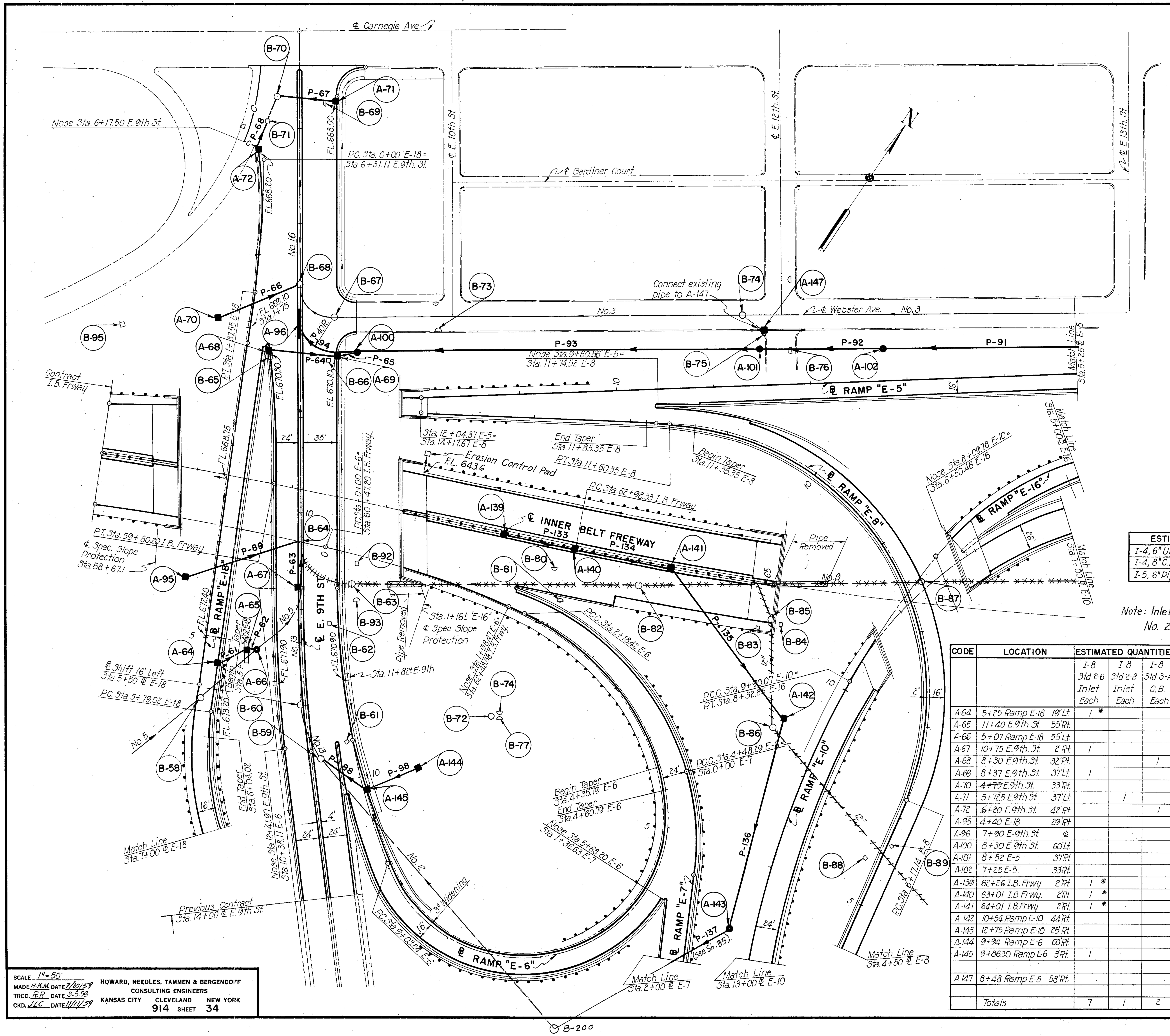
Rev. A.E.K. 1-11-60

SCALE 1" = 50'
MADE H.K.M. DATE 3-2-59
TRCD. R.R. DATE 3-5-59
CKD. J.L.C. DATE 2-27-59

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

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
DRAINAGE PLAN



CODE	LOCATION	FROM	TO	ESTIMATED QUANTITIES-PIPES							
				I-2 12" Class B L.F.	I-2 12" B-UP L.F.	I-2 66" B-UP M.6.6(c) L.F.	I-2 66" B-UP M-106.6(d) L.F.	I-2 66" Rad B-UP M-106.6(d) L.F.	Special No.9 Sand Filled L.F.	I-2 15" Class B L.F.	I-2 15" B-UP L.F.
P.61	Ramp E-18	A-64	A-65	28							
P.62	Ramp E-18	A-65	A-66	6							
P.63	East 9th St.	A-67	B-64		42						
P.64	East 9th. St.	A-68	A-69		68						
P.65	East 9th. St.	A-69	A-100		20						
P.66	East 9th St.	A-70	B-68		88						
P.67	East 9th. St.	A-71	B-70		66						
P.68	East 9th. St.	A-72	B-71		24						
P.88	East 9th. St.	A-145	B-59								54
P.89	Ramp E-18	A-95	B-64		122						
P.92	Ramp E-5	A-102	A-101			122					
P.93	Ramp E-5	A-101	A-100				416				
P.94	Ramp E-5	A-100	A-96				14	40			
P.98	Ramp E-6	A-144	A-145							56	
	I.B. Freeway	B-87	B-63						585		
P.133	I.B. Freeway	A-139	A-140		72						
P.134	I.B. Freeway	A-140	A-141		98						
P.135	I.B. Freeway	A-141	A-142		192						
P.136	Ramp E-10	A-142	A-143	226 *							
	I.B Freeway	A-84	B-87						615		
	Totals			34	792	122	430	40	1200	56	54

* Sec. M-6.6(c)

ESTIMATED QUANTITIES-UNDERDRAINS		
I-4, 6" Underdrain Pipe	LF	3,313
I-4, 8" C.M.P. Outlet For Underdrains	LF	20'
I-5, 6" Pipe Special	Each	3

Note: Inlets noted thus * are Standard No. 2-6-A Inlets.

CODE	LOCATION	ESTIMATED QUANTITIES, INLETS, CATCH BASINS, MANHOLES								
		I-8 Std 2-6 Inlet Each	I-8 Std 2-8 Inlet Each	I-8 Std 3-A C.B. Each	I-8 Std 2-2-A C.B. Each	I-8 Std. #2 M.H. Each	I-8 Junc. Cham. Each		I-8 Std #3 C.B. Each	I-14 Paved Apron Lin. Ft.
A-64	5+25 Ramp E-18 19' Lt.	1 *								
A-65	11+40 E. 9th. St. 55' Rt.				1					20
A-66	5+07 Ramp E-18 55' Lt.					1				
A-67	10+75 E. 9th. St. 2' Rt.	1								
A-68	8+30 E. 9th. St. 32' Rt.			1						
A-69	8+37 E. 9th. St. 37' Lt.	1								
A-70	~~4+70~~ E. 9th. St. 33' Rt.				1					
A-71	5+72.5 E. 9th St. 37' Lt.		1							
A-72	6+20 E. 9th. St. 42' Rt.			1						
A-95	4+40 E-18 29' Rt.				1					
A-96	7+90 E-9th. St. ℄						1			
A-100	8+30 E-9th. St. 60' Lt.					1				
A-101	8+52 E-5 37' Rt.					1				
A-102	7+25 E-5 33' Rt.					1				
A-139	62+26 I.B. Frwy 2' Rt.	1 *								
A-140	63+01 I.B. Frwy. 2' Rt.	1 *								
A-141	64+01 I.B. Frwy 2' Rt.	1 *								
A-142	10+54 Ramp E-10 44' Rt.				1					
A-143	12+75 Ramp E-10 25' Rt.					1				
A-144	9+94 Ramp E-6 60' Rt.				1					
A-145	9+86.30 Ramp E-6 3' Rt.	1								
A-147	8+48 Ramp E-5 58' Rt.								1	
	Totals	7	1	2	5	5	1		1	20

ESTIMATED QUANTITIES, INLETS C.B. & M.H.				
CODE	LOCATION	I-8 MH adj to Grade Each	I-16 M.H. Aban. Each	I-16 Inlet Aban. Each
B-58	5+65 E-18 3' Lt.		1	
B-59	12+57 E 9th. St. 10' Lt.	1		
B-60	12+00 E 9th. St. 4' Rt.		1	
B-61	12+41 E 9th. St. 39' Lt.			1
B-62	11+17 E 9th. St. 29' Lt.			1
B-63	10+74 E. 9th. St. 53' Lt.		1	
B-64	10+28 E. 9th. St. ℄	1		
B-65	2+03 E. 18th 27' Lt.			1
B-66	8+40 E. 9th. St. 30' Lt.			1
B-67	7+95 E. 9th. St. 35' Lt.	1		
B-68	7+62 E. 9th. St. ℄	1		
B-69	5+74 E. 9th. St. 27' Lt.			1
B-70	5+67 E. 9th. St. 22' Rt.	1		
B-71	5+94 E. 9th. St. 33' Rt.			1
B-73	11+82 E-5 68' Rt.			1
B-75	8+49 E-5 54' Rt.			1
B-76	8+18 E-5 35' Rt.			1
B-72	2+36 E-6 112' Rt.		1	
B-78	6+56 E-5 25' Rt.			1
B-74	2+44 E-6 102' Rt.			1
B-80	62+84 Frwy 25' Rt.			1
B-81	62+95 Frwy 57' Rt.			1
B-82	63+72 Frwy. 25' Rt.		1	
B-83	64+99 Frwy. 47' Rt.			1
B-84	65+20 Frwy 41' Rt.			1
B-85	65+09 Frwy. 37' Rt.		1	
B-86	65+30 Frwy 149' Rt.		1	
B-87	66+58 Frwy 22' Lt.		1	
B-88	5+46 E-8 16' Lt.			1
B-89	5+72 E-8 3' Rt.			1
B-92	10+54 E-9th St. 59' Lt.			1
B-93	10+92 E-9th St. 58' Lt.			1
B-94	7+00 E-8 100' Rt.		1	
B-95	1+87 E-18 129' Rt.			1
B-77	2+50 E-6 110' Rt.			1
	Totals	5	9	21

Rev. JAG 1-11-60

SCALE 1" = 50'
MADE H.K.M. DATE 7/10/59
TRCD. R.R. DATE 3-5-59
CKD. J.L.C. DATE 11/11/59

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

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	35 / 175
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
DRAINAGE PLAN

CODE	LOCATION	ESTIMATED QUANTITIES INLETS, CATCH BASINS & M.H. I-8 Std.2-6 Inlet Ea.	I-8 2-8 Inlet Ea.	I-8 2-10 Inlet Ea.	I-8 2-2A C.B. Ea.	I-8 Std.3 C.B. Ea.	I-8 Std.3-A C.B. Ea.	I-8 Std.#1 M.H. Ea.	I-8 Std.#2 M.H. Ea.	I-14 Paved Apron Lin.Ft.	CODE	LOCATION
A-21	5+00 N.B. 14th St. 41' Lt.			1		1					A-49	7+66 E.B. Scovill 72' Rt.
A-22	5+00 N.B. 14th St. 31' Rt.	1	1								A-50	7+75 E.B. Scovill 35' Rt.
A-32	7+00 N.B. 14th St. 47' Rt.								1	10	A-51	7+88 E.B. Scovill 10' Lt.
A-33	9+00 N.B. 14th St. 24' Rt.	1				1					A-52	1+64 E-20th St. 15' Lt.
A-34	13+50 E-17 ℄	1				1						
A-35	12+00 S.B. 14th St. ℄	1						1				
A-36	11+50 E-17 ℄	1										
A-37	12+84.33 E-17 ℄	1				1						
A-38	12+84.33 E-17 17' Rt.				1					20		
A-39	11+00 N.B. 14th St. 38' Rt.				1 1					10	A-58	2+50 W.B. Scovill 17' Rt.
A-40	11+75 N.B. 14th St. 24' Rt.	1	1								A-59	2+50 W.B. Scovill 24' Rt.
A-41	12+10 E-17 149' Rt.				1			1			A-147	8+45 Ramp E-14 15' Rt.
A-42	6+87 N.B. 14th St. ℄								1			
A-43	10+50 E-17 7' Lt.							1				
A-44	9+00 N.B. 14 7' Lt.							1				
A-45	9+87 E.B. Scovill 71' Rt.					1						
A-46	0+25 W.B. Scovill ℄	1										
A-47	8+43 E.B. Scovill 52' Rt.				1					20		
A-48	8+43 E.B. Scovill 35' Rt.					1						
	Totals	8	2	1	6	4	0	3	2	60		

NOTE: For disposition of existing drainage structures see sheet 32. (General Notes)

ESTIMATED QUANTITIES-UNDERDRAINS		
I-4, 6" Pipe for Underdrain	L.F.	5075
I-4 8" C.M.P. Outlet for Underdrain	L.F.	—
I-5, Pipe Special	Each	7

CODE	ROADWAY	FROM	TO	ESTIMATED QUANTITIES-PIPES I-2 12" Class B L.F.	I-2 12" B-UP L.F.	I-2 15" Cl. B. L.F.	I-2 15" B-U.P. L.F.	I-2 18" Cl. B. L.F.	I-2 18" B-UP L.F.	I-2 24" Cl. B L.F.	I-2 30" B-UP L.F.	I-2 18" M-6.6(c) B.-U.P. L.F.	CODE	FROM	TO	ROADWAY
P.22	E-14th St.	A-21	A-22		70 ✓											
P.23	N.B. 14th St.	A-22	A-42						186 ✓							
P.32	N.B. 14th St.	A-32	A-42		46 ✓ 74								P-52	A-55	B-116	E.B. Scovill
P.33	Ramp E-17	A-35	A-36		90 ✓ 40								P.54	A-59	A-58	W.B. Scovill
P.34	S.B. 14th St.	A-36	A-43	✓	58 ✓											
P.35	N.B. 14th St.	A-40	A-39	74 219 ✓									P.56	A-56	B-114	W.B. Scovill
P.36	N.B. 14th St.	A-39	A-43				66 98						P.138	A-147	A-43	N.B. E. 14th St.
P.37	N.B. 14th St.	A-43	A-44					146 #:			* 105		P.139		B-116	E-20th St.
P.38	S.B. 14th St.	A-41	A-38			154 ✓						204	P.137	A-143	B-200	Ramp E-7
P.39	S.B. 14th St.	A-38	A-37			14 ✓										
P.40	S.B. 14th St.	A-37	A-44				54 ✓									
P.41	S.B. 14th St.	A-34	A-44		60 ✓											
P.42	N.B. 14th St.	A-33	A-44		28 ✓											
P.43	N.B. 14th St.	A-44	A-42							212 *						
P.44	E.B. Scovill	A-45	B-121		52 ✓											
P.45	W.B. Scovill	A-46	A-51		92 ✓											
P.46	E.B. Scovill	A-48	A-47	14 ✓												
P.47	E.B. Scovill	A-47	A-50		64 ✓											
P.48	E.B. Scovill	A-49	A-50	36 ✓												
P.49	E.B. Scovill	A-50	A-51				44 ✓									
	Totals			343	893	168	262	146 #:	186	212 *	105 *	204				

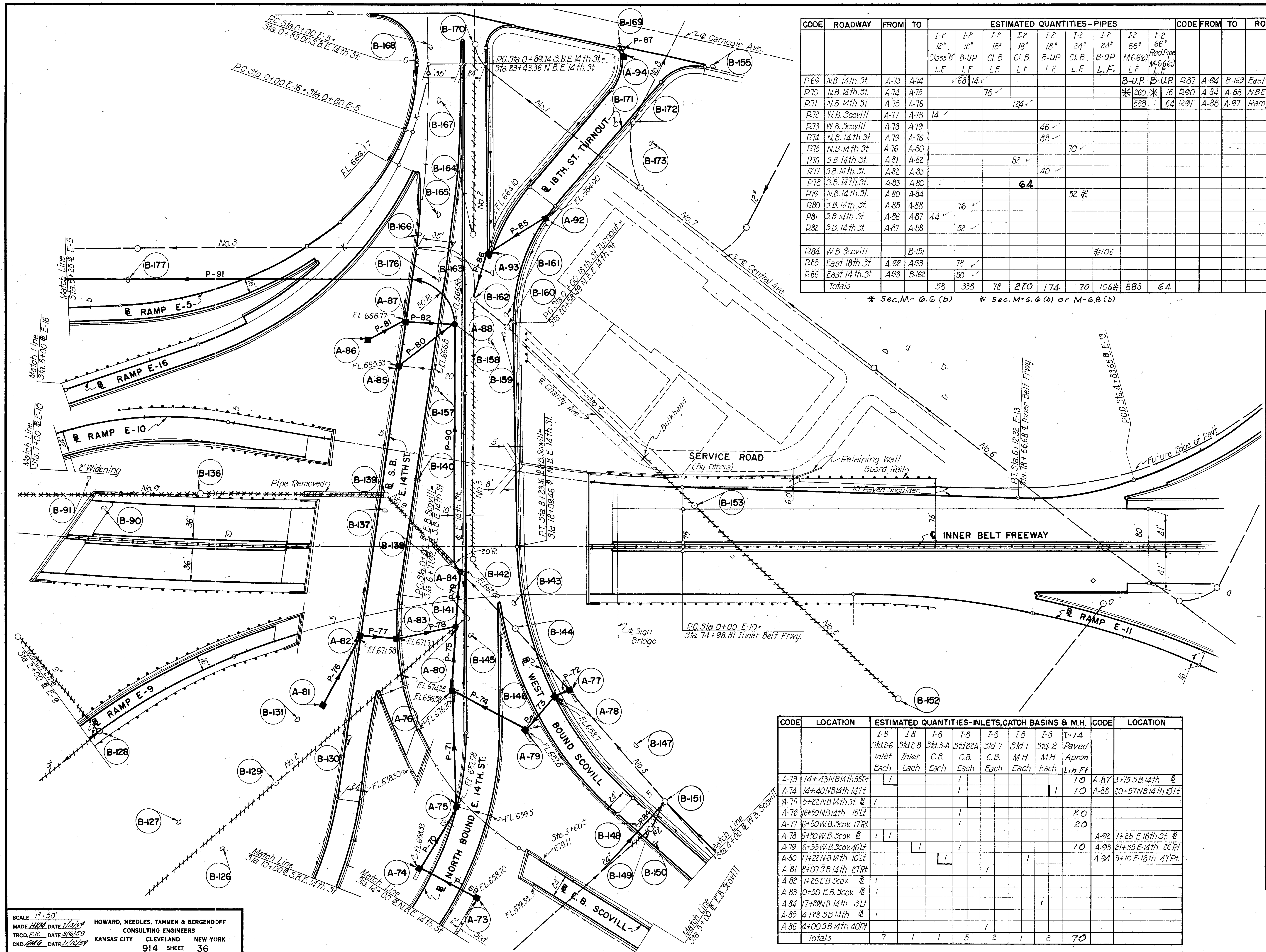
#: Sec. M-6.5(b) or M-6.8(b)   * Sec. M-6.6(b) or M-6.8(b)

SCALE 1" = 50'
MADE H.K.M. DATE 7-9-59
TRCD. R.R. DATE 11-11-59
CKD. G.M.G. DATE 11-11-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 35

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	36 / 175
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
DRAINAGE PLAN



CODE	ROADWAY	FROM	TO	I-2 12" Class "B" L.F.	I-2 12" B-UP L.F.	I-2 15" Cl. B L.F.	I-2 18" Cl. B L.F.	I-2 18" B-UP L.F.	I-2 24" Cl. B L.F.	I-2 24" B-UP L.F.	I-2 66" M.6.6(c) L.F.	I-2 66" Rad.Pipe M-6.6(c) L.F.	CODE	FROM	TO	ROADWAY
P.69	N.B. 14th St.	A-73	A-74		68 14						B-U.P.	B-U.P.	P.87	A-94	B-169	East 18th St.
P.70	N.B 14th St.	A-74	A-75			78					* 260	* 16	P.90	A-84	A-88	NBE 14th St.
P.71	N.B. 14th St.	A-75	A-76				124				588	64	P.91	A-88	A-97	Ramp E-5
P.72	W.B. Scovill	A-77	A-78	14												
P.73	W.B. Scovill	A-78	A-79					46								
P.74	N.B. 14th St.	A-79	A-76					88								
P.75	N.B. 14th St.	A-76	A-80						70							
P.76	S.B. 14th St.	A-81	A-82				82									
P.77	S.B. 14th St.	A-82	A-83					40								
P.78	S.B. 14th St.	A-83	A-80				64									
P.79	N.B. 14th St.	A-80	A-84						52 #							
P.80	S.B. 14th St.	A-85	A-88		76											
P.81	S.B. 14th St.	A-86	A-87	44												
P.82	S.B. 14th St.	A-87	A-88		52											
P.84	W.B. Scovill		B-151							#106						
P.85	East 18th St.	A-92	A-93		78											
P.86	East 14th St.	A-93	B-162		50											
	Totals			58	338	78	270	174	70	106#	588	64				

* Sec. M- 6.6 (b) # Sec. M-6.6 (b) or M-6.8 (b)

ESTIMATED QUANTITIES UNDERDRAINS		
I-4, 6" Underdrain Pipe	L.F.	4825
I-4, 8" C.M.P. Outlet For Underdrains	L.F.	110
I-5, Pipe Special	Each	8

CODE	LOCATION	I-8 M.H. Adj. to Grade Each	I-16 M.H. Aban. Each	I-16 Inlet Aban. Each
B-90	68+58 Frwy 23' Lt.			1
B-91	68+39 Frwy 59' Lt.			1
B-126	10+04 SBE 14th. 106' Rt.			1
B-127	9+96 SBE 14th. 161' Rt.			1
B-128	2+15 E-9 1' Rt.		1	
B-129	9+00 SBE 14th. 70' Rt.		1	
B-130	8+40 SBE 14th. 3' Lt.			1
B-131	8+26 SBE 14th. 54' Lt.			1
B-136	69+67 I B Frwy. 54' Lt.		1	
B-137	5+85 SBE 14th. 7' Lt.			1
B-138	6+26 SBE 14th 61' Lt.			1
B-139	5+66 SBE 14th. 6' Lt.		1	
B-140	5+46 SBE 14th. 38' Lt.			1
B-141	17+32 NBE 14th ℄		1	
B-142	17+96 NBE 14th 9' Rt.		1	
B-143	7+67 W.B. Scovill 9' Lt.			1
B-144	7+38 W.B. Scovill 14' Lt.	1		
B-145	17+13 NBE 14th 5' Rt.			1
B-146	7+34 W.B. Scovill 32' Lt.			1
B-147	5+53 W.B. Scovill 144' Rt.			1
B-148	4+85 W.B. Scovill 18' Lt.			1
B-149	4+73 W.B. Scovill 12' Lt.		1	
B-150	4+48 W.B. Scovill 22' Lt.			1
B-151	4+85 W.B. Scovill 21' Rt.	1 *		
B-157	4+44 S.B.E. 14th. 46' Lt.			1
B-158	20+41 N.B.E. 14th. 29' Rt.			1
B-159	20+49 N.B.E. 14th. 43' Rt.			1
B-160	20+53 N.B.E. 14th. 46' Rt.	1		
B-161	20+68 N.B.E. 14th. 44' Rt.			1
B-162	20+85 N.B.E. 14th. 10' Rt.	1		
B-163	21+15 N.B.E. 14th. 29' Rt.			1
B-164	21+54 N.B.E. 14th. 10' Rt.		1	
B-165	21+76 N.B.E. 14th. 28' Lt.			1
B-166	21+56 N.B.E. 14th. 51' Lt.			1
B-167	23+02 NBE 14th. 28' Lt.			1
B-168	23+61 NBE 14th. 38' Lt.			1
B-169	23+61 NBE 14th. 171' Rt.			1
B-170	23+66 NBE 14th. 11' Rt.	1		
B-172	22+79 NBE 14th. 188' Rt.	1		
B-173	22+64 NBE 14th. 207' Rt.			1
B-176	3+20 SB. 14th. 30' Lt.			1
B-177	4+52 E-5 27' Rt.			1
B-171	2+54 18th. St. T.O. 8' Lt.			1
	Totals	5	8	29

* Item I-8, Manhole Reconstructed to Grade, as per plan.

CODE	LOCATION	I-8 Std. 2-6 Inlet Each	I-8 Std. 2-8 Inlet Each	I-8 Std. 3-A C.B. Each	I-8 Std. 22A C.B. Each	I-8 Std. 7 C.B. Each	I-8 Std. 1 M.H. Each	I-8 Std. 2 M.H. Each	I-14 Paved Apron Lin Ft	CODE	LOCATION
A-73	14+43 NB 14th 55' Rt.	1			1				10	A-87	3+75 SB 14th ℄
A-74	14+40 NB 14th 14' Lt.				1			1	10	A-88	20+57 NB 14th 10' Lt.
A-75	5+22 NB 14th St. ℄	1									
A-76	16+50 NB 14th 15' Lt.				1				20		
A-77	6+50 W.B. Scov. 17' Rt.				1				20		
A-78	6+50 W.B. Scov. ℄	1 1								A-92	1+25 E. 18th St. ℄
A-79	6+35 W.B. Scov. 46' Lt.		1		1				10	A-93	21+35 E-14th. 26' Rt.
A-80	17+22 NB 14th 10' Lt.			1			1			A-94	3+10 E-18th 47' Rt.
A-81	8+07 SB 14th 27' Rt.					1					
A-82	7+25 EB Scov. ℄	1									
A-83	0+50 E.B. Scov. ℄	1									
A-84	17+80 NB 14th 3' Lt.							1			
A-85	4+28 SB 14th. ℄	1									
A-86	4+00 SB 14th 40' Rt.					1					
	Totals	7	1	1	5	2	1	2	70		

SCALE 1" = 50'
MADE HRM DATE 7/1/57
TRCD. R.P. DATE 3/6/59
CKD. GMG DATE 11/12/57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 36

Rev. R.J.K. 1-11-60

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

37 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

PROFILES ON THIS SHEET

P-2 TO P-23

SCALE 1"=20' HOR. 1"=5' VERT.
MADE N.K.M. DATE 2-15-59
TRCD. ___ DATE ___
CKD. J.L.C. DATE 3-1-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 37

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

38
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

SCALE 1"=20' HOR. 1"=5' VERT. — HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE H.K.M. DATE 2-15-59 — CONSULTING ENGINEERS
TRCD____ DATE____ — KANSAS CITY CLEVELAND NEW YORK
CKD J.L.C. DATE 3-1-59 — 914 SHEET. 38

PROFILES ON THIS SHEET

P-24 TO P-43
P-84 & P-57

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

39 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29

PROFILES ON THIS SHEET

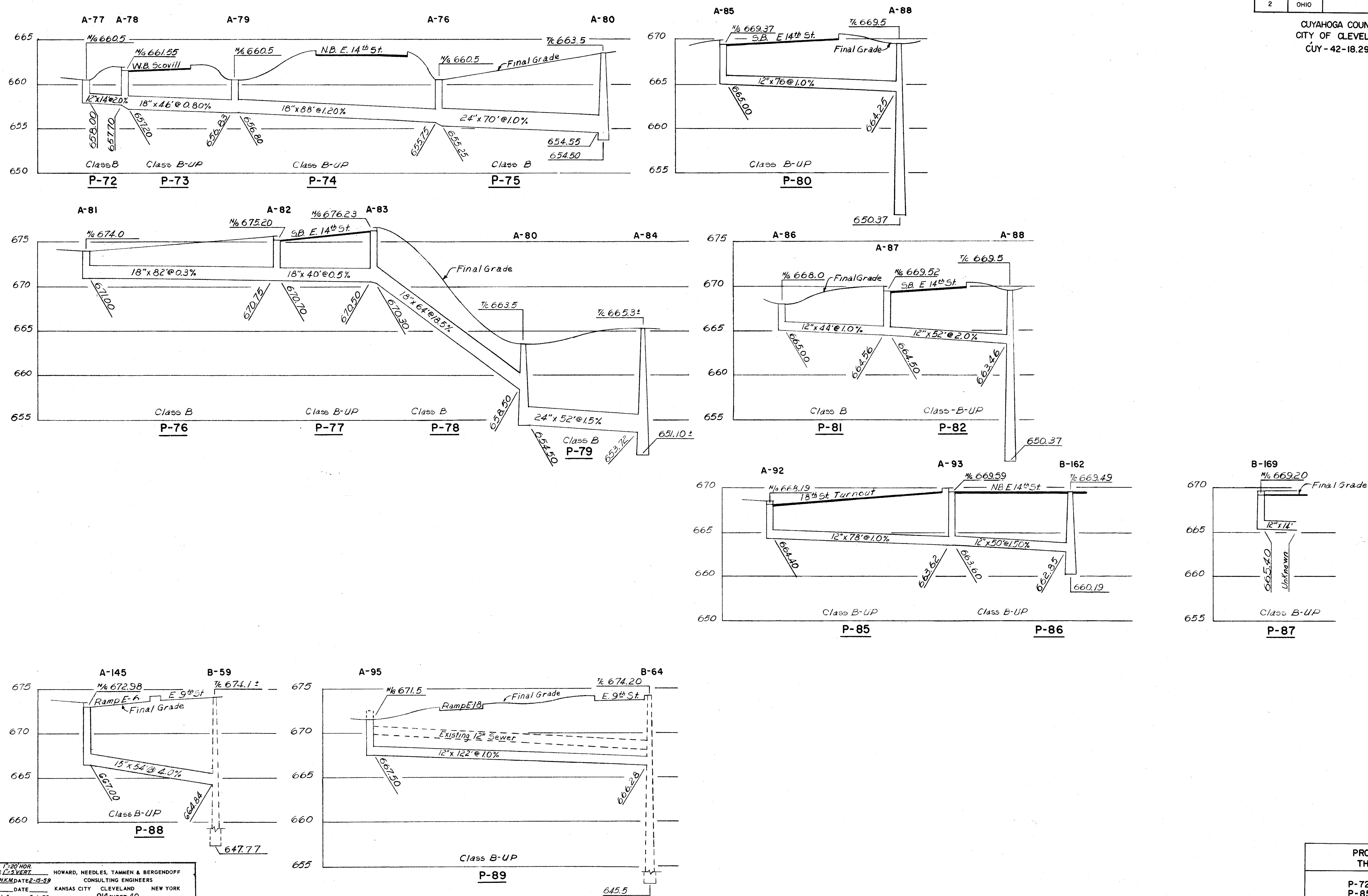
P-44 TO P-49, P-52, P-54, P-56 & P-58 TO P-71

SCALE 1" = 20' HOR. 1" = 5' VERT.
MADE H.K.M. DATE 2-15-59
TRCD. ____ DATE ____
CKD. J.L.C. DATE 3-1-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 39

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS.	
2	OHIO			40 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29



SCALE 1"=20' HOR. 1"=5' VERT.
MADE H.K.M. DATE 2-15-59
TRCD ____ DATE ____
CKD J.L.C. DATE 3-1-59

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

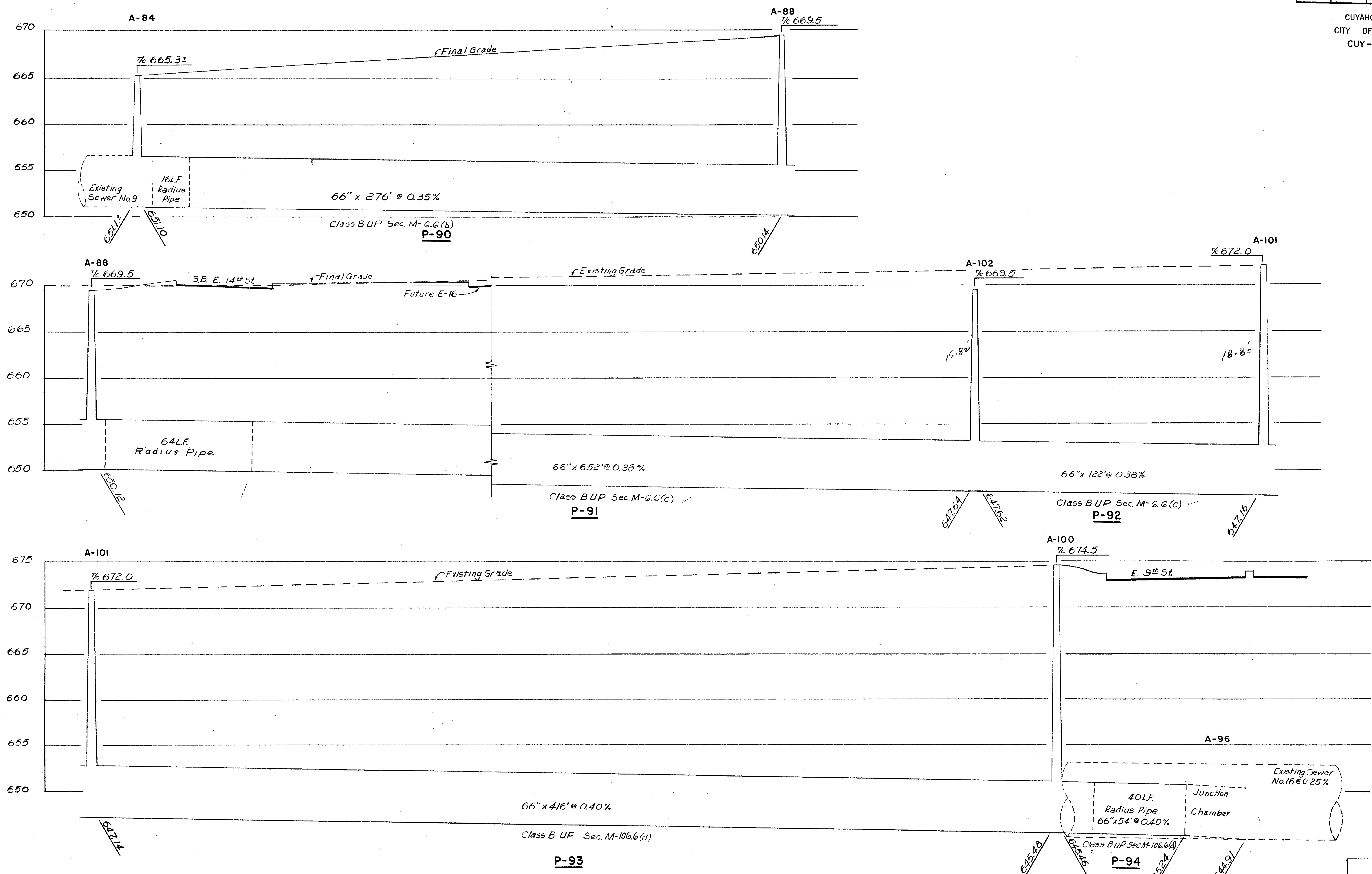
PROFILES ON THIS SHEET

P-72 TO P-83
P-85 TO P-89

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

41
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



SCALE 1"=20' HOR. 1"=5' VERT.
MADE H.K.M. DATE 2-15-59
TRCD____ DATE____
CKD J.L.C. DATE 3-1-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 41

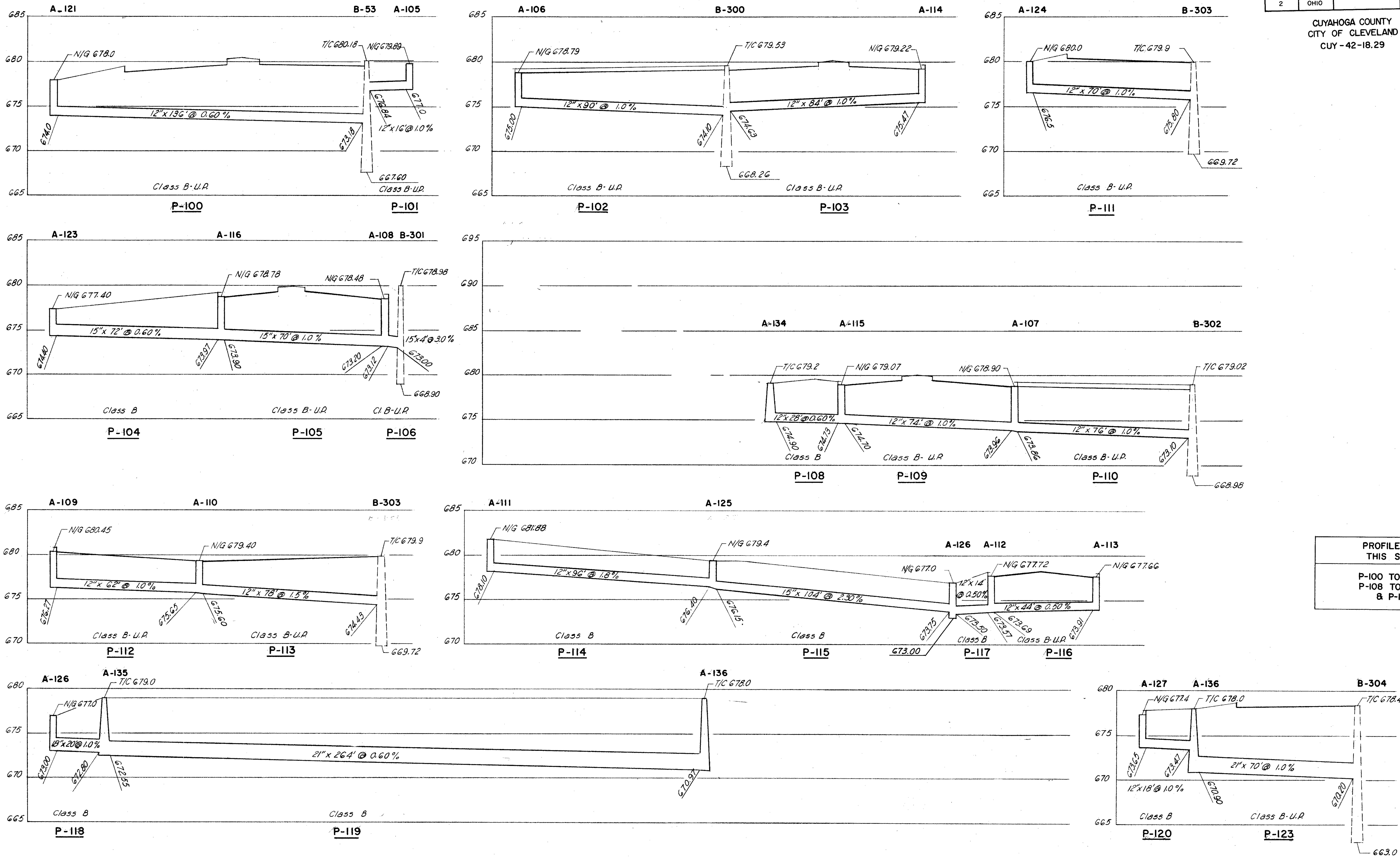
PROFILES ON THIS SHEET

P-90 TO P-94

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

41A / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



PROFILES ON THIS SHEET

P-100 TO P-106
P-108 TO P-120
& P-123

SCALE 1"=20' HOR. 1"=5' VERT.
MADE H.A.M. DATE 2-15-59
TRCD ___ DATE ___
CKD J.L.C. DATE 3-1-59

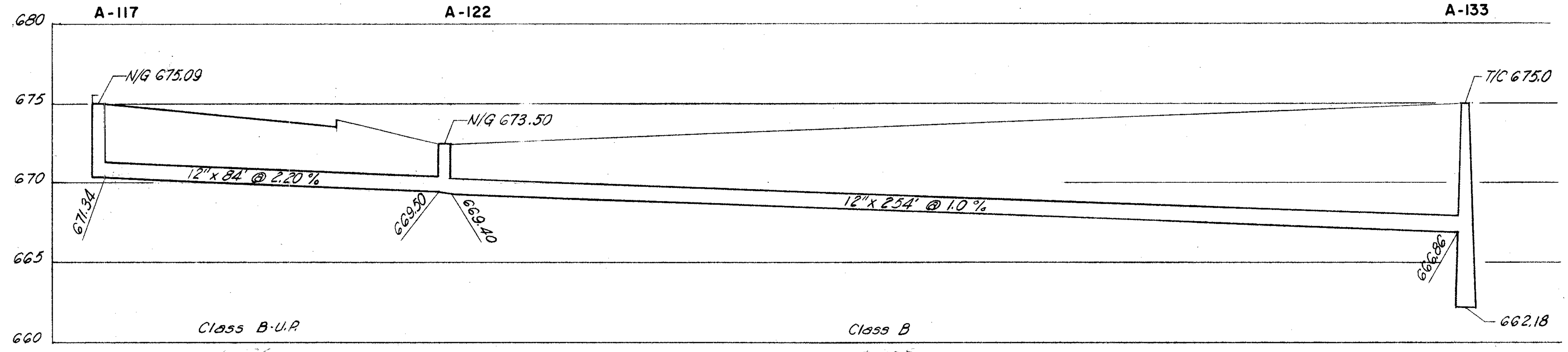
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

914 SHEET 42

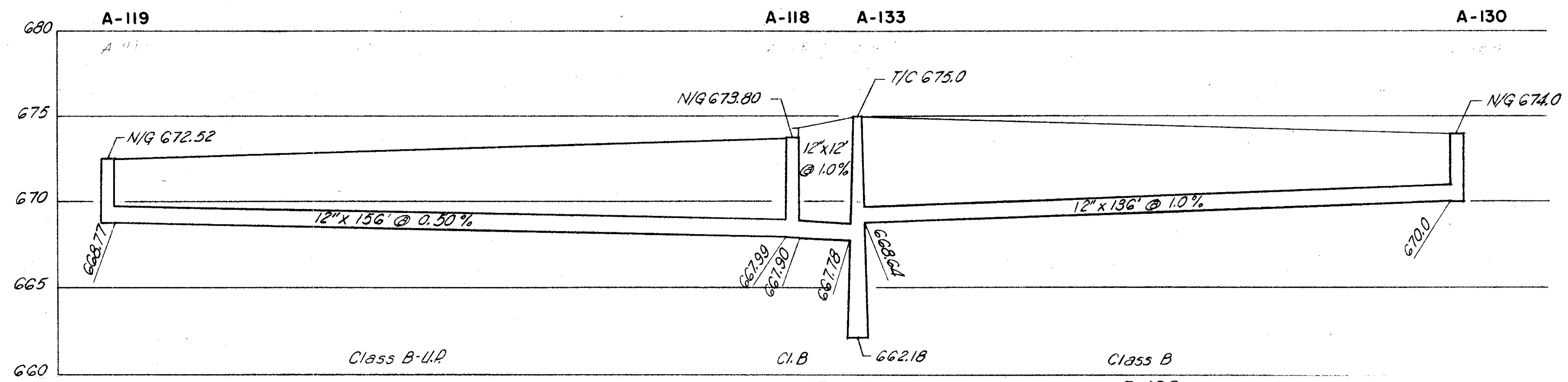
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

418
175

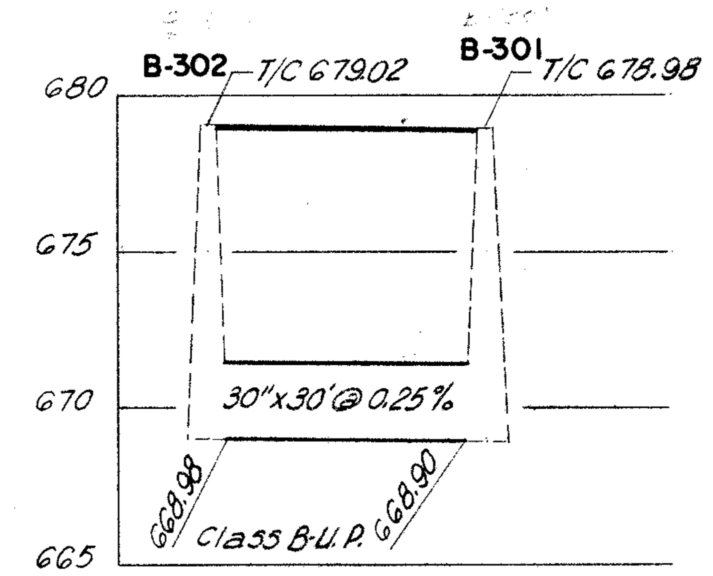
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



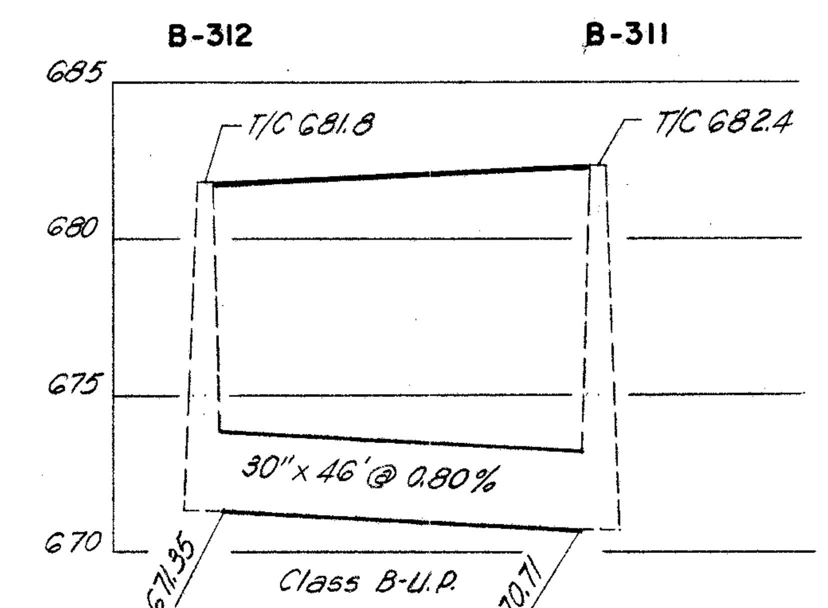
P-124 P-125



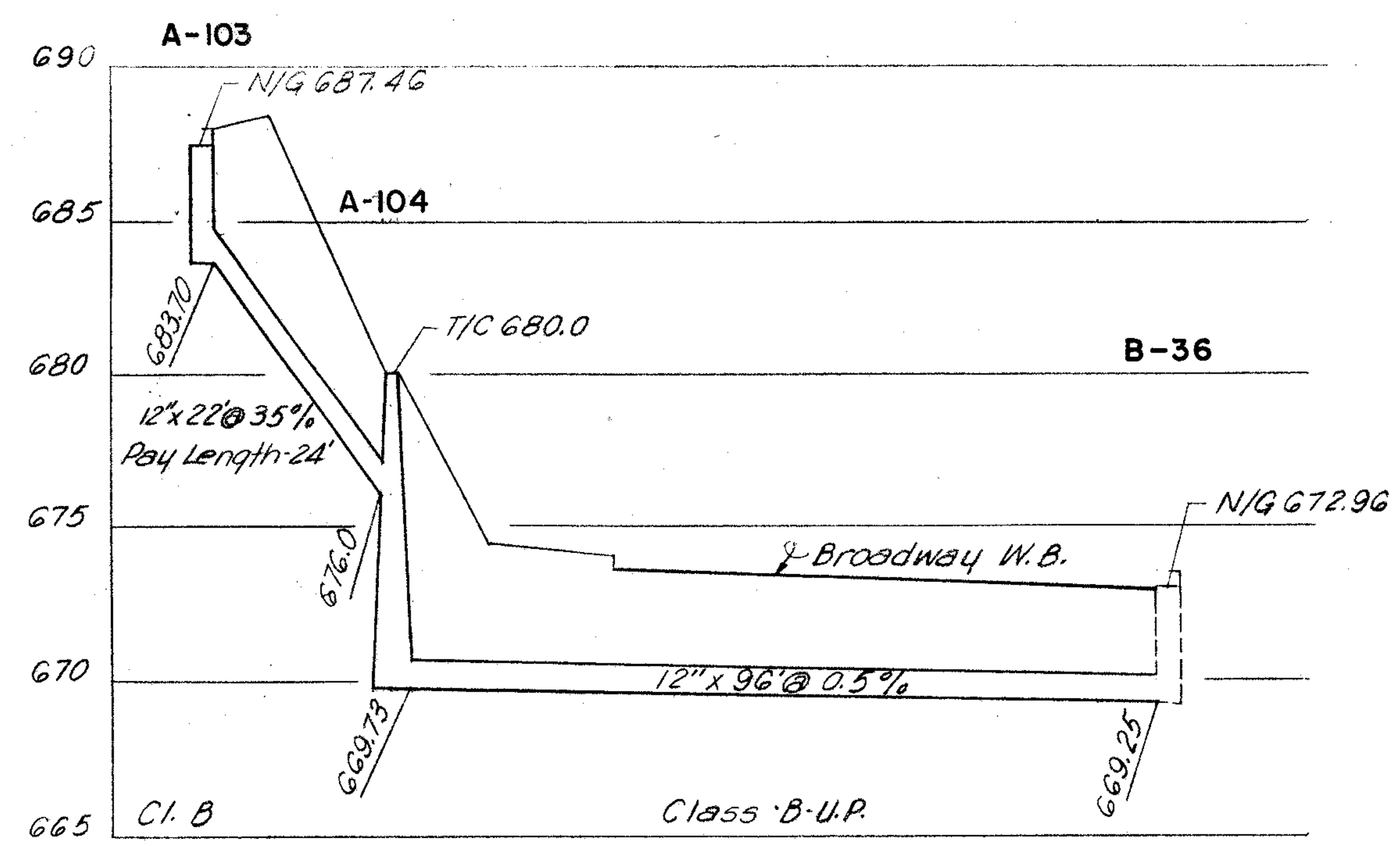
P-126 P-127 P-128



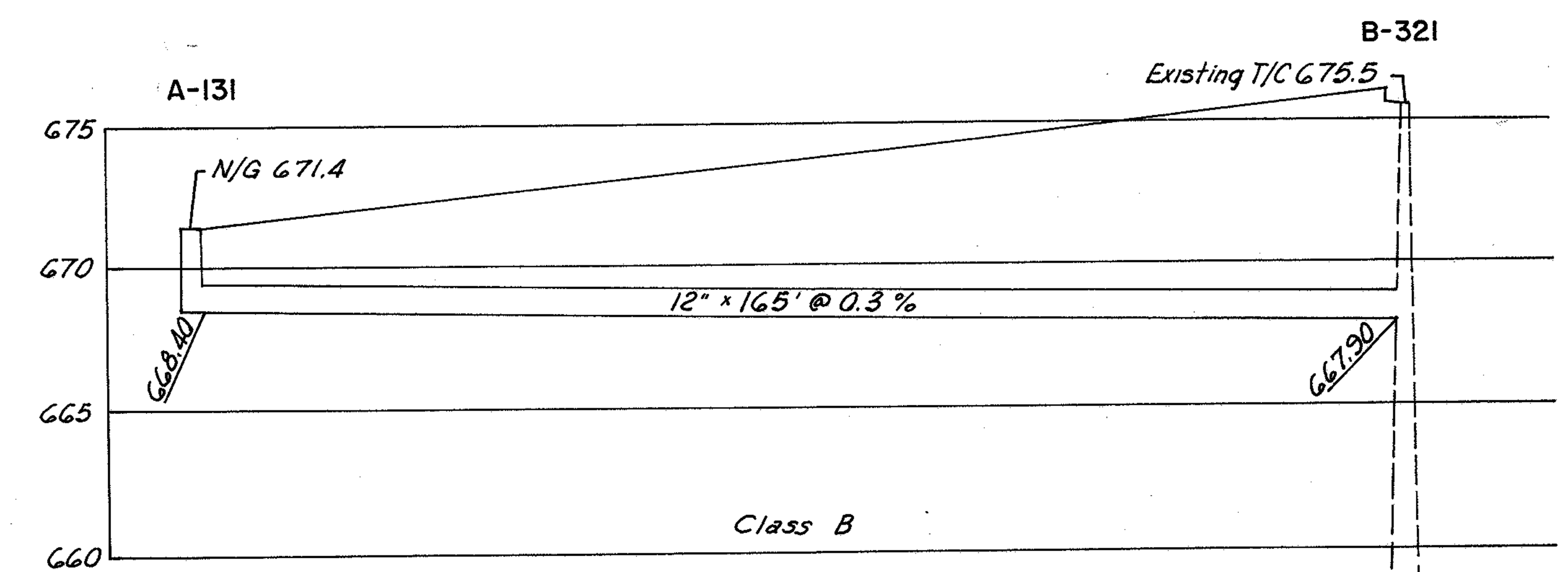
P-132



P-131



P-95 P-96



P-129

SCALE 1"=20' HOR. 1"=5' VERT.
MADE H.K.M. DATE 2-15-59
TRCD. ____ DATE ____
CKD. J.L.C. DATE 3-1-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET. 43

PROFILES ON THIS SHEET

P-124 TO P-129, P-131, P-132, P-95 & P-96

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

41C
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

SCALE 1" = 20' HOR. 1" = 5' VERT.
MADE HKM DATE 2-15-59
TRCD ___ DATE ___
CKD JLC DATE 3-1-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 44

PROFILES ON THIS SHEET

P-97, P-98 & P-133 TO P-139

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS	42 / 175
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29
CITY MANHOLE
FRAMES & COVERS

Scale: 2" = 1'-0"

Weight of Frame 400 lbs. min.

Scale: 2" = 1'-0"

Weight

Street Type Square Manhole Casting Without Cover	700 lbs.
Sidewalk Type Square Manhole Casting Without Cover	450 lbs.
Square Manhole Cover	250 lbs.

Scale: 1" = 1'-0"

Weight of Cover 195 lbs. min.

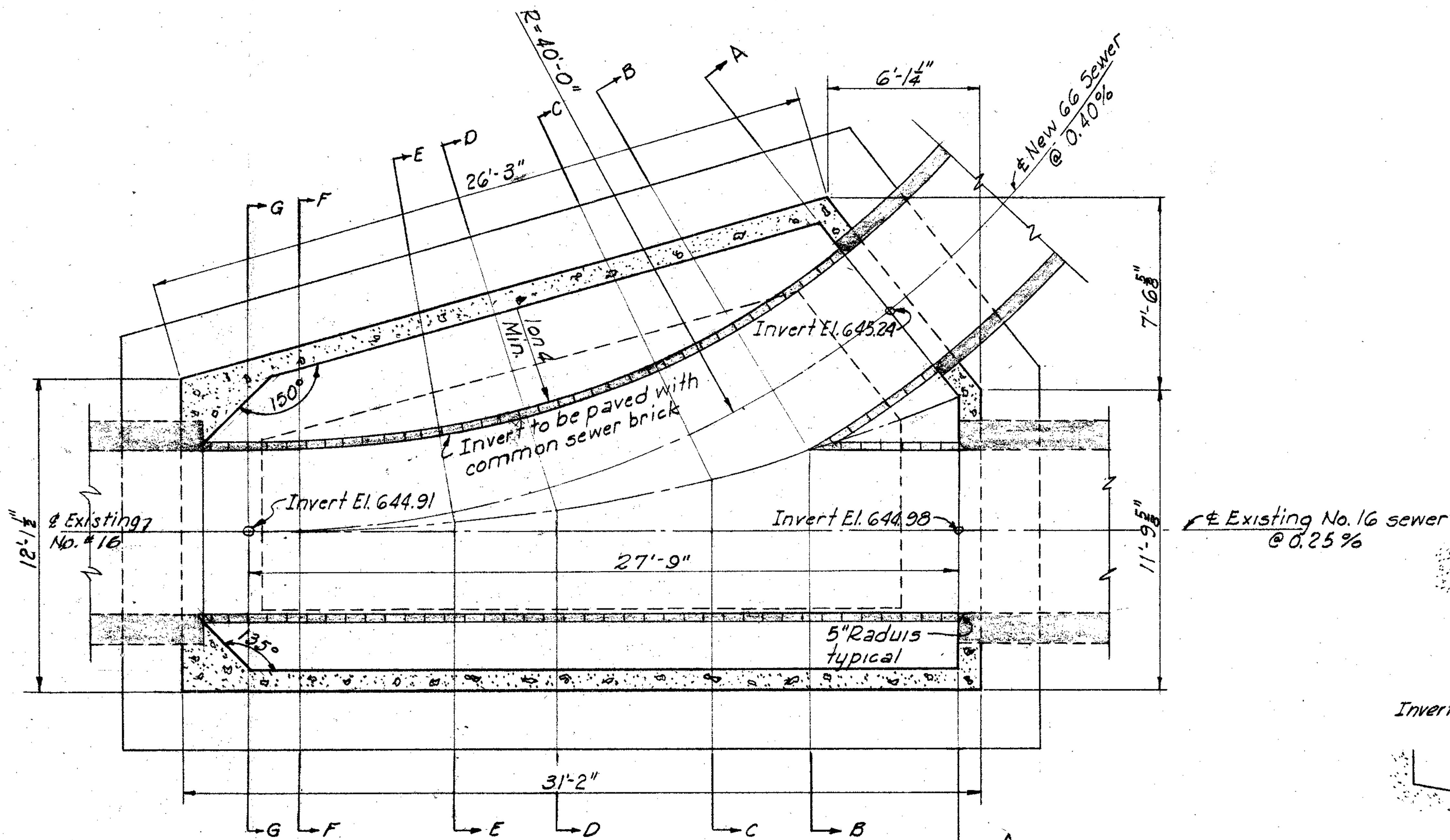
Scale: 3" = 1'-0"

Taken from St'd. Drawings 2346 & 2731 of City of Cleveland

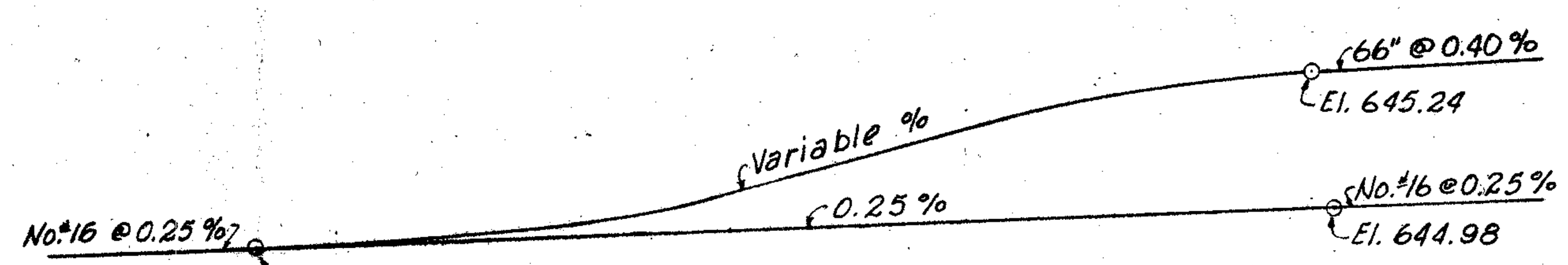
SCALE As Shown
MADE B.A.S. DATE 9-8-59
TRCD. ____ DATE ____
CKD. J.L.C. DATE 9/22/59
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 42

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

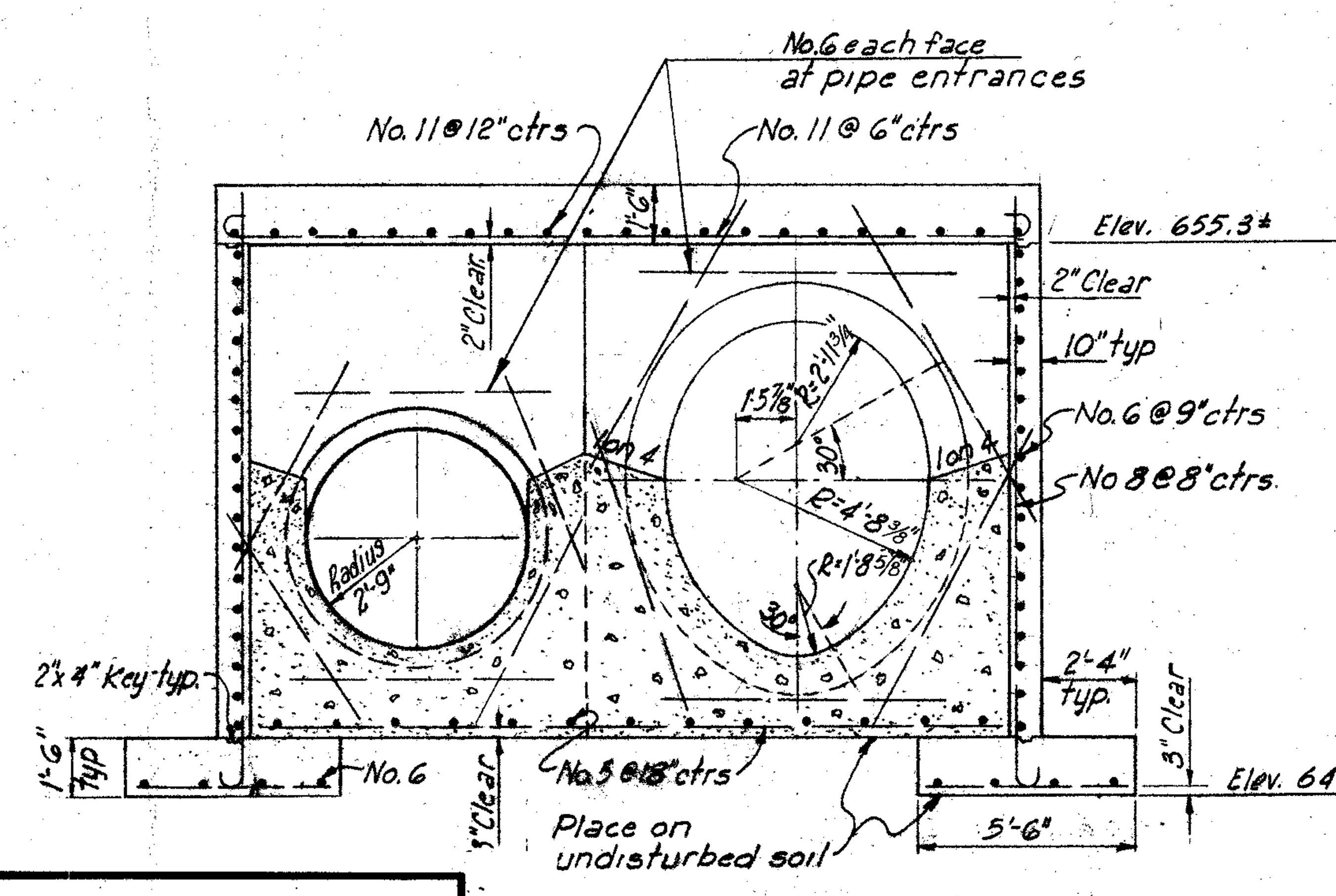
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
JUNCTION CHAMBER & MISCELLANEOUS DRAINAGE DETAILS



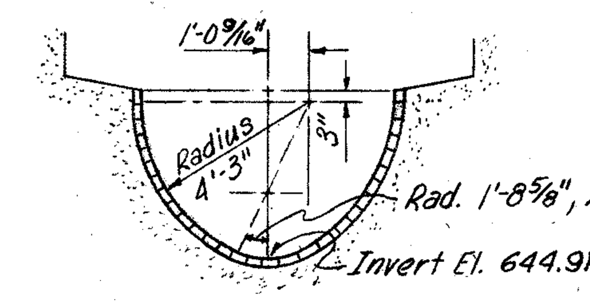
LONGITUDINAL SECTION THRU JUNCTION CHAMBER A-96
Scale: 1/4" = 1'-0"



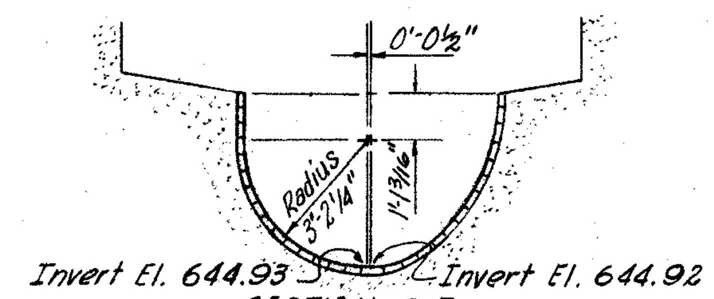
PROFILES



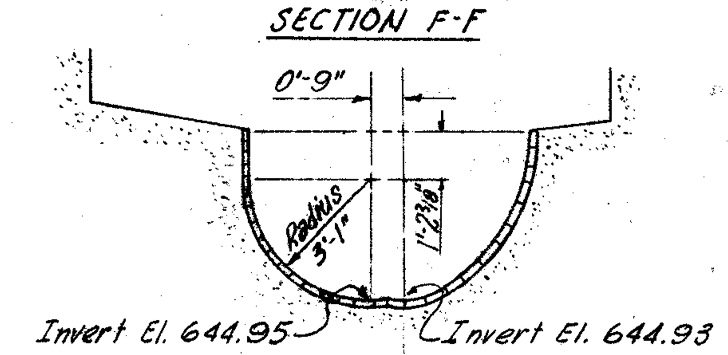
SECTION A-A
Scale: 1/4" = 1'-0"



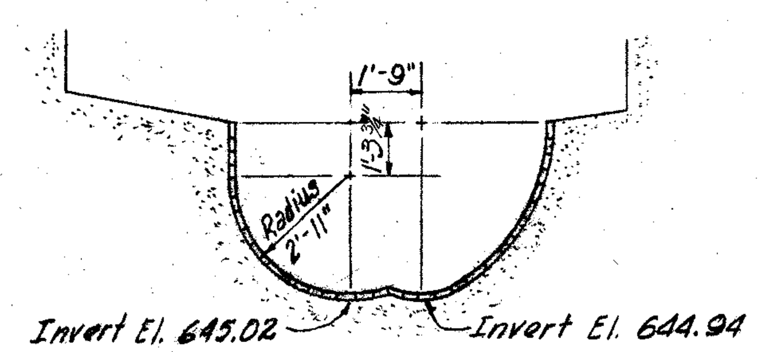
SECTION G-G



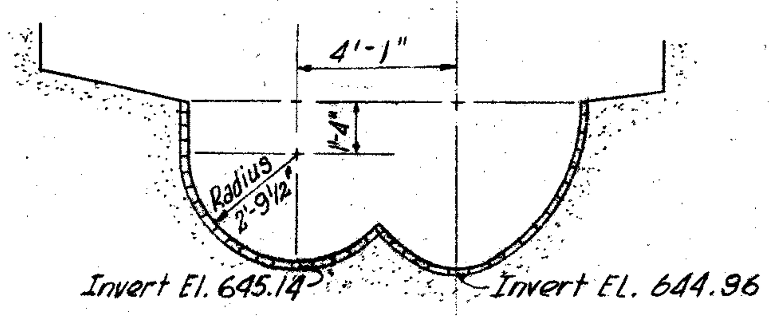
SECTION F-F



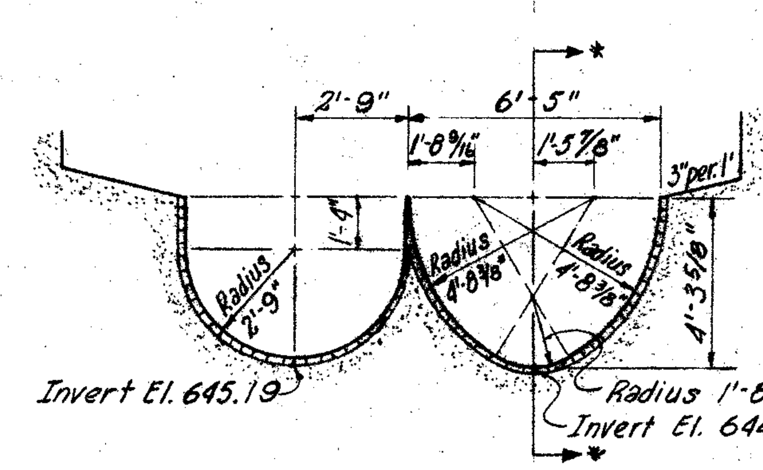
SECTION E-E



SECTION D-D

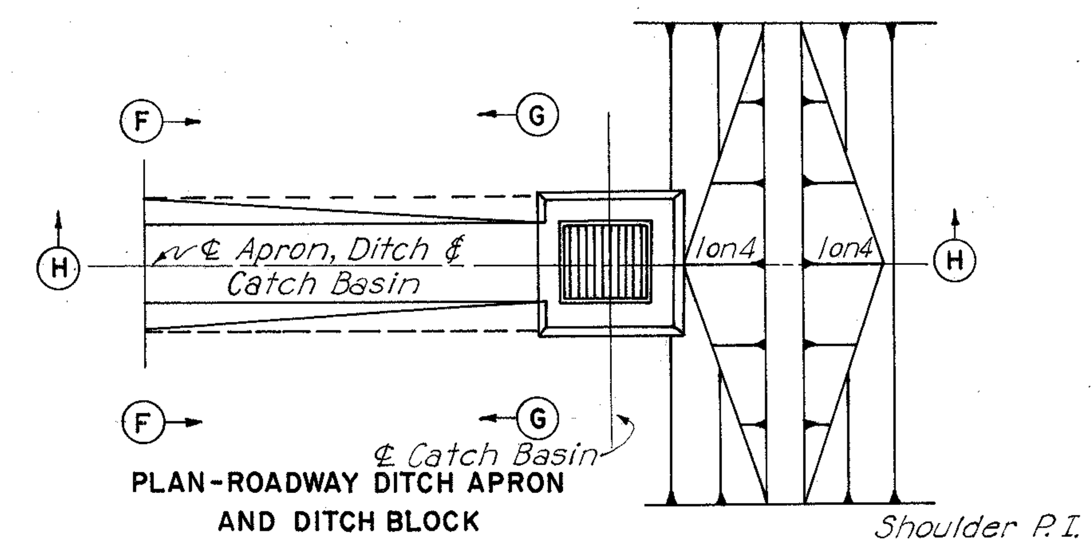


SECTION C-C

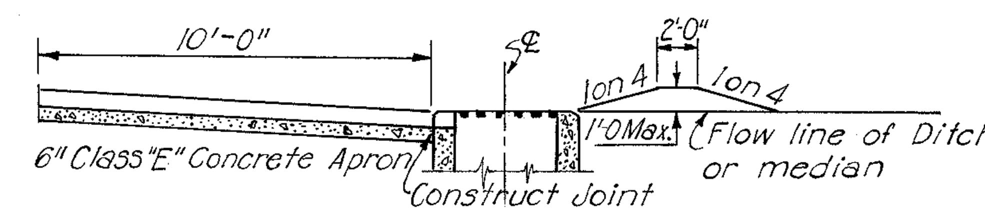


SECTION B-B

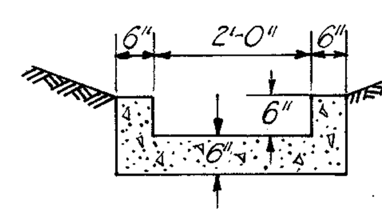
* Note: Right side from ℄ shall be uniform thru all sections and conform with dimensions of City Sewer No. #16.



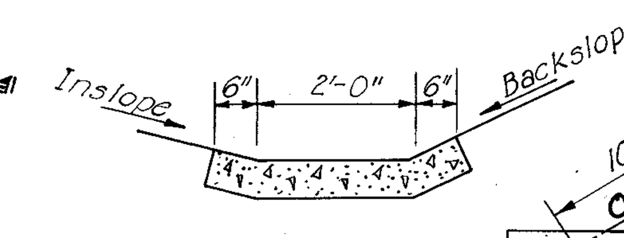
PLAN-ROADWAY DITCH APRON AND DITCH BLOCK



SECTION H-H



SECTION G-G

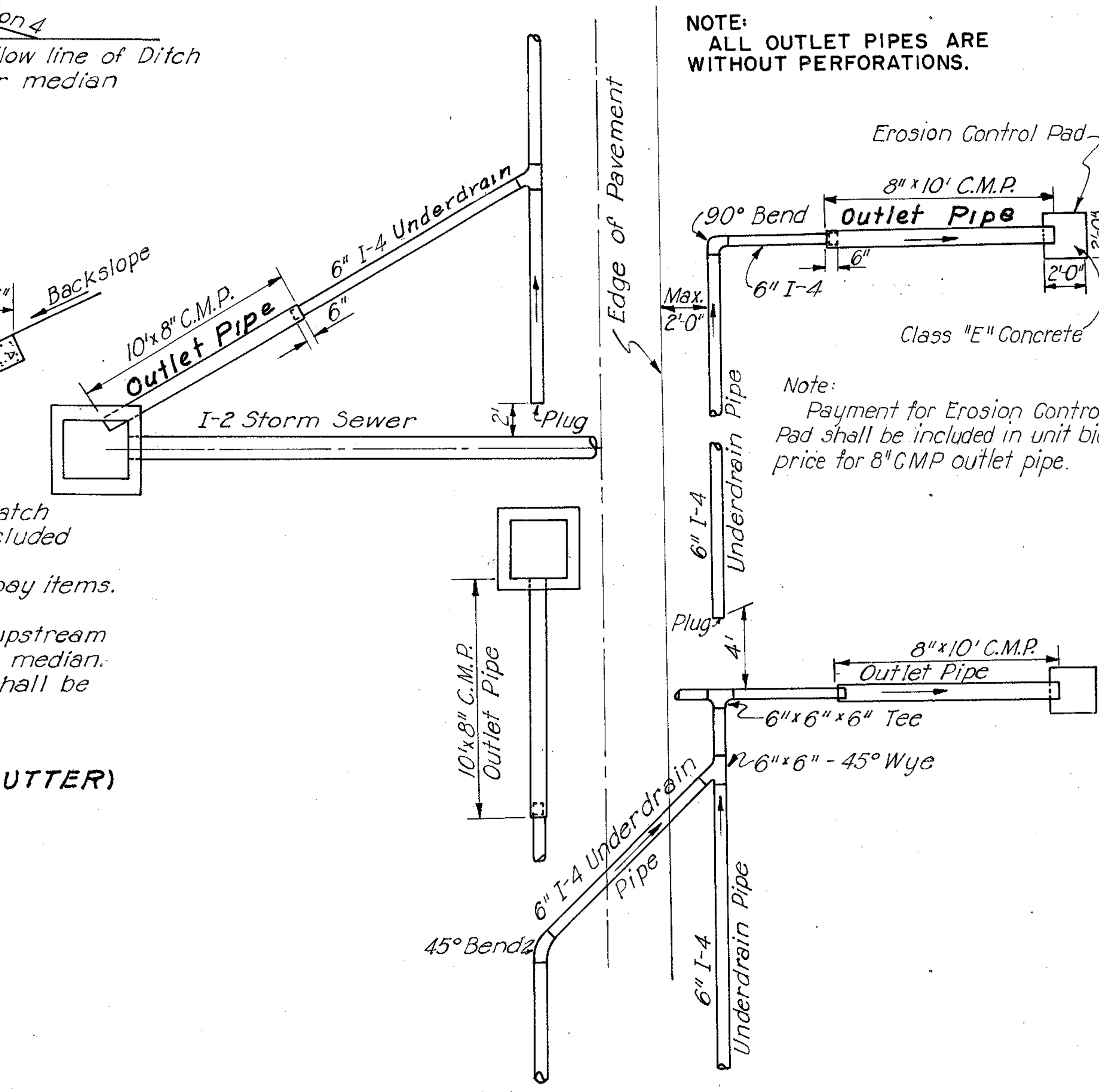


SECTION F-F

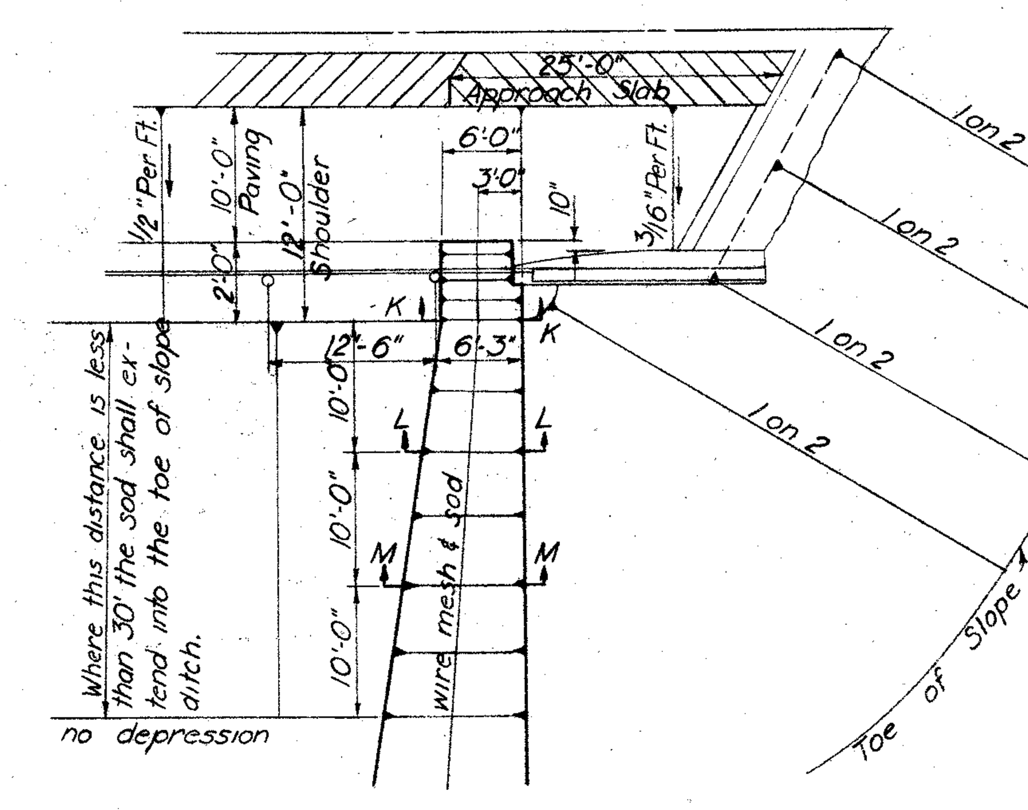
Note:
Ditch blocks shall be placed downstream from all catch basins on a continuous grade. Payment shall be included in the unit price bid for Item E-1 Excavation.
The paved apron and catch basin are separate pay items. See Summary Sheet.
The appropriate paved apron shall be installed upstream from all catch basins located in defined ditch or median. Minimum thickness of concrete is 6", concrete shall be Class "E"

SPECIAL PAVED APRON DETAILS (PAVED GUTTER)

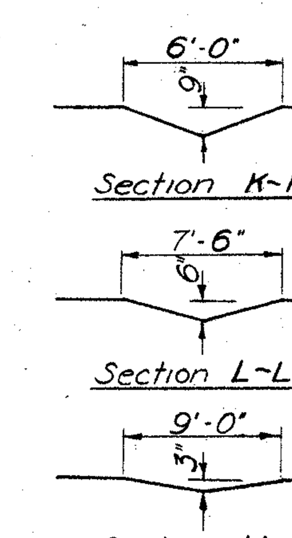
NOTE:
ALL OUTLET PIPES ARE WITHOUT PERFORATIONS.



TYPICAL UNDERDRAIN AND OUTLET PIPE DETAIL



SPECIAL BERM & SLOPE PROTECTION
No Scale



NOTES

Prior to placement of sod in the berm and slope, galvanized poultry fence shall be placed on the finished grade in strands which shall be at right angles to the direction of flow. Each strand shall be staked securely on top and bottom with stakes spaced at four foot intervals and alternates in rows four feet apart.

Stakes shall be 1" x 1" x 8" wood stakes and shall be perpendicular to the ground and flush with the finished grade.

The fence shall be Straight Line Poultry Fence or equivalent with strand width of four feet, having a two inch mesh and all wires No. 20 Gauge.

Each strand of fencing shall be fastened together at twelve inch intervals by means of hog rings.

The fence shall be secured to the wood stakes by metal staples.

Sod shall be laid in accordance with Construction and Materials Specifications Section L-10.07.

SCALE As Shown	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE J.F.S. DATE 8.2.59	CONSULTING ENGINEERS
TRCD. R.R. DATE 8.16.59	KANSAS CITY CLEVELAND NEW YORK
CKD. J.L.C. DATE 11.2.59	914 SHEET 43

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS

44
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
LIGHTING KEY

LEGEND
Previous Contract - Part 5
Part 6 -
Part 7

SCALE 1" = 150'	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE J.R.K. DATE 9-15-58	CONSULTING ENGINEERS
TRCD. DATE	KANSAS CITY CLEVELAND NEW YORK
CKD. G.J.C. DATE 11-12-59	914 SHEET 44

Rev. F.S.J. 12-9-59

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	45 / 175
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
LIGHTING PLAN

BRIDGE NO. 7 UNDERDECK LIGHTING

WIRING DIAGRAM

No Scale

Note: Contractor shall solidly ground fluorescent units with a No. 8AWG ground wire to insure that fixtures are at potential of steel.

FOR LEGEND SEE SHEET 46

Rev. REC 8-22-60
Rev. FSJ 12-16-59

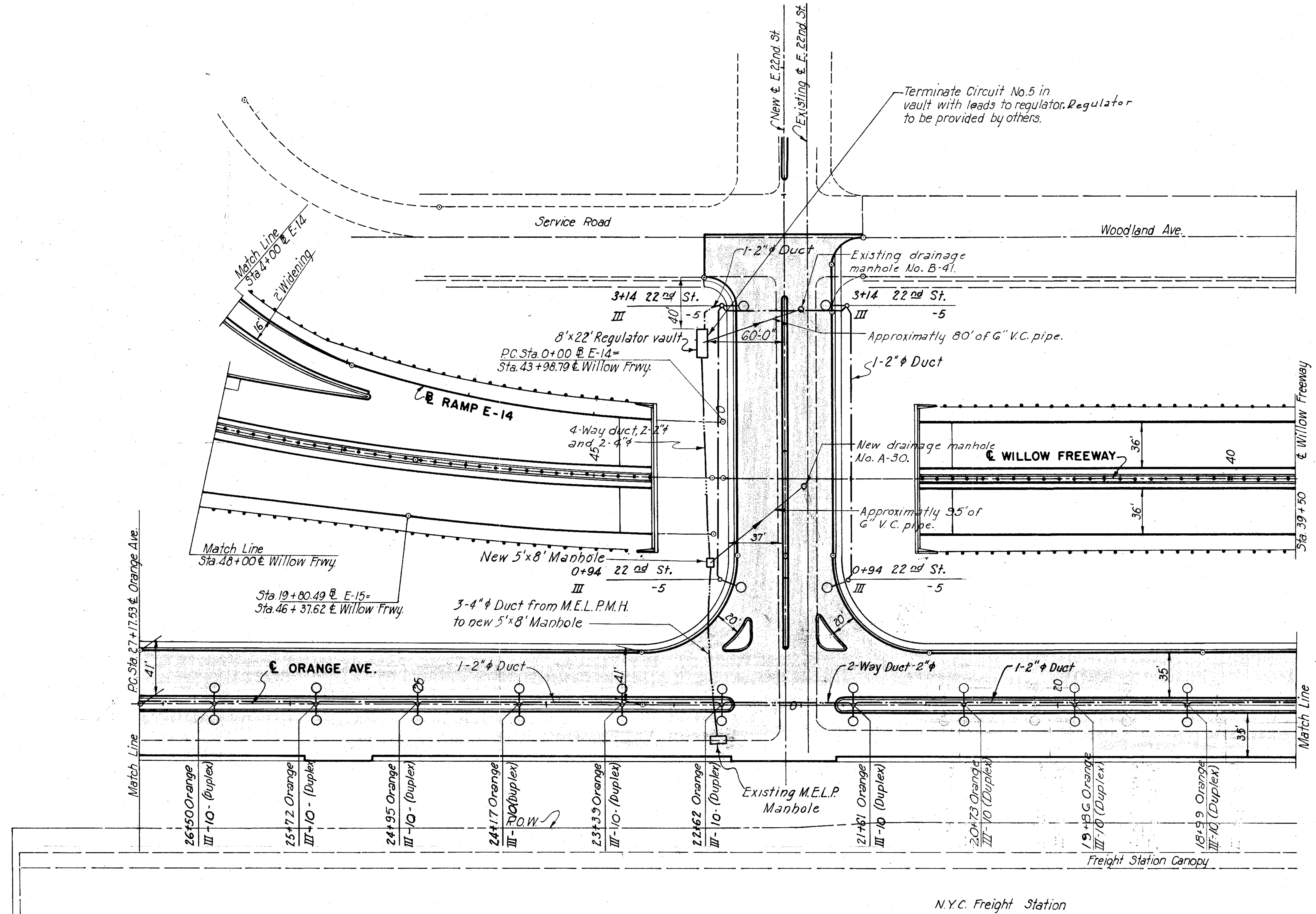
SCALE 1" = 50'
MADE J.R.K. DATE 5-9-58
TRCD. ____ DATE ____
CKD. G.J.C. DATE 11-13-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 45

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

46
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
LIGHTING PLAN



LEGEND

- ●— Roadway Lighting Unit: ASA-IES Type IV, 15000 Lumen incandescent lamp; 10' bracket, on Expressway, with Pole Base Box.
- ◐— Roadway Lighting Unit: ASA-IES Type IV, 15000 Lumen incandescent lamp; 10' bracket, on Expressway Bridges.
- ○— Roadway Lighting Unit: ASA-IES Type III, 10000 Lumen incandescent lamp, 10' bracket, on Ramps and Streets, with Pole Base Box.
- ◒— Roadway Lighting Unit: ASA-IES Type III, 10000 Lumen incandescent lamp, 10' bracket, on Ramp Bridges.
- ○—○ Duplex Roadway Lighting Unit: ASA-IES Type III, 10000 Lumen incandescent lamp, 10' bracket, on Streets, with Pole Base Box.
- ○◎ Trolley Pole; Brackets, attachments, luminaires, wiring, pole base box and erection by Contractor; pole only furnished and delivered to site by C.T.S. Trolley wires, cable bands, trolley brackets, etc., will be furnished and installed by C.T.S.
- IV-7 Typical Luminaire Designation: IV represents ASA-IES Type; 7 is circuit number.
- Series Circuits in Concrete encased duct, or Conduit on Bridges; Number of Dots represents number of Ducts in Run. All ducts are 2"ϕ unless othwise noted.
- Pull Box in Roadway Lighting Run.
- Fluorescent Underdeck Lighting unit, includes 6"x6"x3" junction box.
- 2"ϕ Galvanized, rigid, conduit for underdeck lighting.
- 32"x12"x10" Service Panel for underdeck lighting.
- ¾"ϕ Galvanized, rigid, conduit for underdeck lighting.
- 8"x8"x4" Junction Box for underdeck lighting.
- Regulator Vault, size called out on sheets.
- 5'x8' Manhole.

Note: All ducts under pavement shall be 2-Way Duct, 2-inch, except as otherwise noted.

All lighting quantities on this sheet are 100% City except the duct from the existing M.E.L.P. Manhole in Orange Ave to the Regulator Vault Lft. Sta. 2+80 E. 22nd St.

SCALE 1"=50'
MADE J.R.K. DATE 5-12-58
TRCD. ____ DATE ____
CKD. G.J.C. DATE 11-13-59

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

Rev. R.E.C. 8-22-60
Rev. F.S.J. 1-11-60

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
LIGHTING PLAN

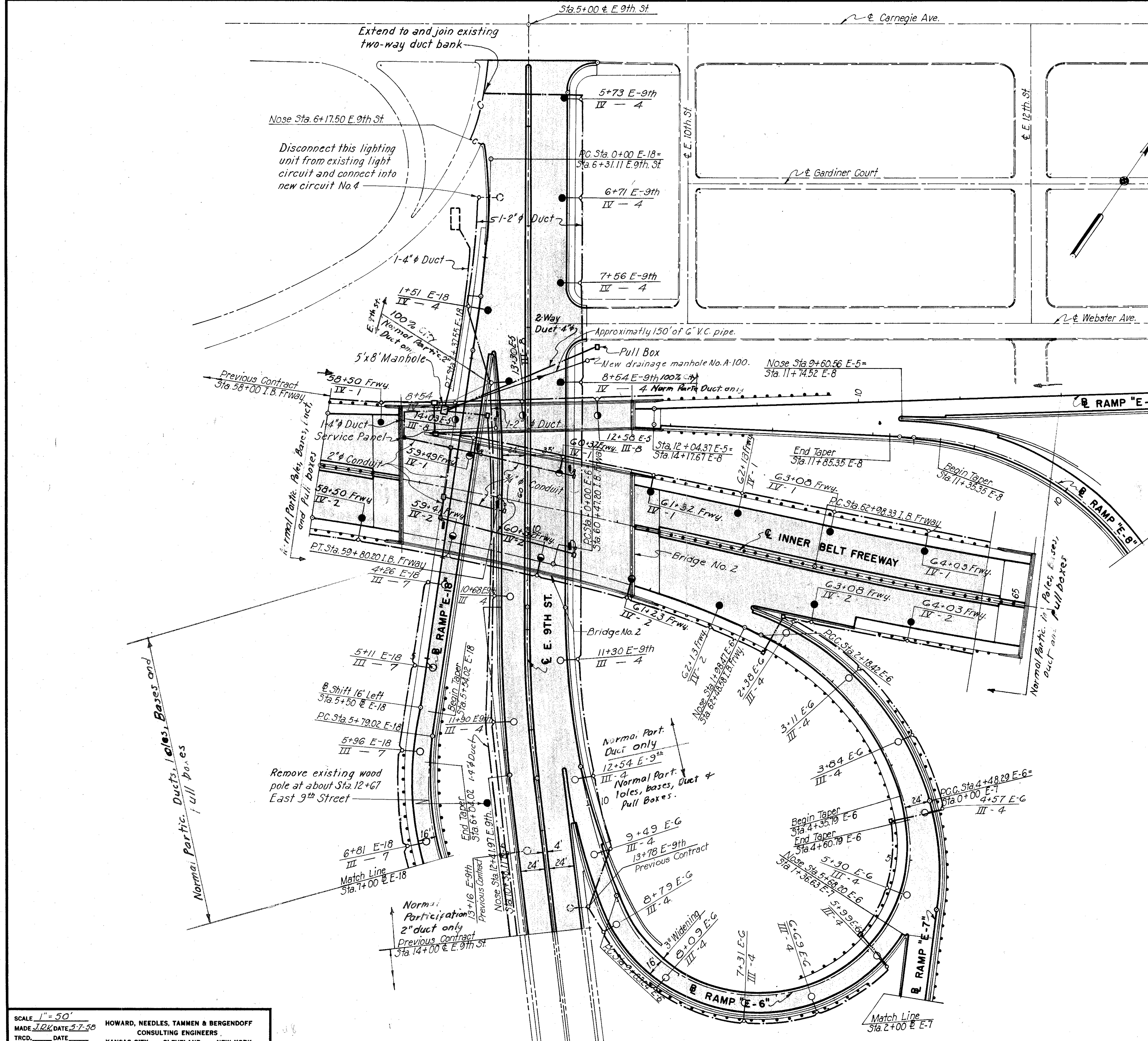
All lighting quantities on this sheet are 100% City except the poles and pole bases at 4+99 Orange, 8+97 N-30 and 3+86 Orange, and the duct connecting them.

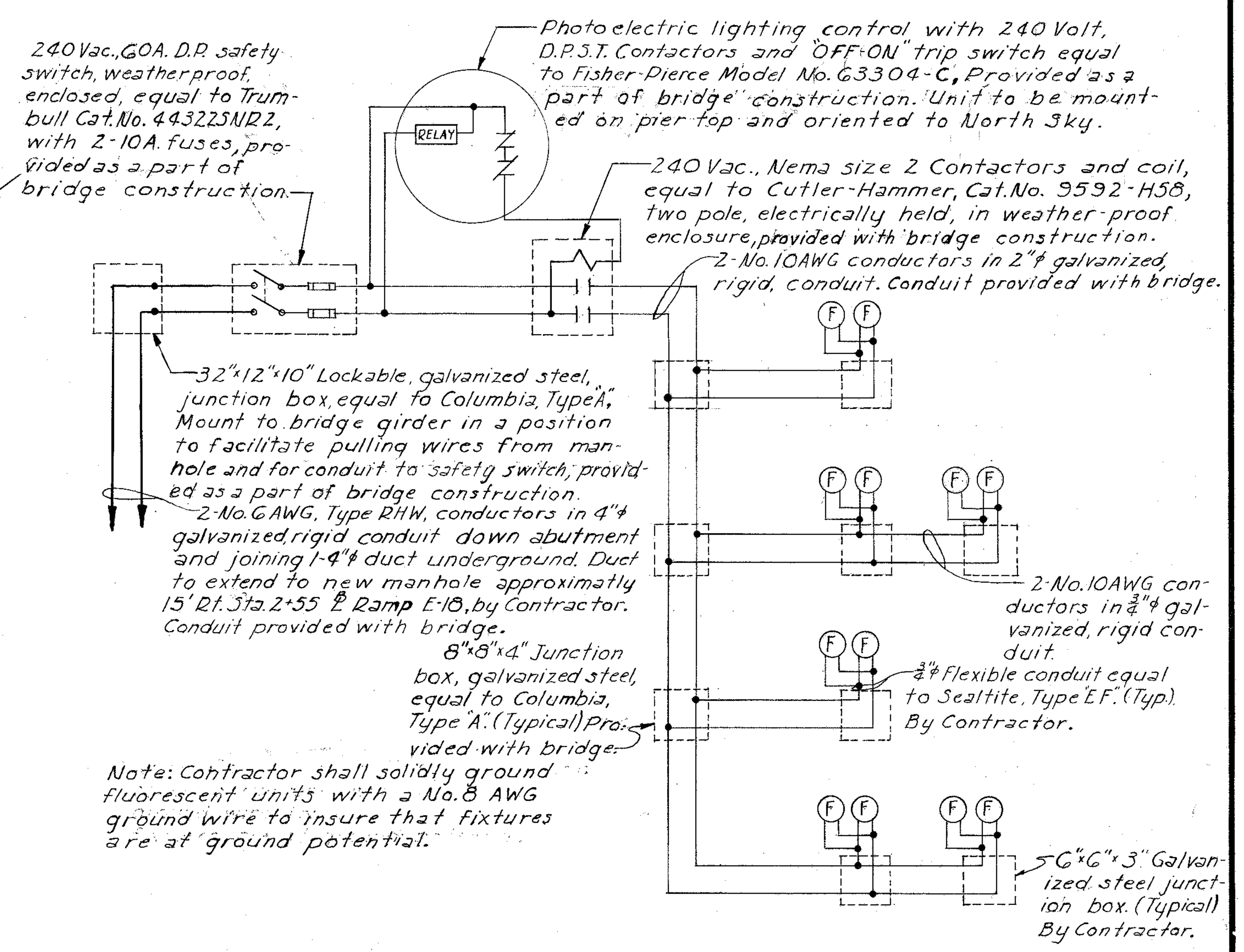
SCALE 1" = 50'	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE J.R.K. DATE 9-22-59	CONSULTING ENGINEERS
TRCD. DATE	KANSAS CITY CLEVELAND NEW YORK
CKD. G.J.C. DATE 11-12-59	914 SHEET 47

Rev. 8-22-60 REC.
PART 6
FOR LEGEND SEE SHEET 46 *Rev. F.S.I. 12-9-59*

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	48 / 175
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
LIGHTING PLAN





BRIDGE NO. 2 UNDERDECK LIGHTING
WIRING DIAGRAM
No Scale

SCALE 1" = 50'
MADE J.D.K. DATE 5-7-58
TRCD. ____ DATE ____
CKD. G.J.C. DATE 10-22-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 48

Rev. 8-22-60 R.E.C.
Rev. F.S.J. 12-9-59

FOR LEGEND SEE SHEET 46

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

49
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
LIGHTING PLAN

All lighting quantities on this sheet 100% City

Terminate Circuit No.13 in vault with leads to regulator. Regulator to be provided by others.

FOR LEGEND SEE SHEET 46

Rev. 8-22-60 REC
Rev. F.S.J. 12-9-59

SCALE 1" = 50'
MADE J.R.K. DATE 5-16-58
TRCD. ____ DATE ____
CKD. G.J.C. DATE 11-13-59

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

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

50
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
LIGHTING PLAN

FOR LEGEND SEE SHEET 46

Rev 8-22-60
Rev. F.S.J. 12-9-59

SCALE 1" = 50'
MADE J.R.K. DATE 5-18-58
TRCD. DATE
CKD. G.J.C. DATE 11-13-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 50

LIGHTING NOTES

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

51
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
LIGHTING NOTES

GENERAL

THIS SPECIFICATION SHALL SUPPLEMENT THE STATE OF OHIO CONSTRUCTION AND MATERIAL SPECIFICATIONS DATED JANUARY 1, 1959, FOR THE MATERIAL USED AND FOR THE INSTALLATION OF COMPLETE SERIES ROADWAY AND MULTIPLE UNDERDECK LIGHTING SYSTEMS FOR THE PART 6 PORTION OF THE INNER BELT-WILLOW INTERCHANGE AND BRIDGES. THE TYPE AND LOCATION OF LIGHTS, THE CIRCUITS AND THE LOCATION OF REGULATOR VAULTS, MANHOLES, DISTRIBUTION, DUCTS AND CONDUITS SHALL BE AS INDICATED ON THE PLANS. THE CABLES FOR ROADWAY LIGHTS SHALL BE IN CONCRETE ENCASED FIBER OR ASBESTOS-CEMENT CONDUIT. FOR THE ROADWAY LIGHTING, 15,000 LUMEN AND 10,000 LUMEN INCANDESCENT LIGHTS ARE TO BE INSTALLED WHERE AND AS INDICATED ON THE PLANS, AND ARE TO BE OPERATED ON 9 PARTIAL AND ONE COMPLETE 6.6 AMP. SERIES CIRCUIT. THE UNDERDECK LIGHTS ARE TO BE 250 WATT. BALLASTS ARE TO BE INSTALLED FOR 230 VOLT OPERATION FROM TRANSFORMER STATIONS AS INDICATED ON SHEETS 44, 45, 46, 47, 48, 50, 52, 53, 53A AND 53 B.

THE CONTRACTOR SHALL CONSULT AND COOPERATE WITH THE CLEVELAND DIVISION OF LIGHT AND POWER AND THE CLEVELAND ELECTRIC ILLUMINATING COMPANY, BUT HE WILL NOT BE REQUIRED TO FURNISH, INSTALL OR CONNECT CONSTANT CURRENT OR MULTIPLE PRIMARY SERVICES, METERS, METER MOUNTS, METERING EQUIPMENT OR HOUSINGS FOR SAME.

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL LIGHTING EQUIPMENT, INCLUDING REGULATOR VAULTS, MANHOLES, LAMPS, LUMINAIRES, UNDERDECK LIGHTING FIXTURES, BALLASTS, SERIES CABLES, WIRING, LUMINAIRE BRACKETS AND STANDARDS FOR UNITS OF STRUCTURES, MULTIPLE FEEDERS, FLEXIBLE CONDUIT CONNECTIONS TO UNDERDECK LIGHTING FIXTURES, JUNCTION BOXES, ADAPTERS, POLE CAP SCREWS, CABLE, CONCRETE POLE BASES, INSULATING TRANSFORMERS, POTHEADS, CONCRETE POLE BASE BOXES, GROUNDS, ALL CONDUITS AND DUCTS FOR PRIMARY AND LIGHTING CIRCUITS WHERE INDICATED, COUPLINGS, MULTIPLE FEEDERS, REMOVING WOOD POLES AND ALL INCIDENTALS NECESSARY AND INDICATED FOR COMPLETE CIRCUIT INSTALLATIONS, INSTALLED, ACCEPTED AND CONNECTED FOR OPERATION. THE CLOSED TYPE LOOPS OF ALL SERIES LIGHTING CIRCUITS SHALL BE COMPLETE, AND THE CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT NECESSARY FOR THE SATISFACTORY OPERATION OF THE CIRCUITS AND FOR THE COMPLETE OPERATION OF THE LIGHTING SYSTEMS, (EXCLUDING PRIMARY SERVICE LEADS, DISTRIBUTION TRANSFORMERS, PRIMARY ARRESTERS, PRIMARY INSULATORS, CONSTANT CURRENT REGULATORS, SECONDARY ARRESTERS, TIME CLOCKS FOR SERIES CIRCUITS, OIL SWITCHES, PRIMARY CONTACTORS, POWER POLES, PRIMARY FUSE CUTOUTS, AND PRIMARY CONNECTIONS TO THE POWER SOURCES) WHETHER SPECIFICALLY MENTIONED OR NOT. LIGHTING STANDARDS ON BRIDGE AND RETAINING WALL STRUCTURES COMPLETE WITH BRACKETS, POLE AND BRACKET CABLES, AND GROUNDING; EMPTY JUNCTION BOXES, INSULATING TRANSFORMER BOXES AND CONDUITS ON STRUCTURES AND IN PIERS AND ABUTMENTS; SERVICE PANELS FOR FLUORESCENT UNDERDECK LIGHTS; AND STRUCTURAL MEMBERS FOR THE MOUNTING OF THE FLUORESCENT LIGHTS WILL BE PROVIDED AS A PART OF THE CONSTRUCTION OF THE RESPECTIVE BRIDGES.

THE LIGHTING INSTALLATION, WHEN COMPLETED, SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF THE A.I.E.E. STANDARDS AND PRACTICES, AMERICAN STANDARDS, AND NATIONAL ELECTRIC MANUFACTURERS' ASSOCIATION STANDARDS, AND SHALL CONFORM TO ALL LOCAL AND SPECIAL LAWS AND/OR ORDINANCES GOVERNING SUCH INSTALLATION, AND TO THE SPECIAL REQUIREMENTS HEREIN SET FORTH. SHOULD THE PLANS AND DETAIL SPECIFICATIONS BE IN CONFLICT WITH THESE REQUIREMENTS, THROUGH ERROR OR OMMISSION, THE CONTRACTOR SHALL CALL SUCH CONFLICT TO THE ATTENTION OF THE ENGINEER, AND THE CONTRACTOR SHALL MAKE THE NECESSARY CORRECTIONS IN THE INSTALLATION AS MAY BE DIRECTED BY THE ENGINEER.

INSOFAR AS PRACTICABLE, ALL MAJOR ITEMS OF ELECTRICAL EQUIPMENT SUCH AS LUMINAIRES, CABLE, POLES, INSULATING TRANSFORMERS, ETC., SHALL CONSIST OF PRODUCTS OF THE SAME MANUFACTURER IN ORDER TO SECURE SINGLE RESPONSIBILITY AND MOST SATISFACTORY SERVICE. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL ELECTRICAL EQUIPMENT SHALL BE EQUAL TO THE BEST GRADE OF THAT TYPE OF EQUIPMENT AS MANUFACTURED BY THE GENERAL ELECTRIC COMPANY, THE WESTINGHOUSE ELECTRIC COMPANY, OR THE LINE MATERIAL COMPANY. REFERENCE TO ANY NAME, MAKE OR MANUFACTURER'S NUMBER FOR AN ARTICLE OF EQUIPMENT OR MATERIAL IS INTENDED TO BE DESCRIPTIVE AND SET A STANDARD OF DESIRED QUALITY AND STYLE, BUT IS NOT RESTRICTIVE. IT INDICATES THE MATERIALS THAT WILL BE ACCEPTABLE AND THAT SHOULD BE USED AS THE BASIS OF THE BIDS.

A LAYOUT WIRING DIAGRAM SHOWING IN GENERAL THE ARRANGEMENTS AND LOCATION OF THE EQUIPMENT IS SHOWN ON THE PLANS. THIS SHALL BE CONSIDERED ONLY AS ILLUSTRATIVE AND, SUBJECT TO THE APPROVAL OF THE ENGINEER, THE CONTRACTOR SHALL MODIFY IT AS NECESSARY FOR COMPLETE AND PROPER CONSTRUCTION AND OPERATION. THE LOCATION OF THE TRANSFORMERS, SERVICES, CONDUIT AND LUMINAIRES SHOWN ON THE PLANS ARE DIAGRAMMATIC ONLY, AND MAY BE SUBJECT TO SLIGHT SHIFTING AS THE ENGINEER MAY DIRECT IN ORDER TO CONFORM TO LOCAL CONDITIONS.

BEFORE COMMENCEMENT OF INSTALLATION OF THE ROADWAY AND UNDERDECK LIGHTING SYSTEMS, A COMPLETE SCHEDULE OF MATERIALS AND EQUIPMENT PROPOSED FOR INSTALLATION SHALL BE SUBMITTED FOR THE APPROVAL OF THE ENGINEER. THE SCHEDULE SHALL INCLUDE CATALOGS, CUTS, BROCHURES, DIAGRAMS, DRAWINGS, AND OTHER SUCH DESCRIPTIVE DATA AS MAY BE REQUIRED BY THE ENGINEER. IN EVENT ANY ITEMS OF MATERIAL OR EQUIPMENT CONTAINED IN THE SCHEDULE FAIL TO COMPLY WITH SPECIFICATION REQUIREMENTS, SUCH ITEMS WILL BE REJECTED.

2. MATERIALS AND EQUIPMENT

ALL BOLTS, NUTS, STUDS, WASHERS, PINS, TERMINALS, SPRINGS, AND SIMILAR FASTENINGS AND FITTINGS SHALL BE, WHERE PRACTICABLE, OF AN APPROVED CORROSION-RESISTING MATERIAL SUCH AS BRASS OR BRONZE, OR OF A MATERIAL TREATED IN AN APPROVED MANNER TO RENDER IT ADEQUATELY RESISTANT TO CORROSION. HOT-DIP GALVANIZING WILL BE CONSIDERED SUCH APPROVED TREATMENT. ALL MATERIALS FURNISHED SHALL BE NEW, SHALL BE OF THE BEST QUALITY AND WORKMANSHIP, SHALL BE THE BEST STANDARD PRODUCT OF A MANUFACTURER REGULARLY ENGAGED IN THE PRODUCTION OF THIS TYPE OF EQUIPMENT AND SHALL BE OF THE MANUFACTURER'S LATEST APPROVED DESIGN.

EACH ROADWAY LIGHTING UNIT SHALL COMPRISE A POLE WITH EITHER ONE OR TWO 10 FT. BRACKETS AND EITHER A 15,000 LUMEN LUMINAIRE SIMILAR TO GENERAL ELECTRIC FORM 79-AD OR A 10,000 LUMEN LUMINAIRE SIMILAR TO WESTINGHOUSE AK-10 AS INDICATED ON SHEET 53. LUMINAIRES LIGHTING THE ROADWAY ON THE STRUCTURE, RAMPS AND STREETS SHALL MEET THE GENERAL REQUIREMENTS OF I.E.S. TYPE III OR TYPE IV DISTRIBUTION AS INDICATED.

LIGHT STANDARDS SHALL CONFORM AS NEARLY AS POSSIBLE TO THE SPECIFICATIONS HEREIN AND SHALL BE SIMILAR TO UNION METAL DESIGN NO. 70161-Y23 FOR STANDARDS ALONG ROADWAYS AS TO GENERAL DESIGN AND FINISH, HEIGHT, BASE, MAST ARM, DIMENSIONS AND TO METHOD OF FABRICATION. IN GENERAL, EACH STANDARD SHALL CONSIST OF A CAST STEEL ANCHOR BASE TO WHICH SHALL BE WELDED A TAPERED STEEL POLE. TO THE STEEL POLE SHALL BE FASTENED AN ORNAMENTAL POLE TOP TO WHICH SHALL BE WELDED A MAST ARM OR ARMS FOR SUPPORTING THE LIGHTING UNIT.

THE TRANSFORMER BOX FOR ALL STANDARDS OFF STRUCTURES SHALL BE A PART OF THE POLE BASE FOUNDATION AS INDICATED ON THE PLANS, WITH CLASS C CONCRETE USING NO. 4 AGGREGATE. GROUND POLES BY A 1" BY 8' COPPER CLAD GROUND ROD WITH TOP EXTENDING UP THROUGH BOTTOM OF BOX. CONNECT TO POLE BY NO. 6 COPPER WIRE.

THE STEEL SHAFT OF THE LIGHTING STANDARDS FOR SINGLE LUMINAIRES SHALL BE FABRICATED FROM NOT LESS THAN NO. 11 MANUFACTURER'S STANDARD GAUGE. THE SHAFT SHALL BE FORMED AND WELDED WITH ONLY ONE LONGITUDINAL, AUTOMATICALLY ELECTRICALLY WELDED JOINT AND SHALL HAVE NO HORIZONTAL JOINTS OR WELDS. THE WELD SHALL BE OF FULL PENETRATION. AFTER FORMING AND WELDING, THE TAPERED SHAFT SHALL BE COLD ROLLED OR WORKED UNDER SUFFICIENT PRESSURE TO FLATTEN OUT THE WELD, TO INCREASE THE ELASTIC LIMIT OF THE METAL IN THE COMPLETED SHAFT, AND TO PRODUCE A TRUE TAPERED TUBE WITHOUT FLAT SPOTS AND A CIRCULAR CROSS SECTION THROUGHOUT THE LENGTH OF THE SHAFT. IF THE SHAFT IS FABRICATED BY MEANS OF A BRAKE OR OTHER PROCESS WHICH DOES NOT UTILIZE THE COLD ROLLING PRINCIPLE, IT SHALL BE FABRICATED FROM A STEEL SHEET HAVING A THICKNESS OF NO. 7 MANUFACTURER'S STANDARD GAUGE. THE STEEL SHAFT OF ALL DUPLEX POLES SHALL BE FABRICATED FROM A MINIMUM OF 7 GAUGE STEEL PLATE.

EACH STANDARD SHALL HAVE A MAST OR BRACKET ARM MADE OF STANDARD PIPE OF THE SIZE AND LENGTH AS SHOWN ON THE PLANS. THE INNER END OF THE BRACKET ARM SHALL BE WELDED TO A CAST STEEL HEAD BLOCK SO DESIGNED THAT THE BLOCK CAN BE BOLTED THROUGH A CAST IRON NECK PIECE TO A PLATE WELDED TO THE TOP OF THE POLE TO PERMIT RADIAL ADJUSTMENT OF THE BRACKET ARM. PROVISIONS SHALL BE MADE TO PERMIT PASSAGE OF THE CONCEALED WIRES TO BRACKET ARM. THE ORNAMENTAL CASTING WELDED TO THE OUTER END OF THE BRACKET SHALL BE ARRANGED WITH A LEVELING DEVICE OR "PLUMIZER" FOR ADJUSTMENT OF A PENDANT LIGHTING FIXTURE AND SHALL BE TAPPED FOR 1-1/4 INCH PIPE CONNECTION.

ALL POLES AND BRACKETS SHALL HAVE A FACTORY APPLIED PRIMER, TOUCHED UP AND THEN SHALL BE PAINTED WITH TWO FIELD COATS OF DARK GREEN WEATHER RESISTING ENAMEL AS USED ON CITY STREETS. FINISH FIELD COATS SHALL BE APPLIED AFTER ERECTION. THE FIRST FIELD COAT SHALL BE TINTED.

EACH LUMINAIRE SHALL CONSIST OF A SUPPORTING HOOD, AN EXTERNAL BODY OR CASING, MAIN REFLECTOR AND A REFRACTOR GLOBE. THE HOOD SHALL BE MADE OF CAST ALUMINUM AND SHALL BE TAPPED FOR 1-1/4" STANDARD PIPE. THE EXTERNAL BODY OR CASING SHALL BE MADE OF CAST ALUMINUM AND SHALL BE FIRMLY ATTACHED TO THE HOOD BY MEANS OF ADEQUATE SCREWS OR BOLTS. THE MAIN REFLECTOR SHALL BE MADE OF HEAVY GAUGE ALUMINUM SHEET, ALZAK FINISHED AND POLISHED. THE ENTIRE REFLECTING ELEMENT SHALL BE RIGIDLY ATTACHED TO THE EXTERNAL BODY BY MEANS OF SCREWS OR BOLTS.

THE GLOBES SHALL BE SUPPLIED WITH A NON-RUSTING METAL SUPPORTING RING OR BAND WITH CLAMPS AROUND THE RIM OR FLANGE OF THE GLOBE. THE SUPPORTING RING SHALL BE SO DESIGNED THAT BROKEN GLOBES CAN BE REPLACED AT THE LAMP LOCATION WITH THE USE OF SIMPLE HAND TOOLS. ALL SCREWS, NUTS, WASHERS, ETC., WHICH MUST BE REMOVED IN ORDER TO REPLACE A BROKEN GLOBE SHALL BE NON-FERROUS AND CORROSION-PROOF. THE GLOBE SUPPORTING RING SHALL BE ATTACHED TO THE REFLECTOR BY MEANS OF A HINGE OR ITS EQUIVALENT ON ONE SIDE AND A LATCH, THUMB SCREW, OR EQUIVALENT ON THE OPPOSITE SIDE. THESE DEVICES SHALL BE SO DESIGNED THAT WITH THE GLOBE IN PLACE, THE LATCH OR THUMB SCREW CAN BE RELEASED BY HAND, THE GLOBE SWUNG DOWN AND THEN LIFTED OFF THE HINGE SO THAT THE GLOBE CAN BE WASHED SEPARATELY FROM THE FIXTURE. THE DESIGN SHALL BE SUCH THAT AFTER WASHING, THE GLOBE CAN BE HOOKED ONTO THE HINGE AND THEN PUSHED UP INTO PLACE AGAINST THE GASKET WITH ONE HAND WHILE THE LATCH OR THUMB SCREW IS TIGHTENED WITH THE OTHER HAND. THE BEST DESIGN SHALL BE THAT WHICH COMBINES SIMPLICITY AND EASE OF OPERATION WITH THE MOST EFFECTIVE SEAL BETWEEN THE GLASS GLOBE AND THE REFLECTOR. FIXTURES HAVING THE REFLECTOR PERMANENTLY ATTACHED OR "SPUN ON" TO THE GLASS GLOBE WILL NOT BE ACCEPTED. A SKELETON TYPE MOGUL MULTIPLE SOCKET SHALL BE MOUNTED IN THE HOOD AND SHALL BE SUITABLE FOR 10,000 OR 15,000 LUMEN, 20 AMPERE LAMPS. THE LUMINAIRES SHALL PRODUCE AN I.E.S. TYPE IV LIGHT DISTRIBUTION CURVE EQUAL TO THE CURVE PRODUCED BY THE GENERAL ELECTRIC FORM 79-AD OR AN I.E.S. TYPE III PRODUCED BY WESTINGHOUSE AK-10, AS REQUIRED.

LAMPS FOR UNDERDECK LUMINAIRES SHALL BE NOMINAL 85 WATT, FLUORESCENT TYPE CW/HO, AND FOR ROADWAY UPRIGHT LUMINAIRES SHALL BE 10,000 LUMEN OR 15,000 LUMEN, 2,000 HOUR LAMPS FOR REGULAR REPLACEMENT, PS-40 BULBS, MOGUL BASE.

EXTERNAL PARTS OF ALL LUMINAIRES SHALL BE FINISHED ALUMINUM. GASKETS USED FOR SEALING THE JOINT BETWEEN GLOBES AND REFLECTORS OR CASINGS SHALL BE PREFORMED CORK OR FELT AND SHALL BE CEMENTED IN PLACE. THE FIXTURES AS SPECIFIED ARE PRECISION OPTICAL DEVICES AND IN ORDER TO DELIVER THE PERFORMANCE REQUIRED THEY MUST HAVE THE LAMP FILAMENT CORRECTLY LOCATED WITH REFERENCE TO THE REFLECTING OR REFRACTING ELEMENTS. THE SOCKETS SHALL PREFERABLY BE SOLIDLY MOUNTED, WITH THE LAMP FILAMENT AT THE CORRECT OPTICAL CENTER. IF THE MANUFACTURER'S DESIGN PROVIDES FOR VERTICAL ADJUSTMENT OF THE SOCKET, HE SHALL FURNISH A DRAWING SHOWING THE PROPER DIMENSION TO SOME CONVENIENT REFERENCE POINT, SUCH AS THE LOWER EDGE OF THE REFLECTOR OR CASING, SO THAT THE PURCHASER CAN MAKE A GAUGE TO BE USED FOR ACCURATELY SETTING AND LOCKING THE SOCKETS. REFRACTING GLOBES SHALL PREFERABLY BE KEYED TO THE SUPPORTING REFLECTOR SO THAT THEY CANNOT BE PLACED IN ANY OTHER THEN THE CORRECT ANGULAR LOCATION. IN ANY EVENT, THE GLOBES MUST BE PLAINLY MARKED TO INDICATE THE "STREET SIDE" AND THE "HOUSE" OR "SIDEWALK SIDE". ALL LAMPS USED IN THESE FIXTURES WILL BE STANDARD 20 AMPERE, BASE UP MAZDA TYPE WITH MOGUL BASES AND 7 INCH LIGHT CENTERS.

LAMP SOCKETS USED IN ENCLOSED FIXTURES OF THE TYPES SPECIFIED ARE SUBJECTED TO HIGH TEMPERATURES AND THE SOCKETS FURNISHED SHALL BE FOR HEAVY DUTY AND SHALL INCORPORATE ALL THE LATEST DESIGN FEATURES AVAILABLE SUCH AS CENTER SPRING LOADED CONTACTS, PLATED PARTS AND EXTRA HEAVY CAST TERMINALS TO REDUCE THE POSSIBILITY OF CONTACT TROUBLES AND WELDING OF THE LAMP BASE TO THE SOCKET SHELL. EACH FIXTURE SHALL PREFERABLY BE COMPLETELY ASSEMBLED AT THE FACTORY AND SHIPPED IN A SINGLE CONTAINER AS A COMPLETE UNIT.

ALL OF THE SERIES STREET LIGHTING INSULATING TRANSFORMERS WILL BE CONNECTED WITH THEIR PRIMARY WINDINGS IN A 6.6 AMPERE, 60 CYCLE REGULATED CIRCUIT, AND SHALL BE LOCATED EITHER IN CONCRETE POLE BASE BOXES OR IN PARAPET JUNCTION BOXES. TRANSFORMERS FOR LIGHTING UNITS ON RAMPS, ROADWAYS AND LANES SHALL BE LOCATED IN THE POLE BASE BOX OF EACH POLE. THE SECONDARY OF THE 10,000/15,000 LUMEN TRANSFORMERS WILL SUPPLY 20 AMPERES TO ONE LAMP RATED 10,000 OR 15,000 LUMENS. WHEN THE LAMP WATTAGE VARIES BETWEEN 8% ABOVE AND 20% BELOW NORMAL, THE SECONDARY OR LAMP CURRENT SHALL NOT VARY MORE THAN 1% FROM 20 AMPERES WITH 6.6 AMPERES AT 60 CYCLES SUPPLIED TO THE PRIMARY WINDING. EACH TRANSFORMER SHALL BE GIVEN A DIELECTRIC TEST BY THE MANUFACTURER AND SHALL WITHSTAND 22,000 VOLTS BETWEEN PRIMARY WINDING AND ALL OTHER PARTS OF THE TRANSFORMER AND 1,500 VOLTS BETWEEN THE SECONDARY WINDING AND ALL OTHER PARTS OF THE TRANSFORMER. BOTH OF THE ABOVE TESTS SHALL BE APPLIED FOR ONE MINUTE, WITHOUT FAILURE. THE STREET LIGHTING TRANSFORMERS SHALL BE FOR POLE BASE MOUNTING WITH TAPING SLEEVES SIMILAR TO G.E. CAT. NO. 9SA6A2 WHICH WILL BE THE CRITERION IN JUDGING THE ADEQUACY OF THE TYPE PROPOSED BY THE CONTRACTOR. INDIVIDUAL TRANSFORMERS SHALL BE FURNISHED FOR EACH LIGHT.

EACH TRANSFORMER SHALL BE SUPPLIED WITH A NON-CORROSIVE NAME PLATE SHOWING THE FOLLOWING DATA: MAKER'S NAME AND STYLE OR CATALOG NUMBER, RATING IN LUMENS, PRIMARY CURRENT, SECONDARY CURRENT, AND FREQUENCY.

CONDUCTORS FOR ROADWAY LIGHTING SHALL BE TWO SINGLE NO. 8 AWG SOLID SOFT DRAWN COPPER OF NOT LESS THAN 98% CONDUCTIVITY AND SHALL BE COATED WITH LEAD, TIN, OR ANTIMONY ALLOY. INSULATION SHALL CONSIST OF 10/64 INCH OF POLYVINYL CHLORIDE COMPOUND MADE IN ACCORDANCE WITH A.S.T.M. SPEC. D-734. All CONDUCTORS SHALL BE PLACED IN CONDUIT.

CABLE TO BE INSTALLED IN POLES FROM THE SECONDARY TAPS OF THE ISOLATING TRANSFORMERS TO THE BRACKET END AT LUMINAIRE SHALL BE NO. 8 AWG, SINGLE CONDUCTORS, 600 V. CABLE. INSULATION SHALL CONSIST OF 4/64 INCH OF RUBBER OR RUBBER LIKE COMPOUND KNOWN COMMERCIALLY AS OZONE RESISTANT INSULATION WITH AN OUTSIDE JACKET OR SHEATH OF NEOPRENE, 1/64 INCH THICK. POLE AND BRACKET ASBESTOS WIRE SHALL BE INSTALLED BETWEEN THE BRACKET END AT LUMINAIRE AND LAMP SOCKET. IT SHALL BE NO. 8 AWG SINGLE CONDUCTOR, SOLID. INSULATION SHALL BE ASBESTOS APPLIED TO THE CONDUCTOR TO FORM A CONTINUOUS TUBE OF ASBESTOS FIBRES AT LEAST 40 MLS THICK TIGHTLY COMPRESSED AND IMPREGNATED WITH A FLAME, HEAT AND MOISTURE-PROOF COMPOUND, AND AN OUTER ASBESTOS BRAID AT LEAST 45 MILS THICK.

UNDERDECK LUMINAIRES SHALL BE EQUAL TO LINE MATERIAL NO. LFIFI WITH TWO 1-AMP. STREET LIGHTING, HIGH OUTPUT FLUORESCENT LAMPS, PRE-HEATED CATHODE, CAT. NO. F72T12-CW-HO, COMPLETE WITH 230 VOLT AC MULTIPLE BALLASTS. THE JUNCTION BOX AT EACH UNDERDECK LUMINAIRE SHALL BE CAST IRON, WATERTIGHT, AND EQUAL TO O.Z. TYPE YH CAT. NO. 060603.

3. CONSTRUCTION METHODS

THE INSTALLATION AS A WHOLE SHALL BE CARRIED OUT IN CONFORMANCE WITH THE REQUIREMENTS HEREIN STATED AND IMPLIED, AND UPON COMPLETION OF THE WORK SHALL PRESENT A NEAT AND WORKMANLIKE FINISHED APPEARANCE. SAFE CONSTRUCTION AND OPERATING PRACTICES MEETING THE REQUIREMENTS OF THE NATIONAL ELECTRIC SAFETY CODE SHALL BE MAINTAINED.

POLES SHALL BE CAREFULLY SET, THEY SHALL BE RAKED SO THAT THE BACK SIDE IS VERTICAL AS SHOWN ON SHEET 53 AND THE LUMINAIRES SHALL BE SUPPORTED WITH BRACKETS ABOUT 28'-0" ABOVE PAVEMENT AS INDICATED. THE CAREFUL ALIGNING AND GRADING OF POLES IS CONSIDERED TO BE AN ESSENTIAL FEATURE OF THE INSTALLATION. THE WORK SHALL BE AS NEARLY PERFECT AS PRACTICABLE, AND NO PERCEPTIBLE TOLERANCES WILL BE PERMITTED. IN ORDER TO ACCOMPLISH THE DESIRED PERFECTION OF ALIGNMENT OF THE LUMINAIRES, THE POLES SHALL BE CAREFULLY ALIGNED IN PLACE, SUPPORTED BY SHIMS AS REQUIRED, AND SECURELY BOLTED.

THE INSTALLATION OF ALL LUMINAIRES AND WIRING SHALL CONFORM TO THE RECOMMENDATIONS OF THE EQUIPMENT MANUFACTURERS AND THE PRACTICE OF THE POWER COMPANY.

CABLES SHALL BE INSTALLED IN CONTINUOUS LENGTHS WITHOUT SPLICES, FROM TERMINAL TO TERMINAL. AT THE TERMINALS, CABLE SHALL BE SPLICED TO THE EQUIPMENT LEADS IN STRICT CONFORMITY WITH THE MANUFACTURER'S INSTRUCTIONS AND AS DIRECTED. CARE SHALL BE TAKEN TO INSURE WATERTIGHT JOINTS. SPLICES MAY BE MADE IN CONCRETE PULL BOXES.

SPLICES SHALL NOT BE MADE IN CONDUITS. SPLICES OF CONDUCTORS SHALL BE MADE MECHANICALLY AND ELECTRICALLY SECURE BY USING FOUR SCREW COPPER CONNECTORS AND WRAPPING IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER OR THE CABLE SO THAT THE INSULATION AND THE MECHANICAL AND ELECTRICAL QUALITIES OF THE SPLICES SHALL BE EQUAL TO THAT OF THE REMAINDER OF THE CONDUCTOR. TAPE OF THE SAME COMPOSITION AS THE CABLE INSULATION OR SCOTCH BRAND TAPE SHALL BE USED.

FOR LIGHTING NOTES APPLICABLE TO INSTALLATIONS ON STRUCTURES, SEE SHEETS 91A, 159 AND 160.

4. TESTS

THE CONTRACTOR SHALL FURNISH ALL EQUIPMENT AND APPLIANCES NECESSARY TO TEST THE COMPLETED CABLE SYSTEMS. A BURNING TEST WILL BE REQUIRED FOR THE LIGHTS. IN ADDITION, THE CITY OF CLEVELAND WILL MAKE A "MEGGER" TEST OF ALL CIRCUITS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DEMONSTRATE TO THE SATISFACTION OF THE DIRECTOR OF HIGHWAYS THAT ALL LIGHTING CIRCUITS ARE CONTINUOUS AND FREE FROM SHORT CIRCUITS AND UNSPECIFIED GROUNDS, THAT ALL CIRCUITS ARE PROPERLY CONNECTED IN ACCORDANCE WITH THE APPLICABLE WIRING DIAGRAMS AND THAT THE RESISTANCE TO GROUND OF NON-GROUNDED SERIES CIRCUITS IS NOT LESS THAN 50,000 OHMS AND PARALLEL UNGROUNDED CIRCUITS IS NOT LESS THAN 100,000 OHMS. THE CONTRACTOR SHALL FURNISH A COMPLETE REPORT OF MEGOHM READINGS ON ALL CIRCUITS INSTALLED.

5. PAYMENT FOR ROADWAY AND UNDERDECK LIGHTING

PAYMENT FOR THE ROADWAY AND UNDERDECK LIGHTING SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR ITEMS AS INDICATED IN THE SCHEDULE OF QUANTITIES, WHICH PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY, WHETHER SPECIFICALLY MENTIONED OR NOT, TO COMPLETE THE ENTIRE WORK, INSTALLED AND IN OPERATING CONDITION FOR FULL ACCEPTANCE, ACCORDING TO THE PLANS AND SPECIFICATIONS. PAYMENT WILL BE MADE AS FOLLOWS:

A. "15,000 LUMEN LUMINAIRES AND INSULATING TRANSFORMER", PER EACH AND SHALL INCLUDE LAMP, GLOBE, REFLECTOR, REFRACTOR, LAMP RECEPTACLE, WIRING, CORROSION RESISTANT FITTINGS, LATCHES, SAFETY CHAIN, GASKETS AND INSULATING TRANSFORMER.

B. "10,000 LUMEN LUMINAIRE AND INSULATING TRANSFORMER", PER EACH AND SHALL INCLUDE ALL FEATURES SPECIFIED FOR 15,000 LUMEN LUMINAIRE, ITEM A, EXCEPT USING 10,000 LUMEN LUMINAIRE.

C. "STANDARD, 10-FOOT BRACKET", PER EACH AND SHALL INCLUDE POLE FOR 28-FOOT MOUNTING HEIGHT, BRACKET ATTACHMENTS, 10-FOOT STEEL BRACKET, SHIMS, ANCHOR BOLTS, HANDHOLE ANCHOR BASE, LEAF COVERS, PAINTING, END KNOBS WITH PLUMBIZER AND PIPE NIPPLE, SINGLE CONDUCTOR NO. 8 AWG, 600 VOLT POLE AND BRACKET CABLE TO INSULATING TRANSFORMER, ATTACHMENTS TO "J" HOOK, SCREWS, BOLTS, NUTS, WASHERS AND ALL MODIFICATIONS AND INCIDENTALS REQUIRED.

D. "STANDARD, 10-FOOT DUPLEX BRACKET", PER EACH AND SHALL INCLUDE TWO 10-FOOT BRACKETS, ATTACHMENTS FOR TWO BRACKETS AND INCLUDING ALL FEATURES SPECIFIED FOR "STANDARD, 10-FOOT BRACKET", ITEM C.

E. "CONCRETE POLE BASE", PER EACH AND SHALL INCLUDE CONCRETE POLE BASE BOX, EXCAVATIONS, FORMS, CONCRETE, REINFORCING STEEL, SETTING ANCHOR BOLTS, 2-INCH CONDUIT THRU BASE TO BOX FOR WIRING, GROUNDING POLE, COVER, BACKFILLING, TAMPING, REMOVING WASTE, 90-DEGREE BENDS, GALVANIZED COUPLINGS, PIPE NIPPLES, INSULATING BUSHINGS, CONDUIT STUBS THRU POLE BASE BOX WALLS FOR CONTINUOUS RUNS, AND CONDUIT STUBS AND PLUGGING.

F. "PULL BOXES, CONCRETE", PER EACH AND SHALL INCLUDE EXCAVATION, FORMS, CONCRETE, REINFORCING STEEL, COVER, CONDUIT STUBS THRU WALLS, BACKFILLING, TAMPING AND REMOVING WASTE.

G. "NO. 8 AWG, 5 KV LIGHTING CABLE", PER LINEAL FOOT AND SHALL INCLUDE TWO SINGLE CONDUCTOR CABLES FOR DOUBLE-WIRE CIRCUITS IN DUCTS AND JUNCTION BOXES, INCLUDING ON BRIDGES, SPLICING, TERMINALS, CONNECTIONS AND TESTING. MEASUREMENT FOR CABLE SHALL INCLUDE TWO LENGTHS OF SINGLE CABLE RUNS.

H. "1-WAY DUCT, 2-INCH", PER LINEAL FOOT AND SHALL INCLUDE EXCAVATING, GRADING, FORMS FOR CONCRETE, CONCRETE BACK FILLING, COMPACTING END BELLS, PLUGGING DUCTS, CONDITIONING DUCTS, NO. 9 AWG GALVANIZED IRON PULL-IN WIRE, AND SEALING AROUND DUCTS WHERE THEY ENTER MANHOLES OR VAULTS.

I. "2-WAY DUCT, 2-INCH", PER LINEAL FOOT AND SHALL INCLUDE ALL FEATURES REQUIRED FOR "1-WAY DUCT, 2-INCH", ITEM H, EXCEPT USING TWO DUCT RUNS.

J. "1-WAY DUCT, 4-INCH", PER LINEAL FOOT AND SHALL INCLUDE ALL FEATURES REQUIRED FOR "1-WAY DUCT, 2-INCH", ITEM H, EXCEPT USING 4-INCH DUCT.

K. "2-WAY DUCT, 4-INCH", PER LINEAL FOOT AND SHALL INCLUDE ALL FEATURES REQUIRED FOR "2-WAY DUCT, 2-INCH", ITEM I, EXCEPT USING 4-INCH DUCT.

L. "3-WAY DUCT, 4-INCH", PER LINEAL FOOT AND SHALL INCLUDE ALL FEATURES REQUIRED FOR "1-WAY DUCT, 4-INCH", ITEM J, EXCEPT USING THREE DUCT RUNS.

M. "4-WAY DUCT, TWO 4-INCH", PER LINEAL FOOT AND SHALL INCLUDE ALL FEATURES REQUIRED FOR "2-WAY DUCT, 4-INCH", ITEM K, EXCEPT THE BOTTOM TWO DUCTS SHALL BE 4-INCH AND THE TOP TWO SHALL BE 2-INCH.

N. "REMOVING WOOD POLE", PER EACH AND SHALL INCLUDE EXCAVATION, REMOVING 35-FOOT POLE, POTHEAD FOR CABLE, 80 FEET OF 2-INCH RIGID CONDUIT, FITTINGS, STRAPS, GALVANIZED PIPE COUPLINGS, AND FASTENINGS, AND DELIVERING TO POWER COMPANY YARD.

O. "FLUORESCENT UNDERDECK LIGHT", PER EACH AND SHALL INCLUDE FIXTURE, 2 LAMPS, 230 VOLT DUAL, HIGH POWER FACTOR, LOW STARTING TEMPERATURE BALLAST. BRACKETS, SUPPORT WHERE REQUIRED, GROUNDING FIXTURE; 6" x 6" x 3" JUNCTION BOX; FIXTURE WIRE FROM BALLAST TO FIXTURE, CONNECTION FROM JUNCTION BOX TO FIXTURE, ALL CONNECTIONS TO BALLAST, 3/4 - INCH I.D. VINYL-JACKETED, FLEXIBLE CONDUIT, CONNECTION, FITTINGS, MOUNTING LUGS AND FASTENINGS.

P. "MULTIPLE FEEDERS", PER LINEAL FOOT AND SHALL INCLUDE TWO NO. 6 AWG CONDUCTOR CABLES FOR FLUORESCENT UNDERDECK LIGHTS IN CONDUITS, DUCTS, MANHOLES, JUNCTION BOXES, AND SERVICE PANEL, SPLICING, TERMINATIONS, CONNECTIONS AND TESTING. MEASUREMENT FOR CABLE SHALL INCLUDE TWO LENGTHS OF SINGLE CABLE RUNS.

Q. "REGULATOR VAULT, 8-FOOT BY 22-FOOT" PER EACH AND SHALL INCLUDE REQUIRED EXCAVATION, FORMS, REINFORCING STEEL, CONCRETE, MANHOLE FRAMES AND COVERS, BOLTS AND FASTENINGS FOR HOLDING MANHOLE FRAMES DOWN, CAST IRON DRAIN AND GRATING, 6-INCH DIAMETER REINF. CONCRETE PIPE, CONNECTION TO EXISTING SEWER, LIGHTING, DUCTS, END BELLS, PULLING IRONS, VENTILATION COMPLETE WITH VENT CAP, FASTENINGS, FITTINGS AND STRAPS, GROUNDING OF VAULT, WATERPROOFING, BACKFILLING, TAMPING, COMPACTING AND REMOVAL OF WASTE.

R. "REGULATOR VAULT, 8-FOOT BY 11-FOOT" PER EACH AND SHALL INCLUDE ALL FEATURES REQUIRED FOR, "REGULATOR VAULT, 8-FOOT BY 22-FOOT", ITEM Q, EXCEPT SHALL BE 8-FOOT BY 11-FOOT.

S. "MANHOLE", PER EACH AND SHALL INCLUDE REQUIRED EXCAVATION FOR 5 FT. BY 8 FT. MANHOLE, FORMS, REINFORCING STEEL, CONCRETE, MANHOLE FRAMES AND COVERS, BOLTS AND FASTENINGS FOR HOLDING MANHOLE FRAME DOWN, END BELLS FOR DUCTS, PULLING IRONS, CONNECTIONS, TERMINALS, SPLICING, BACKFILLING, TAMPING, COMPACTING, REMOVAL OF WASTE, CAST IRON DRAIN AND GRATING, 6-INCH DIAMETER VITREOUS CLAY PIPE, CONNECTION TO EXISTING SEWER, AND WATERPROOFING, AND CABLE HANGERS.

T. "NO. 10 AWG, 600 V. BRANCH CONDUCTORS", PER LINEAL FOOT AND SHALL INCLUDE TWO NO. 10 AWG SINGLE CONDUCTORS FOR FLUORESCENT UNDERDECK LIGHTS IN CONDUITS, JUNCTION BOXES, AND SERVICE PANEL, SPLICING, TERMINATIONS, CONNECTIONS AND TESTING. MEASUREMENT FOR CONDUCTORS SHALL INCLUDE TWO LENGTHS OF SINGLE CONDUCTOR RUNS.

U. "TROLLEY POLE, 10-FOOT BRACKET", PER EACH AND SHALL INCLUDE ALL FEATURES SPECIFIED FOR "STANDARD, 10-FOOT BRACKET", ITEM C, EXCEPT THAT POLE AND ANCHOR BASE ONLY WILL BE FURNISHED AND DELIVERED, TO SITE BY OTHERS. THE CONTRACTOR SHALL FASTEN AN ADJUSTABLE TYPE ORNAMENTAL POLE TOP TO THE POLES FOR SUPPORTING THE LIGHTING UNIT AS SPECIFIED FOR ALL POLES.

V. "TROLLEY POLE, 10-FOOT DUPLEX BRACKET", PER EACH AND SHALL INCLUDE TWO 10-FOOT BRACKETS ATTACHMENTS FOR TWO BRACKETS, AND INCLUDING ALL FEATURES SPECIFIED FOR "TROLLEY POLE, 10-FOOT BRACKET", ITEM U.

W. "REMOVE AND REINSTALL LIGHTING UNIT", PER EACH AND SHALL INCLUDE REMOVING AND REINSTALLING THE EXISTING LIGHTING UNIT LOCATED IN BROADWAY AVENUE WEST OF EAST 9TH STREET, PROVIDING NEW CONCRETE POLE BASE AND POLE BASE BOX ~~WITH~~ FEATURES OF ITEM E, LEVELING, TOUCHING UP DAMAGED PAINT, SPLICES, AND DISPOSING OF OLD POLE BASE AND BOX.

Rev. F.S.J. 12-16-59

SCALE None
MADE G.J.C. DATE 11-3-59
TRCD. DATE
CKD. J.R.K. DATE 11-11-59

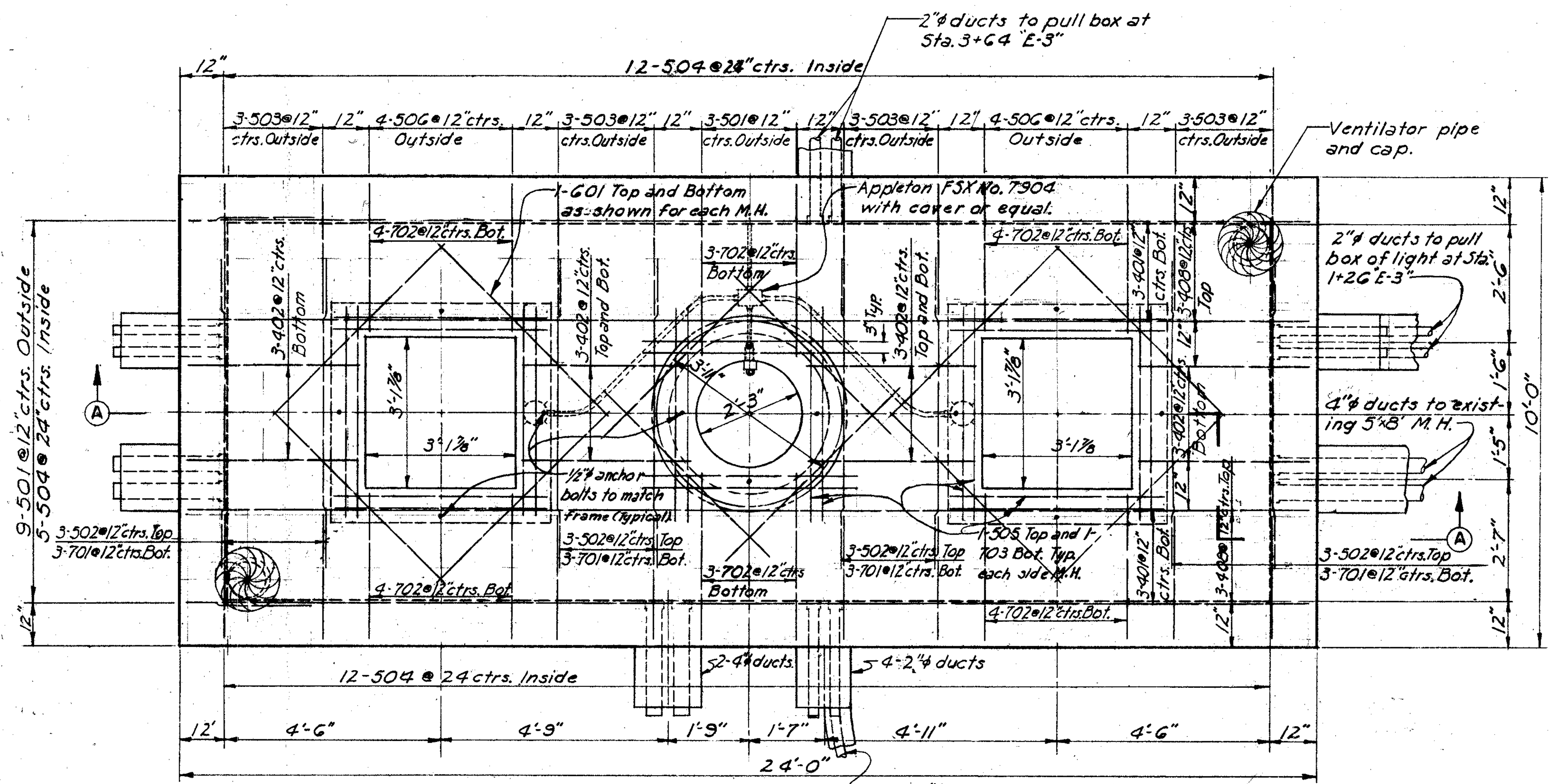
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

914 SHEET 51

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

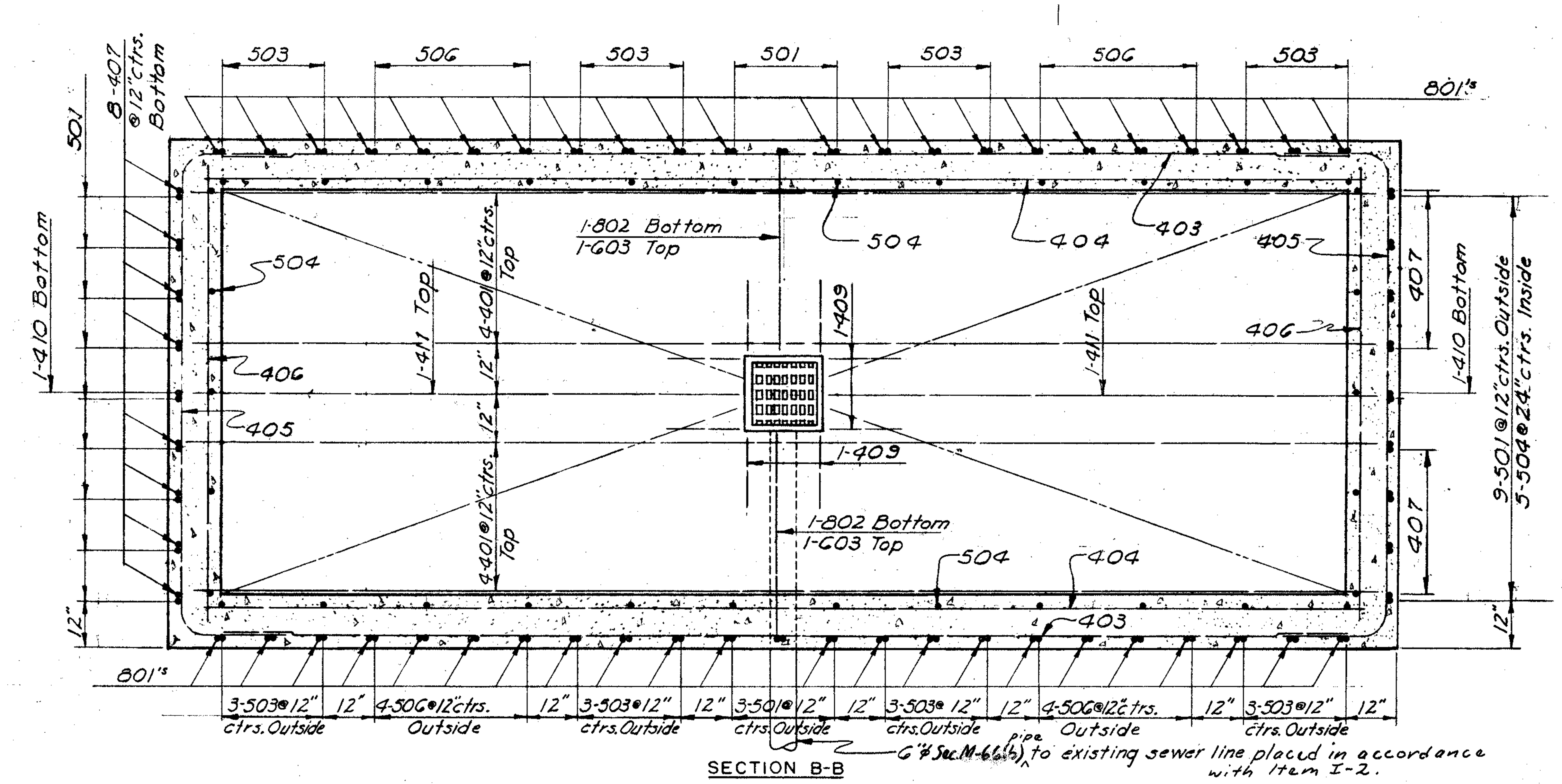
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY 42 - 18.29

REGULATOR VAULT

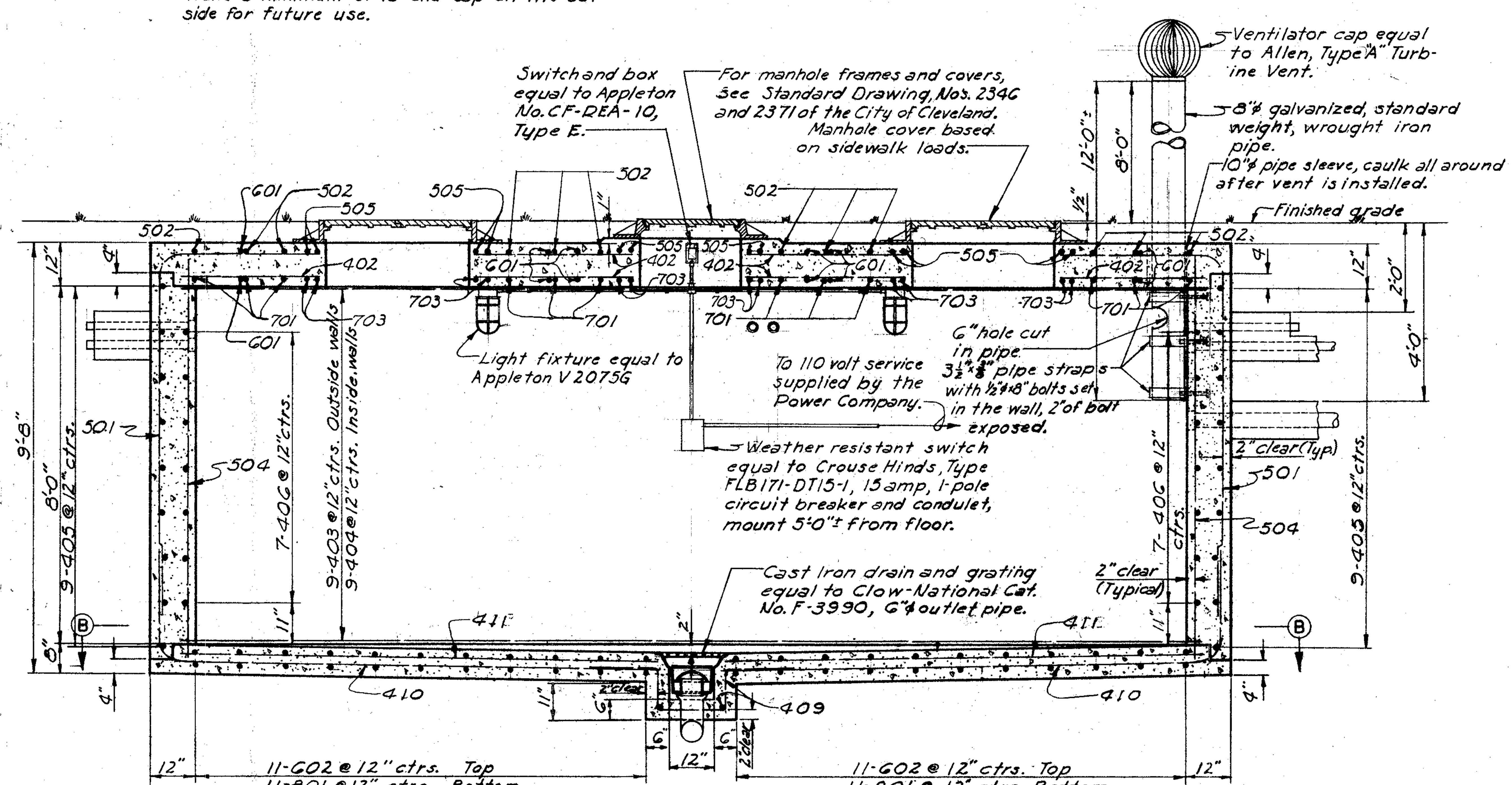


Note: Where initial use of indicated duct banks is not required, extend the ducts thru the walls a minimum of 18" and cap on the outside for future use.

PLAN



SECTION B-B



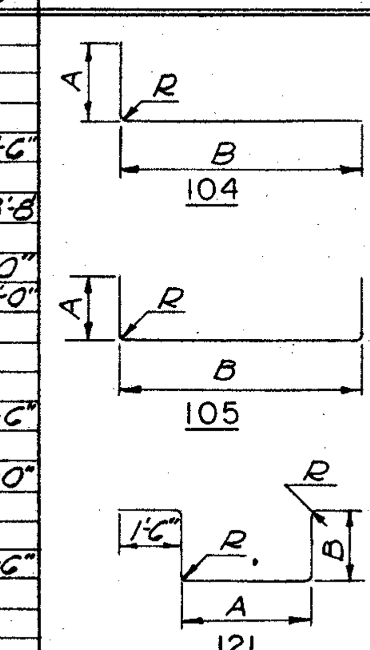
Note:
1"ϕ x 10'-0" ground rods shall be placed in diagonal corners of the vault with 6" of the rod extending above the floor. Additional ground rods shall be driven if required to insure not over 5 ohm ground.

SECTION A-A
TRANSFORMER VAULT
Scale: 1/2"=1'-0"

Note: The top and sides of transformer vault shall be provided with Type "B" waterproofing according to Ohio Standard Construction and Materials Specifications. For the floor vapor barrier a 0.004" polyethylene film shall be applied over the sub-grade. The film shall be lapped not less than 6" with the top lap placed in the direction of the spreading of the concrete.

REINFORCING BAR SCHEDULE

MARK	SIZE	NO. REQD.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B
401	4	14	23'-0"	Str.		
402		18	3'-0"	Str.		
403		18	22'-0"	Str.		
404		18	22'-6"	Str.		
405		18	13'-6"	105	2'-0"	9'-6"
406		14	9'-0"	Str.		
407		8	26'-2"	104	2'-6"	23'-8"
408		6	21'-0"	Str.		
409		4	6'-6"	121	1'-6"	1'-0"
410		2	13'-6"	104	2'-6"	11'-0"
411		2	10'-6"	Str.		
501	5	24	12'-0"	104	3'-6"	8'-6"
502		12	6'-6"	Str.		
503		24	10'-8"	104	2'-8"	8'-0"
504		34	9'-0"	Str.		
505		24	4'-6"	Str.		
506		16	11'-7"	104	3'-1"	8'-6"
601	6	24	5'-0"	Str.		
602		22	8'-6"	Str.		
603		2	3'-6"	Str.		
701	7	12	8'-6"	Str.		
702		22	3'-0"	Str.		
703		24	4'-6"	Str.		
801	8	22	14'-8"	105	2'-6"	9'-8"
802		2	6'-7"	104	2'-6"	4'-1"



R = Minimum of 15 bar diameters

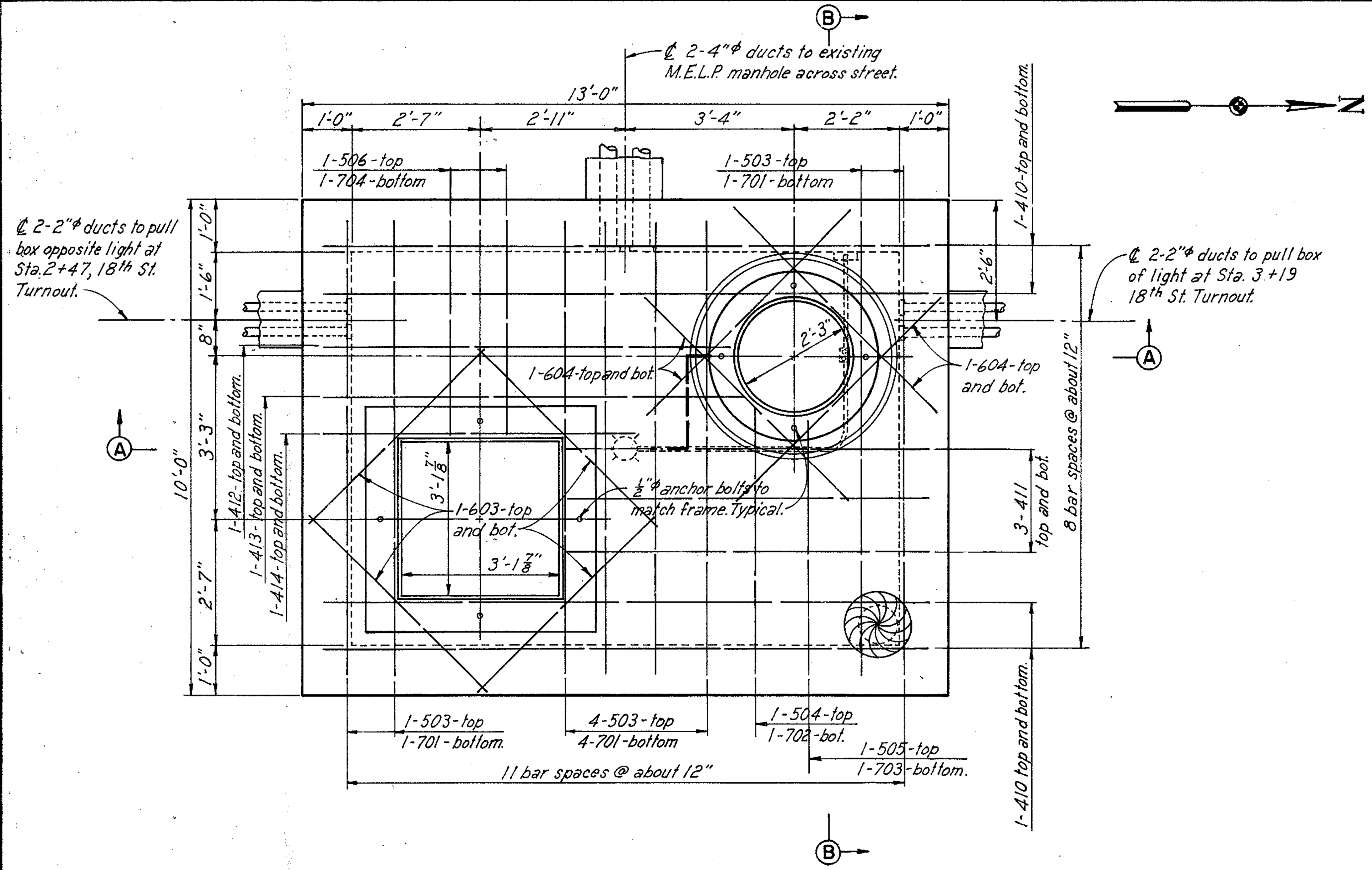
SCALE 1" = 50'
MADE J.F.S. DATE 12.15.58
TRCD. R.R. DATE 3.1.59
CKD. J.L.G. DATE 4.1.59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 52

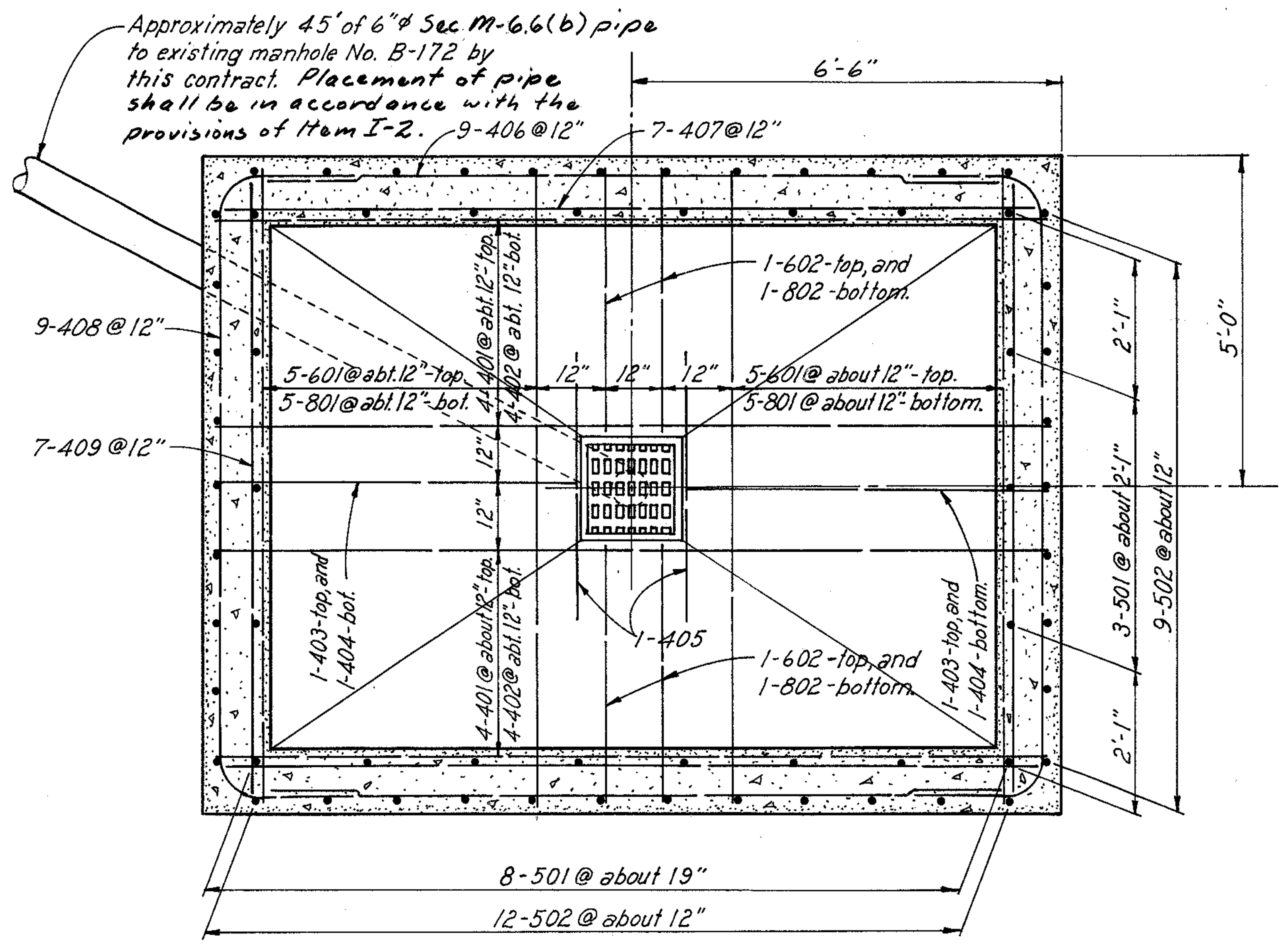
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

52A
175

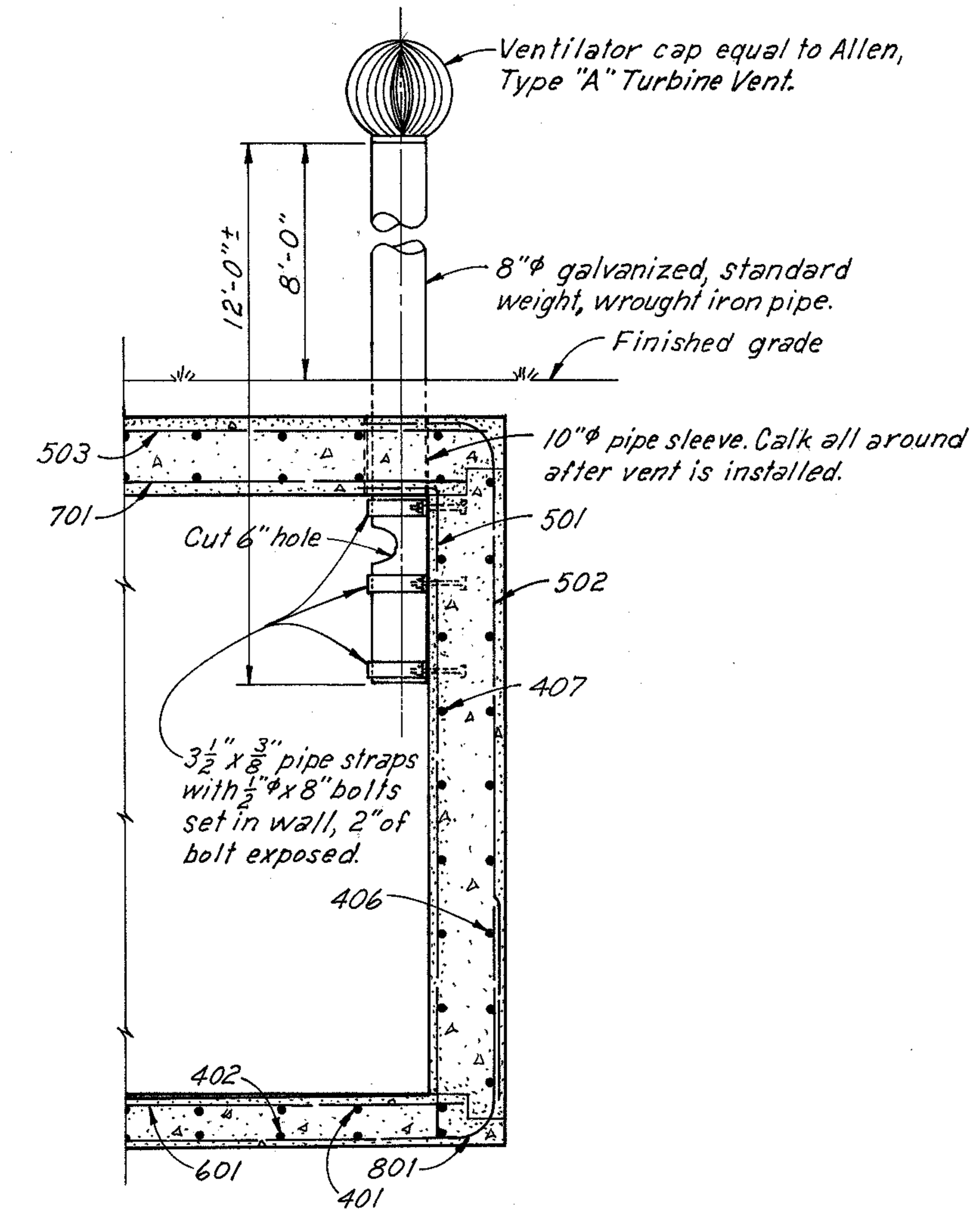
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
REGULATOR VAULT



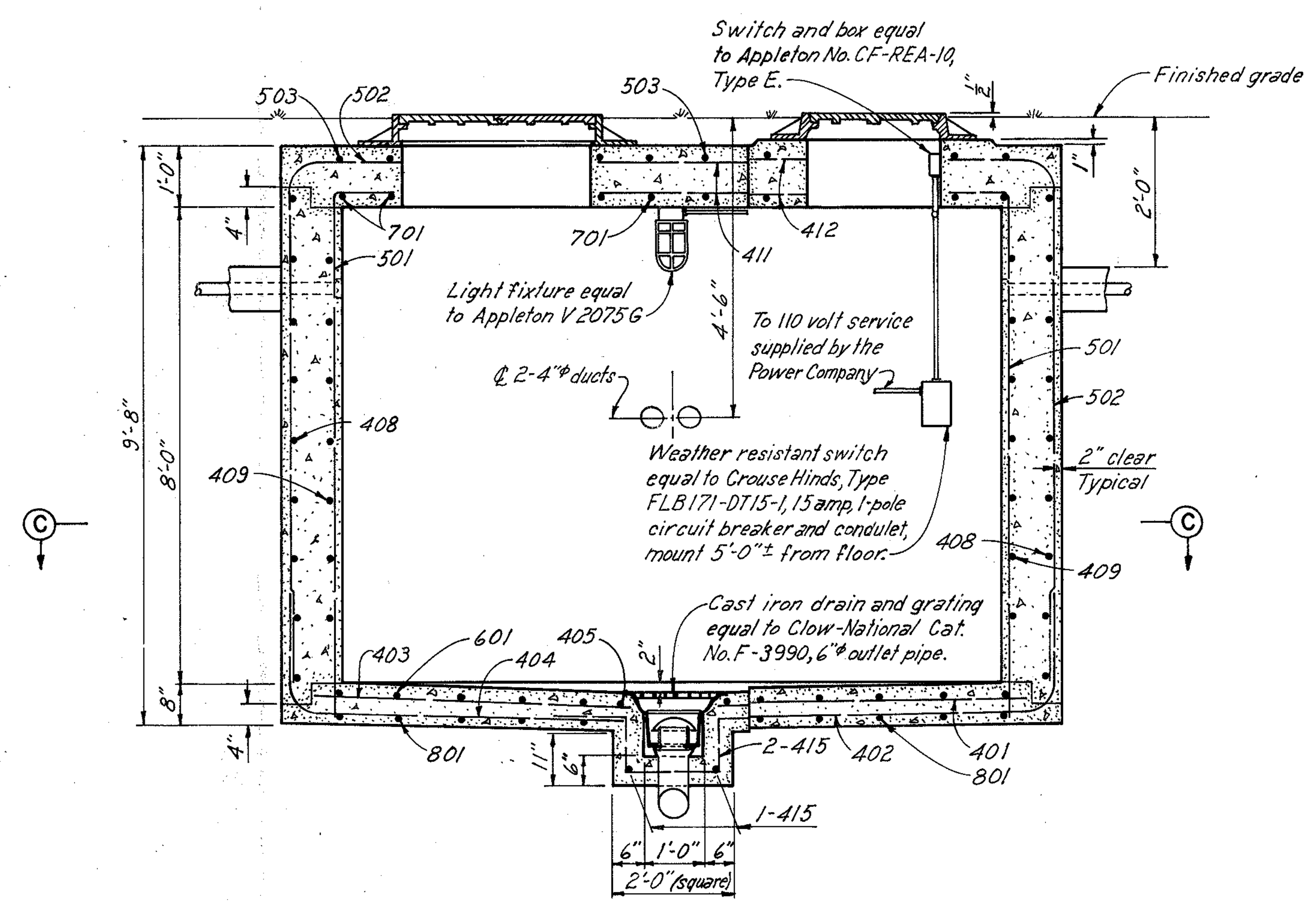
PLAN



SECTION C-C



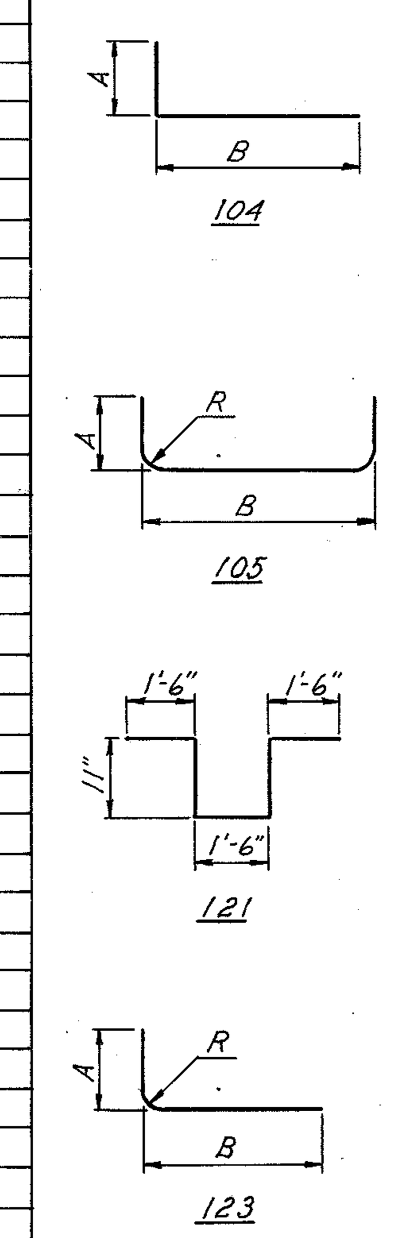
HALF SECTION B-B



SECTION A-A

REINFORCEMENT SCHEDULE						
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	
401	8	11'-9"	str.			
402	8	16'-8"	105	2'-3"	12'-8"	
403	2	5'-3"	str.			
404	2	7'-7"	123	2'-3"	5'-7"	
405	2	4'-6"	str.			
406	18	11'-6"	str.			
407	14	12'-6"	str.			
408	18	13'-6"	105	2'-3"	9'-6"	
409	14	9'-6"	str.			
410	8	11'-9"	str.			
411	6	7'-0"	str.			
412	2	8'-0"	str.			
413	2	8'-3"	str.			
414	2	6'-6"	str.			
415	4	5'-10"	121			
501	22	9'-7"	104	1'-0"	8'-8"	
502	42	10'-2"	123	1'-8"	8'-10"	
503	8	9'-6"	str.			
504	1	5'-6"	str.			
505	1	5'-3"	str.			
506	2	4'-6"	str.			
601	10	8'-9"	str.			
602	4	3'-9"	str.			
603	8	5'-0"	str.			
604	8	5'-9"	str.			
701	8	8'-9"	str.			
702	1	5'-3"	str.			
703	1	5'-0"	str.			
704	2	4'-0"	str.			
801	10	15'-8"	105	3'-6"	9'-8"	
802	4	7'-1"	123	3'-6"	4'-1"	

BENDING DIAGRAMS



R = 15 bar diameters

Bar dimensions are given out to out.

Notes:

The top and sides of transformer vault shall be provided with Type "B" waterproofing according to Ohio Standard Construction and Materials Specifications. For the floor vapor barrier a 0.004" polyethylene film shall be applied over the subgrade. The film shall be lapped not less than 6" with the top placed in the direction of the spreading of the concrete.

1"φ x 10'-0" ground rods shall be placed in two opposite corners of the vault with 6" of the rod extending above the floor. Additional ground rods shall be driven if required to insure not over 5 ohm grounds.

For manhole frames and covers, see sheet 42.

REGULATOR VAULT

SCALE ½" = 1'-0"
MADE BLC DATE 11-11-59
TRCD. DATE
CKD. GWR DATE 11-12-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 52 A

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

53 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29
LIGHTING DETAILS

Notes:

The top and sides of the manhole shall be provided with Type "B" waterproofing according to Ohio Standard Construction and Materials Specifications. For the floor vapor barrier a 0.004" polyethylene film shall be applied over the sub-grade. The film shall be lapped not less than 6".

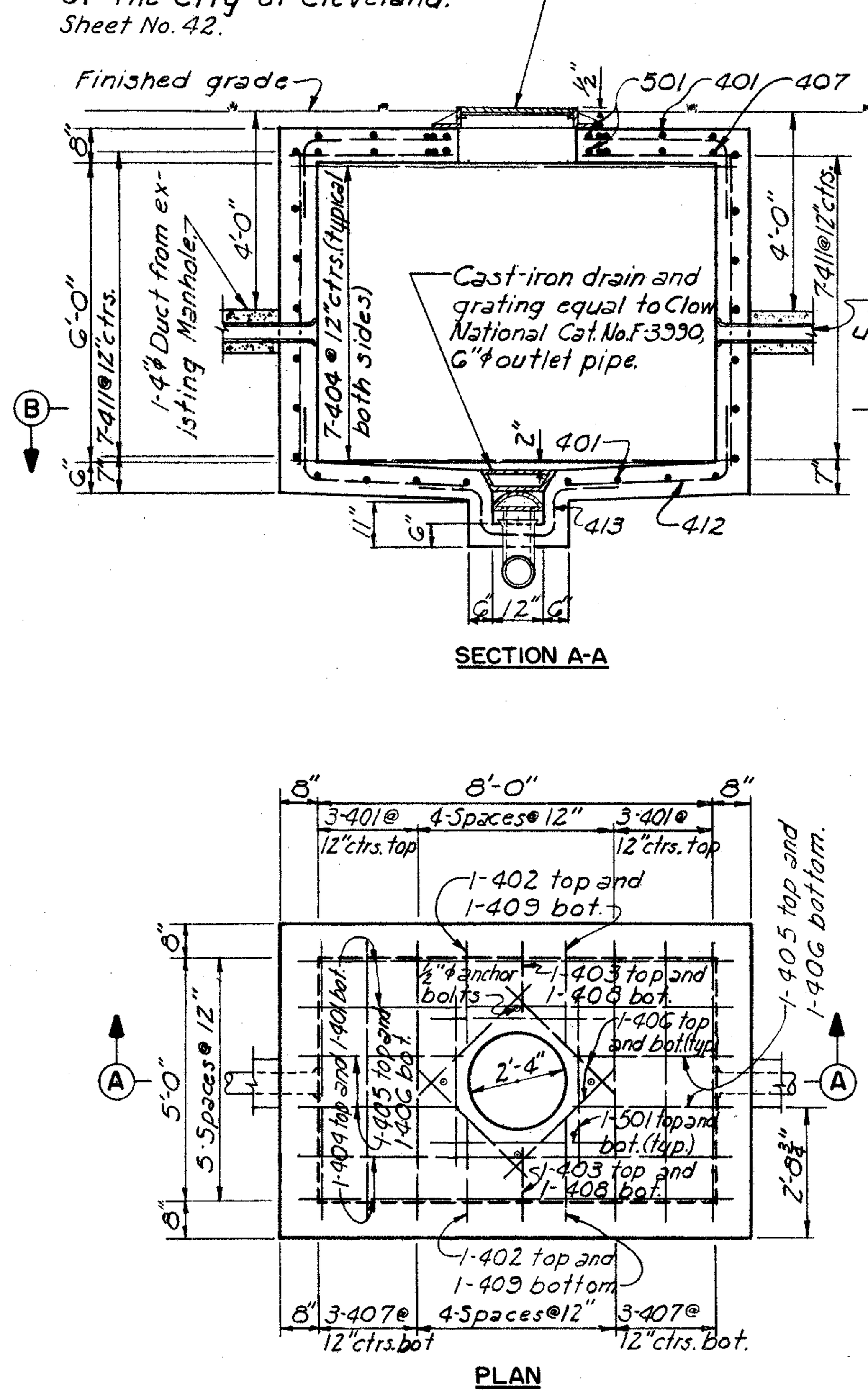
A 1"φ × 10'-0" ground rod shall be placed in one corner of the manhole, with 6" of the rod extending above the floor, for a minimum of 5 ohms to ground.

Install one pulling iron opposite each duct entrance.

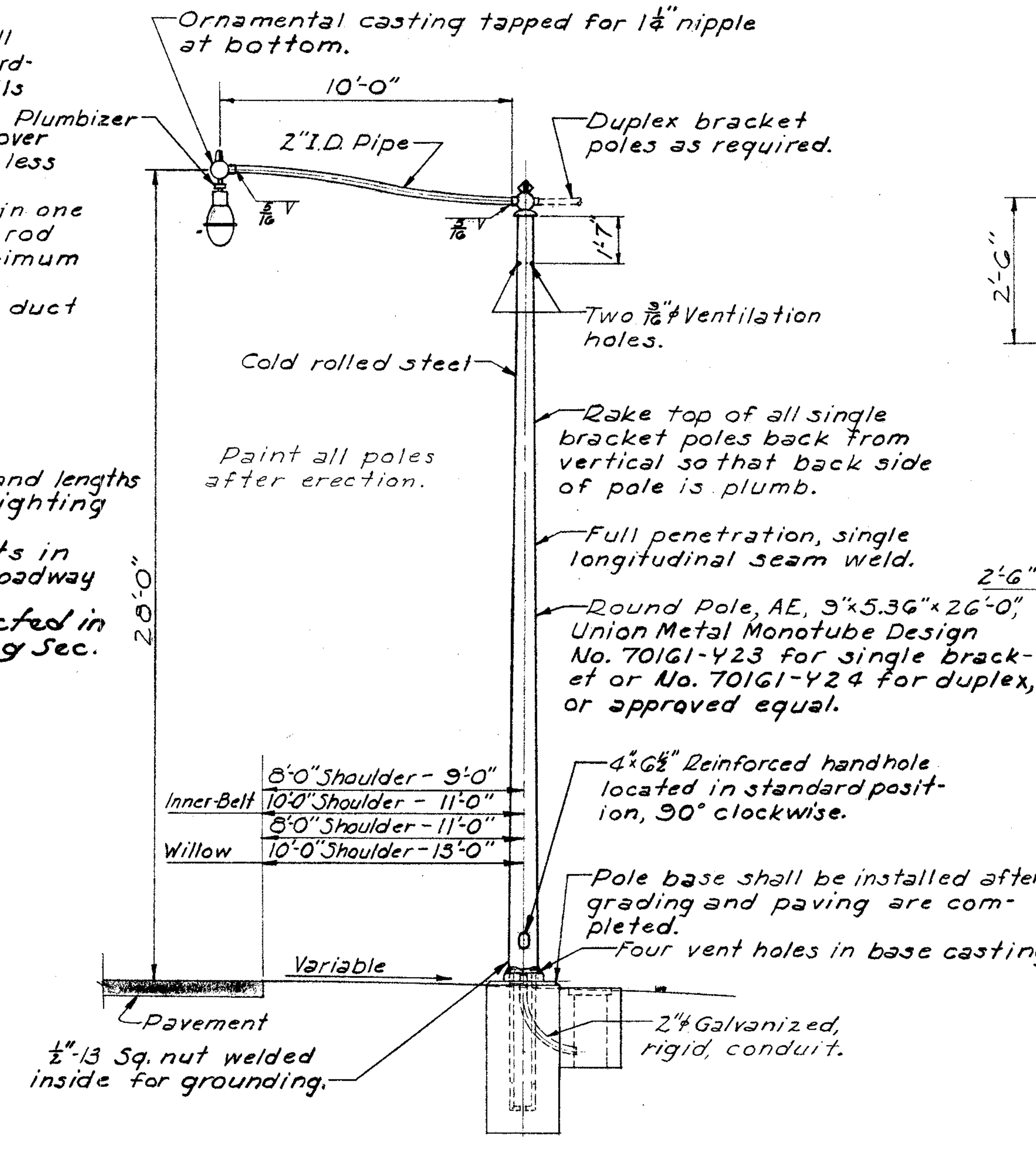
For location of drainage manholes and lengths of 6" Vitreous Clay Pipe, see Roadway Lighting Plans.

For number and placement of ducts in and out of Transformer Manhole see Roadway lighting Plans.

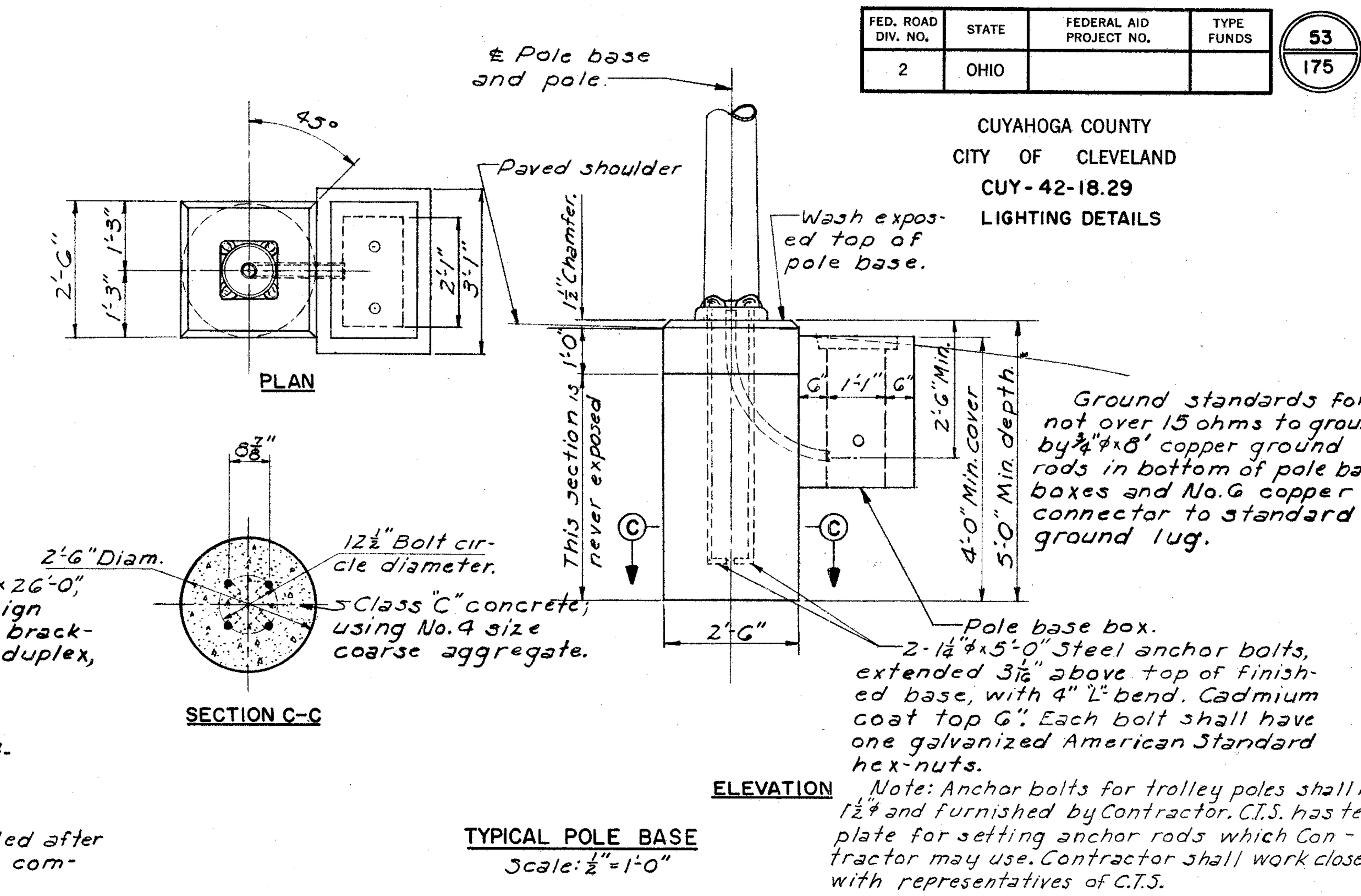
6" outlet pipe shall be constructed in accordance with Item I-2 using Sec. M-6.8 (b) pipe.



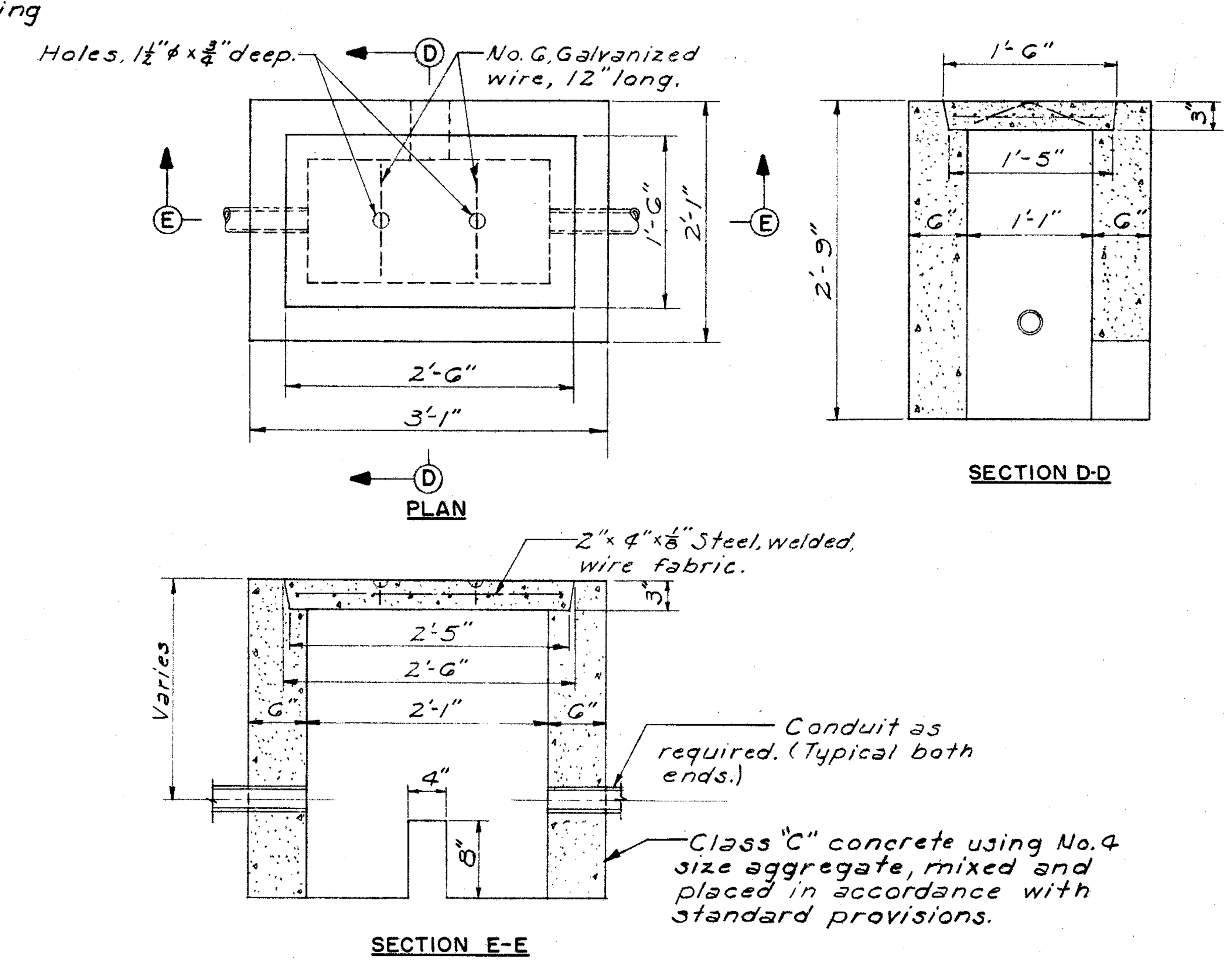
TRANSFORMER MANHOLE
Scale: 3/8" = 1'-0"



TYPICAL ROADWAY LIGHTING UNIT
No Scale



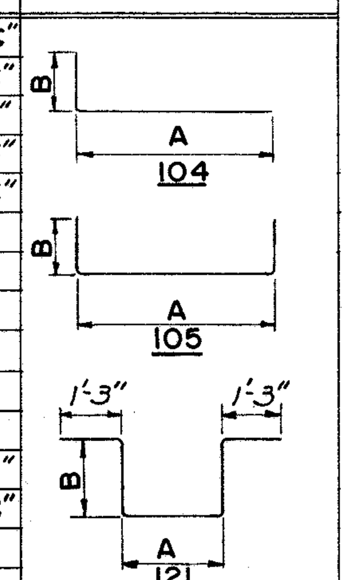
TYPICAL POLE BASE
Scale: ½" = 1'-0"



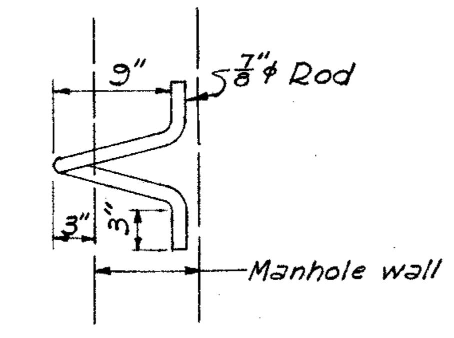
CONCRETE PULL BOX
Scale: 1" = 1'-0"

Note:
Pitch ducts to drain toward boxes, manholes, and vaults a minimum of 1 ft. in 100 ft.
Forms for ducts may be omitted if Engineer considers soil sufficiently firm.

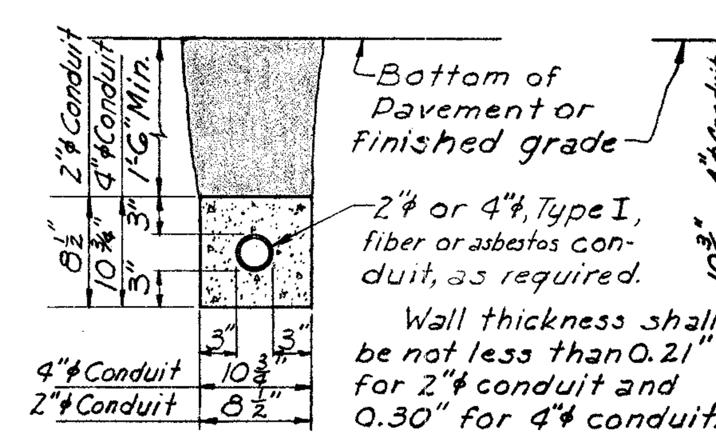
REINFORCING BAR SCHEDULE					
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B
401	14	8'-8"	105	5'-8"	1'-6"
402	6	3'-8"	104	2'-2"	1'-6"
403	2	3'-2"	104	1'-8"	1'-6"
404	22	11'-8"	105	8'-8"	1'-6"
405	4	4'-9"	104	3'-3"	1'-6"
406	12	3'-3"	Str.		
407	6	6'-0"	Str.		
408	2	1'-9"	Str.		
409	4	2'-3"	Str.		
410	4	9'-0"	Str.		
411	14	5'-6"	Str.		
412	4	4'-11"	104	3'-5"	1'-6"
413	2	5'-10"	121	11"	1'-6"
414	30	6'-3"	Str.		
501	8	3'-6"	Str.		



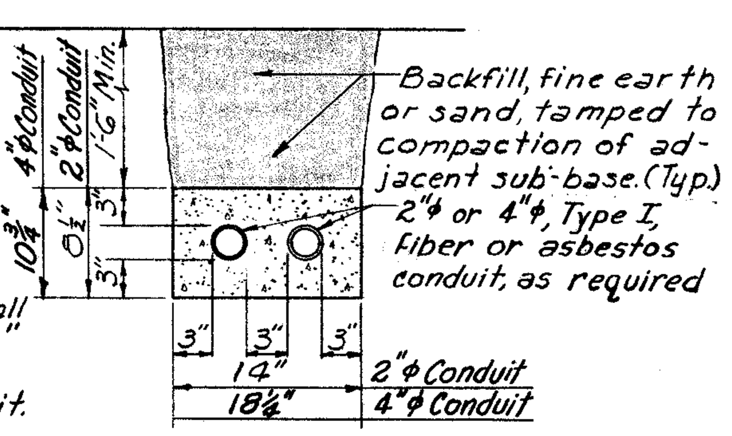
Note: Allow at least 4 days after pouring before allowing compaction by rollers over duct bank.



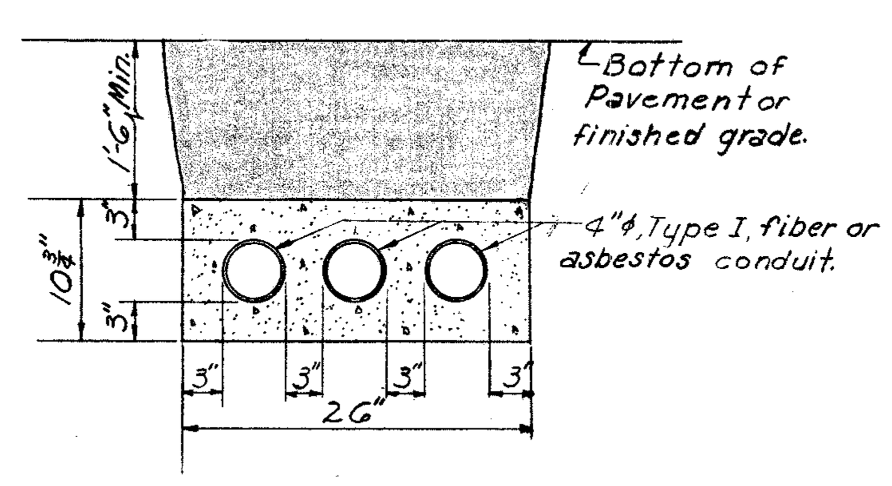
PULLING IRON
No Scale



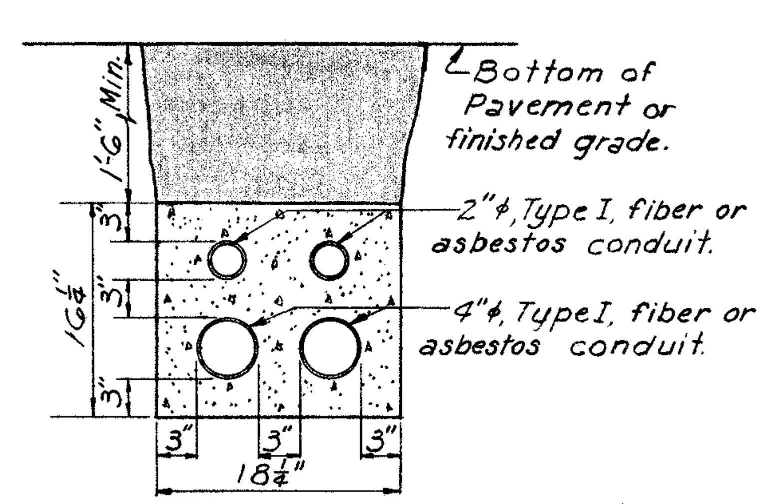
ONE-WAY DUCT BANK
Scale: 1" = 1'-0"



TWO-WAY DUCT BANK
Scale: 1" = 1'-0"



THREE-WAY DUCT BANK
Scale: 1" = 1'-0"



FOUR-WAY DUCT BANK
Scale: 1" = 1'-0"

SCALE As Noted
MADE J.R.K. DATE 10-28-59
TRCD. ___ DATE ___
CKD. G.J.C. DATE 11-4-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 53

Rev. F.S.J. 12-9-59

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

53A
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY 42-18.29
LIGHTING DETAILS

Note: Where Contractor connects with existing ducts, provide coupling and install wiring to next lighting unit.

SCALE None
MADE J.R.K. DATE 11-2-59
TRCD. DATE
CKD. G.J.C. DATE 11-11-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET- 53-A

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
EXISTING UTILITIES

LEGEND

- Right of Way
- Curb
- M.E.L.P.
- O.B.T.
- C.E.I. Light
- C.E.I. Steam
- Western Union
- Transit System Pole
- Telephone & Telegraph Pole
- Power Pole
- Light Pole
- Pole (General)
- Muny Steam
- Sewer — C.B., Plug or Bulkhead, Face of Curb, M.H.
- Water — Hydrant, M.H., Meter Vault
- Gas — Valve
- W.W.L. — Light Pole, M.H.

Note: Shading indicates area of removal.

REMOVAL-SANDSTONE CURB					
ROADWAY	SIDE	LOCATION FROM	TO	LENGTH (FT.)	SALVAGE (FT.)
Woodland	N	E 9th St. - E 14th St.		821	164
	S			635	127
E 14th St.	E	Orange - Woodland		339	271
	W			353	282
Broadway	N	E 9th St. - E 14th St.		1034	310
	S			447	134
E 9th St.	N	Broadway-Woodland		340	153
	S			448	202
	Median			264	119
			Total	4681	1762

SCALE 1" = 50'
MADE ______ DATE ______
TRCD. RR DATE 10/2/59
CKD. ______ DATE ______

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

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

55
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
EXISTING UTILITIES

REMOVAL-SANDSTONE CURB				
ROADWAY	SIDE	LOCATION	LENGTH	SALVAGE
Orange	N	E 14th St. - E 22nd St.	803	542
	S		199	159
Woodland	N	E 14th St. - E 19th St.	237	55
	S	E 14th St. - E 19th St.	237	47
Scovill	N	E 14th St. - E 22nd St.	795	102
	S		759	125
E 14th St.	E	Allen - Scovill	421	287
	W		421	245
E 19th St.	E	Woodland-Scovill	166	50
	W		166	129
E 20th St.	E	Scovill-End of Const	120	24
	W		131	126
E 21st St.	E	Scovill - Woodland	67	13
	W		67	13
E 15th St.	W	Orange-Broadway	195	39
		Totals	4784	1858

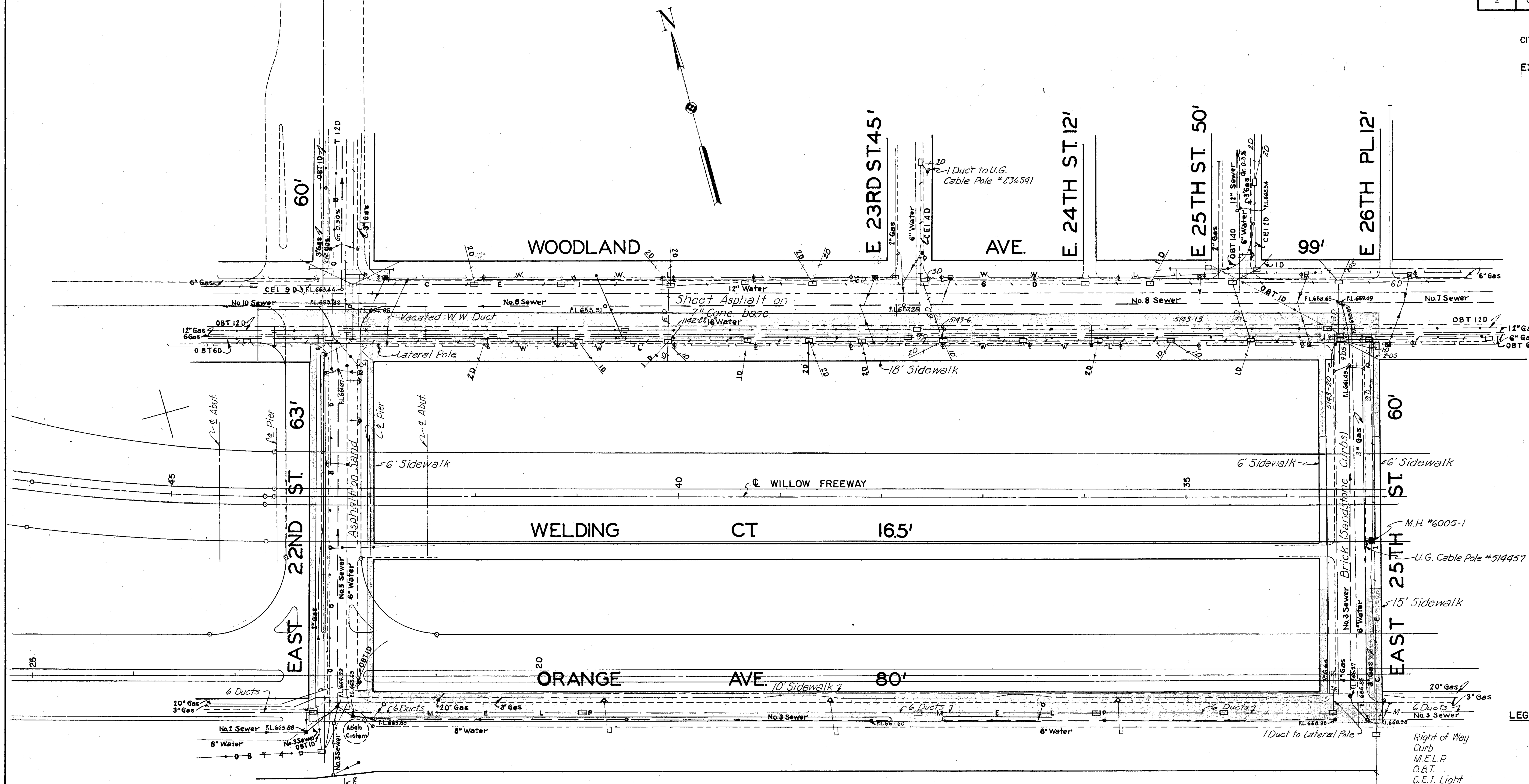
SCALE 1" = 50'
MADE ____ DATE ____
TRCD. RR DATE 10/2/59
CKD. ____ DATE ____

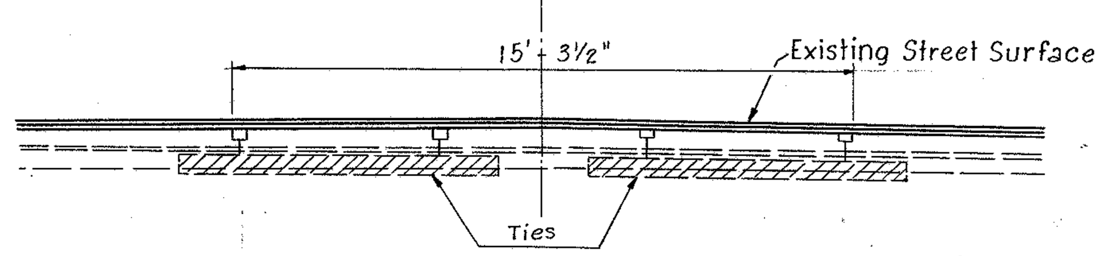
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 55

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

56
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29
EXISTING UTILITIES



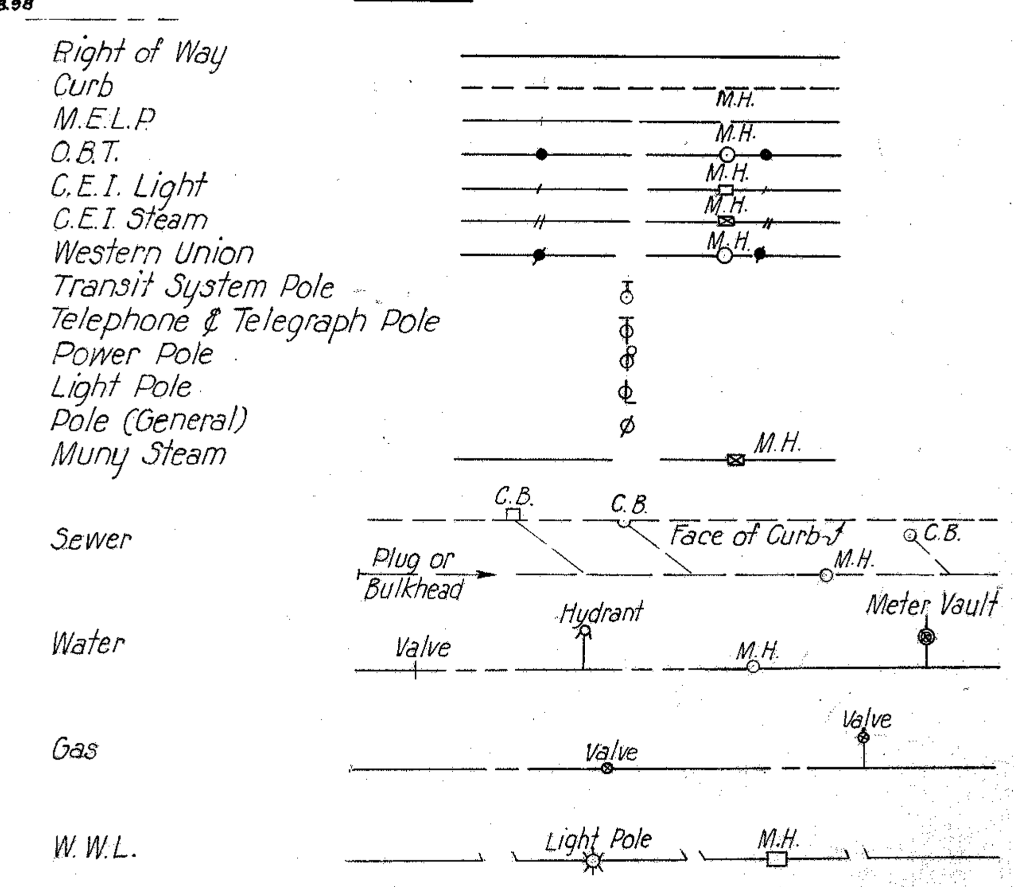


* See Quantity Calculations for location of removals.

RAILS AND TIES UNDER EXISTING
SCOVILL AVE.-BROADWAY AVE.-WOODLAND AVE.-EAST 9 TH ST.*

REMOVAL-SANDSTONE CURB				
ROADWAY	SIDE	LOCATION FROM TO	LENGTH (FT.)	SALVAGE (FT.)
E 22nd St.	E	Orange - Woodland	348	0
	W		363	290
Orange	N	E 22nd St. - E 25th St.	100	80
Woodland	S	E 22nd St. E 25th St.	956	239
E 25th St.	E	Orange - Woodland	367	0
	W		343	0
		Totals	2477	609

LEGEND



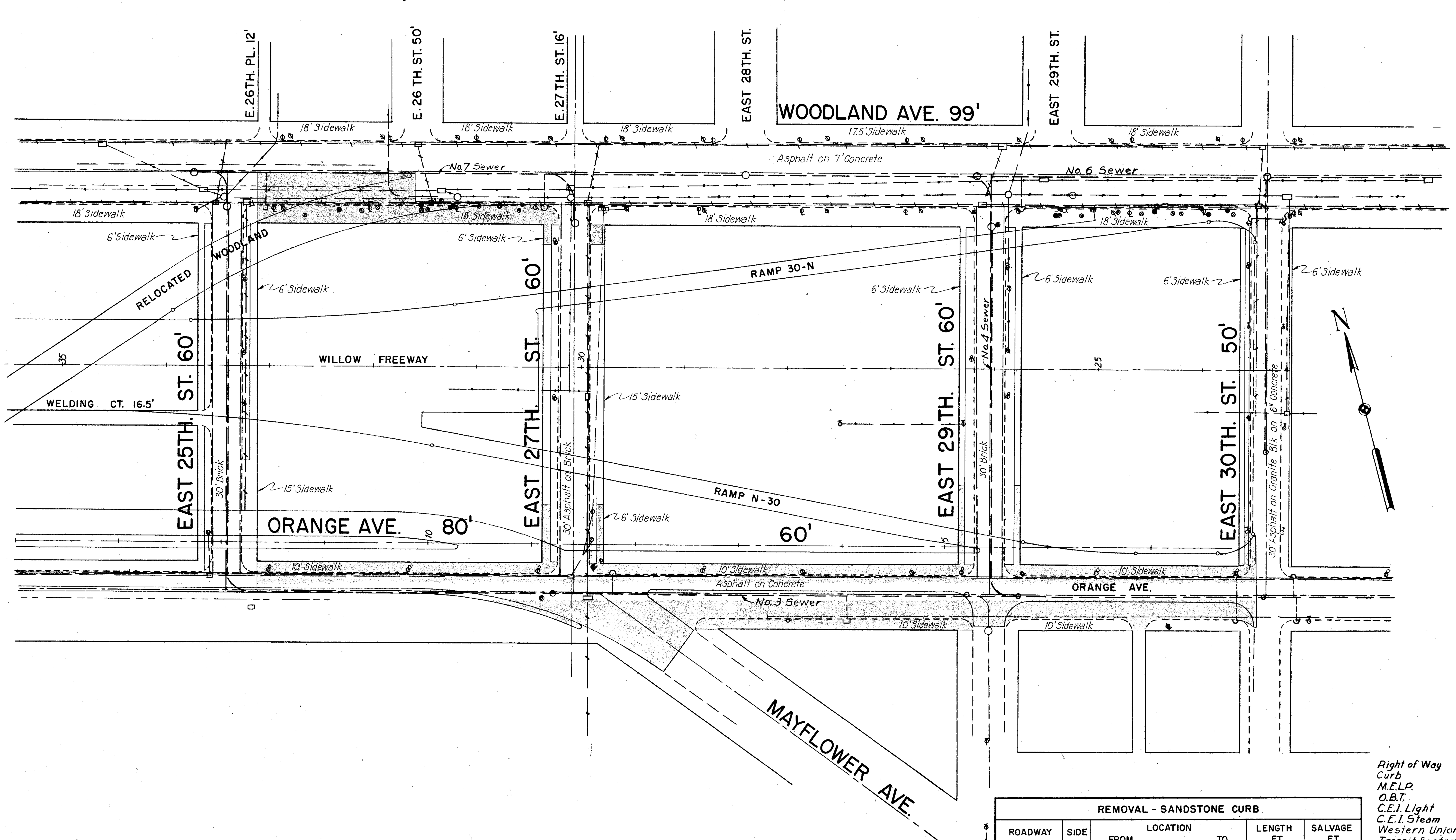
SCALE 1" = 50'
MADE ____ DATE ____
TRCD. RR DATE 10/2/59
CKD. ____ DATE ____

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

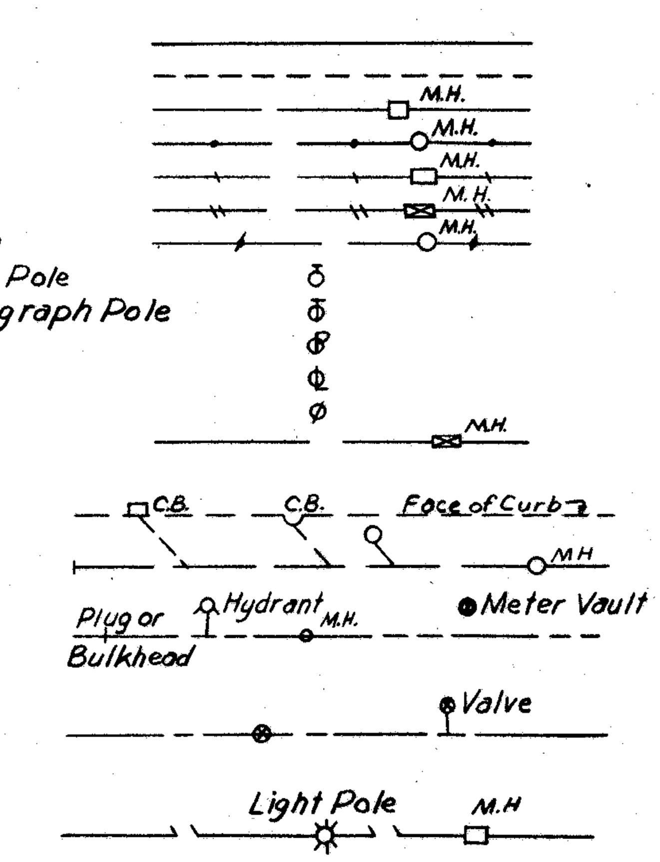
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

57
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
EXISTING UTILITIES



REMOVAL - SANDSTONE CURB				
ROADWAY	SIDE	LOCATION FROM TO	LENGTH FT.	SALVAGE FT.
Woodland	S	E. 25th. St. - E. 27th. St.	288	58
Orange	N	E. 25th. St - E. 30th. St.	925	462
	S	Mayflower - E. 30th. St.	510	255
E. 27th. St.	E	Orange - Woodland	345	0
	W		345	104
E. 29th. St.	E	Orange - Woodland	81	8
	W		81	0
		Totals	2575	887



SCALE 1" = 50'
MADE B.W.S. DATE 12/8/59
TRCD. RR DATE 10/2/59
CKD. ____ DATE ____

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

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

58
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
EXISTING UTILITIES

REMOVAL-SANDSTONE CURB				
ROADWAY	SIDE	LOCATION FROM TO	LENGTH (FT.)	SALVAGE (FT.)
E 9th St.	E	Woodland-Carnegie	643	129
	W		583	117
Scovill	N	E 9th St. - E 12th St.	452	137
	S		463	231
E 12th St.	E	Parkman-Webster	340	27
	W		340	54
Allen	N	Parkman-E 14th St.	428	64
	S		463	0
E 14th St.	E	Woodland - Allen	341	205
	W		238	143
		Totals	4291	1107

SCALE 1" = 50'
MADE ___ DATE ___
TRCD. RR DATE 10/2/59
CKD. ___ DATE ___

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 58

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	
2	OHIO			59 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
EXISTING UTILITIES

REMOVAL-SANDSTONE CURB

ROADWAY	SIDE	LOCATION FROM — TO	LENGTH (F.T.)	SALVAGE (F.T.)
Scovill	N	E 12th St.-E 14th St.	626	282
	S		654	327
Webster	N	E 13th St.-E 14th St.	333	167
	S		333	167
E 14th St.	E	Scovill-Carnegie	691	453
	W		733	486
E 13th St.	E	Webster-Scovill	234	117
	W		234	117
Central	N	E 14th St.-E 18th St.	180	54
	S		160	48
E 18th St.	E	Central-Carnegie	123	37
	W		116	35
		Totals	4417	2290

SCALE 1" = 50'
MADE ___ DATE ___
TRCD. RR DATE 10/2/59
CKD. ___ DATE ___

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 59

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

60
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
EXISTING UTILITIES

REMOVAL-SANDSTONE CURB					
ROADWAY	SIDE	LOCATION FROM	TO	LENGTH (FT.)	SALVAGE (FT.)
E. 20th St.	E	Scovill - Charity		48	24
	W			46	14
E. 21st St.	E	Scovill - Charity		75	23
	W			75	23
		Totals		244	84

SCALE 1" = 50'
MADE ____ DATE ____
TRCD. RR DATE 10/2/59
CKD. ____ DATE ____

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 60

01-0 -15

CUY-90-16.24

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	61 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY- 42- 18.29
CROSS SECTION LAYOUT

SERIES	SHEETS	STA. TO STA.	EXCAVATION	EMBANKMENT
A	62-65	5+38 15+10	7741	7575
B	65-66	0+50 2+80	829*	296
C	66-71	3+80 23+94	68584	4599
D	72-73	0-91 5+37	14611	1814
E		DELETED		
F				
G	74	58+00 58+88	157	8
H	74-76	61+00 66+50	0	63802
I	77-78	0+00 5+50	4826	7731
J	79-80	0+00 6+73	221	31013
K	81-83C	2+09 44+00	39096	14965
L	83D	0+00 8+90	10879	28
M	83E	0+51 3+10	3222	13
	TOTALS		150,166	131,844

Shrinkage Factor 14%

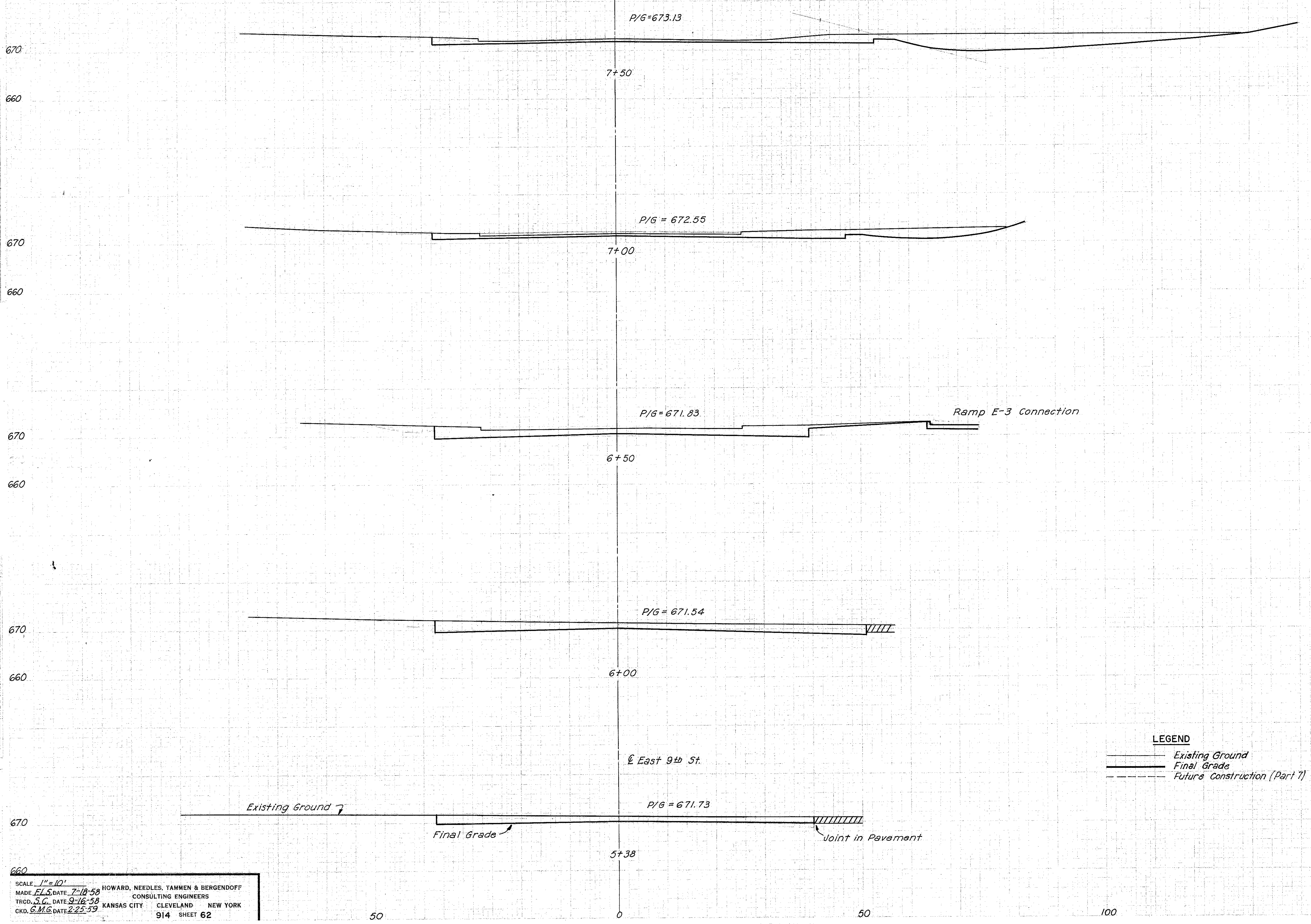
* No Federal Participation.

NOTE:
THE ℄ FOR THE INNER BELT CROSS SECTIONS IS THE FORWARD TANGENT AT STA. 70+99.9 PRODUCED BACK. THIS IS ALSO THE REFERENCE LINE FOR SERIES I & J

SCALE 1" = 150'
MADE G.M.G. DATE 2-19-59
TRCD. R.D.M. DATE 2-22-59
CKD. F.L.S. DATE 2-25-59
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 61

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	62 / 175
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

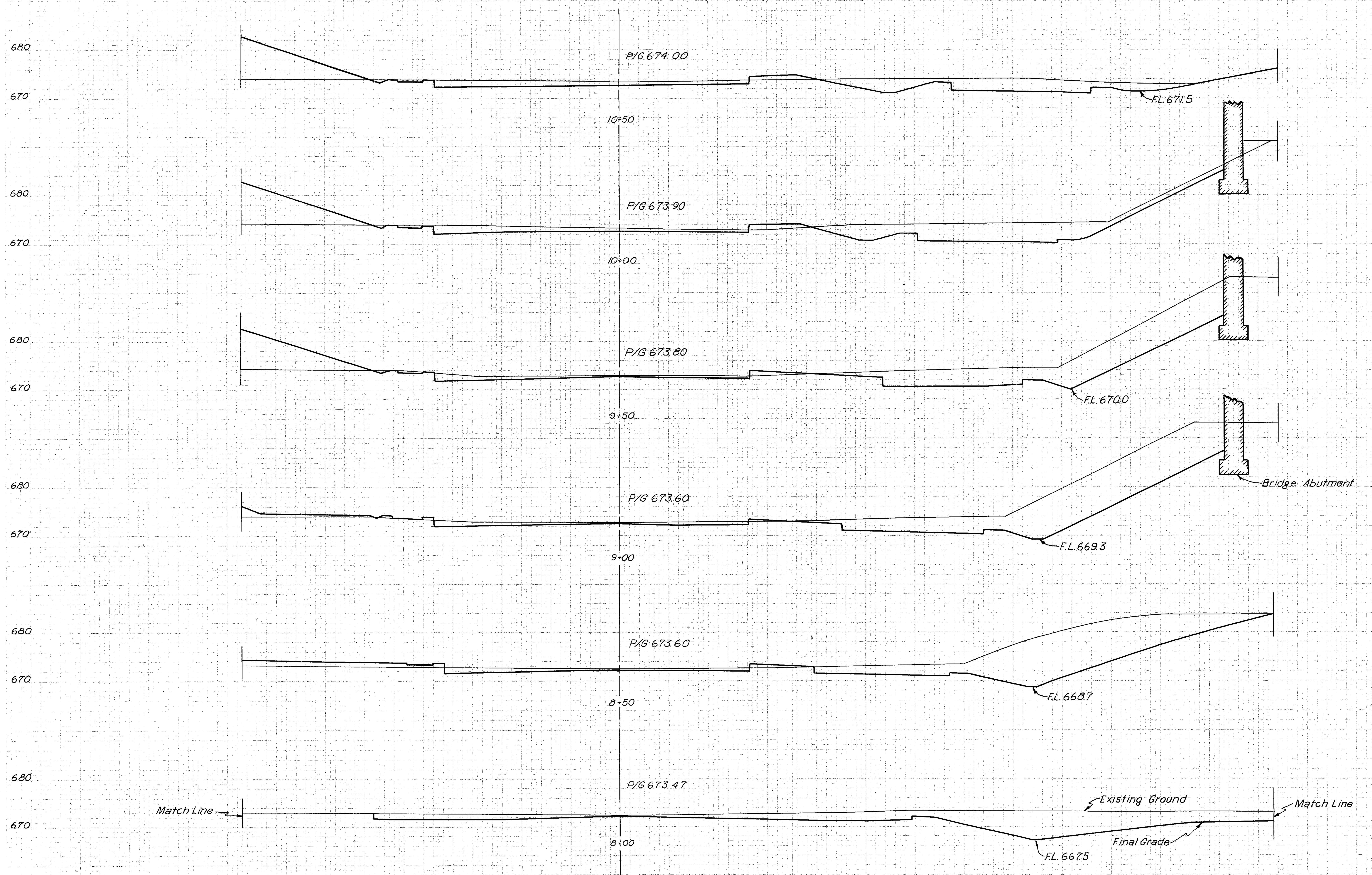


Station	SEEDING WIDTH L.F.	SEEDING AREA SQ.YD.	SUBBASE AREA S.F.	SUBBASE VOL. C.Y.	EARTHWORK END AREA EXC.	EARTHWORK END AREA EMB.	EARTHWORK VOLUME EXC.	EARTHWORK VOLUME EMB.
7+50					244	0		
							361	0
7+00					146	0		
							257	0
6+50					132	0		
							269	0
6+00					158	0		
							289	0
5+38					94	0		

SERIES A
EAST 9th STREET SECTIONS
STA. 5+38 TO STA. 7+50

SCALE 1" = 10'
MADE F.L.S. DATE 7-18-58
TRCD. S.C. DATE 9-16-58
CKD. G.M.G. DATE 2-25-59
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 62

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



Station	SEEDING WIDTH L.F.	SEEDING AREA SQ.YD.	SUBBASE AREA S.F.	SUBBASE VOL. C.Y.	EARTHWORK END AREA EXC.	EARTHWORK END AREA EMB.	EARTHWORK VOLUME EXC.	EARTHWORK VOLUME EMB.
10+50					212	227		
							489	327
10+00					316	126		
							730	231
9+50					472	124		
							947	131
9+00					551	17		
							973	51
8+50					500	38		
							819	35
8+00					384	0		
							581	0
7+50 (See Sheet 62)					244	0		

SERIES A
EAST 9TH STREET SECTIONS
STA. 8+00 TO STA. 10+50

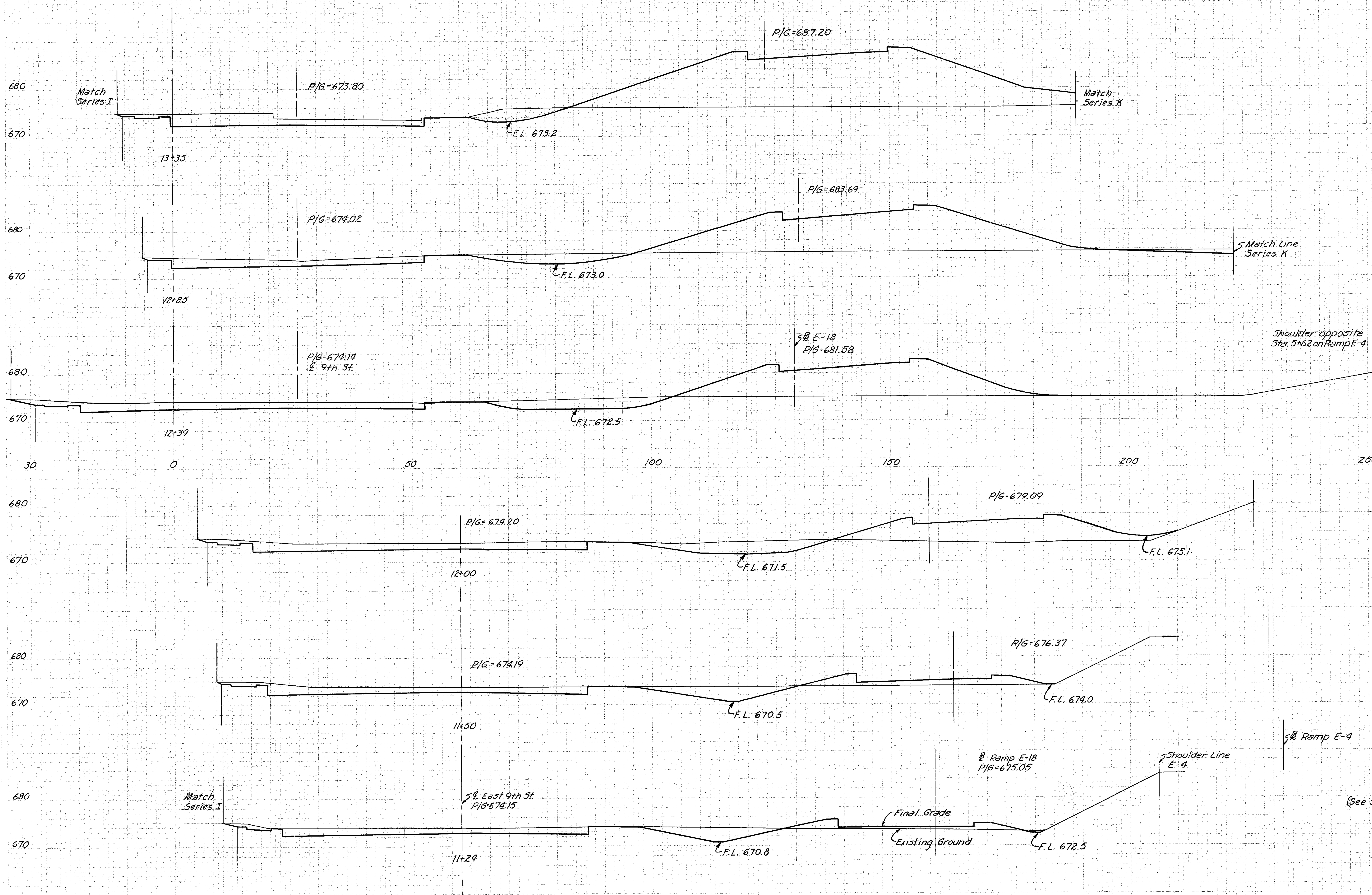
SCALE 1" = 10'
MADE F.L.S. DATE 7-17-58
TRCD. M.B. DATE 9-16-58
CKD. G.M.G. DATE 11-15-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 63

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

64
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY.-42-18.29



Station	SEEDING WIDTH L.F.	SEEDING AREA SQ.YD.	SUBBASE AREA S.F.	SUBBASE VOL. C.Y.	EARTHWORK END AREA EXC.	EARTHWORK END AREA EMB.	EARTHWORK VOLUME EXC.	EARTHWORK VOLUME EMB.
13+35					130	837		
							250	1310
12+85					140	578		
							250	804
12+39 (Ahead)					153	366		
12+39 (Back)					205	366		
							277	440
12+00					179	243		
							319	286
11+50					165	66		
							151	53
11+24					149	44		
							495	371
10+50 (See Sheet 63)					212	227		

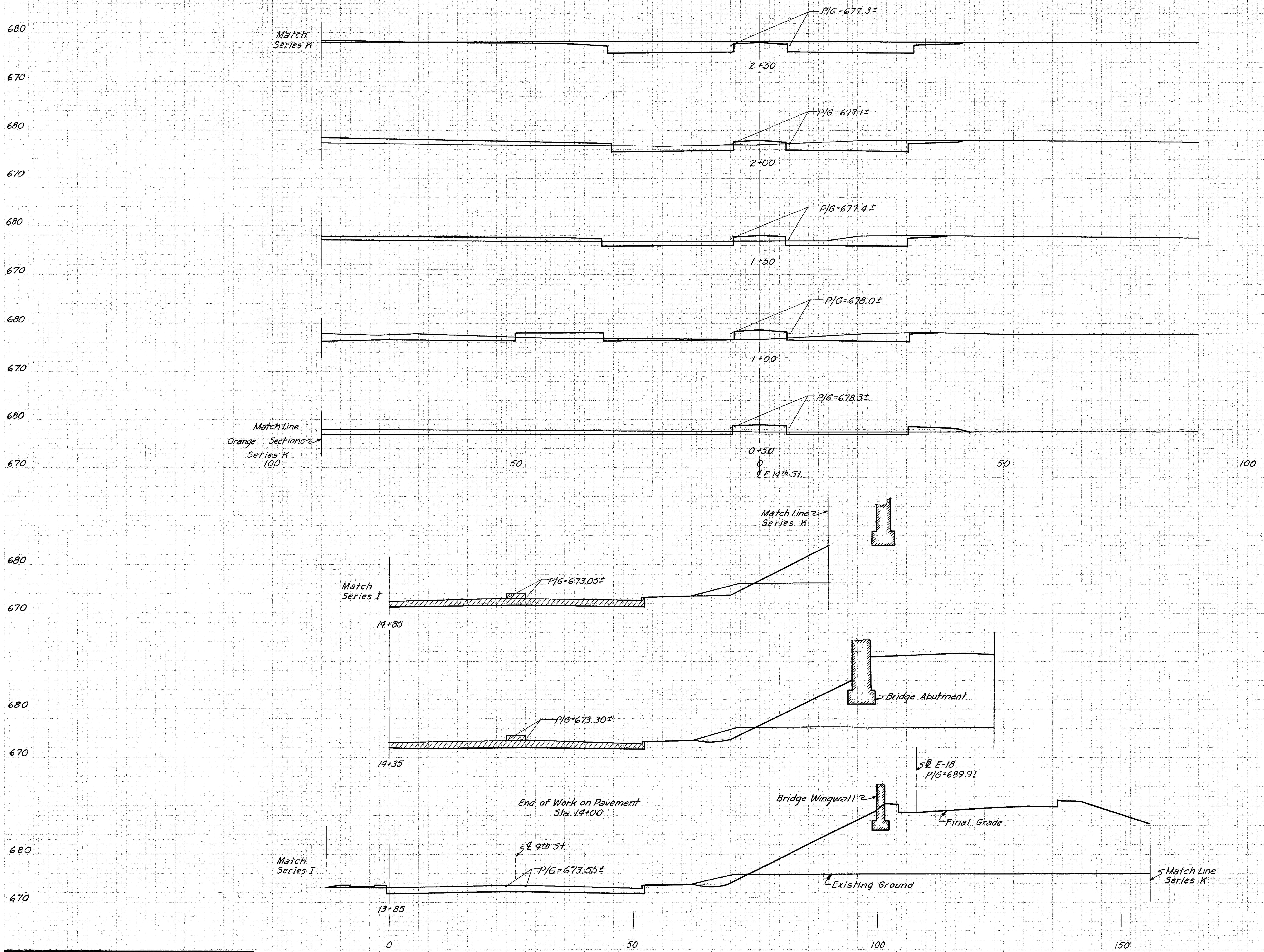
SERIES A
EAST 9th STREET SECTIONS
STA. 11+24 TO STA. 13+35

SCALE 1" = 10'
MADE F.L.S. DATE 7-16-58
TRCD. M.B. DATE 9-16-58
CKD. G.M.G. DATE 2-25-59
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 64

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

65
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



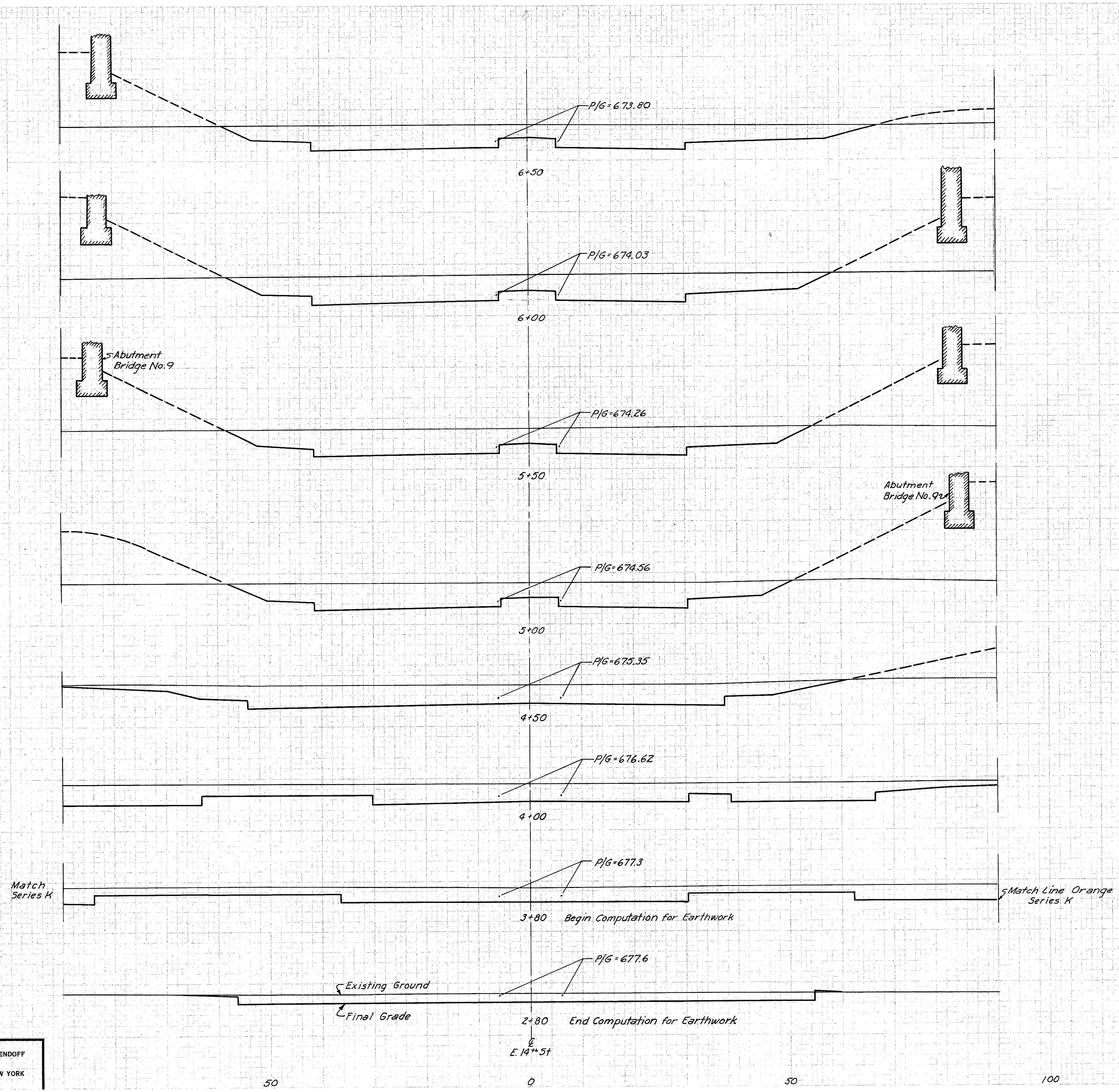
	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
2+50					135	0		
							210	45
2+00					92	49		
							145	100
1+50					65	59		
							139	91
1+00					85	39		
							154	60
0+50					81	26		
↑ Series B ↑								
Series A ↓								
15+10					0	0		
							6	28
14+85					13	60		
							26	532
14+35					15	515		
							17	1339
(Ahead) 14+00					11			
(Back) 14+00					77			
							43	
13+85					77	931		
							192	1637
13+35 (See Sheet 64)					130	837		

SERIES A EAST 9th STREET SECTIONS
STA. 13+85 TO STA. 15+10
SERIES B EAST 14th STREET SECTIONS
STA. 0+50 TO STA. 2+50

SCALE 1"=10'
MADE F.L.S. DATE 7-16-58
TRCD. M.B. DATE 9-17-58
CKD. G.M.G. DATE 2-25-59
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 65

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	66 / 175
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



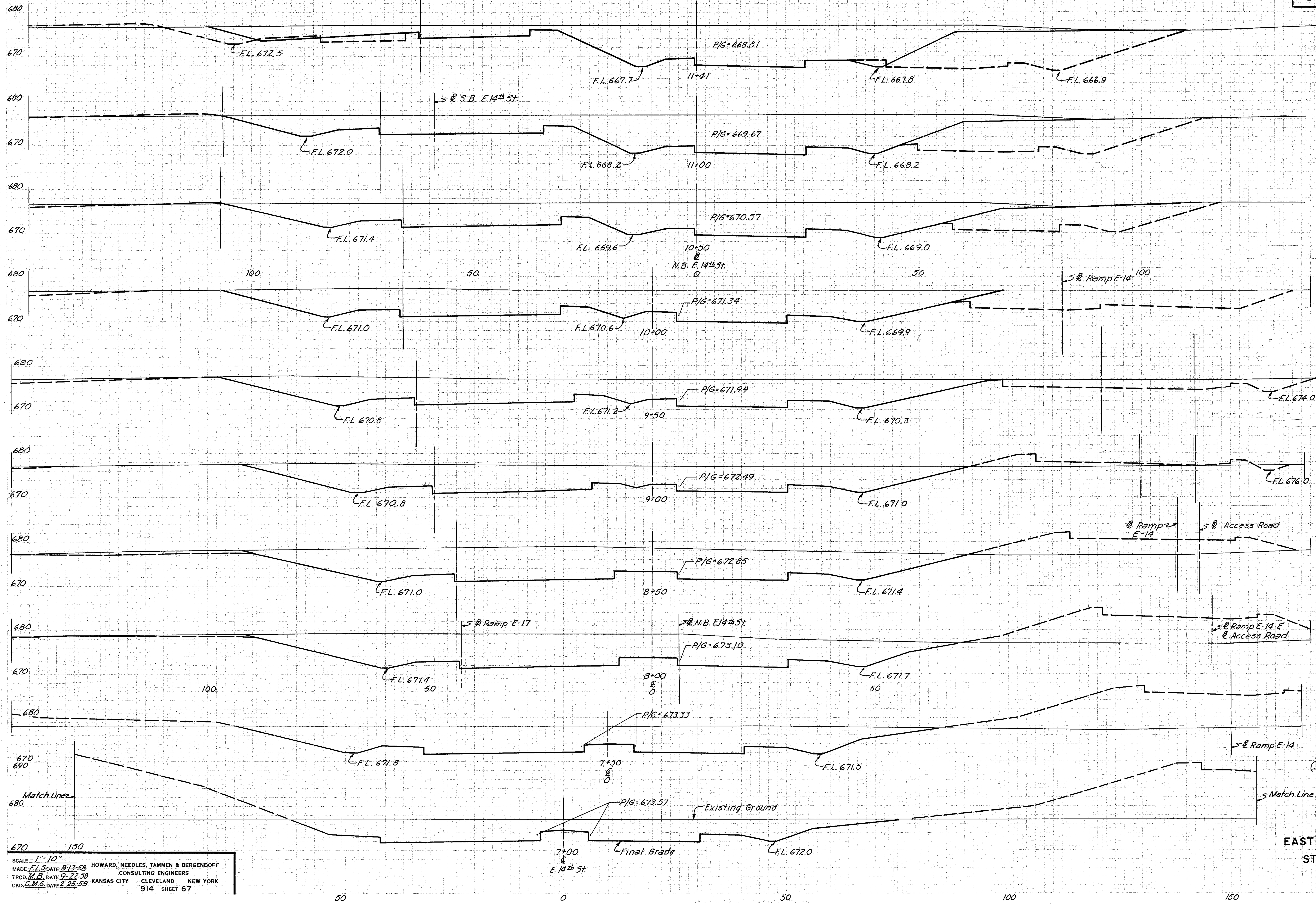
Station	SEEDING WIDTH L.F.	SEEDING AREA SQ.YD.	SUBBASE AREA S.F.	SUBBASE VOL. C.Y.	EARTHWORK END AREA EXC.	EARTHWORK END AREA EMB.	EARTHWORK VOLUME EXC.	EARTHWORK VOLUME EMB.
6+50					456	0		
							876	0
6+00					490	0		
							883	0
5+50					464	0		
							845	0
5+00					449	0		
							848	0
4+50					467	0		
							960	0
4+00					570	0		
							370	0
3+80 ↑ ↑ Series C					430	0		
Series B ↓ ↓								
2+80					191	0		
							181	0
2+50 (See Sheet 65)					135	0		

SERIES B EAST 14th STREET SECTIONS
STA. 2+80
SERIES C EAST 14th STREET SECTIONS
STA. 3+80 TO STA. 6+50

SCALE 1" = 10'
MADE F.L.S. DATE 7-17-58
TRCD. M.B. DATE 9-17-58
CKD. G.M.G. DATE 2-25-59
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 66

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	67 / 175
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



	SUBBASE		EARTHWORK			
	AREA	VOL.	END AREA		VOLUME	
	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
11+41			873			
					1374	0
11+00			937			
					1738	0
10+50			940			
					1744	0
10+00			944	0		
					1675	0
9+50			865	0		
					1542	0
9+00			800	0		
					1586	0
8+50			913	0		
					1667	0
8+00			887	0		
					1506	0
7+50			740	0		
					1169	0
7+00			523	0		
					906	0
6+50 (See Sheet 66)			456	0		

SERIES C
EAST 14th STREET SECTIONS
STA. 7+00 TO STA. 11+41

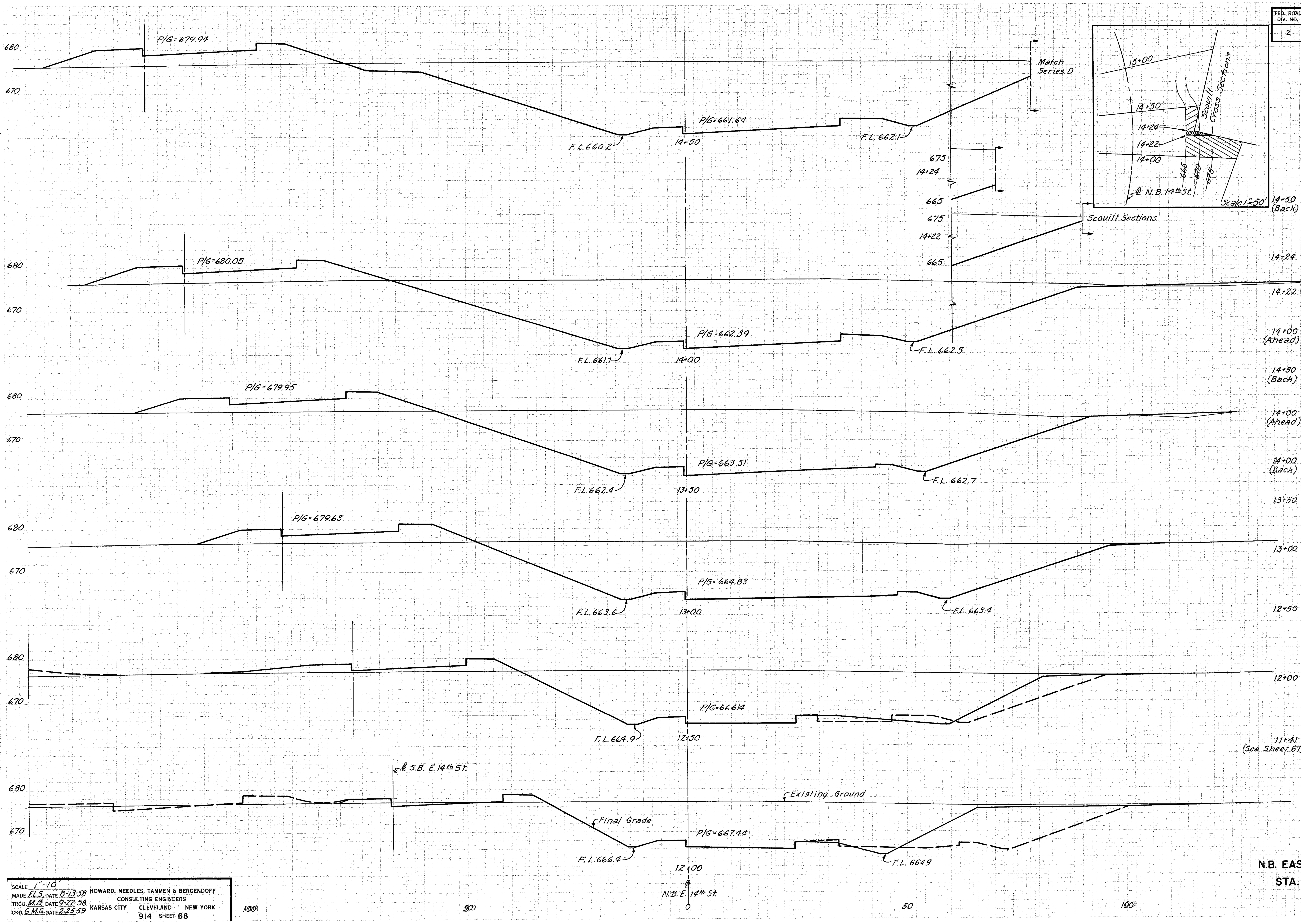
SCALE 1"=10"
MADE F.L.S. DATE 8-13-58
TRCD. M.B. DATE 9-22-58
CKD. G.M.G. DATE 2-25-59

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

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

68
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
14+50 (Back)					135	0		
							113	0
14+24					100	0		
							11	0
14+22					198	0		
							150	0
14+00 (Ahead)					169	0		
14+50 (Back)					1589	210		
							2853	395
14+00 (Ahead)					1492	217		
14+00 (Back)					1661	217		
							2944	383
13+50					1519	197		
							2717	331
13+00					1415	160		
							2352	229
12+50					1125	87		
							1856	101
12+00					880	22		
							1915	24
11+41 (See Sheet 67)					873	0		

SERIES C
N.B. EAST 14th STREET SECTIONS
STA. 12+00 TO STA. 14+50

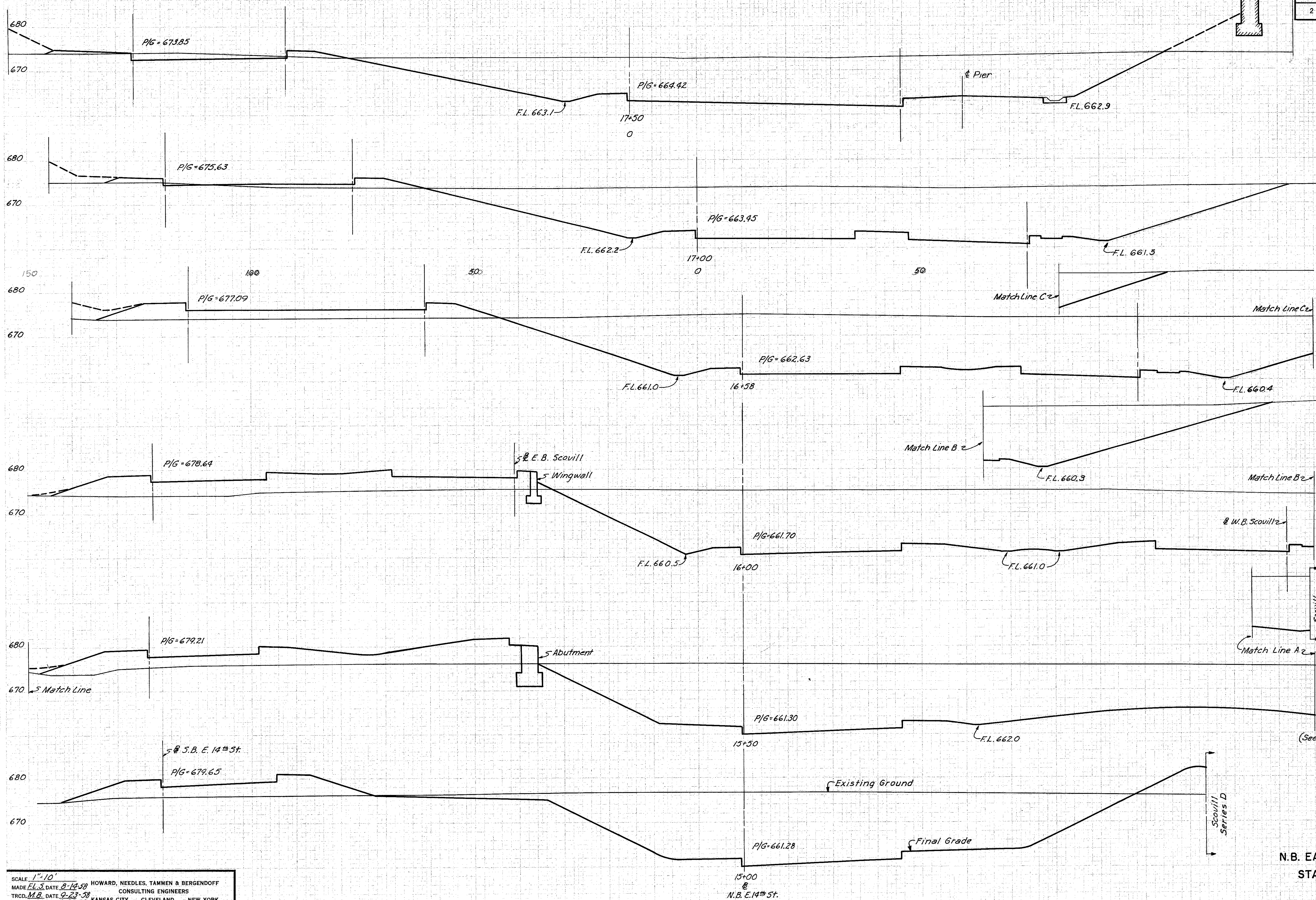
SCALE 1"=10'
MADE F.L.S. DATE 8-13-58
TRCD. M.B. DATE 9-22-58
CKD. G.M.G. DATE 2-25-59

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

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

69
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



SEEDING		SUBBASE		EARTHWORK			
		AREA	VOL.	END AREA		VOLUME	
		S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
17+50				1533	18		
						3060	73
17+00				1772	61		
						3061	208
16+58				2164	207		
						5132	639
16+00				2614	388		
						4453	699
15+50				2195	367		
						3520	583
15+00				1607	263		
						3084	438
14+50 (See Sheet 68)				1724	210		

SERIES C
N.B. EAST 14th STREET SECTIONS
STA. 15+00 TO STA. 17+50

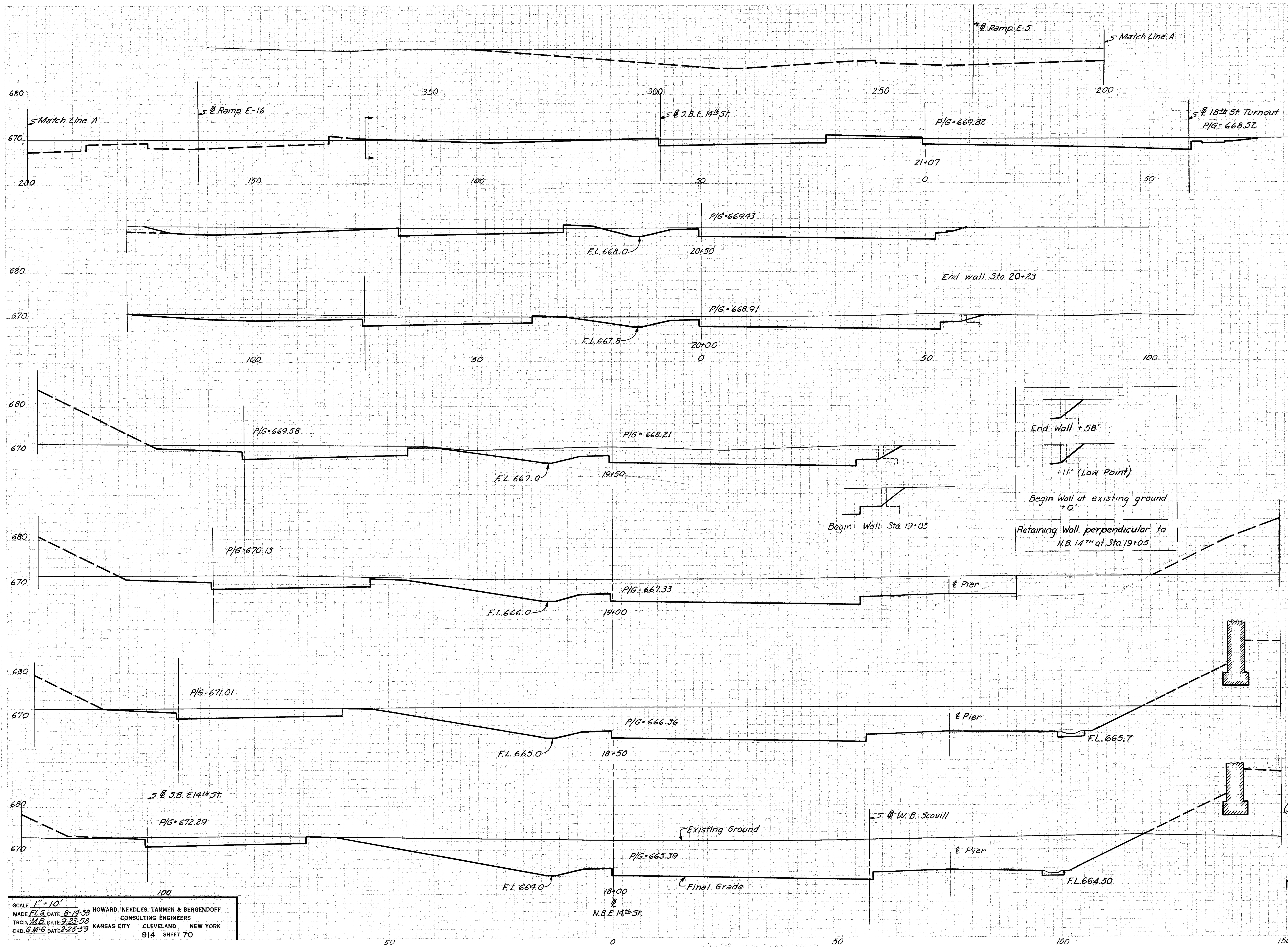
SCALE 1" = 10'
MADE F.L.S. DATE 8-14-58
TRCD. M.B. DATE 9-23-58
CKD. G.M.G. DATE 2-25-59

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

100 50 0 50 100

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



Station	SEEDING WIDTH L.F.	SEEDING AREA SQ.YD.	SUBBASE AREA S.F.	SUBBASE VOL. C.Y.	EARTHWORK END AREA EXC.	EARTHWORK END AREA EMB.	EARTHWORK VOLUME EXC.	EARTHWORK VOLUME EMB.
21+07					198	13		
							511	17
20+50					286	3		
							550	4
20+00					308	1		
							666	1
19+50					411	0		
	(Includes	Wall	Excavation)				941	0
19+00					605	0		
							316	
18+88					819			0
							1321	
18+50					1058	0		
							2144	0
18+00					1258	0		
							2584	17
17+50 (See Sheet 69)					1533	18		

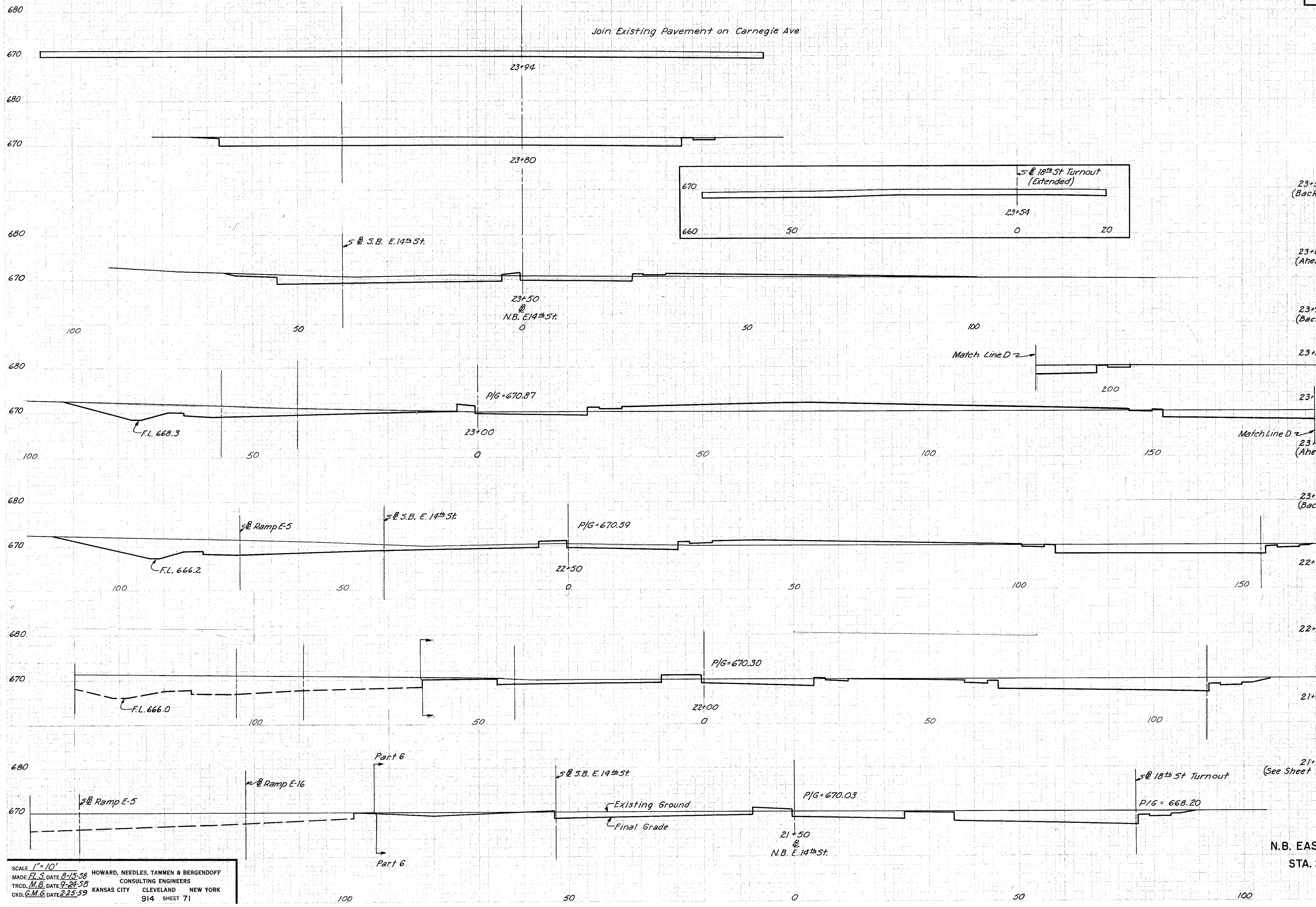
SERIES C
N.B. EAST 14th STREET SECTIONS
STA. 18+00 TO STA. 21+07

SCALE 1" = 10'
MADE F.L.S. DATE 8-14-58
TRCD. M.B. DATE 9-23-58
CKD. G.M.G. DATE 2-25-59

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

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	
2	OHIO			71 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



Station	SEEDING WIDTH L.F.	SEEDING AREA SQ.YD.	SUBBASE AREA S.F.	SUBBASE VOL. C.Y.	EARTHWORK END AREA EXC.	EARTHWORK END AREA EMB.	EARTHWORK VOLUME EXC.	EARTHWORK VOLUME EMB.
23+54 (Back)					120	0		
							204	0
23+00 (Ahead)					84	0		
23+94 (Back)					209	0		
							105	0
23+80					195	0		
							172	13
23+50					115	24		
							254	176
23+00 (Ahead)					159	166		
23+00 (Back)					243	166		
							587	195
22+50					391	45		
							572	48
22+00					227	7		
							414	11
21+50					220	5		
							333	14
21+07 (See Sheet 70)					198	13		

SERIES C
N.B. EAST 14th STREET SECTIONS
STA. 21+50 TO STA. 23+94

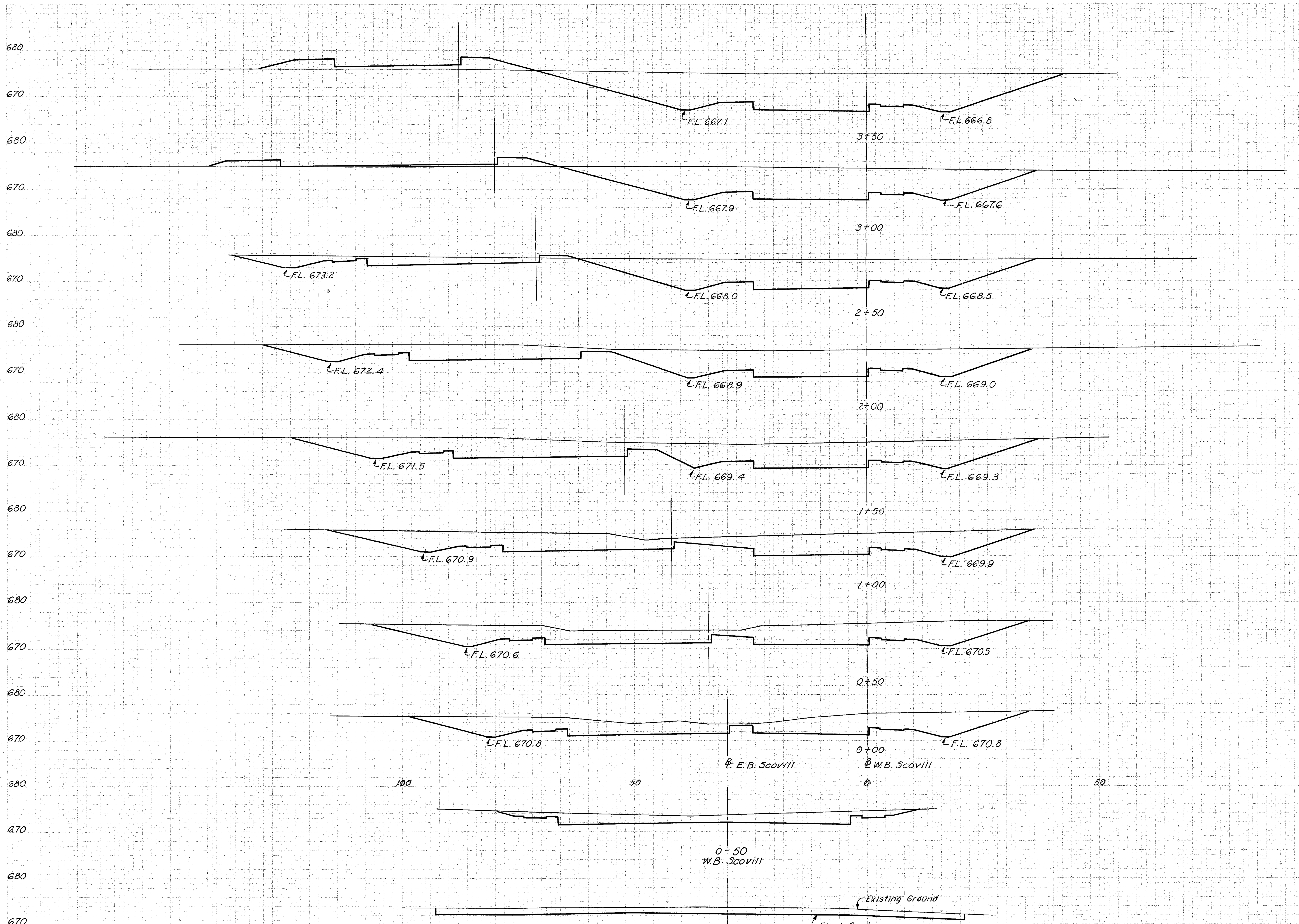
SCALE 1" = 10'
MADE F.L.S. DATE 8-15-58
TRCD. M.B. DATE 9-24-58
CKD. G.M.G. DATE 2-25-59

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

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

72
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L. F.	SQ. YD.	S. F.	C. Y.	EXC.	EMB.	EXC.	EMB.
3+50					662	74		
							1102	109
3+00					528	44		
							1030	44
2+50					584	4		
							1122	4
2+00					628	0		
							1159	0
1+50					624	0		
							1085	0
1+50					548	0		
							944	0
0+50					472	0		
							827	0
0+00					421	0		
							535	0
0-50					157	0		
							230	0
0-91					146	0		

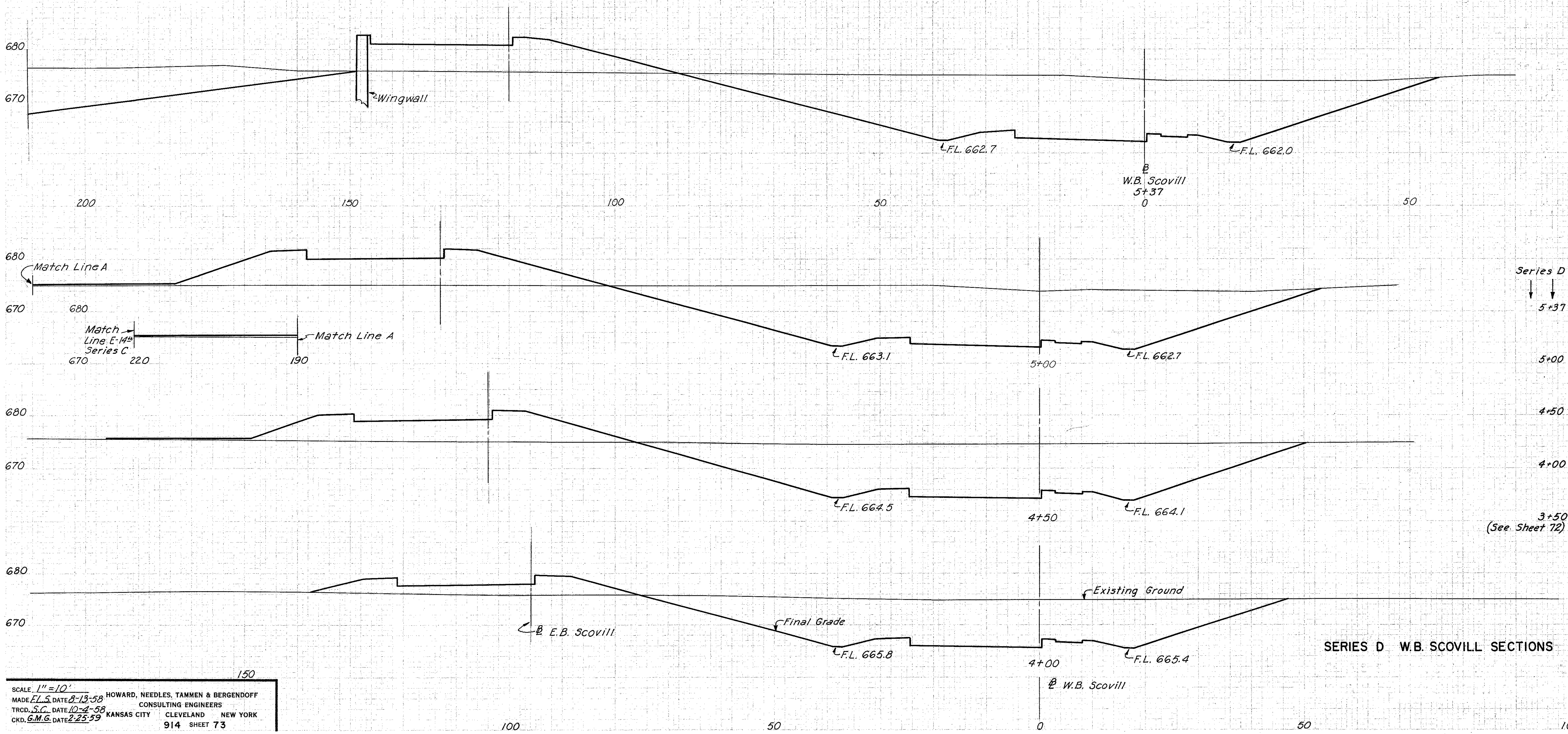
SERIES D
W.B. SCOVILL SECTIONS
STA. 0-91 TO STA. 3+50

SCALE 1"-10'
MADE F.L.S. DATE 8-13-58
TRCD. S.C. DATE 10-3-58
CKD. G.M.G. DATE 2-25-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 72

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	
2	OHIO			73 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29



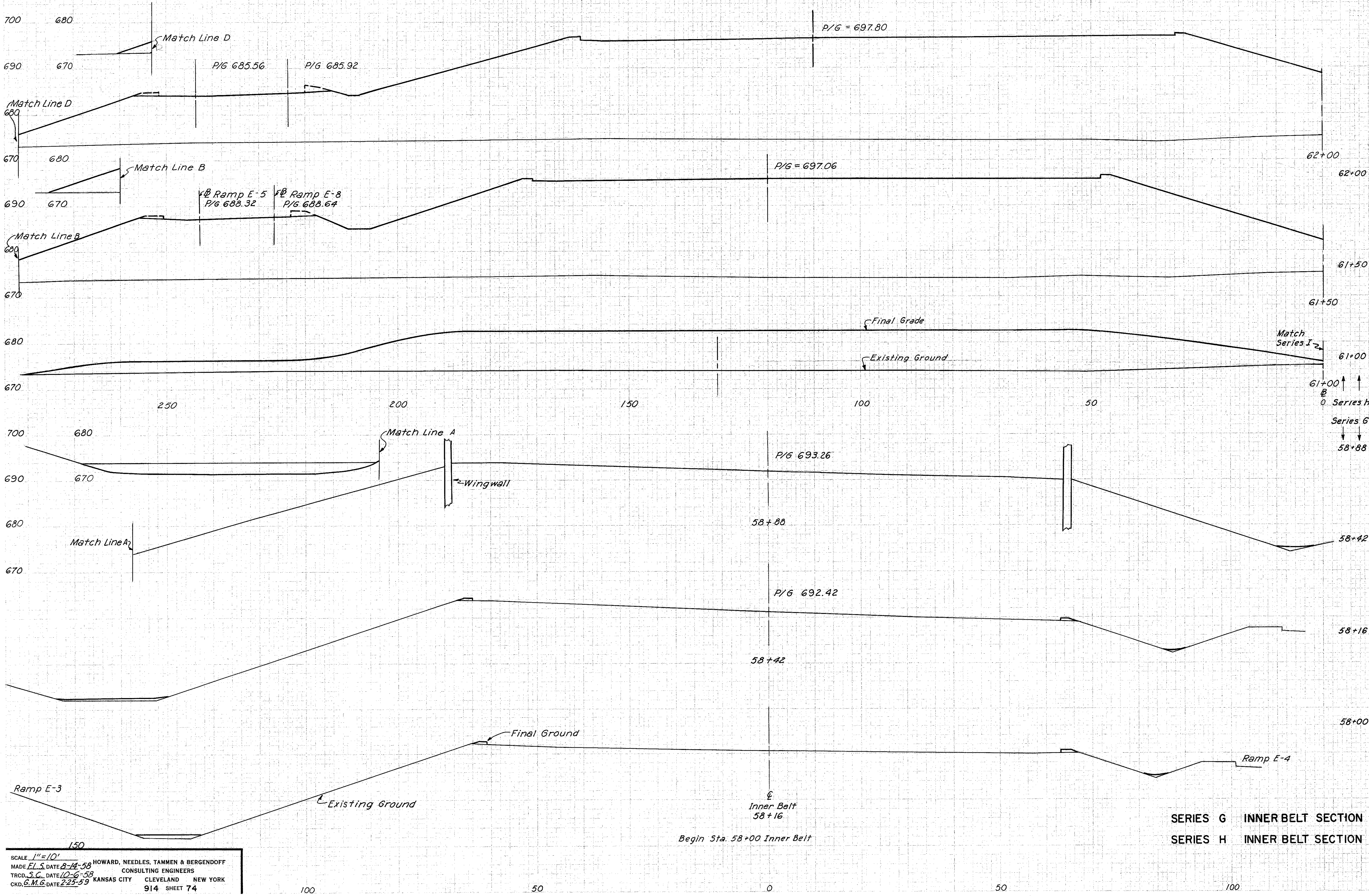
Series D	Seeding Width L.F.	Seeding Area SQ.YD.	Subbase Area S.F.	Subbase Vol. C.Y.	Earthwork End Area Exc.	Earthwork End Area Emb.	Earthwork Volume Exc.	Earthwork Volume Emb.
5+37					1501	267		
							1771	449
5+00					1083	388		
							1838	631
4+50					904	294		
							1596	390
4+00					820	128		
							1372	187
3+50 (See Sheet 72)					662	74		

SERIES D W.B. SCOVILL SECTIONS STA. 4+00 TO STA. 5+37

SCALE 1" = 10'
MADE F.L.S. DATE 8-13-58
TRCD. S.C. DATE 10-4-58
CKD. G.M.G. DATE 2-25-59
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 73

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	
2	OHIO			74 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



Station	SEEDING WIDTH L.F.	SEEDING AREA SQ.YD.	SUBBASE AREA S.F.	SUBBASE VOL. C.Y.	EARTHWORK END AREA EXC.	EARTHWORK END AREA EMB.	EARTHWORK VOLUME EXC.	EARTHWORK VOLUME EMB.
62+00					0	4901		
							0	9064
61+50					0	4888		
							0	6141
61+00					0	1744		
58+88					150	0		
							140	3
58+42					14	4		
							13	4
58+16					13	4		
							4	1
58+00					0	0		

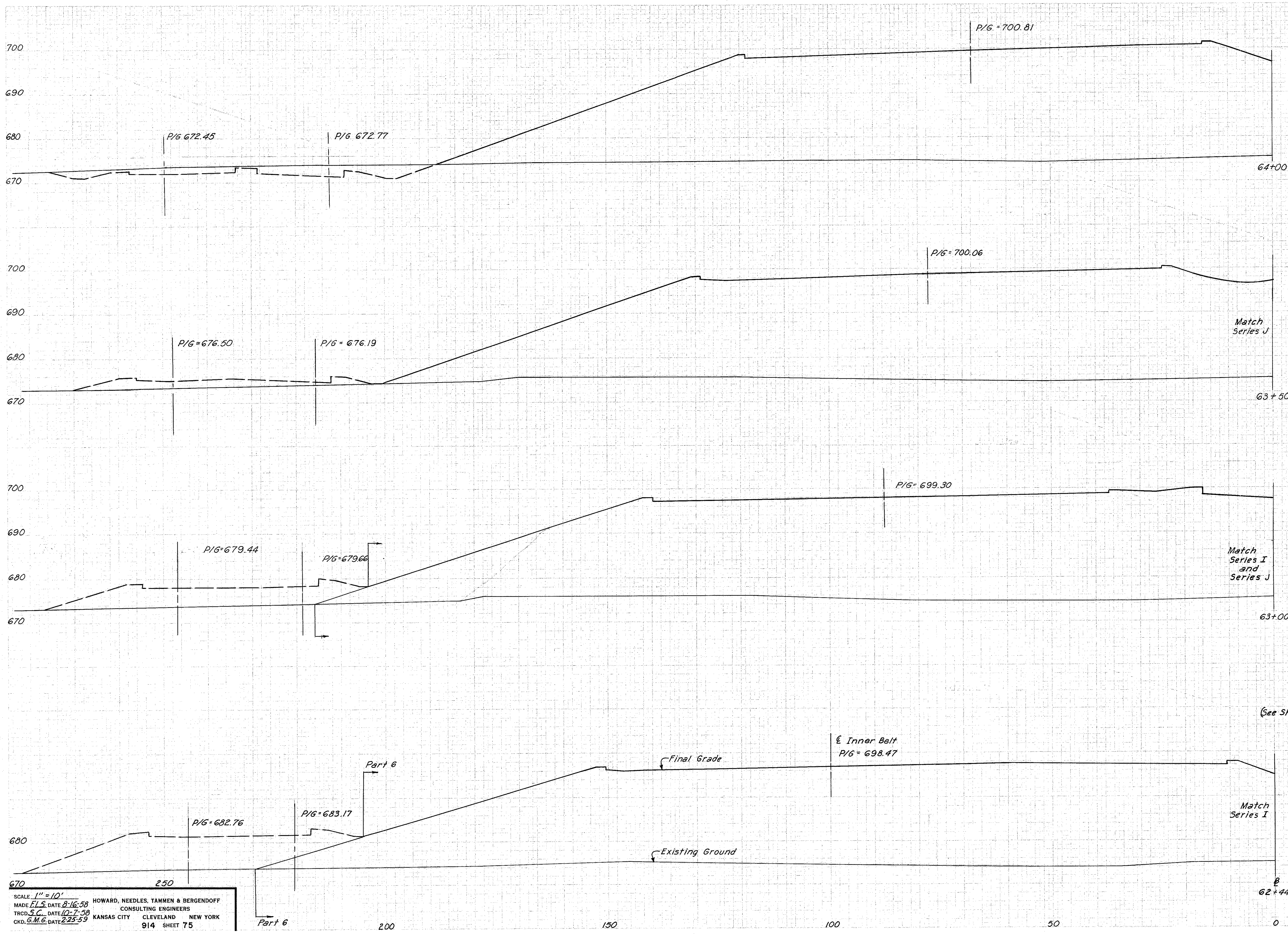
SERIES G INNER BELT SECTION STA. 58+00 TO STA. 58+88
SERIES H INNER BELT SECTION STA. 61+00 TO STA. 62+00

SCALE 1"=10'
MADE F.L.S. DATE 8-14-58
TRCD. S.C. DATE 10-6-58
CKD. G.M.G. DATE 2-25-59
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 74

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

75
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



Station	SEEDING WIDTH L.F.	SEEDING AREA SQ.YD.	SUBBASE AREA S.F.	SUBBASE VOL. C.Y.	EARTHWORK END AREA EXC.	EARTHWORK END AREA EMB.	EARTHWORK VOLUME EXC.	EARTHWORK VOLUME EMB.
64+00					0	3798		
							0	7081
63+50					0	3850		
							0	7381
63+00					0	4121		
							0	8776
62+41					0	4342		
							0	7531
62+00 (See Sheet 74)					0	4901		

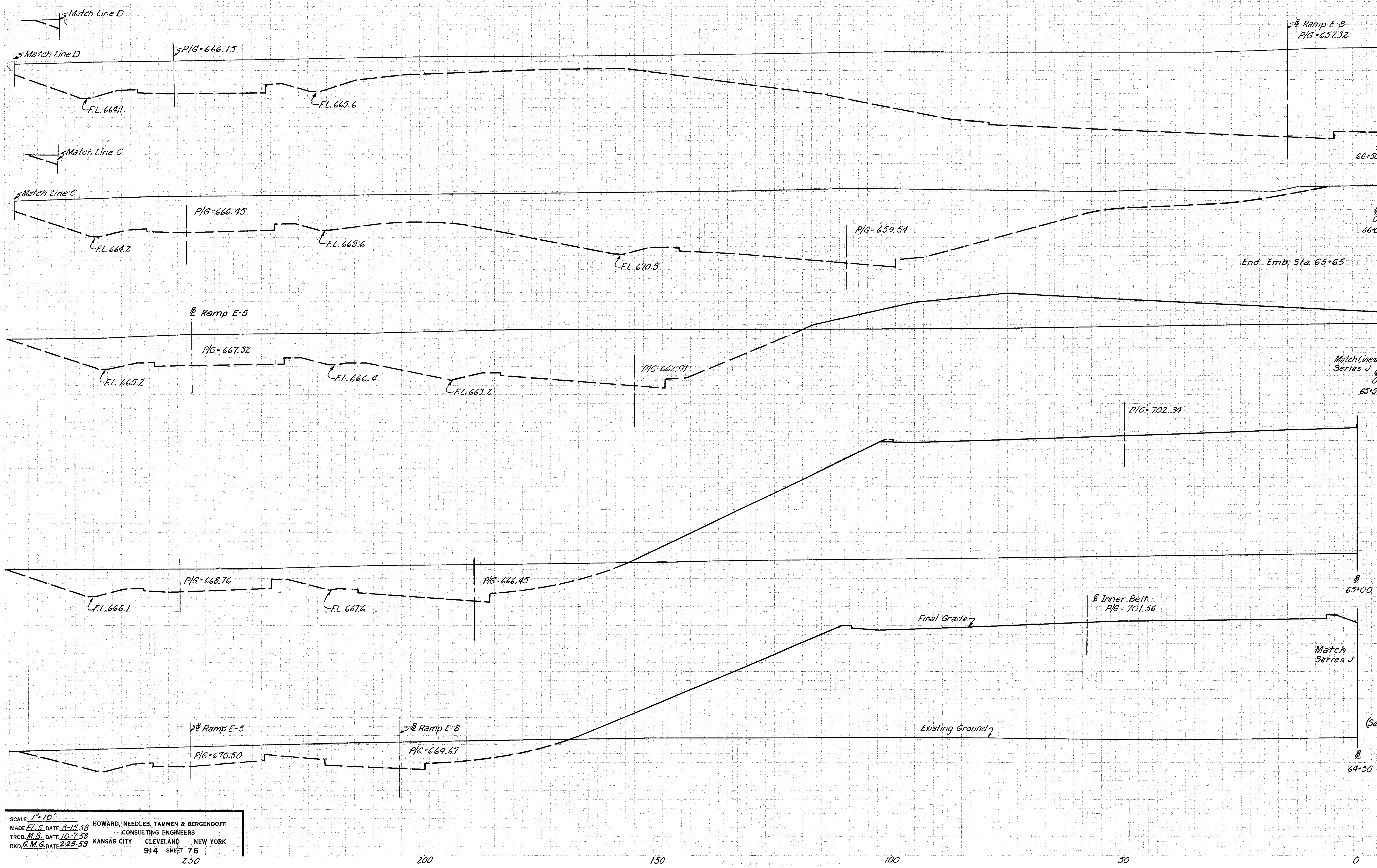
SERIES H
INNER BELT SECTIONS
STA. 62+44 TO STA. 64+00

SCALE 1" = 10'
MADE F.L.S. DATE 8-16-58
TRCD. S.C. DATE 10-7-58
CKD. G.M.G. DATE 2-25-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 75

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	76 / 175
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY.-42-18.29



	SUBBASE		EARTHWORK			
	AREA	VOL.	END AREA		VOLUME	
	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
66+50			0	0		
66+00			0	0		
65+65			0	0		
					0	117
65+50			0	617		
					0	4464
65+00			0	3401		
					0	6440
64+50			0	3554		
					0	6807
64+00 (See Sheet 75)			0	3798		

SERIES H
INNER BELT SECTIONS
STA. 64+50 TO STA. 66+50

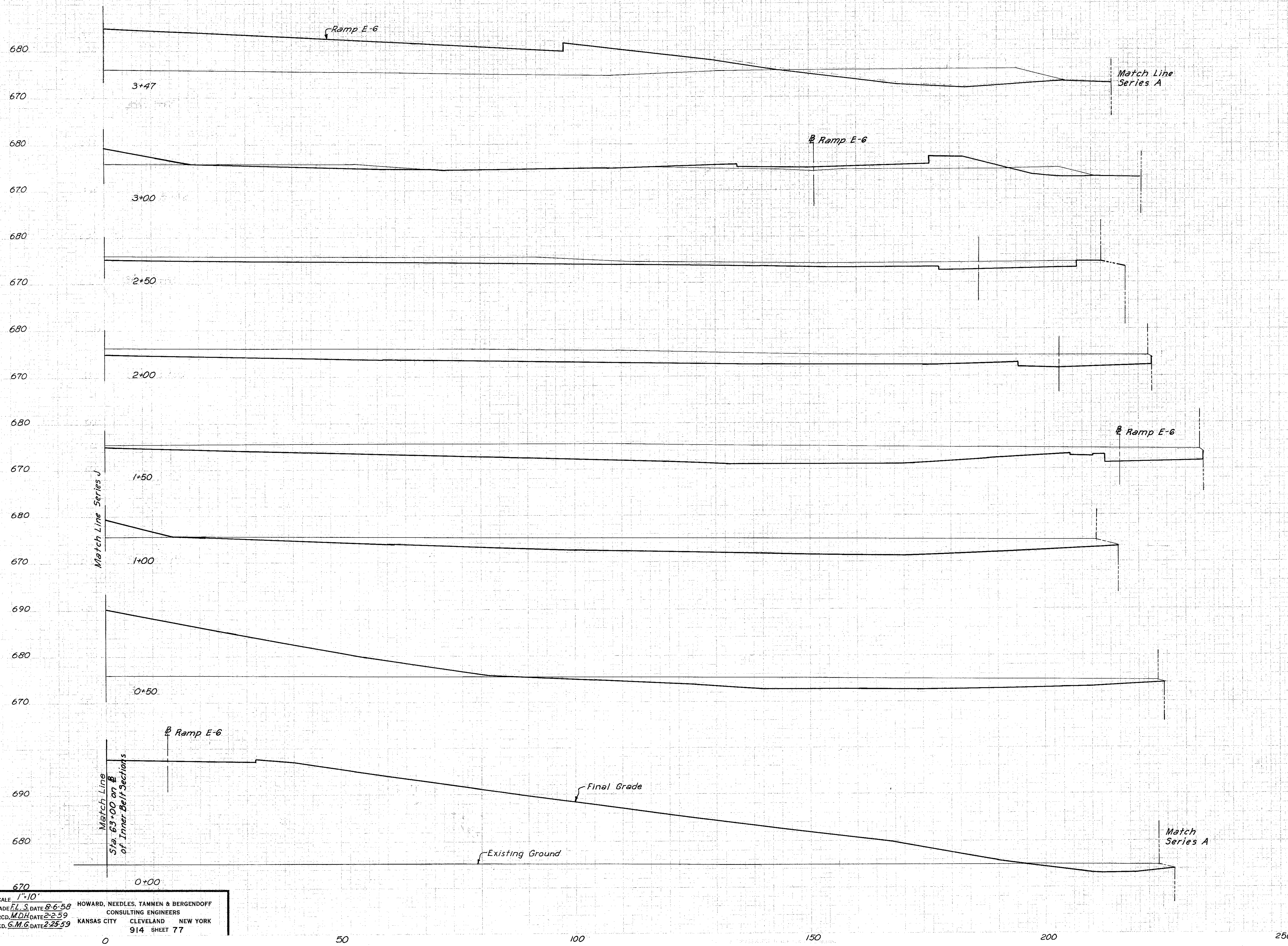
SCALE 1"=10'
MADE F.L.S. DATE 8-15-58
TRCD. M.B. DATE 10-7-58
CKD. G.M.G. DATE 2-25-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 76

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

77
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY- 42-18.29



	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
3+47					148	853		
							220	779
3+00					105	42		
							324	39
2+50					245	0		
							681	0
2+00					490	0		
							1035	0
1+50					628	0		
							1016	28
1+00					469	30		
							649	549
0+50					232	563		
							251	2924
0+00					39	2595		

SERIES I
SECTIONS RIGHT OF STA. 63+00 INNER BELT
STA. 0+00 TO STA. 3+47

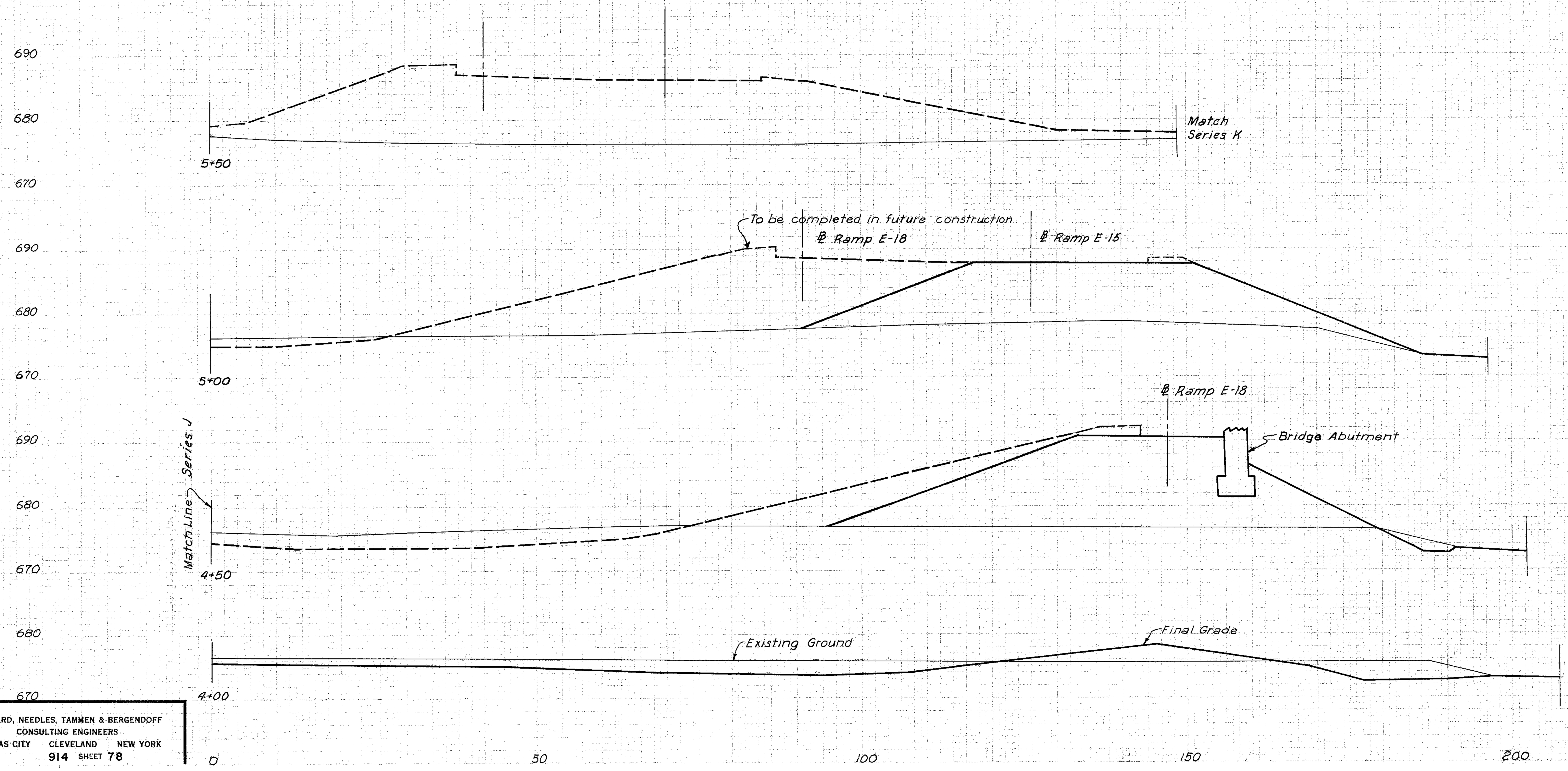
SCALE 1"=10'
MADE F.L.S. DATE 8-6-58
TRCD. M.D.H. DATE 2-2-59
CKD. G.M.G. DATE 2-25-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 77

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
5+50					0	0		
							0	558
5+00					0	603		
							11	1232
4+50					12	728		
							245	728
4+00					253	58		
							394	894
3+47 (See Sheet 77)					148	853		



SERIES I
SECTIONS RIGHT OF STA. 63+00 INNER BELT
STA. 4+00 TO STA. 5+50

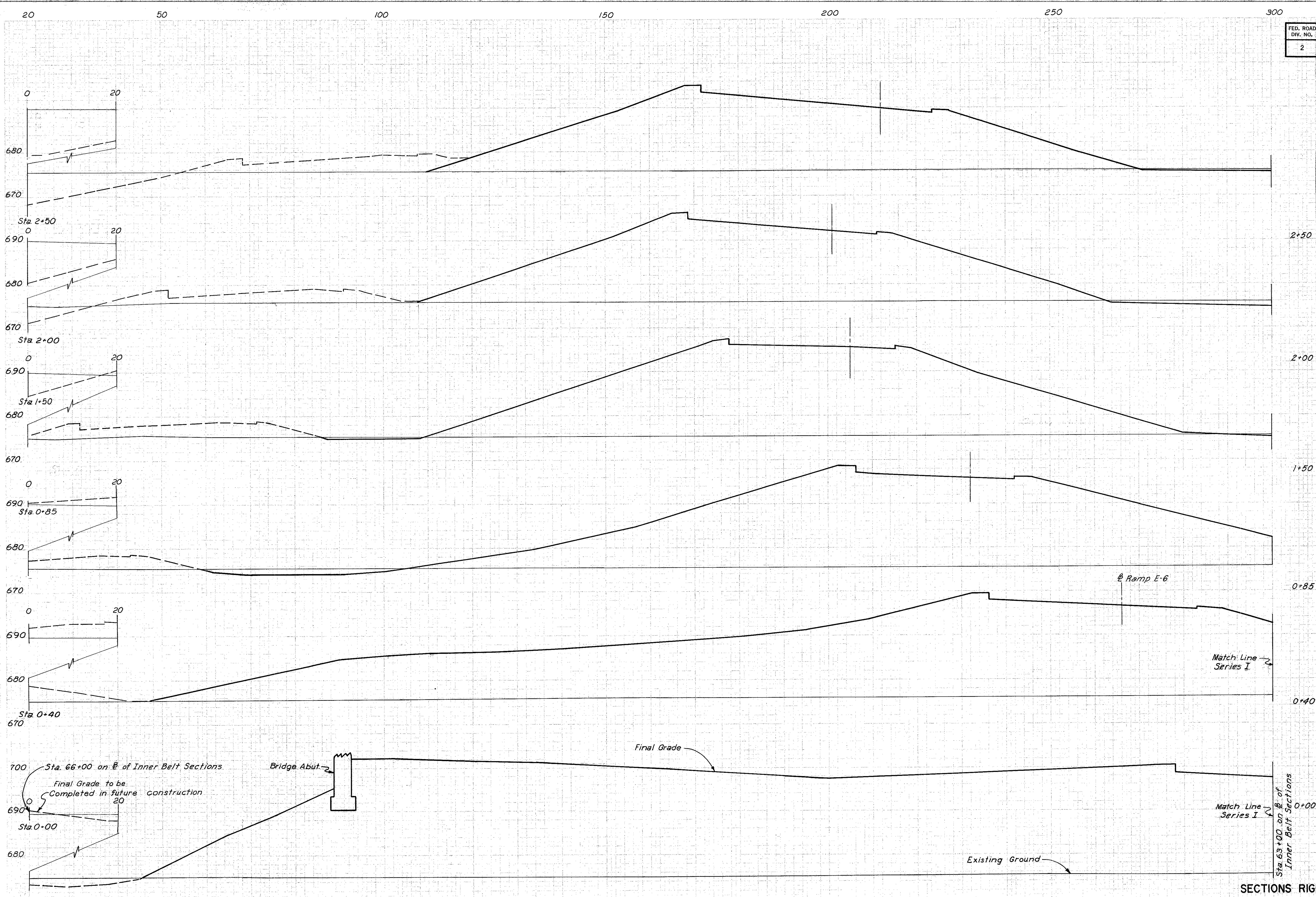
SCALE 1" = 10'
MADE F.L.S. DATE 86-58
TRCD. M.D.H. DATE 2-2-59
CKD. G.M.G. DATE 2-25-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 78

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

79
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



Sta.	SEEDING WIDTH L.F.	SEEDING AREA SQ. YD.	SUBBASE AREA S.F.	SUBBASE VOL. C.Y.	EARTHWORK END AREA EXC.	EARTHWORK END AREA EMB.	EARTHWORK VOLUME EXC.	EARTHWORK VOLUME EMB.
2+50					9	1809		
							25	3356
2+00					18	1816		
							27	3711
1+50					11	2192		
							77	5750
0+85					53	2585		
							44	5118
0+40					0	3557		
							0	6849
0+00					0	5689		

SERIES J

SECTIONS RIGHT OF STA. 66+00 INNER BELT

STA. 0+00 TO STA. 2+50

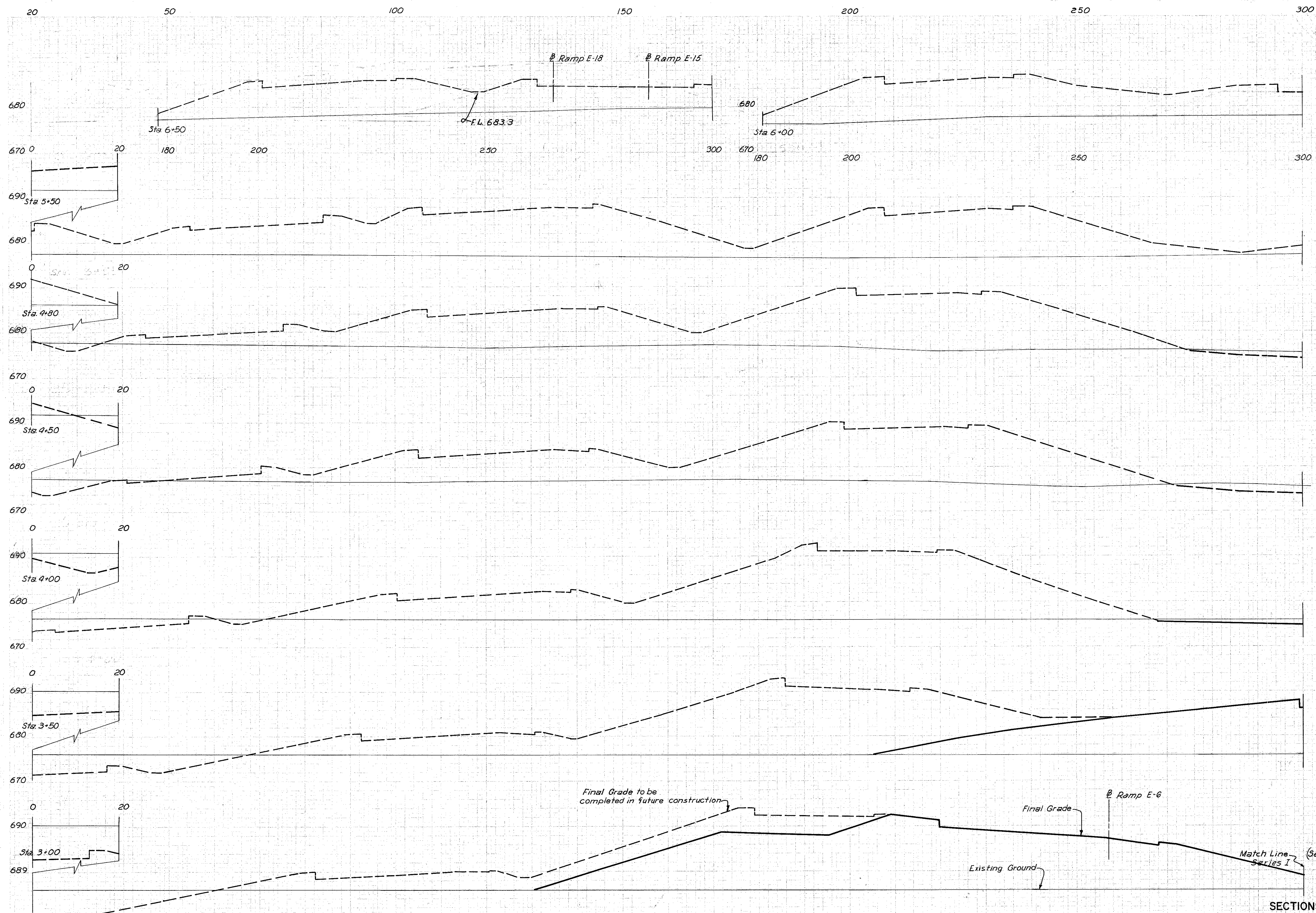
SCALE 1"=10'
MADE F.L.S. DATE 8-7-58
TRCD. M.D.H. DATE 1-29-59
CKD. G.M.G. DATE 2-25-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 79

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

80
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29



	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L. F.	SQ. YD.	S. F.	C. Y.	EXC.	EMB.	EXC.	EMB.
6+73					0	0		
							0	0
6+50					0	0		
							0	0
6+00					0	0		
							0	0
5+50					0	0		
							0	0
4+80					0	0		
							0	0
4+50					0	0		
							20	0
4+00					22	0		
							20	646
3+50					0	698		
							0	2277
3+00					0	1761		
							8	3306
2+50 (See Sheet 79)					9	1809		

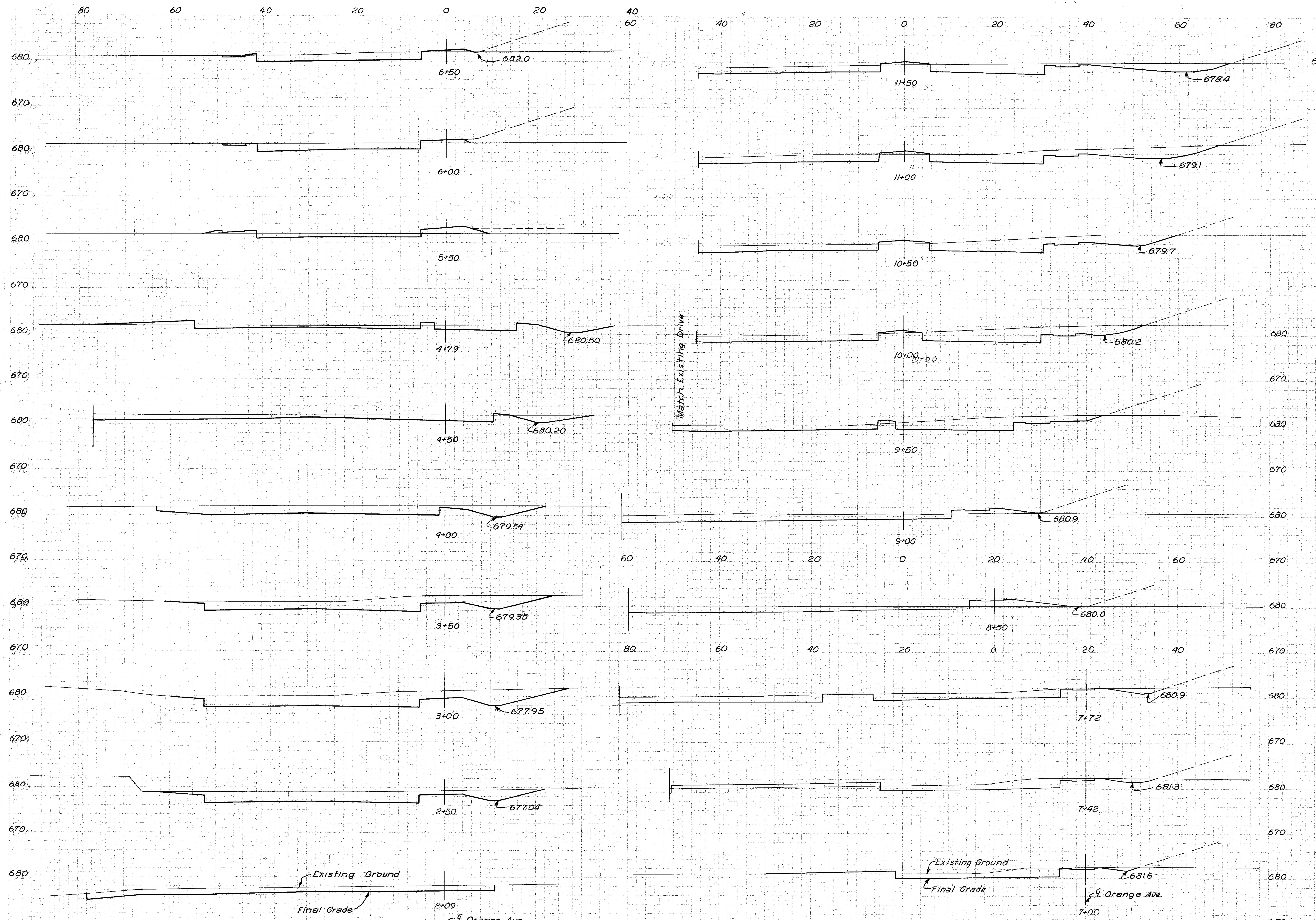
SERIES J

SECTIONS RIGHT OF STA. 66+00 INNER BELT

STA. 3+00 TO STA. 6+73

SCALE 1"=10'
MADE F.L.S. DATE 8-8-58
TRCD. M.O.H. DATE 1-24-59
CKD. G.M.G. DATE 2-25-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 80



FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND

CUY-42-18.29

	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L. F.	SQ. YD.	S. F.	C. Y.	EXC.	EMB.	EXC.	EMB.
11+50					143	4		
							303	9
11+00					184	6		
							326	12
10+50					168	7		
							306	8
10+00					163	2		
							274	5
9+50					133	3		
							211	15
9+00					95	13		
							166	35
8+50					84	25		
							312	38
7+72					132			
							112	16
7+42					69	28		
							100	32
7+00					59	13		
							106	24
6+50					55	3		
							102	11
6+00					55	9		
							77	25
5+50					28	18		
							124	43
4+79					66	15		
							88	9
4+50					98	1		
							219	1
4+00					138	0		
							263	0
3+50					146	0		
							314	0
3+00					193	0		
							311	0
2+50					143	0		
							193	0
2+09					111	0		

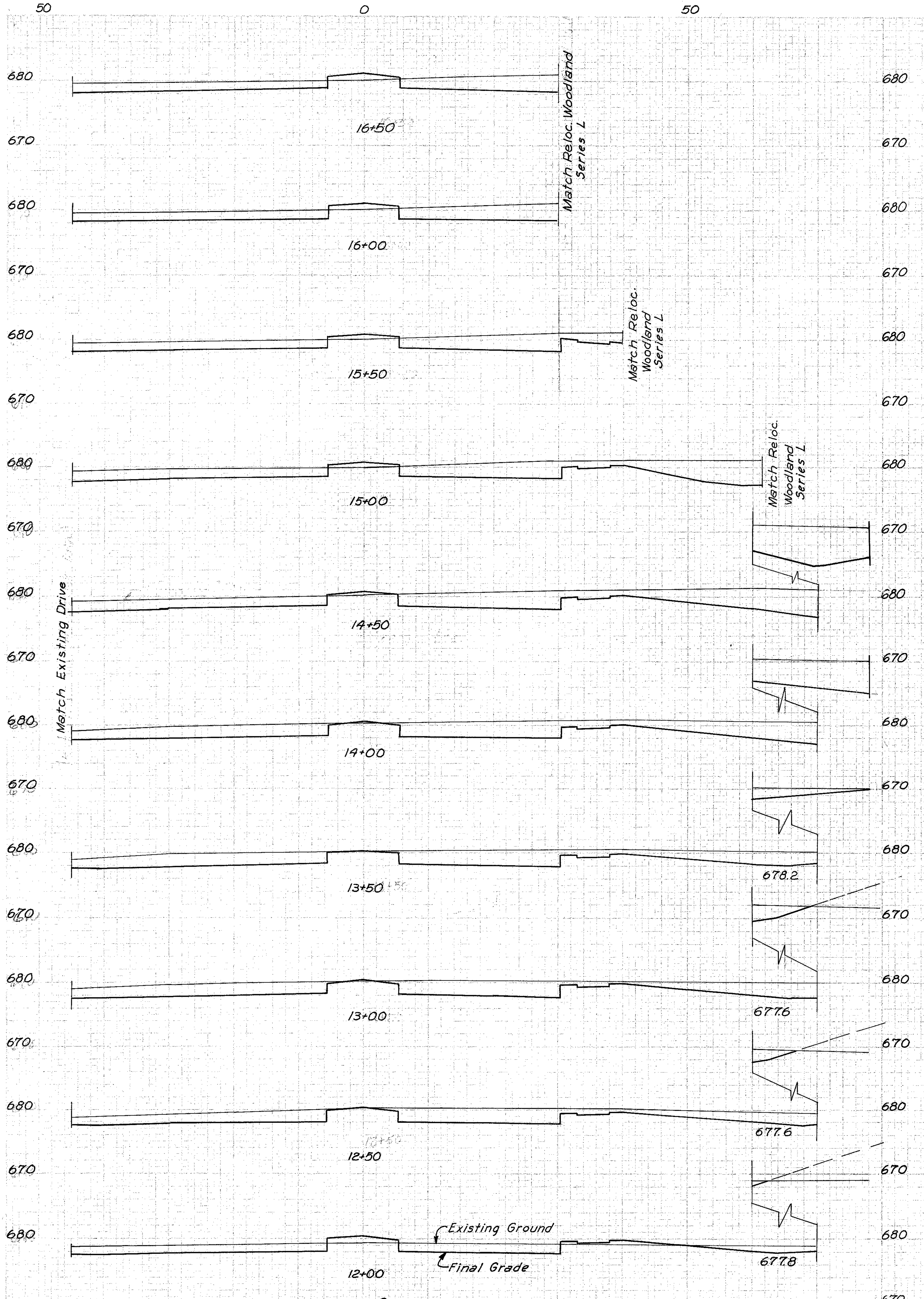
SERIES K
ORANGE AVE. SECTIONS
STA. 2 + 09 TO STA. 11+50

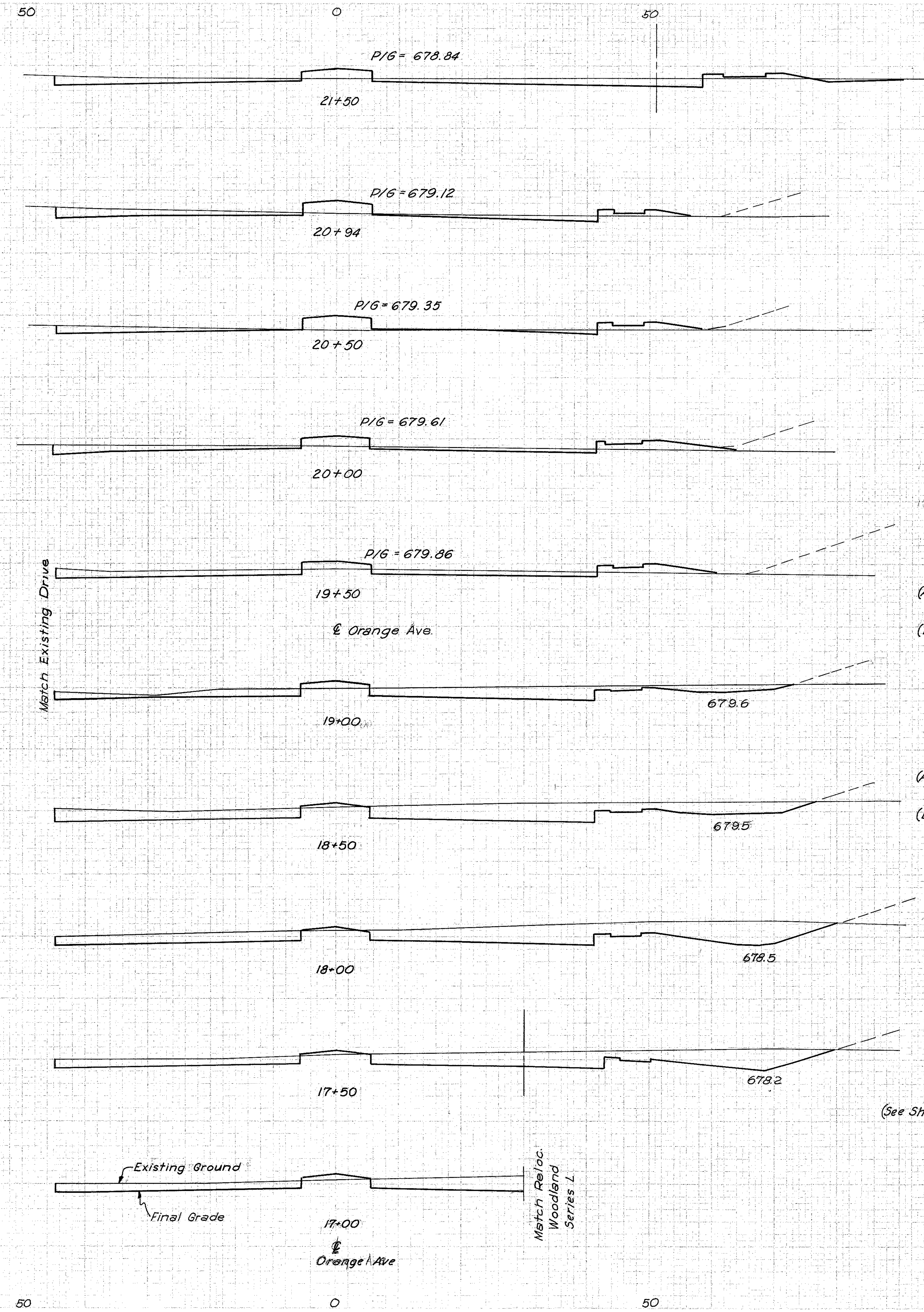
SCALE 1" = 10'
MADE F.L.S. DATE 8-18-58
TRCD. M.D.H. DATE 2-3-59
CKD. G.M.G. DATE 2-25-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 81

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29





	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
21+50					89	28		
							144	63
20+94					50	33		
							67	61
20+50					32	42		
							81	75
20+00					55	39		
							106	66
19+50					59	32		
							189	37
19+00					145	8		
							325	14
18+50					206	7		
							416	8
18+00					243	2		
							419	7
17+50 (Ahead)					210	6		
17+50 (Back)					100	6		
							179	13
17+00					93	8		
							177	16
16+50					98	9		
							183	17
16+00					100	9		
							187	16
15+50 (Ahead)					102	8		
15+50 (Back)					117	8		
							278	14
15+00					183	7		
							452	9
14+50					305	3		
							540	4
14+00					278	1		
							454	1
13+50					212	0		
							379	0
13+00					197	0		
							354	0
12+50					185	0		
							268	11
12+00					104	12		
							229	15
11+50 (See Sheet 81)					143	4		

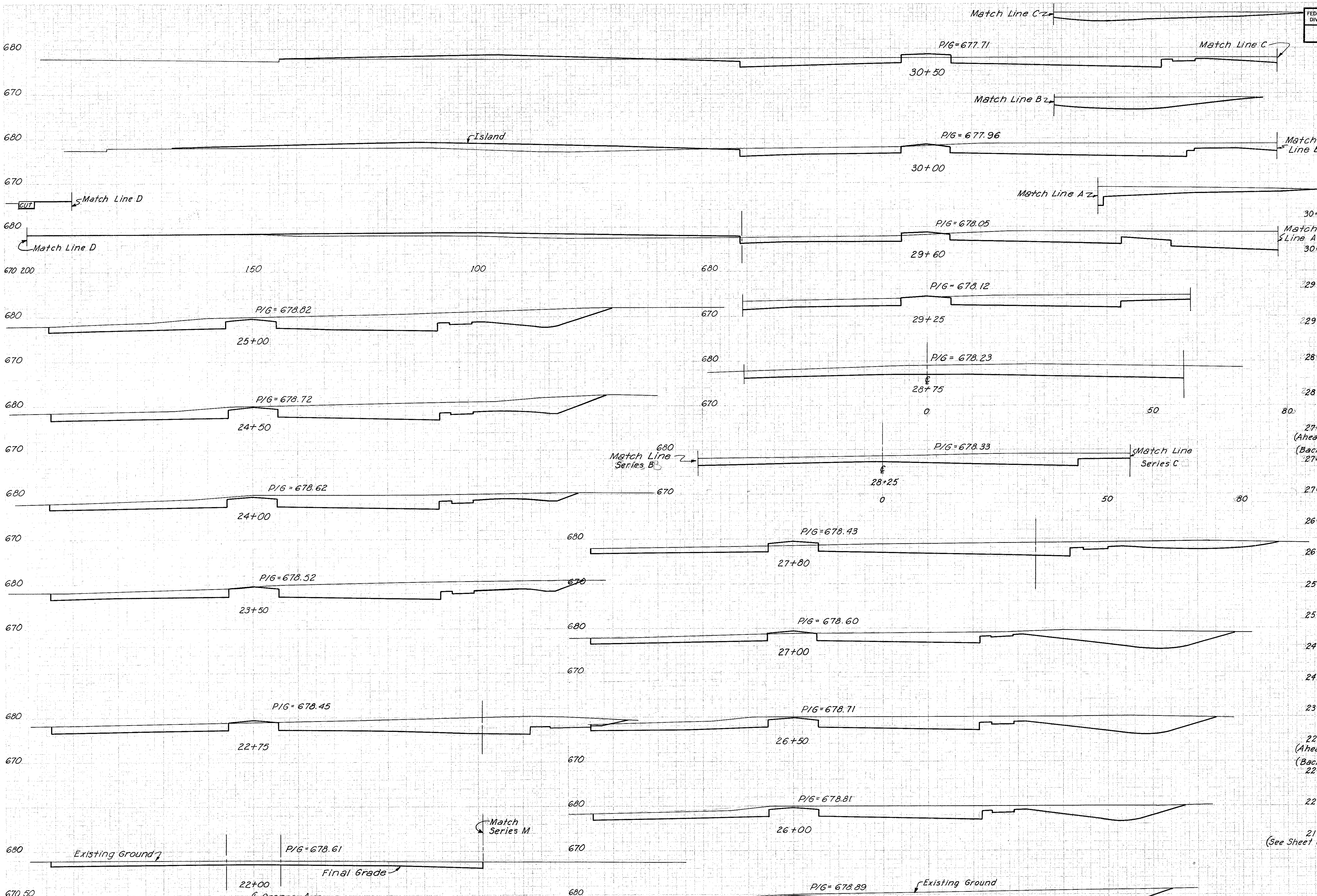
SERIES K
ORANGE AVE. SECTIONS
STA. 12+00 TO STA. 21+50

SCALE 1" = 10'
MADE F.L.S. DATE 8-18-58
TRCD. S.C. DATE 10-14-58
CKD. G.M.G. DATE 2-25-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 82

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



SCALE 1" = 10'
MADE F.L.S. DATE 8-18-58
TRCD. S.C. DATE 10-14-58
CKD. G.M.G. DATE 2-25-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 83

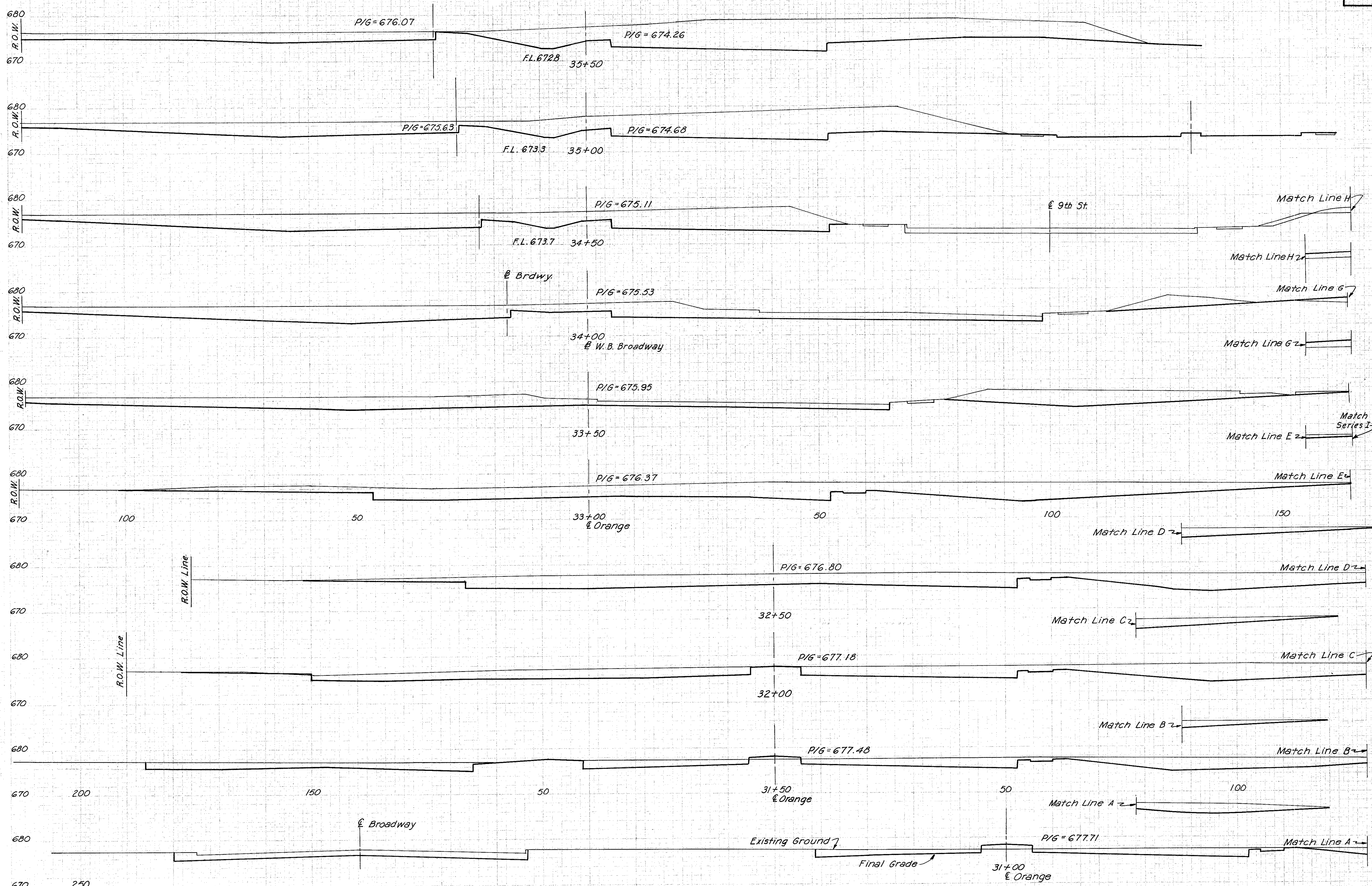
Station	SEEDING WIDTH L.F.	SEEDING AREA SQ.YD.	SUBBASE AREA S.F.	SUBBASE VOL. C.Y.	EARTHWORK END AREA EXC.	EARTHWORK END AREA EMB.	EARTHWORK VOLUME EXC.	EARTHWORK VOLUME EMB.
30+50					345	54		
							534	153
30+00					331	111		
							242	130
29+60					182	2		
							231	2
29+25					174	1		
							359	1
28+75					214	0		
							353	0
28+25					167	0		
							272	7
27+80 (Ahead)					159	8		
(Back) 27+80					264	8		
							813	19
27+00					285	5		
							556	5
26+50					315	0		
							545	0
26+00					274	0		
							524	0
25+50					292	0		
							565	0
25+00					321	0		
							550	0
24+50					273	0		
							465	0
24+00					229	0		
							445	0
23+50					252	0		
							721	4
22+75 (Ahead)					267	3		
(Back) 22+75					188	3		
							394	4
22+00					96	0		
							158	17
21+50 (See Sheet 82)					75	18		

SERIES K
ORANGE AVE. SECTIONS
STA. 22+00 TO STA. 30+50

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

83A
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



[illegible]		SUBBASE		EARTHWORK			
[illegible]	[illegible]	AREA	VOL.	END AREA		VOLUME	
[illegible]	[illegible]	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
35+50				817	0		
						1445	0
35+00				744	0		
						1306	18
34+50				667	19		
						1127	35
34+00				550	19		
						1004	19
33+50				534	2		
						1122	2
33+00				678	0		
						1259	0
32+50				682	0		
						1184	0
32+00				597	0		
						1016	9
31+50				500	10		
						743	19
31+00				302	11		
						506	60
30+50				245	54		

SERIES K
ORANGE AVE. SECTIONS
STA. 31+00 TO STA. 35+50

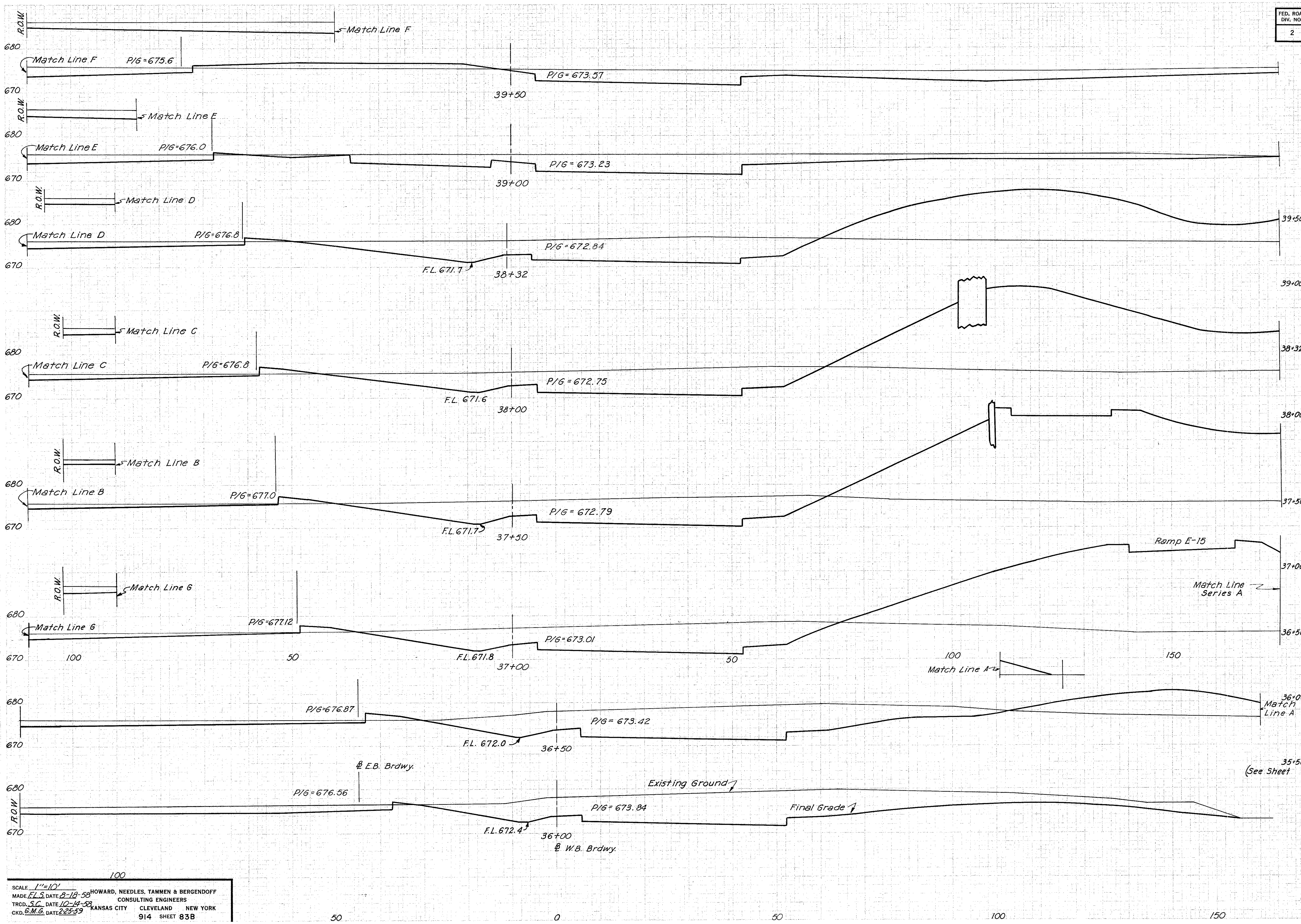
SCALE 1" = 10'
MADE F.L.S. DATE 8-18-58
TRCD. S.C. DATE 10-14-58
CKD. G.M.G. DATE 2-25-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 83A

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

83B
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY- 42- 18.29



Station	SEEDING WIDTH L.F.	SEEDING AREA SQ.YD.	SUBBASE AREA S.F.	SUBBASE VOL. C.Y.	END AREA EXC.	END AREA EMB.	VOLUME EXC.	VOLUME EMB.
39+50					649	70		
							1180	66
39+00					625	1		
							1497	991
38+32					564	786		
							658	1213
38+00					547	1261		
							1001	2674
37+50					534	1627		
							1006	2818
37+00					553	1413		
							1163	1565
36+50					703	274		
							1440	255
36+00					852	1		
							1545	1
35+50					817	0		

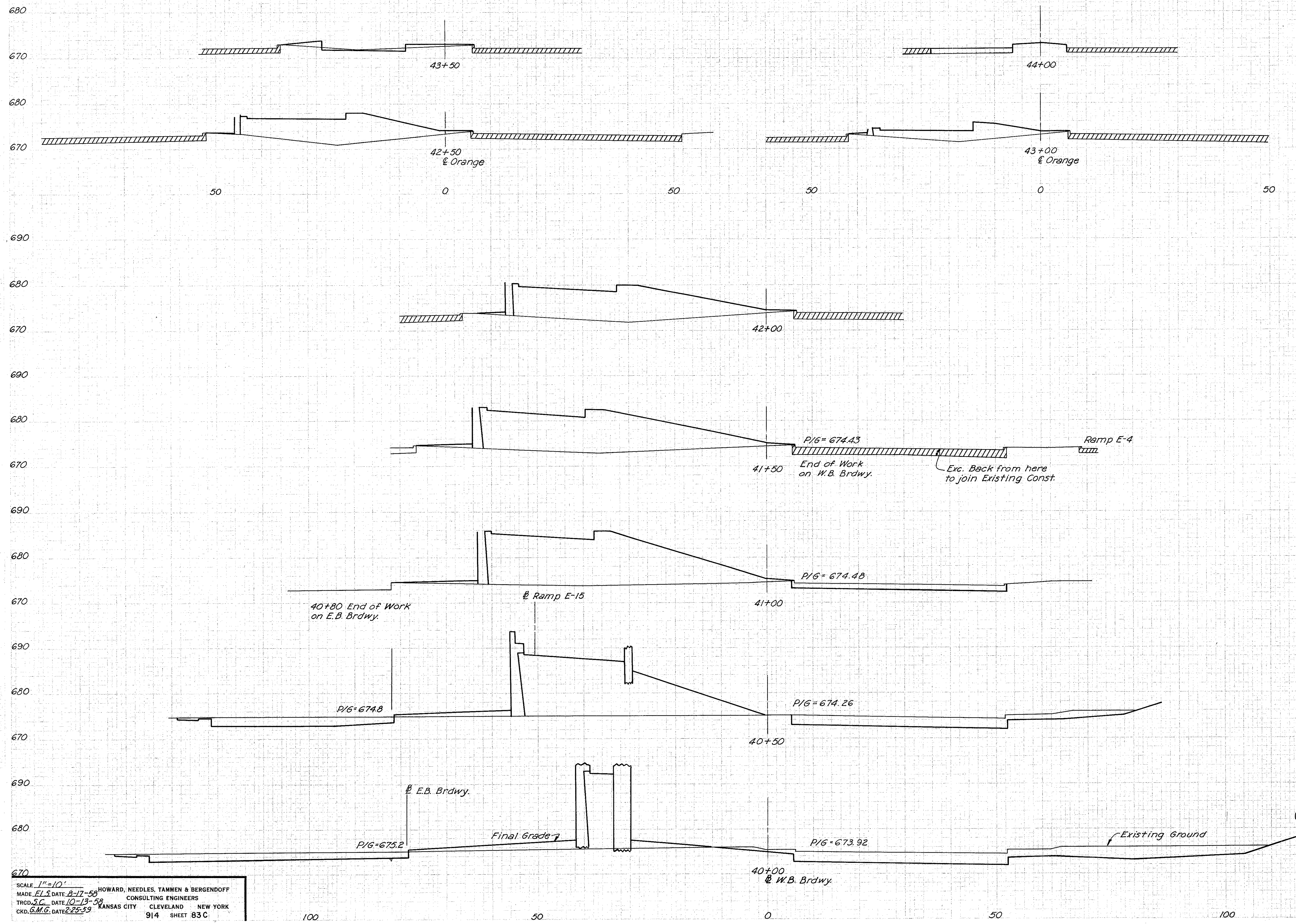
SERIES K
ORANGE AVE. SECTIONS
STA. 36+00 TO STA. 39+50

SCALE 1" = 10'
MADE F.L.S. DATE 8-18-58
TRCD. S.C. DATE 10-14-58
CKD. G.M.G. DATE 2-25-59
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 83B

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

83C
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



Station	SEEDING WIDTH L.F.	SEEDING AREA SQ.YD.	SUBBASE AREA S.F.	SUBBASE VOL. C.Y.	EARTHWORK END AREA EXC.	EARTHWORK END AREA EMB.	EARTHWORK VOLUME EXC.	EARTHWORK VOLUME EMB.
44+00					24	0		
							29	14
43+50					7	15		
							6	92
43+00					0	84		
							0	265
42+50					0	202		
							0	476
42+00					0	312		
							0	671
41+50					82	413		
							132	863
41+00					61	519		
							256	933
40+50					215	489		
							504	611
40+00					329	171		
							906	223
39+50 (See Sheet 83B)					649	70		

SERIES K
ORANGE AVE. SECTIONS
STA. 40+00 TO 44+00

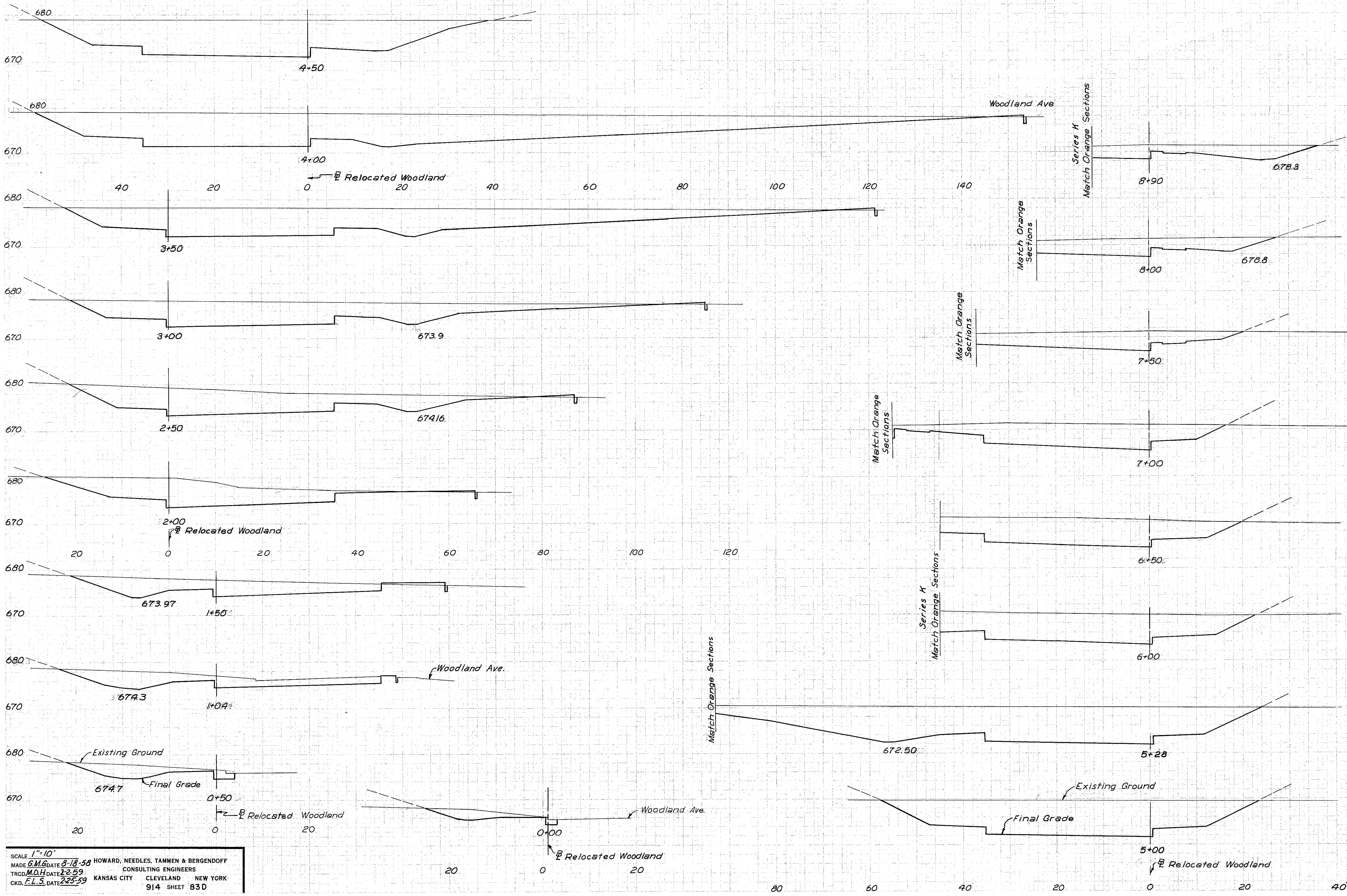
SCALE 1" = 10'
MADE F.L.S. DATE 8-17-58
TRCD. S.C. DATE 10-13-58
CKD. G.M.G. DATE 2-25-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 83C

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

83D
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



	SUBBASE		EARTHWORK			
	AREA	VOL.	END AREA		VOLUME	
	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
8 + 90			110	0		
					410	0
8 + 00			136	0		
					282	0
7 + 50			169	0		
					394	0
7 + 00 (Ahead)			256	0		
7 + 00 (Back)			242	0		
					501	0
6 + 50			299	0		
					597	0
6 + 00			346	0		
					1391	0
5 + 28			697	0		
					613	0
5 + 00			485	0		
					945	0
4 + 50			536	0		
					1331	2
4 + 00			901	2		
					1401	3
3 + 50			612	1		
					933	2
3 + 00			396	1		
					662	3
2 + 50			319	2		
					500	3
2 + 00			221	1		
					364	7
1 + 50			172	7		
					263	7
1 + 04			137	1		
					200	1
0 + 50			63	0		
					92	0
0 + 00			36	0		

SERIES L
RELOCATED WOODLAND SECTIONS
STA. 0+00 TO STA. 8+90

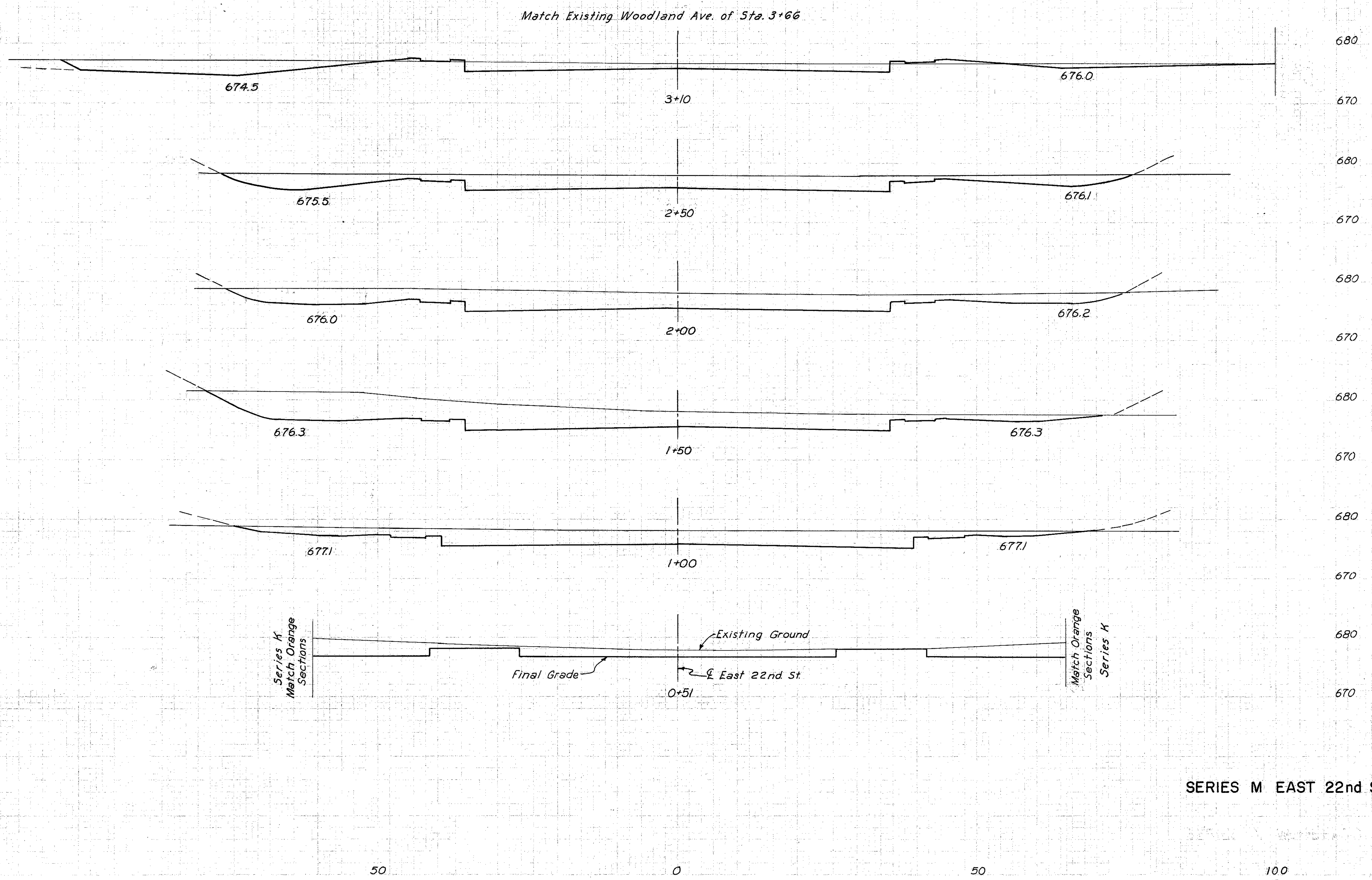
SCALE 1"=10'
MADE G.M.G. DATE 8-18-58
TRCD. M.D.H. DATE 2-2-59
CKD. F.L.S. DATE 2-25-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 83D

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

83E
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



Series M	SEEDING WIDTH L.F.	SEEDING AREA SQ.YD.	SUBBASE AREA S.F.	SUBBASE VOL. C.Y.	EARTHWORK END AREA EXC.	EARTHWORK END AREA EMB.	EARTHWORK VOLUME EXC.	EARTHWORK VOLUME EMB.
3+66					180	0		
							387	6
3+10					193	6		
							530	7
2+50					284	0		
							578	0
2+00					340	0		
							694	0
1+50					409	0		
							626	0
1+00					267	0		
							407	0
0+51					181	0		

SERIES M EAST 22nd STREET SECTIONS STA. 0+51 TO STA. 3+10

SCALE 1" = 10'
MADE G.M.G. DATE 8-18-58
TRCD. M.D.H. DATE 2-2-59
CKD. F.L.S. DATE 2-25-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 83E

EE-9

CUY-90-16.24

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	84/175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

SCHEMATIC PLAN
OF RIGHT OF WAY

SCALE 1" = 150'
MADE G.M.G. DATE 8-2-59
TRCD. R.R. DATE 8-16-59
CKD. J.L.C. DATE 11-2-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET 84

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

84A
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
RIGHT OF WAY
SUMMARY

RIGHT OF WAY SUMMARY

SHEET NO.	PARCEL NO.	OWNER	AREA	BLDGS	REMARKS
85	97	STANDARD OIL CO.	ALL	YES	100% CITY FUNDS
"	98	NEW YORK CENTRAL RAILROAD	ALL	NO	100% CITY FUNDS
85	110LA	JOS. J., STEPHEN, & I. W. SANSON	ALL	YES	
"	111LA	WOODLAND - 12TH BLDG. INC.	ALL	YES	
"	112LA	NICOLA & V. RINI	ALL	YES	
"	113LA	DOROTHY V. COMELLA	ALL	YES	
"	114LA	NICOLA & V. RINI	ALL	YES	
"	115LA	MARTIN L. RINI, ET AL.	ALL	YES	
"	116LA	SANTINA GERACI, ET AL.	ALL	YES	
"	117LA	HILLSON NUT COMPANY	ALL	YES	
86	151LA	MYRTLE KELLER	ALL	YES	
"	152LA	JOHN TILDEN	ALL	YES	
"	153LA	CLEVELAND TRUST COMPANY, TR.	ALL	NO	
86	155LA	JOSEPH SHAIA	ALL	NO	
"	156LA	MICHAEL W. HELLER	ALL	YES	
"	157LA	MILK PRODUCERS FED. OF CLEVELAND	ALL	YES	
"	158LA	DOMINIC BUZZELLI	ALL	YES	
"	159LA	ARTHUR & H. BERCHAK	ALL	YES	
"	160LA	THE LEE H. GOULD CO.	ALL	YES	
"	161LA	OHIO IGNITION COMPANY	ALL	YES	
"	163LA	J.B. PEARCE CO.	ALL	YES	
86	166LA	ANGELO MAROTTA	ALL	YES	
86	169LA	J.H. GREEN	ALL	NO	
"	170LA	SCOVILL-NINTH CO.	ALL	YES	
"	171LA	EMMA WOLKOFF & ELEANOR L.SCHNAEDER	ALL	YES	
"	172LA	W. F. HYDE	ALL	YES	
"	173LA	THE PARLA CORP.	ALL		
"	174LA	HAROLD B. MC MULLEN	ALL		
"	175LA	MICHAEL COHEN, ET AL.	ALL		
"	176LA	JOHN H. BRAMLEY	ALL	NO	
"	178LA	A.C. BLAIR CO.	ALL	NO	
"	179LA	MARIE MANCUSO	ALL	YES	
"	180LA	PARKMAN COURT INC.	ALL	YES	
"	181LA	EUGENE & A. DUBICK	ALL	YES	
"	182LA	F. A. & MARY DINDIA	ALL	YES	
"	183LA	JULIUS B. GARSON, ET AL.	ALL	YES	
"	184LA	CLEVELAND GROWERS MARKETING CO.	ALL	YES	
"	185LA	NATIONAL CITY BANK OF CLEVELAND	ALL	YES	
"	186LA	H.E. & H.V. BING & L.H. ENSTEN, JR.	ALL	NO	
"	187LA	CECILIA SPANO, ET AL.	ALL	YES	
"	188LA	SALVATORE ARTINO, ET AL.	ALL	NO	
"	189LA	CECILIA SPANO, ET AL.	ALL	NO	
"	190LA	FRANK ANTONY & MARY DINDIA	ALL	YES	
"	191LA	PAULINE KLANN	ALL	NO	
"	192LA	MARY PEPPEREL, TR.	ALL	YES	
"	193LA	JEAN WEISER, ET AL.	ALL	NO	
"	194LA	CITY OF CLEVELAND	ALL	NO	
87	195LA	CITY OF CLEVELAND	ALL	NO	
"	196LA	SAYDE M. KAPLAN	ALL	NO	
87	198LA	MATTEO & MARTHA RINI	ALL	NO	
"	199LA	WM. M. BASSICHIS	ALL	NO	
"	200LA	JACOB & WM. BASSICHIS	ALL	NO	
87	202LA	CITY OF CLEVELAND	ALL	YES	
"	203LA	F. & B. INC.	ALL	YES	
"	204LA	JOSEPH M. SWEENY (SHERIFF)	ALL	NO	
"	205LA	ZELVY BROS.	ALL	YES	
87	208LA	ASHER & BESSIE HOFFMAN	ALL	YES	
87	210LA	THE M-S-M REALTY CO.	ALL	YES	
"	211LA	ZELVY BROS.	ALL	NO	
"	212LA	JOSEPHINE ZINGALE	ALL	YES	
"	213LA	STRATIS CALOGERAS	ALL	YES	
"	214LA	LOUIE OLIVER	ALL	YES	
87	218LA	RAY L. EHRLICH	ALL	YES	
"	219LA	E. F. ROMANO & F. LITTLE	ALL	YES	
87	227LA	JAS. BARBERA	ALL	YES	
"	228LA	CAESAR W. PUCCI	ALL	YES	
"	229LA	SAYDE M. KAPLAN	ALL	YES	
"	232LA	VIOLA F. DEERING, ET AL.	ALL	YES	
"	233LA	MORRIS UDELF, ET AL.	ALL	YES	
"	234LA	ED. A. ZINGALE	ALL	YES	
"	235LA	GRAZIA COSENZA	ALL	YES	
"	236LA	SALVATORE SALUPO	ALL	YES	
"	237LA	SALVATORE & C. SALUPO	ALL	YES	
"	238LA	ANDREAS CONIGLIO	ALL	YES	
"	239LA	MICHAEL GANCI, JR.	ALL	YES	
"	240LA	HARRY KERTZ	ALL	YES	
"	241LA	GUISEPPINA PORELLO	ALL	YES	
"	242LA	FRANK ANTHONY & M. DINDIA	ALL	YES	
"	244LA	AMERICA & CONCETTA GIOVANETTI	ALL	YES	
"	245LA	PAUL A. RINI	ALL	YES	
"	246LA	MEDA RINI	ALL	YES	
"	247LA	THE MITTLEMAN CO.	ALL	YES	
"	248LA	LOUIS CULOTTA	ALL	YES	
"	249LA	ANNA J. GREGG	ALL	NO	
"	250LA	JOSEPH MOLDAVER	ALL	NO	
"	251LA	THE MITTLEMAN CO.	ALL	YES	
"	253LA	JOSEPHINE LO PRESTI, ET AL.	ALL	YES	

RIGHT OF WAY SUMMARY

SHEET NO.	PARCEL NO.	OWNER	AREA	BLDGS	REMARKS
87	254LA	THE MITTLEMAN CO.	ALL	YES	
"	255LA	JACOB & M. BISHKO	ALL	YES	
"	256LA	R.F. CARBONE	ALL	YES	
"	257LA	M.C. & I. N. STONE CO.	ALL	YES	
"	258LA	MARIE J. KOCH	ALL	YES	
"	259LA	LAKEWOOD CENTER CO.	ALL	NO	
"	260LA	EDITH B. COOPER	ALL	YES	
"	261LA	JOSEPHINE LOMBARDO, ET. AL.	ALL	YES	
"	262LA	ELEUTERIO AND R. FLORES	ALL	YES	
"	263LA	GAETANO ZINGALES	ALL	YES	
"	264LA	MARIA CIRESI	ALL	YES	
"	265LA	FRANCES RINI, ET AL.	ALL	YES	
"	266LA	ANTHONY BLANDINO	ALL	YES	
"	267LA	ANTONIO CRIMALDI	ALL	YES	
"	268LA	ROSE RINI	ALL	YES	
"	269LA	MATTEO RINI DI GIOVANNI	ALL	YES	
"	271LA	ANTHONY M. LOMBARDO, ET AL.	ALL	YES	
"	272LA	MARIA MERCURIO	ALL	YES	
"	273LA	MARIA MERCURIO	ALL	YES	
"	274LA	DOMENICO & ANTONIA SURACE	ALL	YES	
"	275LA	G. GAGLIONE & ROSE PLATAMONE, ET AL.	ALL	NO	
"	276LA	MICHELENA DEMMA	ALL	YES	
"	277LA	ANNA C. DOTTORE	ALL	YES	
"	278LA	CLEVELAND TRUST CO.	ALL	NO	
"	279LA	CLEVELAND TRUST CO.	ALL	NO	
"	280LA	JOHN & M.J. GREEN	ALL	YES	
"	281LA	SHIRLEE BLONDER	ALL	YES	
87	286	NOT USED			
"	287	NOT USED			
"	288	" "			
"	289	" "			
"	290	" "			
"	291	" "			
"	292	" "			
"	293	" "			
"	294	" "			
"	295	" "			
"	296	" "			
"	297LA	JIMMIE RICHARDSON	851	YES	
"	298LA	EDITH B. COOPER	ALL	YES	
87	300LA	MACK & ROSE STEVENS	ALL	YES	
"	301LA	JAMES & J. L. HONER	ALL	YES	
87	307LA	J. & M. MASON	ALL	YES	
87	317	IDEAL MACARONI CO.	8977	YES	
87	319	SALVATORE A. PRECARIO	2511	YES	
87	334	GREEK CATHOLIC CONGREGATION	8800	YES	
88	359LA	OUTDOOR INVESTMENT CO. (BILLBOARD)	ALL	NO	
"	360	NOT USED			
"	361	" "			
"	362	" "			
"	363	" "			
"	364	" "			
88	368LA	J. LOMBARDO	3342	NO	
"	369LA	M. GOTTLIEB	ALL	YES	
"	370LA	LAWRENCE A. WHITMAN	ALL	NO	
"	371LA	E. B. CULLEN	ALL	YES	
88	375LA	WM., E.D., & ESTHER BASSICHIS	ALL	YES	
"	376LA	F. MERCURIO & F. MINNITI	ALL	YES	
88	378LA	D. KOSLIN	ALL	YES	
"	380LA	J. DIMETRO, ET AL.	ALL	YES	
"	381LA	S. RINI	ALL	YES	
"	382LA	J. GERACI	ALL	YES	
"	383LA	LOUANNA CABBIL	ALL	YES	
"	384LA	EVA ALTMAN	ALL	YES	
"	385LA	H. J. & F. D. JOHANEK	ALL	YES	
"			ALL	NO	
88	387LA	R. ROMANO, ET AL.	ALL	NO	
"	388LA	N. Z. FISHER	ALL	NO	
"	389LA	THOS. & ELSIE SNEED	ALL	YES	
"	390LA	DELIA MC MYLER	ALL	YES	
"	391LA	PROSPECT RADIATOR CO.	ALL	YES	
"	392LA	OUTDOOR INVESTMENT CO.	ALL	NO	
"	393LA	CITY OF CLEVELAND	ALL	NO	
"	394LA	NICK H. LO CONTI	ALL	YES	
"	395LA	E. MASTERSON	ALL	NO	
"	396LA	JEANETTE K. REDMOND, TR.	ALL	YES	
"	397LA	ROSE MORELLI	ALL	YES	
"	398LA	M. KOCH	ALL	NO	
"	399LA	ANTHONY SANSON, TR.	ALL	NO	
88	403LA	GUND REALTY CO.	ALL	YES	
"	404LA	M. RINI	ALL	YES	
"	405LA	THE STRATHMORE CLEVELAND HOMES CO.	ALL	YES	
"	406LA	WM. & O. BONDI	ALL	YES	
"	407LA	J. BONDI	ALL	YES	
"	408LA	ARTHUR KRAUSE	ALL	YES	
"	409LA	WM. H. HAZLETT, ET AL.	ALL	NO	
"	410LA	W. SPOONER	ALL	YES	
"	411LA	SAMUEL R. OLIVO	ALL	NO	
"	412LA	I. C. GRIMM & C. PHILLIPS	ALL	YES	
"	413LA	MARIE J. KOCH	ALL	YES	

RIGHT OF WAY SUMMARY

SHEET NO.	PARCEL NO.	OWNER	AREA	BLDGS	REMARKS
88	414LA	M. & M. RINI	ALL	YES	
"	415LA	ALBERT A. LEVIN	ALL	NO	
"	416LA	D. L. CORSO	ALL	NO	
"	417LA	M. A. LONG	ALL	YES	
"	418LA	A. MARRALE	ALL	NO	
"	419LA	H. B. MC GUIRE	ALL	NO	
"	420LA	M. C. DI CORPO & AUGUSTINE C. DIASIO	ALL	YES	
"	421LA	ESTATE OF J. ANTENNA	ALL	YES	
"	422LA	C. CONTI	ALL	YES	
"	423LA	MAZEL REALTY CO.	ALL	YES	
"	424LA	T. & R. LOCOCO	ALL	YES	
"	425LA	CITY OF CLEVELAND	ALL	NO	
"	426LA	SUN OIL CO.	1722	YES	
"	437LA	MILLER BROS. REALTY		YES	
"	438LA	MILLER BROS REALTY		YES	
88	452LA	MILLER BROS. REALTY		NO	
88	454LA	INDEPENDENT TOWEL CO.		NO	
"	455LA	CHRISTOPHER C. FLIEDNER, ET AL.	ALL	YES	
"	456LA	C. C. & BENJ. FLIEDNER	ALL	NO	
"	457LA	DAVID L. SUID	ALL	NO	
"	458LA	HELEN E. ABOID	ALL	NO	
"	459LA	MIKE & L. ABRAHAM	ALL	YES	
"	460LA	PEARL G. SUID	ALL	YES	
88 & 89	461LA	LAUB BAKING CO. (FRENCH BAKERY CO.)		YES	
88 & 89	461ALA	LAUB BAKING CO. (FRENCH BAKERY CO.)	12528		
88	467LA	CENTRAL NATIONAL BANK 1/3			
		DOROTHY B. LEHMAN, ET AL.	3604	YES	
"	468LA	RUTH WRIGHT	3303	YES	
"	469LA	PATRINA PIAZZA, ET AL.	2600	YES	
"	470	ANNA WHITE	1213	YES	
"	471	MARY SIMONELLI, ET AL.	1583	YES	
"	472	NOT USED			
"	473	NOT USED			
"	474	NOT USED			
88	476	FREDA ABRAHAM	ALL	YES	
"	477	HELEN & A. KACMARIK	ALL	YES	
"	478	JAS. A. LIA	ALL	YES	
"	479	JOE CREA	910	YES	
90	547	C. C. C. HIGHWAY CO.	ALL	YES	
90	561LA	BEN & JENNIE CASTELLANA, ET AL.	ALL	YES	
"	562LA	ABE & MIKE ORCHEN	ALL	YES	
"	563LA	WILBUR LA GANKE	ALL	YES	
"	564LA	ABRAHAM, ROSE, MIKE & IDA ORCHEN	ALL	YES	
"	565LA	SALVATORE SALUPO	ALL	YES	
"	566LA	GIACOMA ZITO	ALL	YES	
"	567LA	B & L REALTY CO.	ALL	YES	
90	570LA	U. S. TRUCK LINES, INC.	ALL	YES	
90	572LA	CLEVELAND, COLUMBUS & CINCINNATI HIGHWAY CO.	ALL	YES	
90	579LA	JACOB & WM. M. BASSICHIS	ALL	YES	
90	583LA	B & L REALTY CO.	ALL	YES	
90	585LA	SARAH MIRSKY	ALL	NO	
"	586LA	JACOB & WM. M. BASSICHIS	ALL	YES	
"	587LA	WM. M. BASSICHIS	ALL	NO	
"	588LA	FRANK SHAPIRO, JR.	ALL	YES	
86	720LA	DONALD J. LUCIDO	ALL	YES	
"	721LA	H. IACOVONE, ET AL.	ALL	YES	
"	722LA	V. IACOVONE	ALL	YES	
"	723LA	J. C. & A. MAROTTS	ALL	NO	
86	725LA	PAULINE KLANN	ALL	YES	
"	726LA	L. M. BUCCI, ET AL.	ALL	YES	
86	728LA	FRANK, ANTHONY & MARY DINDIA	ALL	YES	
"	729LA	D. & B. REALTY CO.	ALL	YES	
"	730LA	E. D. REALTY CO.	ALL	YES	
86	732LA	ANTONY S. CIRESI	ALL	NO	
"	733LA	JOW ARCARA	ALL	YES	
86	735LA	ANTHONY SFERRA	ALL	YES	
"	736LA	LOPRESTI PROP. CO.	ALL	YES	
"	737LA	ESTATE OF MARY ZECHMAN	ALL	NO	
"	738LA	CITY OF CLEVELAND	ALL	NO	
"	740LA	UNION PROPERTIES CO.	ALL	NO	
"	741LA	HASEROT COMPANY	ALL	YES	
90	801LA	MARTIN A. RINI	ALL	YES	
"	802LA	CONSOLID. CART. & STORAGE CO.	ALL	YES	
"	803LA	SALVATORE SALUPO	ALL	YES	
"	804LA	SAM C. & J. C. LOMBARDO	ALL	YES	
"	805LA	WENHAM, INC.	ALL	YES	
90	817LA	BARNET I. AXELROD	ALL	NO	
"	818LA	GIUSEPPE SPINA, ET AL.	ALL	YES	
"	819LA	THE PEGASUS REALTY CO.	ALL	YES	
"	820LA	ROSE C. RUBIN, ET AL.	ALL	NO	
"	821LA	THE PEGASUS REALTY CO.	ALL	NO	

SCALE None HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE JLC DATE 11-6-59 CONSULTING ENGINEERS
TRCD RR DATE 11-8-59 KANSAS CITY CLEVELAND NEW YORK
CKD JLC DATE 11-9-59 914 SHEET 84A

PART 6


FED. ROAD DIV. NO. 2
STATE OHIO
FEDERAL AID PROJECT NO.
TYPE FUNDS
85
175
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42-18.29
RAMP E-7
RAMP E-10
RAMP E-3
RAMP E-4
RAMP E-18
RAMP E-6
RAMP E-15
RAMP E-2
INNER BELT FREEWAY
WOODLAND AVE. 99'
Limits of Construction
Part 6
DECATUR CT. 16.5'
EAST 9TH PL. 16.5'
EAST 9TH ST. 66'
JOHN BARR'S SUBD.
UNRECORDED ALLOT.
EAST 14TH ST. 84.80'
94.80'
BROADWAY 99'
BROADWAY 100'
EAST BOUND BROADWAY
BROADWAY 86'
EAST 9TH ST. 82.5'
ANDES CT. 16.5'
110 LA
111 LA
112 LA
113 LA
114 LA
115 LA
116 LA
117 LA
4 St. Br. Bldg.
1 St. Br. Bldg.
2 St. Br. Bldg.
1 St. Fr. Garage
1 St. Brick
1 Story
1 St. Cement Block
Match Line See Insert
ORANGE AVE. 80'
PERRY ESTATE PART
See Right Edge
EAST 15TH ST. 55'
E. 14 St.
Pump Bases
Gas Station
Note:
No Federal participation
Match Line
Limits of Construction Part 6
R/W Acquired for project CUY. 42-18.02
SCALE 1"-50'
MADE J.L.C. DATE 2-11-59
TRCD. R.R. DATE 2-11-59
CKD. J.L.C. DATE 11-2-59
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 85
J.L.C. Revised Const. Adj. to E.B. Brdwy. 10-30-59
J.L.C. Revised Parcel Numbering System 4-6-59
J.L.C. Revised Limits of Grading 2-26-59
MADE REVISION DATE

FED. ROAD DIV. NO. 2
STATE OHIO
FEDERAL AID PROJECT NO.
TYPE FUNDS
86
175
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29
R/W Aquired for Project CUY. 42-18.02
N
CARNEGIE AVE. 99'
EAST 12TH ST. 60'
EAST 13 TH ST. 60'
GARDINER CT. 16.5'
J.M. WOOLSEYS
WEBSTER AVE. 60'
EAST 10TH ST.
COLUMBUS CT. 16.5'
ALLOT.
SCOVILL AVE. 60'
PARKMAN CT. 12.5'
PARKMAN CT.
HINDOO CT. 12'
ALLEN AVE. 45'
EAST 14 TH ST. 80'
RICHARD BURY ALLOT.
EDITH TAYLORS RE-SUBD.
UNRECORDED ALLOT.
EAST 9TH ST. 99'
E. 9TH PL. 16.5'
E. 9 TH. PL. 16.5'
EDWARDS CT.
WOODLAND AVE. 99'
E. 9TH ST.
66" Sewer to be constructed under Part 6
Limits of Const. Part 7
Limits of Const. Part 6
Limits of Construction Part 6
℄ INNER BELT FREEWAY
RAMP E-3
RAMP E-5
RAMP E-6
RAMP E-7
RAMP E-8
RAMP E-10
RAMP E-17
RAMP E-18
0+00 ℄ Ramp E-6
PREVIOUS CONTRACT
Market Stalls
Corrugated Roof
Gas Pump
SCALE 1"=50'
MADE JLC DATE 2-11-59
TRCD. RR DATE 2-11-59
CKD JLC DATE 11-2-59
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 86
R.J.K. Added and removed Bldgs. 11-13-59
J.L.C. Revised Parcel Numbering System 4-6-59
J.L.C. Revised Limits of Grading 2-26-59
MADE REVISION DATE

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	87 / 175
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

COORDINATES		
Pt.*	N	E
K_R	87988.637	91205.500
L_R	87971.870	91074.402
M_R	87971.179	90972.557
N_R	87968.625	90895.111
P_R	87527.098	90773.756
Q_R	87489.685	90796.660
R_R	87318.050	90749.486
S_R	87221.650	90753.066
V_W	87115.102	90835.026

* Pertains to ROW sheets only

MADE	REVISION	DATE
J.A.G.	Added and removed Bldgs.	11-13-59
G.M.G.	Deleted E 20th St. Connection & Affected R/W	10-26-59
R.J.K.	Removed 1 & 2 Story Frame Bldg. - 283 LA	6-16-59
J.L.C.	Revised Parcel Numbering System	4-6-59
J.L.C.	Revised Limits of Grading	2-26-59

SCALE 1" = 50'
MADE JLC DATE 2-11-59
TRCD. RR DATE 2-11-59
CKD. J.L.C. DATE 11-2-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 87

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

88 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

COORDINATES		
Pt.*	N	E
G_W	88575.758	90819.932
H_W	88551.457	90807.019
I_W	88474.800	90693.206
J_W	88451.768	90658.798
K_W	88432.842	90626.796
L_W	88413.557	90593.512
M_W	88394.204	90550.423
N_W	88399.579	90546.769
O_W	88479.631	90489.354
P_W	88513.295	90459.100
Q_W	88581.186	90436.710
R_W	88624.290	90365.245
S_W	88684.085	90374.430
T_W	88749.741	90382.863
U_W	88809.695	90382.070
T_R	88538.572	91132.798
U_R	88515.042	91072.408
V_R	88429.921	90966.132
W_R	88406.822	90935.96[illegible]
X_R	88311.277	90793.747
Y_R	88252.806	90777.713
Z_R	88222.140	90862.626
A	88653.435	90900.006
B	88588.348	90836.180
C_O	88680.321	90438.319
D_O	88543.262	90204.542
E_O	88451.461	90175.993

* Pertains to R.O.W. Sheets only.

MADE	REVISION	DATE
A.E.K.	Added and removed Bldgs.	11-13-59
J.L.C.	Revised Taking Line for Parcels, 438 LA, 441 LA, 452 LA, 454 LA, 455 LA.	10-30-59
R.J.K.	Added Frame Double Garage - 446 LA	6-16-59
J.C.T.	Revised Taking Line for Parcels 426 LA & 437 LA	5-26-59
J.L.C.	Revised Parcel Numbering System	4-6-59
J.L.C.	Revised Limits of Grading	2-26-59

SCALE 1"=50'
MADE JLC DATE 2-11-59
TRCD. RR DATE 2-11-59
CKD. J.L.C. DATE 11-2-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 88

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	89 / 175
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

* Pertains to R.O.W. sheets only.

COORDINATES		
Pt.*	N	E
W_R	88406.715	90935.926
Z_R	88222.140	90862.626
F_o	88192.717	91010.095
G_o	88359.749	91116.038
H_o	88334.650	91161.005
J_o	88164.024	91171.249
K_o	88143.407	91279.847
L_o	88110.550	91424.153
M_o	88161.090	91469.113
N_o	88540.322	91182.982
P_o	88537.264	91234.892
Q_o	88557.231	91236.038
R_o	88576.781	91346.291
S_o	88578.072	91358.387
T_o	88588.051	91410.055
U_o	88588.283	91535.465
V_o	88577.396	91568.898
W_o	88712.835	91009.303
X_o	88743.131	91044.432
Y_o	88902.581	91127.865
Z_o	89090.298	91174.041
A_W	89100.803	91183.614
B_W	89131.473	91179.103
C_W	89145.914	91155.155
D_W	88544.837	91574.276

MADE	REVISION	DATE
R.J.K.	Added and removed Bldgs.	11-13-59
G.M.G.	Deleted E. 20th. St. Connection & Affected R/W	10-30-59
J.L.C.	Revised Parcel Numbering System	4-6-59
J.L.C.	Revised Limits of Grading	2-26-59

SCALE 1"=50
MADE JLC DATE 2-11-59
TRCD. RR DATE 2-11-59
CKD. J.L.C. DATE 11-2-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 89

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

SCALE 1" = 50'
MADE J.L.C. DATE 2-11-59
TRCD. R.R. DATE 2-11-59
CKD. J.L.C. DATE 11-2-59

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY · CLEVELAND · NEW YORK
914 · SHEET 90

MADE	REVISION	DATE
A.E.K.	Added and removed Bldgs.	11-13-59
J.L.C.	Revised Parcel Numbering System	4-6-59
J.L.C.	Revised Limits of Grading	2-26-59

Q-16

CUY-90-16.24

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

91 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

DESIGN SPECIFICATIONS

DESIGN SPECIFICATIONS FOR HIGHWAY STRUCTURES OF THE STATE OF OHIO, DEPARTMENT OF HIGHWAYS, DATED SEPTEMBER 1, 1957, AND REVISED FEBRUARY 21, 1958.

SUPPLEMENTAL SPECIFICATIONS

REFERENCE SHALL BE MADE TO SUPPLEMENTAL SPECIFICATIONS NO. S-207, HIGH STRENGTH STEEL BOLTS, DATED APRIL 28, 1955, NO. M-206.14 ASBESTOS CEMENT CONDUIT DATED JULY 15, 1949. AND NO. SS-18, FENCE AND GATES, DATED JUNE 15, 1959. AND S-101 DATED 12-2-59

REFERENCE DRAWINGS

REFERENCE SHALL BE MADE TO STANDARD DRAWING NUMBERS RB-1-55 REVISED 2/2/59, AR-1-57 REVISED 2/2/59, AND TO AS-1-54 REVISED 12/1/54.

DIMENSIONS

DIMENSIONS GIVEN ARE MEASURED HORIZONTALLY AND AT 60°F. UNLESS OTHERWISE NOTED.

UTILITIES

ANY EXISTING UTILITY FACILITIES ENCOUNTERED AT THE SITE OF THE WORK WHICH WILL INTERFERE WITH PORTIONS OF THE FINISHED ROADWAYS OR STRUCTURES WILL BE REMOVED OR RELOCATED BY OTHERS, UNLESS OTHERWISE SHOWN. THE CONTRACTOR SHALL COORDINATE 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.

EXISTING SEWERS WILL BE RELOCATED OR REMOVED BY THE CONTRACTOR AS SHOWN ON THE ROADWAY PLANS.

EXCAVATION

AT THE PEDESTALS OF BRIDGE NO. 6 AND THE PIERS OF ALL OTHER BRIDGES THE EXCAVATION QUANTITY FOR PAYMENT WILL BE COMPUTED FROM THE COMPLETED CONSTRUCTION CROSS SECTIONS AND GRADE LINES OF THE LOWER ROADWAY.

FOR THE ABUTMENTS THE EXCAVATION QUANTITY FOR PAYMENT WILL BE COMPUTED FROM THE COMPLETED CROSS SECTION OF THE LOWER ROADWAY AND/OR THE SURFACE OF THE PROPOSED EMBANKMENT.

THE EMBANKMENT SHALL BE PLACED AND COMPACTED UP TO THE FINISHED SPILL-THRU SLOPE AND TO THE LEVEL OF THE SUBGRADE, AFTER WHICH THE EXCAVATION SHALL BE MADE. BACKFILL BEHIND THE ABUTMENTS SHALL BE MADE WITH MATERIAL MEETING THE REQUIREMENTS OF SEC. 1-22 AND SHALL BE COMPACTED IN ACCORDANCE WITH THE REQUIREMENTS FOR EMBANKMENT COMPACTION. THE PAYMENT FOR THIS 1-22 BACKFILL SHALL BE CONSIDERED AS INCLUDED IN THE PAYMENT FOR E-2. UNCLASSIFIED EXCAVATION.

BORINGS

BORING INFORMATION, LOGS AND SAMPLES OF MATERIALS ENCOUNTERED MAY BE EXAMINED AT THE DIVISION OFFICE IN GARFIELD HEIGHTS, OHIO AND AT THE BRIDGE BUREAU OFFICE IN COLUMBUS, OHIO, BUT THE STATE DOES NOT GUARANTEE THESE BORINGS TO PRESENT A COMPLETE PICTURE OF SUBSURFACE CONDITIONS TO BE ENCOUNTERED. FOUNDATION DESIGN AND FOUNDATION QUANTITIES ARE BASED ON A STUDY OF THE BORINGS.

PILING

PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 35 TONS FOR THE ABUTMENTS AND 45 TONS FOR THE PIERS.

CONCRETE

a. THE CONCRETE ROADWAY SLABS SHALL BE SO CONSTRUCTED THAT, AFTER COMPLETION AND AFTER REMOVAL OF FORMS AND ANY FALSEWORK, AND AFTER THE STEELWORK HAS DEFLECTED UNDER THE WEIGHT OF THE CONCRETE, THE TOP SURFACE OF THE ROADWAY SHALL CONFORM AS NEARLY AS PRACTICABLE TO THE ELEVATIONS AND CONTOUR LINES SHOWN ON THE PLANS.

b. THE TOTAL DEPTH OF THE BRIDGE SLAB AND HAUNCH OVER EACH BEAM(TOP OF CONCRETE TO TOP OF FLANGE) OR GIRDER (TOP OF CONCRETE TO TOP OF WEB) AT THE SUPPORTS IS GIVEN ON THE PLANS. THE STEEL BEAMS AND GIRDERS SHALL BE FABRICATED WITH THE CAMBER, AS SPECIFIED ON THE PLANS, TO COMPENSATE FOR THE DEFLECTIONS DUE TO WEIGHT OF CONCRETE AND STEEL.

THE THEORETICAL DEFLECTIONS ARE TABULATED ON THE PLANS. TO COMPENSATE FOR DEFLECTIONS DUE TO THE DEAD LOAD OF THE 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 FOR THIS DEAD LOAD. SCREEDS MAY REQUIRE FURTHER ADJUSTMENT DUE TO IRREGULARITIES IN THE FABRICATED STEEL. THE CONCRETE SLAB SHALL BE OF UNIFORM THICKNESS BETWEEN BEAMS WITH CAMBER SETTING OBTAINED BY VARYING THE THICKNESS OF THE HAUNCHES OVER THE BEAMS.

REINFORCING STEEL

BARS SHALL, UNLESS OTHERWISE SHOWN, BE 3 INCHES CLEAR FROM THE FACE OF CONCRETE IN FOOTINGS AND 2 INCHES CLEAR ELSEWHERE, EXCEPT IN SLABS WHERE BARS SHALL BE 1 INCH CLEAR ON THE BOTTOM AND 1 INCH PLUS THE THICKNESS OF THE MONOLITHIC WEARING SURFACE ON THE TOP.

ALL BARS ARE DESIGNATED ON THE PLANS BY BAR NUMBERS. THE BAR SIZE IS INDICATED BY THE FIRST DIGIT OF THREE-DIGIT NUMBERS AND BY THE FIRST TWO DIGITS OF FOUR-DIGIT NUMBERS.

IF REINFORCING BARS ARE FABRICATED FROM STOCK WHICH HAS PREVIOUSLY BEEN TESTED AND APPROVED BY THE OHIO HIGHWAY TESTING LABORATORY, TEST SAMPLES AS PROVIDED IN SEC. S-4.02 NEED NOT BE FURNISHED, AND REPLACEMENT BARS WILL NOT BE REQUIRED.

WATERPROOFING

ALL CONTRACTION AND EXPANSION JOINTS IN BACK FACE OF SUBSTRUCTURE AGAINST WHICH EARTH IS TO BE PLACED
SHALL BE WATERPROOFED WITH A PREMOLDED SEALING STRIP AS SHOWN IN THE PLANS.

WELDING

ALL WELDING SHALL BE CLASS "A" EXCEPT AS NOTED IN THE TAIL OF THE WELDING SYMBOL. B

RADIOGRAPHIC EXAMINATION OF WELDS

THIS WORK SHALL CONSIST OF THE PERFORMANCE AND INTERPRETATION OF A RADIOGRAPHIC EXAMINATION OF BUTT WELDS AS REQUIRED BY THESE SPECIFICATIONS. IT SHALL INCLUDE THE PREPARATION AND POSITIONING OF WELDS FOR EXAMINATION, THE RADIOGRAPHING OF WELDS, THE PROCESSING AND EXAMINATION OF RADIOGRAPHS, THE INTERPRETATION OF RADIOGRAPHS FOR COMPLIANCE WITH THESE SPECIFICATIONS, AND THE PERFORMANCE AND INTERPRETATION OF ANY RETAKES OF RADIOGRAPHS REQUIRED FOR WELDS MADE TO REPLACE UNSATISFACTORY WELDS.

a. APPROVAL OF DIRECTOR

THE CONTRACTOR SHALL FURNISH EVIDENCE, ACCEPTABLE TO THE DIRECTOR, OF THE ADEQUACY OF THE EQUIPMENT TO BE USED AND THE COMPETENCE OF THE PERSONNEL.

THE INTERPRETATION OF RADIOGRAPHS AND THE CORRECTION OF DEFECTIVE WELDS SHALL BE SUBJECT TO THE APPROVAL OF THE DIRECTOR.

b. SCOPE OF EXAMINATION

BY MEANS OF RADIOGRAPHIC EXAMINATION, THE CONTRACTOR SHALL FURNISH EVIDENCE OF THE ACCEPTABLE QUALITY OF THE BUTT WELDS OF ALL GIRDERS. THE PARTS OF THESE MEMBERS TO BE RADIOGRAPHED ARE AS FOLLOWS:

(1) THE COMPLETE BUTT WELDS IN THE FLANGES OF EACH GIRDER EXCEPT THE BOTTOM FLANGE OVER THE BEARING DEVICES.

(2) ONE FOOT AT EACH END OF EACH OF THE WEB SPLICE WELDS.

THE SHOP EXAMINATION OF THE BUTT WELDS OF THE FLANGE PLATES AND OF THE WEB PLATES SHALL BE DETERMINED TO BE ACCEPTABLE BEFORE THESE FLANGE AND WEB PLATES ARE ASSEMBLED AND WELDED TO FORM THE GIRDERS. THE EXAMINATION OF FIELD WELDS SHALL BE MADE AS SOON AS PRACTICABLE AFTER WELDING AT EACH FIELD SPLICE IS COMPLETED.

RADIOGRAPHIC INSPECTION OF WELDS OF ROLLED BEAMS WILL NOT BE REQUIRED.

c. WELD CONDITION

ALL WELDED JOINTS WHICH ARE TO BE RADIOGRAPHED SHALL BE FREE OF PAINT, SCALE AND GREASE AND SHALL BE FOUND FREE OF ALL WELD RIPPLES AND SURFACE IRREGULARITIES ON BOTH SIDES. THE DIRECTION OF GRINDING SHALL BE PERPENDICULAR TO THE LENGTH OF THE WELD. THE WELDS SHALL BE GROUND TO SUCH A DEGREE THAT THE RESULTING RADIOGRAPHIC CONTRAST, DUE TO REMAINING IRREGULARITIES, CANNOT MASK OR BE CONFUSED WITH THAT OF ANY OBJECTIONABLE DEFECT AND THAT THE WELD SURFACE WILL MERGE SMOOTHLY INTO THE PLATE SURFACE. UNLESS SPECIFIED TO BE GROUND FLUSH, THE FINISHED SURFACE OF THE REINFORCEMENT MAY HAVE A CROWN EQUAL TO ONE-EIGHTH THE THICKNESS OF THE METAL BUT NOT MORE THAN ONE-EIGHTH INCH.

d. RADIOGRAPHIC TECHNIQUE

THE WELD SHALL BE RADIOGRAPHED WITH A TECHNIQUE WHICH WILL DETERMINE QUANTITATIVELY THE SIZE OF DEFECTS WITH THICKNESSES EQUAL TO OR GREATER THAN 2 PER CENT OF THE THICKNESS OF THE BASE METAL. IN THE CASE OF A WELD JOINING PLATES OF UNEQUAL THICKNESS, BOTH PLATES MUST BE RADIOGRAPHED AT 2 PER CENT SENSITIVITY TOGETHER OR SINGLY, WITH THE WELD JUNCTION EVIDENT IN BOTH VIEWS.

TO DETERMINE WHETHER THE RADIOGRAPHIC TECHNIQUE EMPLOYED IS DETECTING DEFECTS OF A THICKNESS EQUAL TO OR GREATER THAN 2 PER CENT OF THE THICKNESS OF THE BASE MATERIAL, THICKNESS GAGES OR PENETRAMETERS OF THE TYPE HEREINAFTER SPECIFIED SHALL BE PLACED ON THE SIDE OF THE WELDED PLATE NEAREST THE SOURCE OF RADIATION AT AN EXTREME EDGE OF THE RADIOGRAPHIC PLATE OR FILM.

THE MATERIAL OF THE PENETRAMETER SHALL BE SUBSTANTIALLY THE SAME AS THAT OF THE WELDED PLATE.

THE THICKNESS OF THE PENETRAMETER SHALL BE NOT MORE THAN 2 PER CENT OF THE THICKNESS OF THE PLATE EXCLUSIVE OF ANY WELD REINFORCEMENT. PENETRAMETERS DESIGNED FOR INCREMENTS OF 1/8" OF PLATE THICKNESS ARE ACCEPTABLE.

IN EACH PENETRAMETER THERE SHALL BE THREE HOLES WITH DIAMETERS EQUAL RESPECTIVELY TO TWO, THREE, AND FOUR TIMES THE PENETRAMETER THICKNESS, BUT IN NO CASE SHALL LESS THAN 1/16" DIAMETER BE USED.

EACH PENETRAMETER SHALL CARRY AN IDENTIFYING NUMBER REPRESENTING IN TWO SIGNIFICANT FIGURES THE MINIMUM THICKNESS IN INCHES OF THE PLATE FOR WHICH IT MAY BE USED. PENETRAMETERS MAY BE ESTABLISHED FOR DIFFERENCES IN THICKNESS NOT TO EXCEED 1/8" SO THAT A SET OF PENETRAMETERS VARYING FOR INCREMENTS OF PLATE THICKNESS OF 1/8" WILL BE ADEQUATE TO SERVE PLATES HAVING THICKNESSES BETWEEN THESE 1/8" DIMENSIONS.

THE IMAGES OF IDENTIFYING NUMBERS AND THE HOLES OF EACH PENETRAMETER MUST APPEAR CLEARLY ON THE RADIOGRAPH TO ESTABLISH THE 2 PER CENT SENSITIVITY.

FOR PLATES UP TO AND INCLUDING 2-1/2" IN THICKNESS, EACH PENETRAMETER SHALL BE 1-1/2" LONG AND 1/2" WIDE. FOR PLATES THICKER THAN 2-1/2", EACH PENETRAMETER SHALL BE 2-1/4" LONG AND 1" WIDE.

THE FILM DURING EXPOSURE SHALL BE AS CLOSE TO THE WELD AS PRACTICABLE. IF POSSIBLE, THIS DISTANCE SHALL BE NOT GREATER THAN 1 INCH. IN ANY EVENT, THE RATIO

$$\frac{\text{DISTANCE FROM SOURCE OF RADIATION TO WELD SURFACE TOWARD RADIATION}}{\text{DISTANCE FROM WELD SURFACE TOWARD RADIATION TO FILM}}$$

SHALL BE AT LEAST 7 TO 1.

ALL RADIOGRAPHS SHALL BE FREE FROM EXCESSIVE MECHANICAL PROCESSING DEFECTS WHICH WOULD INTERFERE WITH PROPER INTERPRETATION OF THE RADIOGRAPH.

IDENTIFICATION MARKERS, THE IMAGES OF WHICH WILL APPEAR ON THE FILM, SHALL BE PLACED ADJACENT TO THE WELD, AND THEIR LOCATIONS SHALL BE ACCURATELY AND PERMANENTLY MARKED ON THE OUTSIDE SURFACE NEAR THE WELD SO THAT A DEFECT APPEARING ON THE RADIOGRAPH MAY BE ACCURATELY LOCATED.

THE SIZE OF FILM TO BE USED SHALL BE at least 4" WIDE x 15" LONG UNLESS PERMISSION TO USE A DIFFERENT SIZE IS OBTAINED IN WRITING FROM THE DIRECTOR

e. STANDARDS OF ACCEPTABILITY

THE ACCEPTABILITY OF THE WELDS EXAMINED BY RADIOGRAPHY SHALL BE JUDGED BY THE FOLLOWING STANDARDS.

(1) CRACKS:

DEFINITION - A DISCONTINUITY RESULTING FROM A VERY NARROW SEPARATION OF METAL.

STANDARD - NO WELD CONTAINING CRACKS, REGARDLESS OF LENGTH, SIZE OR LOCATION, SHALL BE CONSIDERED ACCEPTABLE.

(2) GAS POROSITY:

DEFINITION - GAS POCKETS OR VOIDS IN METAL.

STANDARD - THE MAXIMUM DIMENSION OF ANY INDIVIDUAL GAS POCKET SHALL NOT EXCEED 1/8 INCH. THE MAXIMUM ACCUMULATION OF GAS POCKETS SHALL NOT EXCEED THAT SHOWN IN THE "POROSITY STANDARDS" OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS.

(3) SLAG INCLUSIONS:

DEFINITION - NONMETALLIC, SOLID MATERIAL ENTRAPPED IN WELD METAL OR BETWEEN WELD METAL AND BASE METAL.

STANDARD-A - ELONGATED SLAG INCLUSIONS: NO ELONGATED SLAG INCLUSION SHALL EXCEED TWO-THIRDS OF THE THICKNESS OF THE THINNER PLATE OF THE JOINT IN LENGTH AND 1/16" IN WIDTH, EXCEPT THAT REGARDLESS OF THE PLATE THICKNESS, NO SUCH INCLUSION SHALL BE LONGER THAN 3/4" AND EXCEPT THAT NO SUCH INCLUSION WHICH IS SHORTER THAN 1/4" SHALL BE CAUSE FOR REJECTION.

B - ISOLATED SLAG INCLUSIONS: IN ANY 12 INCH LENGTH OF WELD, THE MAXIMUM WIDTH OF ANY ISOLATED SLAG INCLUSION SHALL NOT EXCEED 1/8 INCH, THE SUMMATION OF LENGTHS OF ISOLATED SLAG INCLUSIONS SHALL NOT EXCEED 1 INCH, AND THERE SHALL BE NO MORE THAN FOUR ISOLATED SLAG INCLUSIONS OF THE MAXIMUM WIDTH OF 1/8 INCH. ANY TWO SUCH INCLUSIONS SHALL BE SEPARATED BY AT LEAST 2 INCHES OF SOUND WELD METAL.

(4) - INCOMPLETE FUSION:

DEFINITION - FAILURE OF THE WELD METAL TO FUSE COMPLETELY WITH THE BASE METAL OR PRECEDING BEADS.

STANDARD - NO INDIVIDUAL LACK OF FUSION SHALL EXCEED 1/2 INCH IN LENGTH. IN ANY 12 INCH LENGTH OF WELD, THE SUMMATION OF LENGTHS OF LACK OF FUSION SHALL NOT EXCEED 3/4 INCH AND INDIVIDUAL DEFECTS SHALL BE SEPARATED BY AT LEAST 6 INCHES OF SOUND METAL.

(5) INCOMPLETE PENETRATION:

DEFINITION - ROOT PENETRATION WHICH IS LESS THAN COMPLETE OR FAILURE OF A ROOT PASS AND A BACKING PASS TO FUSE WITH EACH OTHER.

STANDARD - NO INDIVIDUAL LACK OF PENETRATION SHALL EXCEED 1/2 INCH IN LENGTH. IN ANY 12 INCH LENGTH OF WELD, THE SUMMATION OF LENGTHS OF LACK OF PENETRATION SHALL NOT EXCEED 3/4 INCH AND INDIVIDUAL DEFECTS SHALL BE SEPARATED BY AT LEAST 6 INCHES OF SOUND METAL.

f. REPAIR OF DEFECTIVE WELDS

DEFECTIVE WELDS SHALL BE REPAIRED BY CHIPPING OR MELTING OUT SUCH DEFECTS FROM ONE OR BOTH SIDES OF THE JOINT AS REQUIRED, REMOVING ONLY SUFFICIENT WELD METAL TO CORRECT THE DEFECT. THE JOINT SHALL THEN BE REWELDED AND AGAIN RADIOGRAPHED.

g. ADDITIONAL RADIOGRAPHS

WHEREVER AN UNACCEPTABLE WELD OCCURS, A RADIOGRAPH SHALL BE MADE OF THE ADJOINING 12-INCH LENGTHS OF WELD TO DETERMINE IF THE FLAWS EXTEND BEYOND THE LIMITS OF THE ORIGINAL RADIOGRAPH. IF UNACCEPTABLE FLAWS OCCUR IN THESE ADJOINING LENGTHS OF WELD, THESE DEFECTIVE WELDS SHALL BE REPAIRED, AND THIS ENTIRE PROCEDURE REPEATED FOR THE NEXT ADJOINING 12-INCH LENGTH OF WELD.

h. CUSTODY OF RADIOGRAPHS

AS SOON AS THE RADIOGRAPHING OF THE WELDMENTS ON THE FULL LENGTH OF EACH FLANGE OR WEB PLATE BETWEEN FIELD SPLICES HAS BEEN COMPLETED, THE CONTRACTOR SHALL SEND TO THE STATE THE PROCESSED CONTACT FILM (THAT FILM CLOSEST TO THE SOURCE OF RADIATION) OF ALL ORIGINAL AND RETAKE RADIOGRAPHS. THESE RADIOGRAPHS SHALL BE ACCOMPANIED BY A CERTIFICATION FROM THE CONTRACTOR THAT THE RADIOGRAPHIC EXAMINATION WAS PERFORMED IN CONFORMANCE WITH THESE SPECIFICATIONS. THE RADIOGRAPHS SHALL BECOME THE PROPERTY OF THE STATE. EACH RADIOGRAPH SHALL BE CLEARLY IDENTIFIED TO SHOW THE LOCATION ON THE STRUCTURE AT WHICH IT WAS TAKEN. UNACCEPTABLE DEFECTS SHALL BE IDENTIFIED IN EACH RADIOGRAPH IN WHICH THEY OCCUR, AND THE REPAIR OR REPLACEMENT OF EACH UNACCEPTABLE WELD DEFECT SHALL BE NOTED AND IDENTIFIED.

i. REPORT OF COST

AFTER THE COMPLETION OF THE RADIOGRAPHIC INSPECTION OF WELDS, THE CONTRACTOR SHALL FURNISH THE STATE A COMPLETE REPORT OF THE COST OF PERFORMING THIS WORK, SEPARATED INTO THE ITEMS MENTIONED IN THE FOLLOWING PARAGRAPH.

j. BASIS OF PAYMENT

PAYMENT FOR THIS WORK, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR S-7, "STRUCTURAL STEEL."

PART 6

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

GENERAL NOTES

WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN H.A.M.	TRACED	CHECKED J.C.T.	REVIEWED JCT	REVISED
DATE 10-4-59	DATE	DATE 11-10-59	DATE 11-10-59	SHEET 91

PAINTING

PAINTING OF SUPERSTRUCTURE METALWORK SHALL BE ACCORDING TO ITEM S-8 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS EXCEPT AS MODIFIED HEREIN.

A. COATS OF PAINT. THE PAINT SHALL BE APPLIED BY BRUSHING IN FOUR COATS AS FOLLOWS:
   a. A FIRST COAT OF RED LEAD PAINT APPLIED IN THE SHOP ON CLEAN METAL SURFACES PREPARED FOR PAINTING AS SPECIFIED IN SEC. S-8.03.
   b. A SECOND COAT OF RED LEAD PAINT APPLIED IN THE FIELD AFTER ERECTION. FOR SURFACES THAT WILL BE INACCESSIBLE AFTER ERECTION, THIS SECOND COAT MAY BE APPLIED EITHER IN THE SHOP OR IN THE FIELD.
   c. A THIRD AND A FOURTH COAT CONSISTING OF WHITE LEAD PAINT. THE FOURTH COAT SHALL BE TINTED A MEDIUM SHADE OF GRAY THAT MEETS THE APPROVAL OF THE DIRECTOR OF HIGHWAYS AND THE CITY OF CLEVELAND.
   d. LIGHT STANDARDS SHALL BE PAINTED WITH TWO FIELD COATS OF DARK GREEN WEATHER RESISTING ENAMEL AFTER ERECTION. THE FIRST FIELD COAT SHALL BE TINTED.

B. MATERIALS
   a. THE PAINT TO BE USED FOR THE FIRST AND SECOND RED LEAD COATS SHALL BE OF THE FOLLOWING COMPOSITION AND PROPERTIES:

PIGMENT
RED LEAD (97% GRADE)--------------------------99.6% (MINIMUM)
ALUMINUM STEARATE---------------------------0.3-0.4%

VEHICLE
RAW LINSEED OIL-------------------------------35% to 50%
*PALE HEAT BODIED LINSEED OIL (Z_2)-------------15% to 30%
VOLATILE MINERAL SPIRITS AND DRIER---------35%(MAXIMUM)
*THE ACID NUMBER OF THIS OIL SHALL NOT BE OVER 11, THE COLOR NOT DARKER THAN 7 (GARDINER 1933) AND SHALL HAVE A WIJS IODINE VALUE OF 110-125.

PAINT	FIRST COAT	SECOND COAT
PIGMENT	73%(MINIMUM)	77%(MIN.)
VEHICLE	27%(MAXIMUM)	23%(MAX.)
WEIGHT PER GALLON	21.0 LBS. (MINIMUM)	24.0 LBS. (MIN.)
CONSISTENCY	175 GRAMS TO 250 GRAMS (ASTM METHOD D562-42-T OR FEDERAL SPECIFICATION TT-P-141a, METHOD 428.1)	

FINENESS OF GRIND 5 (MINIMUM)
DRYING TIME:
SET TO TOUCH----6 HOURS (MAXIMUM)
DRY THROUGH----36 HOURS (MAXIMUM)

THE PAINT SHALL BE WELL GROUND, SHALL NOT SETTLE EXCESSIVELY OR CAKE IN THE CONTAINER, SHALL BE READILY BROKEN UP WITH A PADDLE TO A SMOOTH UNIFORM PAINT HAVING GOOD BRUSHING PROPERTIES. THE PAINT WHEN BRUSHED ON A CLEAN, SMOOTH STEEL PANEL MAINTAINED IN A VERTICAL POSITION, SHALL DRY TO A SMOOTH UNIFORM FINISH FREE FROM ROUGHNESS, GRIT, UNEVENNESS, STREAKING, SEPARATION, RUNNING, CURTAINING AND SAGGING.

FOR CONTRAST BETWEEN THE FIRST AND SECOND COATS, THE SECOND COAT SHALL BE TINTED WITH LAMPBLACK-IN-OIL TO CHANGE ITS COLOR TO A CHOCOLATE BROWN.

b. THE WHITE LEAD THIRD AND FOURTH COATS OF PAINT SHALL CONFORM TO THE FOLLOWING:

1. TYPE. THIS SPECIFICATION COVERS A GRADE OF READY-MIXED LINSEED OIL WHITE OR TINTED PAINT MADE ON A WHITE LEAD (BASIC LEAD CARBONATE) BASE SUITABLE FOR USE AS FINISH COATS ON EITHER WOOD OR METAL AND AFTER THINNING (SEC. M-9.7 (b) AS A PRIME COAT FOR WOOD.

COMPOSITION AND PROPERTIES

2. PIGMENT. THE PIGMENT SHALL BE BASIC CARBONATE WHITE LEAD CORRESPONDING APPROXIMATELY TO THE FORMULA 2 Pb CO_3: $Pb(OH)_2$. IT SHALL MEET THE FOLLOWING COMPOSITION REQUIREMENTS:

	MAXIMUM PER CENT	MINIMUM PER CENT
BASIC CARBONATE WHITE LEAD		
LEAD CARBONATE ($PbCO_3$)	75	65
LEAD HYDROXIDE ($Pb(OH)_2$)	35	25
OTHER PIGMENTS*	0.0	--

*TINTING COLORS NOT TO EXCEED 5 PER CENT OF THE TOTAL PIGMENT MAY BE ADDED WHEN A TINTED PAINT IS REQUIRED.

3. LIQUID. THE LIQUID SHALL CONTAIN NOT LESS THAN 85 PER CENT RAW OR BOILED LINSEED OIL (SEC. M-9.1 OR M-9.2), THE BALANCE COMBINED DRIER (SEC. M-9.5) AND THINNER. THE THINNER SHALL BE TURPENTINE (SEC. M-9.3), MINERAL SPIRITS (SEC. M-9.4) OR A MIXTURE THEREOF.

4. FINISHED PAINT. THE PAINT SHALL BE WELL GROUND, SHALL NOT SETTLE TO THE EXTENT THAT THE PIGMENT CANNOT BE READILY AND UNIFORMLY DISPERSED THROUGHOUT THE VEHICLE OR CAKE IN THE CONTAINER AND SHALL BE READILY BROKEN UP BY STIRRING AND BOXING TO A SMOOTH, UNIFORM PAINT OF GOOD BRUSHING CONSISTENCY. WHEN BRUSHED ON A SMOOTH VERTICAL TIN PANEL IT SHALL DRY WITHIN 18 HOURS WITHOUT STREAKING, RUNNING OR SAGGING. THE COLOR AND HIDING POWER, WHEN SPECIFIED, SHALL BE EQUAL TO THOSE OF A SAMPLE MUTUALLY AGREED UPON BY THE LABORATORY AND THE SELLER. THE PAINT SHALL ALSO MEET THE FOLLOWING REQUIREMENTS:

	MAXIMUM	MINIMUM
PIGMENT	75%	71%
LIQUID (CONTAINING AT LEAST 85 PER CENT LINSEED OIL)	29%	25%
PIGMENT BY VOLUME (BASED ON TOTAL NON-VOLATILE PORTION OF PAINT)	32%	28%
WATER	0.2%	----
COARSE PARTICLES AND "SKINS" (TOTAL RESIDUE RETAINED ON NO. 325 SIEVE; BASED ON PIGMENT)	2.0%	----
WEIGHT PER GALLON	-----	19.5 Lbs.
DRYING TIME	18 Hrs.	----

c. THE TWO COATS OF DARK GREEN WEATHER RESISTING ENAMEL SHALL CONFORM TO THE SPECIFICATIONS OF THE CITY OF CLEVELAND, DIVISION OF LIGHT AND POWER.

LIGHTING SYSTEM

GENERAL

THIS SPECIFICATION SUPPLEMENTS THE STATE OF OHIO CONSTRUCTION AND MATERIAL SPECIFICATIONS DATED JANUARY 1, 1959, FOR THE MATERIALS USED AND FOR THE INSTALLATION OF ROADWAY AND UNDERDECK LIGHTING UNITS FOR THE WILLOW-INNER BELT FREEWAY STRUCTURES. THE TYPE AND LOCATION OF LIGHTS AND CONDUITS ON THE BRIDGES AND RETAINING WALLS SHALL BE AS INDICATED ON THE PLANS.

THE CONTRACTOR SHALL CONSULT AND COOPERATE WITH THE CLEVELAND DIVISION OF LIGHT AND POWER AND THE CLEVELAND ELECTRIC ILLUMINATING COMPANY.

THE CONTRACTOR SHALL FURNISH AND INSTALL LIGHTING EQUIPMENT AS SHOWN ON THE PLANS AND AS FURTHER DESCRIBED HEREIN AND ON SHEET 51-6.

INSOFAR AS PRACTICABLE, ALL MAJOR ITEMS OF ELECTRICAL EQUIPMENT SHALL CONSIST OF PRODUCTS OF THE SAME MANUFACTURER, IN ORDER TO SECURE SINGLE RESPONSIBILITY AND MOST SATISFACTORY SERVICE. REFERENCE TO ANY NAME, MAKE OR MANUFACTURER'S NUMBER FOR AN ARTICLE OF EQUIPMENT OR MATERIAL IS INTENDED TO BE DESCRIPTIVE, BUT NOT RESTRICTIVE AND IS INTENDED TO INDICATE THE MATERIALS THAT WILL BE ACCEPTABLE.

BEFORE COMMENCEMENT OF INSTALLATION, A COMPLETE SCHEDULE OF MATERIALS AND EQUIPMENT PROPOSED FOR INSTALLATION SHALL BE SUBMITTED FOR THE APPROVAL OF THE ENGINEER. THE SCHEDULE SHALL INCLUDE CATALOG CUTS, DIAGRAMS, AND OTHER SUCH DESCRIPTIVE DATA AS MAY BE REQUIRED BY THE ENGINEER. IN THE EVENT ANY ITEMS OF MATERIAL OR EQUIPMENT CONTAINED IN THE SCHEDULE FAIL TO COMPLY WITH THE SPECIFICATION REQUIREMENTS, SUCH ITEMS WILL BE REJECTED.

MATERIALS AND EQUIPMENT

ALL BOLTS, NUTS, STUDS, WASHERS, PINS, TERMINALS, SPRINGS, AND SIMILAR FASTENINGS AND FITTINGS SHALL BE, WHERE PRACTICABLE, OF AN APPROVED CORROSION-RESISTING MATERIAL SUCH AS BRASS OR BRONZE, OR OF A MATERIAL TREATED IN AN APPROVED MANNER TO RENDER IT ADEQUATELY RESISTANT TO CORROSION; HOT-DIP GALVANIZING WILL BE CONSIDERED SUCH APPROVED TREATMENT. ALL MATERIALS FURNISHED SHALL BE NEW, SHALL BE OF THE BEST QUALITY AND WORKMANSHIP, SHALL BE THE BEST STANDARD PRODUCT OF A MANUFACTURER REGULARLY ENGAGED IN THE PRODUCTION OF THIS TYPE OF EQUIPMENT AND SHALL BE OF THE MANUFACTURER'S LATEST APPROVED DESIGN.

LIGHT STANDARDS SHALL CONFORM AS NEARLY AS POSSIBLE TO THIS SPECIFICATION AS TO GENERAL DESIGN AND FINISH, HEIGHT, BASE, BRACKET, DIMENSIONS AND TO METHOD OF FABRICATION, AND SHALL BE SIMILAR TO UNION METAL COMPANY DESIGN NO. 70161-23, EXCEPT AS OTHERWISE NOTED. IN GENERAL, EACH STANDARD SHALL CONSIST OF A CAST STEEL ANCHOR BASE TO WHICH SHALL BE WELDED A TAPERED STEEL POLE. TO THE STEEL POLE SHALL BE FASTENED AN ORNAMENTAL POLE TOP TO WHICH SHALL BE WELDED A BRACKET FOR SUPPORTING THE LIGHTING UNIT.

THE STEEL SHAFT OF THE LIGHTING STANDARDS SHALL BE FABRICATED FROM NOT LESS THAN NO. 11 MANUFACTURER'S STANDARD GAUGE. THE SHAFT SHALL BE FORMED AND WELDED WITH ONLY ONE LONGITUDINAL, AUTOMATICALLY, ELECTRICALLY WELDED JOINT AND SHALL HAVE NO HORIZONTAL JOINTS OR WELDS. THE WELD SHALL BE OF FULL PENETRATION.

AFTER FORMING AND WELDING, THE TAPERED SHAFT SHALL BE COLD ROLLED OR WORKED UNDER SUFFICIENT PRESSURE TO FLATTEN OUT THE WELD, TO INCREASE THE ELASTIC LIMIT OF THE METAL IN THE COMPLETED SHAFT, AND TO PRODUCE A TRUE TAPERED TUBE WITHOUT FLAT SPOTS AND A CIRCULAR CROSS-SECTION THROUGHOUT THE LENGTH OF THE SHAFT. IF THE SHAFT IS FABRICATED BY MEANS OF A BRAKE OR OTHER PROCESS WHICH DOES NOT UTILIZE THE COLD ROLLING PRINCIPLE, IT SHALL BE FABRICATED FROM A STEEL SHEET HAVING A THICKNESS OF NO. 7 MANUFACTURER'S STANDARD GAUGE.

EACH STANDARD SHALL HAVE A BRACKET MADE OF STANDARD PIPE OF THE SIZE AND LENGTH AS SHOWN ON THE PLANS. THE INNER END OF THE BRACKET ARM SHALL BE WELDED TO A CAST STEEL HEAD BLOCK SO DESIGNED THAT THE BLOCK CAN BE BOLTED THROUGH A CAST IRON NECK PIECE TO A PLATE WELDED TO THE TOP OF THE POLE TO PERMIT RADIAL ADJUSTMENT OF THE BRACKET. PROVISIONS SHALL BE MADE TO PERMIT PASSAGE OF THE CONCEALED WIRES TO BRACKET. THE ORNAMENTAL CASTING WELDED TO THE OUTER END OF THE BRACKET SHALL BE ARRANGED WITH A LEVELING DEVICE OR " PLUMBIZER" FOR ADJUSTMENT OF A PENDANT LIGHTING FIXTURE AND SHALL BE TAPPED FOR 1-1/4 INCH PIPE CONNECTIONS. THE ANCHOR BOLTS SHALL BE OF THE SIZE AND MATERIALS AS SHOWN ON SHEET 159-6. EACH POLE BASE SHALL HAVE A 2-INCH, SHOP BENT, RIGID GALVANIZED ELBOW, FROM JUNCTION BOX AND EXTENDED AT LEAST 3 INCHES ABOVE TOP OF CONCRETE.

EACH POLE SHALL HAVE TWO 9/16 INCH HOLES PROVIDED, WHERE SHOWN ON SHEET 159-6. ALL POLES AND BRACKETS SHALL HAVE ONE FACTORY APPLIED PRIMER COAT, TOUCHED UP, AND THEN SHALL HAVE TWO FIELD COATS APPLIED OF DARK GREEN WEATHER-RESISTING ENAMEL, CONFORMING TO THE SPECIFICATIONS OF THE CITY OF CLEVELAND, DIVISION OF LIGHT AND POWER. FINISH FIELD COATS SHALL BE APPLIED AFTER ERECTION. THE FIRST FIELD COAT SHALL BE TINTED.

CONDUIT IN PARAPETS OF BRIDGES AND IN RETAINING WALLS SHALL BE OF ASBESTOS CEMENT CONFORMING TO SUPPLEMENTAL SPECIFICATION NO. M-206.14 OR FIBER EQUIVALENT TO ORANGEBURG NOCRETE. THE CONDUITS SHALL BE 2-INCH INSIDE DIAMETER AND SHALL BE PLACED AS SHOWN ON BRIDGE DECK AND RETAINING WALL PLANS AND DETAILS.

THE JUNCTION BOX AT EACH ROADWAY LIGHTING UNIT ON BRIDGES AND RETAINING WALLS FOR BRANCHES TO LIGHTS FROM THE 2-INCH LONGITUDINAL CONDUIT RUNS SHALL BE WATER-TIGHT AND MOUNTED IN PARAPETS, CURBS AND WALLS WHERE INDICATED. SEE SHEETS 159 AND 160 FOR METHODS OF MOUNTING. BOXES SHALL BE GALVANIZED WELDED PLATE OR CAST IRON AND SIMILAR TO O. Z. TYPE YU, CAT. NO. 241010.

RIGID METAL CONDUIT FOR UNDERDECK LIGHTS SHALL BE 3/4-INCH, 2-INCH OR 4-INCH AS INDICATED, AND NATIONAL "SHERARDUCT" OR AN APPROVED EQUAL.

JUNCTION BOXES FOR UNDERDECK LIGHTING BRANCH CIRCUITS AND FOR EACH UNDERDECK LIGHTING UNIT SHALL BE CAST IRON, WATER-TIGHT AND EQUAL TO O. Z. TYPE YH, CAT. NO. 080804, AND 060603, RESPECTIVELY.

ALL LUMINAIRES, TRANSFORMERS, CIRCUIT CONDUCTORS, AND POLE AND BRACKET CONDUCTORS SHALL CONFORM TO THE SPECIFICATIONS SHOWN ON SHEET 51-6 OF THE PLANS.

CONSTRUCTION METHODS

THE INSTALLATION AS A WHOLE SHALL BE CARRIED OUT IN CONFORMANCE WITH THE REQUIREMENTS HEREIN STATED AND IMPLIED, AND UPON COMPLETION OF THE WORK SHALL PRESENT A NEAT AND WORKMANLIKE FINISHED APPEARANCE. SAFE CONSTRUCTION AND OPERATING PRACTICES MEETING THE REQUIREMENTS OF THE NATIONAL ELECTRIC SAFETY CODE SHALL BE MAINTAINED.

POLES SHALL BE CAREFULLY SET. THEY SHALL BE RAKED AS SHOWN ON SHEET 159-6. THE CAREFUL ALIGNING AND GRADING OF POLES IS CONSIDERED TO BE AN ESSENTIAL FEATURE OF THE INSTALLATION. THE WORK SHALL BE AS NEARLY PERFECT AS PRACTICABLE AND NO PERCEPTIBLE TOLERANCES WILL BE PERMITTED. IN ORDER TO ACCOMPLISH THE DESIRED PERFECTION OF ALIGNMENT OF THE LUMINAIRES THE POLES SHALL BE CAREFULLY ALIGNED BY THE USE OF SHIMS AS REQUIRED.

CONDUITS SHALL BE FIRMLY CLAMPED TO THE STRUCTURES TO PREVENT RATTLING, SHALL BE RUN IN LINES PARALLEL AND PERPENDICULAR TO LINES OF STRUCTURE AND SHALL BE SO PLACED THAT DIRT WILL NOT ACCUMULATE AROUND THEM. SUPPORTS SHALL BE AT NOT MORE THAN 6-FOOT CENTERS. THERE SHALL BE AT LEAST ONE INCH CLEARANCE BETWEEN CONDUITS. IF ON A HORIZONTAL SURFACE FOR OVER ONE FOOT, THEY SHALL CLEAR THE SURFACE BY AT LEAST THREE INCHES. ADEQUATE APPROVED PROVISION FOR THE MOVEMENT OF CONDUITS SHALL BE MADE WHEREVER CONDUITS CROSS EXPANSION OR FIXED JOINTS IN THE SUPPORTING STRUCTURES. FOR CONDUIT IN PARAPETS OF BRIDGES AND IN RETAINING WALLS, ONE FACTORY EXPANSION COUPLING WITH RUBBER RING SHALL BE USED AT ALL EXPANSION JOINTS, INCLUDING PARAPET JOINTS. RIGID CONDUIT ACROSS EXPANSION JOINTS, WHERE USED, SHALL HAVE AN EXPANSION COUPLING SIMILAR TO O. Z. TYPE "EX" OR "AX" AS REQUIRED, COMPLETE WITH BONDING JUMPER, OR BE IN FLEXIBLE COUPLINGS EQUAL TO GROUSE-HINDS TYPE "EC".

ELECTRICAL GROUNDS

FOR BRIDGE NOS. 1,2,6 AND 7 ALL PARTS OF THE SUPERSTRUCTURE STEELWORK AND THE CONDUIT AND EQUIPMENT FOR THE LIGHTING SYSTEM SHALL BE THOROUGHLY GROUNDED AT TWO PIER COLUMNS. A SOLID NO. 0 BARE COPPER WIRE SHALL BE EMBEDDED IN THE OUTSIDE COLUMN ON EACH SIDE OF THE STRUCTURE AT A FIXED PIER, AS NOTED ON THE PLANS. THE LOWER ENDS OF THE WIRES SHALL BE BRAZED TO THE STEEL SHELL OF ONE OF THE C. I. P. REINFORCED CONCRETE PILES AND THE UPPER ENDS SHALL EXTEND SUFFICIENTLY ABOVE THE TOP OF CONCRETE TO PROVIDE FOR A SUITABLE SPLICE AND EXTENSION TO THE SUPERSTRUCTURE. AT EACH SUCH PIER COLUMN THE GIRDERS OR BEAMS SHALL BE GROUNDED BY A NO. 6 COPPER WIRE BOLTED TO THE BOTTOM FLANGE AND TO THE BOTTOM PORTION OF THE SHOE, AND CARRIED TO CONNECTION WITH THE GROUND WIRE EXTENDING TO THE FOUNDATION PILE. CONDUIT AND EQUIPMENT SECURELY ATTACHED TO THE SUPERSTRUCTURE STEELWORK REQUIRES NO FURTHER GROUNDING.

FOR BRIDGE NOS. 4,8,9,10 AND 11, A SOLID NO. 0 BARE COPPER WIRE SHALL BE EMBEDDED IN THE PIER COLUMNS AS NOTED ABOVE.

FOR OTHER DESCRIPTIVE NOTES OF THE LIGHTING SYSTEM SEE SHEETS 51-6 AND 159-6.

PAYMENT FOR ROADWAY AND UNDERDECK LIGHTING

PAYMENT FOR ITEMS OF ROADWAY AND UNDERDECK LIGHTING ON STRUCTURES SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR THE FOLLOWING ITEMS. PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY, WHETHER SPECIFICALLY MENTIONED OR NOT, TO COMPLETE THE ENTIRE WORK, INSTALLED, ACCEPTED, AND IN OPERATING CONDITION, ACCORDING TO THE PLANS AND SPECIFICATIONS. PAYMENT WILL BE MADE AS FOLLOWS:

A. "LIGHT STANDARD ON STRUCTURE, 10-FOOT BRACKET", PER EACH, AS PER PLAN, AND SHALL INCLUDE POLE FOR 28-FOOT MOUNTING HEIGHT, BRACKET ATTACHMENTS, 10-FOOT STEEL BRACKET, SHIM, ANCHOR BOLTS, HANDHOLE, ANCHOR BASE, LEAF COVERS,PAINTING, END KNOB WITH PLUMBIZER AND PIPE NIPPLE, SINGLE CONDUCTOR NO. 8 AWG, 600 VOLT POLE AND BRACKET CABLE, ALL CONNECTIONS AND SPLICING, 2-INCH RIGID GALVANIZED ELBOW, SCREWS, BOLTS, NUTS, WASHERS, AND ALL MODIFICATIONS AND INCIDENTALS REQUIRED.

B. "LIGHT STANDARD ON STRUCTURE, 6-FOOT BRACKET" PER EACH, AS PER PLAN, AND SHALL INCLUDE 6-FOOT STEEL BRACKET AND ALL FEATURES SPECIFIED FOR "LIGHT STANDARD ON STRUCTURE, 10-FOOT BRACKET" EXCEPT POLE FOR 28-FOOT MOUNTING HEIGHT, WHICH WILL BE FURNISHED AND DELIVERED TO THE SITE BY THE CLEVELAND TRANSIT SYSTEM AND INSTALLED BY THE CONTRACTOR UNDER THIS ITEM.

C. "SERVICE PANEL," PER EACH AND SHALL INCLUDE 32-INCH BY 12-INCH BY 10-INCH STEEL JUNCTION BOX, SAFETY SWITCH, CONTACTOR, PHOTO-CELL CONTROL UNIT, MOUNTINGS, ALL INTERCONNECTING CONDUITS, ALL EXTRA WIRING AND CABLE NOT SPECIFICALLY CALLED FOR, ALL CONNECTIONS, TERMINALS, SPLICES, FLEXIBLE CONDUITS, CONDUIT ADAPTERS, LOCKNUTS, INSULATING BUSHINGS, MOUNTING BOLTS, NUTS, WASHERS AND SPACERS.

D. "PARAPET JUNCTION BOX", PER EACH AND SHALL INCLUDE 24-INCH BY 10-INCH BY 10-INCH GALVANIZED WELDED PLATE OR CAST IRON JUNCTION BOX, COVER, GASKET, MODIFICATIONS, THREADED BOSSES, DRAIN HOLE, DRAIN PIPE, CONDUIT CONNECTIONS, LOCKNUTS, BUSHINGS AND GROUT.

E. "JUNCTION BOX", PER EACH AND SHALL INCLUDE 8-INCH BY 8-INCH BY 4-INCH JUNCTION BOX, COVER, GASKET, ATTACHMENTS, FITTINGS, FASTENINGS, CONDUIT CONNECTIONS, AND A SEPARATELY ENCLOSED CIRCUIT BREAKER.

F. "TWO-INCH CONDUIT," PER LINEAL FOOT AND SHALL INCLUDE HANGERS, COUPLINGS, EXPANSION FITTINGS, ATTACHMENTS, BUSHINGS, ADAPTERS, LOCKNUTS, CONDITIONING DUCTS, NO. 9 AWG GALVANIZED IRON PULL-IN WIRE, AND FASTENINGS.

G. "FOUR-INCH RIGID GALVANIZED CONDUIT," PER LINEAL FOOT AND SHALL INCLUDE REAMING, THREADING, COUPLINGS, FITTINGS, FASTENINGS, ATTACHMENTS, LOCKNUTS, BUSHINGS, EXPANSION COUPLINGS, CONDULETS, RIGID TO NON-METALLIC ADAPTERS, AND JUMPERS.

H. "TWO-INCH RIGID, GALVANIZED CONDUIT," PER LINEAL FOOT AND SHALL INCLUDE COUPLINGS, FITTINGS, FASTENINGS, ATTACHMENTS, LOCKNUTS, INSULATING BUSHINGS, AND ALL FEATURES REQUIRED FOR "4-INCH RIGID GALVANIZED CONDUIT," ITEM F.

I. "THREE-QUARTER-INCH RIGID GALVANIZED CONDUIT," PER LINEAL FOOT AND SHALL INCLUDE ALL FEATURES AND ITEMS SPECIFIED FOR, "TWO-INCH RIGID GALVANIZED CONDUIT," ITEM H, EXCEPT FOR 3/4-INCH CONDUIT IN LIEU OF 2-INCH, AND SHALL INCLUDE ALL NO. 12 AWG BRANCH CIRCUIT WIRING.

J. "ONE-WAY DUCT, FOUR-INCH, " PER LINEAL FOOT AND SHALL INCLUDE FORMS FOR CONCRETE, CONCRETE, END BELLS, PLUGGING DUCTS, CONDITIONING DUCTS, JOINT FILLER, NO. 9 AWG GALVANIZED IRON PULL-IN WIRE, AND SEALING AROUND DUCTS WHERE THEY ENTER MANHOLES OR VAULTS.

K. "ELECTRICAL GROUNDS," PER EACH AND SHALL INCLUDE NO. 0 BARE GROUND IN PIER BRAZED TO PILE AT LOWER END, NO. 6 GROUND TO GIRDER OR BEAM, AND CONNECTIONS, AS REQUIRED.

ALL LUMINAIRES, FLUORESCENT UNDERDECK LIGHTS AND LIGHTING CABLE ARE INCLUDED FOR PAYMENT WITH LIGHTING UNDER ROADWAY PLANS. SEE SHEET 51-6.

Cross references are to Sheets in Part 6.

CONSTRUCTION UNDER OTHER CONTRACTS: Reference to work under other contracts (future) shall be considered void.

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

91A
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

PART 6

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

GENERAL NOTES

WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN H.A.M.	TRACED	CHECKED J.C.T.	REVIEWED JCT	REVISED	
DATE 10-4-59	DATE	DATE 11-10-59	DATE 11-12-59		SHEET 91 A

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.
2	OHIO	

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	BRIDGE NO. 1 I-71-5(6)247 ABUTMENTS	PIERS	SUPER-STRUCTURE	GENERAL	TOTAL	BRIDGE NO. 2 I-71-5(6)247 ABUTMENTS	PIERS	SUPER-STRUCTURE	GENERAL	TOTAL
E-2	Cofferdams, Cribs & Sheeting	Lump Sum										
E-2	Excavation for Structures (Unclassified)	Cu. Yd.	225	135			360	570	470			1,040
S-1	Class "C" Concrete, Superstructure	Cu. Yd.			175		175			1,110		1,110
S-1	Class "C" Concrete, Pier Columns & Caps	Cu. Yd.		45			45		190			190
S-1	Class "C" Concrete, Walls	Cu. Yd.										
S-1	Class "C" Concrete, Abutments and Walls	Cu. Yd.										
S-1	Class "E" Concrete, Stub Abutments (above footings)	Cu. Yd.	90				90	255				255
S-1	Class "E" Concrete, Footings	Cu. Yd.	65	60			125	210	180			390
S-3	Waterproofing, Premolded Sealing Strip	Lin. Ft.						60				60
S-4	Reinforcing Steel	Lbs.	11,279	12,846	44,175		68,300	32,459	82,576	301,565		416,600
S-7	Structural Steel	Lbs.			146,000		146,000			1,368,000		1,368,000
S-8	Field Painting of Structural Steel (3 Coats)	Lbs.			146,000		146,000			1,368,000		1,368,000
S-9	1" Gray Rubber Preformed Expansion Joint Filler	Sq. Ft.						80				80
S-14	Aluminum Railing (Including Parapet)	Lin. Ft.	61		310		371	106		784		890
S-14	Guard Rail, Steel Beam Barrier Type (Deep)	Lin. Ft.								225		225
S-16	First Test Pile (12" or 14" C.I.P.)	Lump Sum				Lump Sum	Lump Sum				Lump Sum	Lump Sum
S-17	First Pile Test Load	Lump Sum				Lump Sum	Lump Sum				Lump Sum	Lump Sum
S-17	Subsequent Pile Test Load	Ea.				1	1				1	1
S-18	12" C.I.P. Reinforced Concrete Piles	Lin. Ft.	860				860	5,260				5,260
S-18	14" C.I.P. Reinforced Concrete Piles	Lin. Ft.		690			690		4,150			4,150
S-25	Electrical Grounds	Ea.				2	2				4	4
S-25	Light Standard on Structure, 10-Foot Bracket	Ea.								8		8
S-25*‡	Light Standard on Structure, 6-Foot Bracket	Ea.			2		2					
S-25	Parapet Junction Box (24"x 10"x 10")	Ea.			2		† 2			10		10
S-25	2"ϕ Conduit	Lin. Ft.	32		153		† 185	105		635		740
S-25‡	10,000 Lumen Luminaire & Insulating Transformer	Ea.			2	2	‡			3	3	‡
S-25‡	15,000 Lumen Luminaire & Insulating Transformer	Ea.								5	5	‡
S-25‡	Fluorescent Underdeck Light	Ea.								6	6	‡
S-25†	Service Panel	Ea.								1		1
S-25†	Junction Box (8"x 8"x 4")	Ea.								2		2
S-25†	3/4"ϕ Rigid Galvanized Conduit	Lin. Ft.								410		410
S-25	2"ϕ Rigid Galvanized Conduit	Lin. Ft.								145	†110 ③	145
S-25†	4"ϕ Rigid Galvanized Conduit	Lin. Ft.										
S-25†	1-Way Duct, 4 inch	Lin. Ft.									65	65
S-29	Porous Backfill	Cu. Yd.	26				26	130				130
S-29	6"ϕ W.I. or Galvan. Steel Pipe incl. Fastenings & Specials	Lin. Ft.							31			31
S-29	8"ϕ Bituminous Coated C.M.P.	Lin. Ft.										
S-29	8"ϕ Perforated Bituminous Coated C.M.P. with Specials	Lin. Ft.										
I-10	Crushed Aggregate Slope Protection, Sec. I-10.04	Sq. Yd.				240	240					
I-10	Crushed Aggregate Slope Protection, (No.4 or 46 Stone or Slag)	Sq. Yd.				190	190					
I-10	Concrete Slope Protection, Sec. I-10.05	Sq. Yd.									1380	1,380
I-10	Concrete Slope Protection (4")	Sq. Yd.									1,100	1,100
I-14	Type-I- Modified Paved Gutter	Lin. Ft.									85	85

ITEM	DESCRIPTION	UNIT	BRIDGE NO. 6 I-71-5(6)247 ABUTMENTS	PIERS	RETAINING WALL	SUPER-STRUCTURE	GENERAL	TOTAL	AS BUILT		BRIDGE NO. 7 I-71-5(6)247 ABUTMENTS	PIERS	SUPER-STRUCTURE	GENERAL	TOTAL	AS BUILT	
E-2	Cofferdams, Cribs & Sheeting	Lump Sum					Lump Sum	Lump Sum						Lump Sum	Lump Sum		
E-2	Excavation for Structures (Unclassified)	Cu. Yd.	255	115	750			1,120			390	200			~~590~~	CO 24 +13	603
S-1	Class "C" Concrete, Superstructure	Cu. Yd.				280		280					360		360		
S-1	Class "C" Concrete, Pier Columns & Caps	Cu. Yd.		25				25				80			80		
S-1	Class "C" Concrete, Walls	Cu. Yd.			270			270									
S-1	Class "C" Concrete, Abutments and Walls	Cu. Yd.	140 ①					140 ①			15 ②				15 ②		
S-1	Class "E" Concrete, Stub Abutments (above footings)	Cu. Yd.	70					70			150				150		
S-1	Class "E" Concrete, Footings	Cu. Yd.	102	53	320			475			115	85			200		
S-3	Waterproofing, Premolded Sealing Strip	Lin. Ft.	10		125			135			10				10		
S-4	Reinforcing Steel	Lbs.	18,353	11,567	41,708	64,572		136,200			18,563	26,970	91,467		137,000		
S-7	Structural Steel	Lbs.				257,000		257,000					376,000		376,000		
S-8	Field Painting of Structural Steel (3 Coats)	Lbs.				257,000		257,000					376,000		376,000		
S-9	1" Gray Rubber Preformed Expansion Joint Filler	Sq. Ft.			105			105									
S-14	Aluminum Railing (Including Parapet)	Lin. Ft.	78		383	533		994			105		532		637		
S-14	Guard Rail, Steel Beam Barrier Type (Deep)	Lin. Ft.															
S-16	First Test Pile (12" or 14" C.I.P.)	Lump Sum					Lump Sum	Lump Sum						Lump Sum	Lump Sum		
S-17	First Pile Test Load	Lump Sum					Lump Sum	Lump Sum						Lump Sum	Lump Sum		
S-17	Subsequent Pile Test Load	Ea.					1	1						1	1		
S-18	12" C.I.P. Reinforced Concrete Piles	Lin. Ft.	1,275		2,475			3,750			1,430				1,430		
S-18	14" C.I.P. Reinforced Concrete Piles	Lin. Ft.		780				~~780~~	CO 7 +130	910		1,170			1,170		
S-25	Electrical Grounds	Ea.					2	2						2	2		
S-25	Light Standard on Structure, 10-Foot Bracket	Ea.			5	3		8			1		4		5		
S-25*‡	Light Standard on Structure, 6-Foot Bracket	Ea.															
S-25	Parapet Junction Box (24"x 10"x 10")	Ea.			5	3		8			1		6		7		
S-25	2"ϕ Conduit	Lin. Ft.	41		343	261		645			46		299		~~345~~	CO 24 +12	357
S-25‡	10,000 Lumen Luminaire & Insulating Transformer	Ea.			5	3	8	‡			1		4	5	‡		
S-25‡	15,000 Lumen Luminaire & Insulating Transformer	Ea.															
S-25‡	Fluorescent Underdeck Light	Ea.											2	2	‡		
S-25†	Service Panel	Ea.											1		1		
S-25†	Junction Box (8"x 8"x 4")	Ea.															
S-25†	3/4"ϕ Rigid Galvanized Conduit	Lin. Ft.											110		~~110~~	CO 24 +91	201
S-25	2"ϕ Rigid Galvanized Conduit	Lin. Ft.											60		~~60~~	CO 24 -31	29
S-25†	4"ϕ Rigid Galvanized Conduit	Lin. Ft.										25			~~25~~	CO 24 +21	46
S-25†	1-Way Duct, 4 inch	Lin. Ft.												40	~~40~~	CO 24 +41	81
S-29	Porous Backfill	Cu. Yd.	65		210			275			41				41		
S-29	6"ϕ W.I. or Galvan. Steel Pipe incl. Fastenings & Specials	Lin. Ft.	16					16									
S-29	8"ϕ Bituminous Coated C.M.P.	Lin. Ft.	80					80									
S-29	8"ϕ Perforated Bituminous Coated C.M.P. with Specials	Lin. Ft.	43		372			415									
I-10	Crushed Aggregate Slope Protection, Sec. I-10.04	Sq. Yd.					165	~~165~~	CO 7 +24	189							
I-10	Crushed Aggregate Slope Protection, (No.4 or 46 Stone or Slag)	Sq. Yd.															
I-10	Concrete Slope Protection, Sec. I-10.05	Sq. Yd.												500	500		
I-10	Concrete Slope Protection (4")	Sq. Yd.												280	280		
I-14	Type-I- Modified Paved Gutter	Lin. Ft.												65	65		

NOTES:
Pile Test Loads shall be performed only if required by the Engineer.
① Includes all concrete in the West Abutment and South Wingwall of East Abutment, except for footings.
② North Wingwall, Abutment E-18.
③ Included in the 145' Total.

† 100 % City Participation
‡ 100 % City Participation. Included with quantities under Roadway Plans. See sheet 14.
* Poles to be installed by the Contractor will be furnished and delivered to the site by the Cleveland Transit System.

H.N.T.B. BR. NO.	STATE BR. NO.
1	E.B. Scovill over N.B. East 14th St.
2	CUY-42-1832
6	Ramp E-15 over W.B. Broadway
7	Ramps E-15 & E-18 over E. 9th St.

PART 6

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

ESTIMATED QUANTITIES
BR. NOS. 1,2,6 & 7

WILLOW-INNER BELT FREEWAY
OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED	
DRK DATE 1-16-59	AEK DATE 10-30-59	S.A.T. DATE 4-8-59	ICT DATE 11-12-59		SHEET 92

As-Built CAM 2-27-64

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	BRIDGE NO. 4 I-71-5(6)247 PIERS	BRIDGE NO. 4 GENERAL	BRIDGE NO. 4 TOTAL (9)	BRIDGE NO. 8 I-71-5(6)247 PIERS	BRIDGE NO. 8 GENERAL	BRIDGE NO. 8 TOTAL (9)	BRIDGE NO. 9 I-71-5(6)247 PIERS	BRIDGE NO. 9 GENERAL	BRIDGE NO. 9 TOTAL (7)
E-2	Cofferdams, Cribs and Sheeting	Lump Sum									
E-2	Excavation for Structures (Unclassified)	Cu. Yd.	950		950	520		520	190		190
S-1	Class "C" Concrete, Pier Columns & Caps	Cu. Yd.	365		365	190		190	75		75
S-1	Class "C" Concrete, Walls	Cu. Yd.									
S-1	Class "E" Concrete, Footings	Cu. Yd.	335		335	175		175	85		85
S-3	Waterproofing, Premolded Sealing Strip	Lin. Ft.									
S-4	Reinforcing Steel	Lbs.	125,000		125,000	49,700		49,700	21,800		21,800
S-9	1" Gray Rubber Preformed Expansion Joint Filler	Sq. Ft.									
S-16	First Test Pile (12" or 14" C.I.P.)	Lump Sum						(8)			(8)
S-17	First Pile Test Load	Lump Sum		Lump Sum	Lump Sum		Lump Sum	Lump Sum			
S-17	Subsequent Pile Test Load	Ea.		1	1		1	1			
S-18	12" C.I.P. Reinforced Concrete Piles	Lin. Ft.									
S-18	14" C.I.P. Reinforced Concrete Piles	Lin. Ft.	5,770		5,770	1,950		1,950	980		980
S-25 †	4"⌀ Rigid Galvanized Conduit	Lin. Ft.	25		25						
S-25 †	1-Way Duct, 4 inch	Lin. Ft.		1	1						
S-25	Electrical Grounds	Ea.		2	2		2	2		2	2
S-29	Porous Backfill	Cu. Yd.									
S-29	6"⌀ Perforated Bituminous Coated C.M.P. including Specials	Lin. Ft.									
SS-18	Fence, Type "C", as per plan	Lin. Ft.									

ITEM	DESCRIPTION	UNIT	BRIDGE NO. 10 I-71-5(6)247 PIERS	BRIDGE NO. 10 GENERAL	BRIDGE NO. 10 TOTAL (7)	AS BUILT		BRIDGE NO. 11 I-71-5(6)247 PIERS	BRIDGE NO. 11 GENERAL	BRIDGE NO. 11 TOTAL (7)
E-2	Cofferdams, Cribs and Sheeting	Lump Sum								
E-2	Excavation for Structures (Unclassified)	Cu. Yd.	390		390			650		650
S-1	Class "C" Concrete, Pier Columns & Caps	Cu. Yd.	150		150			245		245
S-1	Class "C" Concrete, Walls	Cu. Yd.								
S-1	Class "E" Concrete, Footings	Cu. Yd.	170		170			240		240
S-3	Waterproofing, Premolded Sealing Strip	Lin. Ft.								
S-4	Reinforcing Steel	Lbs.	50,300		50,300			70,100		70,100
S-9	1" Gray Rubber Preformed Expansion Joint Filler	Sq. Ft.								
S-16	First Test Pile (12" or 14" C.I.P.)	Lump Sum								
S-17	First Pile Test Load	Lump Sum		Lump Sum	Lump Sum				Lump Sum	Lump Sum
S-17	Subsequent Pile Test Load	Ea.		1	1				1	1
S-18	12" C.I.P. Reinforced Concrete Piles	Lin. Ft.								
S-18	14" C.I.P. Reinforced Concrete Piles	Lin. Ft.	2,600		~~2,600~~	CO 14 -476	2124	3,730		3,730
S-25 †	4"⌀ Rigid Galvanized Conduit	Lin. Ft.	25		25			25		25
S-25 †	1-Way Duct, 4 inch	Lin. Ft.		35	~~35~~	CO 14 +16	51		60	60
S-25	Electrical Grounds	Ea.		2	2				2	2
S-29	Porous Backfill	Cu. Yd.								
S-29	6"⌀ Perforated Bituminous Coated C.M.P. including Specials	Lin. Ft.								
SS-18	Fence, Type "C", as per plan	Lin. Ft.								

ITEM	DESCRIPTION	UNIT	* E. 14 th ST. RETAINING WALLS WALL	GENERAL	TOTAL
E-2	Cofferdams, Cribs and Sheeting	Lump Sum	Lump Sum		Lump Sum
E-2	Excavation for Structures (Unclassified)	Cu. Yd.	340		340
S-1	Class "C" Concrete, Pier Columns & Caps	Cu. Yd.			
S-1	Class "C" Concrete, Walls	Cu. Yd.	50		50
S-1	Class "E" Concrete, Footings	Cu. Yd.	100		100
S-3	Waterproofing, Premolded Sealing Strip	Lin. Ft.	30		30
S-4	Reinforcing Steel	Lbs.	7,300		7,300
S-9	1" Gray Rubber Preformed Expansion Joint Filler	Sq. Ft.	20		20
S-16	First Test Pile (12" or 14" C.I.P.)	Lump Sum		Lump Sum	Lump Sum
S-17	First Pile Test Load	Lump Sum			
S-17	Subsequent Pile Test Load	Ea.			
S-18	12" C.I.P. Reinforced Concrete Piles	Lin. Ft.	1,130		1,130
S-18	14" C.I.P. Reinforced Concrete Piles	Lin. Ft.			
S-25 †	4"⌀ Rigid Galvanized Conduit	Lin. Ft.			
S-25 †	1-Way Duct, 4 inch	Lin. Ft.			
S-25	Electrical Grounds	Ea.			
S-29	Porous Backfill	Cu. Yd.	70		70
S-29	6"⌀ Perforated Bituminous Coated C.M.P. including Specials	Lin. Ft.	170		170
SS-18	Fence, Type "C", as per plan	Lin. Ft.		188	188

NOTES:
Pile Test Loads shall be performed only if required by the Engineer.

† 100 % City Participation

(8) FIRST TEST PILE: Payment will be made for only one first test pile. It may be driven at either H.N.T.B. Bridge No. 8 or H.N.T.B. Bridge No. 9.

(7),(9) For additional quantities see sheets 99A and 99 - Part 7A

* Included in Roadway Quantities on Sheet 11, Part 7-B.

H.N.T.B. BR. NO.	STATE BR. NO.
4	CUY - 42 - 1854
8	CUY - 21 - 1573 A
9	CUY - 21 - 1573 B
10	CUY - 21 - 1559
11	CUY - 21 - 1554

PART 6

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

ESTIMATED QUANTITIES

BR. NOS. 4, 8, 9, 10 & 11 AND E. 14 th ST. RETAINING WALLS

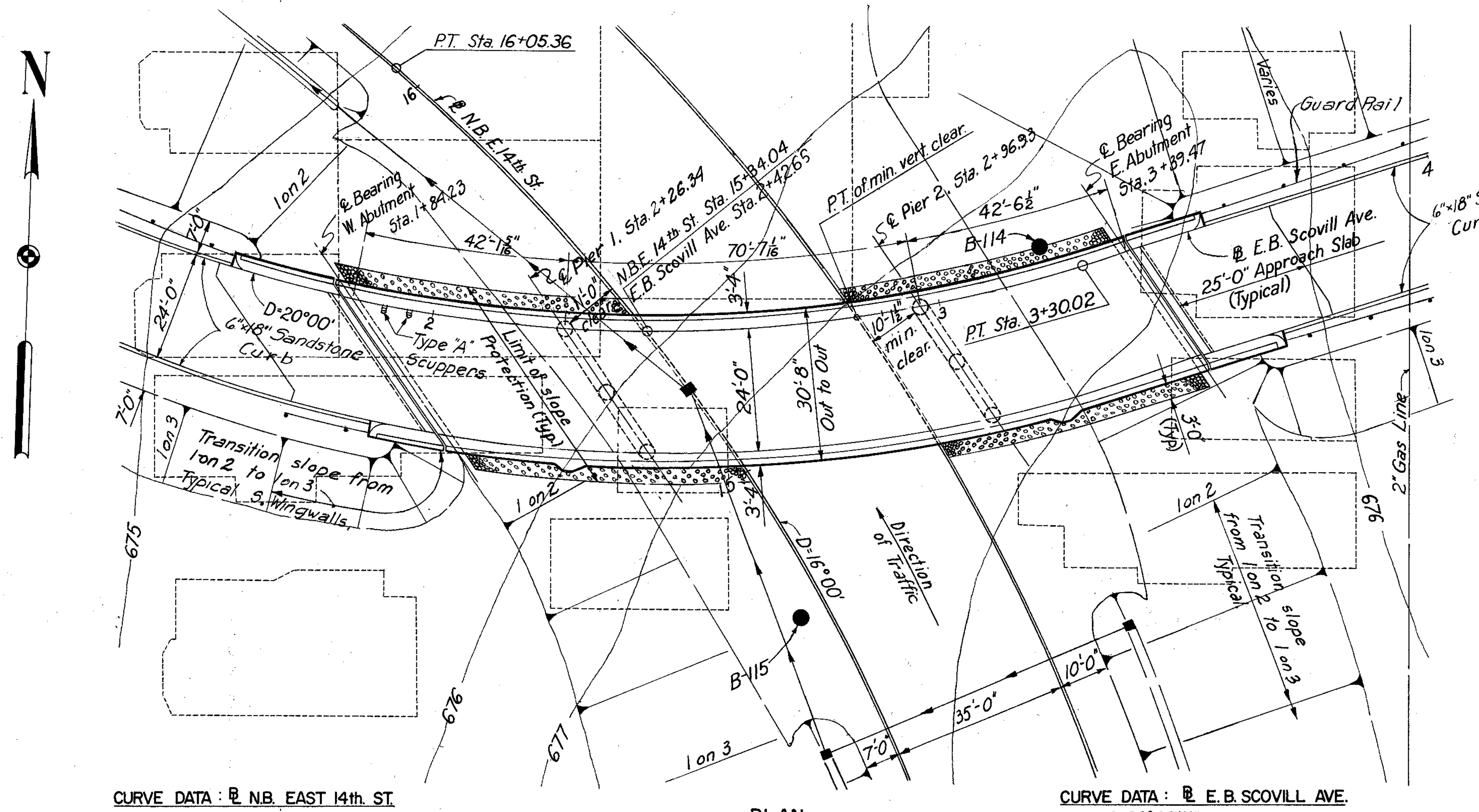
WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN D.R.K.	TRACED A.E.K.	CHECKED G.R.T.	REVIEWED J.C.T.	REVISED
DATE 1-16-59	DATE 10-30-59	DATE 4-8-59	DATE 11-12-59	SHEET 92 A

Revised As-Built
CAM 2-27-64

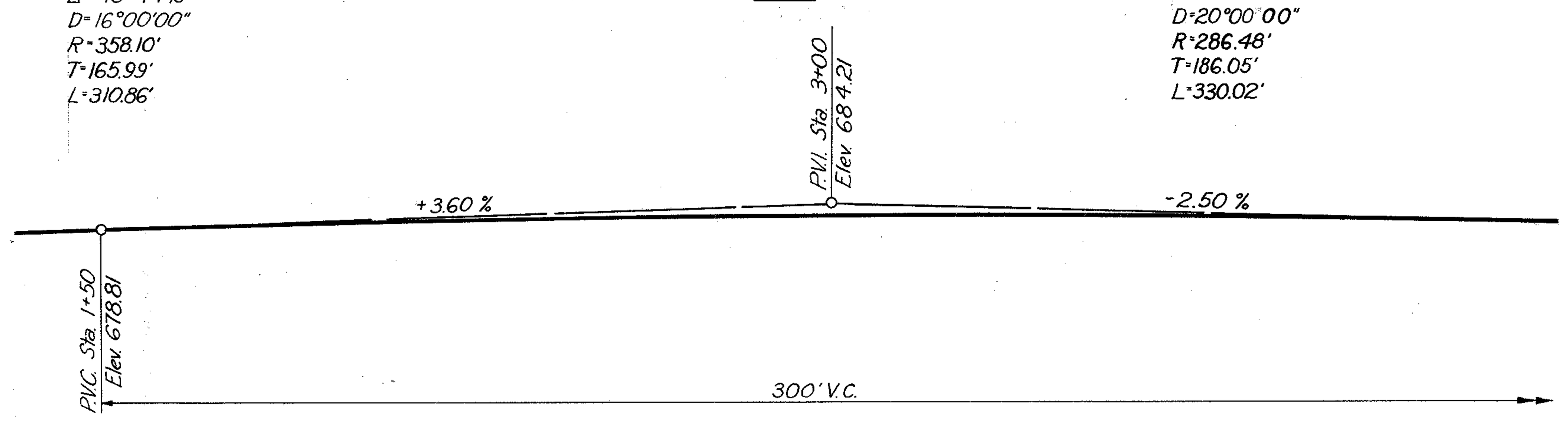
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29



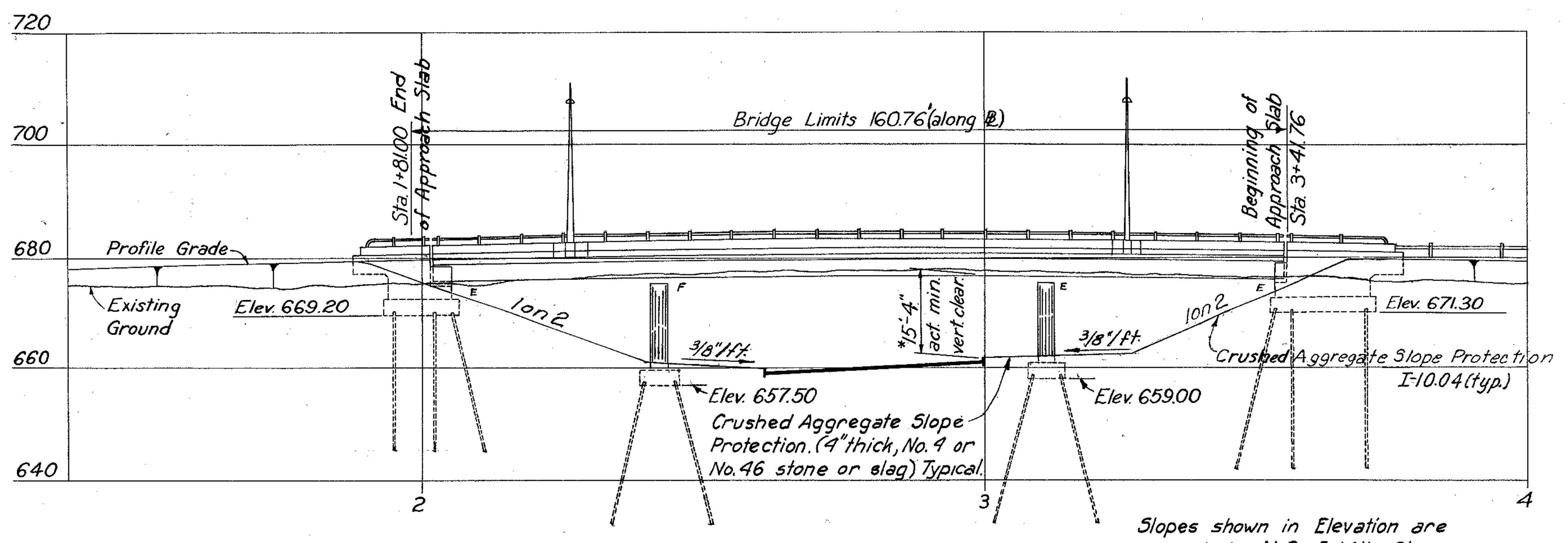
CURVE DATA: ℄ N.B. EAST 14th. ST.
Δ = 49°44'18"
D = 16°00'00"
R = 358.10'
T = 165.99'
L = 310.86'

PLAN

CURVE DATA: ℄ E.B. SCOVILL AVE.
Δ = 66°00'11"
D = 20°00'00"
R = 286.48'
T = 186.05'
L = 330.02'



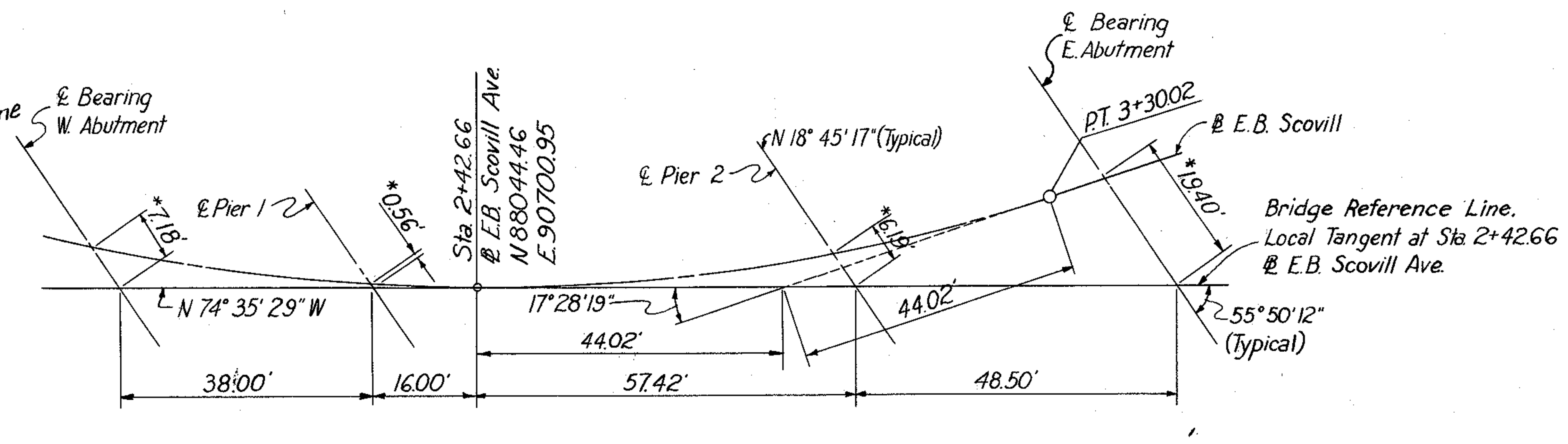
PROFILE



ELEVATION

Slopes shown in Elevation are normal to N.B. E. 14th St.

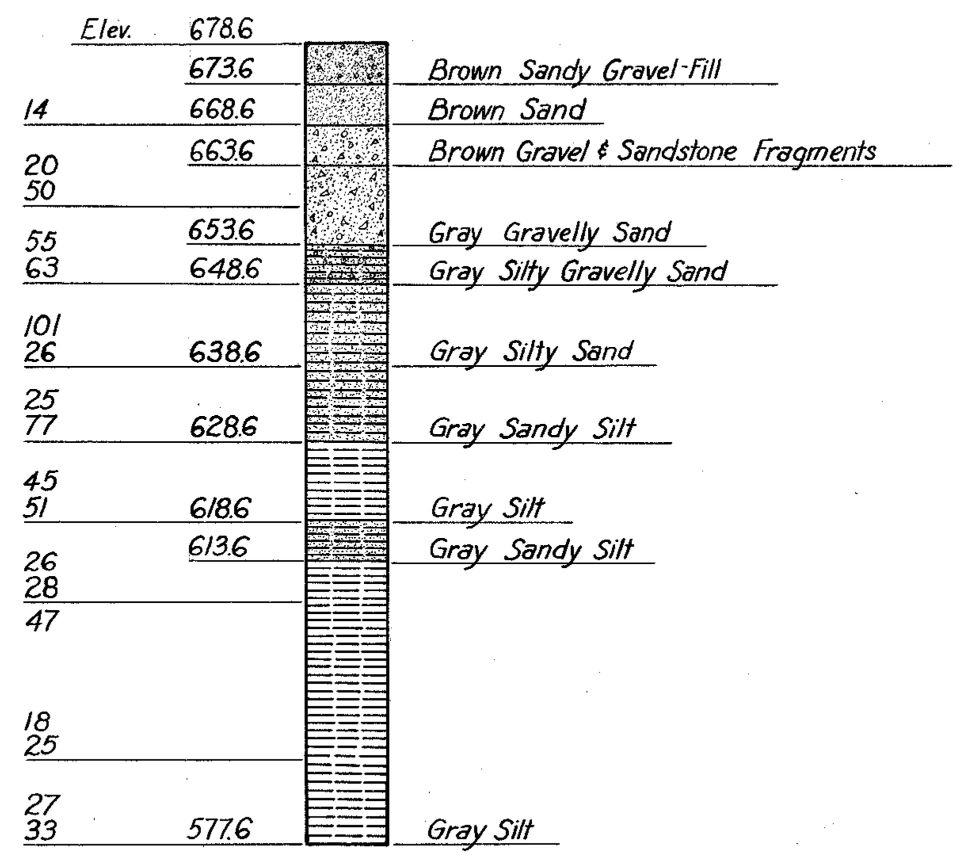
Note: 15'-0" required minimum vertical clearance. Point of actual minimum vertical clearance occurs at the North beam of Br. 1 ¢ East curb of Northbound East 14Th. St.



BRIDGE LAYOUT DIAGRAM
No Scale
*Offsets measured from reference line to ℄ E.B. Scovill along ℄ Bearings.

LEGEND

Proposed Sewer —■— C.B.



BORING - 114
Vertical Scale: 1" = 20'
Sta. 3+22 6' Lt.

Note: The figures to the left indicates the number of hammer blows required to drive the sampling spoon 1 ft. They are given at 5' intervals starting at elev. 678.6.

PILE INFORMATION			
Location	Diameter	Number	Estimated ave. length
W. Abutment	12"	19	25'
E. Abutment	12"	14	27'
Pier 1.	14"	13	26'
Pier 2.	14"	13	27'

All piles to be C.I.P. Reinforced Concrete.

Pile lengths are based on boring data and are approximate only. The Contractor shall assume full responsibility for lengths of piling selected for driving.

NOTES:
Rod soundings only were taken at location B-115. The core drilling made at B-114 is plotted.
For details of slope protection, see Sheet 157-G.
The following items are not included in the Bridge Plans. See Roadway Plans for details.
Approach grading, pavement and slabs.
Guard Rails.

STRUCT. STEEL = 146,000 lbs

PROPOSED STRUCTURE
Type: Continuous steel beam with reinforced concrete deck and substructure.
Spans: 42'-1⅛", 70'-7⅛", and 42'-6½" (along ℄).
Roadway: 24'-0" f/f 2'-0" safety curbs.
Loading: CF 2000-Adequate for A.A.S.H.O. alternate loading.
Skew: Varies.
Surface Course: 1" Monolithic Concrete.
Alignment: 20°00' curve left.
Approach Slabs: AS-1-54 (25' Long)
Superelevation: Varies.

H.N.T.B. BR. NO. 1 PART 6

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

SITE PLAN
E. B. SCOVILL OVER N. B. EAST 14th. ST.
STA. 1+81.00
STA. 3+41.76
Scale: 1" = 20'

WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

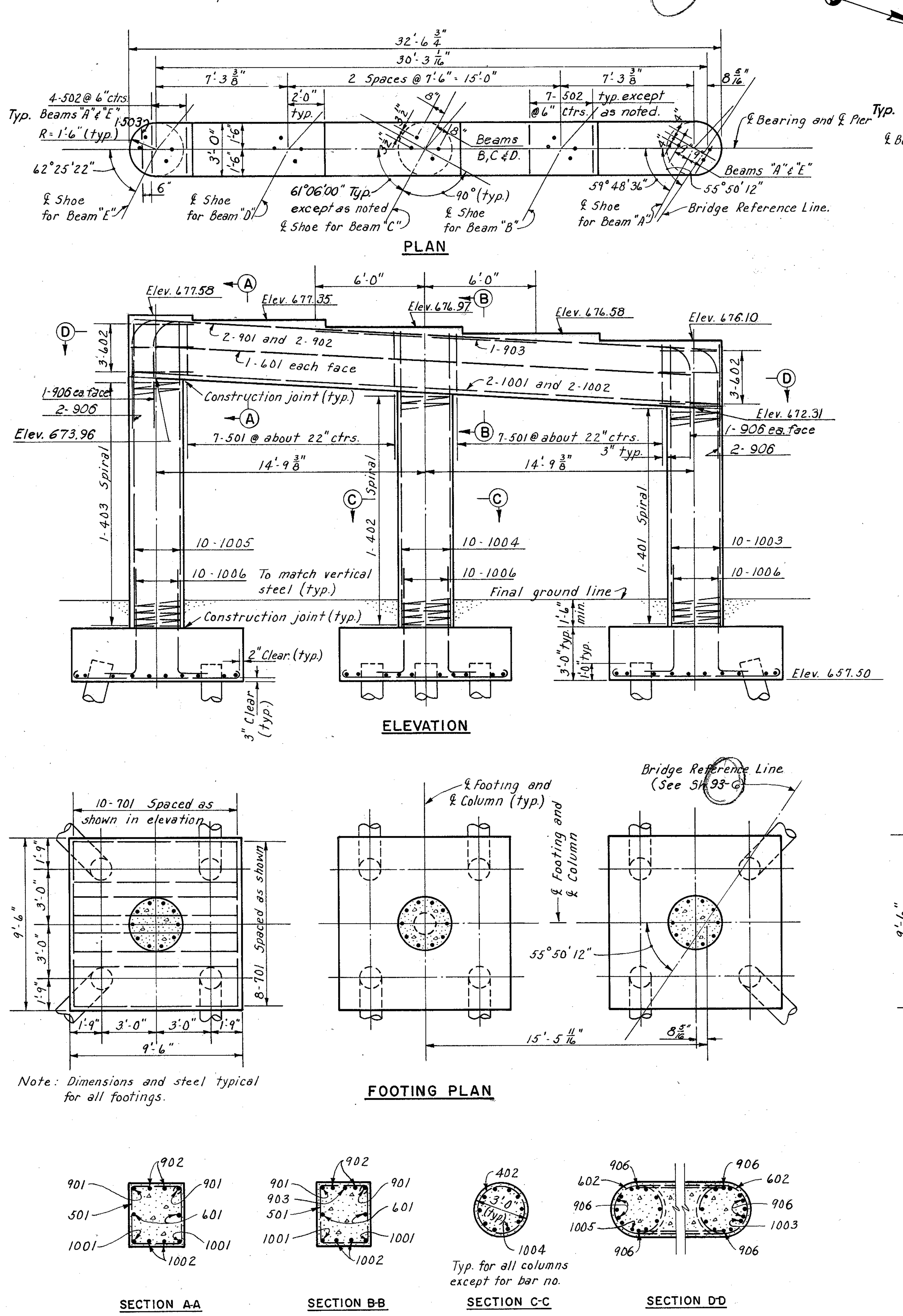
DRAWN A.J.S. DATE 6-25-58	TRACED R.J.K. DATE 9/15/58	CHECKED P.K.K. DATE 7-7-58	REVIEWED JCT DATE 11-12-59	REVISED

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

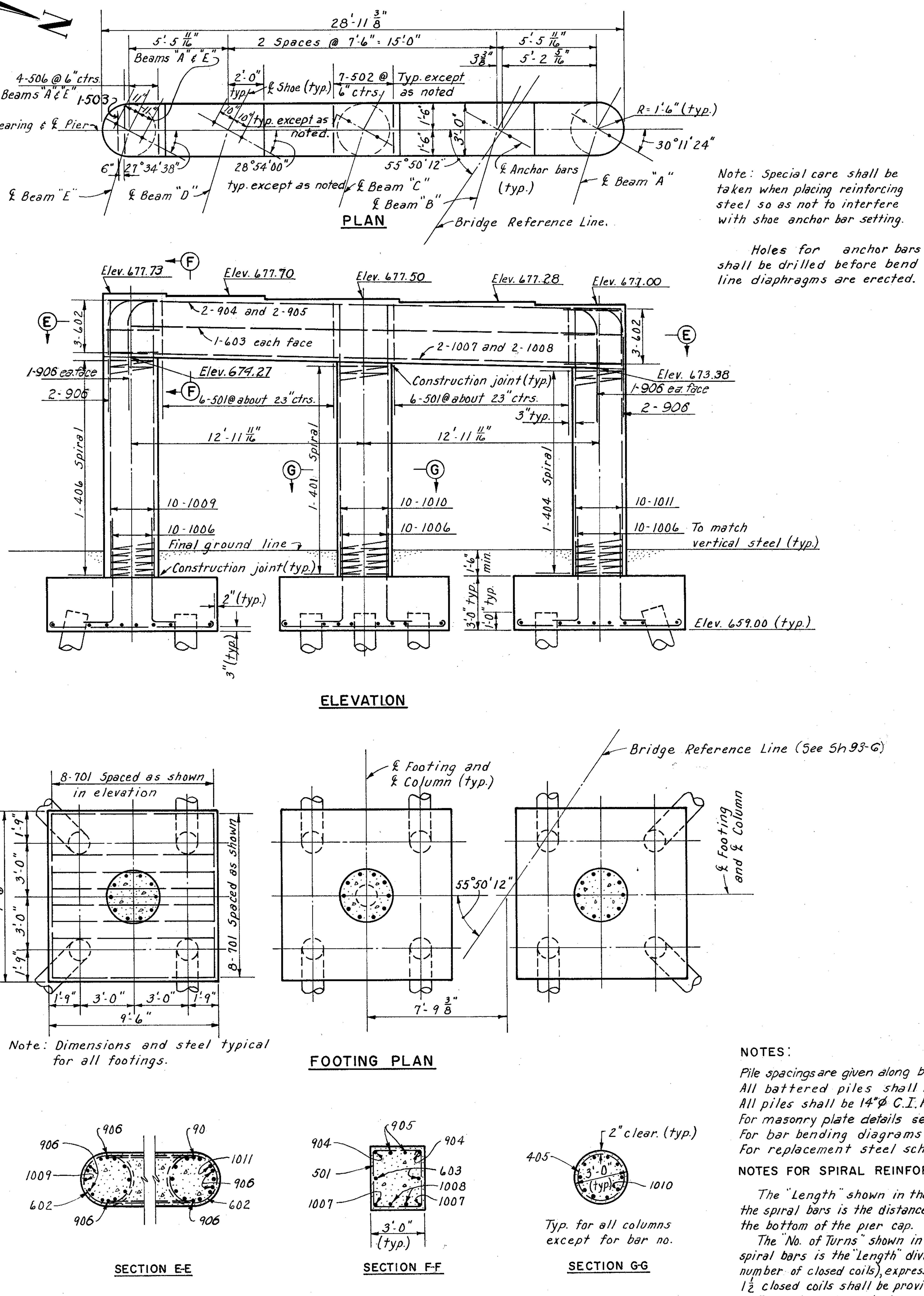
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

Note: Beam flanges will interfere with the setting of anchor bolts. See Sec. 5-0.03 of the Specifications.

Note: Provide electrical ground wire in outside columns of Pier 1. See notes on sheet 91-G.



PIER 1



PIER 2

Note: Special care shall be taken when placing reinforcing steel so as not to interfere with shoe anchor bar setting.

Holes for anchor bars shall be drilled before bend line diaphragms are erected.

REINFORCEMENT SCHEDULE									
MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCRE-MENT	WEIGHT (LBS.)
				A	B	C	D		
501	26	12'-2"	109	2'-8"	3'-2"				330
502	58	3'-9"	105	2'-8"	8"				227
503	4	3'-7"	105	2'-6"	8"				15
601	2	29'-6"	Str.						89
602	12	8'-0"	144	1'-11"	4'-2"				144
603	2	26'-0"	Str.						78
701	102	11'-0"	100	9'-2"					2293
901	2	29'-6"	Str.						200
902	2	32'-0"	Str.						218
903	1	12'-0"	Str.						41
904	2	26'-0"	Str.						177
905	2	28'-6"	Str.						194
906	16	12'-0"	123	4'-7"	4'-7"				651
1001	2	29'-6"	Str.						254
1002	2	31'-9"	Str.						273
1003	10	15'-3"	Str.						656
1004	10	16'-0"	Str.						688
1005	10	16'-9"	Str.						721
1006	60	7'-1"	104	5'-10"	1'-5"				1829
1007	2	26'-0"	Str.						224
1008	2	28'-0"	Str.						241
1009	10	15'-3"	Str.						656
1010	10	15'-0"	Str.						645
1011	10	14'-6"	Str.						624
							Total	weight=	11,468

SPIRAL REINFORCEMENT SCHEDULE						
MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT (LBS.)
401	2	2'-8"	11'-9"	4 1/2"	34	438
402	1	2'-8"	12'-7"	4 1/2"	37	238
403	1	2'-8"	13'-4"	4 1/2"	39	252
404	1	2'-8"	11'-4"	4 1/2"	33	213
405	1	2'-8"	12'-2"	4 1/2"	35	226
				Total	weight =	1367

Note: Prefix "P" shall be assigned to all bar marks.

NOTES:

Pile spacings are given along bottom of footing.
All battered piles shall be battered 3 in 12 in direction shown.
All piles shall be 14"Ø C.I.P. reinforced concrete
For masonry plate details see sheet 156-G & Ohio Standard Drawing RB-1-55
For bar bending diagrams see sheet 97-G.
For replacement steel schedule see sheet 97-G.

NOTES FOR SPIRAL REINFORCING BARS:

The "Length" shown in the reinforcement schedule for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.

The "No. of Turns" shown in the reinforcement schedule for the spiral bars is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. 1 1/2 closed coils shall be provided at the ends of each spiral unit.

Four steel channels, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lb. per lin. ft. will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

Spiral reinforcing bars shall not have deformations but shall in other respects conform to item 5-4.

H.N.T.B. BR. NO. 1 PART 6

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

PIERS

E. B. SCOVILL OVER N. B. EAST 14th ST.
Scale: 1/4" = 1'-0"
STA. 1+81.00
STA. 3+41.76

WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN C.A.B.	TRACED AEK	CHECKED A.L.	REVIEWED JCT	REVISED
DATE 6-5-58	DATE 7-31-58	DATE 6-18-58	DATE 11-12-59	SHEET 94

NOTES:

All piles shall be 12" C.I.P. reinforced concrete.
All battered piles shall be battered 3 in 12 in direction shown.
Pile spacings given along bottom of footing.
For details of end dam, see Sheet 156-G.
For masonry plate details, see Sheet 156-G.
For Railing details and Guard Rail connection details, see Sheet 158-G.
For Slope Protection details, see Sheet 157-G.
For Reinforcement schedule, see Sheet 97-G.
Reinforcement bars shall be 3 inches clear from face of concrete in footings and 2 inches elsewhere.
** denotes elevation at construction joint.

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		
2	OHIO			

95 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

H.N.T.B. BR. NO. 1 — PART 6

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

WEST ABUTMENT

E. B. SCOVILL OVER N. B. EAST 14th ST.

STA. 1+81.00
STA. 3+41.76

Scale: 1/4"=1'-0" Except as noted.

WILLOW-INNER BELT FREEWAY

CLEVELAND — CUYAHOGA COUNTY — OHIO

DRAWN F.S.J.	TRACED	CHECKED G.T.	REVIEWED J.C.T.	REVISED	
DATE 6-23-58	DATE	DATE 7-2-58	DATE 11-12-59		SHEET 95

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

MICROFILMED JUL 8 1985

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

Note: Prefix "AB" shall be assigned to all bar marks.

NOTE:
For abutment notes, see Sheet 95-G
* denotes elevation at construction joint

H.N.T.B. BR. NO. 1 — PART 6

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

EAST ABUTMENT

E. B. SCOVILL OVER N. B. EAST 14th ST.

Scale: 1/4" = 1'-0" — STA. 1+81.00 — STA. 3+41.76

WILLOW-INNER BELT FREEWAY

CLEVELAND — CUYAHOGA COUNTY — OHIO

DRAWN F.S.J.	TRACED	CHECKED G.T.	REVIEWED JCT	REVISED
DATE 6-16-58	DATE	DATE 7-1-58	DATE 11-12-59	SHEET 96

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		97 / 175
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29

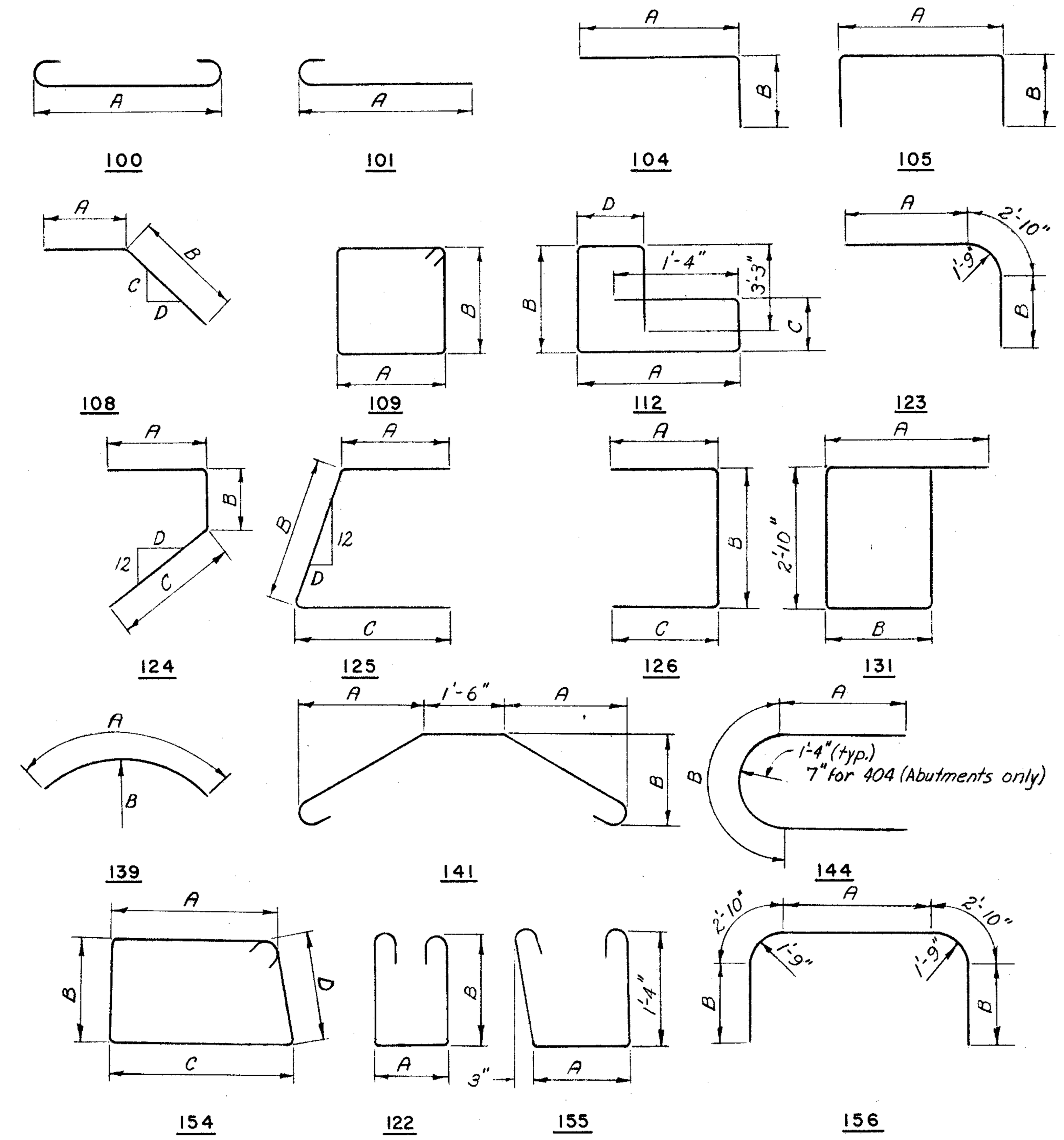
WEST ABUTMENT

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D	SERIES INCREMENT	WEIGHT (LBS)
401	34	5'-7"	105	8"	2'-7"				127
402	34	8'-7"	154	2'-8"	1'-4"	2'-10"	1'-4"		195
403	2	8'-3"	109	2'-10"	1'-1"				11
404	14	6'-3"	144	2'-3"	1'-9"				59
405	2	8'-1"	154	2'-5"	1'-4"	2'-7"	1'-4"		11
501	35	4'-7"	105	1'-8"	1'-7"				167
601	27	6'-9"	100	5'-3"					274
602	16	23'-3"	Str.						559
603	9	19'-6"	Str.						264
604	2 Series of 20	5'-11" to 7'-11"	104	5'-3" to 7'-3"	10"			$1\frac{1}{4}$"	416
605	20	8'-1"	105	3'-5"	2'-6"				243
606	8	23'-6"	Str.						282
607	22	4'-4"	100	3'-0"					143
608	4	16'-9"	Str.						101
609	40	5'-8"	104	5'-0"	10"				340
610	1	13'-6"	Str.						20
611	1	13'-0"	Str.						20
612	1	7'-3"	Str.						11
613	33	16'-10"	112	1'-5"	6'-1"	4'-9"	10"		834
614	2	5'-10"	123	2'-0"	1'-0"				18
615	6	11'-1"	126	3'-0"	6'-5"	2'-0"			100
616	7	19'-9"	Str.						208
617	2	4'-6"	104	3'-0"	1'-8"				14
618	23	8'-0"	Str.						276
619	6	6'-9"	Str.						61
620	2	3'-9"	Str.						11
621	12	3'-6"	Str.						63
622	13	9'-9"	Str.						190
623	6	8'-6"	Str.						77
624	2	4'-3"	Str.						13
625	4	5'-11"	108	2'-0"	4'-0"	6	12		36
626	6	17'-6"	139	17'-6"	283'-10"				–
627	4	15'-3"	139	15'-3"	283'-8"				92
628	4	13'-0"	139	13'-0"	284'-10"				78
629	2	21'-3"	139	21'-3"	283'-8"				64
630	2	18'-0"	139	18'-0"	264'-10"				54
631	6	19'-0"	139	19'-0"	284'-10"				171
632	4	11'-7"	139	11'-7"	313'-4"				70
633	2	17'-7"	139	17'-7"	313'-4"				53
634	4	7'-3"	139	7'-3"	312'-2"				44
635	3	11'-6"	139	11'-6"	312'-2"				52
636	3	14'-9"	139	14'-9"	313'-2"				66
637	2	12'-9"	139	12'-9"	312'-0"				38
638	2	13'-0"	139	13'-0"	310'-10"				39
639	6	13'-3"	139	13'-3"	313'-2"				
640	9	5'-0"	Str.						68
641	4	3'-9"	108	1'-11"	1'-11"	12	11		23
642	3	4'-0"	Str.						18
643	1	17'-3"	124	13'-7"	1'-11"	2'-0"	11		26
644	3	4'-9"	Str.						21
645	3	3'-2"	124	1'-0"	6"	1'-11"	11		14
646	2	20'-9"	139	20'-9"	284'-10"				62
								Total	6,197

EAST ABUTMENT

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D	SERIES INCREMENT	WEIGHT (LBS)
401	30	5'-7"	105	8"	2'-7"				112
402	30	8'-6"	154	2'-8"	1'-4"	2'-9"	1'-4"		171
403	2	8'-1"	109	2'-10"	1'-0"				11
404	12	6'-3"	144	2'-3"	1'-9"				50
405	2	8'-1"	154	2'-5"	1'-4"	2'-7"	1'-4"		11
501	35	4'-7"	105	1'-8"	1'-7"				167
601	22	6'-9"	100	5'-3"					223
602	25	17'-6"	Str.						657
603	1	17'-3"	108	15'-6"	1'-10"	4	12		26
604	30	6'-0"	104	10"	5'-4"				270
605	15	7'-1"	105	3'-5"	2'-0"				160
606	14	15'-3"	Str.						321
607	20	4'-6"	100	3'-0"					135
608	2	13'-0"	Str.						39
609	6	11'-0"	Str.						99
610	2	13'-3"	Str.						40
611	36	5'-7"	104	10"	4'-11"				302
612	25	17'-1"	112	1'-5"	6'-2"	4'-10"	11"		641
613	6	4'-0"	Str.						36
614	1	11'-6"	Str.						17
615	1	24'-9"	Str.						37
616	18	5'-0"	Str.						135
617	3	13'-1"	108	11'-3"	1'-11"	12	4		59
618	3	13'-3"	124	11'-6"	8"	1'-4"	$3\frac{1}{2}$		60
619	4	7'-6"	Str.						45
620	1	11'-3"	Str.						17
621	2	17'-3"	Str.						52
622	16	8'-3"	Str.						198
623	4	6'-6"	Str.						39
624	4	6'-3"	Str.						38
625	4	7'-5"	108	2'-0"	4'-0"	6	12		45
626	8	3'-6"	Str.						42
627	4	3'-9"	Str.						23
628	4	4'-3"	Str.						26
629	4	7'-9"	Str.						47
630	2	16'-7"	123	12'-9"	1'-0"				50
631	2	3'-11"	104	2'-8"	1'-5"				12
632	16	8'-0"	Str.						192
633	12	14'-0"	Str.						–
634	14	14'-9"	Str.						310
635	6	12'-0"	126	3'-0"	7'-4"	2'-0"			108
636	1	16'-11"	124	13'-5"	1'-10"	1'-11"	4		25
637	1	15'-1"	108	13'-0"	2'-2"	12	4		23
								Total	5,071

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D	SERIES INCREMENT	WEIGHT (LBS)



BENDING DIAGRAMS

REPLACEMENT REINFORCEMENT SCHEDULE			
SIZE	NO.	LENGTH	TYPE
4	2	5'-3"	Str.
5	9	5'-9"	Str.
6	24	6'-0"	Str.
7	2	6'-3"	Str.
8	2	6'-6"	Str.
9	4	7'-0"	Str.
10	5	7'-3"	Str.
11	7	7'-6"	Str.

Replacement bars are listed for the entire contract.

Note: Prefixes shall be assigned to bar marks as follows:
West Abutment "AA"
East Abutment "AB"

NOTES:

Bars 626 and 639 (West Abutment), 633 (East Abutment) are included for payment with "Item 5-14 Railing."

Bars of a series shall vary in length by a constant increment.

Bar dimensions are given out to out.

H.N.T.B. BR. NO. 1 — PART 6

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

REINFORCEMENT SCHEDULE - ABUTMENTS

E. B. SCOVILL OVER N. B. EAST 14th ST.

Scale: None — STA. 1+81.00 — STA. 3+41.76

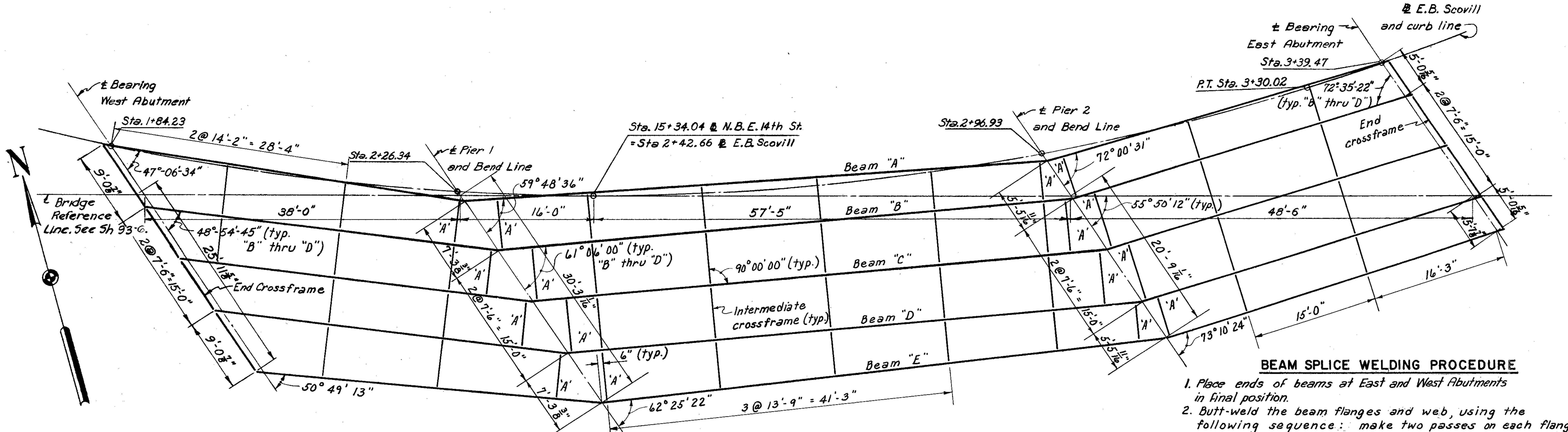
WILLOW - INNER BELT FREEWAY

CLEVELAND — CUYAHOGA COUNTY — OHIO

DRAWN F.S.J.	TRACED	CHECKED G.T.	REVIEWED J.C.T.	REVISED
DATE 8-21-58	DATE	DATE 8-29-58	DATE 11-12-59	SHEET 97

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

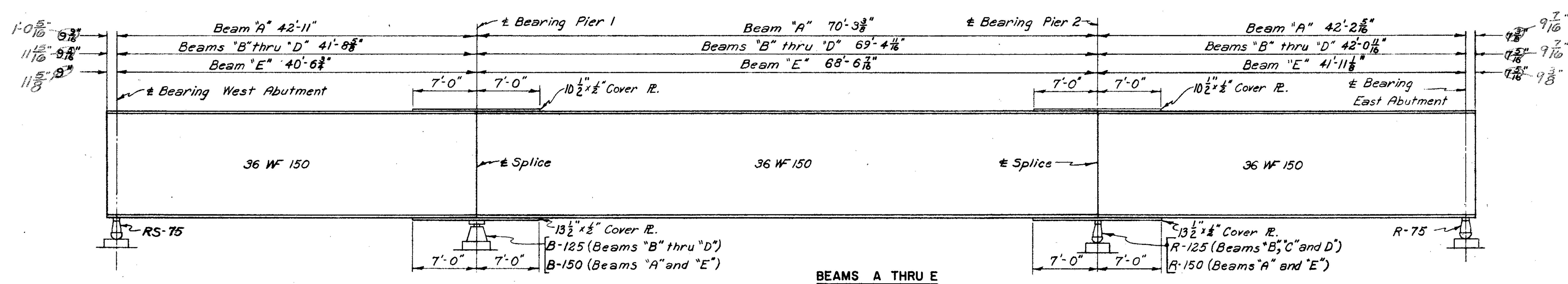


Note:
For detail of Type "A" crossframe, see Sheet 99-G.

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

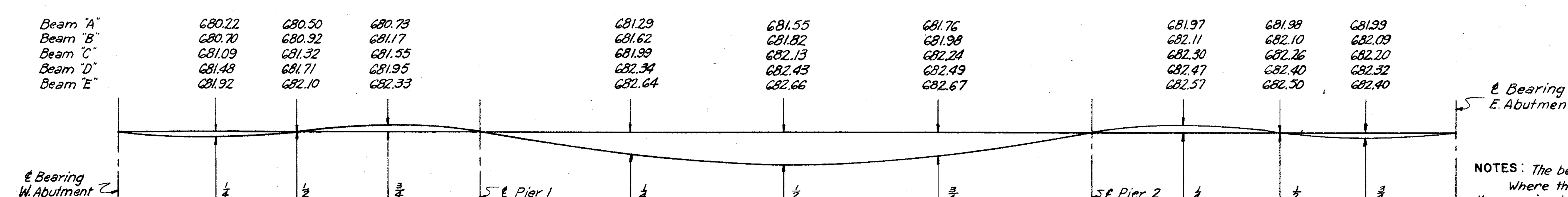
BEAM SPLICE WELDING PROCEDURE

1. Place ends of beams at East and West Abutments in final position.
2. Butt-weld the beam flanges and web, using the following sequence: make two passes on each flange, then two on the web; repeat, using one pass at each location, until welds are completed.
3. Weld top and bottom cover plates on each side of splice.
4. Weld Type "A" crossframes in position.



BEAMS A THRU E

BEAM ELEVATION
No Scale



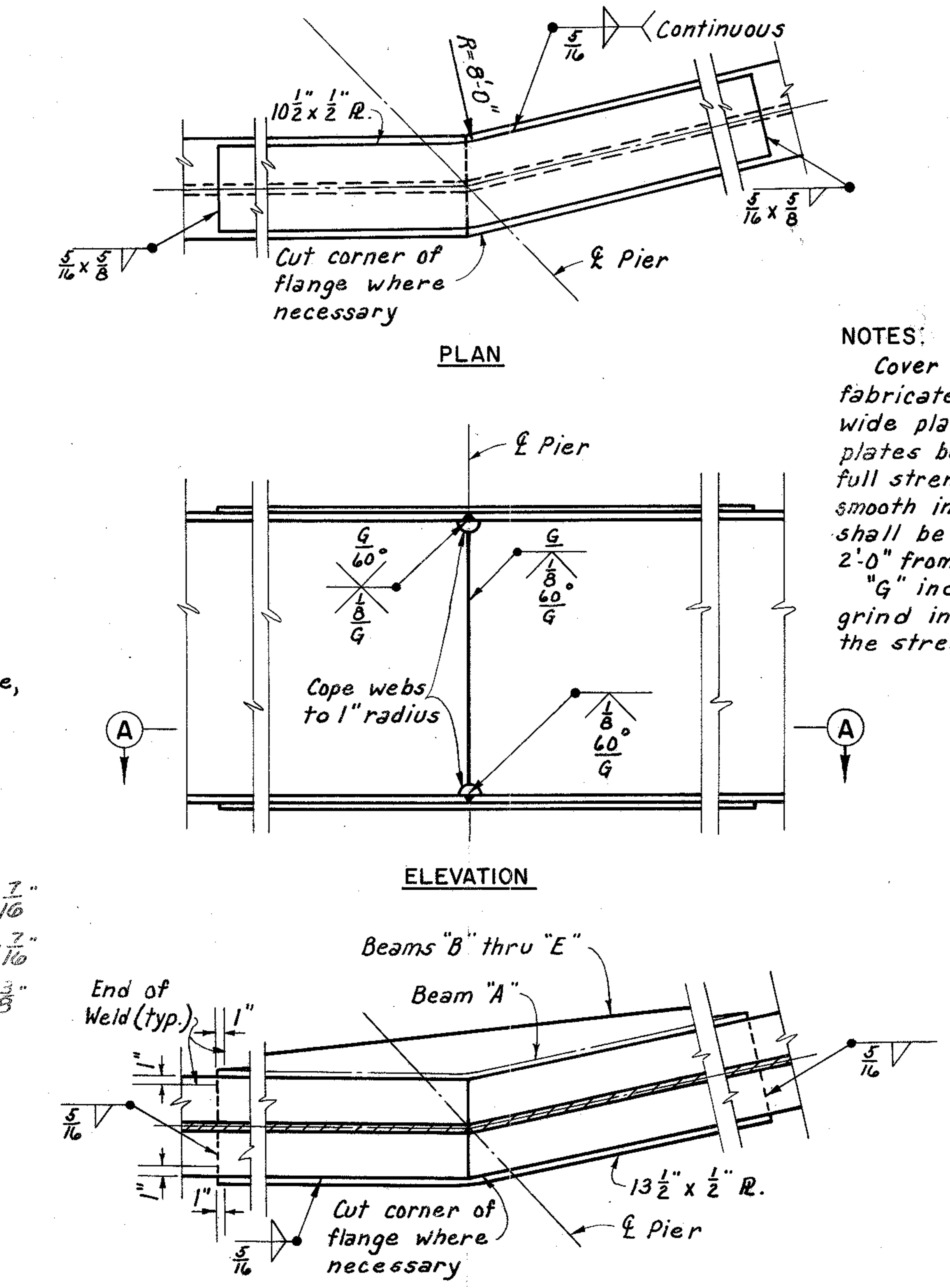
SPAN 1 SPAN 2 SPAN 3

Note: Elevations shown above base line are top of Pavement Elevations.

BEAMS A THRU E
BEAM DEFLECTION DIAGRAM
No Scale

ELEVATION AND DEFLECTION TABLE

BEAM	WEST ABUTMENT		SPAN 1						PIER 1		SPAN 2							PIER 2		SPAN 3						EAST ABUTMENT	
			1/4		℄		3/4				1/4		℄			3/4				1/4		℄		3/4			
	TOP OF BEAM ELEV.	TOP OF PVMT. ELEV.	D.L. DEF. TOT.	D.L. DEF. CON.	D.L. DEF. TOT.	D.L. DEF. CON.	D.L. DEF. TOT.	D.L. DEF. CON.	TOP OF BEAM ELEV.	TOP OF PVMT. ELEV.	D.L. DEF. TOT.	D.L. DEF. CON.	D.L. DEF. TOT.	D.L. DEF. CON.	CONV.	D.L. DEF. TOT.	D.L. DEF. CON.	TOP OF BEAM ELEV.	TOP OF PVMT. ELEV.	D.L. DEF. TOT.	D.L. DEF. CON.	D.L. DEF. TOT.	D.L. DEF. CON.	D.L. DEF. TOT.	D.L. DEF. CON.	TOP OF BEAM ELEV.	TOP OF PVMT. ELEV.
A	679.15	679.92	1/8	1/8	1/16	1/16	-1/16	-1/16	680.26	681.03	3/4	11/16	1 1/4	1 1/8	13/16	3/4	11/16	681.16	681.94	-1/16	-1/16	1/16	1/16	1/16	1/16	681.21	681.98
B	679.63	680.40	0	0	0	0	-1/16	-1/16	680.63	681.41	5/16	1/4	9/16	1/2	3/4	5/16	1/4	681.33	682.11	-1/16	-1/16	0	0	0	0	681.28	682.05
C	680.04	680.81	0	0	0	0	-1/16	-1/16	681.02	681.79	3/8	5/16	5/8	1/2	7/8	3/8	5/16	681.55	682.33	-1/16	-1/16	0	0	1/16	1/16	681.37	682.15
D	680.46	681.23	0	0	0	0	-1/16	-1/16	681.40	682.17	5/16	1/4	9/16	1/2	15/16	5/16	1/4	681.75	682.53	-1/16	-1/16	0	0	0	0	681.46	682.24
E	680.91	681.71	1/16	1/16	0	0	-1/16	-1/16	681.74	682.54	7/8	13/16	1 3/8	1 1/4	5/8	7/8	13/16	681.89	682.67	-1/16	-1/16	0	0	1/16	1/16	681.51	682.29



BEAM SPLICE DETAIL
Scale: 3/4" = 1'-0"

NOTES:
Cover plates may be fabricated from a single wide plate or from two plates butt welded for full strength and ground smooth in the shop. Splice shall be a minimum of 2'-0" from the bend point. "G" indicates a smooth grind in the direction of the stress.

NOTES:
For details of end dams, see Sheet 156-G.
For crossframe details, see Sheet 99-G.
For Drainage Details, see Sheet 157-G.
Beam flanges will interfere with the setting of anchor bolts. See Sec. 5-0.03 of the Specifications.
Holes for anchor bars shall be drilled before bend line diaphragms are erected.
For details of rocker masonry plates see Sh. 156-G.
For other rocker details and details of bolsters see Ohio Standards, Sheet RB-1-55.

NOTES: The beams in Span 2 shall be cambered as follows:
Where the sum of the deflections and convexity is 3/4" to 1", the required camber will be 1", and if greater than 1", the required camber will be the same as this sum.
Beams in Spans 1 and 3 do not require camber but shall be fabricated so that any curved beams will be placed with the convex flange up.
Deflections are given at the quarter points and are measured to the nearest 1/16 inch.
In Elevation and Deflection Table, the following abbreviations are used:
(D.L. Def.) denotes dead load deflections.
(Tot.) refers to total deflection from dead load of steel and concrete.
(Con.) denotes deflections for concrete.
(Conv.) denotes convexity corrections required for vertical curvature of the roadway gradient.
(PVMT) denotes pavement.
Elevations shown in table are located at intersections of ℄ bearings and ℄ beams.

H.N.T.B. BR. NO. 1 PART 6

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

FRAMING PLAN

E.B. SCOVILL OVER N.B. EAST 14th ST.

Scale: As noted STA. 1+81.00 STA. 3+41.76

WILLOW-INNER BELT FREEWAY

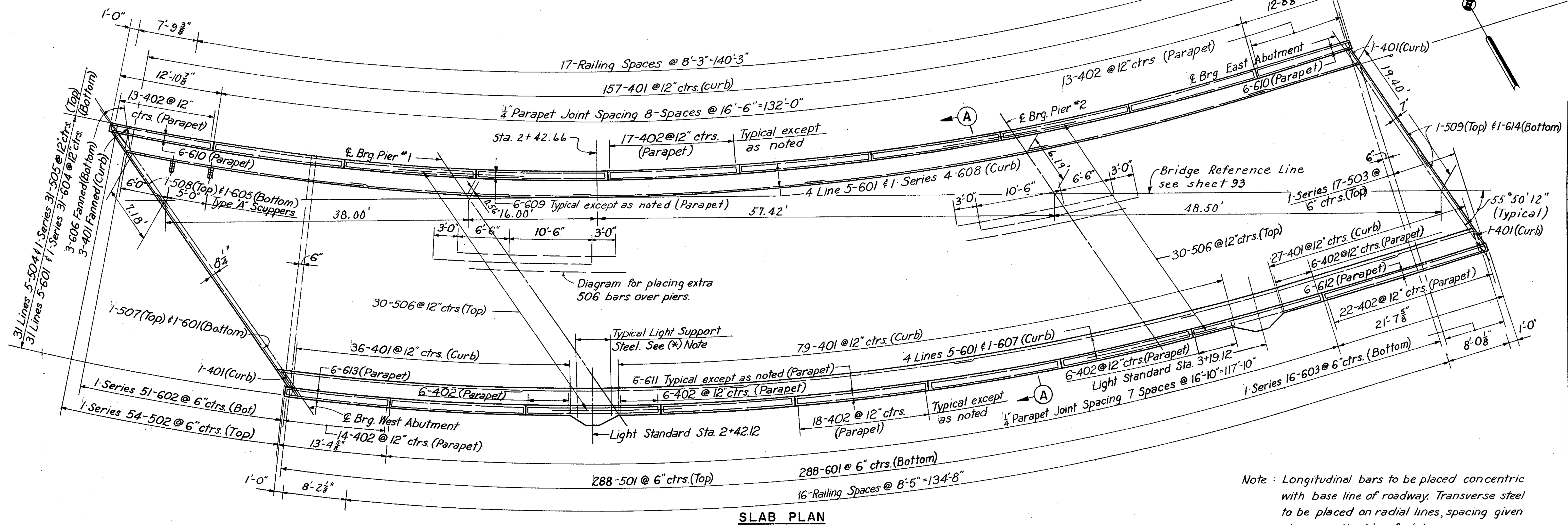
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN F.S.J.	TRACED	CHECKED R.A.	REVIEWED J.C.T.	REVISED 12-8-60
DATE 5-12-58	DATE	DATE 6-28-58	DATE 11-12-59	SHEET 98

Note: Prefix "S" shall be assigned to all bar marks.

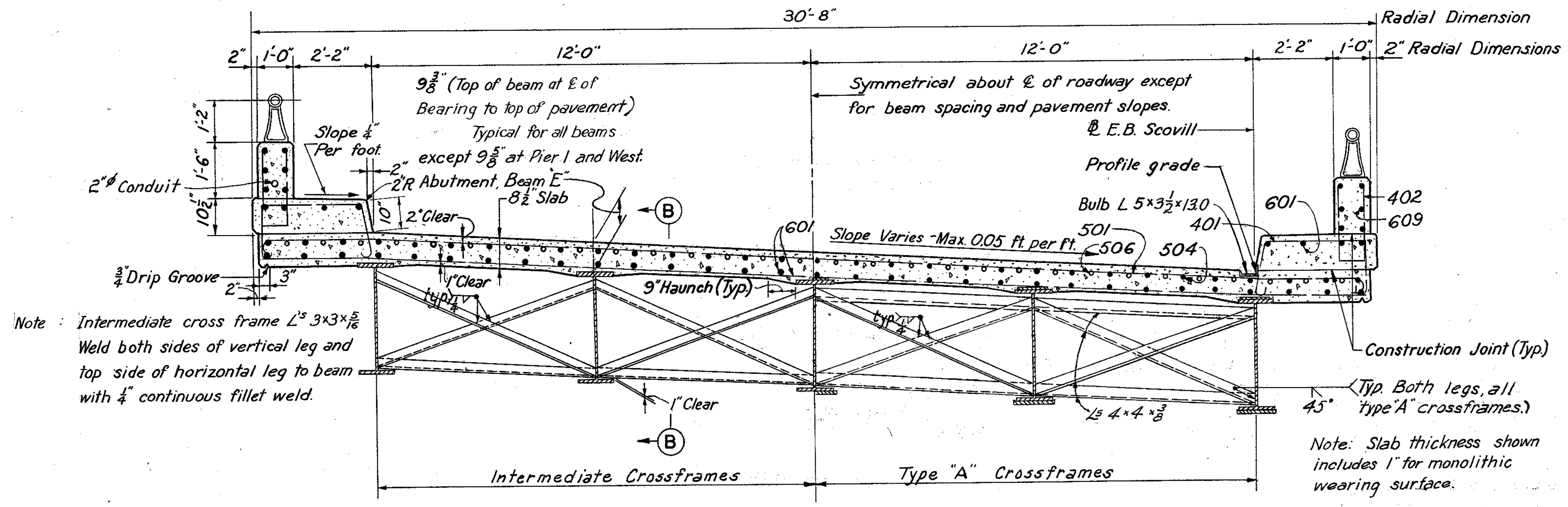
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-1829

Note: In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are parallel to the transverse bars in the slab and are located near the center of any span.



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

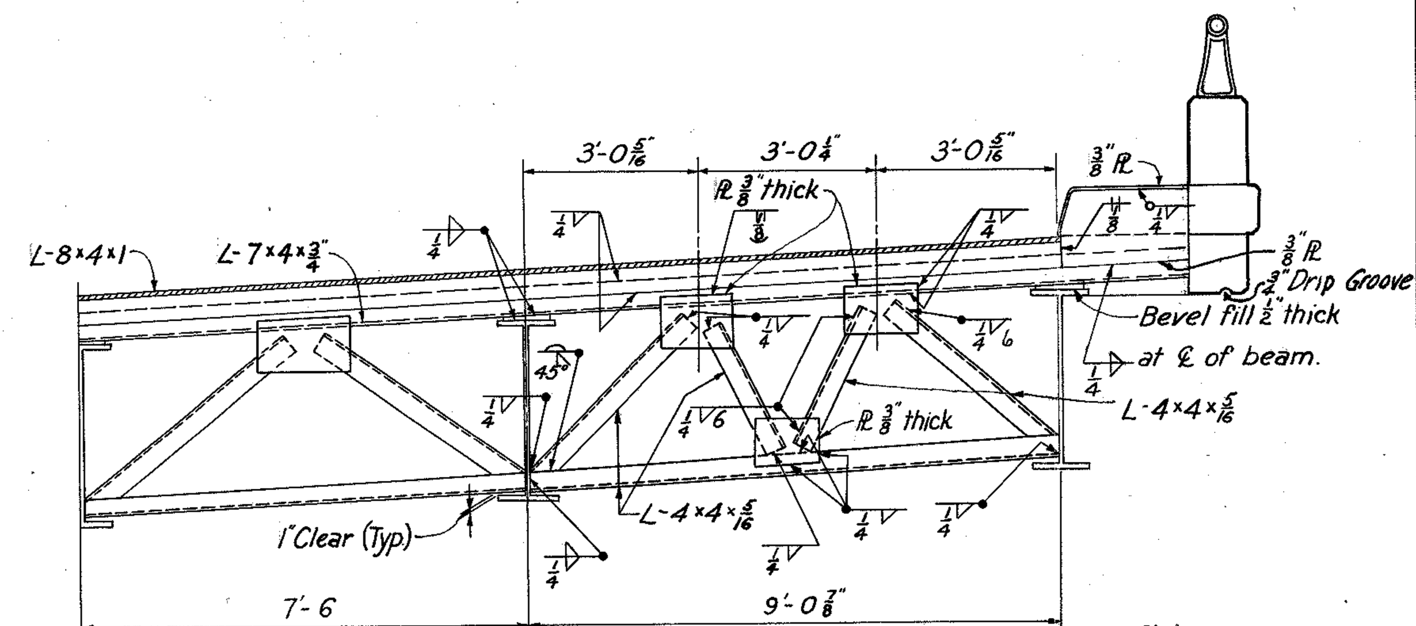
Note: Longitudinal bars to be placed concentric with base line of roadway. Transverse steel to be placed on radial lines, spacing given along south side of slab. Short transverse bars to extend to vertical leg of end dam angle.



Note: Intermediate cross frame L's 3×3×5/16. Weld both sides of vertical leg and top side of horizontal leg to beam with 1/4" continuous fillet weld.

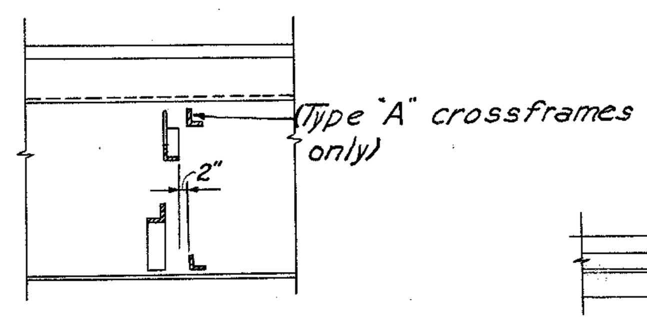
Note: Slab thickness shown includes 1" for monolithic wearing surface.

SECTION A-A

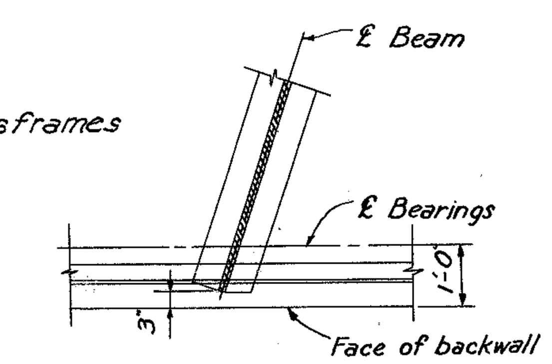


Note: End diaphragm details not shown are the same as at the East Abutment

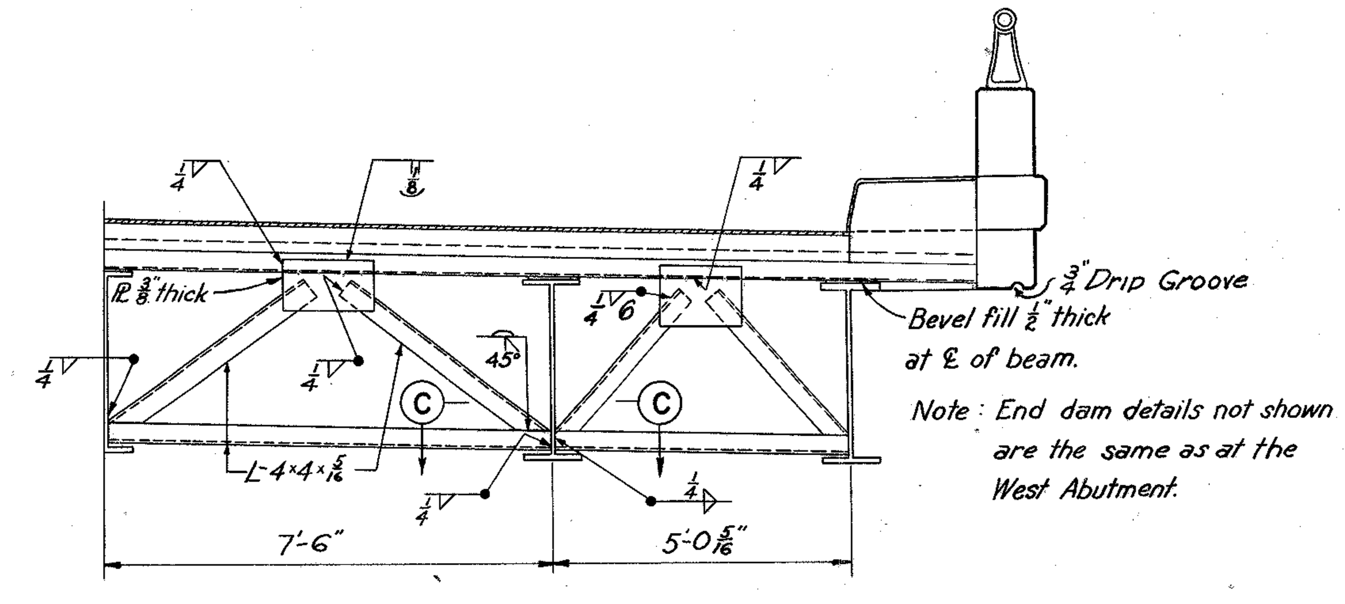
HALF SECTION END DAM - WEST ABUTMENT
(Other half similar)



SECTION B-B

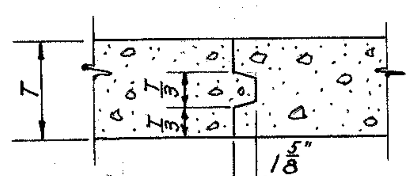


SECTION C-C
(West Abutment similar.)



Note: End dam details not shown are the same as at the West Abutment.

HALF SECTION END DAM - EAST ABUTMENT
(Other half similar)



OPTIONAL CONSTRUCTION JOINT THROUGH DECK

*Note: Bars 451 thru 456 and 651 thru 653 are for the Light Standard Supports. For their bar bending diagrams and placement see sheet 159-G.

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (POUNDS)
401	305	6'-1"	122	2'-8"	1'-4"				1241
402	312	4'-5"	105	0'-8"	2'-0"				1198
451*	4	8'-11"	131	2'-6"	1'-2"				24
452*	4	9'-11"	131	3'-0"	1'-8"				26
453*	6	9'-5"	131	3'-2"	1'-0"				38
454*	4	6'-7"	155	3'-2"					18
455*	4	7'-1"	155	3'-8"					18
456*	6	7'-3"	155	3'-10"					30
501	288	31'-2"	100	30'-0"					9362
502	1-Ser. of 54	1'-7" to 29'-1"	101	1'-0" to 28'-6				6 1/4"	863
503	1-Ser. of 17	1'-7" to 28'-4"	101	1'-0" to 27'-9				1'-8 1/16"	265
504	155	30'-0"	Str.						4850
505	1-Ser. of 31	10'-6" to 15'-0"	Str.					1 13/16"	412
506	60	20'-0"	Str.						1252
507	1	30'-7"	101	30'-0"					32
508	1	14'-1"	101	13'-6"					15
509	2	17'-1"	101	16'-6"					36
601	484	30'-0"	Str.						21,809
602	1-Ser. of 51	2'-6" to 28'-6"	Str.					6 1/4"	1,187
603	1-Ser. of 16	2'-6" to 27'-9"	Str.					1'-8 3/16"	363
604	1-Ser. of 31	12'-3" to 16'-6"	Str.					1 11/16"	669
605	1	13'-9"	Str.						21
606	3	2'-6"	Str.						11
607	4	12'-3"	Str.						74
608	1-Ser. of 4	16'-0" to 16'-6"	Str.					2	98
609‡	48	16'-0"	Str.						—
610‡	12	12'-3"	Str.						—
611‡	42	16'-6"	Str.						—
612‡	6	21'-3"	Str.						—
613‡	6	12'-9"	Str.						—
614	2	16'-9"	Str.						50
651*	4	9'-5"	141	2'-11"	1'-10"				56
652*	6	14'-6"	141	5'-3"	3'-0"				130
653*	2	5'-0"	Str.						16
								Total	44,164

Note: Bars of a series shall vary in length by a constant increment.

NOTES: For Railing details see sheet 158-G.
For light Standard support & other lighting details see sheet 159-G.

For Drainage details see sheet 157-G.
For end dam details, see sheet 156-G.
For replacement bars see sheet 97-G.
For Parapet Joint details see sheet 158-G.
For bar bending diagrams see sheet 97-G.
‡ Bars 609, 610, 611, 612, & 613 are included for payment with "Item S-14, Railing"
All bar dimensions are given out to out.

H.N.T.B. BR. NO. 1 — PART 6

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

DECK PLAN AND CROSS SECTION

E.B. SCOVILL OVER N.B. EAST 14th ST.

Scale: 3/8"=1'-0" Unless noted

STA. 1+81.00
STA. 3+41.76

WILLOW-INNER BELT FREEWAY

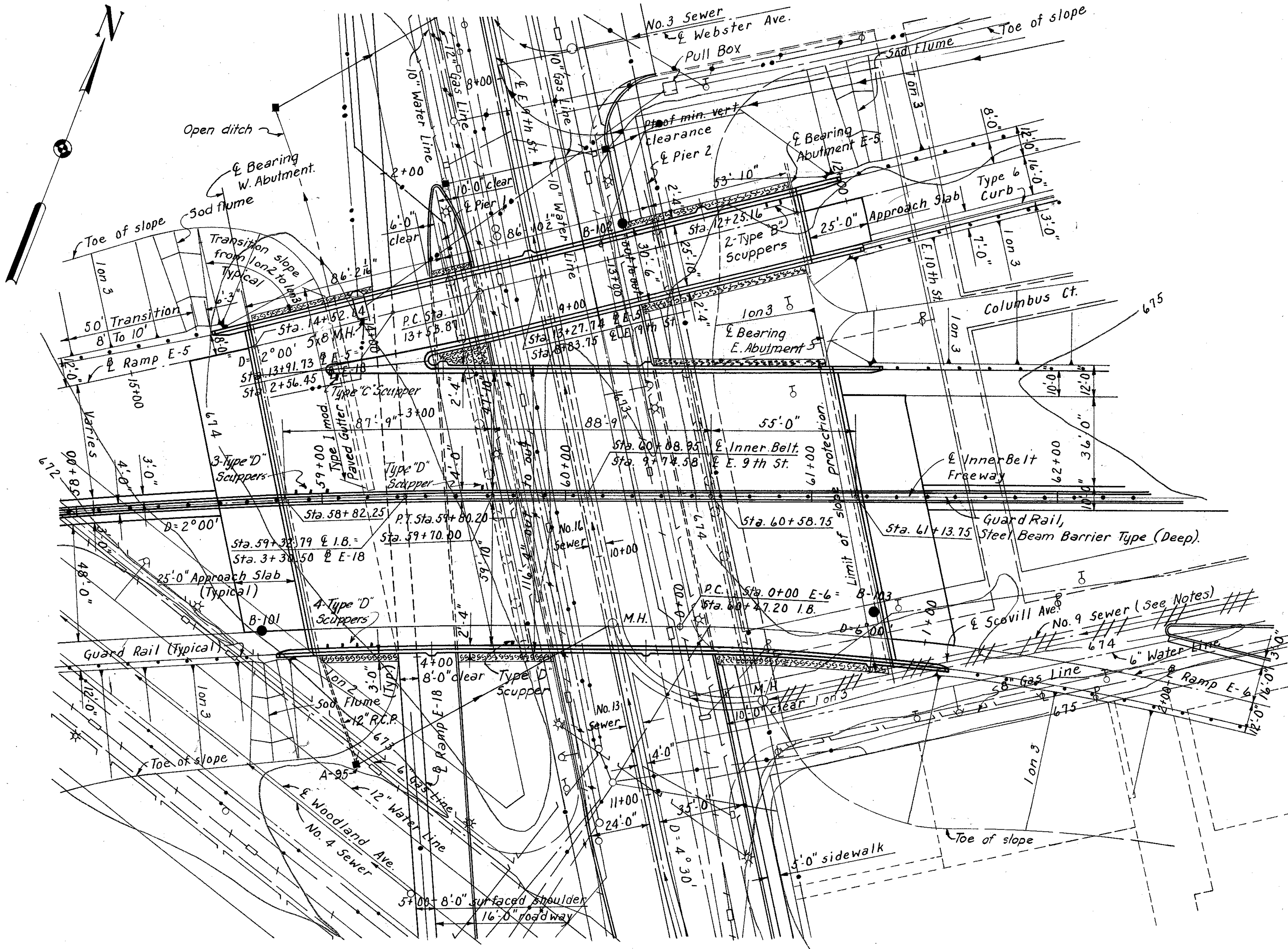
CLEVELAND — CUYAHOGA COUNTY — OHIO

DRAWN TJP	TRACED R.J.K.	CHECKED D.R.K.	REVIEWED JCT	REVISED
DATE 6-4-58	DATE 9-7-58	DATE 6-23-58	DATE 11-12-59	SHEET 99

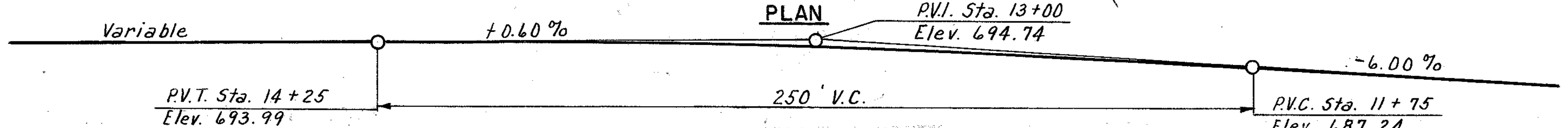
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

100/175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

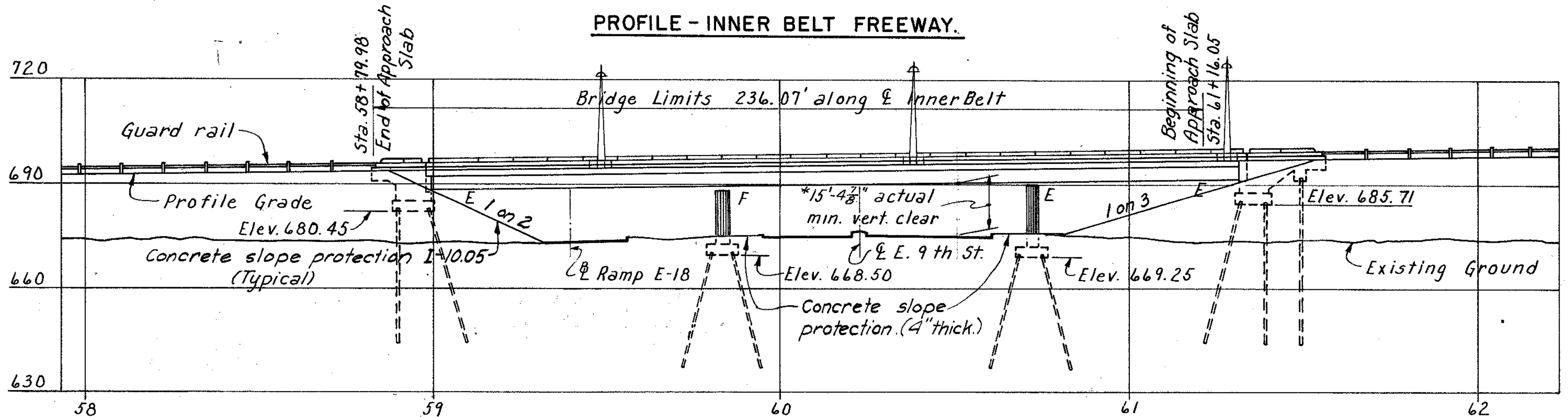


PLAN



PROFILE - RAMP E-5

PROFILE - INNER BELT FREEWAY.



Slopes shown in Elevation are normal to E. 9th St.

ELEVATION

*15'-0" Required minimum vertical clearance. Point of actual minimum vertical clearance occurs at North beam of Ramp E-5 and 26' East of ℄ East 9th St.

LEGEND

- Right of Way
- Curb
- M.E.L.P.
- O.B.T.
- C.E.I. Light
- C.E.I. Steam
- Western Union
- Transit System Pole
- Telephone & Telegraph Pole
- Power Pole
- Light Pole
- Pole (General)
- Muny Steam
- Sewer
- Water
- Gas
- W.W.L.
- Proposed Sewer
- Proposed 2"ϕ Duct
- Proposed 4"ϕ Duct
- Sewer to be abandoned
- Proposed Inlet
- Proposed Manhole

PROPOSED STRUCTURE

Type: Continuous rolled beam with reinforced concrete deck and substructure.
Spans: 87'-9", 88'-9" & 55'-0" along ℄ Innerbelt
Roadway: 114'-0" (nominal) f/f parapets.
Loading: CF 2000-Adequate for A.A.S.H.O. alternate loading
Surface Course: 1" Monolithic Concrete.
Alignment: 2°00' Rt. Tangent
Approach Slabs: AS-1-54 (25' long)
Superelevation: Varies
Skew: Varies

CURVE DATA

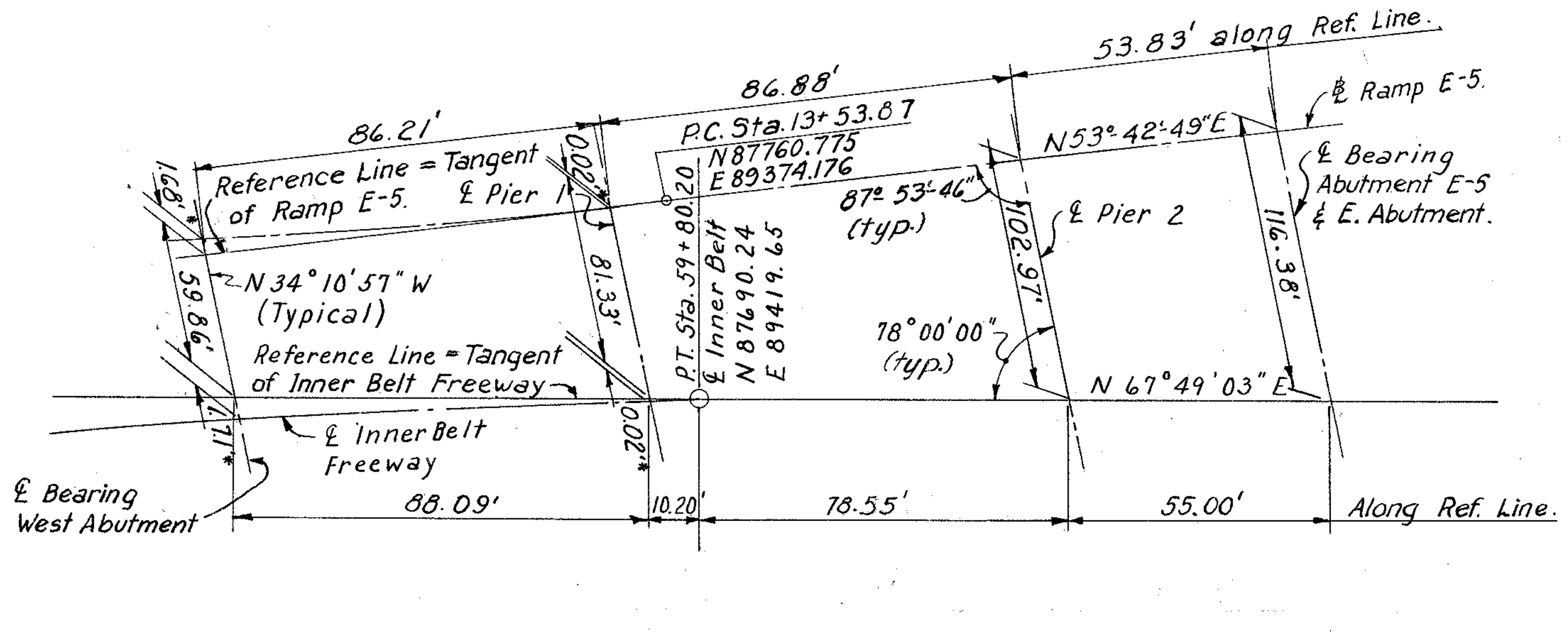
Inner Belt Freeway	℄ Ramp E-5	℄ Ramp E-6
Δ = 29° 02' 23"	Δ = 7° 00' 00"	Δ = 13° 06' 19"
D = 2° 00'	D = 2° 00'	D = 6° 00'
R = 2864.79'	R = 2864.79'	R = 954.93'
T = 741.94'	T = 175.22'	T = 109.69'
L = 1451.98'	L = 350.00'	L = 218.42'

Blows	Elev.	Material
	674.5	
15	669.5	Brown Silty Gravelly Sand
23	664.5	Brown Silty Sandy Gravel
14	659.5	Brown Silty Sand
57	654.5	Brown Silty Gravelly Sand
44	649.5	Brown & Gray Sandy Silt
40	644.5	Gray Silty Sand
87		
87	634.5	Gray Sandy Silt
70		
77		
90		
126		
81	609.5	Gray Silt
21		
19		
17	593.5	Gray Silt & Clay

BORING B-103

Sta. 10+45 ℄ E. 9th St., 105' Lt.
Vertical Scale: 1" = 20'

Note:
The figures to the left indicates the number of hammer blows required to drive the sample spoon 1 ft. They are given at 5' intervals starting at elevation 674.5.



BRIDGE LAYOUT DIAGRAM

No scale

*Offset measured from reference line to ℄ Inner Belt Freeway or ℄ Ramp E-5 along ℄ bearings.

PILE INFORMATION

Location	Diameter	Number	Estimated ave. length
Pier 1	14"	68	35'
Pier 2	14"	51	35'
W. Abutment	12"	56	42'
E. Abutment	12"	48	46'
E. Abut. - E-5	12"	18	40'

All piles to be C.I.P. Reinforced Concrete.
Pile lengths are based on boring data and are approximate only. The Contractor shall assume full responsibility for lengths of piling selected for driving.

NOTES:

Rod soundings only were taken at location B-101 and B-102. The core drilling made at B-103 is plotted.

Foundation design and foundation quantities are based on a study of these borings.

For details of slope protection see sheet 157-C.

The following items are not included in the Bridge Plans. See Roadway Plans for details.
Removal of existing pavement, etc.
Relocation or removal of existing utilities.
Approach grading, pavement and slabs.
Roadway Guard Rail, Sod Flumes.

H.N.T.B. BR. NO. 2 PART 6

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

SITE PLAN

INNER BELT FREEWAY OVER EAST 9th ST.
BR. NO. CUY-42-1832 STA. 58+79.98
Scale: 1" = 30' STA. 61+16.05

WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN A.J.S.	TRACED A.E.K.	CHECKED R.A.	REVIEWED JCT	REVISED
DATE 10-2-58	DATE 11-28-58	DATE 11-7-58	DATE 11-12-59	SHEET 100

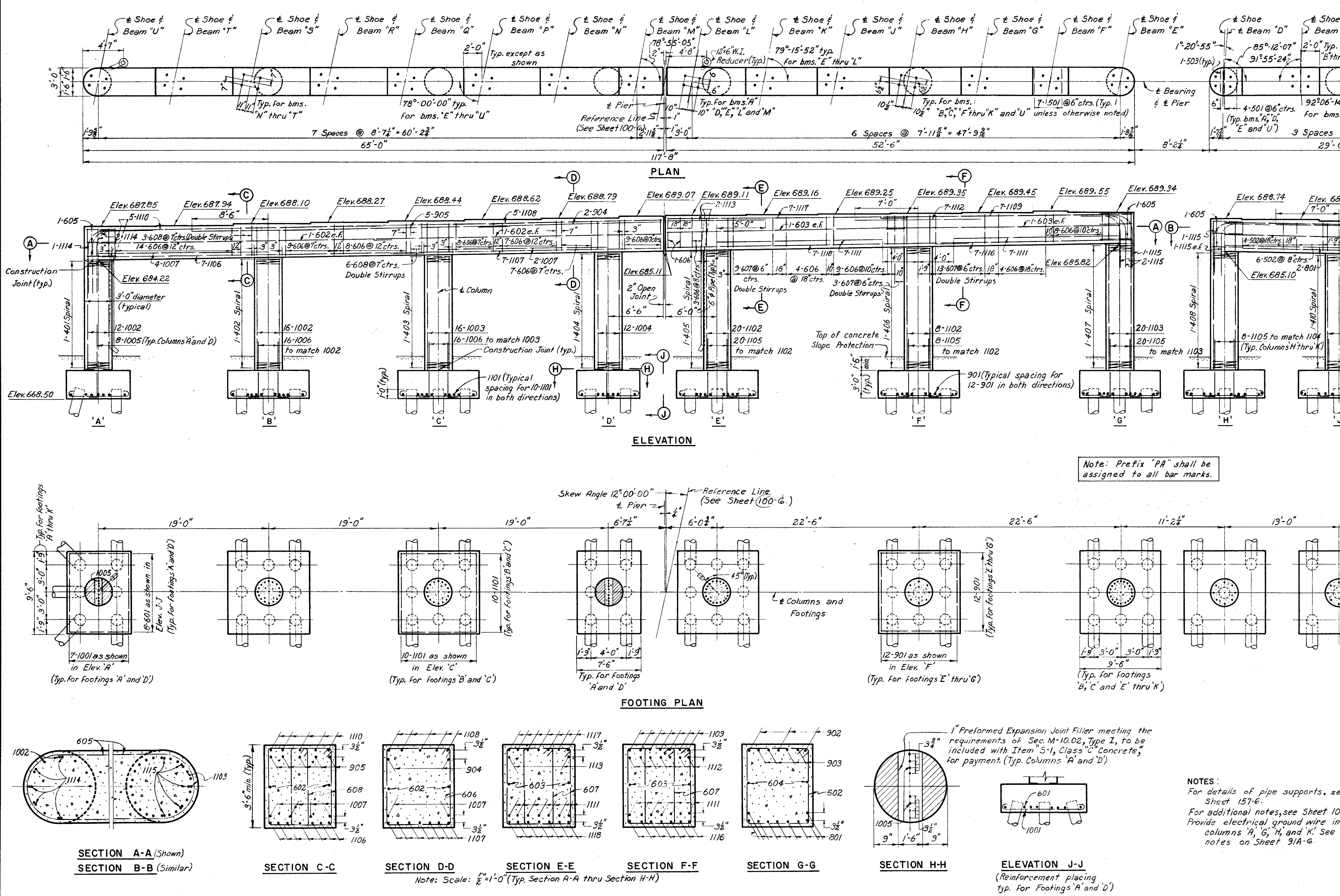
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

101 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bolt setting.

Note:
Cover plates will interfere with the setting of anchor bolts. See Sec. S-0.03 of the Specifications.



Note: Prefix "PA" shall be assigned to all bar marks.

NOTES:
For details of pipe supports, see Sheet 157-G.
For additional notes, see Sheet 102-G.
Provide electrical ground wire in columns 'A', 'G', 'H', and 'K'. See notes on Sheet 91A-G.

H.N.T.B. BR. NO. 2 PART 6

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

PIER 1

INNER BELT FREEWAY OVER EAST 9th ST.
BR. NO. CUY-42-1832 STA. 58+79.98
Scale 3/16"=1'-0" Except as noted STA. 61+16.05

WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN F.S.J.	TRACED	CHECKED W.C.	REVIEWED J.C.T.	REVISED	
DATE 9-17-58	DATE	DATE 9-30-58	DATE 11-12-59		SHEET 101

Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bar setting.

Note:
Where cross frames interfere with the setting of anchor bars, the holes shall be drilled prior to erection of cross frames.

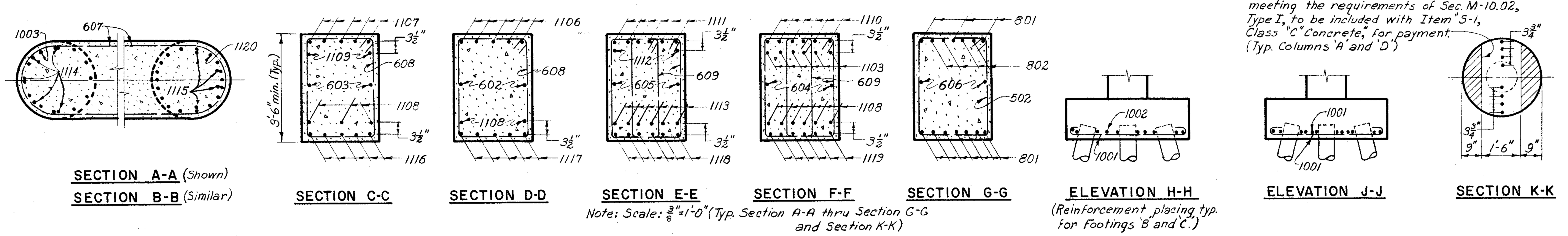
MICROFILMED JUL 8 1985

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

102
175

Note: Prefix "PB" shall be assigned to all bar marks.

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-1829



Note: Scale: ⅜"=1'-0" (Typ. Section A-A thru Section G-G and Section K-K)

NOTES:

All piles shall be 14"⌀ cast-in-place reinforced concrete.

All battered piles to be battered 3 in 12 in direction shown.

Pile spacings are given along bottom of footing.

For Reinforcement schedule, see Sheet 103C

For Replacement bar schedule, see Sheet 97C

Reinforcement bars shall be 3 inches clear from bottom of footings and 2 inches elsewhere.

For masonry plate details see Sheet 156-G and Ohio Standards, Sheet RB-1-55.

H.N.T.B. BR. NO. 2 PART 6

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

PIER 2

INNER BELT FREEWAY OVER EAST 9th ST.

BR. NO. CUY-42-1832 STA. 58+79.98
Scale: 3/16"=1'-0" Except as noted STA. 61+16.05

WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN F.S.J.	TRACED	CHECKED W.F.	REVIEWED JCT	REVISED	
DATE 9-24-58	DATE	DATE 10-2-58	DATE 11-12-59		SHEET 102

MICROFILMED JUL 8 1985

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		
2	OHIO			

103 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY- 42 - 18.29

PIER 1

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D	SERIES INCRE-MENT	WEIGHT (LBS)
501	121	5'-7"	105	2'-8"	1'-7"				704
502	20	12'-1"	109	2'-8"	3'-2"				252
503	4	5'-5"	105	2'-6"	1'-7"				23
601	16	10'-6"	100	9'-2"					252
602	4	32'-9"	Str.						197
603	4	26'-6"	Str.						159
604	2	26'-0"	Str.						78
605	12	8'-0"	144	1'-11"	4'-2"				144
606	92	12'-5"	109	2'-8"	3'-2"				1716
607	50	10'-11"	109	1'-11"	3'-2"				820
608	18	10'-5"	109	1'-8"	3'-2"				282
801	9	26'-0"	Str.						625
901	132	11'-8"	100	9'-2"					5236
902	3	26'-0"	Str.						265
903	4	14'-0"	Str.						190
904	2	20'-0"	Str.						136
905	5	36'-0"	Str.						612
1001	14	12'-0"	100	9'-2"					723
1002	28	16'-0"	Str.						1928
1003	16	16'-6"	Str.						1136
1004	12	16'-9"	Str.						865
1005	16	8'-10"	104	7'-9"	1'-5"				608
1006	32	7'-0"	104	5'-11"	1'-5"				964
1007	6	19'-0"	Str.						491
1101	40	12'-4"	100	9'-2"					2620
1102	28	17'-3"	Str.						2566
1103	20	17'-6"	Str.						1860
1104	24	16'-6"	Str.						2104
1105	72	7'-5"	104	6'-3"	1'-6"				2837
1106	7	36'-6"	Str.						1357
1107	7	30'-6"	Str.						1134
1108	5	34'-0"	Str.						903
1109	7	29'-0"	Str.						1079
1110	5	32'-0"	Str.						850
1111	14	18'-6"	Str.						1376
1112	7	14'-0"	Str.						521
1113	2	11'-0"	Str.						117
1114	5	13'-4"	123	5'-3"	5'-3"				354
1115	11	11'-4"	123	4'-3"	4'-3"				662
1116	7	22'-6"	Str.						837
1117	7	26'-9"	Str.						995
1118	7	33'-6"	Str.						1246
								Total	41,824

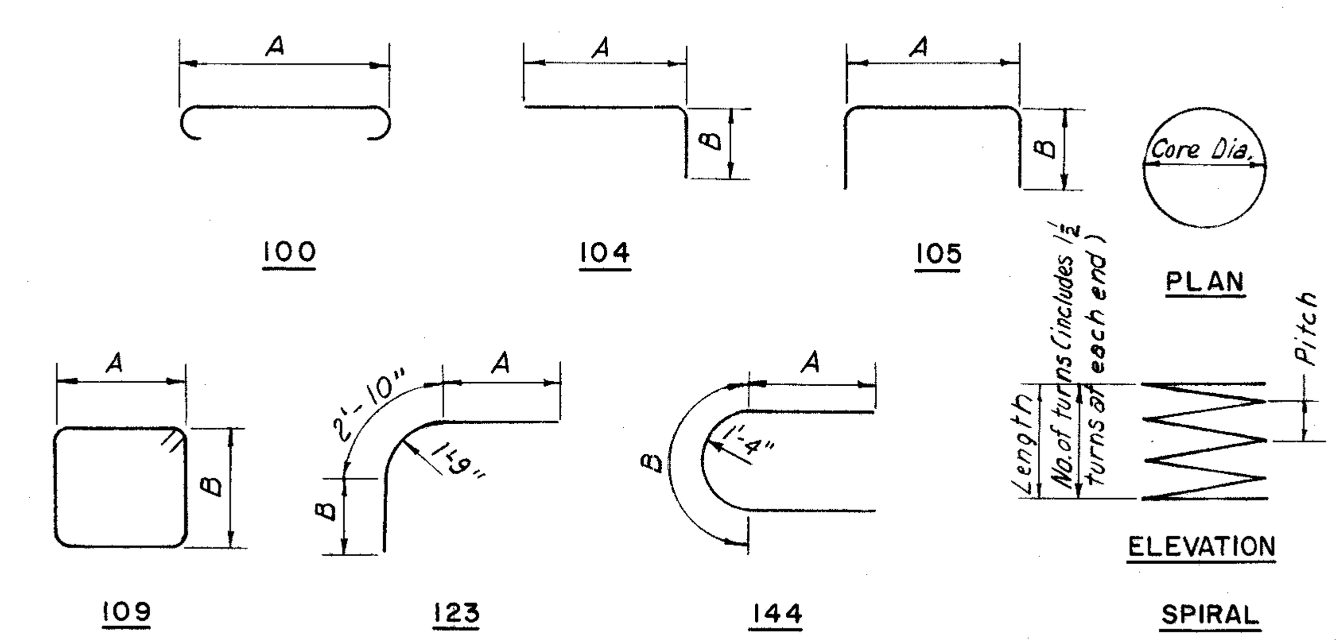
PIER 2

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D	SERIES INCRE-MENT	WEIGHT (LBS)
501	121	5'-7"	105	2'-8"	1'-7"				704
502	14	12'-1"	109	2'-8"	3'-2"				176
503	4	5'-5"	105	2'-6"	1'-7"				23
601	16	7'-6"	100	6'-2"					180
602	2	33'-6"	Str.						101
603	2	32'-0"	Str.						96
604	2	31'-0"	Str.						93
605	2	23'-6"	Str.						71
606	2	26'-0"	Str.						78
607	12	8'-0"	144	1'-11"	4'-2"				144
608	66	12'-5"	109	2'-8"	3'-2"				1231
609	46	10'-9"	109	1'-10"	3'-2"				743
701	60	9'-10"	100	8'-2"					1206
801	10	26'-0"	Str.						694
802	4	14'-0"	Str.						150
1001	76	12'-0"	100	9'-2"					3924
1002	20	11'-0"	100	8'-2"					947
1003	12	17'-3"	Str.						891
1004	24	17'-6"	Str.						1807
1005	12	17'-9"	Str.						917
1006	24	7'-0"	104	5'-11"	1'-5"				723
1007	16	8'-10"	104	7'-9"	1'-5"				608
1101	26	18'-0"	Str.						2486
1102	8	14'-6"	Str.						616
1103	14	14'-0"	Str.						1041
1104	8	14'-3"	Str.						606
1105	68	7'-5"	104	6'-3"	1'-6"				2681
1106	5	34'-6"	Str.						916
1107	5	32'-6"	Str.						863
1108	11	19'-0"	Str.						1110
1109	2	36'-0"	Str.						383
1110	6	31'-0"	Str.						988
1111	6	25'-0"	Str.						797
1112	2	11'-0"	Str.						117
1113	6	18'-6"	Str.						590
1114	5	13'-4"	123	5'-3"	5'-3"				354
1115	10	11'-4"	123	4'-3"	4'-3"				602
1116	5	38'-0"	Str.						1009
1117	5	30'-6"	Str.						810
1118	6	27'-0"	Str.						861
1119	6	29'-0"	Str.						924
1120	18	17'-9"	Str.						1698
								Total	34,959

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D	SERIES INCRE-MENT	WEIGHT (LBS)

SPIRAL REINFORCEMENT SCHEDULE

MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT (LBS.)	
PIER 1							
401	1	2'-8"	12'-7"	3 1/2"	46	288	
402	1	2'-8"	12'-11"	3 1/2"	47	294	
403	1	2'-8"	13'-2"	3 1/2"	48	300	
404	1	2'-8"	13'-5"	3 1/2"	49	307	
405	1	2'-8"	13'-7"	3 1/2"	50	313	
406	1	2'-8"	13'-11"	3 1/2"	51	319	
407	1	2'-8"	14'-3"	3 1/2"	52	325	
408	1	2'-8"	13'-7"	4 1/2"	39	252	
409	1	2'-8"	13'-2"	4 1/2"	38	245	
410	1	2'-8"	13'-4"	4 1/2"	39	251	Total Weight = 2894 lbs.
PIER 2							
401	1	2'-8"	14'-0"	3 1/2"	51	319	
402	1	2'-8"	14'-2"	3 1/2"	52	325	
403	2	2'-8"	14'-3"	3 1/2"	52	651	
404	1	2'-8"	10'-7"	4 1/2"	31	200	
405	1	2'-8"	14'-4"	3 1/2"	52	326	
406	1	2'-8"	14'-5"	3 1/2"	52	326	
407	1	2'-8"	14'-6"	3 1/2"	53	332	
408	1	2'-8"	11'-1"	4 1/2"	33	212	
409	1	2'-8"	10'-10"	4 1/2"	32	206	Total Weight = 2897 lbs.



BENDING DIAGRAMS

NOTES:
For Spiral Reinforcing bar notes see Sheet 94-G
All bar dimensions are given out to out.

Note: Prefixes shall be assigned to bar marks as follows:
Pier 1 "PA"
Pier 2 "PB"

H.N.T.B. BR. NO. 2 PART 6

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

REINFORCEMENT SCHEDULE - PIERS

INNER BELT FREEWAY OVER EAST 9th ST.
BR. NO. CUY-42-1832 STA. 58+79.98
Scale: None STA. 61+16.05

WILLOW-INNER BELT FREEWAY

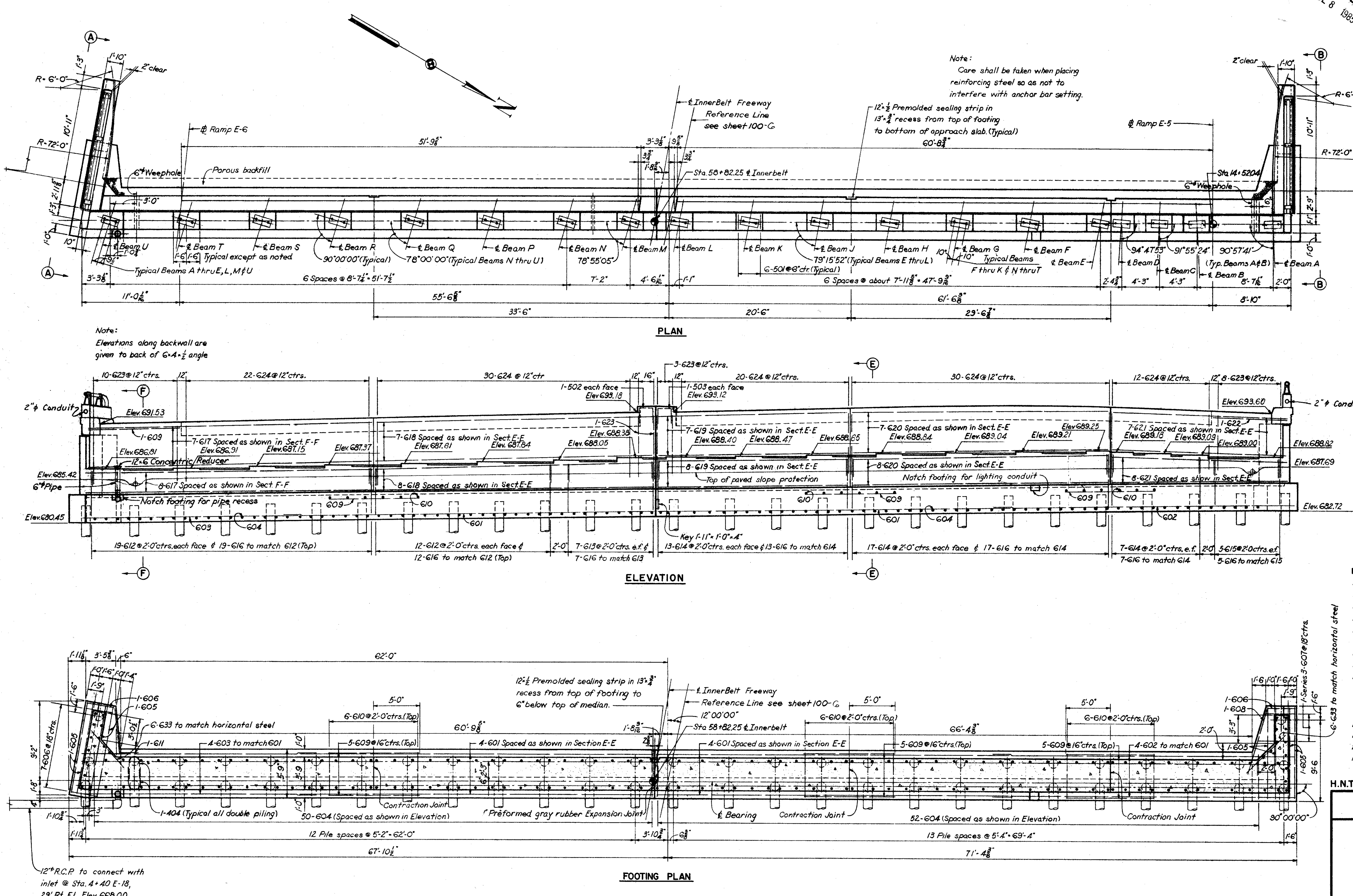
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN F.S.J.	TRACED	CHECKED W.F.	REVIEWED JCT	REVISED
DATE 9-21-58	DATE	DATE 10-4-58	DATE 11-12-59	SHEET 103

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		104 / 175
2	OHIO			

MICROFILMED JUL 8 1985

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



Note: Prefix "AA" shall be assigned to all bar marks.

NOTES:
All piles shall be 12"φ C.I.P. Reinforced Concrete.
All battered piles shall be battered 3 in 12.
For details of end dam see sheet 156-G
For anchor bar details see sheet 156-G
For Railing details and Guard Rail connection details see sheet 158-G
For location of lighting conduits see sheet 105-G
For Reinforcement schedule see sheet 105-G
For Slope Protection details see sheet 157-G
Top of parapet and safety curb construction joints are to be parallel to roadway grade.
n.f. = near face ; f.f. = far face
For additional sections see sheet 105-G
Reinforcement bars shall be 3 inches clear from bottom of footing and 2 inches elsewhere.
Pile spacings given along bottom of footing.

H.N.T.B. BR. NO. 2 — PART 6

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

WEST ABUTMENT

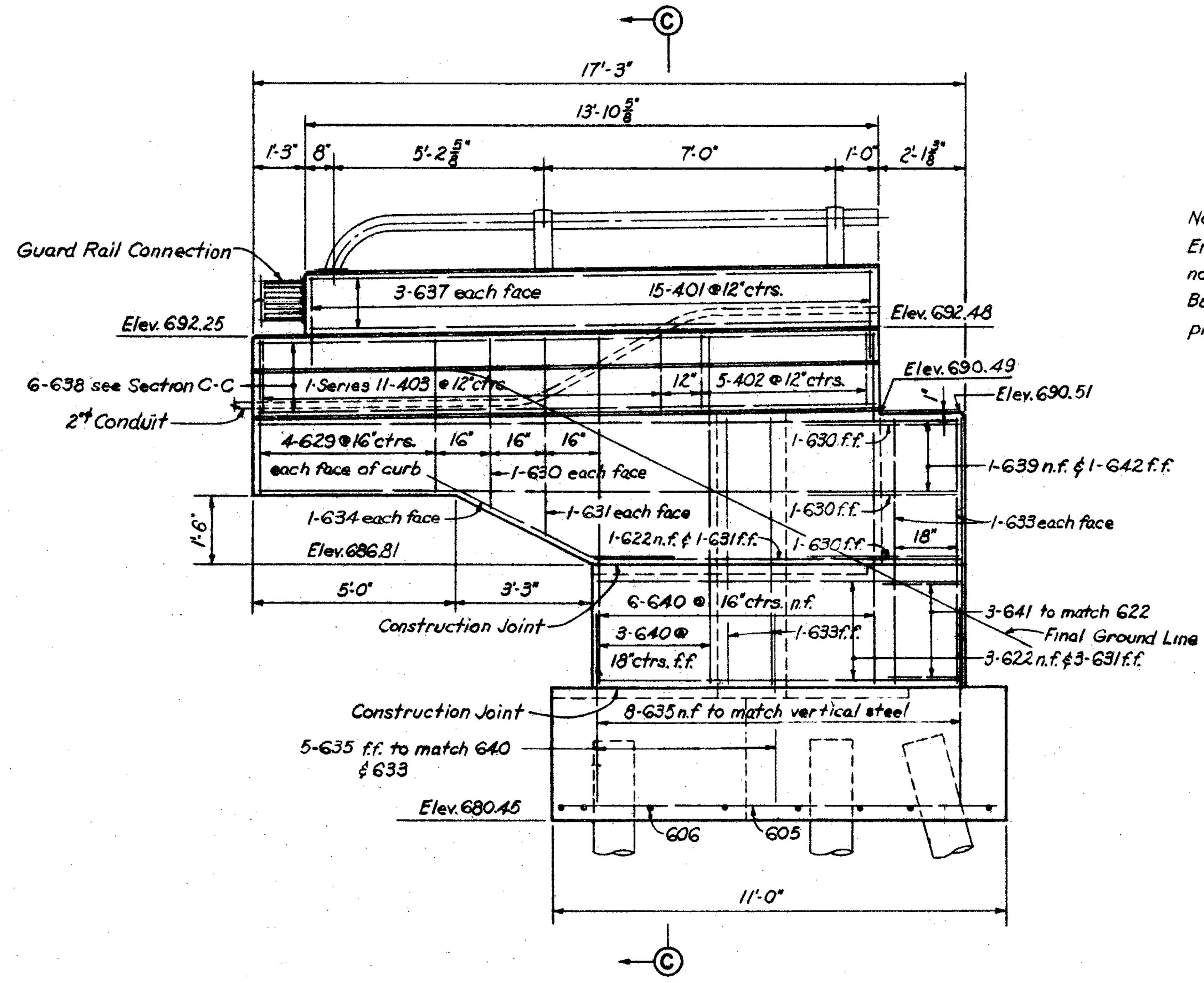
INNER BELT FREEWAY OVER EAST 9th ST.
BR. NO. CUY-42-1832 — STA. 58+79.98
Scale: 3/16" = 1'-0" — STA. 61+16.05

WILLOW-INNER BELT FREEWAY

CLEVELAND — CUYAHOGA COUNTY — OHIO

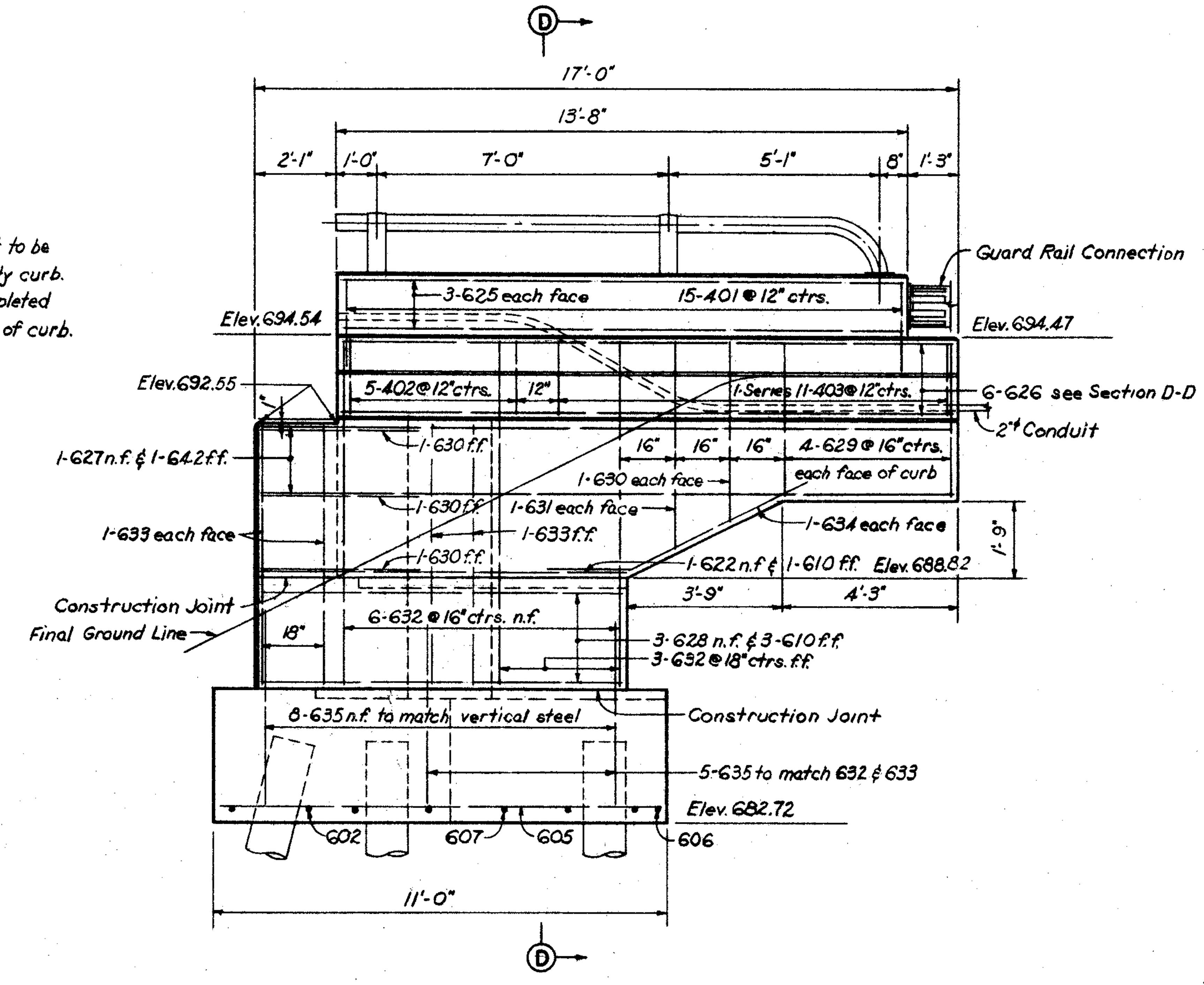
DRAWN T.J.P. DATE 10-27-58	TRACED DATE	CHECKED W.F. DATE 1-9-59	REVIEWED JCT DATE 11-12-59	REVISED	SHEET 104

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



ELEVATION A-A

Note:
End of Railing Parapet to be normal to top of safety curb. Backfill shall be completed prior to construction of curb.

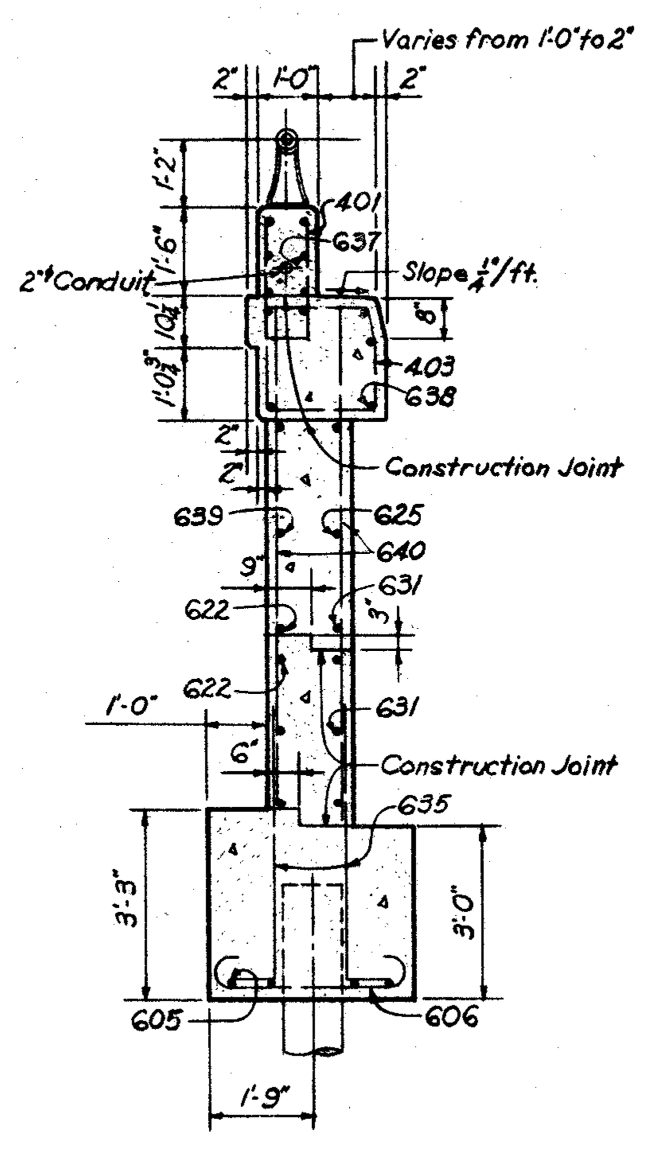


ELEVATION B-B

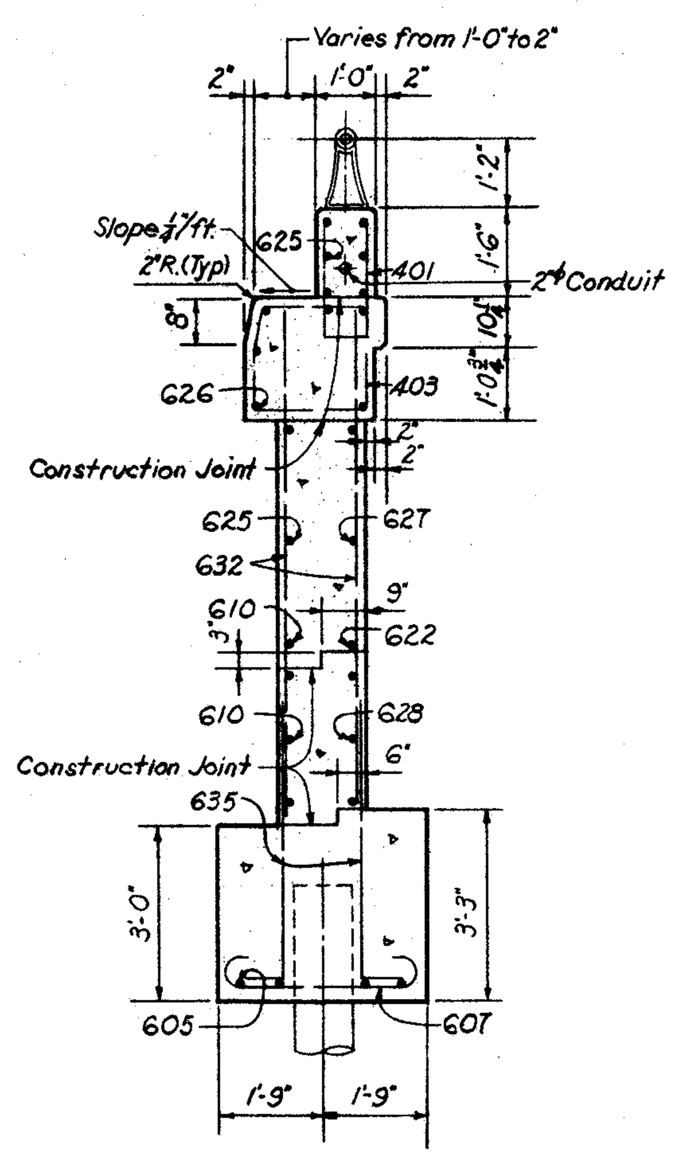
Note: Prefix "AA" shall be assigned to all bar marks

REINFORCEMENT SCHEDULE									
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (LBS)
401	30	4'-5"	105	8"	2'-0"				89
402	10	7'-1"	109	1'-9"	1'-7"				47
403	2 Series of 11	5'-1" to 7'-1"	109	0'-9" to 1'-9"	1'-7"			2 3/8"	90
404	52	8'-3"	144	2'-5"	3'-5"				287
501	114	4'-7"	105	1'-8"	1'-7"				545
502	2	4'-11"	105	1'-4"	1'-11"				10
503	2	5'-3"	105	1'-8"	1'-11"				11
601	8	40'-0"	Str.						481
602	4	34'-6"	Str.						207
603	4	26'-6"	Str.						159
604	102	6'-9"	100	5'-5"					1034
605	8	10'-6"	Str.						126
606	9	4'-6"	100	3'-2"					61
607	1 Series of 3	4'-9" to 5'-8"	100	3'-5" to 4'-4"				5 1/2"	23
608	1	7'-3"	Str.						11
609	16	10'-0"	Str.						240
610	22	5'-3"	Str.						173
611	1	6'-10"	108	5'-0"	1'-11"	1 1/4"			10
612	62	6'-2"	104	5'-6"	10"				574
613	14	6'-5"	104	5'-9"	10"				135
614	74	6'-8"	104	6'-0"	10"				741
615	10	6'-0"	104	5'-4"	10"				90
616	80	6'-11"	105	3'-5"	1'-11"				832
617	15	32'-0"	Str.						721
618	15	31'-6"	Str.						710
619	15	21'-6"	Str.						484
620	15	29'-3"	Str.						659
621	15	20'-0"	Str.						451
622	5	8'-6"	Str.						64
623	23	17'-4"	109	1'-5"	7'-0"				599
624	114	18'-2"	112	1'-5"	6'-9"	5'-5"	1"		3111
625*	6	13'-3"	Str.						
626	6	14'-6"	Str.						131
627	2	16'-6"	Str.						50
628	3	10'-5"	104	8'-8"	1'-11"				47
629	16	3'-6"	Str.						84
630	10	4'-0"	Str.						60
631	8	4'-9"	Str.						57
632	9	8'-3"	Str.						112
633	24	6'-3"	Str.						225
634	4	8'-2"	108	1'-11"	6'-3"	6"			51
635	26	5'-8"	104	5'-0"	10"				221
637*	6	13'-6"	Str.						
638	6	14'-9"	Str.						133
639	2	17'-0"	Str.						51
640	9	8'-6"	Str.						115
641	3	4'-6"	124	1'-11"	10"	1'-11"	2"		20
642	4	13'-9"	Str.						83
								Total	14,215

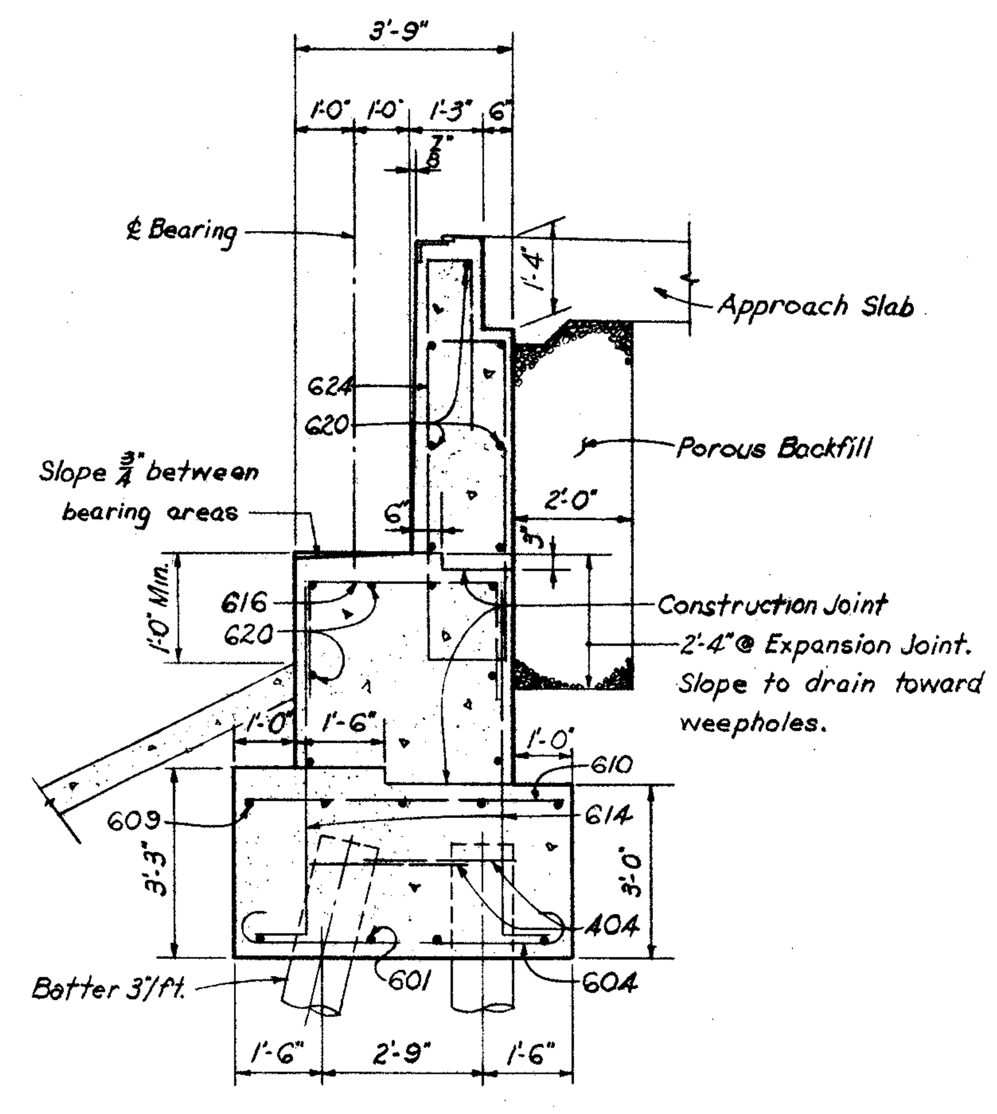
*Bars included for payment with "Item S-14, Railing."
Bar dimensions are given out to out.
Bars of a series shall vary in length by a constant increment.
For Replacement schedule see sheet 97-C.
For bar bending diagram see sheet 107-C.
For additional notes see sheet 104-C.



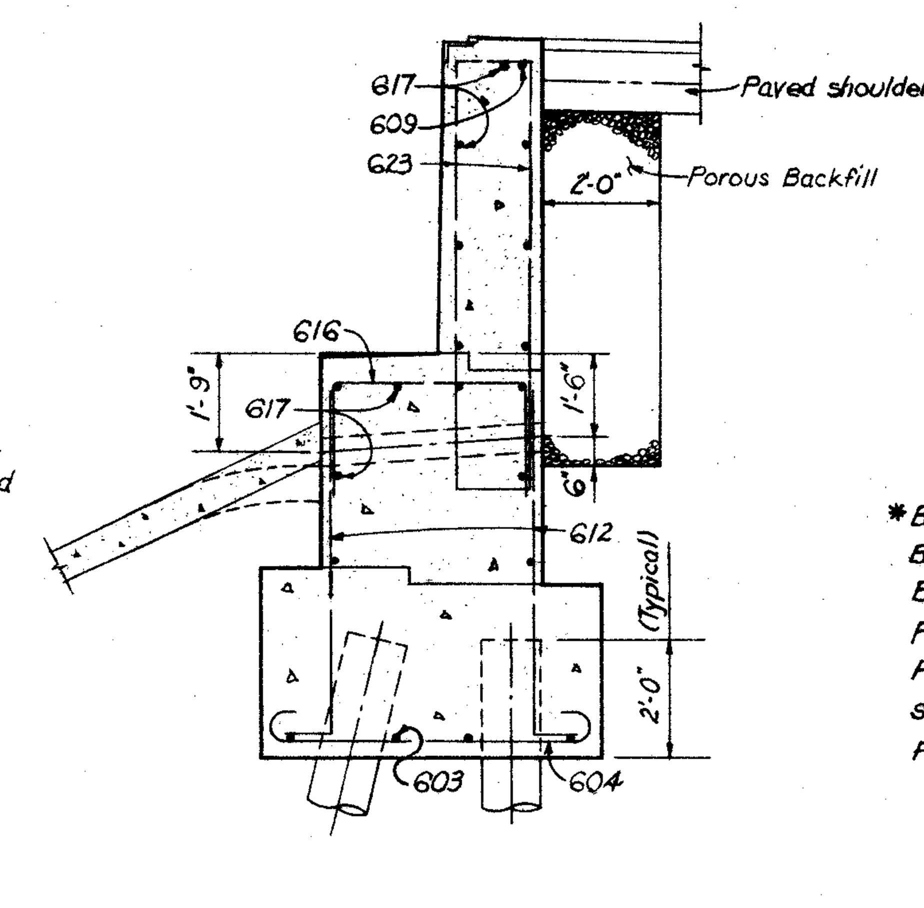
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F

H.N.T.B. BR. NO. 2

PART 6

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

WEST ABUTMENT-DETAILS

INNER BELT FREEWAY OVER EAST 9th ST.
BR. NO. CUY-42-1832 STA. 58+79.98
Scale: 3/8" = 1'-0" STA. 61+16.05

WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

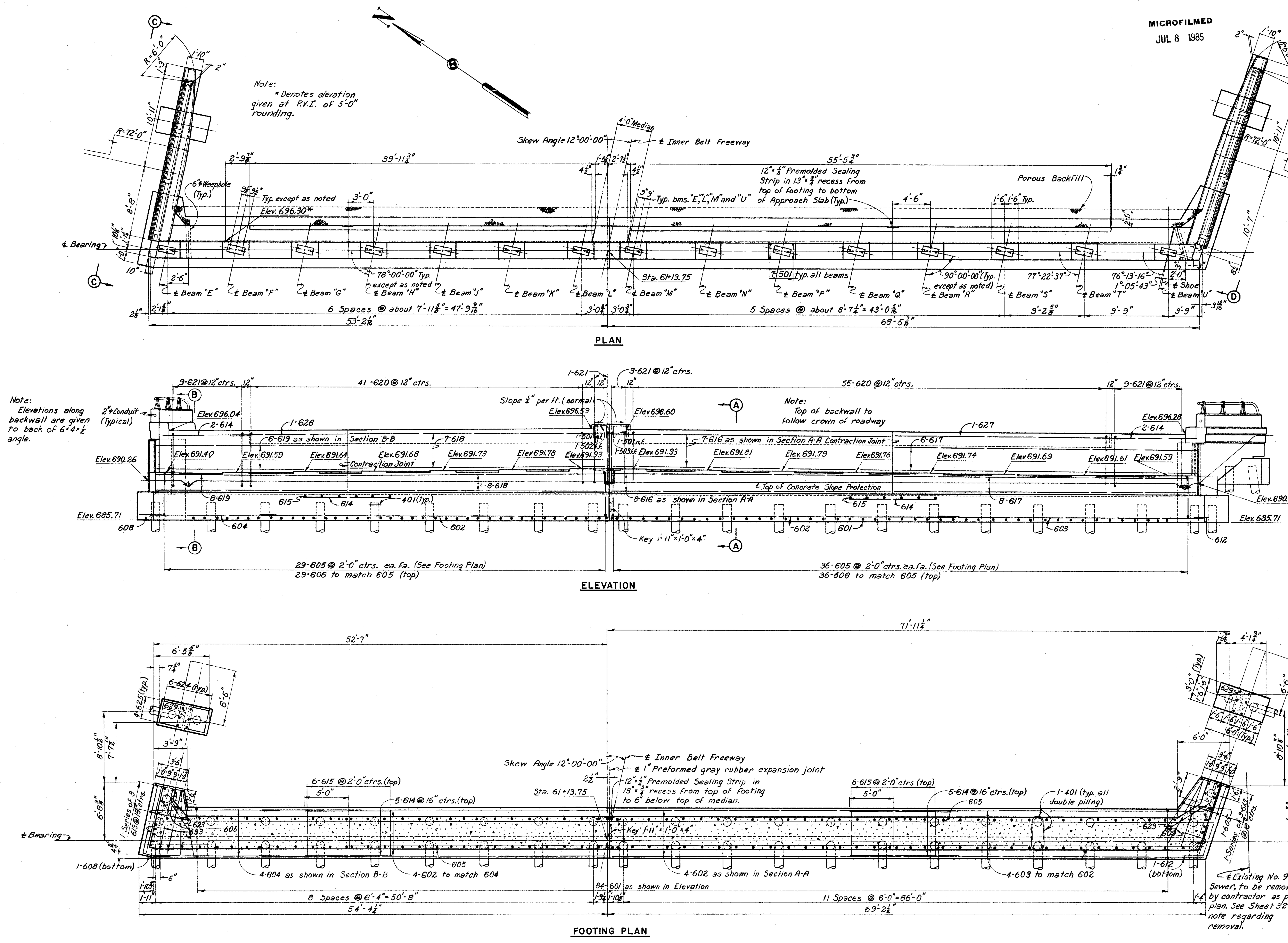
DRAWN T.J.P. DATE 10-27-58	TRACED DATE	CHECKED W. DATE 1-9-59	REVIEWED JCT DATE 11-12-59	REVISED

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		
2	OHIO			

106
175

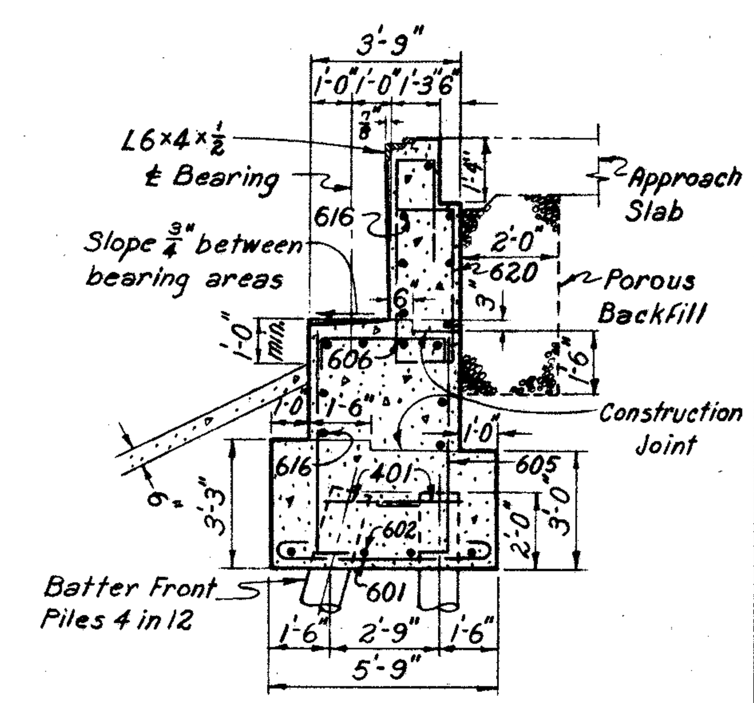
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

MICROFILMED
JUL 8 1985



Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bar setting.

Note: Prefix "AB" shall be assigned to all bar marks.



SECTION A-A
Scale: ¼" = 1'-0"

NOTES:
- All piles shall be 12"φ cast-in-place reinforced concrete.
- All battered piles shall be battered 4 in 12 in direction shown.
- Pile spacings given along bottom of footing.
- For details of end dam, see Sheet 156.-G
- For anchor bar details, see Sheet 156.-G
- Reinforcement bars shall be 3 inches clear from bottom of footings and 2 inches elsewhere.
- For Reinforcement Schedule, see Sheet 107.-G
- For Slope Protection details, see Sheet 157.-G
- For location of lighting conduit, see Sheet 107-G
- n.f. = near face; f.f. = far face; ea. fa. = each face
- For additional sections, see Sheet 107-G
- For Railing details and Guard Rail connection details, see Sheet 158.-G.

H.N.T.B. BR. NO. 2 PART 6

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

EAST ABUTMENT
INNER BELT FREEWAY OVER EAST 9th ST
BR. NO. CUY-42-1832 STA. 58+79.98
Scale: 3/16" = 1'-0" Except as noted STA. 61+16.05
WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

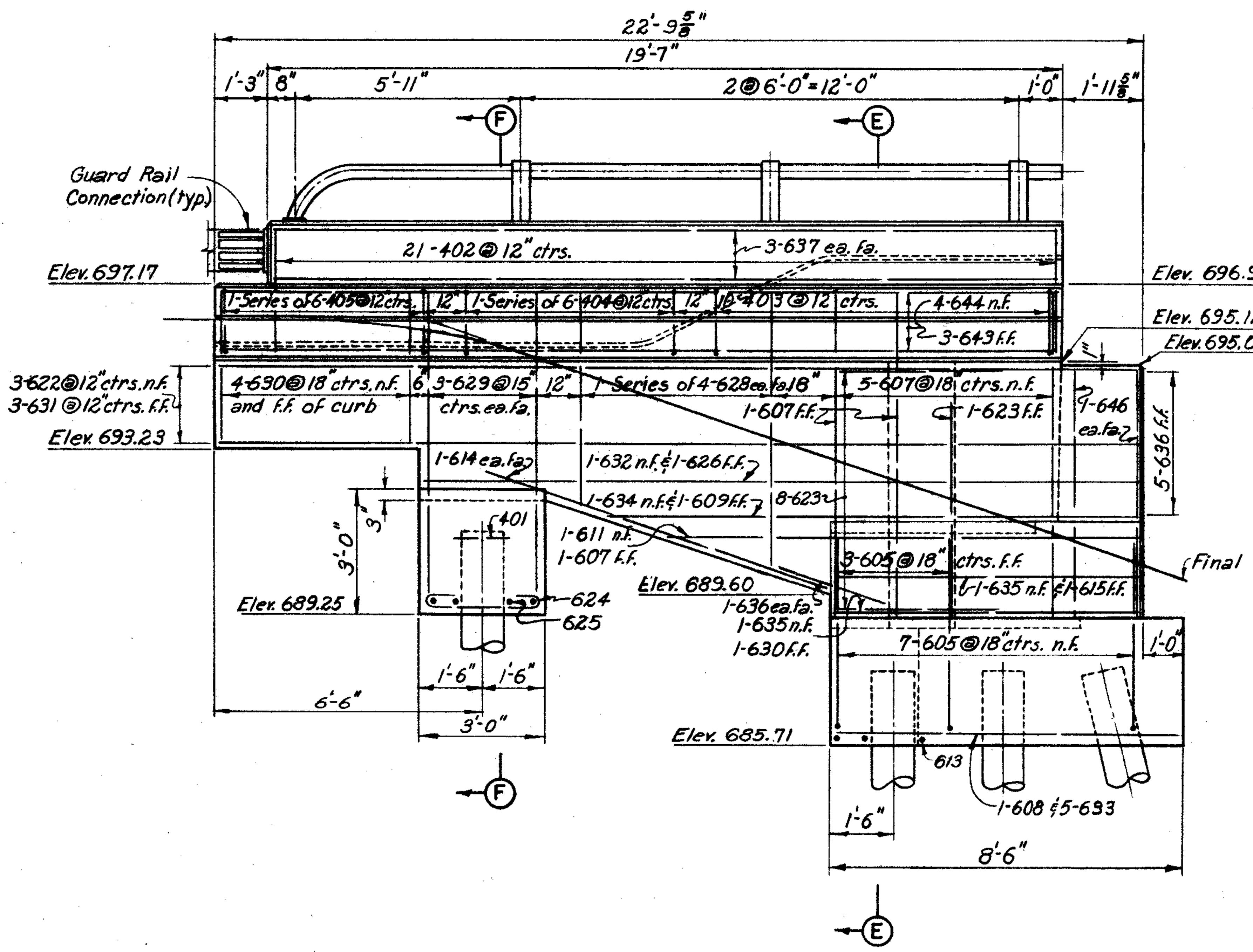
DRAWN F.S.T.	TRACED	CHECKED D.Y.O.	REVIEWED JCT	REVISED
DATE 10-8-58	DATE	DATE 3-11-59	DATE 11-12-59	SHEET 106

Note: Prefix "AB" shall be assigned to all bar marks.

MICROFILMED JUL 8 1985

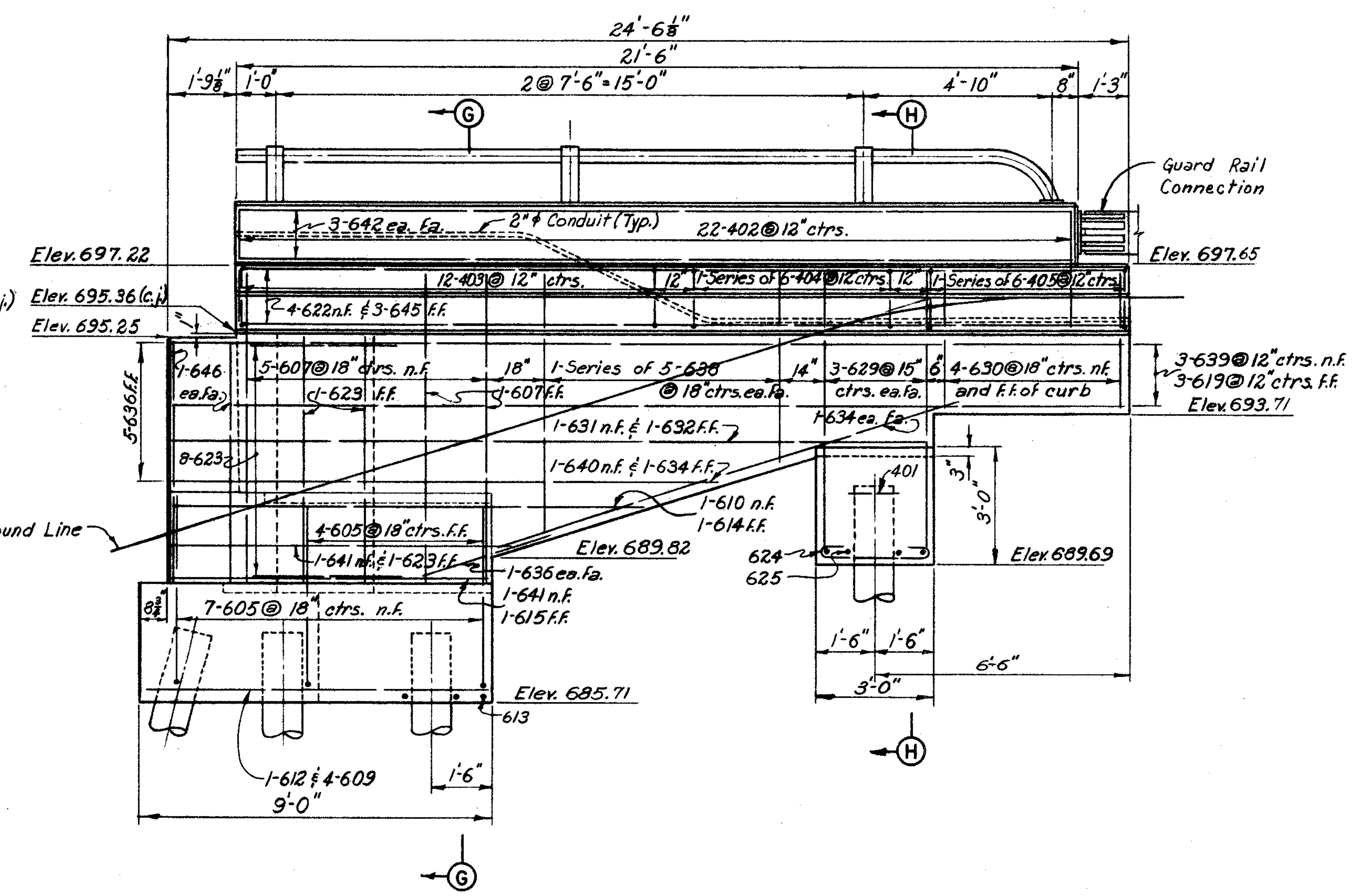
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-1829

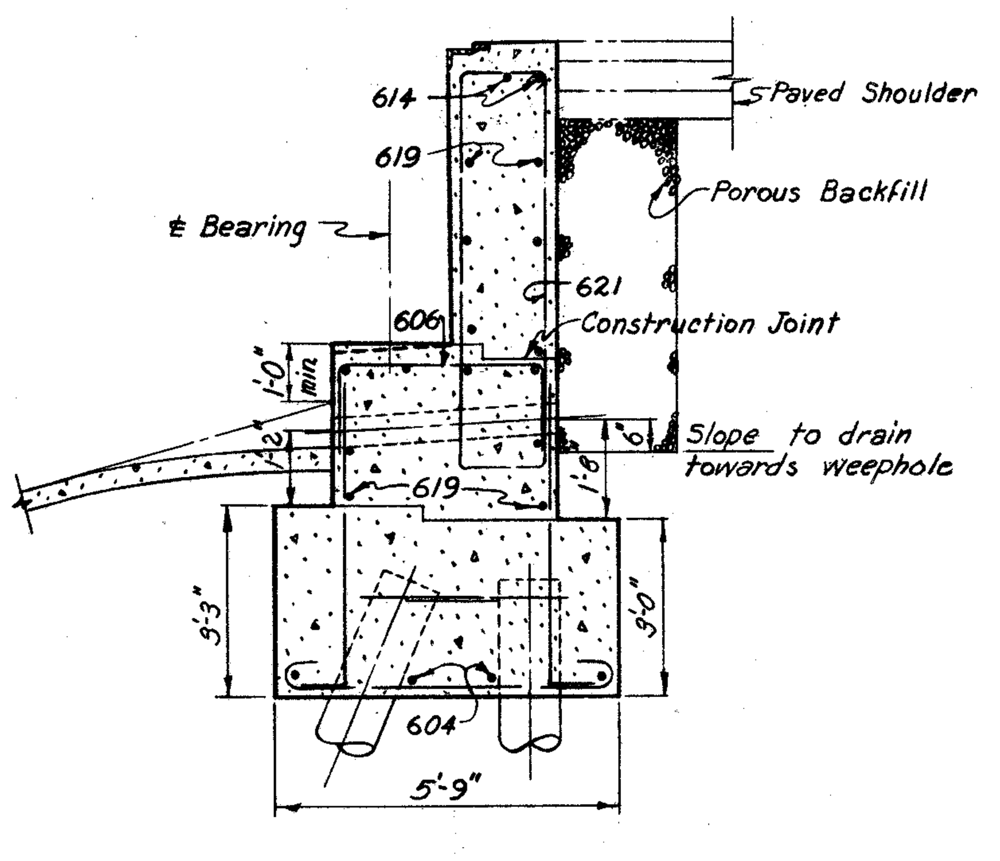


ELEVATION C-C

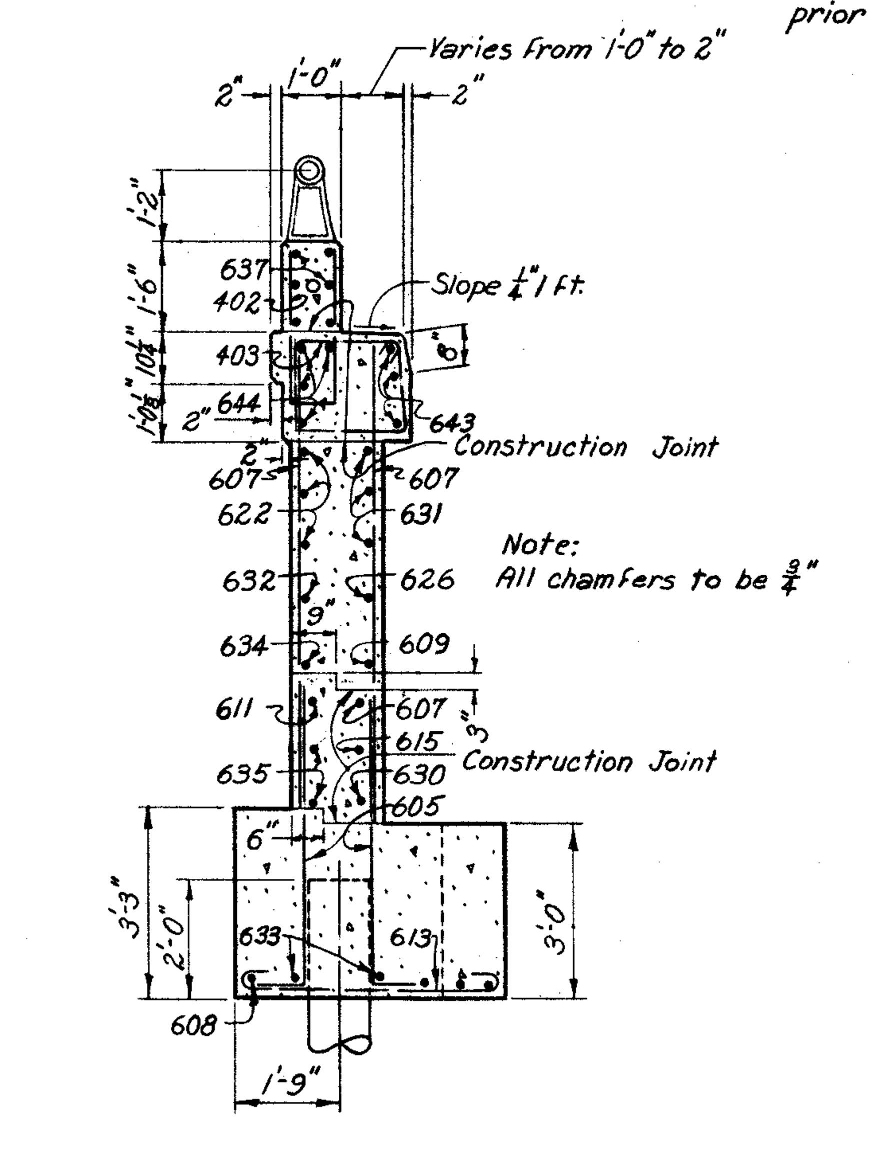
Notes:
End of Railing Parapet to be normal to top of safety curb.
Backfill shall be completed prior to construction of curb.



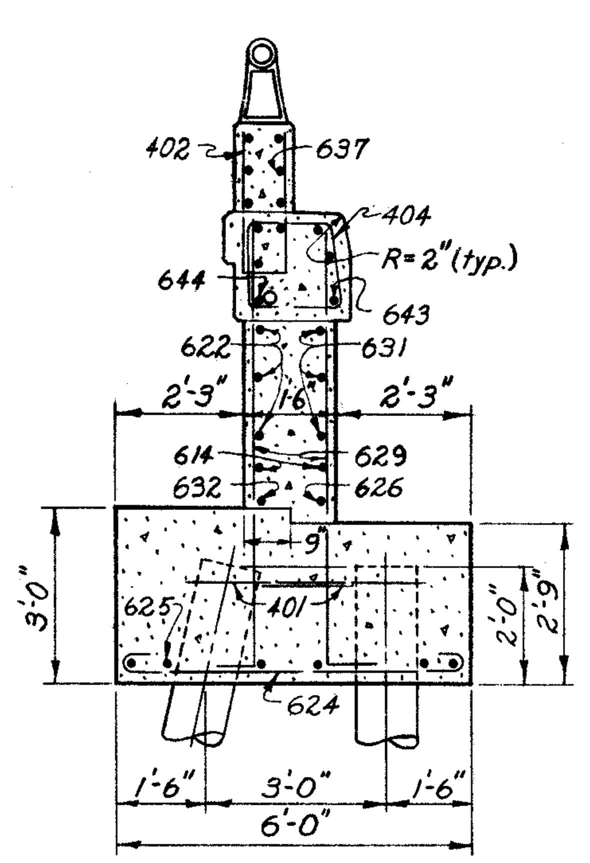
ELEVATION D-D



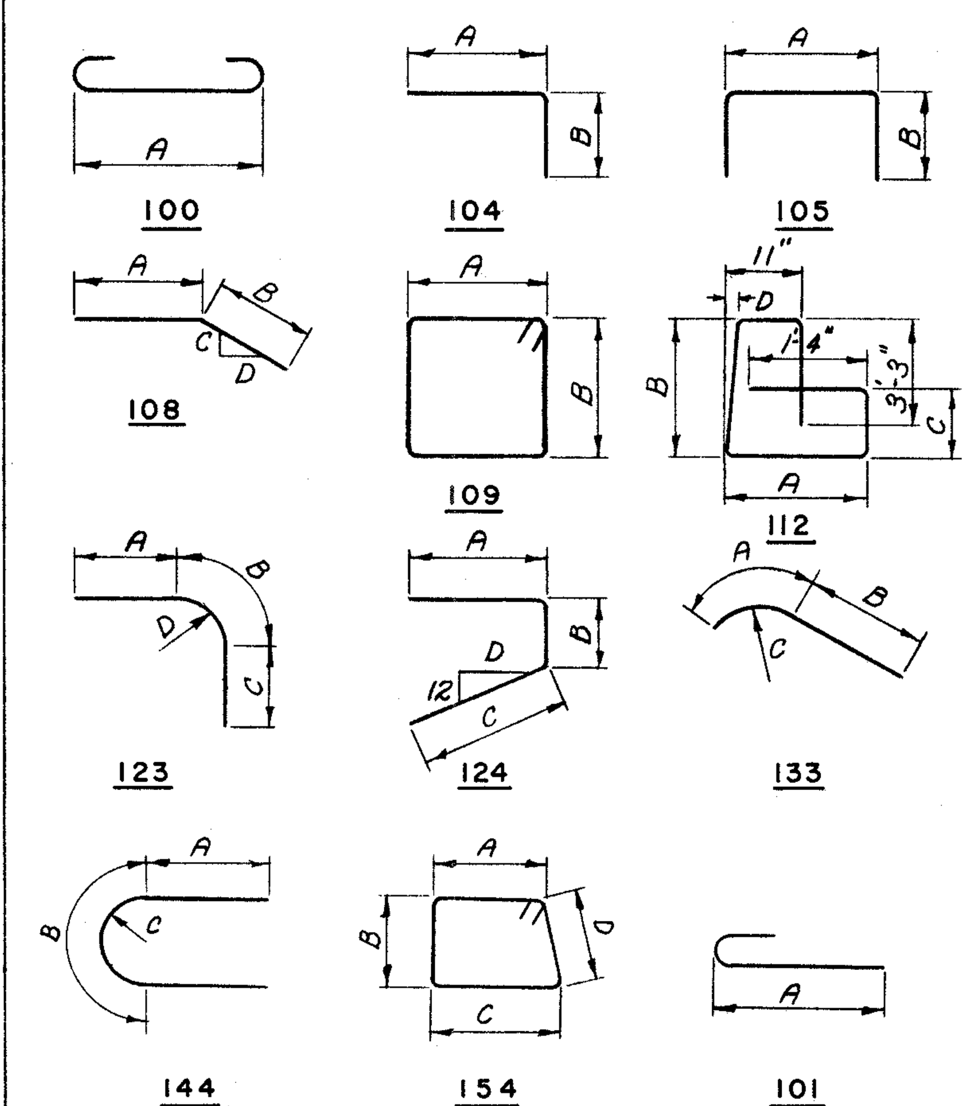
SECTION B-B
Note: For additional dimensions, see Section A-A



SECTION E-E (Shown)
SECTION G-G (Similar)



SECTION F-F (Shown)
SECTION H-H (Similar)



BENDING DIAGRAMS

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (LBS)
401	46	5'-10"	144	2'-0"	1'-10"	7"			180
402	43	5'-7"	105	8"	2'-7"				160
403	22	6'-11"	154	1'-8"	1'-6"	1'-10"	1'-6"		102
404	2 Ser. of 6	6'-5" to 6'-11"	154	1'-5" to 1'-8"	1'-6"	1'-7" to 1'-10"	1'-6"	1 3/16"	53
405	2 Ser. of 6	4'-11" to 6'-3"	154	8" to 1'-4"	1'-6"	10" to 1'-6"	1'-6"	3 3/16"	45
501	107	4'-7"	105	1'-8"	1'-7"				511
502	1	4'-3"	105	1'-4"	1'-7"				4
503	1	4'-11"	105	2'-0"	1'-7"				5
601	84	6'-9"	100	5'-5"					852
602	8	40'-0"	Str.						481
603	4	30'-9"	Str.						185
604	4	14'-9"	Str.						89
605	151	5'-6"	104	4'-10"	10"				1247
606	65	6'-11"	105	3'-5"	1'-11"				676
607	15	7'-9"	Str.						175
608	1	11'-7"	124	8'-2"	1'-9"	1'-11"	3		17
609	5	8'-6"	Str.						64
610	1	13'-10"	108	12'-0"	1'-11"	12	4		21
611	1	13'-5"	124	11'-3"	6"	1'-11"	3		20
612	1	10'-6"	108	8'-8"	1'-11"	12	4		16
613	2 Ser. of 3	4'-6" to 5'-4"	100	3'-2" to 4'-0"				5"	44
614	17	10'-0"	Str.						255
615	14	5'-3"	Str.						110
616	15	32'-3"	Str.						727
617	14	35'-0"	Str.						736
618	15	29'-9"	Str.						670
619	17	22'-0"	Str.						562
620	96	18'-1"	112	1'-5"	6'-8"	5'-4"	0		2607
621	23	16'-1"	109	1'-5"	6'-3"				555
622	7	22'-3"	Str.						234
623	20	6'-0"	Str.						180
624	12	4'-0"	100	2'-8"					72
625	8	7'-0"	100	5'-8"					84
626	2	13'-3"	Str.						40
627	1	27'-0"	Str.						41
628	2 Ser. of 4	5'-0" to 6'-6"	Str.					6"	69
629	12	7'-10"	104	7'-2"	10"				141
630	17	3'-6"	Str.						89
631	4	19'-0"	Str.						114
632	2	17'-6"	Str.						53
633	5	8'-5"	101	7'-9"					63
634	4	12'-3"	Str.						74
635	2	9'-2"	124	7'-0"	6"	1'-11"	3		28
636	14	4'-0"	Str.						84
637*	6	19'-0"	Str.						—
638	2 Ser. of 5	4'-9" to 6'-9"	Str.					6"	86
639	3	24'-0"	Str.						108
640	1	14'-0"	Str.						21
641	2	9'-10"	108	8'-0"	1'-11"	12	4		30
642*	6	21'-0"	Str.						—
643	3	20'-2"	133	12'-0"	8'-2"	71'-10"			91
644	4	20'-6"	Str.						123
645	3	22'-8"	133	12'-0"	10'-8"	71'-10"			102
646	8	5'-9"	Str.						69
								Total	13,165

NOTES:
Bar dimensions are given out to out.
* Bars 637 and 642 are included for payment with "Item S-14 Railing."
For Replacement Schedule, see Sheet 97-G
Bars of a series shall vary in length by a constant increment.
(c.j.) denotes elevation at construction joint.

H.N.T.B. BR. NO. 2 — PART 6

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

EAST ABUTMENT-DETAILS

INNER BELT FREEWAY OVER EAST 9th ST.
BR. NO. CUY-42-1832 — STA. 58+79.98
Scale: 3/8" = 1'-0" — STA. 61+16.05

WILLOW-INNER BELT FREEWAY

CLEVELAND — CUYAHOGA COUNTY — OHIO

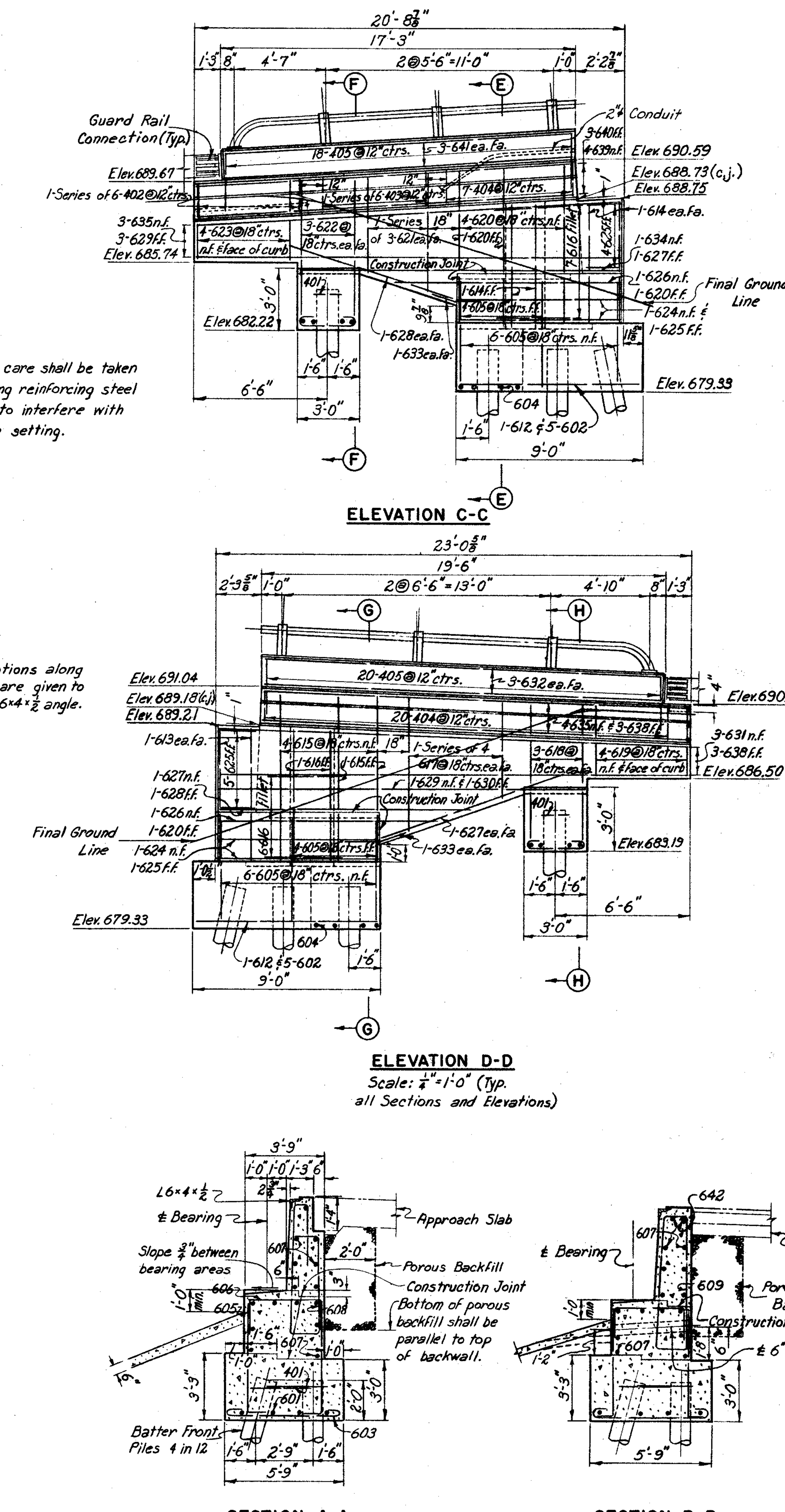
DRAWN F.S.J.	TRACED	CHECKED DYO	REVIEWED JCT	REVISED	
DATE 10-14-58	DATE	DATE 3-11-59	DATE 11-12-59		SHEET 107

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

Note: Prefix "AC" shall be assigned to all bar marks.

Notes:
End of Railing Parapet to be normal to top of safety curb.
Backfill shall be completed prior to construction of curb.

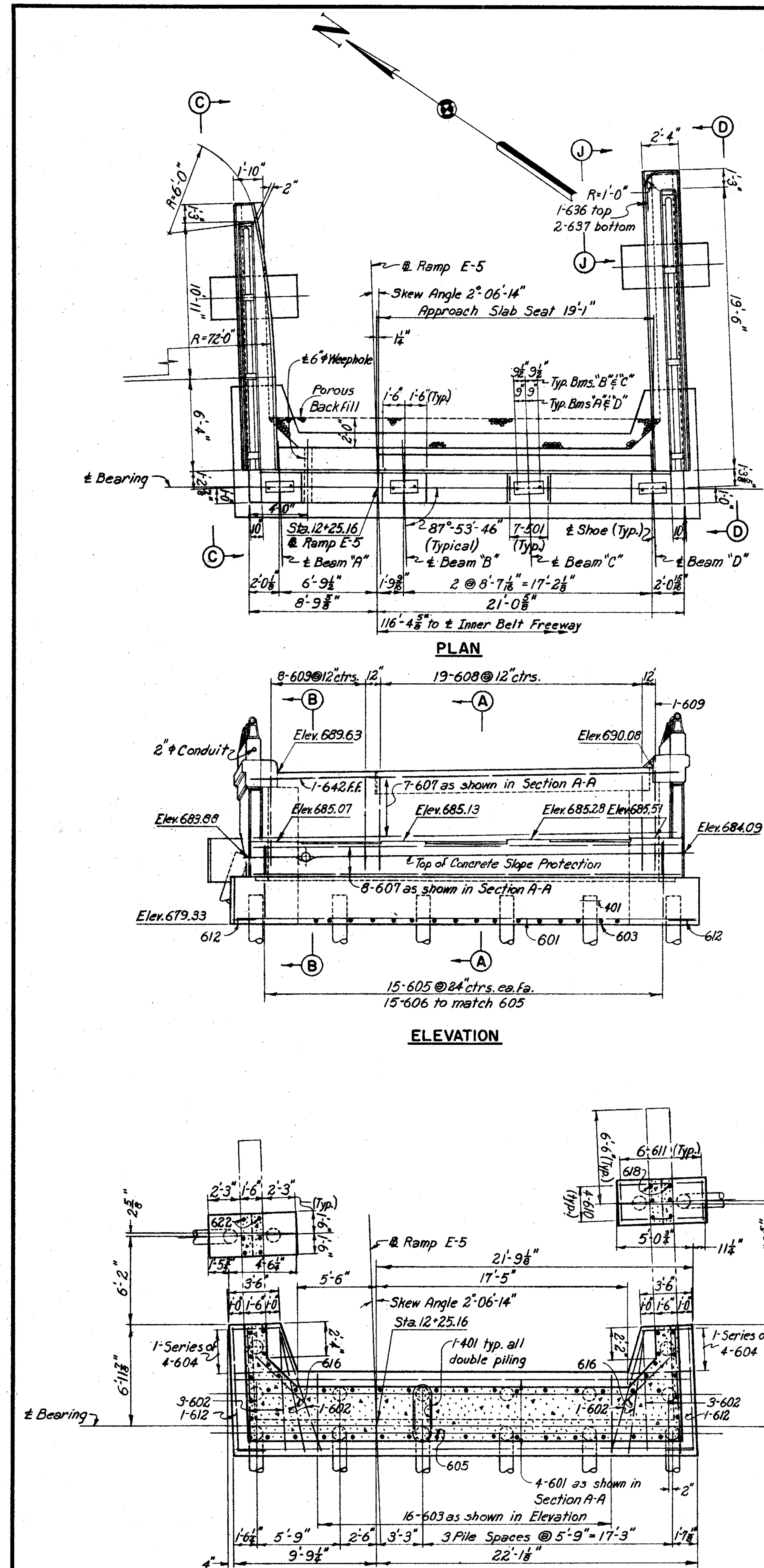


ELEVATION C-C

ELEVATION D-D
Scale: 1/4" = 1'-0" (Typ. all Sections and Elevations)

SECTION A-A

SECTION B-B



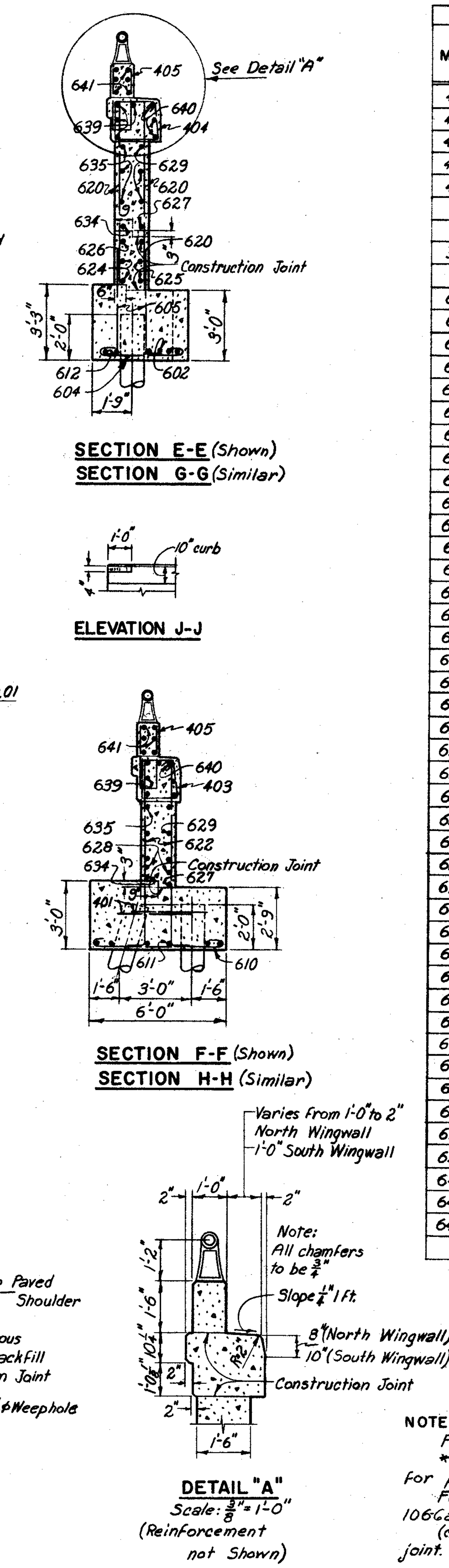
PLAN

ELEVATION

FOOTING PLAN

Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bar setting.

Note:
Elevations along backwall are given to corner of 6×4×1/2 angle.



SECTION E-E (Shown)
SECTION G-G (Similar)

ELEVATION J-J

SECTION F-F (Shown)
SECTION H-H (Similar)

DETAIL "A"
Scale: 3/8" = 1'-0"
(Reinforcement not Shown)

REINFORCEMENT SCHEDULE									
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (LBS)
401	16	5'-10"	144	2'-0"	1'-10"	7"			62
402	1-Ser. of 6	4'-11" to 6'-3"	154	8" to 1'-4"	1'-6"	10" to 1'-6"	1'-6"	3 3/16"	22
403	1-Ser. of 6	6'-5" to 6'-11"	154	1'-5" to 1'-8"	1'-6"	1'-7" to 1'-10"	1'-6"	1 3/16"	27
404	27	6'-11"	154	1'-8"	1'-6"	1'-10"	1'-6"		125
405	38	5'-7"	105	8"	2'-7"				142
501	28	4'-7"	105	1'-8"	1'-7"				134
601	4	31'-6"	Str.						189
602	10	9'-3"	101	8'-7"					139
603	16	6'-9"	100	5'-5"					162
604	2 Ser. of 4	4'-6" to 5'-6"	100	3'-2" to 4'-2"				4"	60
605	50	5'-6"	104	4'-10"	10"				413
606	15	6'-11"	105	3'-5"	1'-11"				156
607	15	29'-6"	Str.						665
608	19	17'-1"	112	1'-6"	6'-3"	4'-11"	9"		488
609	9	15'-11"	154	1'-2"	6'-3"	1'-6"	6'-3"		215
610	8	7'-0"	100	5'-8"					84
611	12	4'-0"	100	2'-8"					72
612	2	10'-3"	104	8'-6"	1'-11"				31
613	4	6'-3"	Str.						38
614	6	5'-9"	Str.						52
615	6	8'-0"	Str.						72
616	15	6'-0"	Str.						135
617	2-Ser. of 4	4'-6" to 6'-3"	Str.					7"	65
618	6	7'-3"	104	6'-7"	10"				65
619	8	3'-3"	Str.						39
620	8	7'-6"	Str.						90
621	2 Ser. of 3	4'-9" to 5'-9"	Str.					6"	47
622	6	7'-8"	104	7'-0"	10"				69
623	8	3'-6"	Str.						42
624	4	9'-3"	104	7'-6"	1'-11"				56
625	13	4'-3"	Str.						83
626	2	12'-6"	104	10'-9"	1'-11"				38
627	4	12'-0"	Str.						72
628	3	9'-0"	Str.						41
629	4	17'-6"	Str.						105
630	1	14'-0"	Str.						21
631	3	22'-6"	Str.						101
632*	6	19'-0"	Str.						—
633	4	3'-9"	108	1'-11"	1'-11"	1	3		23
634	1	15'-3"	Str.						23
635	7	20'-3"	Str.						213
636	1	4'-5"	123	1'-2"	1'-4"	1'-11"	10"		7
637	2	4'-10"	104	3'-0"	2'-0"				15
638	6	19'-6"	Str.						176
639	4	18'-0"	Str.						108
640	3	18'-2"	133	12'-0"	6'-2"	71'-10"			82
641*	6	16'-9"	Str.						—
642	1	8'-6"	Str.						13
								Total	5,077

NOTES:
For Bending Diagrams see Sheet 107-6
* Bars 632 and 641 are included for payment with "Item S-14 Railing."
For additional notes, see Sheets 106-6 and 107-6
(c.j.) denotes elevation at construction joint.

H.N.T.B. BR. NO. 2 PART 6

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

ABUTMENT E-5

INNER BELT FREEWAY OVER EAST 9th ST.
BR. NO. CUY-42-1832 STA. 58+79.98
Scale: 3/16" = 1'-0" Except as noted STA. 61+16.05

WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

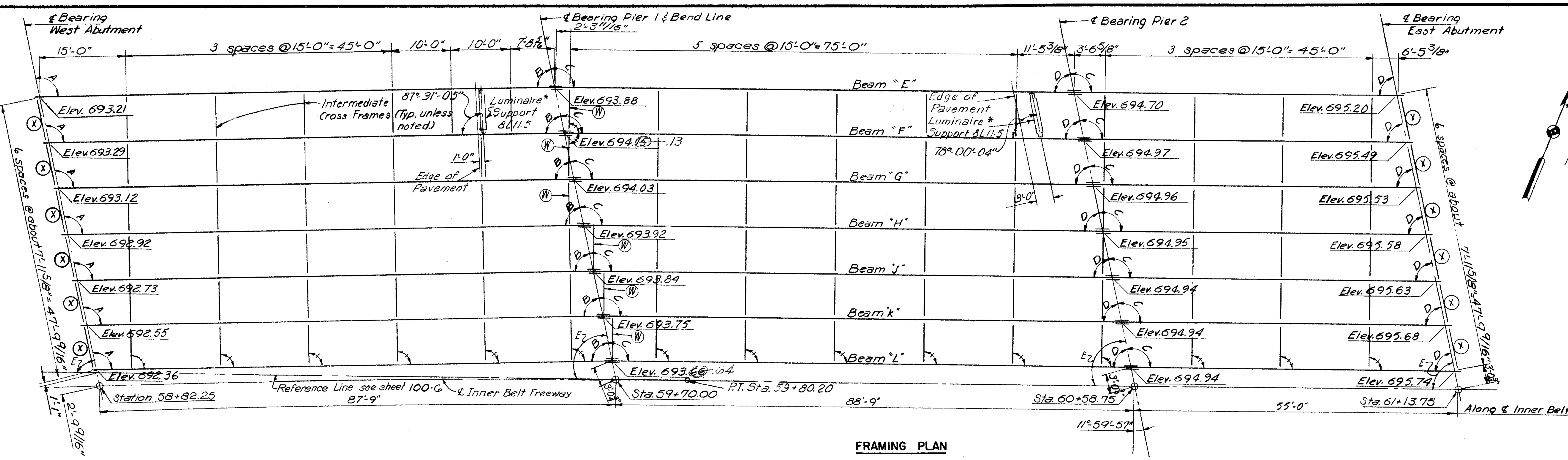
DRAWN F.S.J.	TRACED	CHECKED DRK	REVIEWED JCT	REVISED
DATE 10-29-58	DATE	DATE 11-6-58	DATE 11-12-59	SHEET 108

MICROFILMED
JUL 8 1985

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

109
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

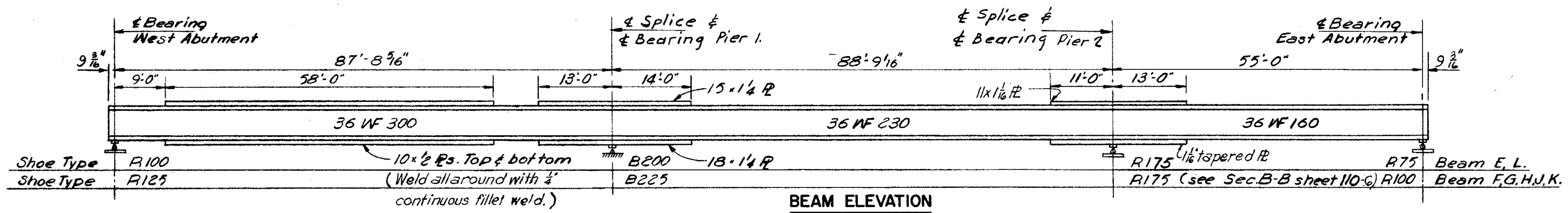


Note:
(X) indicates type of end cross frame.
indicates 90° angle
(W) indicates type of bend line cross frame.
Elevations are to top of WF beams at points shown, exclusive of cover plates.

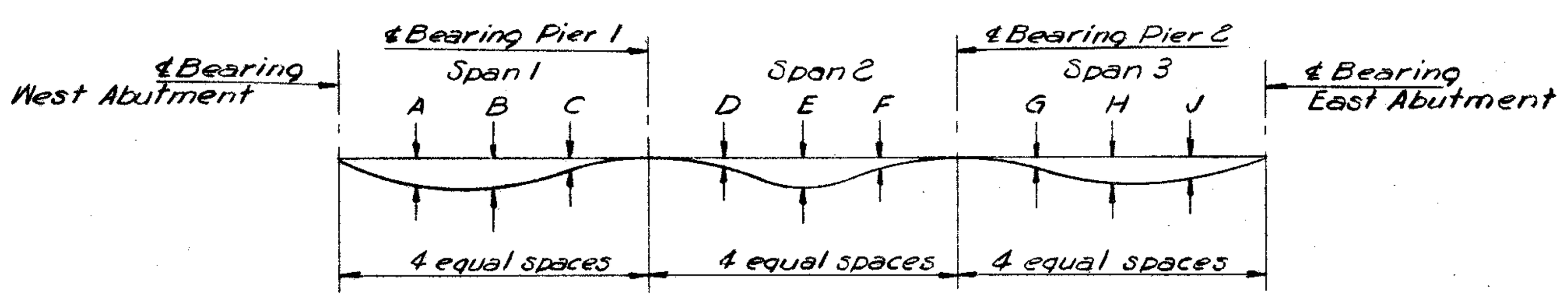
FRAMING PLAN

NOTES:
For details of intermediate, bend line (W), and end (X) & (Y) cross frames, see sheet 111.
For details of end dams, see sheet 156-G
For drainage details, see sheet 157-G
* For details of underdeck lighting, see sheets 159 & 160-G
For beam splice details, see sheet 110-G
For details of rocker masonry plates see sh. 156-G
For other rocker details and details of bolsters see Ohio Standards, Sheet RB-1-55.

TABLE OF ANGLES	
A	100°-44'-08"
B	79°-15'-52"
C	102°-00'-00"
D & E	78°-00'-00"



BEAM ELEVATION
(Typ. except as noted)



DEFLECTION DIAGRAM

DEFLECTION TABLE

BEAM	SPAN 1									SPAN 2									SPAN 3								
	A			B			C			D			E			F			G			H			J		
	DEAD LOAD CONC.	DEAD LOAD TOTAL	CONV.	DEAD LOAD CONC.	DEAD LOAD TOTAL	CONV.	DEAD LOAD CONC.	DEAD LOAD TOTAL	CONV.	DEAD LOAD CONC.	DEAD LOAD TOTAL	CONV.	DEAD LOAD CONC.	DEAD LOAD TOTAL	CONV.	DEAD LOAD CONC.	DEAD LOAD TOTAL	CONV.	DEAD LOAD CONC.	DEAD LOAD TOTAL	CONV.	DEAD LOAD CONC.	DEAD LOAD TOTAL	CONV.	DEAD LOAD CONC.	DEAD LOAD TOTAL	CONV.
A	1 1/8"	1 3/8"	+1 9/16"	1 3/8"	1 5/8"	2 1/2"	3/4"	15/16"	1 15/16"	7/16"	9/16"	2 5/16"	13/16"	1"	3"	9/16"	11/16"	2 3/16"	0	0	1"	3/16"	1/4"	1 3/16"	3/16"	1/4"	7/8
B	7/8"	1 1/8"	1 7/16"	1 1/16"	1 3/8"	2 1/4	9/16"	3/4"	1 15/16"	3/8"	1/2"	2 1/16"	3/4"	15/16"	2 7/8"	1/2"	5/8"	2 3/16"	0	0	7/8"	1/8"	3/16"	1 3/16"	1/8"	3/16"	1"
C	3/4"	1"	1 5/16"	15/16"	1 1/4"	2 1/16	1/2"	11/16"	1 13/16	3/8"	1/2"	2 5/16"	3/4"	15/16"	2 7/8"	1/2	5/8"	2 5/16"	0	0	13/16"	1/8"	3/16"	1 3/16"	1/8"	3/16"	7/8"
D	1 1/8"	1 3/8"	1 7/16"	1 3/8"	1 5/8"	2 1/16	3/4"	15/16"	1 5/16	7/16"	9/16"	2 3/16"	13/16"	1"	2 7/8"	9/16"	11/16"	2 5/16"	0	0	1"	3/16"	1/4"	1"	3/16"	1/4"	3/4"
E	1"	1 1/4"	0	1 1/4"	1 1/2"	0	11/16"	7/8"	0	1/4"	3/8"	0	11/16"	7/8"	0	1/2"	5/8"	0	0	1/16"	0	3/16"	1/4"	0	3/16"	1/4"	0
F	7/8"	1 1/8"	0	1 1/16"	1 3/8"	0	9/16"	3/4"	0	1/4"	3/8"	0	9/16"	3/4"	0	7/16"	9/16"	0	0	1/16"	0	3/16"	1/4"	0	3/16"	1/4"	0
G	7/8"	1 1/8"	0	1 1/16"	1 3/8"	0	9/16"	3/4"	0	1/4"	3/8"	0	9/16"	3/4"	0	7/16"	9/16"	0	0	1/16"	0	3/16"	1/4"	0	3/16"	1/4"	0
H	7/8"	1 1/8"	0	1 1/16"	1 3/8"	0	9/16"	3/4"	0	1/4"	3/8"	0	9/16"	3/4"	0	7/16"	9/16"	0	0	1/16"	0	3/16"	1/4"	0	3/16"	1/4"	0
J	7/8	1 1/8"	0	1 1/16"	1 3/8"	0	9/16"	3/4"	0	1/4"	3/8"	0	9/16"	3/4"	0	7/16"	9/16"	0	0	1/16"	0	3/16"	1/4"	0	3/16"	1/4"	0
K	7/8"	1 1/8"	0	1 1/16"	1 3/8"	0	9/16"	3/4"	0	1/4"	3/8"	0	9/16"	3/4"	0	7/16"	9/16"	0	0	1/16"	0	3/16"	1/4"	0	3/16"	1/4"	0
L	7/8"	1 1/8"	0	1 1/16"	1 3/8"	0	9/16"	3/4"	0	1/4"	3/8"	0	9/16"	3/4"	0	7/16"	9/16"	0	0	1/16"	0	3/16"	1/4"	0	3/16"	1/4"	0
M	7/8"	1 1/8"	-1/4"	1"	1 3/8"	-3/8"	9/16"	3/4"	-1/8	5/16"	7/16"	0	11/16"	7/8"	0	1/2"	5/8"	0	0	1/16"	0	3/16"	1/4"	0	3/16"	1/4"	0
N	7/8"	1 1/8"	-3/8"	1"	1 3/8"	-3/8"	9/16"	3/4"	-1/4"	5/16"	7/16"	0	11/16"	7/8"	0	1/2	5/8"	0	0	1/16"	0	3/16"	1/4"	0	3/16"	1/4"	0
P	7/8"	1 1/8"	-1/2"	1"	1 3/8"	-3/4"	9/16"	3/4"	-3/8"	5/16"	7/16"	0	11/16"	7/8"	0	1/2"	5/8"	0	0	1/16"	0	3/16"	1/4"	0	3/16"	1/4"	0
Q	7/8"	1 1/8"	-3/4"	1"	1 3/8"	-1"	9/16"	3/4"	-1/2"	5/16"	7/16"	0	11/16"	7/8"	0	1/2	5/8"	0	0	1/16"	0	3/16"	1/4"	0	3/16"	1/4"	0
R	7/8"	1 1/8"	-7/8"	1"	1 3/8"	-1 1/8"	9/16"	3/4"	-5/8"	5/16"	7/16"	0	11/16"	7/8"	0	1/2"	5/8"	0	0	1/16"	0	3/16"	1/4"	0	3/16"	1/4"	0
S	7/8"	1 1/8"	-1 1/16"	1"	1 3/8"	-1 3/16"	9/16"	3/4"	-3/4"	5/16"	7/16"	0	11/16"	7/8"	0	1/2"	5/8"	0	0	1/16"	0	3/16"	1/4"	0	3/16"	1/4"	0
T	7/8"	1 1/8"	-1 3/16"	1"	1 3/8"	-1 5/16"	9/16"	3/4"	-3/4"	5/16"	7/16"	0	11/16"	7/8"	0	1/2"	5/8"	0	0	1/16"	0	3/16"	1/4"	0	3/16"	1/4"	0
U	1"	1 1/4"	-1 7/16"	1 3/16"	1 1/2"	-1 9/16"	11/16"	7/8"	-7/8"	3/8"	1/2"	0	13/16"	1"	0	1/2"	11/16"	0	0	1/16"	0	3/16"	1/4"	0	3/16"	1/4"	0

NOTES:

The beams shall be cambered as follows:

Where the sum of the deflections and convexity is 3/4" to 1" the required camber will be one (1) inch, and if greater than 1" the required camber will be the same as this sum.

No camber will be required if this sum is less than 3/4".

Beams which do not require camber shall be fabricated so that any curved beam will be placed with the convex flange up.

Deflections are given at the quarter points and are measured to the nearest 1/16 inch.

In the deflection table, the following abbreviations are used:

(D.L. Def.) - denotes dead load deflections.
(Tot.) - refers to the total deflection from dead load of steel and concrete.

(Con.) - denotes deflections for concrete.

(Conv.) - denotes convexity corrections required for vertical curvature of the roadway gradient.

H.N.T.B. BR. NO. 2 PART 6

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

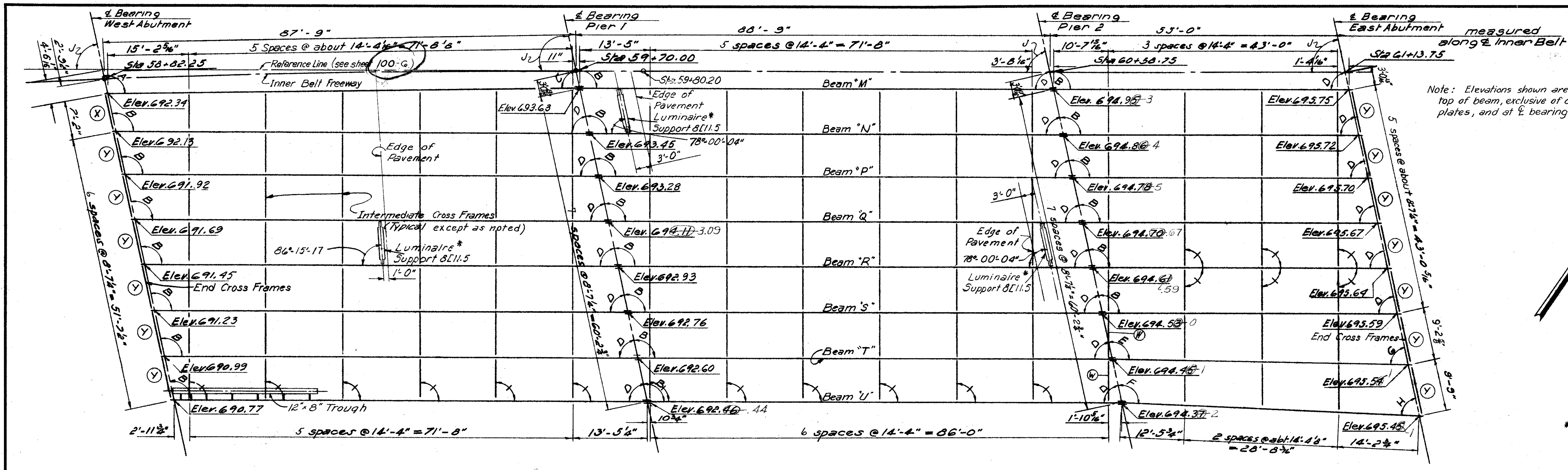
FRAMING PLAN - NORTH HALF

INNER BELT FREEWAY OVER EAST 9th ST.

BR. NO. CUY-42-1832 STA. 58+79.98
Scale: None STA. 61+16.05

WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN RJM DATE 5-8-58	TRACED DATE	CHECKED PH DATE 7-7-58	REVIEWED JCT DATE 11-12-59	REVISED 7-15-60 SHEET 109

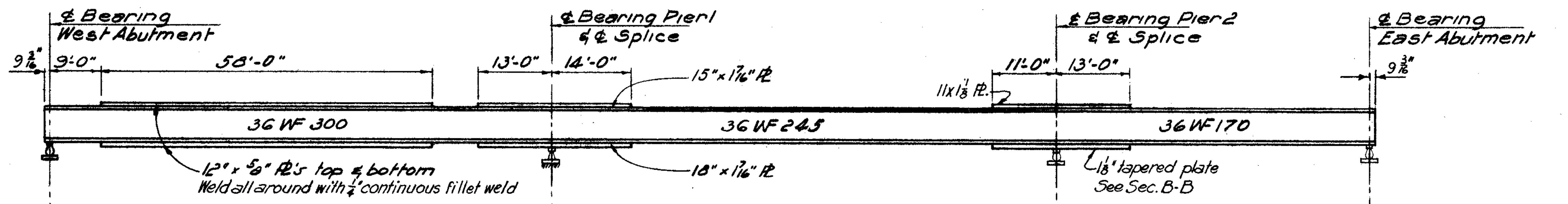


FRAMING PLAN
Scale 1" = 10'-0"

Note: Ⓧ & Ⓨ indicates type of end cross frame
indicates 30° angle
Ⓦ indicates type of bend line cross frame.

* For under deck lighting details, see sheets 159 & 160-G

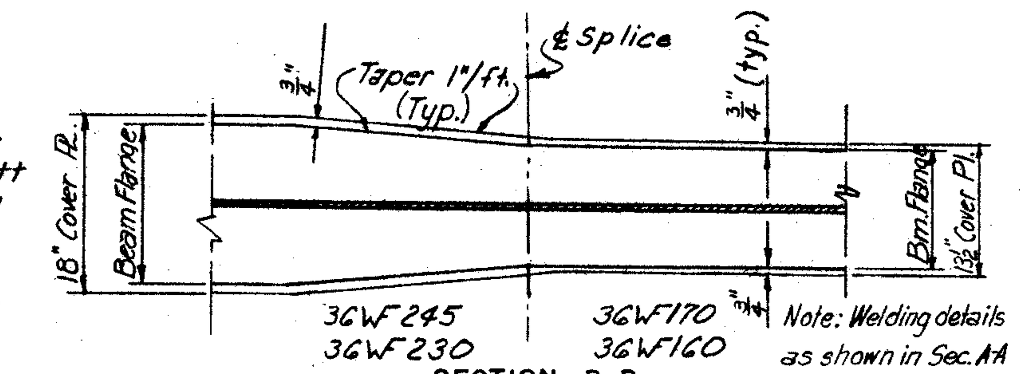
NOTE:
For additional notes, see sheet 109-G



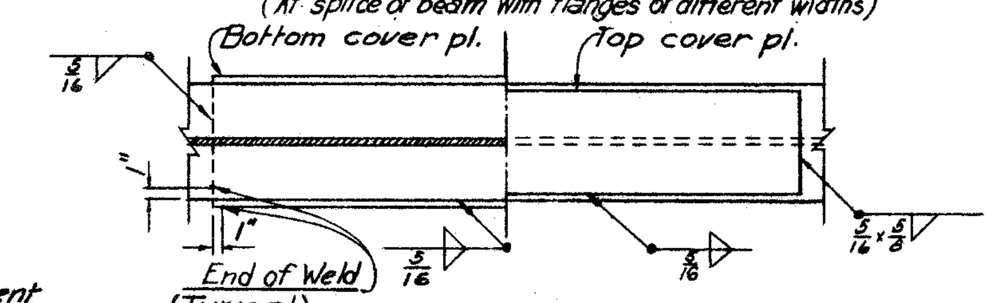
Shoe Type R100	87'-9 5/16"	Shoe Type B200	88'-9 1/16"	Shoe Type R175	53'-0"	Shoe Type R75	Beam M
Shoe Type R125	88'-1"	Shoe Type B250	88'-9 1/16"	Shoe Type R200	53'-0"	Shoe Type R100	Beams N through S
Shoe Type R125	88'-1"	Shoe Type B250	88'-9 1/16"	Shoe Type R200	53'-1 5/16"	Shoe Type R100	Beam T
Shoe Type R100	88'-1"	Shoe Type B225	88'-9 1/16"	Shoe Type R175	53'-4 11/16"	Shoe Type R75	Beam U

BEAM ELEVATION
(Typ. except as noted)

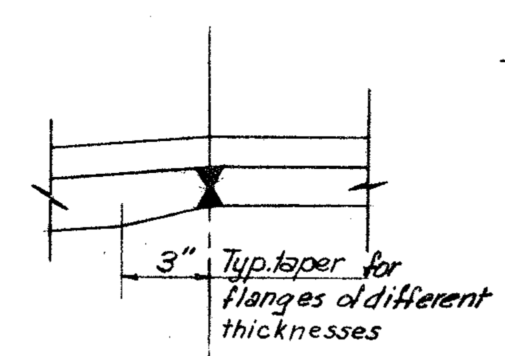
Note: Cover plates may be fabricated from a single wide plate or from two plates butt welded for full strength and ground smooth in the shop. The splice shall be a minimum of 2'-0" from the ℄ of the beam splice.



SECTION B-B
(At splice of beam with flanges of different widths)



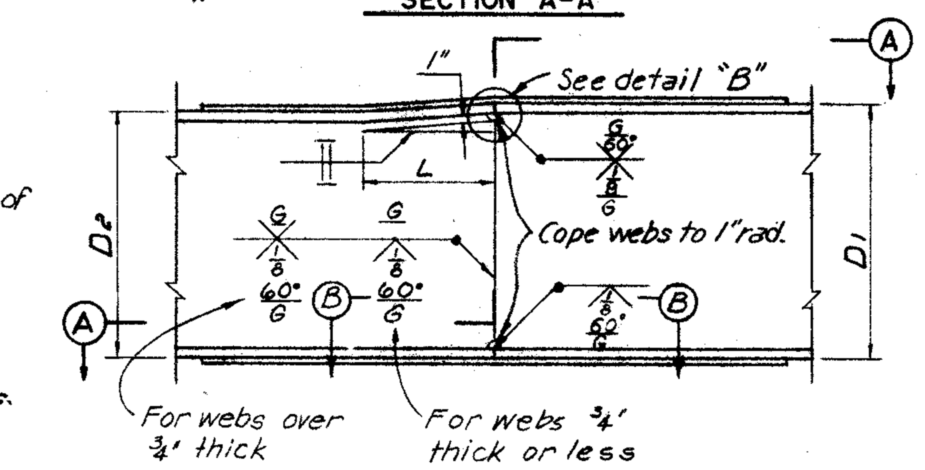
SECTION A-A



DETAIL "B"
No Scale

Note:
D1 and D2 are depths of beams in inches
L = 32 (D1 - D2) in inches

"G" indicates a smooth grind in the direction of the stress.



BEAM FIELD SPLICE DETAIL

TABLE OF ANGLES	
A	101°-04'-55"
B	102°-00'-00"
C	78°-55'-05"
D	78°-00'-00"
E	102°-37'-23"
F	103°-46'-44"
G	77°-22'-37"
H	76°-13'-16"
J	78°-00'-00"

AMOUNT OF JACKING IN INCHES		
For splice at Pier	1	2
Raise beam at	West Abut.	East Abut.
Beam A through D	5⅛	2
Beam E through L	5½	2 7/16
Beam M through U	5⅛	2¼

Note:
Raise beam at West Abutment and beam at East Abutment at the same time and splice at Piers 1 and 2.

BEAM SPLICE WELDING PROCEDURE

1. Raise end of beam to be spliced amount shown in table @ East & West Abut.
2. Butt weld the beam flanges and web, using following sequence: make two passes on each flange, then two on the web; repeat until welds are completed.
3. Weld the bottom and top cover plates.
4. Weld splice at other pier following steps 3 thru 5
5. Lower the beam ends to final positions

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

110 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

MICROFILMED
JUL 8 1985

H.N.T.B. BR. NO. 2 — PART 6

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

FRAMING PLAN-SOUTH HALF

INNER BELT FREEWAY OVER EAST 9th ST.
BR. NO. CUY-42-1832 — STA. 58+79.98
Scale: As noted — STA. 61+16.05

WILLOW-INNER BELT FREEWAY

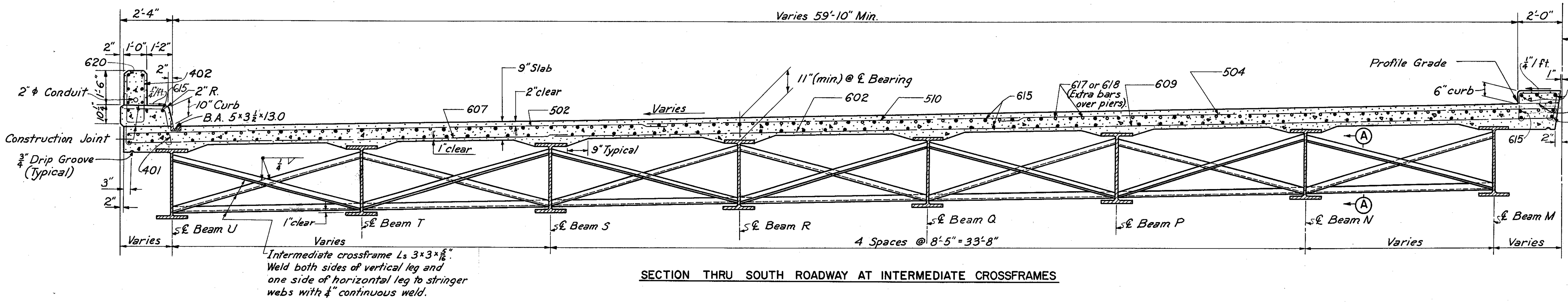
CLEVELAND — CUYAHOGA COUNTY — OHIO

DRAWN PH — DATE 5-14-58 — TRACED — DATE — CHECKED R.L.R. DATE 9/2/58 — REVIEWED JCT DATE 11-12-59 — REVISED 7-15-60 — SHEET 110

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

111
175

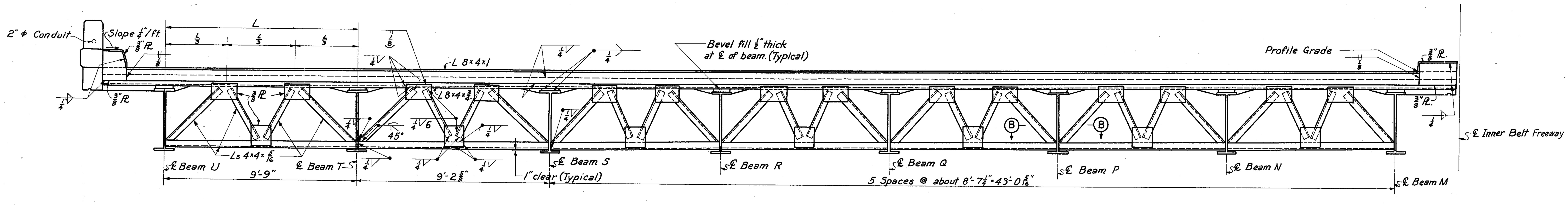
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



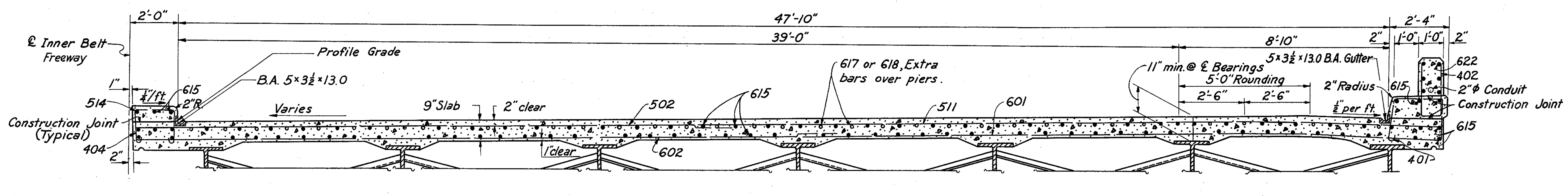
SECTION THRU SOUTH ROADWAY AT INTERMEDIATE CROSSFRAMES

Note: Prefix "SA" shall be assigned to all bar marks.

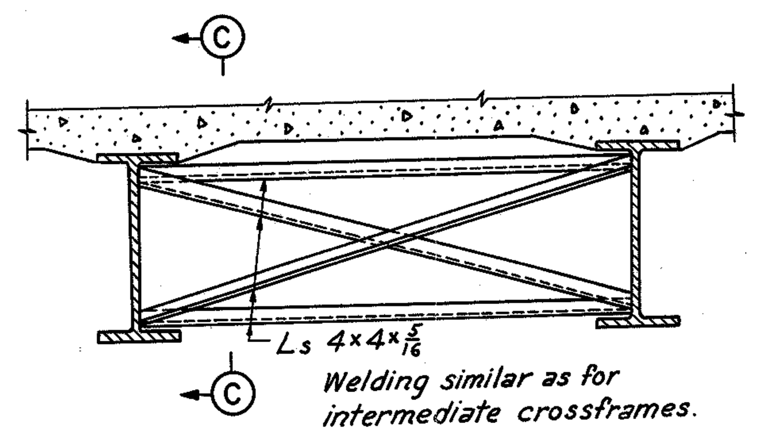
NOTE:
Slab thickness shown includes 1" for monolithic wearing surface.



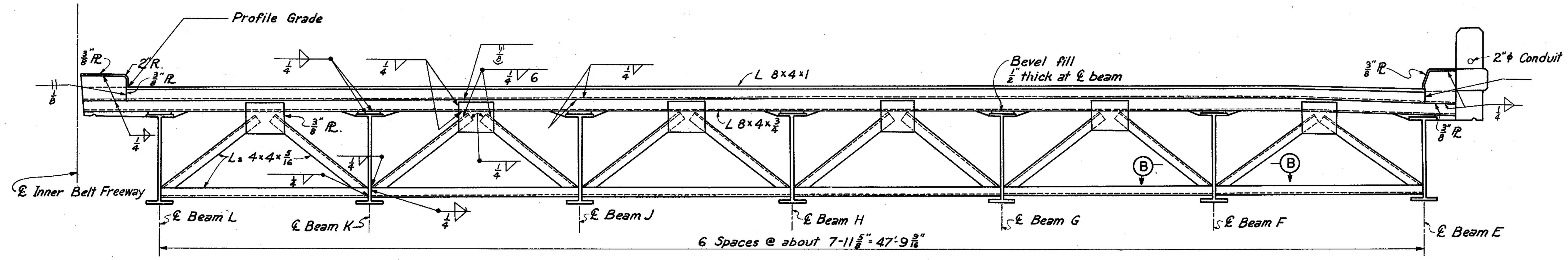
SECTION THRU SOUTH ROADWAY AT END FINISH
TYPE Y CROSSFRAMES SHOWN



SECTION THRU NORTH ROADWAY AT INTERMEDIATE CROSSFRAMES



BEND LINE CROSSFRAME — TYPE W



SECTION THRU NORTH ROADWAY AT END FINISH
TYPE X CROSSFRAMES SHOWN

NOTES:
For sections A-A, B-B and C-C, see sheet 113-G.
For details of end dams, see sheet 156-G.

H.N.T.B. BR. NO. 2 PART 6

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

TYPICAL SECTIONS

INNER BELT FREEWAY OVER EAST 9th ST.
BR. NO. CUY-42-1832 STA. 58 + 79.98
Scale 3/8" = 1'-0" STA. 61 + 16.05

WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN AGG	TRACED RJK	CHECKED RJH	REVIEWED JCT	REVISED
DATE 6-27-58	DATE 4-8-59	DATE 7-3-58	DATE 11-12-59	SHEET 111

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29

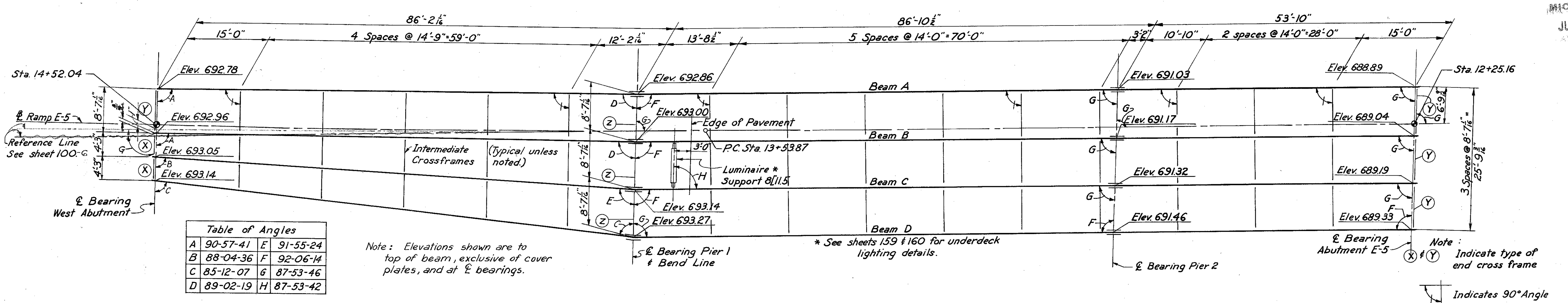
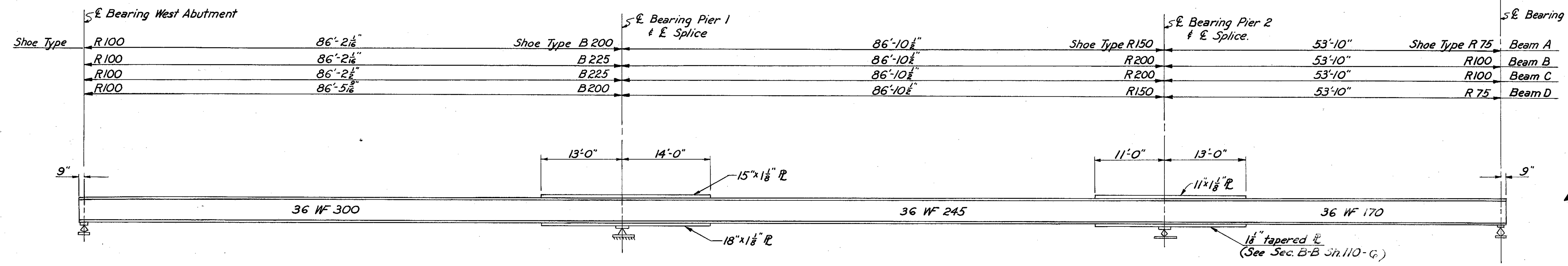


Table of Angles

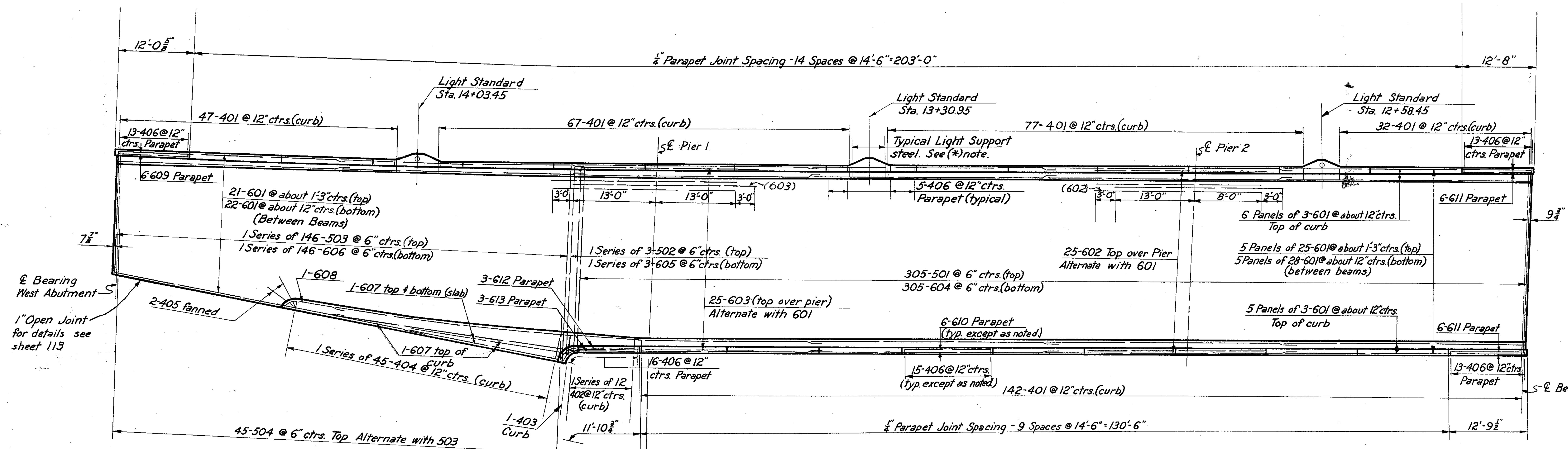
A	90-57-41	E	91-55-24
B	88-04-36	F	92-06-14
C	85-12-07	G	87-53-46
D	89-02-19	H	87-53-42

FRAMING PLAN
Scale 1" = 10'



BEAM ELEVATION
(Typ except as noted)

Note: Prefix "SB" shall be assigned to all bar marks.



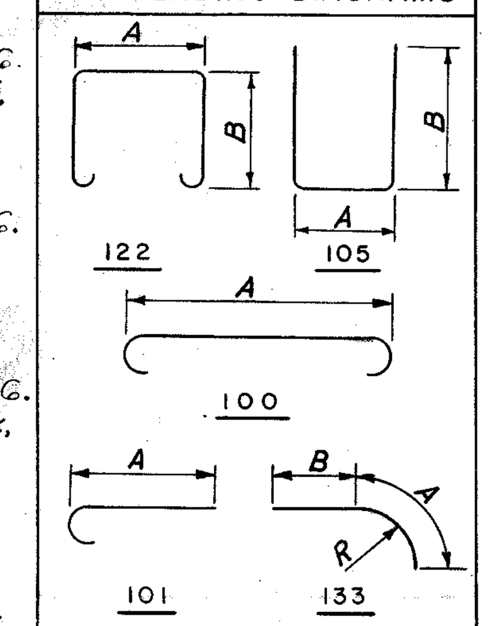
DECK PLAN

REINFORCEMENT SCHEDULE

MARK	NO	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SER. INC.	WT. LBS.
401	364	5'-3"	122	1'-8"	1'-5"		1278
402	1 Series of 12	5'-7" to 6'-7"	122	2'-0" to 3'-0"	1'-5"	1 1/8"	49
403	1	8'-0"	122	4'-5"	1'-5"		5
404	1 Series of 45	5'-4" to 7'-11"	122	1'-9" to 4'-4"	1'-5"	3/4"	199
405	2	5'-4"	122	1'-9"	1'-5"		7
406	384	4'-5"	105	0'-8"	2'-0"	C	1133
*451	6	9'-3"	131	2'-6"	3'-0"	1'-2"	36
*452	6	10'-3"	131	3'-0"	3'-0"	1'-8"	42
*453	9	9'-9"	131	3'-2"	3'-0"	1'-0"	60
*454	6	5'-11"	155	2'-2"	1'-6"		24
*455	6	6'-5"	155	2'-8"	1'-6"		27
*456	9	6'-7"	155	2'-10"	1'-6"		39
501	305	30'-11"	100	29'-9"			9835
502	1 Series of 3	31'-5" to 32'-5"	100	30'-3" to 31'-3"		6"	100
503	1 Series of 146	21'-2" to 32'-11"	100	20'-0" to 31'-9"		15/16"	4175
504	145	7'-7"	101	7'-0"			1147
601	341	39'-9"	Str.				20359
602	25	24'-0"	Str.				901
603	25	29'-0"	Str.				1089
604	305	29'-9"	Str.				13629
605	1 Series of 3	30'-3" to 31'-3"	Str.			6"	139
606	1 Series of 146	20'-0" to 31'-9"	Str.			15/16"	5675
607	7	22'-9"	Str.				239
608	1	10'-8"	133	2'-8"	8'-0"	R=1'-10"	16
‡609	6	11'-9"	Str.				—
‡610	138	14'-0"	Str.				—
‡611	12	12'-6"	Str.				—
‡612	3	16'-0"	133	4'-3"	11'-9"	R=2'-10"	—
‡613	3	15'-0"	133	3'-3"	11'-9"	R=2'-2"	—
*651	6	9'-5"	141	2'-11"	1'-10"		74
*652	9	14'-6"	141	5'-3"	3'-0"		195
*653	3	5'-0"	Str.				24

Total 60,496

BAR BENDING DIAGRAMS



NOTES:

For replacement schedule, see sheet 97-G.
(*)Bars are to be included with "Item S-14, Railing" for payment.
For deflections, see sheet 109-G.
For light standard support and other lighting details, see sheet 159-G & 160-G.
For Railing, Guard Rail & Parapet Joint details, see sheet 158-G.
For Drainage details, see sheet 157-G.
For End dam details, see sheet 156-G.
For Deck details, see sheet 113-G & 115-G.
For typical crossections through deck, see sheet 113-G.
(*)For bending diagram and placement, see sheet 159-G.
Bars of a series shall vary in length by a constant increment.
Bar dimensions are given out to out.
For Beam Splice Welding Procedure see sheet 110-G.

H.N.T.B. BR. NO. 2 PART 6.

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

FRAMING & DECK PLAN
RAMP E-5
INNER BELT FREEWAY OVER EAST 9th ST.
BR. NO. CUY-42-1832 STA. 58 + 79.98
Scale. 1" = 10' STA. 61 + 16.05
WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN C.A.H.	TRACED	CHECKED G.A.T.	REVIEWED J.C.T.	REVISED 7-15-60
DATE 5-12-58	DATE 5-13-59	DATE 10-23-59	DATE 11-12-59	SHEET 112

H.N.T.B. BR. NO. 2 PART 6

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

RAMP E-5 SUPERSTRUCTURE & NOSE DETAILS
INNER BELT FREEWAY OVER EAST 9th ST.
BR. NO. CUY-42-1832 STA. 58+79.98
Scale: 3/8" = 1'-0" except as noted STA. 61+16.05

WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN A.L. DATE 11-25-58	TRACED A.L. DATE 11-25-58	CHECKED G.A.T. DATE 12-13-58	REVIEWED JCT DATE 11-12-59	REVISED	SHEET 113

Note: Prefix "SA" shall be assigned to all bar marks.

MICROFILMED JUL 8 1985

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		
2	OHIO			

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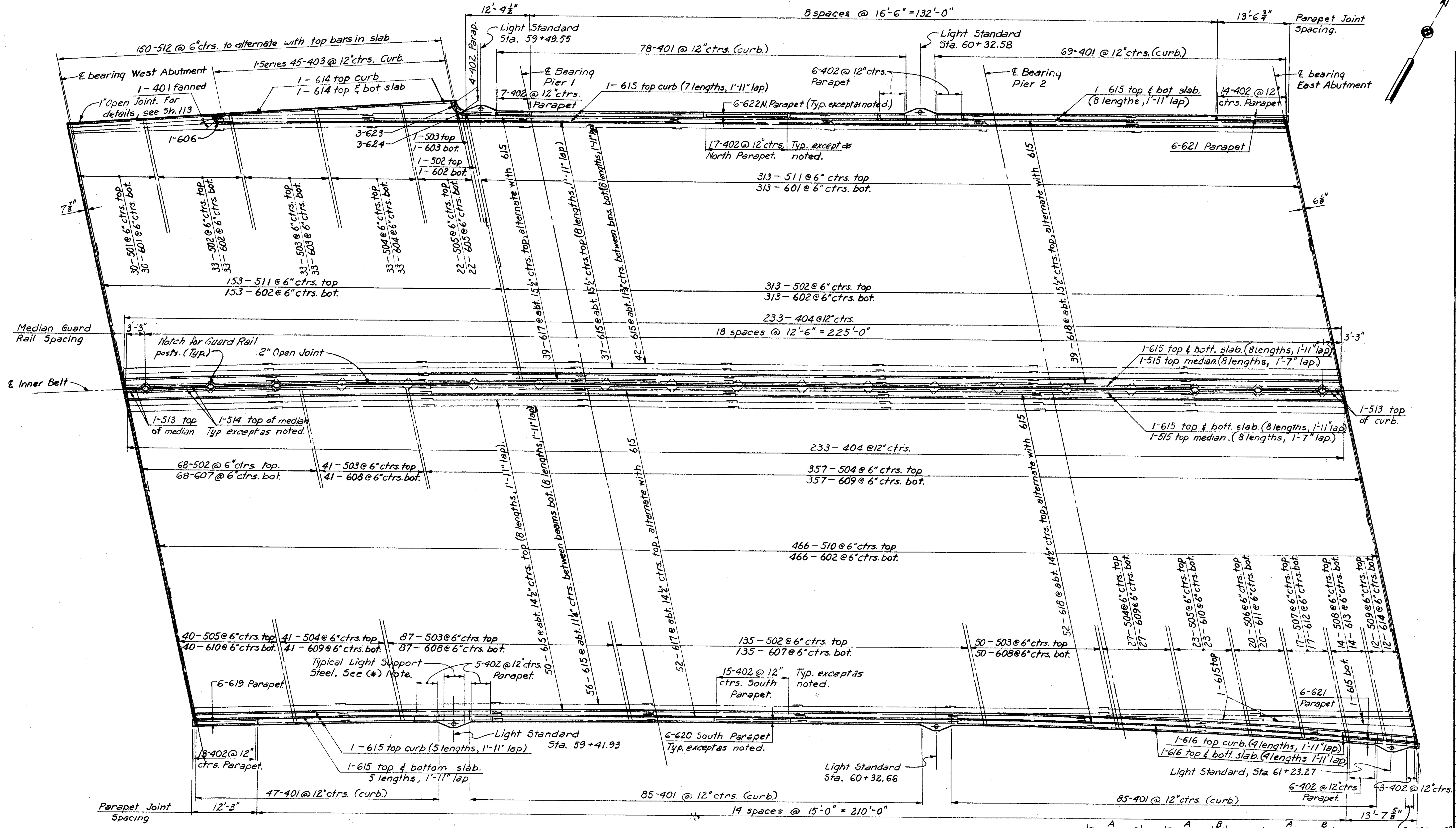
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29



PLAN

REINFORCEMENT SCHEDULE							
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SERIES INC.	WEIGHT POUNDS
401	369	5'-3"	122	1'-8"	1'-5"		1296
402	378	4'-5"	105	0-8"	2'-0"		1115
403	1 Series of 45	5'-3" to 7'-3"	122	1'-8" to 3'-8"	1'-5"	9/16"	188
404	466	4'-6"	122	1'-7"	1'-1"	C	1403
*451	10	9'-3"	131	2'-6"	3'-0"	1'-2"	62
*452	10	10'-3"	131	3'-0"	3'-0"	1'-8"	68
*453	15	9'-9"	131	3'-2"	3'-0"	1'-0"	98
*454	10	5'-9"	155	2'-2"	1'-6"		38
*455	10	6'-5	155	2'-8"	1'-6"		43
*456	15	6'-7"	155	2'-10"	1'-6"		66
501	30	24'-7"	101	24'-0"			769
502	550	25'-1"	101	24'-6"			14389
503	212	25'-7"	101	25'-0"			5657
504	459	26'-1"	101	25'-6"			12487
505	85	26'-7"	101	26'-0"			2357
506	20	27'-1"	101	26'-6"			565
507	17	27'-7"	101	27'-0"			489
508	14	28'-1"	101	27'-6"			410
509	12	28'-7"	101	28'-0"			358
510	466	18'-9"	Str.				9113
511	466	30'-0"	Str.				14581
512	150	6'-0"	101	5'-5"		C	939
513	4	3'-11"	108	3'-0"	0'-6"	0'-10"	16
514	36	13'-0"	159	11'-2"	0'-6"	0'-10"	488
516	32	30'-6"	Str.				1018
601	343	27'-3"	Str.				14039
602	966	27'-9"	Str.				40263
603	34	28'-3"	Str.				1443
604	33	28'-9"	Str.				1425
605	22	29'-3"	Str.				967
606	1	4'-9"	133	2'-10"	1'-11"	R=1'-10"	7
607	203	20'-3"	Str.				6174
608	178	20'-9"	Str.				5548
609	425	21'-3"	Str.				13565
610	63	21'-9"	Str.				2058
611	20	22'-3"	Str.				668
612	17	22'-9"	Str.				581
613	14	23'-3"	Str.				489
614	18	23'-9"	Str.				642
615	1636	30'-9"	Str.				75561
616	32	24'-0"	Str.				1154
617	91	29'-6"	Str.				4032
618	91	24'-6"	Str.				3349
‡619	6	12'-0"	Str.				
‡620	84	14'-6"	Str.				
‡621	12	13'-3"	Str.				
‡622	48	16'-0"	Str.				
‡623	3	16'-5'	133	4'-3"	12'-2"	R=2'-10"	
‡624	3	15'-5"	133	3'-3"	12'-2"	R=2'-2"	
*651	10	9'-5	141	2'-11"	1'-10"		141
*652	15	14'-6"	141	5'-3"	3'-0"		327
*653	5	5'-0"	Str				38
					Total		240,484

NOTES:

All bar dimensions are given out to out.

For replacement schedule, see Sh. 97-G

(*) Bars 451 thru 456 and 651 thru 653 are for the light standard support. For their placement and bending diagram, see Sh. 159-G

(‡) Bars 619, 620, 621, 622, 623 and 624 are to be included with "Item 5-14, Railing" for payment.

For light standard support and other lighting details, see Sh. 159-G

For Railing, Guard Rail, and Parapet Joint details, see Sh. 158-G

For Drainage details, see Sh. 157-G

Bars of a series shall vary in length by a constant increment.

For End Dam details, see Sh. 156-G.

For Deck details not shown, see Sh. 113-G & 115-G

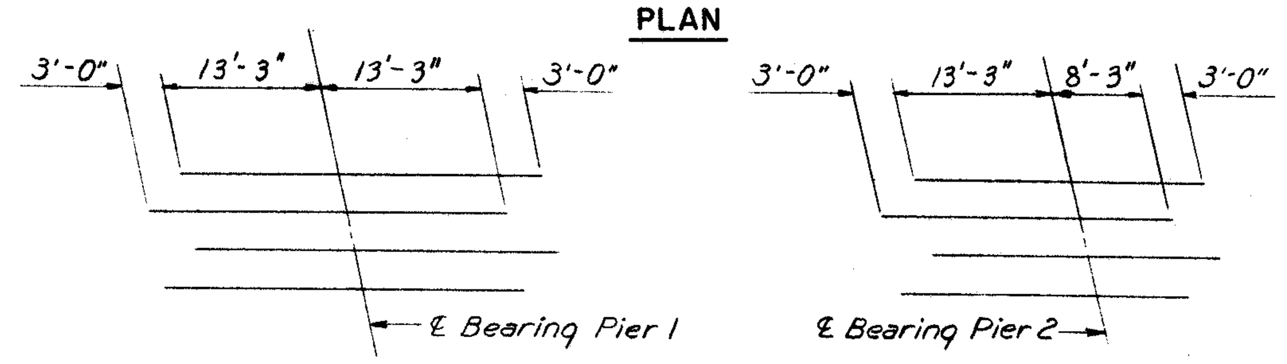
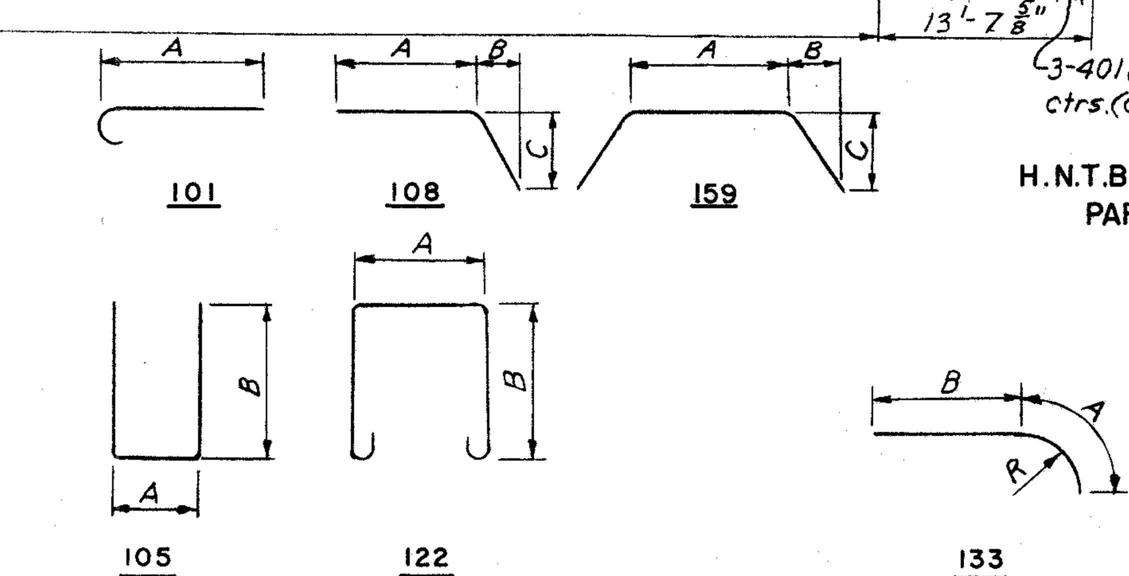


DIAGRAM SHOWING STAGGER OF 617 & 618 OVER PIERS



BENDING DIAGRAMS

H.N.T.B. BR. NO. 2
PART 6

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

DECK PLAN

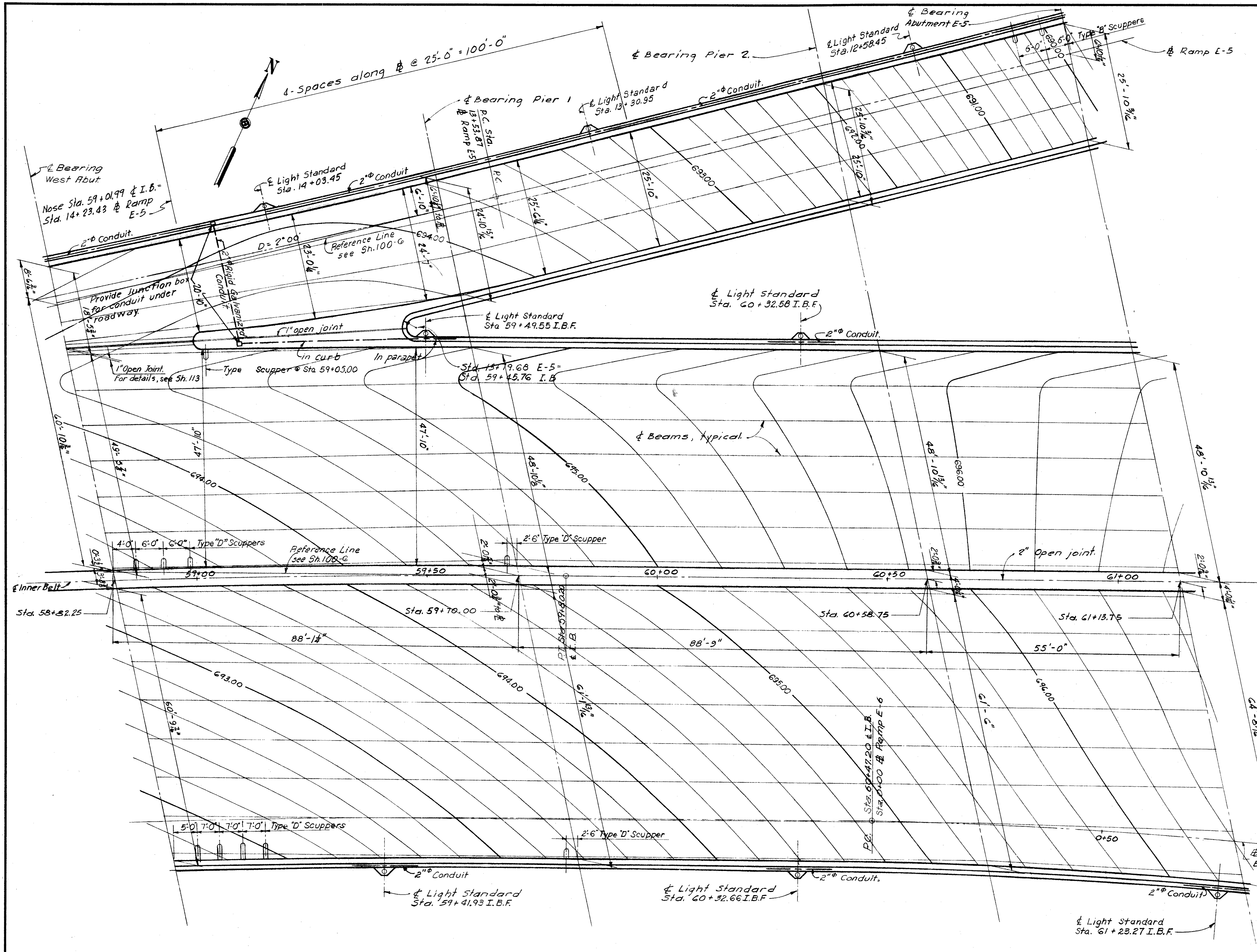
INNER BELT FREEWAY OVER EAST 9th ST.

BR. NO. CUY- 42-1832 STA. 58+79.98
Scale: 1" = 10' STA. 61+16.05

WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN JEH DATE 3-11-59	TRACED DATE	CHECKED RJM DATE 5-28-59	REVIEWED JCT DATE 11-12-59	REVISED	SHEET 114



MICROFILMED
JUL 8 1985

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

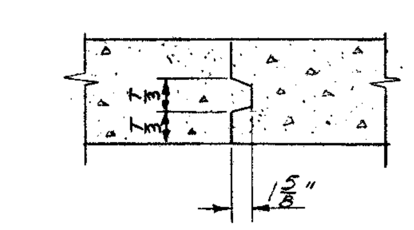
115
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29

NOTES :

In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are parallel to the transverse bars in the slab and are located near the center of any span.

For light standard support and other lighting details, see Sheets 159-G & 160-G.
For Railing details, see Sh. 158-G.
For Guard Rail details, see Sh. 158-G.
For Drainage details, see Sh. 157-G.
Conduit shown crossing Ramp E-5 shall be placed below beams. For details see Sh. 160-G.
For Section H-H and Detail "A" see Sh. 113-G.



OPTIONAL CONSTRUCTION JOINT THROUGH DECK

H.N.T.B. BR. NO. 2 PART 6

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

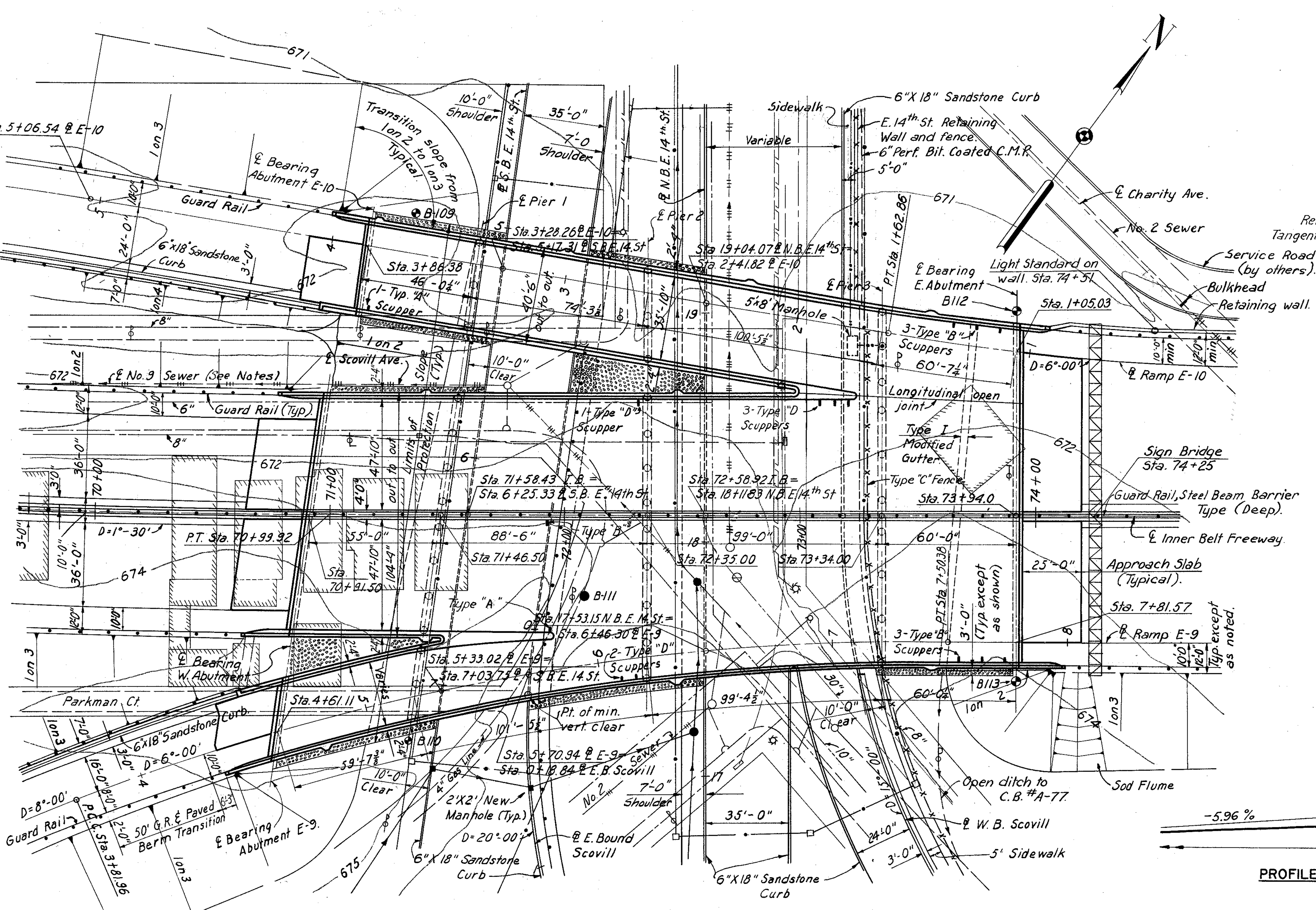
DECK DETAILS

INNER BELT FREEWAY OVER EAST 9th ST.
BR. NO. CUY- 42-1832 STA. 58+79.98
Scale : 1" = 10' STA. 61 + 16.05

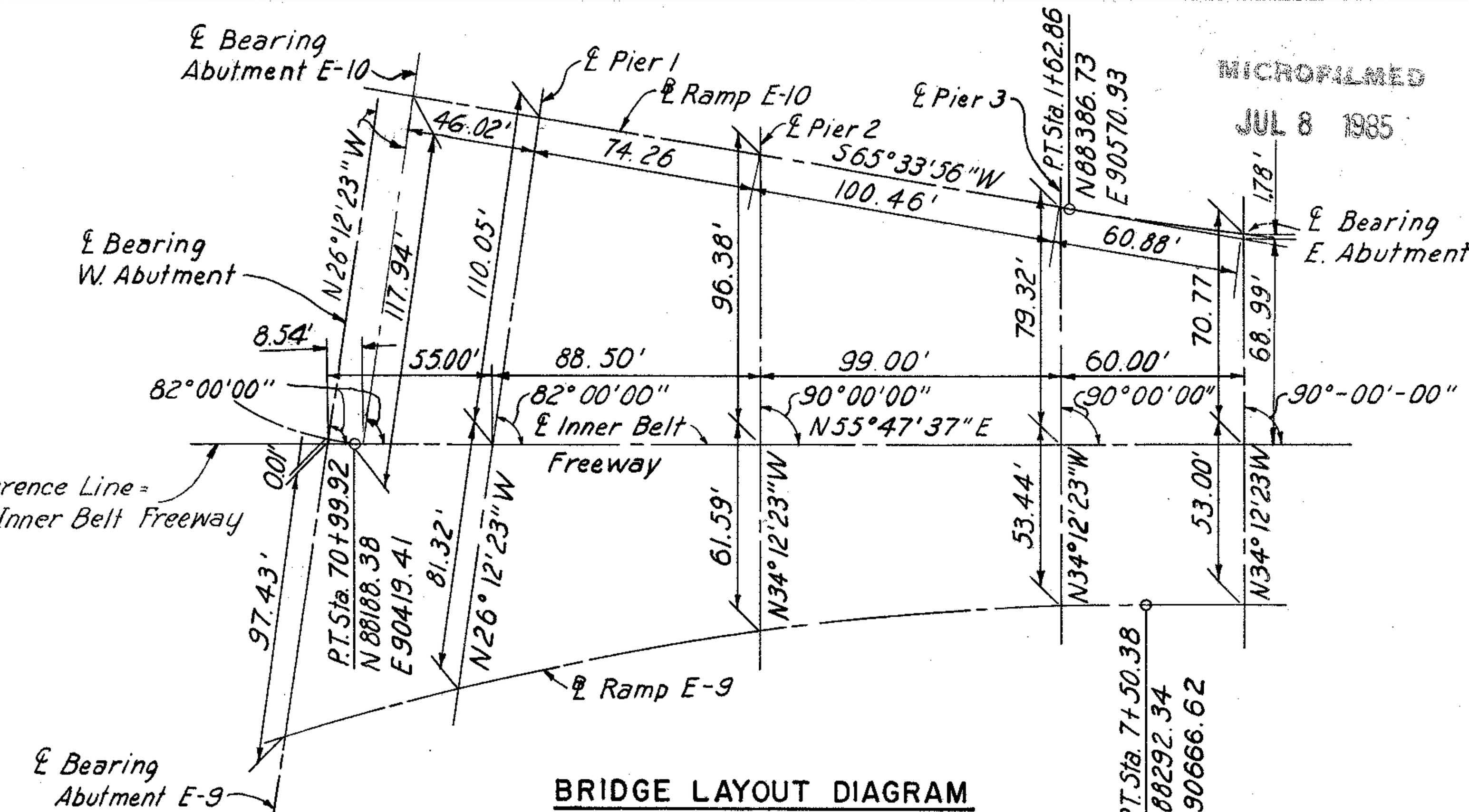
WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN LDF RLF DATE 5/7/58	TRACED DATE	CHECKED RJM DATE 7-7-58	REVIEWED JCT DATE 11-12-59	REVISED	SHEET 115

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29



PLAN



BRIDGE LAYOUT DIAGRAM
No Scale

LEGEND

- Right of Way
- Curb
- M.E.L.P.
- Power Pole
- Face of curb
- C.B.
- Sewer
- M.H.
- Proposed Sewer
- Inlet
- M.H.
- Sewer to be Abandoned
- Proposed 2" ϕ Duct
- Pull Box
- Proposed 4" ϕ Duct
- Water
- Fire hydrant
- Gas
- W.W.L.
- Light Pole
- Light Pole
- Telephone Pole

Elev.	673.0	Brick & Cinder
19	668.0	Brown Silty Sand
24	663.0	Brown Silty Gravelly Sand
41		
18		
21		
40		
93	638.0	Brown Silty Sand
36	633.0	Gray Sandy Silt
34		
21		
39		
20		
26		
34		
27		
45	592.0	Gray Silt

Note: The column at the left indicates the number of blows required to drive the sample spon 1 ft. They are given at 5' intervals starting at elev. 673.0.

BORING B-111
Vertical scale: 1" = 20'
Sta. 72 + 07 ℄ Inner Belt 35' Rt.

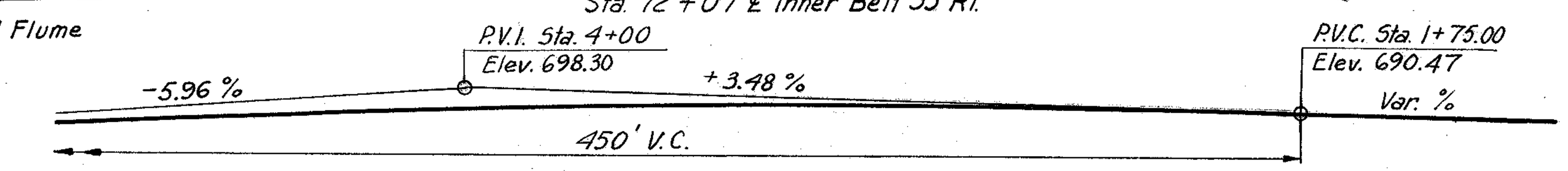
CURVE DATA I. B. FREEWAY
Δ = 12° 01' 26
D = 1° 30'
R = 3819.72'
T = 402.27'
L = 801.59'

CURVE DATA RAMP E-9
Δ = 22° 06' 19"
D = 6° 00
R = 954.93'
T = 186.53'
L = 368.42'

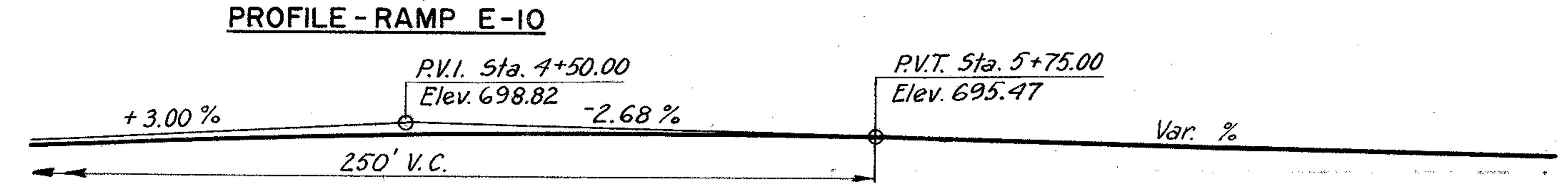
CURVE DATA RAMP E-10
Δ = 9° 46' 18"
D = 6° 00'
R = 954.93'
T = 81.63'
L = 162.86'

CURVE DATA W. B. SCOVILL
Δ = 47° 06' 56"
D = 15° 00'
R = 381.97'
T = 166.55'
L = 314.10'

CURVE DATA E. B. SCOVILL
Δ = 66° 00' 11"
D = 20° 00'
R = 286.48'
T = 186.05'
L = 330.02'



PROFILE - RAMP E-10

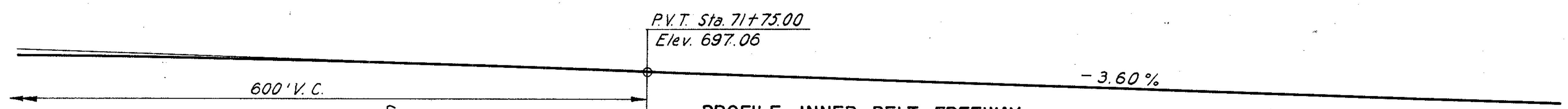


PROFILE - RAMP E-9

NOTES:

The following items are not included in the Bridge Plans: (See Roadway Plans for Details)
Removal of existing pavements, etc.
Relocation or removal of existing utilities.
Approach grading, pavement and slabs.
Roadway Guard Rail, Sod Flumes.
For details of slope protection, see Sh. 157-6
Rod sounding only were taken at location B-109, B-110, B-112, & B-113. The core drilling made at B-111 is plotted.

Pile lengths are based on boring data and are approximate only. The Contractor shall assume full responsibility for length of piling selected for driving.
For details of grading behind Pier 3, see sheet 161-6
For details of E. 14th St. retaining walls, see sheet 161-6

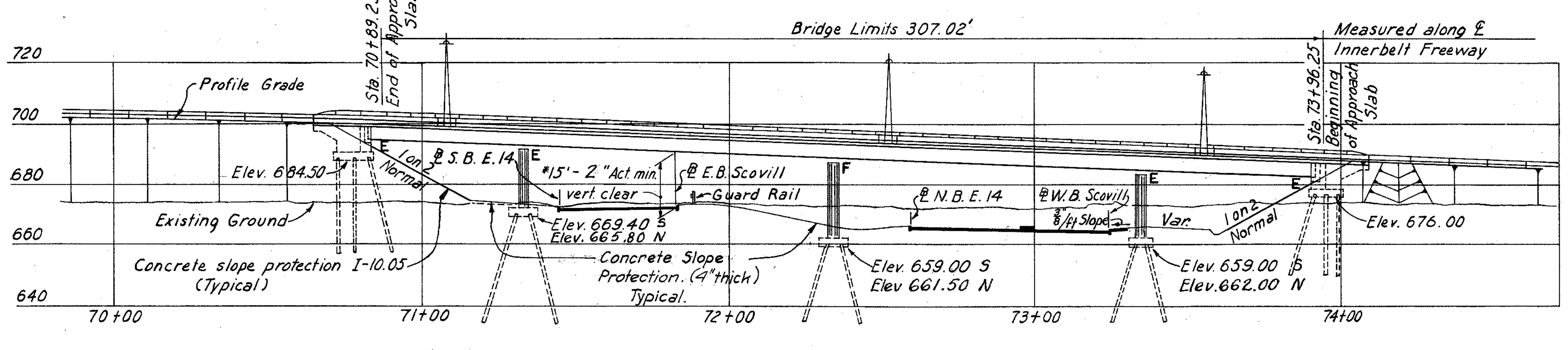


PROFILE - INNER BELT FREEWAY

PILE INFORMATION			
Location	Diameter	Number	Estimated ave. length
Abutment E-9	12"	17	23'
Abutment E-10	12"	20	23'
W. Abutment	12"	42	28'
E. Abutment	12"	74	28'
Retaining wall	12"	92	27'
Pier 1	14"	48	28'
Pier 2	14"	80	26'
Pier 3	14"	56	27'
E. 14th St. Retain. walls	12"	39	29'

All piles to be C.I.P. Reinforced Concrete.

Note: Part 6 includes only Piers 1, 2, & 3 for Br. No. 4, and the E. 14th St. Retaining walls. Abutments and superstructure for this bridge are in Part 7-A.



ELEVATION

*15'-0" Required minimum vertical clearance
Point of actual minimum vertical clearance occurs at South beam of Ramp E-9 and East gutter of E. B. Scovill.

PROPOSED STRUCTURE

TYPE: Continuous welded steel girder with reinforced concrete deck and substructure.
SPANS: 55'-0", 88'-6", 99'-0", & 60'-0" along ℄ I.B.
ROADWAY: Varies
LOADING: CF-2000 - Adequate for A.A.S.H.O. alternate loading.
SKEW: Varies
SURFACE COURSE: 1" Monolithic Concrete.
ALIGNMENT 1° 30' Lt. Tangent
APPROACH SLABS: AS-1-54 (25' long)
SUPERELEVATION: Varies

H.N.T.B. BR. NO. 4 PART 6

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

SITE PLAN

INNER BELT FREEWAY OVER EAST 14th ST.
BR. NO. CUY - 42 - 1854 STA. 70+89.23
Scale: 1" = 30' STA. 73+96.25

WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN R.A.	TRACED J.A.G.	CHECKED AJS	REVIEWED JCT	REVISED
DATE 11-4-58	DATE 12-18-58	DATE 10-21-58	DATE 11-12-59	SHEET 116

Note:
Anchor bars to be furnished and set ~~under future contract~~.
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bar setting.

Note: Prefix "PA" shall be assigned to all bar marks.

MICROFILMED JUL 8 1985

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

117 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-1829

NOTES:
All piles shall be 14" ϕ C.I.P. Reinforced Concrete
All battered piles to be battered 3 in 12 in direction shown
Pile spacings are given along bottom of footings.
Reinforcement bars shall be 3" clear from face of concrete in footings and 2" elsewhere.
For Masonry Plate details, see Sheet 156-G.
For Reinforcement Schedule see Sheet 120-G.

H.N.T.B. BR. NO. 4 PART 6

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

PIER I

INNER BELT FREEWAY OVER EAST 14th ST.

BR. NO. CUY-42-1854 STA. 70 + 89.23
STA. 73 + 96.25

Scale: 3/16" = 1'-0" Except as noted

WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN A.B. DATE 9-3-59	TRACED DATE	CHECKED CKB DATE 11-14-59	REVIEWED JCT DATE 11-12-59	REVISED	SHEET 117

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.
2	OHIO	

MICROFILMED JUL 8 1985

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

Note: Anchor bolts to be furnished and set under future contract.
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bolt setting.

Note: Prefix "PB" shall be assigned to all bar marks.

NOTES:
All piles shall be 14" ɸ C.I.P. Reinforced Concrete.
All battered piles to be battered 3 in 12 in direction shown.
Pile spacings are given along bottom of footings.
Reinforcement bars shall be 3" clear from bottom of concrete in footings and 2" elsewhere.
For anchor bolt details, see Ohio Standard Drw'g. RB-1-55
For Reinforcement Schedule, see sheet 120-G
Provide electrical ground wire in columns "A" & "J". See notes on Sheet 91A-G.
Special care shall be taken in placing of electrical ground wire so as not to interfere with shoe base plates.

H.N.T.B. BR. NO. 4 PART 6

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

PIER 2

INNER BELT FREEWAY OVER EAST 14th ST.

BR. NO. CUY-42-1854 STA. 70+89.23

Scale: 3/16" = 1'-0" Except as noted STA. 73+96.25

WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED	
AB & DRK DATE 10-10-58	DATE	CKB DATE 11-18-58	JCT DATE 11-12-59		SHEET 118

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		
2	OHIO			

119 / 175

MICROFILMED JUL 8 1985

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29

Note: Anchor bars to be furnished and set ~~under a future~~ contract.
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bar setting.

Note: Prefix "PC" shall be assigned to all bar marks.

NOTES:
All piles shall be 14"φ C.I.P. Reinforced Concrete
All battered piles to be battered 3 in 12 in direction shown.
Pile spacings are given along bottom of footings.
Reinforcement bars shall be 3" clear from bottom of concrete in footings and 2" elsewhere.
For Masonry Plate details, see sheet 156-G
For Reinforcement Schedule, see sheet 120-G
For details of 4"φ Rigid Conduit, see sheet 160-G.

H.N.T.B. BR. NO. 4 — PART 6

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

PIER 3

INNER BELT FREEWAY OVER EAST 14th ST.
BR. NO. CUY-42-1854 — STA. 70+89.23
Scale: 3/16" = 1'-0" Except as noted — STA. 73+96.25

WILLOW-INNER BELT FREEWAY

CLEVELAND — CUYAHOGA COUNTY — OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED	
A.B. & DRK DATE 10-20-58	DATE	CKB DATE 11-19-58	JCT DATE 11-12-59		SHEET 119

Q-10

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

120
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29

PIER 1

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCRE-MENT	WEIGHT (LBS)
501	143	3'-9"	105	2'-8"	8"				559
502	100	12'-1"	109	2'-8"	3'-2"				1260
503	28	10'-11"	109	2'-1"	3'-2"				319
504	6	3'-7"	105	2'-6"	8"				22
601	80	9'-6"	100	8'-2"					1142
602	18	8'-0"	144	1'-11"	4'-2"				216
603	2	29'-6"	Str.						89
604	26	12'-2"	109	2'-8"	3'-2"				475
605	8	26'-0"	Str.						312
606	2	36'-0"	Str.						108
701	60	9'-10"	100	8'-2"					1206
801	80	13'-4"	100	11'-2"					2848
802	60	10'-4"	100	8'-2"					1655
803	8	29'-6"	Str.						630
804	5	22'-0"	Str.						296
805	5	10'-0"	Str.						134
806	2	15'-0"	Str.						80
807	6	10'-6"	123	3'-10"	3'-10"				168
901	48	6'-7"	104	5'-7"	1'-3"				1074
902	12	20'-9"	Str.						847
903	24	20'-6"	Str.						1673
904	36	20'-3"	Str.						2478
905	12	20'-0"	Str.						816
906	12	21'-0"	Str.						857
907	10	31'-6"	Str.						1071
908	10	21'-6"	Str.						731
909	4	8'-0"	Str.						109
910	18	10'-0"	Str.						612
911	10	24'-0"	Str.						816
912	10	29'-0"	Str.						986
913	12	11'-2"	123	4'-2"	4'-2"				456
914	3	36'-0"	Str.						367
915	2	18'-0"	Str.						122
916	3	12'-0"	Str.						122
1001	10	8'-0"	Str.						344
1002	5	36'-0"	Str.						775
1003	10	12'-0"	Str.						516
1101	48	7'-6"	104	6'-3"	1'-6"				1913
1102	8	16'-9	Str.						712
1103	8	17'-0"	Str.						723
1104	8	18'-0"	Str.						765
1105	32	9'-0"	104	7'-9"	1'-6"				1530
1106	24	17'-6"	Str.						2231
							Total	Weight	34,165

PIER 2

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCRE-MENT	WEIGHT (LBS)
501	59	12'-1"	109	2'-8"	3'-2"				743
502	149	3'-9"	105	2'-8"	8"				583
503	4	3'-7"	105	2'-6"	8"				15
601	40	8'-6"	100	7'-2"					511
602	6	36'-6"	Str.						329
603	12	8'-0"	144	1'-11"	4'-2"				144
604	79	12'-2"	109	2'-8"	3'-2"				1444
605	4	25'-9"	Str.						155
801	20	11'-4"	100	9'-2"					605
802	5	23'-3"	Str.						310
803	8	29'-0"	Str.						619
804	5	9'-0"	Str.						120
805	2	10'-0"	Str.						53
806	3	11'-4"	123	4'-3"	4'-3"				91
901	204	11'-8"	100	9'-2"					8092
902	5	40'-0"	Str.						680
903	5	33'-6"	Str.						570
904	8	11'-0"	Str.						299
905	10	10'-0"	Str.						340
906	7	12'-0"	S						286
907	9	11'-4"	123	4'-3"	4'-3"				347
908	5	21'-0"	Str.						357
909	5	31'-6"	Str.						536
910	3	28'-0"	Str.						286
911	13	36'-6"	Str.						1613
912	21	14'-3"	Str.						1017
1001	5	40'-0"	Str.						861
1002	5	33'-9"	Str.						726
1003	3	15'-0"	Str.						194
1004	2	11'-0"	Str.						95
1005	6	10'-0"	Str.						258
1101	32	8'-11"	104	7'-9"	1'-6"				1516
1102	84	7'-5"	104	6'-3"	1'-6"				3310
1103	48	10'-11"	104	9'-9"	1'-6"				2784
1104	8	24'-9"	Str.						1052
1105	8	25'-6"	Str.						1084
1106	24	25'-9"	Str.						3283
1107	8	24'-6"	Str.						1041
1108	12	24'-3"	Str.						1545
1109	12	24'-0"	Str.						1530
1110	8	23'-9"	Str.						1009
1111	12	21'-6"	Str.						1371
1112	24	21'-3"	Str.						2710
							Total	Weight	44,514

PIER 3

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCRE-MENT	WEIGHT (LBS)
501	141	3'-9"	105	2'-8"	8"				551
502	99	12'-2"	109	2'-8"	3'-2"				1256
503	98	10'-10"	109	2'-0"	3'-2"				1107
504	2	3'-7"	105	2'-6"	8"				7
601	4	32'-3"	Str.						194
602	6	8'-0"	144	1'-11"	4'-2"				72
603	4	27'-3"	Str.						164
604	2	35'-3"	Str.						106
701	60	9'-10"	100	8'-2"					1206
801	5	35'-3"	Str.						471
802	5	10'-0"	Str.						134
803	5	9'-0"	Str.						120
804	3	11'-4"	123	4'-3"	4'-3"				91
901	40	10'-8"	100	8'-2"					1451
902	100	11'-8"	100	9'-2"					3967
1001	5	40'-0"	Str.						861
1002	5	26'-0"	Str.						559
1003	6	17'-6"	Str.						452
1004	2	14'-0"	Str.						120
1005	3	33'-0"	Str.						426
1006	5	29'-9"	Str.						640
1007	5	36'-0"	Str.						775
1008	3	38'-6"	Str.						497
1009	2	10'-0"	Str.						86
1010	2	10'-6"	Str.						90
1011	3	11'-4"	123	4'-3"	4'-3"				146
1101	12	8'-11"	104	7'-9"	1'-6"				568
1102	64	7'-5"	104	6'-3"	1'-6"				2522
1103	16	21'-6"	Str.						1828
1104	8	22'-0"	Str.						935
1105	8	22'-3"	Str.						946
1106	8	20'-3"	Str.						861
1107	8	20'-0"	Str.						850
1108	8	19'-6"	Str.						829
1109	8	18'-3"	Str.						776
1110	16	18'-0"	Str.						1530
1111	10	27'-9"	Str.						1474
1112	11	16'-6"	Str.						964
1113	4	12'-6"	Str.						266
1114	5	39'-0"	Str.						1036
1115	6	10'-6"	Str.						335
1116	10	14'-0"	Str.						744
1117	5	35'-3"	Str.						936
							Total	Weight	32,949

SPIRAL REINFORCEMENT SCHEDULE PIER 1

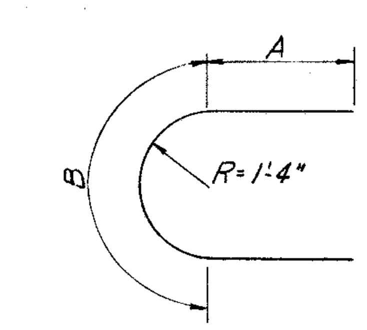
MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT (LBS)
401	1	2'-8"	13'-3"	4½"	38	246
402	1	2'-8"	13'-10"	4½"	40	259
403	4	2'-8"	14'-6"	4½"	42	1084
404	2	2'-8"	17'-4"	3"	72	888
405	2	2'-8"	17'-2"	3"	72	886
406	2	2'-8"	16'-9"	3"	70	864
407	1	2'-8"	16'-7"	3"	69	425
408	1	2'-8"	17'-7"	3"	73	450
					Total	5,102

SPIRAL REINFORCEMENT SCHEDULE PIER 2

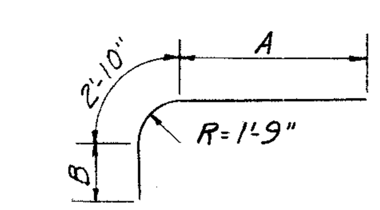
MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT (LBS)
401	1	2'-8"	21'-8"	4½"	61	395
402	1	2'-8"	21'-10"	4½"	61	396
403	1	2'-8"	22'-2"	4½"	62	402
404	1	2'-8"	22'-5"	4½"	63	408
405	1	2'-8"	22'-7"	4½"	63	409
406	1	2'-8"	21'-3"	3½"	76	477
407	1	2'-8"	21'-1"	3½"	75	471
408	1	2'-8"	20'-10"	3½"	74	465
409	1	2'-8"	20'-7"	3½"	74	464
410	1	2'-8"	18'-3"	3½"	66	414
411	1	2'-8"	18'-1"	3½"	65	407
412	1	2'-8"	17'-11"	3½"	64	401
					Total	5,109

SPIRAL REINFORCEMENT SCHEDULE PIER 3

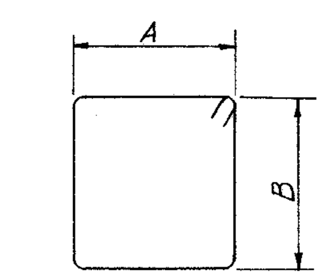
MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT (LBS)
401	1	2'-8"	18'-1"	4½"	51	331
402	1	2'-8"	18'-5"	4½"	52	337
403	1	2'-8"	18'-9"	4½"	53	342
404	1	2'-8"	19'-0"	4½"	54	350
405	1	2'-8"	17'-0"	4½"	48	312
406	1	2'-8"	16'-9"	4½"	48	311
407	1	2'-8"	16'-5"	4½"	47	303
408	1	2'-8"	15'-3"	4½"	44	284
409	1	2'-8"	15'-0"	4½"	43	278
410	1	2'-8"	14'-10"	4½"	43	277
					Total	3,125



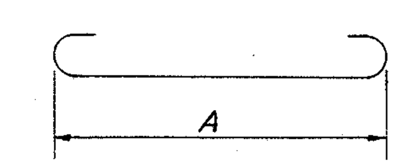
TYPE 144



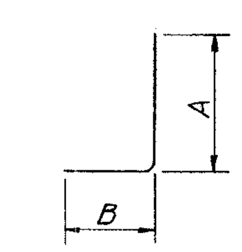
TYPE 123



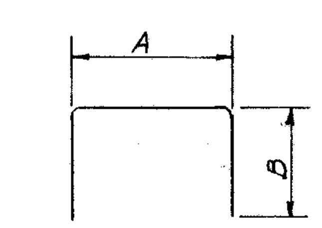
TYPE 109



TYPE 100



TYPE 104



TYPE 105

NOTES:
All bar dimensions are given out to out.
For Replacement Schedule, see sheet 97-G.
For Spiral Reinforcement note, see sheet 94-G.

Note: Prefixes shall be assigned to bar marks as follows:
Pier 1 "PA"
Pier 2 "PB"
Pier 3 "PC"

H.N.T.B. BR. NO. 4 PART 6

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

REINFORCEMENT SCHEDULE - PIERS

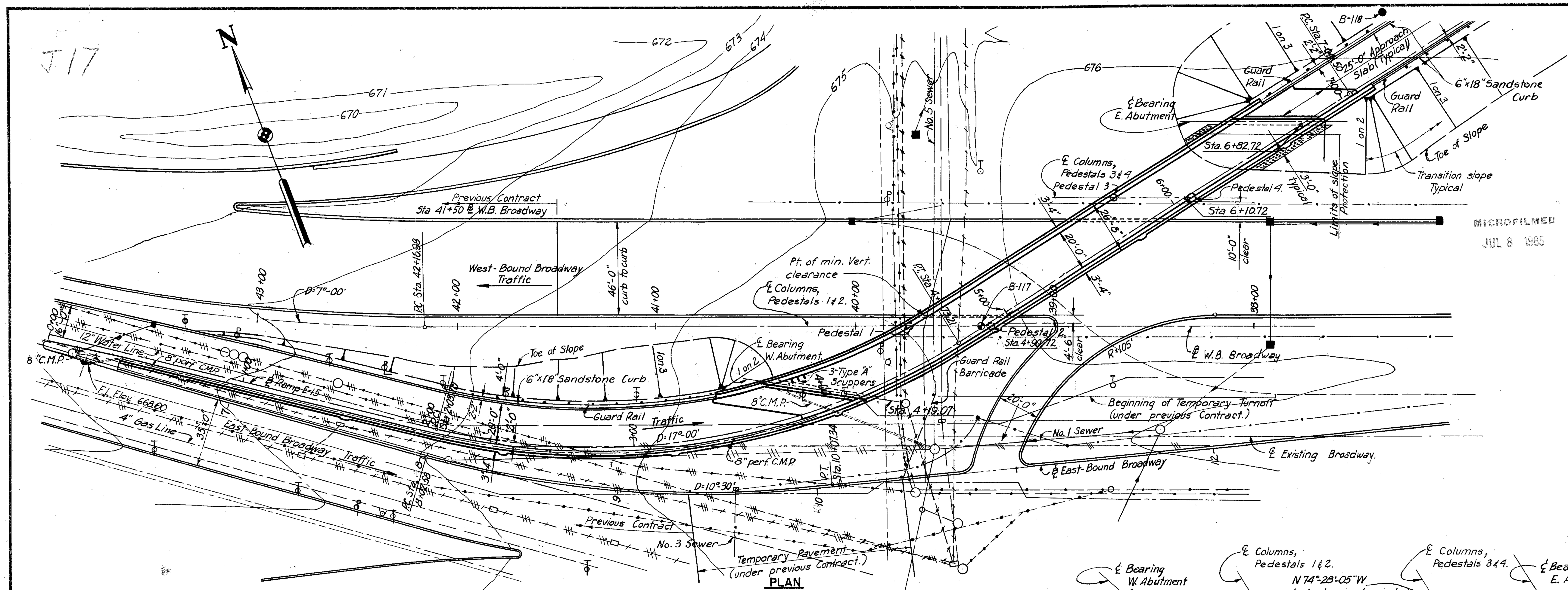
INNER BELT FREEWAY OVER EAST 14th ST.
BR. NO. CUY-42-1854 STA. 70 + 89.23
Scale: None STA. 73 + 96.25

WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN DRK DATE 11-25-58	TRACED DATE	CHECKED CFB DATE 11-22-58	REVIEWED JCT DATE 11-12-59	REVISED	SHEET 120

J17



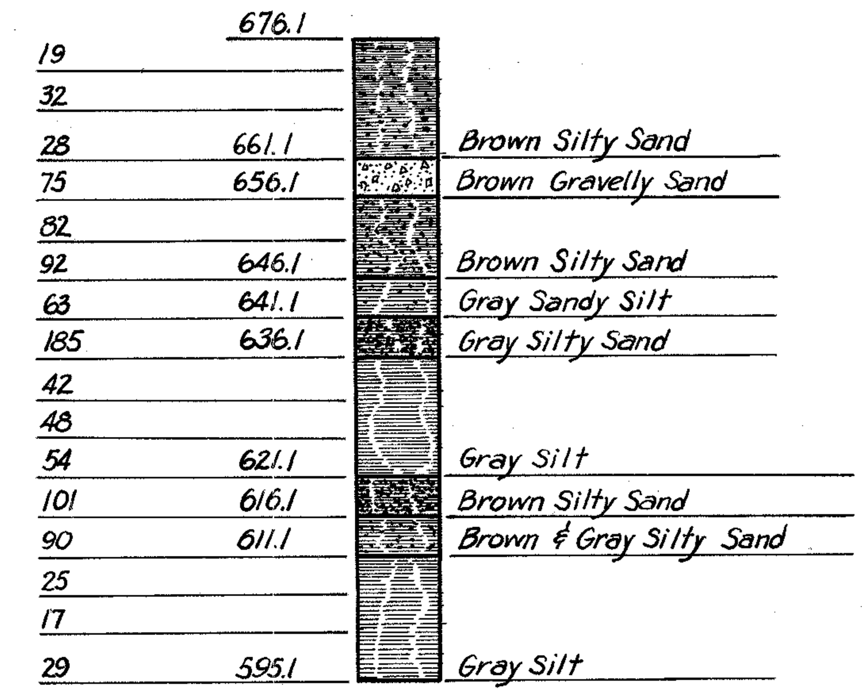
LEGEND

- Right of Way
- M.E.L.P.
- O.B.I
- C.E.I Light
- Western Union
- Transit System Pole
- Telephone & Telegraph Pole
- Power Pole
- Light Pole
- Sewer
- Water
- Gas
- Existing Curb
- Proposed 2"⌀ Duct
- Proposed sewer
- Proposed inlet

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.
2	OHIO	

121 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



BORING B-118

Vertical scale : 1" = 20'
Sta. 7+50 ℄ Ramp E-5 10' Lt.

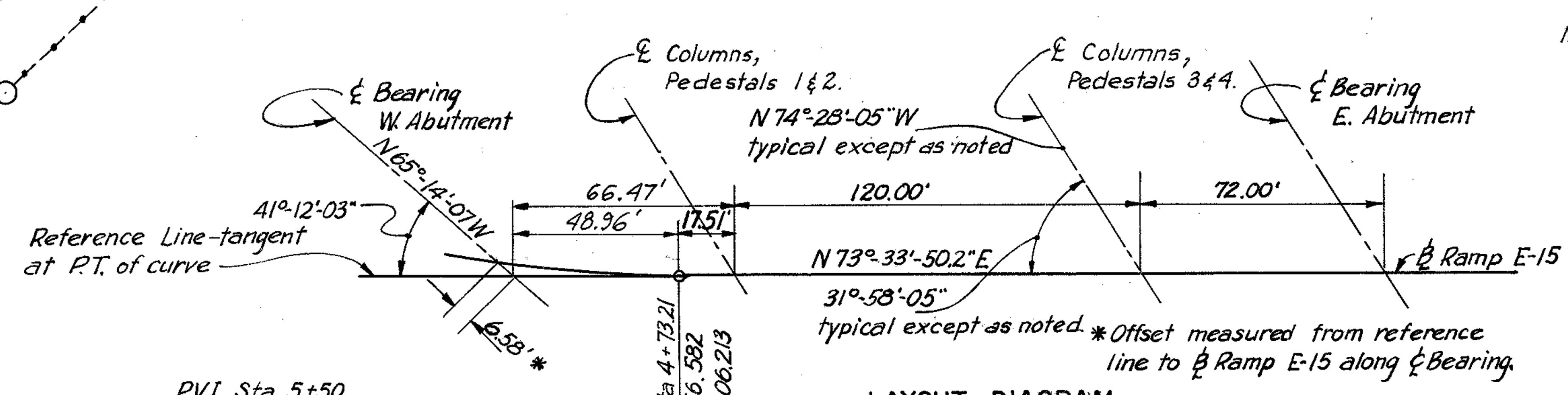
Note:
The figures at the left indicates the number of hammer blows required to drive the sample spoon 1 ft. They are given at 5' intervals starting at elev. 676.1

Curve Data E. B. Broadway
Δ = 21°-30'-00"
D = 10°-30'
R = 545.67'
T = 103.60'
L = 204.76'

Curve Data Ramp E-15

Δ = 45°-49'-02"	Δ = 38°-41'-25"
D = 17°-00'	D = 7°-00'
R = 337.03'	R = 818.51'
T = 142.43'	T = 287.36'
L = 269.51'	L = 552.72'

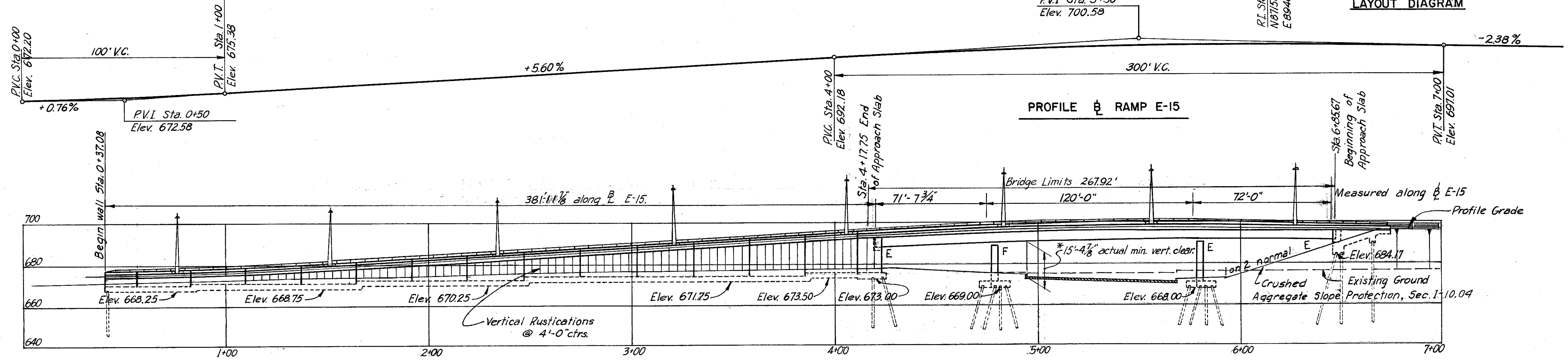
Curve Data W.B. Broadway
Δ = 13°-50'-57"
D = 7°-00'
R = 818.51'
T = 99.41'
L = 197.84'



LAYOUT DIAGRAM

NOTES:

The following items are not included in the Bridge Plans: (See Roadway Plans for details)
Removal of existing pavements, etc.
Relocation or removal of existing utilities.
Approach grading, pavement and slabs.
Roadway Guard Rail.
Pile lengths are based on boring data and are approximate only. The contractor shall assume full responsibility for length of piling selected for driving.
For details of slope protection; see Sh. 157-6.



ELEVATION

* 15'-0" Required minimum vertical clearance, Point of actual minimum vertical clearance occurs at South Girder and South curb. of W. B. Broadway.

C.I.P. REINFORCED CONCRETE PILES.

PILE INFORMATION			
Location	Diameter	Number	Estimated ave. length
Retaining wall	12"	113	23 Ft
West Abutment	12"	24	25 Ft
Pedestals	14"	36	22 Ft
East Abutment	12"	18	36 Ft.

PROPOSED STRUCTURE

Type: Continuous welded steel girder with reinforced concrete deck and substructure.
Spans: 71'-7¾", 120'-0", and 72'-0" (along ℄ E-15).
Roadway: 20'-0" f/f 2'-0" safety curbs.
Loading: CF 2000 - Adequate for A.A.S.H.O. alternate loading.
Skew: Varies.
Surface Course: 1" Monolithic Concrete.
Approach Slabs: AS-1-54 (25'-0" Long).
Superelevation: Varies
Alignment: 17°00' Curve Lt. & Tangent.

H.N.T.B. BR. NO. 6 PART 6

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

SITE PLAN
RAMP E-15 OVER W.B. BROADWAY
Scale: 1" = 30'
STA. 4 + 17.75
STA. 6 + 85.67

WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN R.A.	TRACED WRH	CHECKED A.J.S.	REVIEWED JCT	REVISED	
DATE 10-29-58	DATE 11-13-58	DATE 10-14-58	DATE 11-12-59		SHEET 121

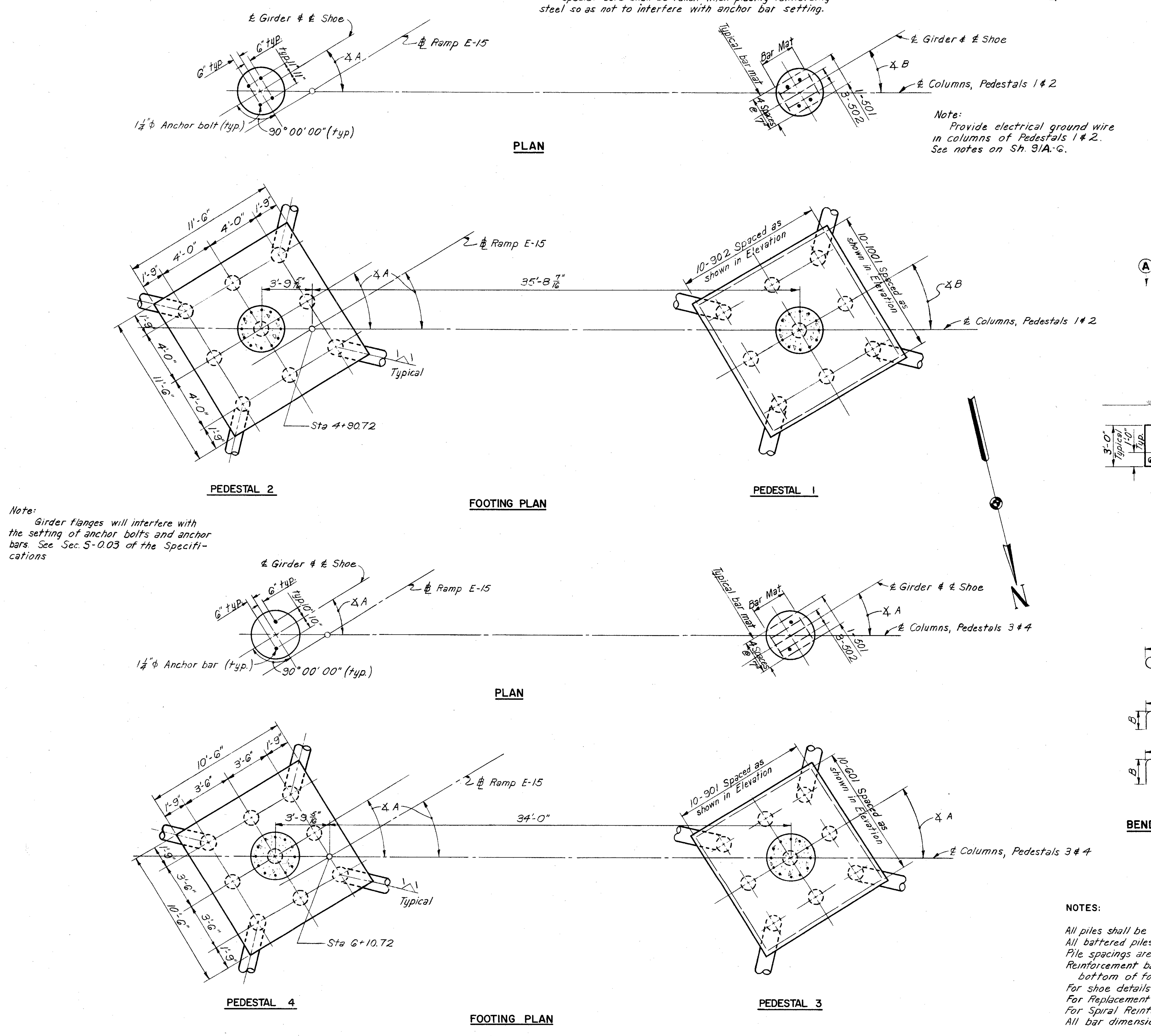
Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bar setting.

∡ A = 31° 58' 05"
∡ B = 30° 21' 15"

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		
2	OHIO			

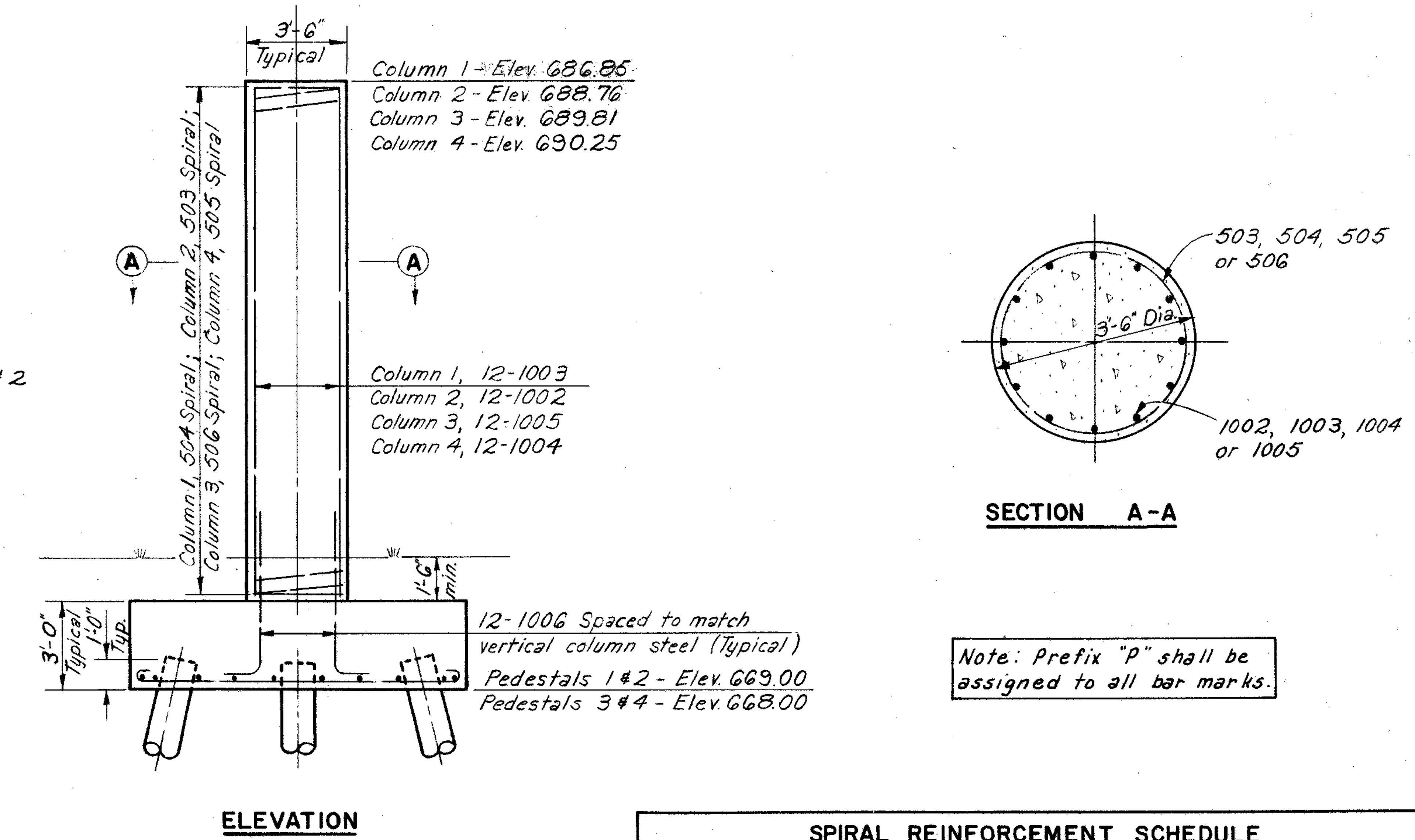
122 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29

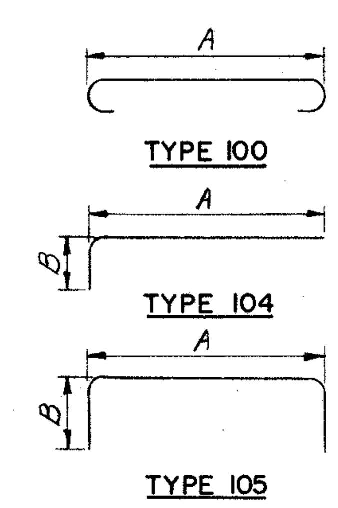


Note:
Provide electrical ground wire in columns of Pedestals 1 & 2.
See notes on Sh. 91A-G.

Note:
Girder flanges will interfere with the setting of anchor bolts and anchor bars. See Sec. 5-0.03 of the Specifications



Note: Prefix "P" shall be assigned to all bar marks.



SPIRAL REINFORCEMENT SCHEDULE

MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT (LBS)
503	1	3'-2"	16'-6"	3"	68	750
504	1	3'-2"	14'-6"	3"	61	663
505	1	3'-2"	19'-0"	3"	78	859
506	1	3'-2"	18'-6"	3"	77	838
					Total =	3110

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT
501	16	3'-1"	105	2'-0"	0'-8"				52
502	24	3'-10"	105	2'-9"	0'-8"				96
601	20	11'-6"	100	10'-2"					345
901	20	12'-8"	100	10'-2"					860
902	20	13'-8"	100	11'-2"					930
1001	20	14'-0"	100	11'-2"					1205
1002	12	16'-6"	Str.						852
1003	12	14'-6"	Str.						749
1004	12	19'-0"	Str.						981
1005	12	18'-6"	Str						955
1006	12	6'-10"	104	5'-8"	1'-5"				1420
								Total =	8445

NOTES:

All piles shall be 14"ϕ C.I.P. reinforced concrete
All battered piles to be battered 3 in 12 in direction shown.
Pile spacings are given along bottom of footings
Reinforcement bars shall be 3 inches clear from face of concrete at bottom of footings and 2 inches elsewhere.
For shoe details see Sheet 130-G.
For Replacement Schedule see Sheet 97-G
For Spiral Reinforcement Note see Sheet 94-G
All bar dimensions are given out to out.

H.N.T.B. BR. NO. 6 PART 6

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

PEDESTALS

RAMP E-15 OVER W.B. BROADWAY

Scale: 1/4" = 1'-0"
Except as noted

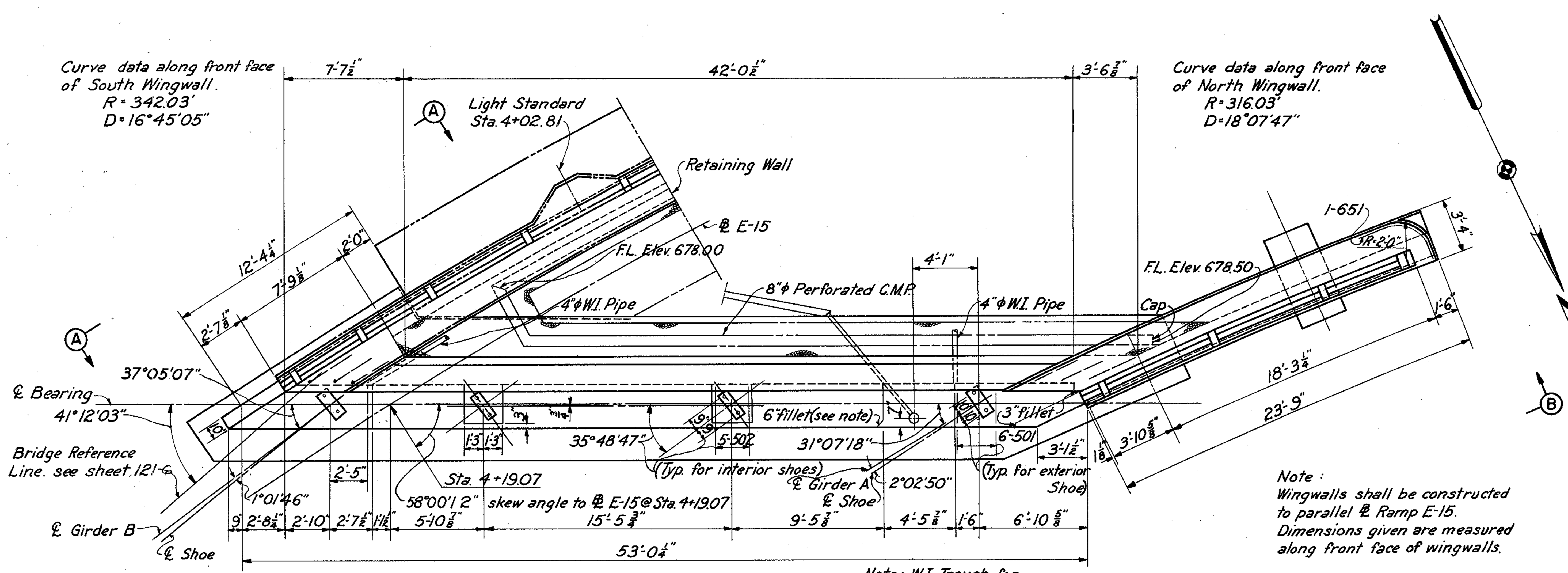
STA. 4 + 17.75
STA. 6 + 85.67

WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED	
DATE 9-17-59	DATE	DATE 10-3-59	DATE 11-12-59		SHEET 122

Curve data along front face of South Wingwall.
R = 342.03'
D = 16°45'05"

Curve data along front face of North Wingwall.
R = 316.03'
D = 18°07'47"



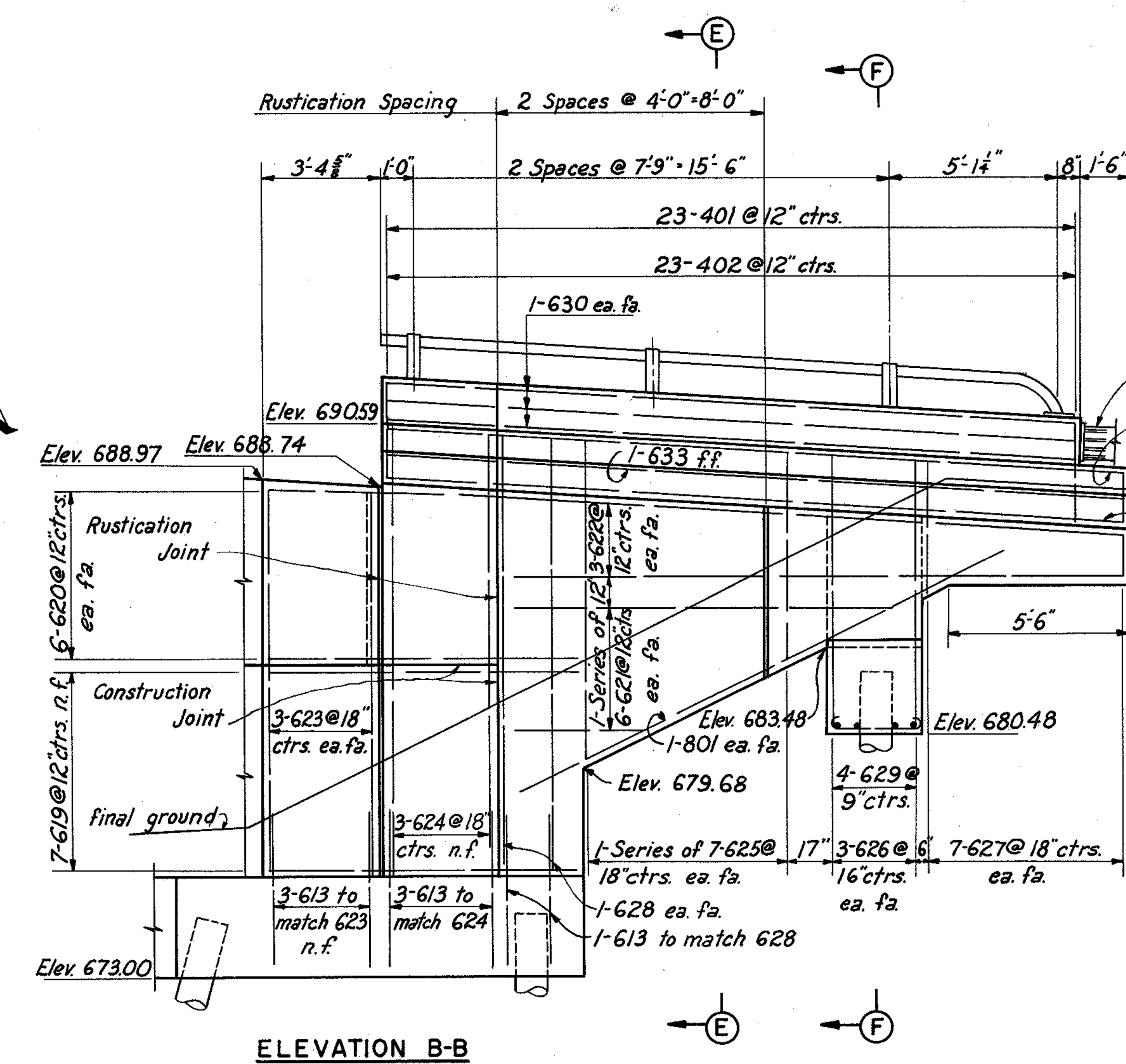
PLAN

Note: W.I. Trough for superstructure drainage shall be placed to clear front face of abutment.

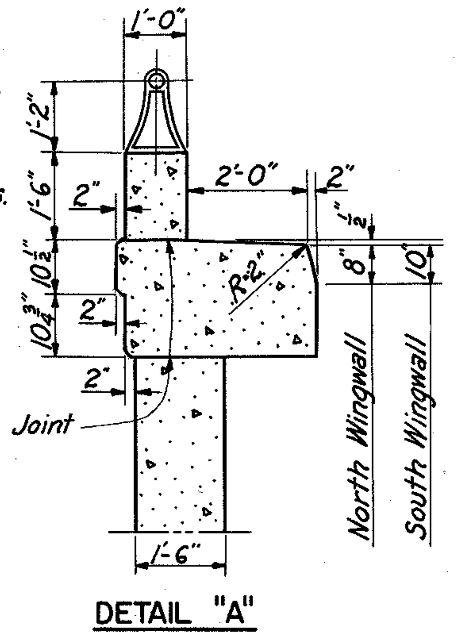
Note: Wingwalls shall be constructed to parallel ℄ Ramp E-15. Dimensions given are measured along front face of wingwalls.

Note: Elevations along backwall are given to top of 8×4×1 angle.

Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bar setting.

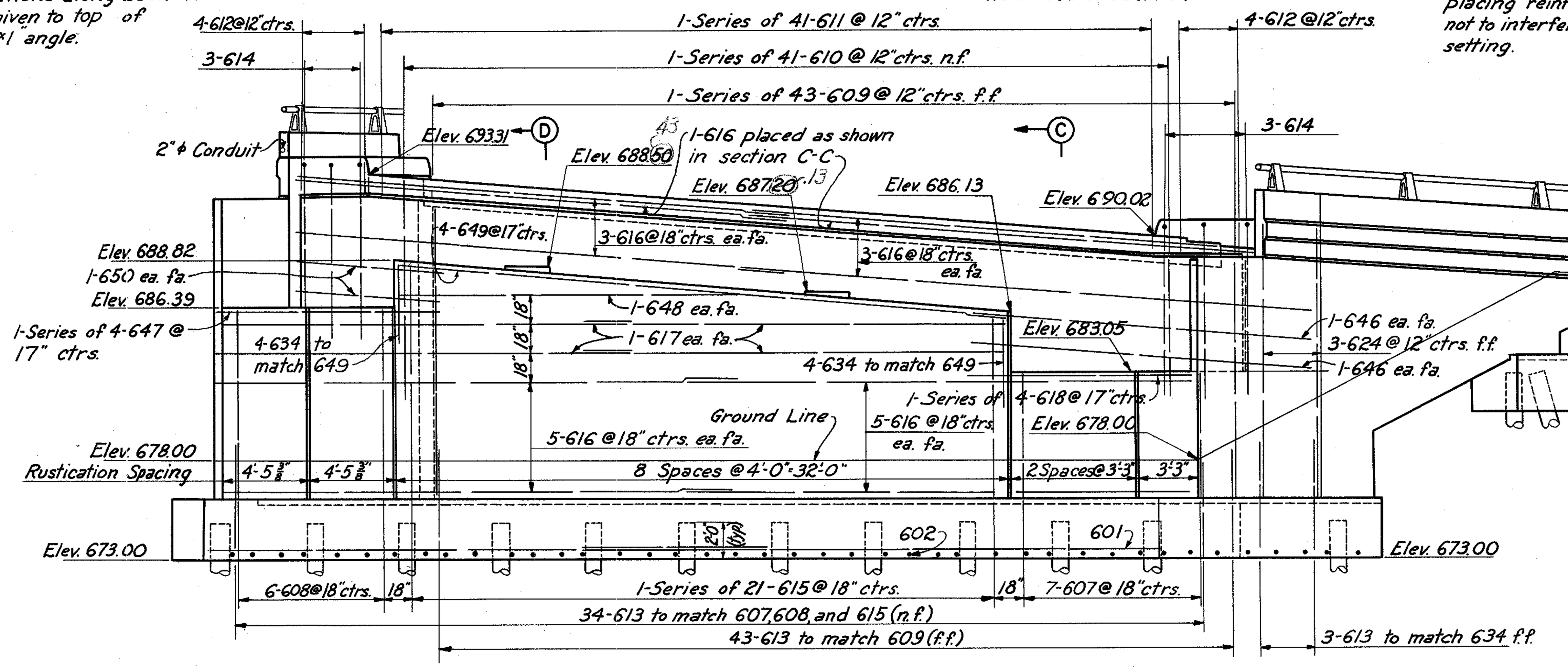


ELEVATION B-B



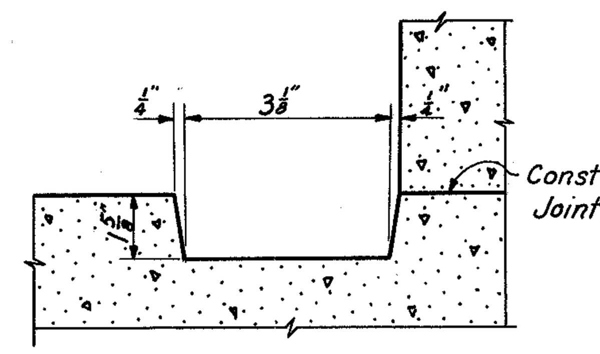
DETAIL "A"
Scale ⅜" = 1'-0"

Note: Prefix "AA" shall be assigned to all bar marks.

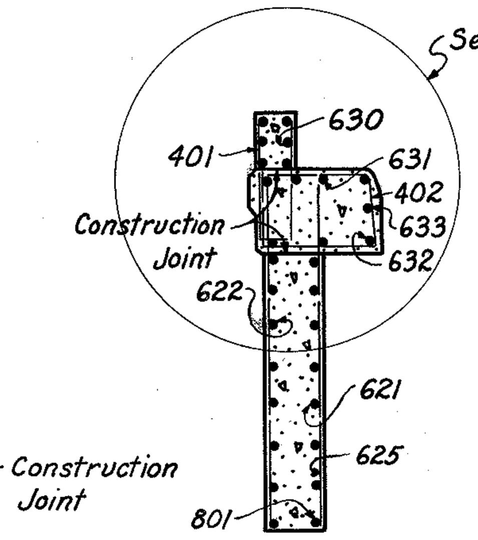


ELEVATION

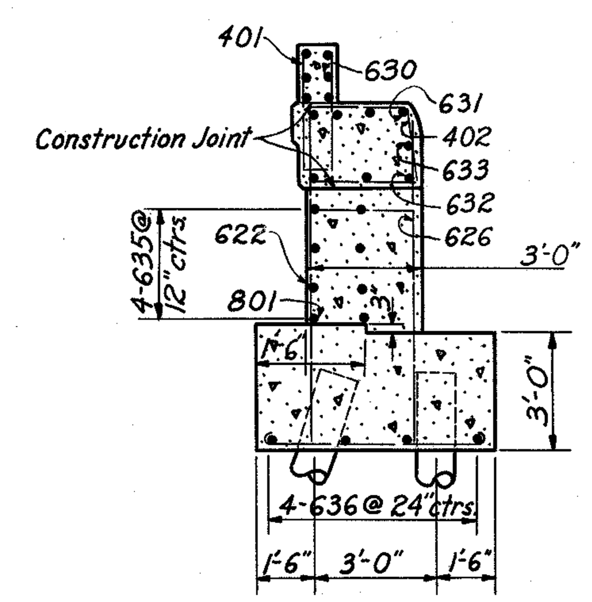
Top of backwall to follow crown of roadway



ABUTMENT BRIDGE SEAT DRAIN
Scale: 3" = 1'-0"



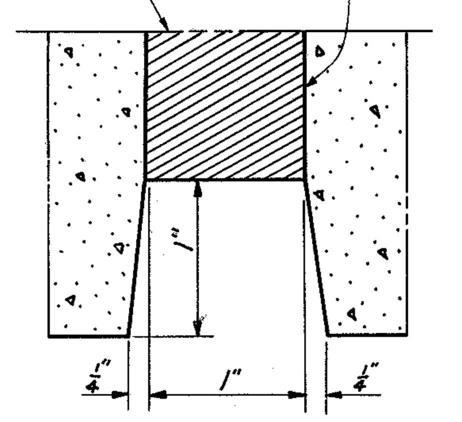
SECTION E-E



SECTION F-F

1" Preformed gray rubber expansion joint filler when rustication is located at expansion joint.

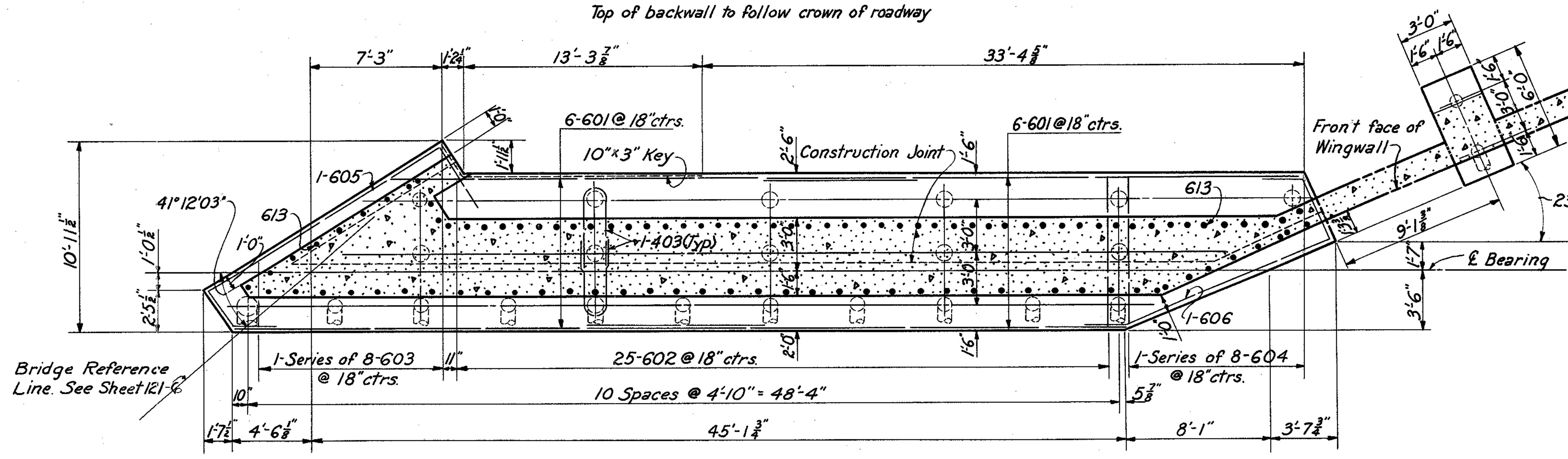
Contraction joint when rustication is located at contraction joint.



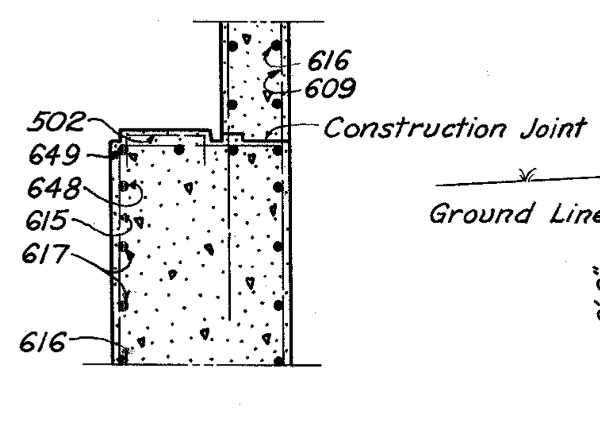
RUSTICATION DETAIL
Scale: Full Size

NOTES:
- All piles shall be 12" C.I.P. reinforced concrete.
- All battered piles shall be battered 3 in 12 in the direction shown.
- Pile spacing given along bottom of footing.
- For details of end dam see sheet 156-G
- For masonry plate detail see sheet 156-G
- Reinforcement bars shall be 3" clear in the bottom of the footing, 2" elsewhere.
- For Reinforcement Schedule see sheet 125-G
- For location of lighting conduit see sheet 125-G
- For guard rail connection and railing details see sheet 158-G
- For Elevation A-A see sheet 125-G
- Backfill shall be placed prior to placing of curb.
- Ends of railing parapet shall be normal to top of safety curb.

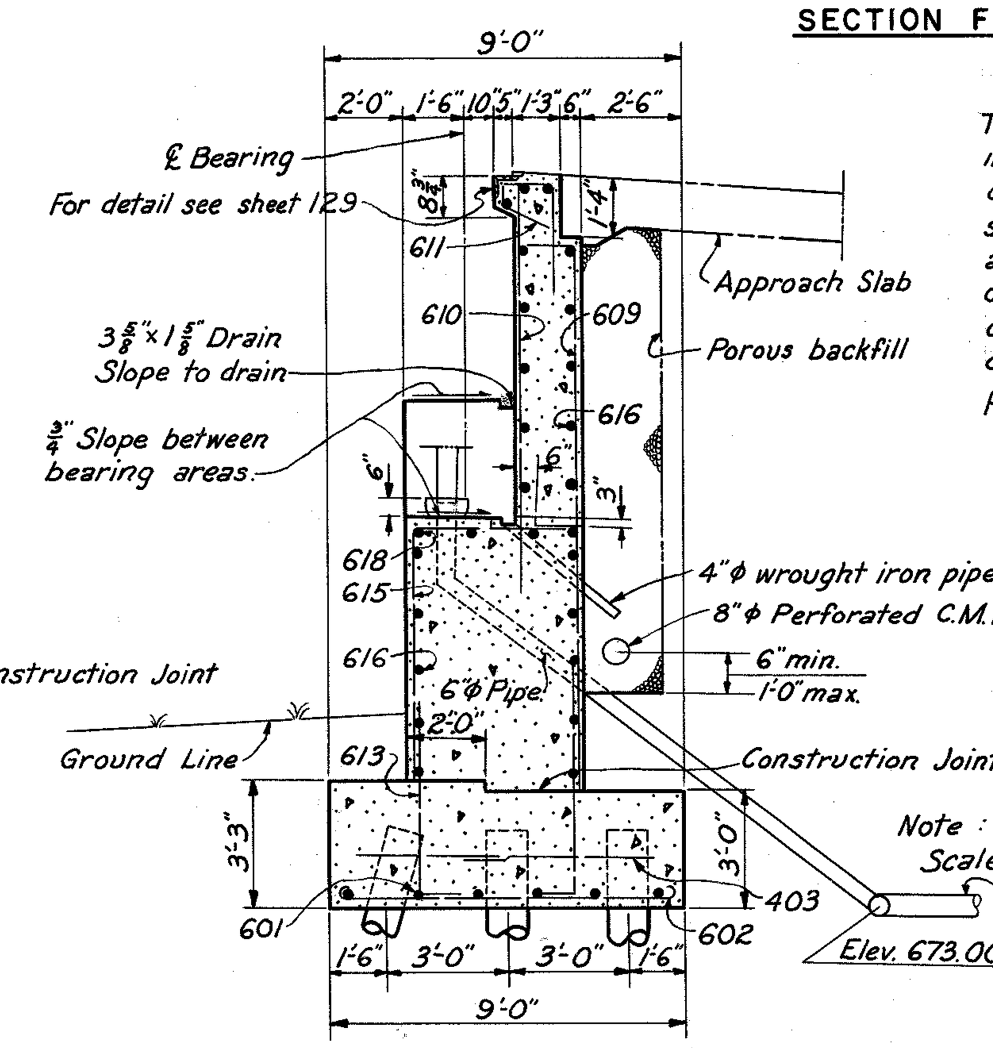
The 4"ϕ W.I. pipes shall extend 2'± into the porous backfill. That portion of the pipe in backfill (but not above) shall be perforated with ⅜" holes at about 3½" ctrs. around circumference of pipes and about 4" ctrs. in the direction of the length of pipe. Included with abutment concrete for payment.



FOOTING PLAN



PARTIAL SECTION D-D



SECTION C-C

Note: Scale for all Sections ¼" = 1'-0"

8" Bituminous coated C.M.P. to connect with Manhole at Station 10+64 E.B. Broadway.

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

H.N.T.B. BR. NO. 6 PART 6

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

WEST ABUTMENT

RAMP E-15 OVER W. B. BROADWAY
Scale: 3/16" = 1'-0" STA. 4 + 17.75
Except as noted STA. 6 + 85.67

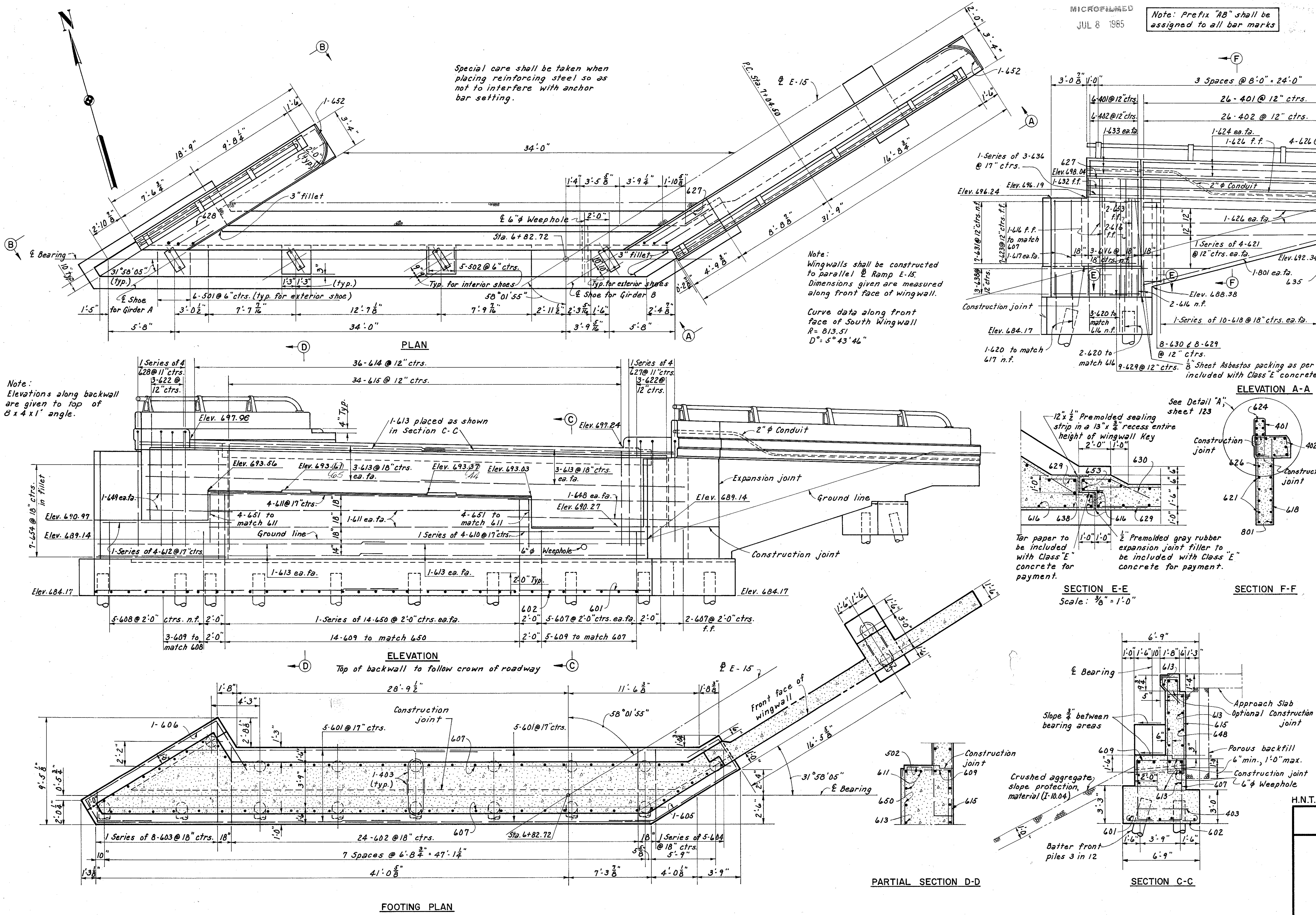
WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN C.A.B.	TRACED R.J.K.	CHECKED D.Y.O.	REVIEWED J.C.T.	REVISED 6-29-60
DATE 1-15-59	DATE 4-17-59	DATE 2-23-59	DATE 11-12-59	SHEET 123

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

Note: Prefix "AB" shall be assigned to all bar marks



NOTES:

All piles shall be 12" C.I.P. reinforced concrete.
All battered piles shall be battered 3 in 12 in direction shown.
Pile spacing given along bottom of footing.
For details of end dam see sheet 156-G
For masonry plate details see sheet 156-G
Reinforcement bars shall be 3" clear in bottom of footing, 2" elsewhere.
For Reinforcement Schedule see sheet 125-G
For North Wingwall Elevation see sheet 125-G
For guard rail and railing details see sheet 158-G
Backfill shall be placed prior to placing of curb.
Ends of railing parapet shall be normal to top of safety curb.
For Elevation B-B see sheet 125-G

H.N.T.B. BR. NO. 6 PART 6

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

EAST ABUTMENT

RAMP E-15 OVER W.B. BROADWAY

Scale: 1/4" = 1'-0" Except as noted

STA. 4+17.75
STA. 6+85.67

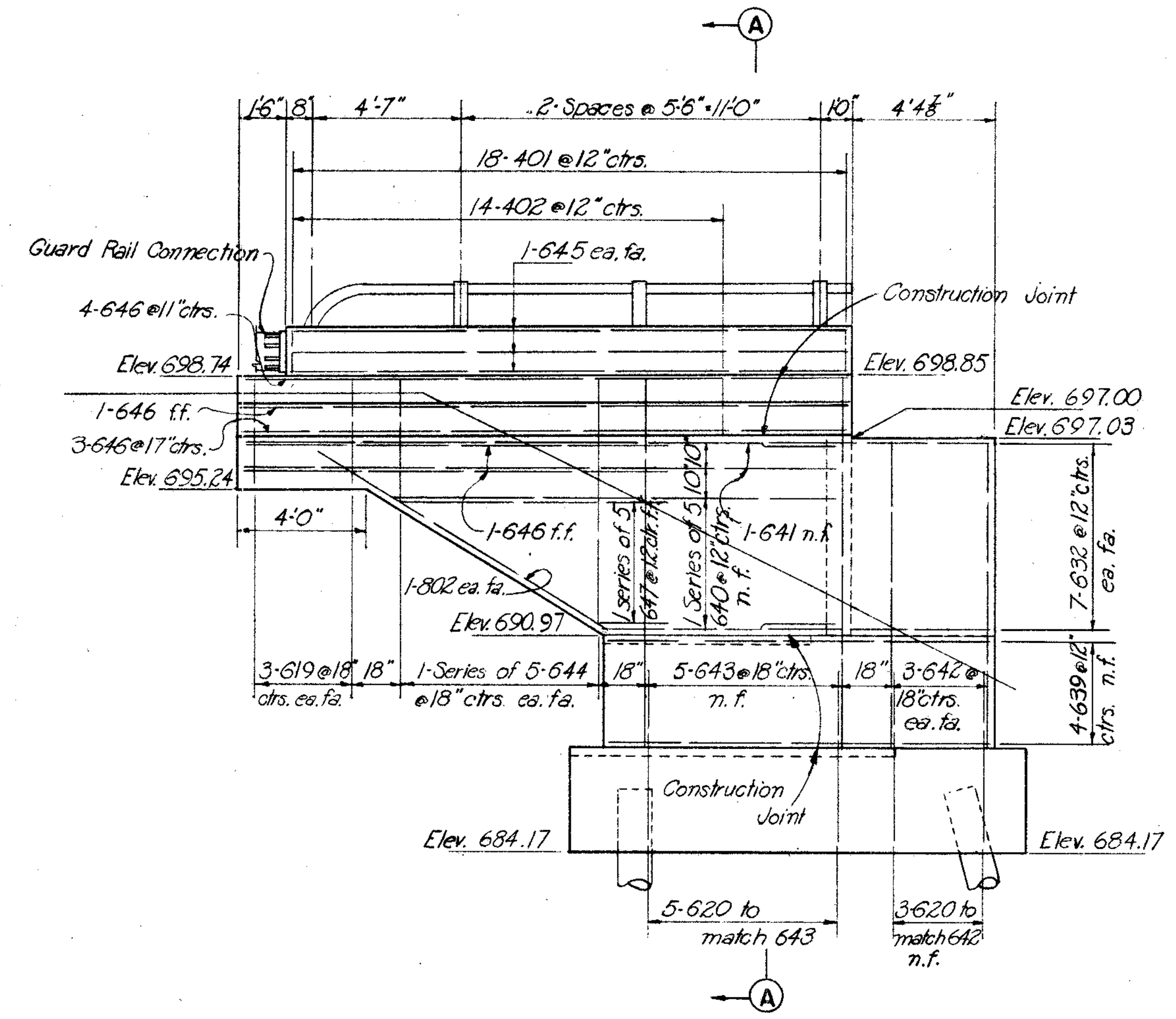
WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN CAB	TRACED A.E.K.	CHECKED WF	REVIEWED JCT	REVISED 6-29-60
DATE 1-15-59	DATE 4-16-59	DATE 2-1-59	DATE 11-12-59	SHEET 124

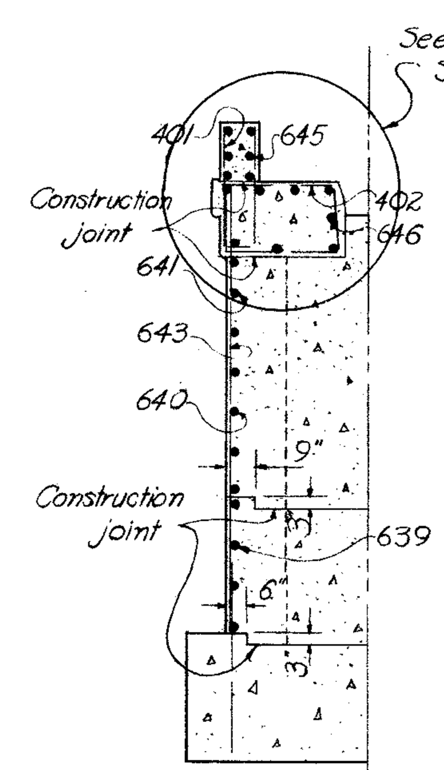
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29

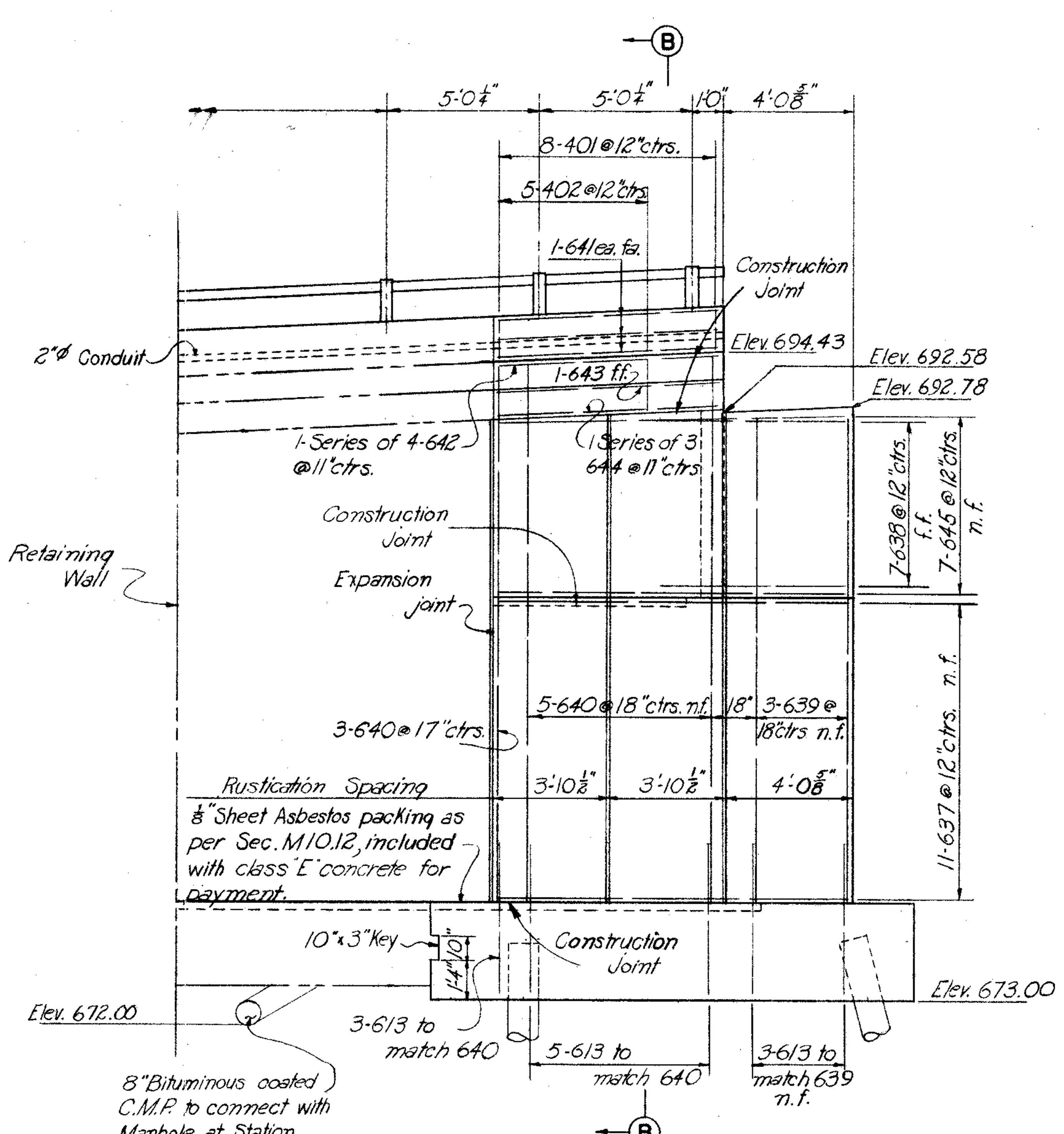


ELEVATION B-B

NORTH WINGWALL - EAST ABUTMENT

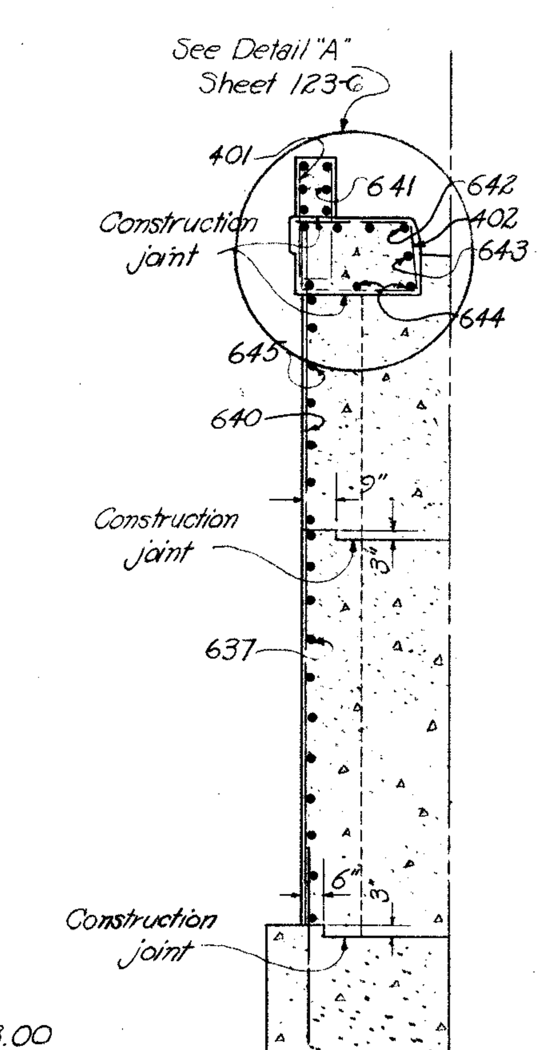


SECTION A-A



ELEVATION A-A

SOUTH WINGWALL - WEST ABUTMENT



SECTION B-B

REINFORCEMENT SCHEDULE

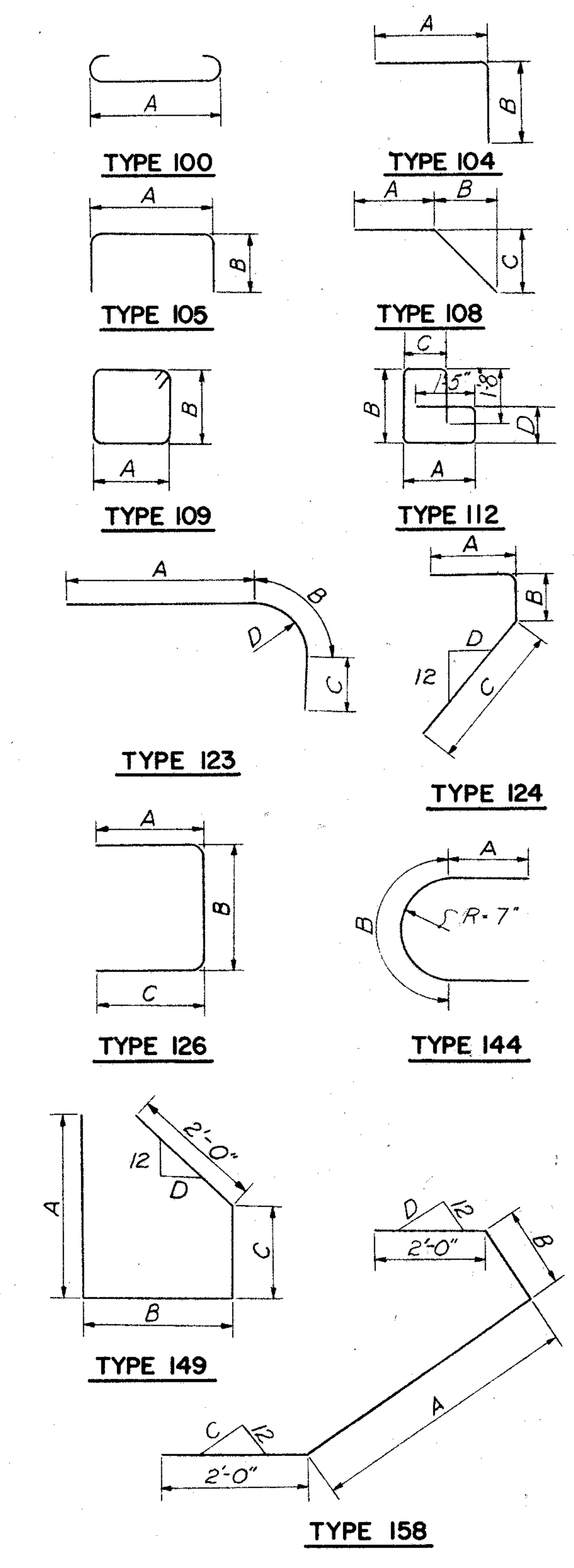
WEST ABUTMENT

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D	SERIES INCREMENT	WEIGHT (LBS)
401	31	5'-11"	105	8"	2'-9"				122
402	28	8'-7"	109	2'-8"	1'-5"				161
403	10	11'-10"	144	5'-0"	1'-10"				79
501	12	5'-2"	105	2'-5"	1'-6"				65
502	10	4'-11"	105	2'-2"	1'-6"				51
601	12	29'-6"	Str.						532
602	25	10'-0	100	8'-8"					376
603	1 Series of 8	5'-1" to 11'-9"	100	3'-9" to 10'-5"				11 7/16"	101
604	1 Series of 8	5'-7" to 10'-0"	100	4'-3" to 8'-8"				7 9/16"	94
605	1	23'-5"	149	4'-0"	15'-3"	2'-7"	19		35
606	1	19'-10"	158	12'-4"	3'-11"	4"	3"		30
607	7	10'-7"	104	6'-7"	4'-2"				111
608	6	13'-10"	104	9'-10"	4'-2"				125
609	1 Series of 43	13'-8" to 16'-8"	104	12'-4" to 15'-4"	1'-6"			0 7/8"	980
610	1 Series of 41	11'-7" to 14'-9"	126	9'-0" to 12'-2"	11"	2'-0"		0 15/16"	811
611	41	2'-5"	124	1'-4"	4"	12"	24		149
612	8	3'-2"	124	1'-4"	1'-1"	12"	24		38
613	99	5'-8"	104	5'-0"	10"				843
614	6	11'-5"	104	9'-8"	1'-11"				103
615	1 Series of 21	13'-7" to 16'-4"	104	9'-7" to 12'-4"	4'-2"			1 5/8"	472
616	34	28'-0	Str.						1430
617	8	21'-6"	Str.						258
618	1 Series of 4	11'-9" to 17'-0"	Str.					1'-9"	86
619	7	11'-8"	108	2'-0"	8'-7"	4'-3"			123
620	12	9'-9"	Str.						176
621	2 Series of 6	4'-0" to 11'-9"	Str.					1'-6 5/8"	142
622	6	19'-0"	Str.						172
623	6	12'-3"	Str.						110
624	6	14'-0"	Str.						126
625	2 Series of 7	6'-6" to 10'-0"	Str.					7"	173
626	6	8'-3"	Str.						74
627	14	3'-3"	Str.						68
628	4	13'-9"	Str.						83
629	4	7'-0"	100	5'-8"					42
*630	6	21'-6"	Str.						
631	1 Series of 4	23'-0" to 25'-0"	Str.					8"	144
632	1 Series of 3	23'-0" to 25'-9"	Str.					1'-4 1/2"	110
633	1	25'-9"	Str.						39
634	8	5'-0"	Str.						60
635	4	7'-8"	105	2'-8"	2'-8"				46
636	4	4'-0"	100	2'-8"					24
637	11	13'-9"	124	11'-6"	6"	2'-0"	19		227
638	7	6'-3"	Str.						66
639	6	16'-0"	Str.						144
640	8	17'-6"	Str.						210
*641	6	7'-0"	Str.						
642	1 Series of 4	4'-0" to 6'-9"	Str.					11"	32
643	1	4'-0"	Str.						6
644	1 Series of 3	4'-0" to 6'-9"	Str.					1'-4 1/2"	24
645	7	11'-6"	Str.						121
646	4	18'-0"	Str.						108
647	1 Series of 4	5'-6" to 11'-0"	Str.					1'-10"	50
648	2	18'-6"	Str.						56
649	4	31'-6"	Str.						189
650	4	8'-6"	Str.						51
651	1	5'-10"	123	2'-0"	2'-10"	1'-0"	1'-10"		13
801	2	17'-0"	Str.						91
								Total	10,152

EAST ABUTMENT

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D	SERIES INCREMENT	WEIGHT (LBS)
401	50	5'-11"	105	0'-8"	2'-9"				197
402	46	8'-7"	109	2'-8"	1'-5"				263
403	14	6'-10"	144	2'-6"	1'-10"				64
501	12	5'-4"	105	2'-7"	1'-6"				67
502	10	4'-11"	105	2'-2"	1'-6"				51
601	10	26'-9"	Str.						402
602	24	7'-9"	100	6'-5"					279
603	1 Series of 8	3'-7" to 10'-4"	100	2'-3" to 9'-0"				11 9/16"	84
604	1 Series of 5	3'-7" to 7'-2"	100	2'-3" to 5'-10"				10 3/4"	40
605	1	17'-0"	149	3'-9"	3'-2"	8'-8"	7s		26
606	1	22'-2"	149	5'-0"	13'-6"	2'-0"	19s		33
607	12	7'-5"	104	5'-8"	1'-11"				134
608	5	8'-1"	104	6'-4"	1'-11"				61
609	22	7'-8"	105	4'-2"	1'-11"				253
610	1 Series of 4	11'-9" to 18'-0"	Str.					2'-1"	89
611	8	27'-6"	Str.						330
612	1 Series of 4	6'-0" to 11'-3"	Str.					1'-9"	52
613	22	24'-6"	Str.						810
614	36	2'-6"	124	1'-4"	5"	12"	24		135
615	34	20'-8"	112	1'-5"	8'-9"	11"	7'-4"		1056
616	11	10'-3"	Str.						169
617	4	8'-6"	Str.						51
618	2 Series of 10	5'-0" to 8'-9"	Str.					5"	207
619	18	3'-0"	Str.						81
620	17	4'-9"	Str.						121
621	2 Series of 4	5'-0" to 18'-0"	Str.					4'-4"	138
622	6	3'-3"	124	1'-4"	1'-2"	12	24		29
623	7	5'-0"	Str.						53
*624	6	25'-0"	Str.						
625	4	7'-0"	100	5'-8"					42
626	12	26'-6"	Str.						478
627	1 Series of 4	13'-4" to 16'-4"	104	9'-9"	3'-9" to 6'-9"			1'-0"	89
628	1 Series of 4	11'-6" to 14'-6"	104	9'-9"	1'-11" to 4'-11"			1'-0"	78
629	17	3'-3"	104	1'-11"	1'-6"				83
630	8	5'-1"	124	8"	1'-8"	3'-0"	6		61
631	7	9'-9"	126	7'-6"	8"	1'-11"			103
632	15	6'-9"	Str.						152
*633	6	4'-3"	Str.						
634	6	7'-6"	Str.						68
635	4	4'-0"	100	2'-8"					24
636	1 Series of 3	3'-9" to 6'-9"	Str.					1'-6"	24
637	3	7'-8"	105	2'-8"	2'-8"				35
638	3	12'-9"	149	3'-0"	8"	7'-6"	7		57
639	4	13'-10"	124	11'-7"	6"	2'-0"	19		83
640	1 Series of 5	7'-0" to 13'-6"	Str.					1'-7 1/2"	77
641	2	18'-0"	Str.						54
642	6	9'-3"	Str.						83
643	5	11'-3"	Str.						84
644	2 Series of 5	4'-0" to 7'-6"	Str.					10 1/2"	86
*645	6	16'-9"	Str.						
646	10	13'-0"	Str.						195
647	1 Series of 5	2'-0" to 8'-6"	Str.					1'-7 1/2"	39
648	4	17'-6"	Str.						105
649	4	7'-0"	Str.						42
650	2 Series of 14	10'-4" to 10'-7"	104	8'-4" to 8'-10"	1'-11"			7/16"	435
651	8	4'-9"	Str.						57
652	2	8'-9"	123	2'-0"	5'-9"	1'-0"	1'-10"		26
653	2	8'-3"	Str.						25
654	7	4'-3"	Str.						45
801	2	24'-0"	Str.						128
802	2	10'-6"	Str.						56
								Total	8,189

Note: Prefixes shall be assigned to bar marks as follows:
West Abutment "AA"
East Abutment "AB"



BENDING DIAGRAMS

NOTES:
Bar dimensions are out to out.
* Bars are included with "Item S-14, Railing" for payment.
Bars of a series shall vary in length by a constant increment.
For Replacement Schedule see sheet 97-G.

H.N.T.B. BR. NO. 6 PART 6

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

ABUTMENT DETAILS

RAMP E-15 OVER W.B. BROADWAY

Scale: 1/4" = 1'-0" STA. 4 + 17.75
STA. 6 + 85.67

WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN C.A.B. DATE 1-15-59	TRACED DATE	CHECKED W.F. DATE 2-1-59	REVIEWED JCT DATE 11-12-59	REVISED	SHEET 125

MICROFILMED
JUL 8 1985

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

126
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29

NOTES:

For light standard support and lighting details see Sheet 159-G.
All piles shall be 12"ϕ Cast-in-place reinforced concrete.
Battered piles shall be battered 3 in 12 in the direction shown.
Pile spacings are given along bottom of footing
For rustication detail see Sheet 123-G
For railing details see Sheet 158-G
Reinforcement bars shall be 3-inches clear from bottom of footing and 2-inches elsewhere.
n.f. = near face; f.f. = far face; ea. fa. = each face
For Reinforcement Schedule see Sheet 127-G

H.N.T.B. BR. NO. 6 PART 6

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

RETAINING WALL
RAMP E-15 OVER W.B. BROADWAY
Scale: 1/8" = 1'-0" Except as noted
STA. 4 + 17.75
STA. 6 + 85.67

WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED T.J.P.	REVIEWED JCT	REVISED	
DATE 10/17/58	DATE	DATE 11-24-58	DATE 11-12-59		SHEET 126

MICROFILMED JUL 8 1985

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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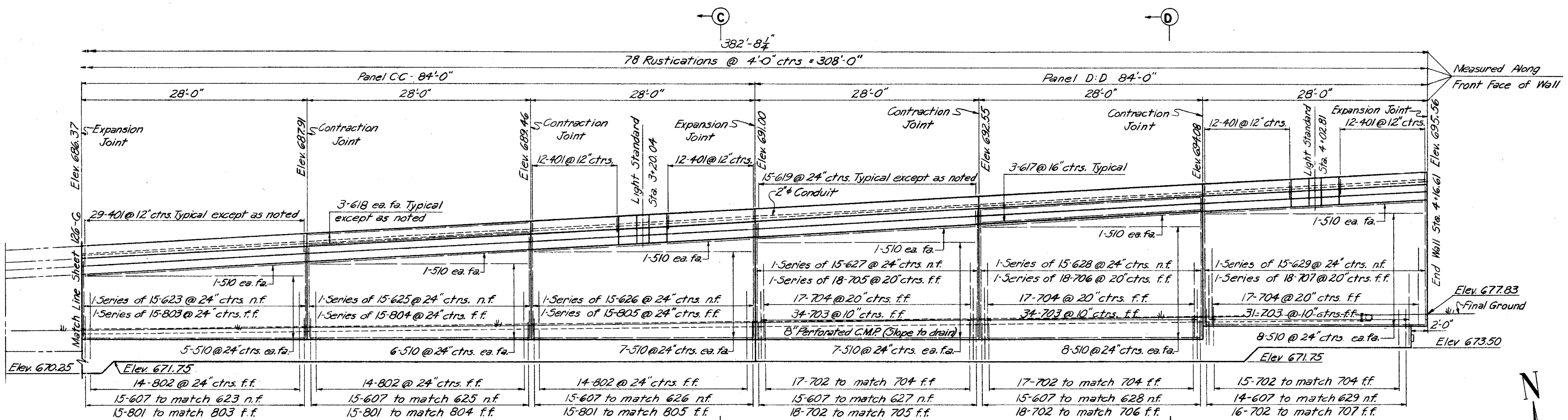
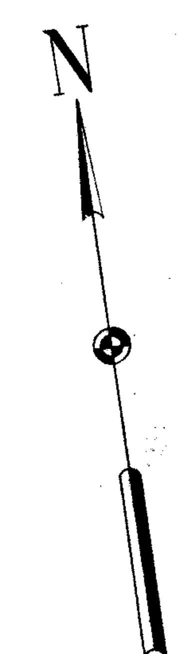
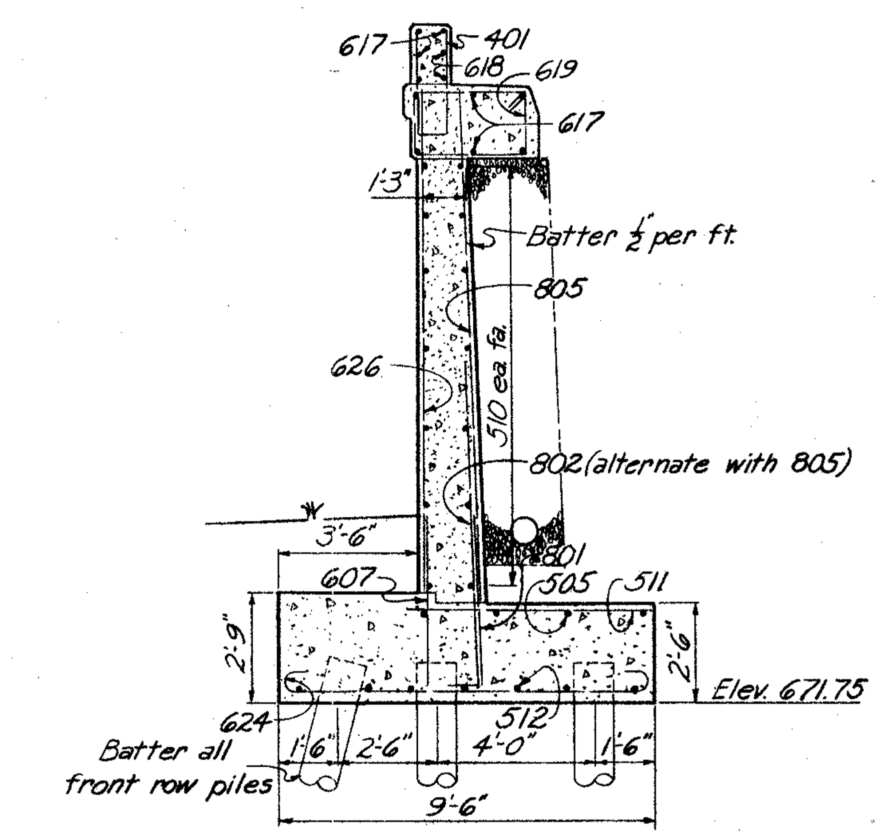
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29

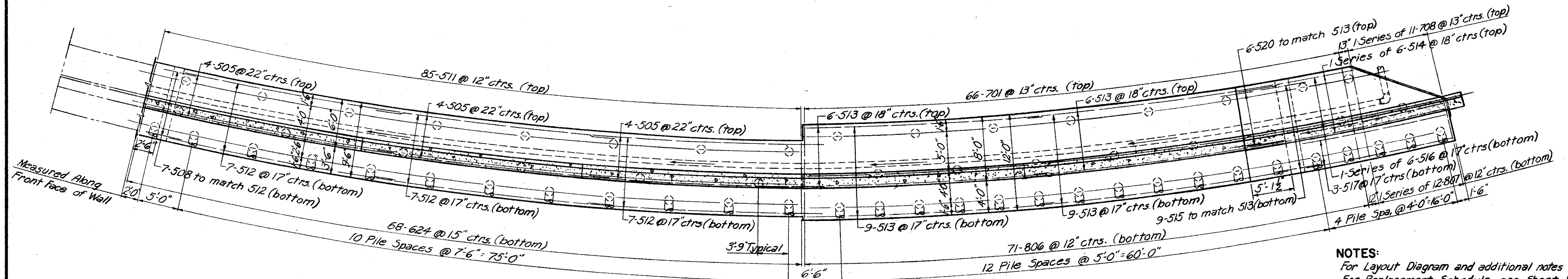


DEVELOPED ELEVATION

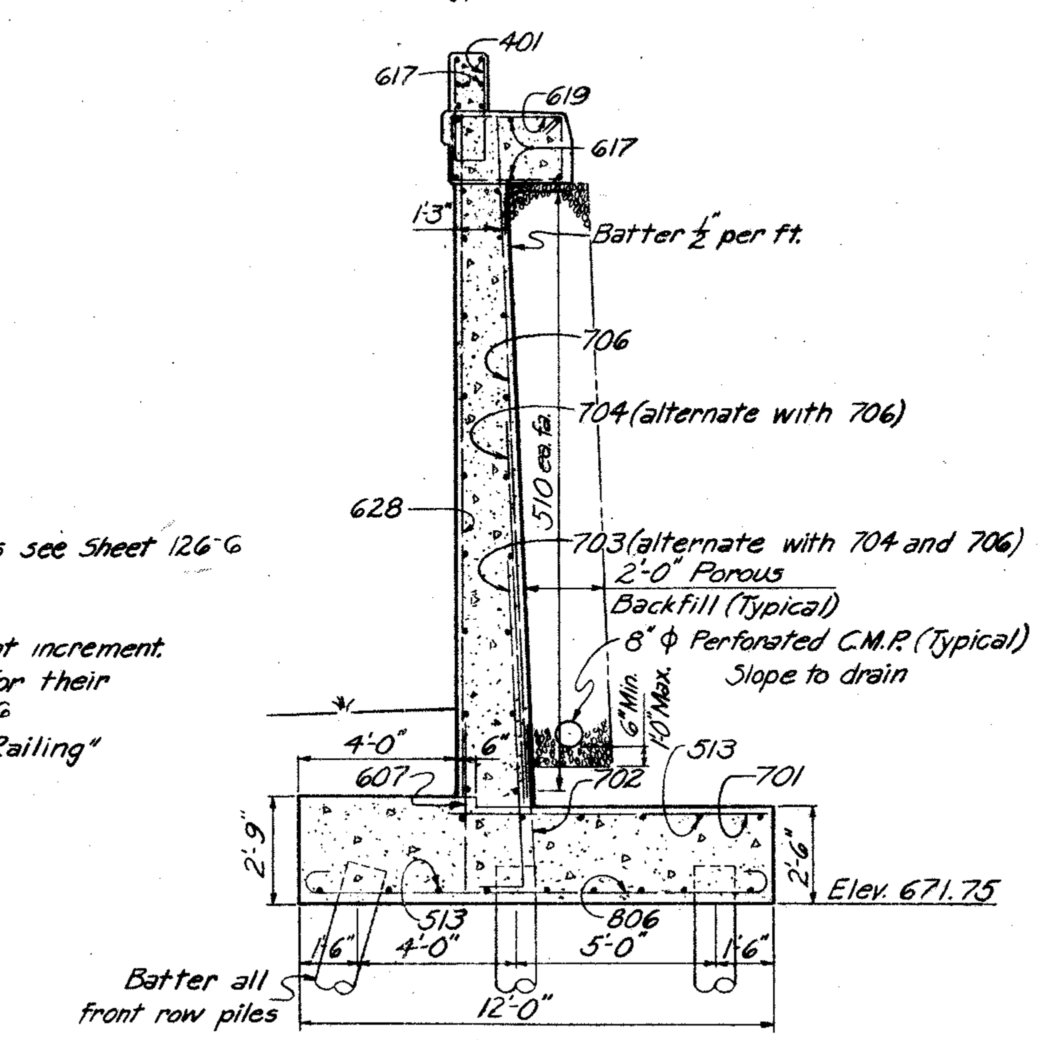




SECTION C - C
Scale ¼" = 1'-0"
Typical Panel C-C



FOOTING PLAN



SECTION D-D
Scale ¼" = 1'-0"
Typical Panel D-D

Note: Prefix "W" shall be assigned to all bar marks.

NOTES:
For Layout Diagram and additional notes and sections see Sheet 126-G
For Replacement Schedule see Sheet 97-G
All bar dimensions are given out to out.
Bars of a series shall vary in length by a constant increment.
* Denotes bars for the light standard support. For their placement and bending diagrams see Sheet 159-G
* * Denotes bars to be included with "Item 514, Railing" for payment.

REINFORCEMENT SCHEDULE

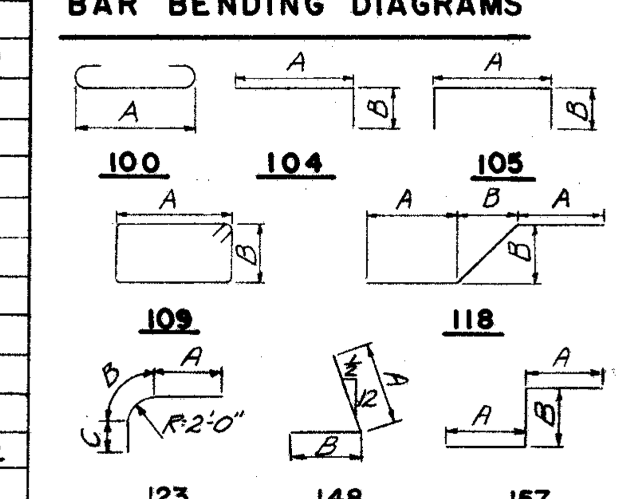
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES INCREMENT	WEIGHT (LBS.)
401	371	5'-7"	105	8"	2'-7"			1386
*451	10	8'-11"	131	2'-6"	1'-2"			60
*452	10	9'-11"	131	3'-0"	1'-8"			65
*453	15	9'-5"	131	3'-2"	1'-0"			95
*454	10	6'-7"	155	3'-2"				45
*455	10	7'-1"	155	3'-8"				45
*456	15	7'-3"	155	3'-10"				75
501	1 Ser. of 51	3'-9" to 4'-9"	Str.				¼"	226
502	37	4'-9"	Str.					183
503	56	5'-6"	Str.					321
504	18	26'-0"	Str.					488
505	51	30'-0"	Str.					1596
506	18	28'-0"	Str.					526
507	5	4'-1"	118	1'-9"	6"			21
508	13	5'-6"	118	1'-9"	1'-6"			75
509	4	18'-3"	Str.					76
510	152	27'-6"	Str.					4360
511	85	6'-0"	Str.					532

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES INCREMENT	WEIGHT (LBS.)
512	21	28'-6"	Str.					624
513	30	31'-3"	Str.					978
514	1 Ser. of 6	14'-6" to 25'-6"	Str.				2'-2 3/8"	119
515	9	5'-10"	118	1'-9"	1'-9"			55
516	1 Ser. of 6	7'-9" to 18'-9"	Str.				2'-2 3/8"	.83
517	3	18'-9"	Str.					59
518	4	3'-9"	157	1'-9"	6"			16
519	8	4'-9"	157	1'-9"	1'-6"			40
520	6	5'-0"	157	1'-9"	1'-9"			31
601	1 Ser. of 51	5'-3" to 8'-0"	100	3'-11" to 6'-8"			21/32"	507
602	37	8'-0"	100	6'-8"				445
603	56	9'-6"	100	8'-2"				799
604	1 Ser. of 10	5'-0" to 5'-6"	Str.				11/16"	79
605	1 Ser. of 15	5'-6" to 6'-9"	Str.				1 1/16"	138
606	1 Ser. of 15	6'-3" to 7'-9"	Str.				1 5/16"	158
607	209	4'-6"	Str.					1413
608	1 Ser. of 15	5'-3" to 6'-9"	Str.				1 5/16"	135
609	1 Ser. of 15	6'-9" to 8'-3"	Str.				1 5/16"	169
610	1 Ser. of 16	5'-8" to 6'-2"	104	5'-0" to 5'-6"	10"		3/8"	142

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES INCREMENT	WEIGHT (LBS.)
611	1 Ser. of 23	6'-2" to 7'-5"	104	5'-6" to 6'-9"	10"		11/16"	235
612	1 Ser. of 23	6'-11" to 8'-5"	104	6'-3" to 7'-9"	10"		13/16"	265
613	46	5'-2"	104	4'-6"	10"			357
614	1 Ser. of 23	5'-3" to 6'-9"	Str.				13/16"	207
615	1 Ser. of 23	6'-9" to 8'-3"	Str.				13/16"	259
616	5	18'-3"	Str.					137
617	78	27'-6"	Str.					3222
**618	78	27'-6"	Str.					–
619	205	8'-5"	109	2'-8"	1'-4"			2592
620	42	8'-0"	148	7'-4"	10"			505
621	2 Ser. of 15	6'-9" to 8'-6"	Str.				1 1/2"	343
622	2 Ser. of 15	8'-6" to 10'-0"	Str.				1 5/16"	417
623	3 Ser. of 15	10'-0" to 11'-6"	Str.				1 5/16"	727
624	68	10'-6"	100	9'-2"				1072
625	1 Ser. of 15	11'-6" to 13'-3"	Str.				1 1/2"	279
626	1 Ser. of 15	13'-3" to 14'-9"	Str.				1 5/16"	315
627	1 Ser. of 15	14'-9" to 16'-3"	Str.				1 5/16"	349
628	1 Ser. of 15	16'-3" to 17'-9"	Str.				1 5/16"	383
629	1 Ser. of 15	16'-0" to 17'-6"	Str.				1 5/16"	377
**630	6	18'-3"	Str.					–
631	1	20'-3"	123	16'-2"	3'-1"	1'-0"		30

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES INCREMENT	WEIGHT (LBS.)
*651	10	9'-5"	141	2'-11"	1'-10"			140
*652	15	14'-6"	141	5'-3"	3'-0"			325
*653	5	5'-0"	Str.					40
701	66	8'-0"	Str.					1079
702	101	4'-9"	Str.					981
703	99	9'-3"	148	8'-5"	12"			1872
704	51	9'-9"	Str.					1016
705	1 Ser. of 18	14'-9" to 16'-3"	Str.				1 1/16"	570
706	1 Ser. of 18	16'-3" to 17'-9"	Str.				1 1/16"	625
707	1 Ser. of 18	16'-0" to 17'-6"	Str.				1 1/16"	616
708	1 Ser. of 11	3'-0" to 8'-0"	Str.				6"	124
801	45	5'-0"	Str.					601
802	42	9'-2"	148	8'-3"	13"			1028
803	1 Ser. of 15	10'-0" to 11'-6"	Str.				1 5/16"	431
804	1 Ser. of 15	11'-6" to 13'-3"	Str.				1 1/2"	495
805	1 Ser. of 15	13'-3" to 14'-9"	Str.				1 5/16"	561
806	71	13'-10"	100	11'-8"				2622
807	1 Ser. of 12	7'-2" to 13'-8"	100	5'-0" to 11'-6"			7 1/16"	334
							Total	41,696

BAR BENDING DIAGRAMS



H.N.T.B. BR. NO. 6 PART 6

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

RETAINING WALL
RAMP E-15 OVER W.B. BROADWAY

Scale: 1/8" = 1'-0" Except as noted
STA. 4+17.75
STA. 6+85.67

WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
DATE 11-19-58	DATE	DATE 12-1-58	DATE 11-12-59	SHEET 127

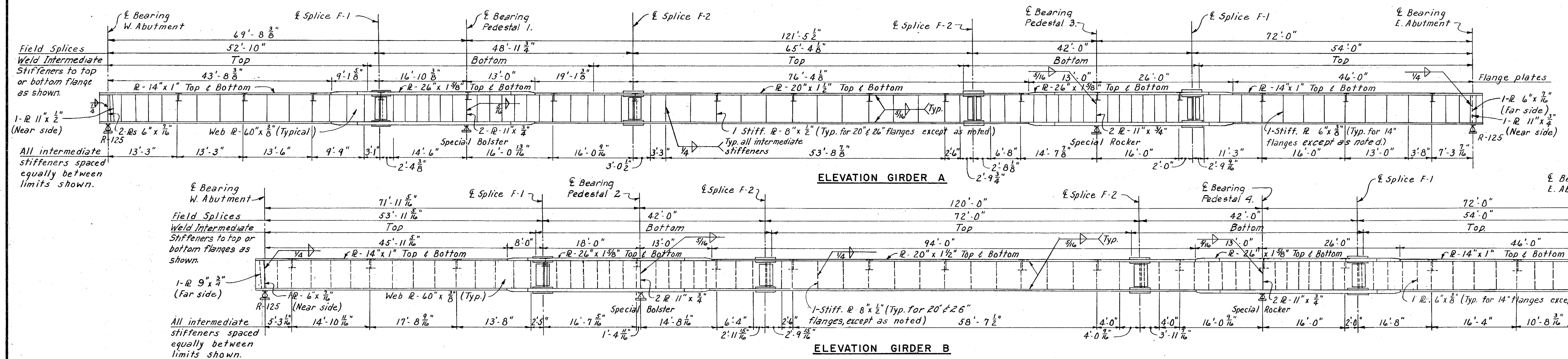
MICROFILMED JUL 8 1985

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

TABLE OF ANGLES

A	31° 07' 18"
B	37° 05' 07"
C	8° 27' 55"
D	92° 30' 06"
E	30° 21' 15"
F	4° 06' 56"
G	1° 36' 50"
H	31° 58' 05"



NOTES:

All girders shall be fabricated to lines parallel to profiles formed by top of pavement elevations directly over the girder, plus the camber required to compensate for dead load deflections.

Top and bottom flange plates are to be same size, and shall be spliced at the point shown in the girder elevations, and as otherwise required.

The web plate may be spliced as required by available plate lengths.

All intermediate stiffeners, including those carrying floor beams, shall be as shown in elevations and placed on the inside face of the girder only. They shall be welded to top or bottom flanges, within the limits shown on the girder elevations, with a 5/16" fillet weld on both sides of the joint for a distance of 2" from the outside edge of the stiffener. The other end shall have a tight fit with the flange.

Angles or plates shall be used at field splices as shown in details on sheet 129-G.

Bearing stiffeners shall be 6"x 7/16" ℞s at the abutments and placed as shown in details, and 11"x 3/4" ℞s placed in pairs at the piers. Bearing stiffeners shall be grooved and fully butt welded to the lower flange and fitted to close contact, without welding, at the upper flange.

All field connections and girder field splices shall be made with 7/8"ϕ high-strength bolts conforming to Supplemental Spec. S-207. The bolts shall be placed with their heads on the outside face of girders and on the bottom of girder flanges.

At bend points, the girders change direction at the centerline of the field splice. Specially cut splice plates will be required at these locations.

Welding shall be done in accordance with Sec. S-1.22 of the Specifications.

Longitudinal dimensions of girders are measured horizontally along ℄ of web plate.

For cross section through deck see sheet 129-G
For splice and other girder details see sheet 129-G
For details of rocker base plates at abutments see sheet 156-G
For other rocker details at abutments see Ohio Standards sheet RB-1-56.
For details of shoes at pedestals see sheet 130-G
For details of expansion dams see sheets 129-G & 156-G
For slab contour plan see sheet 131-G
For railing details see sheet 158-G.
For drainage details see sheet 157-G.

Connections of end floor beams to girders, and of intermediate floor beams to end floor beams shall be field reamed. Connections for intermediate floor beams and stringers shall be reamed assembled, or to a metal template.

Bolts shall be tightened prior to the placing of the deck slab.

SHOP DRAWING AND ASSEMBLY NOTES

SHOP DRAWINGS for the girders shall include an overall layout with dimensions showing the relative unloaded vertical position of each girder or girder segment with respect to the others in the same girder line and with respect to a full length base or work line, taking into account camber and the profile of the highway.

SHOP ASSEMBLY. At least three adjacent girder segments shall be assembled in the shop in their correct unloaded positions, as shown on the shop drawing layout required in the adjacent note, so that the faced joints for welding the segments together may be checked for proper fit-up. The same procedure of assembly shall also be used for reaming of holes for high strength bolts in field splices.

H.N.T.B. BR. NO. 6 — PART 6

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

FRAMING PLAN

RAMP E-15 OVER W.B. BROADWAY
STA. 4 + 17.75
STA. 6 + 85.67
Scale: 1" = 10'

WILLOW-INNER BELT FREEWAY
CLEVELAND — CUYAHOGA COUNTY — OHIO

DRAWN L.D.F. G.A.T.	TRACED G.A.T.	CHECKED J.E.H. A.J.	REVIEWED JCT	REVISED	
DATE 11-17-58	DATE 11-20-58	DATE 4-7-59	DATE 11-12-59		SHEET 128

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		
2	OHIO			

129
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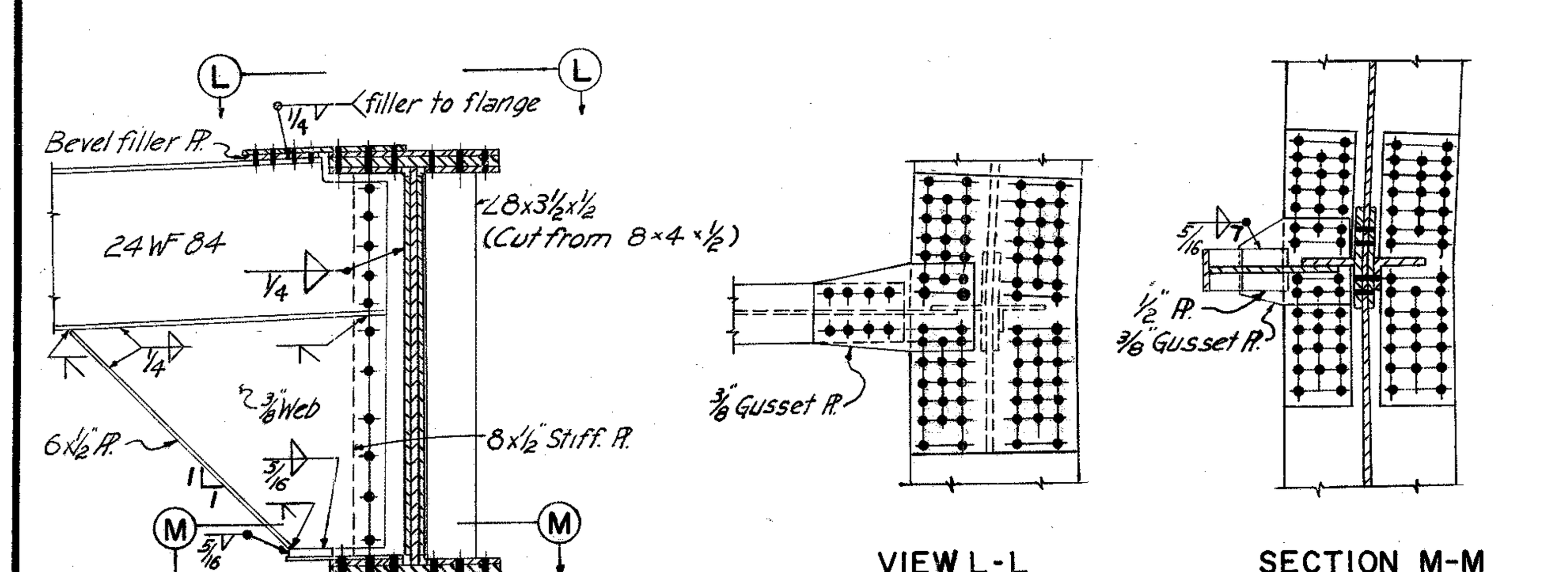
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

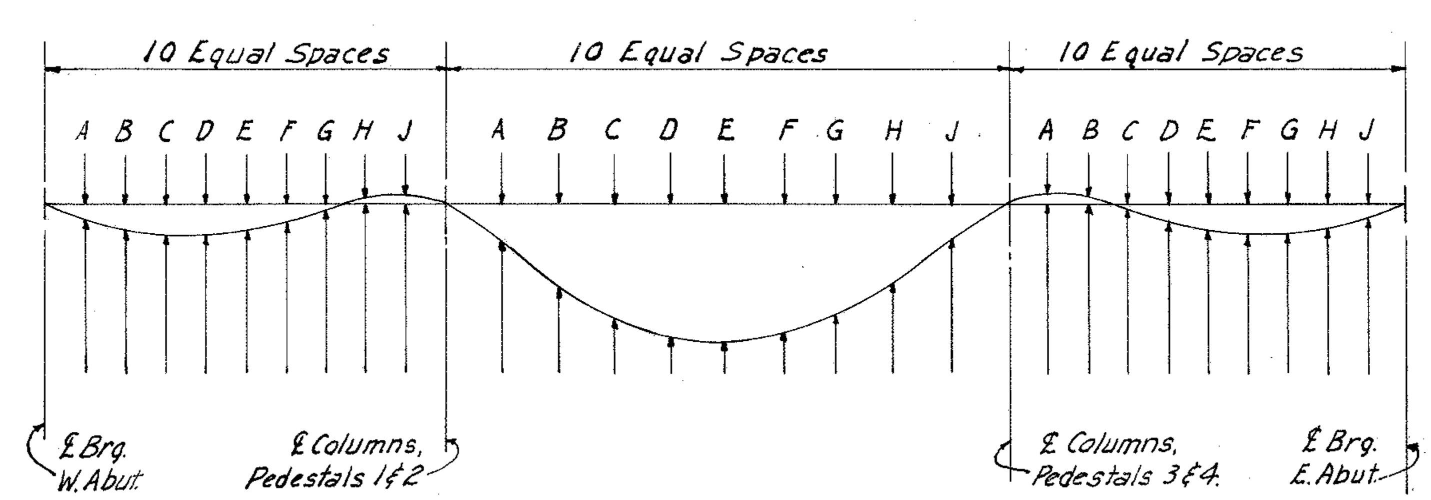


Note:
Connection shown for Splice F-1.
Connection @ Splice F-2 similar except 4 bolts only shall be used for Gusset Pl. connections to girder flanges & floor beams.

GIRDER	A		B		C		D		E		F		G		H		J	
	DEAD LOAD		DEAD LOAD		DEAD LOAD		DEAD LOAD		DEAD LOAD		DEAD LOAD		DEAD LOAD		DEAD LOAD		DEAD LOAD	
	CONC	TOT	CONC	TOT	CONC	TOT	CONC	TOT	CONC	TOT	CONC	TOT	CONC	TOT	CONC	TOT	CONC	TOT
A	1/8"	1/8"	3/16"	3/16"	3/16"	1/4"	3/16"	1/4"	1/8"	3/16"	1/16"	1/16"	0"	0"	-1/16"	-1/16"	-1/16"	-1/16"
B	1/8"	1/8"	3/16"	3/16"	3/16"	1/4"	3/16"	1/4"	1/8"	3/16"	1/16"	1/16"	0"	0"	-1/16	-1/16"	-1/16"	-1/16"
A	5/16"	3/8"	13/16"	15/16"	1 1/4"	1 7/16"	1 9/16"	1 13/16"	1 11/16"	1 15/16"	1 9/16"	1 13/16"	1 1/4"	1 7/16"	13/16"	15/16"	5/16"	3/8"
B	5/16"	3/8"	13/16"	15/16"	1 1/4"	1 7/16"	1 9/16"	1 13/16"	1 11/16"	1 15/16"	1 9/16"	1 13/16"	1 1/4"	1 7/16"	13/16"	15/16"	5/16"	3/8"
A	-1/16"	-1/16"	-1/16"	-1/16"	0"	0"	1/16"	1/16"	1/8"	3/16"	3/16"	1/4"	3/16"	1/4"	3/16"	3/16"	1/8"	1/8"
B	-1/16"	-1/16"	-1/16"	-1/16"	0"	0"	1/16"	1/16"	1/8"	3/16"	3/16"	1/4"	3/16"	1/4"	3/16"	3/16"	1/8"	1/8"

CONC denotes deflections due to dead load of concrete.

TOTAL denotes deflections due to dead load of steel and concrete.
Deflections are measured to the nearest 1/16".



For additional End dam details, see sheet 156-G
Sections A-A, B-B, C-C, & D-D are taken on horizontal planes.
For additional notes, see sh. 128-G

Note: Shop splices may be located as required by available plate lengths. Web & flange splices shall not coincide.

TYPICAL SHOP SPLICE
No Scale

H.N.T.B. BR. NO. 6 PART 6

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

SUPERSTRUCTURE DETAILS

RAMP E-15 OVER W.B. BROADWAY

Scale: 3/4"=1'-0" Unless noted STA. 4+17.75
STA. 6+85.67

WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

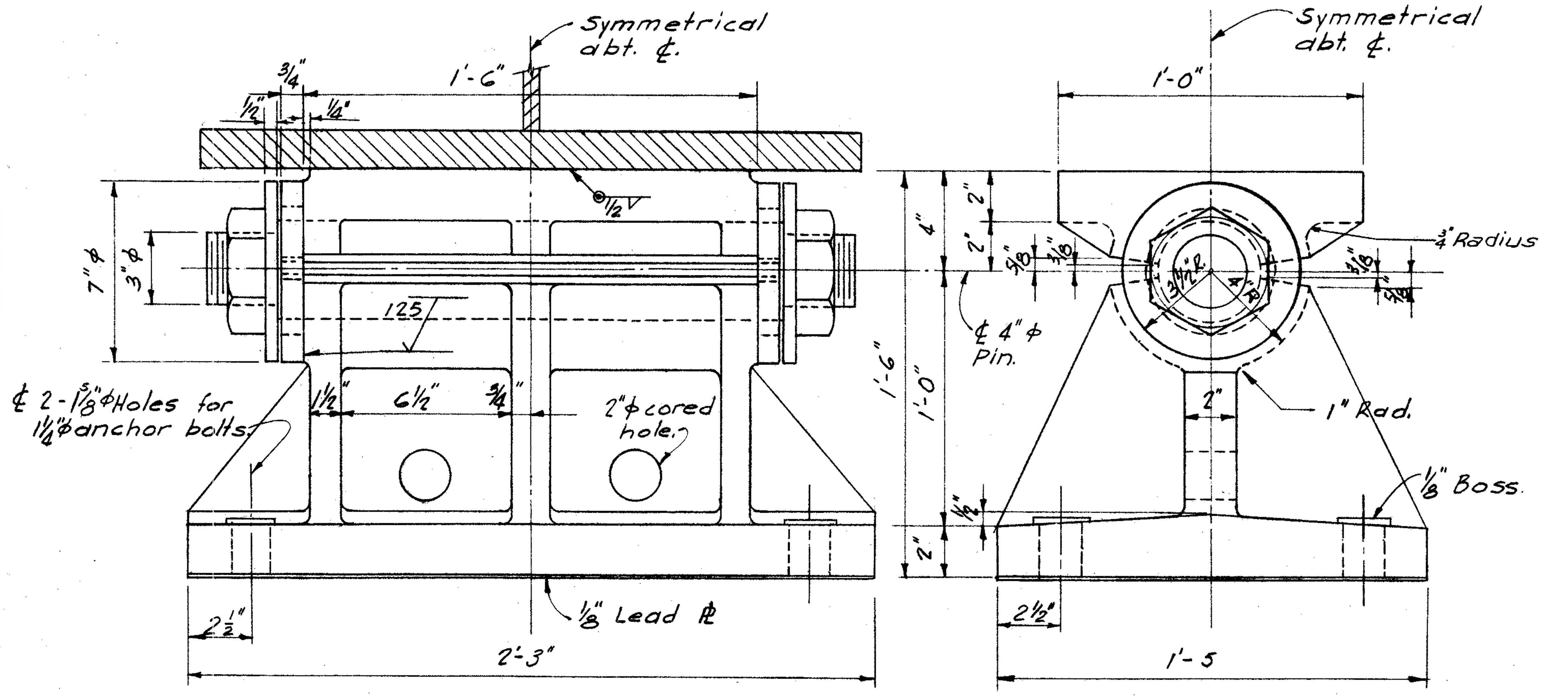
DRAWN R.L.R. J.R.M. & N.N. DATE 11-28-58	TRACED DATE	CHECKED A.J. DATE 12-8-58	REVIEWED JCT DATE 11-12-59	REVISED SHEET 129

MICROFILMED
JUL 8 1985

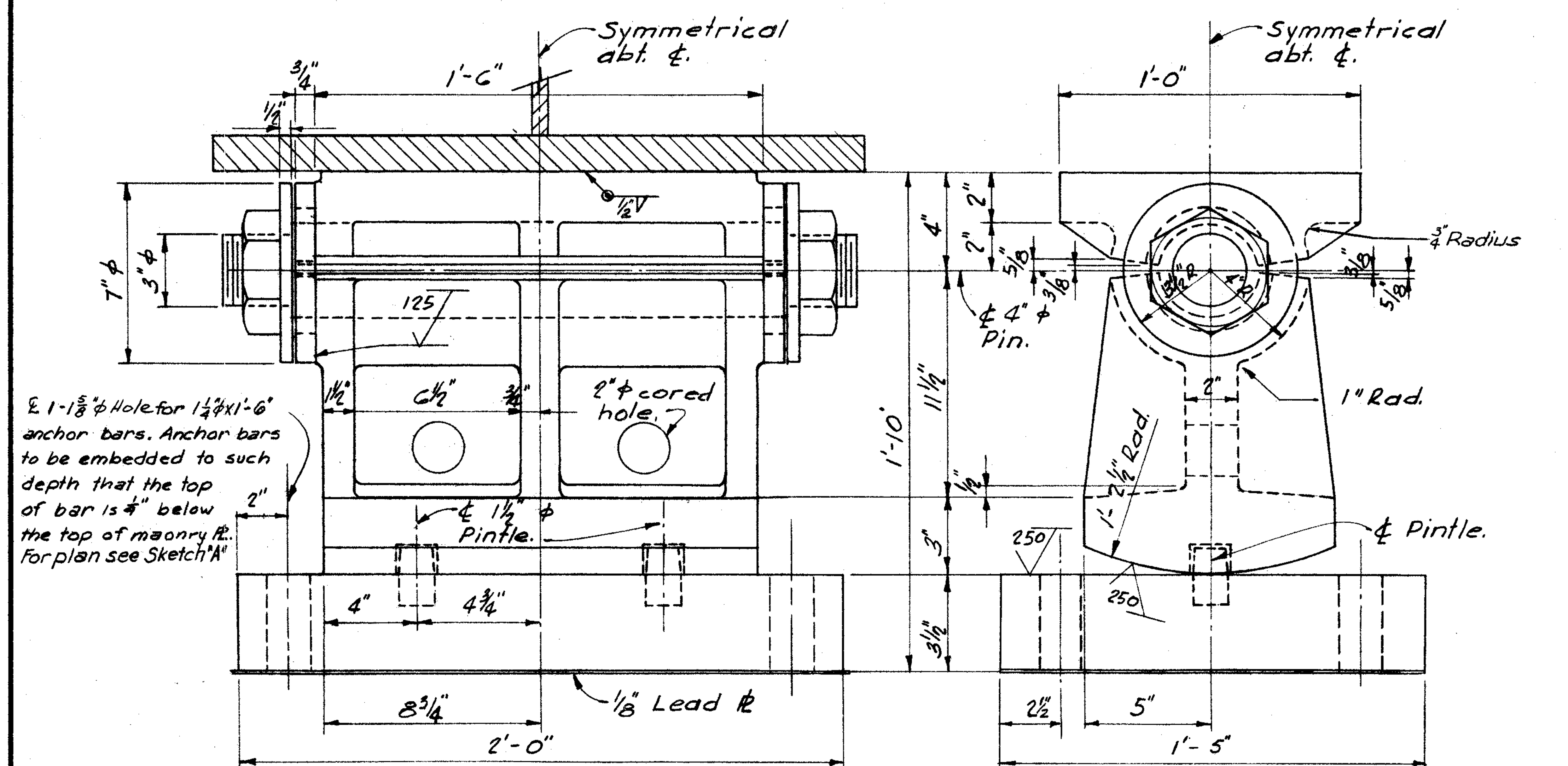
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

130 / 175

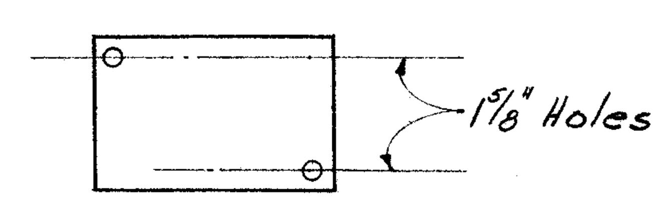
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-1829



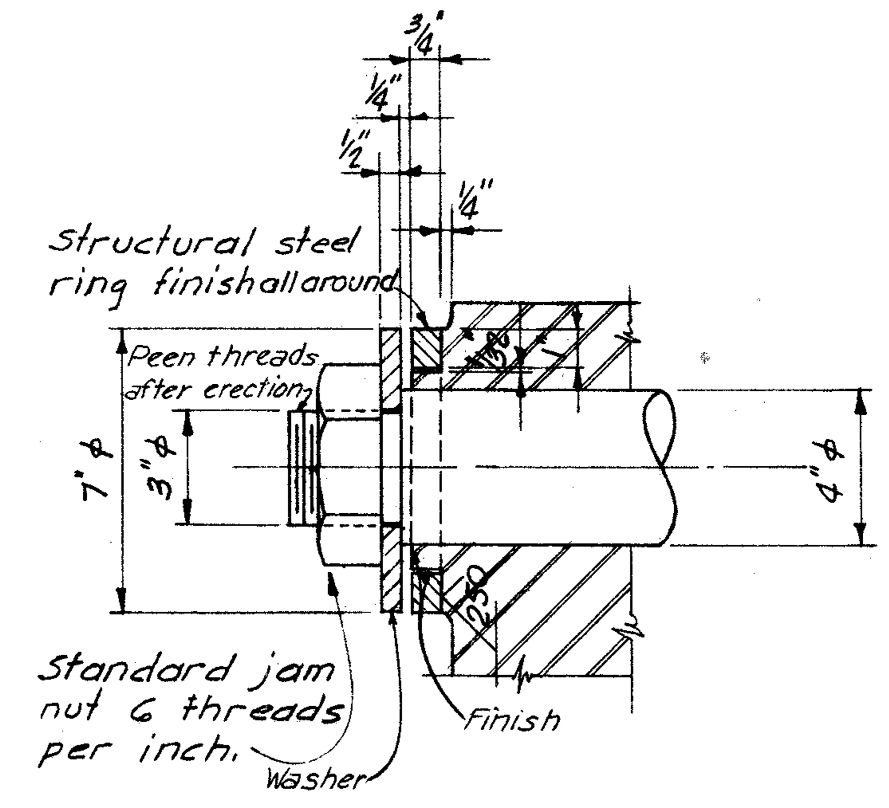
FIXED SHOE AT PEDESTALS 1 & 2



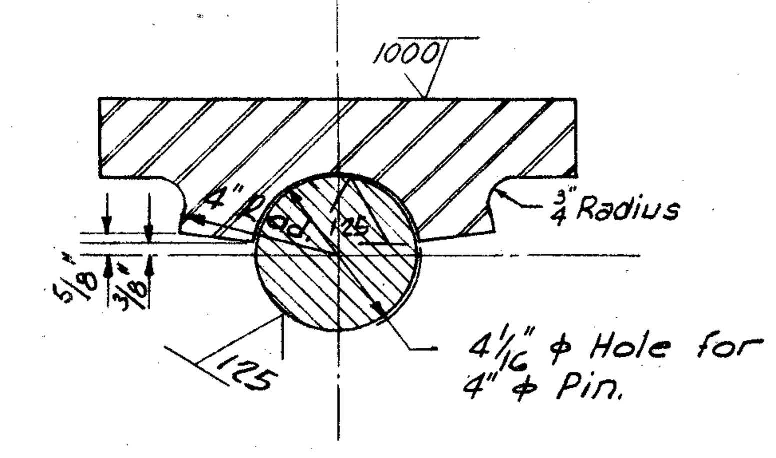
EXPANSION SHOE AT PEDESTALS 3 & 4



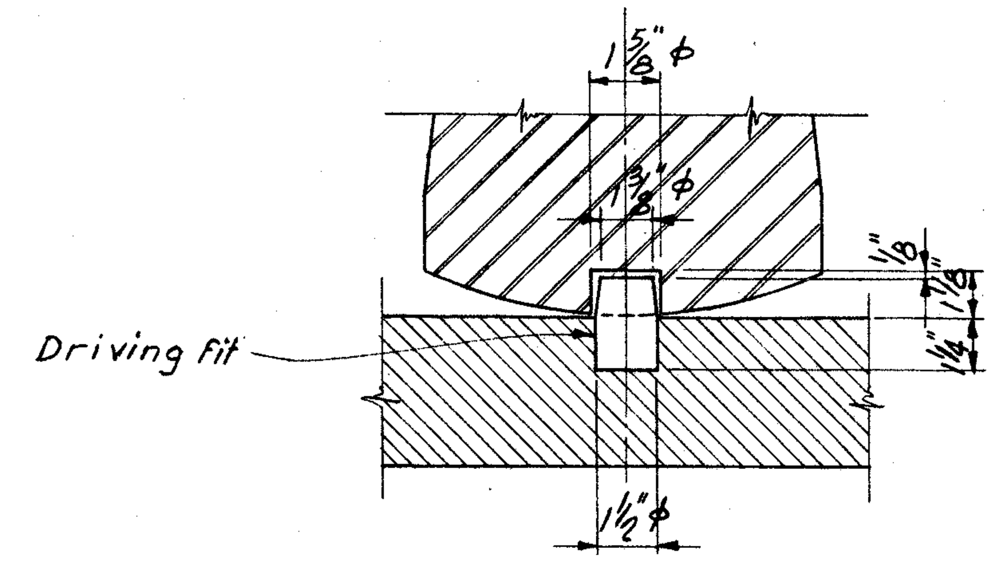
SKETCH "A"



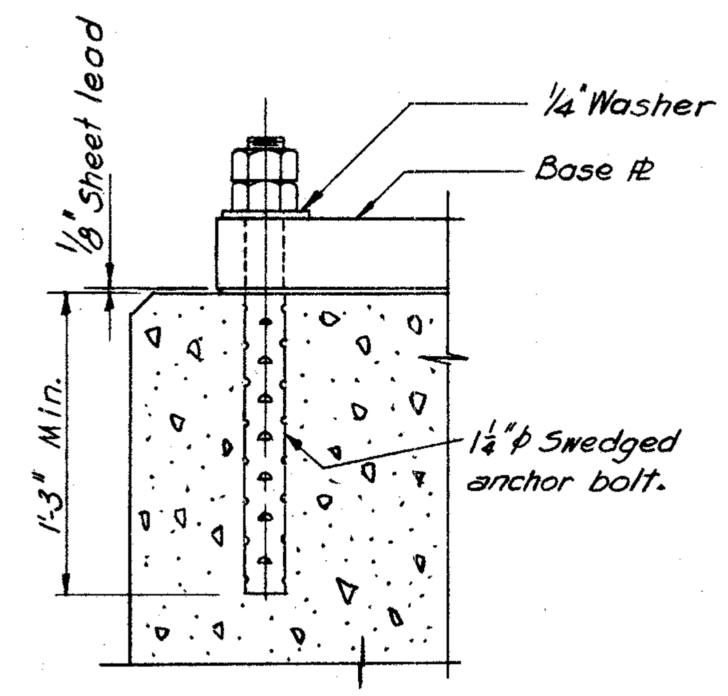
PIN END DETAIL



SECTION THRU PIN



PINTLE DETAIL



ANCHOR BOLT DETAIL
No Scale

Material:
Use Structural Steel Sec. M-7.4 (a) except for items noted below.
Both upper & lower castings for fixed shoes and top casting for expansion shoe shall be steel castings Sec. M 7.7
Rocker casting for expansion shoe shall be high strength steel casting A.S.T.M. A 148, Grade 80-50
Base plate for expansion shoe shall be a steel forging conforming to A.S.T.M. A 237, Grade 80-55 class B

NOTES:
Surfaces marked √ to be finished to fineness shown (A.S.A. B46.1-65)
Lower portions of shoes shall be centered in both directions under top portion for 60°F
Masonry plates and lower castings shall be scribed with centerlines in both directions.
All fillets 1/4" unless shown otherwise
Spaces around anchor bolts in base plates shall be filled with an approved metallic filler before setting nuts.

H.N.T.B. BR. NO. 6 — PART 6

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

PEDESTAL SHOE DETAILS
RAMP E-15 OVER W.B. BROADWAY
Scale: 3" = 1'-0" — STA. 4 + 17.75 — STA. 6 + 85.67

WILLOW-INNER BELT FREEWAY
CLEVELAND — CUYAHOGA COUNTY — OHIO

DRAWN L.D.F.	TRACED	CHECKED ESG	REVIEWED JCT	REVISED
DATE 7-9-58	DATE	DATE 8/13/58	DATE 11-12-59	SHEET 130

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

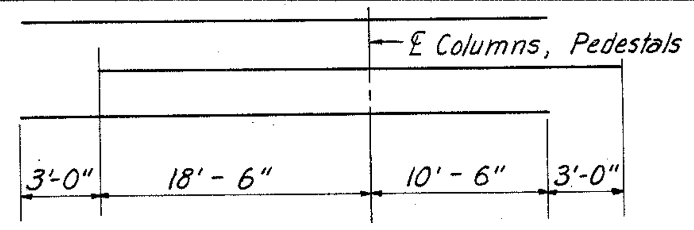
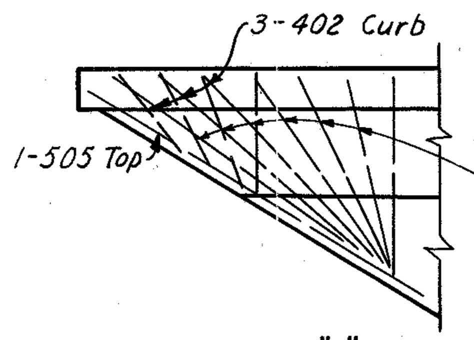


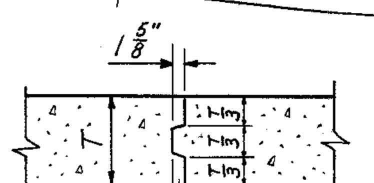
DIAGRAM SHOWING STAGGER OF 611 BARS

DECK CONTOUR PLAN

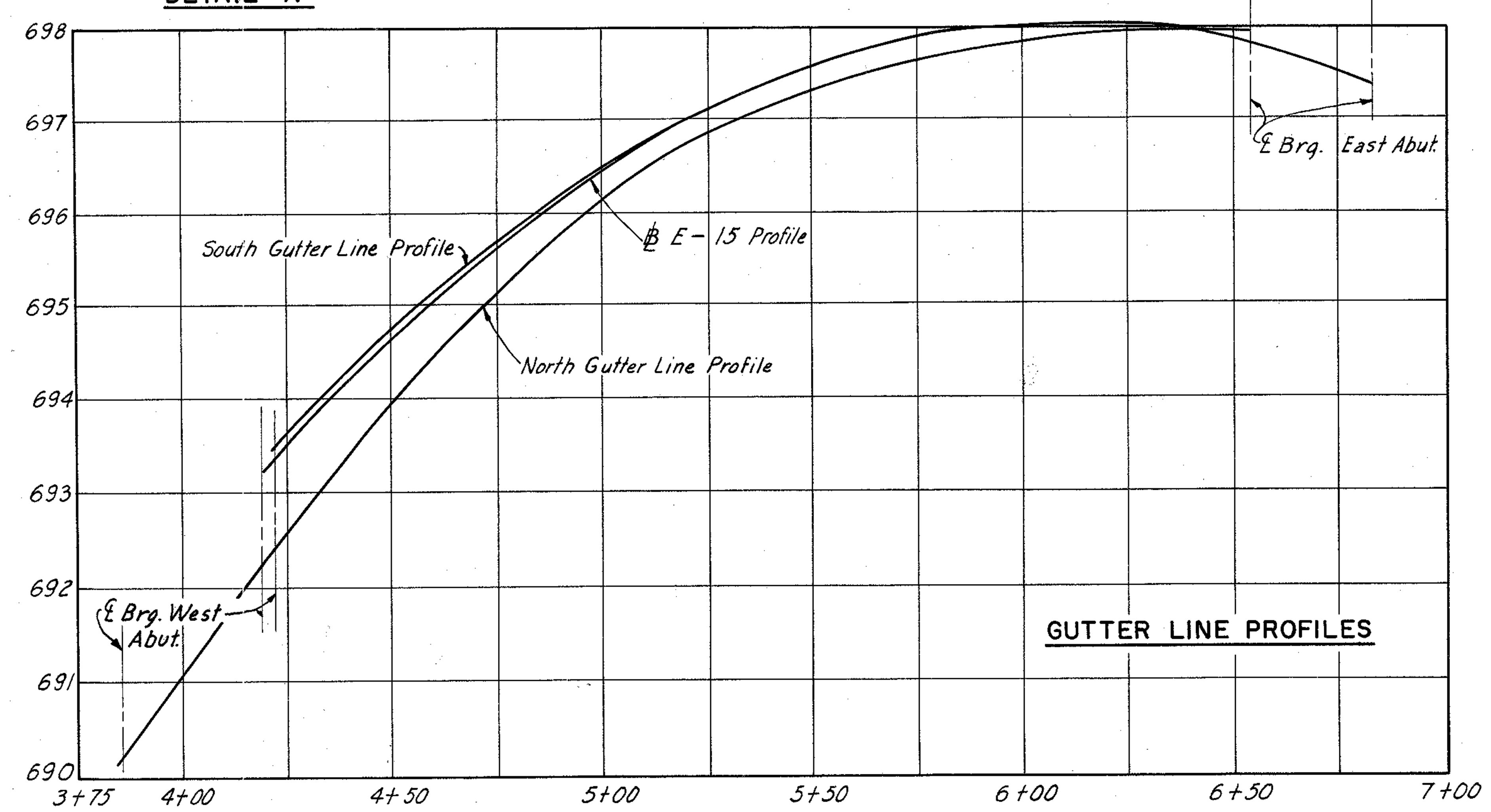
DECK PLAN



DETAIL "A"



OPTIONAL CONSTRUCTION JOINT THRU DECK



REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A.	DIMENSIONS B	DIMENSIONS C	SER. INC.	WT. LBS.	MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SER. INC.	WT. LBS.
401	557	4'-5"	105	0'-8"	2'-0"			1643	Ŧ605	6	10'-6"	Str.				—
402	517	5'-11"	122	2'-8"	1'-3"			2043	Ŧ606	204	13'-6"	Str.				—
									Ŧ607	6	17'-6"	Str.				—
*451	6	8'-11"	131	2'-6"	1'-2"			36	Ŧ608	6	17'-3"	Str.				—
*452	6	9'-11"	131	3'-0"	1'-8"			39	Ŧ609	6	10'-3"	Str.				—
*453	9	9'-5"	131	3'2"	1'-0"			57	610	2-Ser. of 6	5'-0" to 7'-0"	Str.			4 13/16"	108
*454	6	6'-7"	155	3'2"	1'-4"			27	611	38	32'-0"	Str.				1826
*455	6	7'-1"	155	3'-8"	1'-4"			27	*651	6	9'-5"	141	2'-11"	1'-10"		84
*456	9	7'-3"	155	3'-10"	1'-4"			45	*652	9	14'-6"	141	5'-3"	3'-0"		195
									*653	3	5'-0"	Str.				24
501	460	27'-2"	100	26'-0"			3 3/8"	13034								
502	1-Ser. of 72	5'-7" to 25'-9"	101	5'-0" to 25'-2"			3 3/4"	1177						Total		64,557
503	1-Ser. 65	5'-7" to 25'-9"	101	5'-0' to 25'-2"			4 13/16"	1062								
504	2-Ser. of 6	5'-7" to 7'-7"	101	5'-0" to 7'-0"				82								
505	2	27'-7"	101	27'-0"				58								
506	2	25'-4"	101	24'-9"				53								
601	460	26'-0"	Str.					17964								
602	364	40'-0"	Str.					21869								
603	1-Ser. of 72	5'-0" to 25'-2"	Str.				3 3/8"	1631								
604	1-Ser. of 65	5'-0" to 25'-2"	Str.				3 3/4"	1473								

Note: Prefix "S" shall be assigned to all bar marks.

NOTES:

For deck details not shown, see sheet 129-G

(*) Bars 451 thru 456 and 651 thru 653 are for the light standard supports. For their bar bending diagrams and placement see sheet 159-G

Ŧ Bars 605, 606, 607, 608 & 609 are included for payment with "Item S-14, Railing."

All bar dimensions are given out to out.

For replacement schedule see sheet 97-G

For light standard support and other lighting details see sheet 159-G

For railing details see sheet 158-G

For end dam details see sheets 129-G & 156-G.

For parapet joint details see sheet 158-G

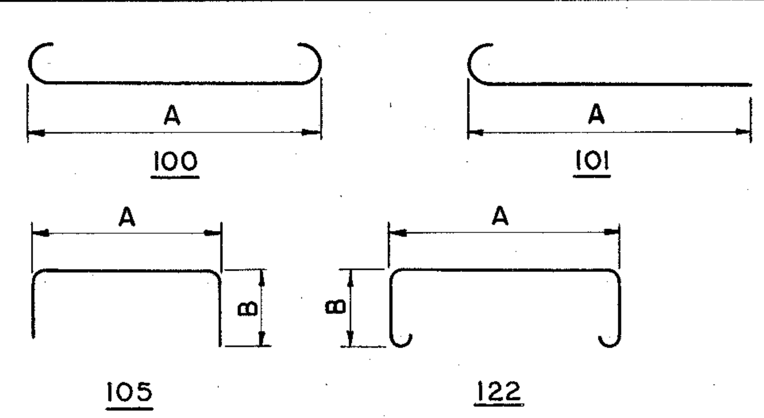
In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are parallel to the transverse bars in the slab and are located near the center of any span.

Transverse bars shall be placed normal to ℄ Ramp E-15. Spacing shown is maximum.

Bars of a series shall vary in length by a constant increment.

For drainage details, see sheet 157-G

BAR BENDING DIAGRAMS



H.N.T.B. BR. NO. 6 PART 6

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

DECK PLAN

RAMP E-15 OVER W.B. BROADWAY

Scale: 1" = 10'

STA. 4+17.75
STA. 6+85.67

WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN P.H.	TRACED J.A.G.	CHECKED J.M.	REVIEWED JCT	REVISED 6-16-60
DATE 6-25-58	DATE 4-29-59	DATE 6-30-58	DATE 11-12-59	SHEET 131

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

MICROFILMED JUL 8 1985

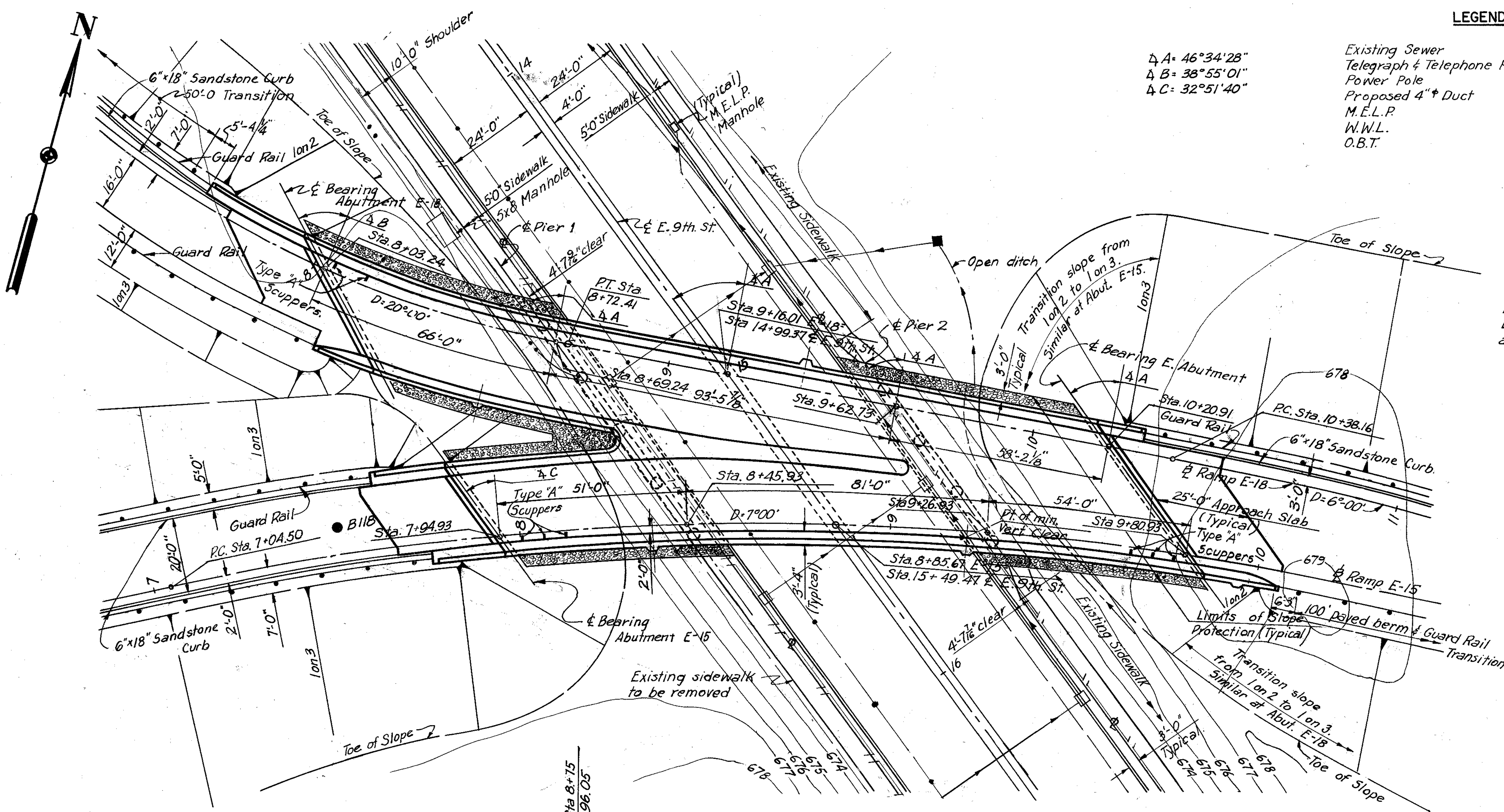
LEGEND

Existing Sewer
Telegraph & Telephone Pole
Power Pole
Proposed 4" ϕ Duct
M.E.L.P.
W.W.L.
O.B.T.

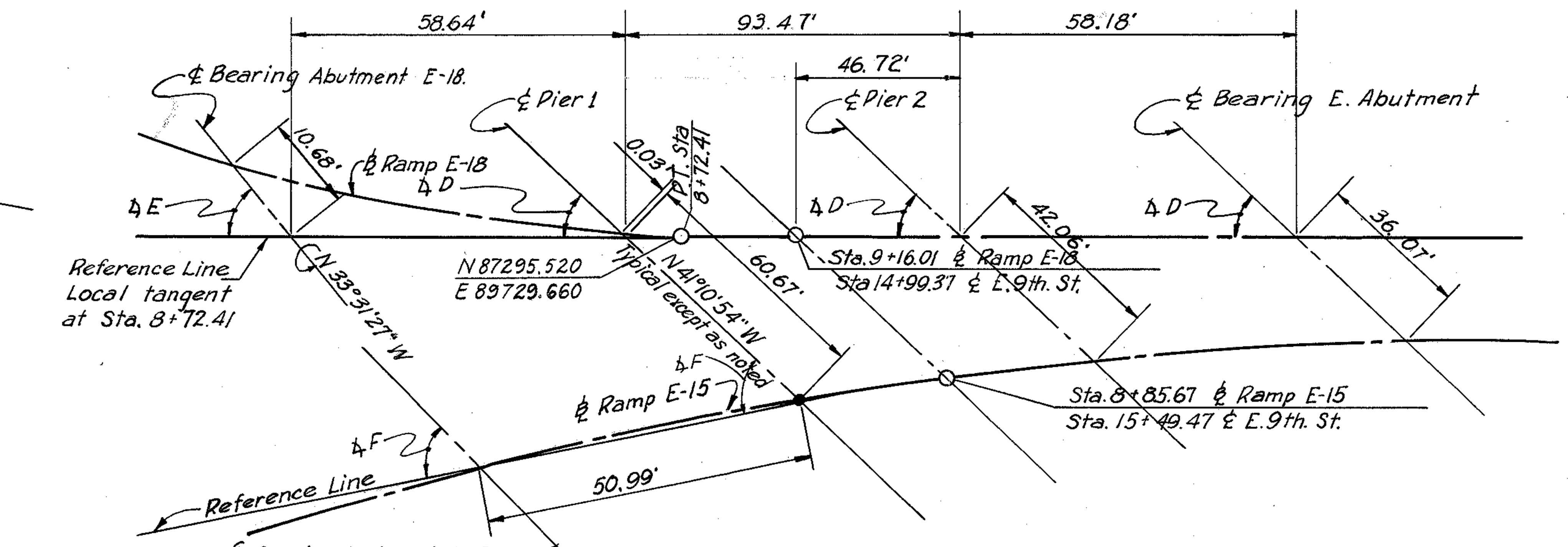
C.B.
M.H.
LIGHT POLE

ΔA = 46°34'28"
ΔB = 38°55'01"
ΔC = 32°51'40"

ΔD = 43°25'32"
ΔE = 51°04'59"
ΔF = 57°08'20"



PLAN



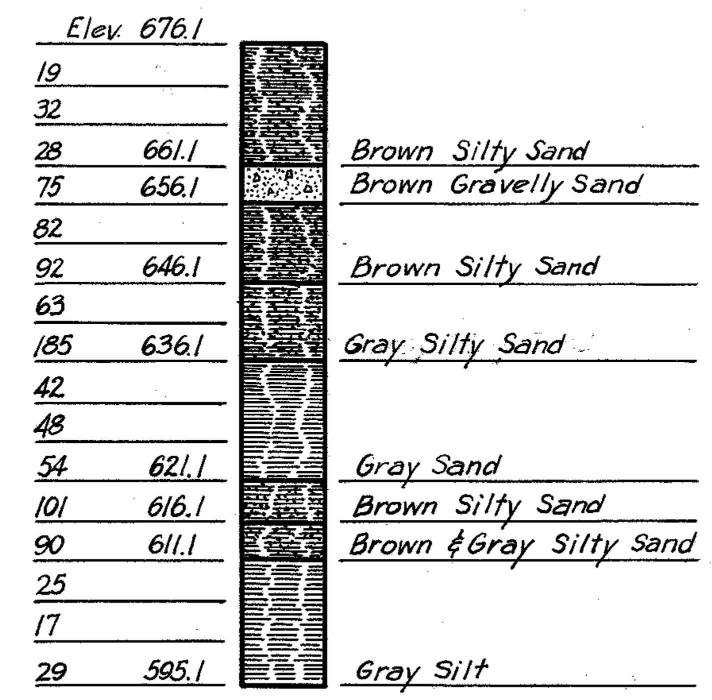
LAYOUT DIAGRAM
No Scale

CURVE DATA

℄ Ramp E-18	℄ Ramp E-18	℄ Ramp E-15
Δ = 16°51'41"	Δ = 58°40'43"	Δ = 38°41'25"
D = 6°00'	D = 20°00'00"	D = 7°00'00"
R = 954.93'	R = 286.48'	R = 818.51'
T = 141.54'	T = 161.02'	T = 287.36
L = 281.02'	L = 293.39'	L = 552.72'

PILE INFORMATION			
Location	Diameter	Number	Estimated ave. length
Abutment E-15	12"	12	36'
Abutment E-18	12"	15	31'
E. Abutment	12"	14	33'
Pier 1	14"	30	23'
Pier 2	14"	22	22'

All piles to be C.I.P. Reinforced Concrete.
Pile lengths are based on boring data and are approximate only. The Contractor shall assume full responsibility for lengths of piling selected for driving.

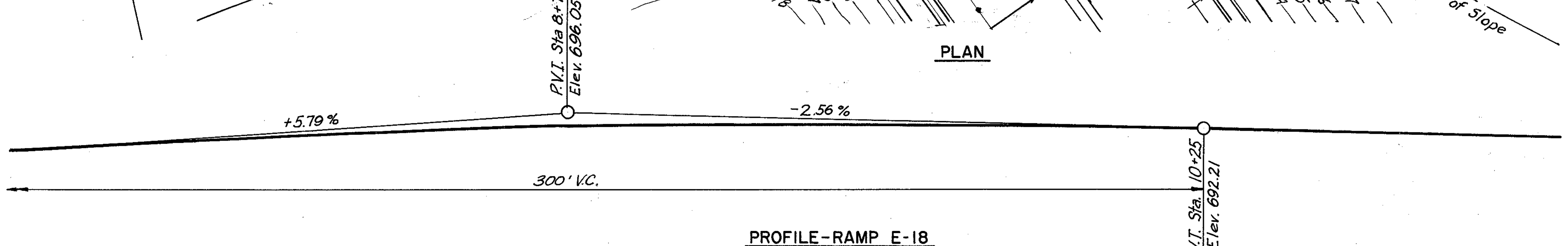


BORING 118

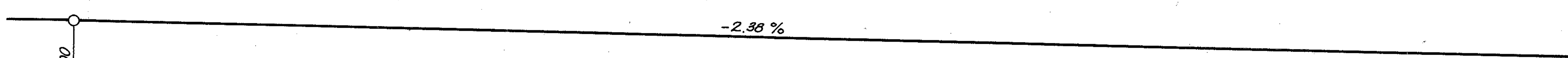
Vertical Scale: 1"=20'
Sta. 7+50 ℄ Ramp E-15 10' Lt.

Note:
The figures to the left indicate the number of hammer blows required to drive the sampling spoon 1 ft. They are given at 5' intervals starting at elev. 676.1.

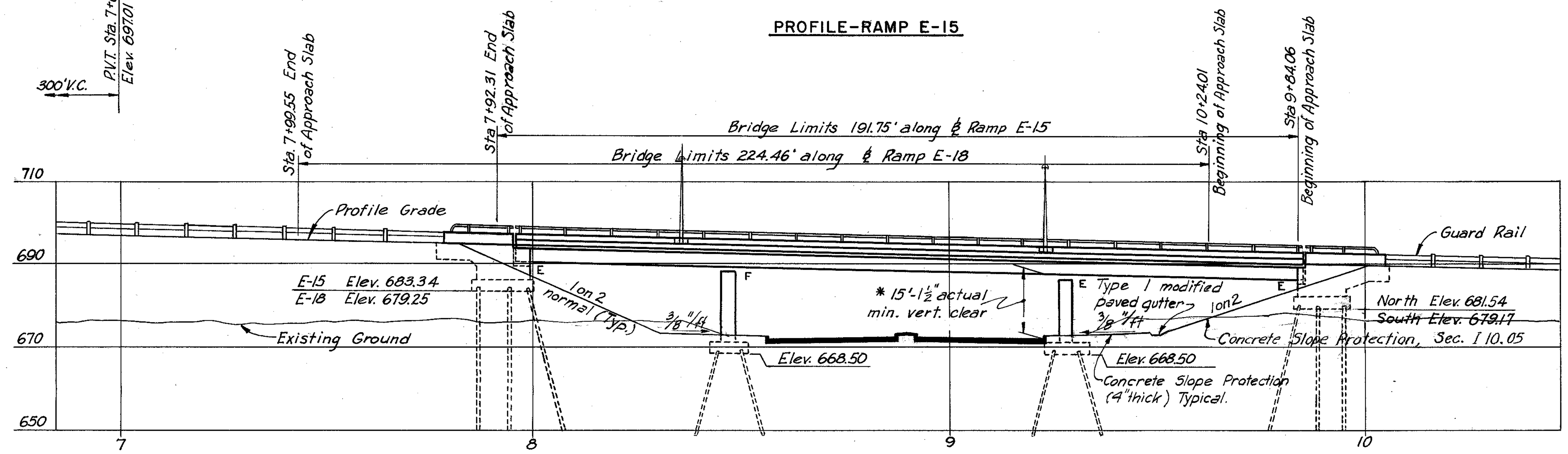
NOTES:
For details of slope protection see sheet 157-C.
The following items are not included in the Bridge Plans. (See Roadway Plans for details.)
Removal of existing sidewalk.
Site Grading Plan.
Approach grading, pavement and slab.
Roadway guard rail.



PROFILE-RAMP E-18



PROFILE-RAMP E-15



ELEVATION-RAMP E-15

* 15'-0" Required minimum vertical clearance. Point of actual minimum vertical clearance occurs at South beam and East gutter of E. 9th. St.

PROPOSED STRUCTURE

Type: Continuous steel beam with reinforced concrete deck and substructure.
Spans: 66'-0", 93'-5⅝", & 58'-2⅛" along ℄ Ramp E-18.
51'-0", 81'-0", & 54'-0" along ℄ Ramp E-15.
Roadways: Varies
Loading: C.F.-2000 - Adequate for A.A.S.H.O. alternate loading.
Skew: Varies
Surface Course: 1" Monolithic Concrete.
Alignment: 20°00' Rt. ℄ E-18 & 7°00' Rt. ℄ E-15.
Approach Slabs: AS-1-54 (25' Long).
Superelevation: Varies

H.N.T.B. BR. NO. 7 PART 6

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

SITE PLAN

RAMPS E-15 AND E-18 OVER EAST 9TH STREET
STA 7+92.31 STA 9+84.06 (E-15)
STA 7+99.55 STA 10+24.01 (E-18)
Scale: 1"=20'

WILLOW-INNERBELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN J.T.S.	TRACED W.R.H.	CHECKED R.A.	REVIEWED JCT	REVISED	
DATE 10-10-58	DATE 1-19-58	DATE 11-6-58	DATE 11-12-59		SHEET 132

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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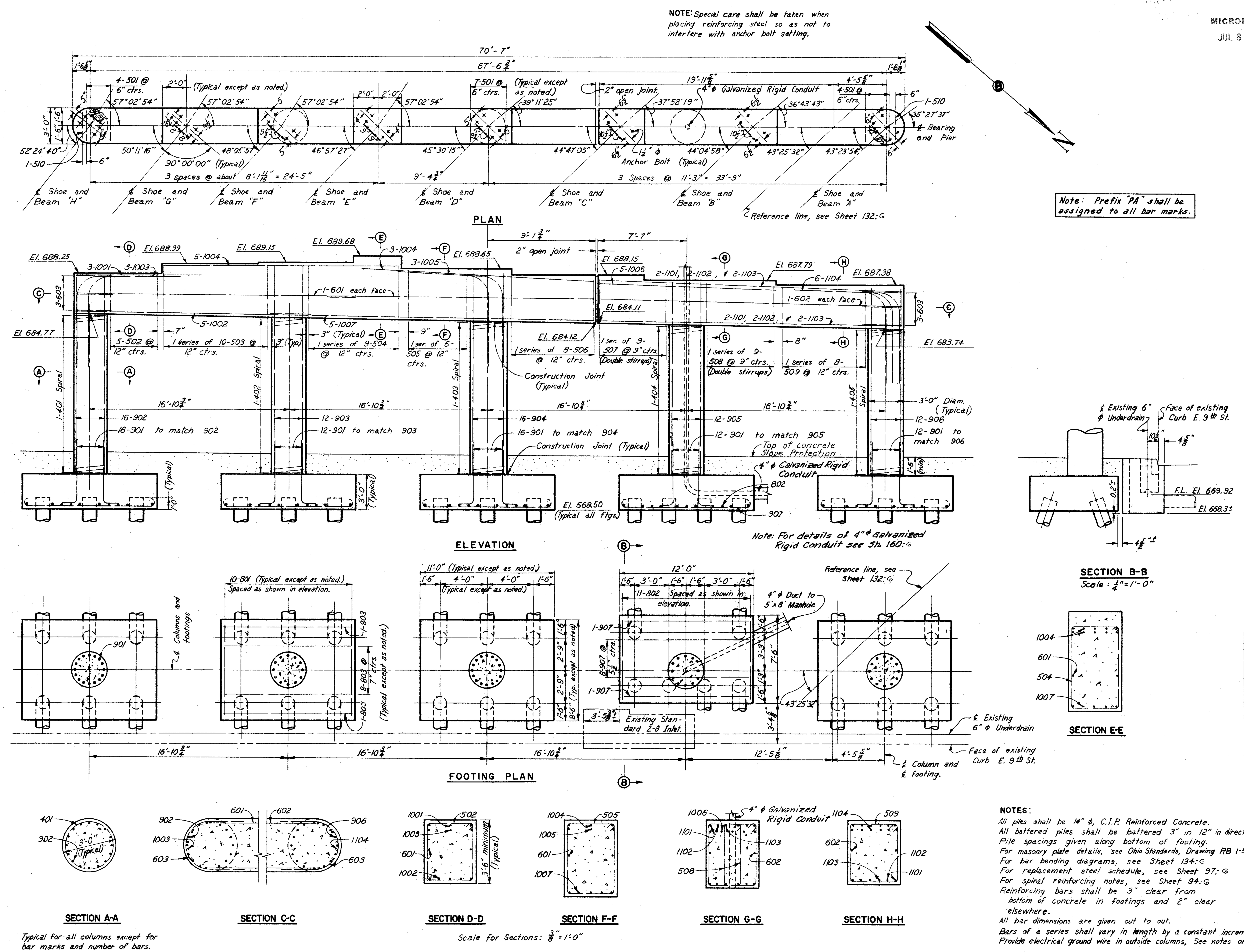
MICROFILMED JUL 8 1985

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29



REINFORCEMENT SCHEDULE							
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SERIES INCREMENT	WEIGHT
501	50	3'-9"	105	2'-8"	8"		196
502	5	12'-2"	109	3'-2"	2'-8"		63
503	1 ser. of 10	13'-10" to 14'-2"	109	4'-0" to 4'-2"	2'-8"	7/16"	146
504	1 ser. of 9	14'-3" to 14'-5"	109	4'-3" to 4'-4"	2'-8"	1/4"	134
505	1 ser. of 6	13'-4" to 13'-9"	109	3'-9" to 4'-0"	2'-8"	1"	88
506	1 ser. of 8	12'-4" to 13'-0"	109	3'-3" to 3'-7"	2'-8"	1 1/8"	106
507	2 ser. of 9	10'-6" to 10'-9"	109	3'-4" to 3'-6"	1'-8"	3/8"	200
508	2 ser. of 9	10'-1" to 10'-4"	109	3'-2" to 3'-3"	1'-8"	3/8"	192
509	1 ser. of 8	11'-8" to 12'-0"	109	2'-11" to 3'-1"	2'-8"	9/16"	99
510	2	3'-7"	105	2'-6"	8"		7
601	4	22'-6"	str.				135
602	2	24'-3"	str.				73
603	6	7'-11"	144	1'-11"	4'-1"		71
801	40	10'-4"	100	8'-2"			1104
802	11	9'-4"	100	7'-2"			274
803	40	12'-10"	100	10'-8"			1371
901	68	6'-5"	104	5'-5"	1'-3"		1484
902	16	16'-3"	str.				884
903	12	17'-3"	str.				704
904	16	16'-9"	str.				911
905	12	15'-9"	str.				643
906	12	15'-6"	str.				632
907	10	13'-10"	100	11'-8"			470
1001	3	10'-9"	str.				139
1002	5	20'-0"	str.				430
1003	3	14'-10"	123	6'-0"			192
1004	8	19'-9"	str.				680
1005	3	14'-10"	123	6'-0"			192
1006	5	15'-0"	str.				323
1007	5	27'-6"	str.				592
1101	4	24'-3"	str.				515
1102	4	25'-0"	str.				531
1103	4	25'-6"	str.				542
1104	6	14'-10"	123	6'-0"			473
						Total =	14,596

SPIRAL REINFORCEMENT SCHEDULE						
MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT
401	1	2'-8"	13'-3"	3"	56	345
402	1	2'-8"	13'-0"	3"	55	339
403	1	2'-8"	12'-9"	3"	54	333
404	1	2'-8"	12'-6"	3"	53	327
405	1	2'-8"	12'-2"	3"	52	320
					Total =	1,664

NOTES:

All piles shall be 14" φ, C.I.P. Reinforced Concrete.
All battered piles shall be battered 3" in 12" in direction shown.
Pile spacings given along bottom of footing.
For masonry plate details, see Ohio Standards, Drawing RB 1-55.
For bar bending diagrams, see Sheet 134:G
For replacement steel schedule, see Sheet 97:G
For spiral reinforcing notes, see Sheet 94:G
Reinforcing bars shall be 3" clear from bottom of concrete in footings and 2" clear elsewhere.
All bar dimensions are given out to out.
Bars of a series shall vary in length by a constant increment.
Provide electrical ground wire in outside columns, See notes on Sheet 91A.-G

H.N.T.B. BR. NO. 7 PART 6

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

PIER I

RAMPS E-15 AND E-18 OVER EAST 9th STREET
STA. 7+92.31 STA. 9+84.06 (E-15)
STA. 7+99.55 STA. 10+24.01 (E-18)
Scale: 1/4" = 1'-0" Except as noted

WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN CLM	TRACED	CHECKED WF	REVIEWED JCT	REVISED
DATE 9-20-58	DATE	DATE 1-7-59	DATE 11-12-59	SHEET 133

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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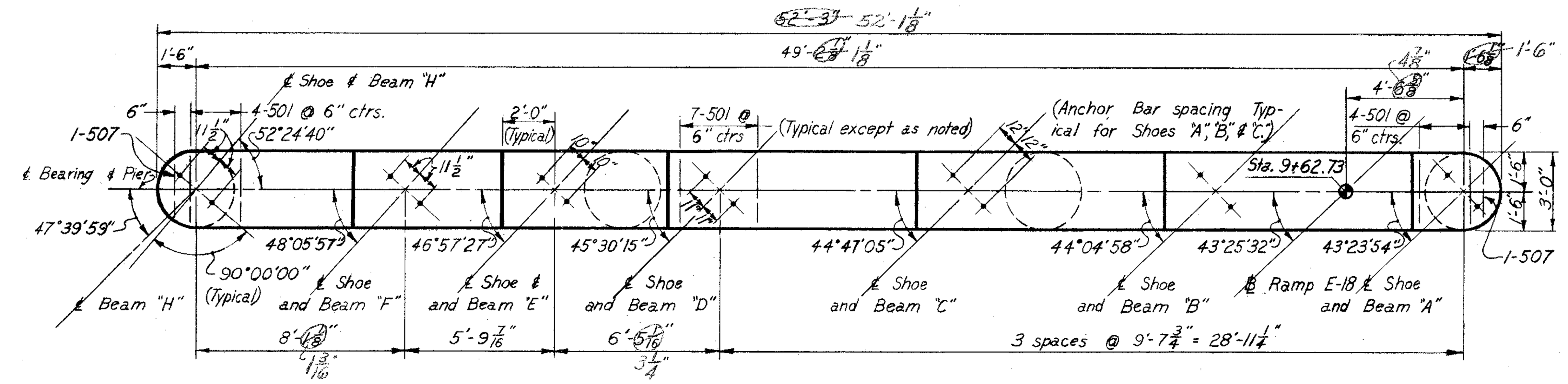
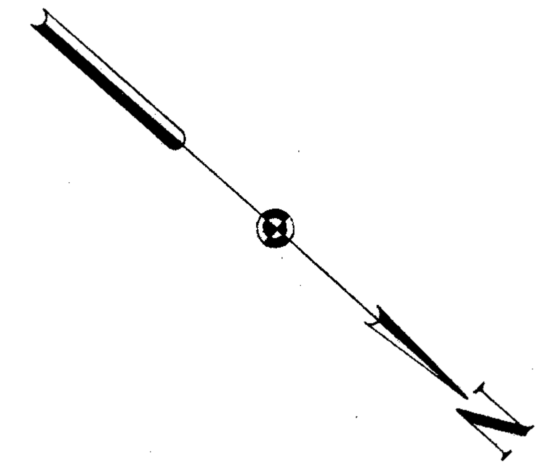
MICROFILMED
JUL 8 1985

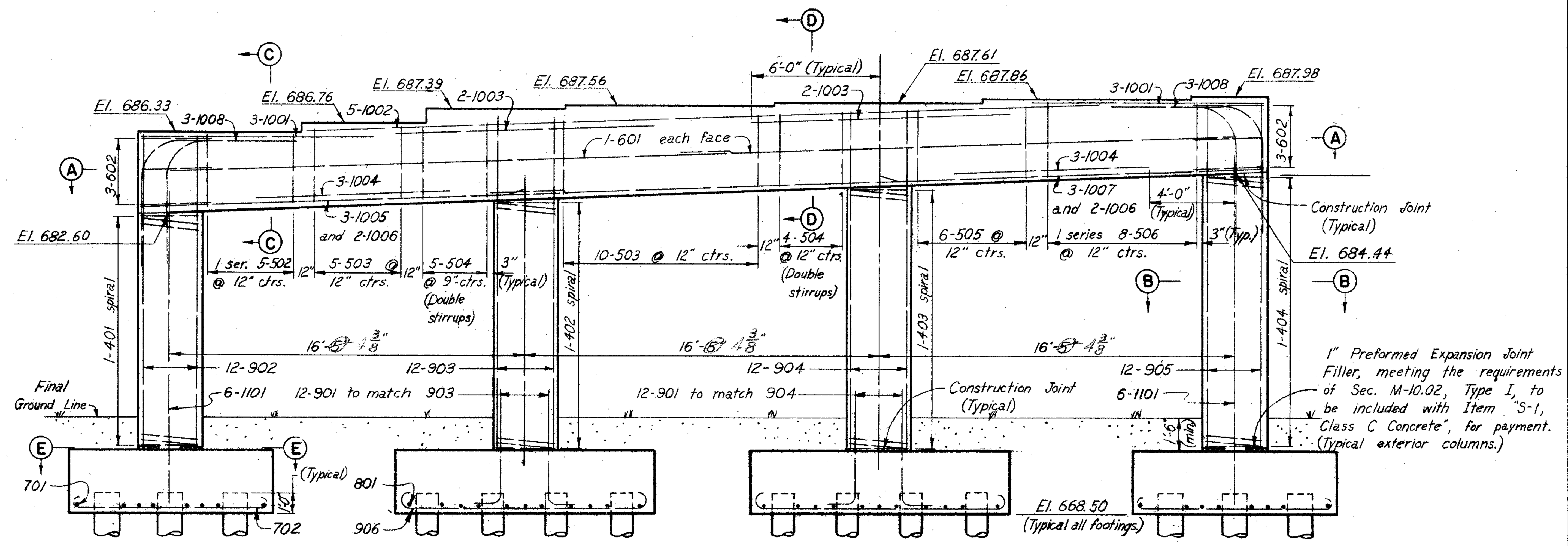
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29

NOTE: Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bar setting.

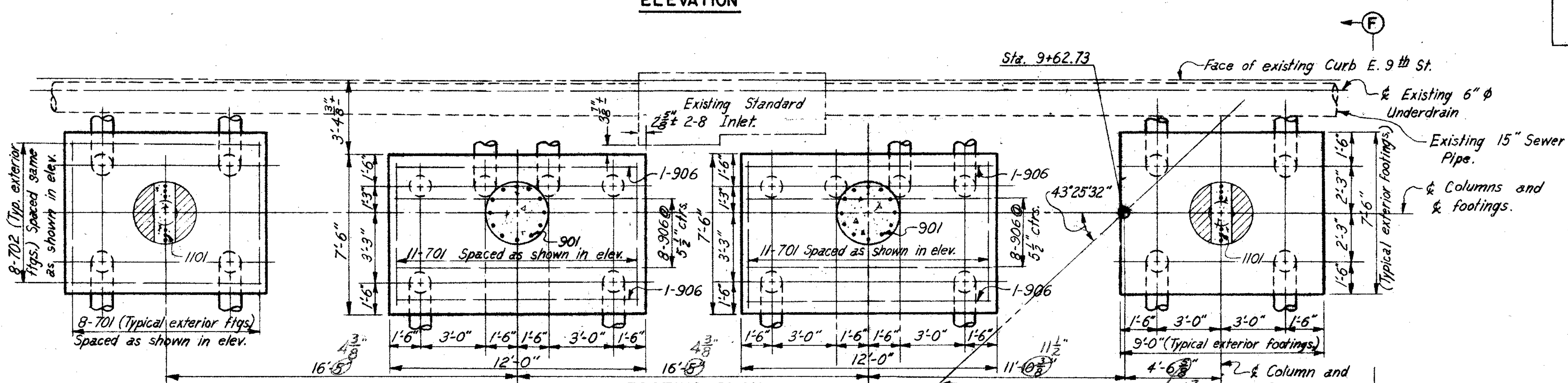


PLAN



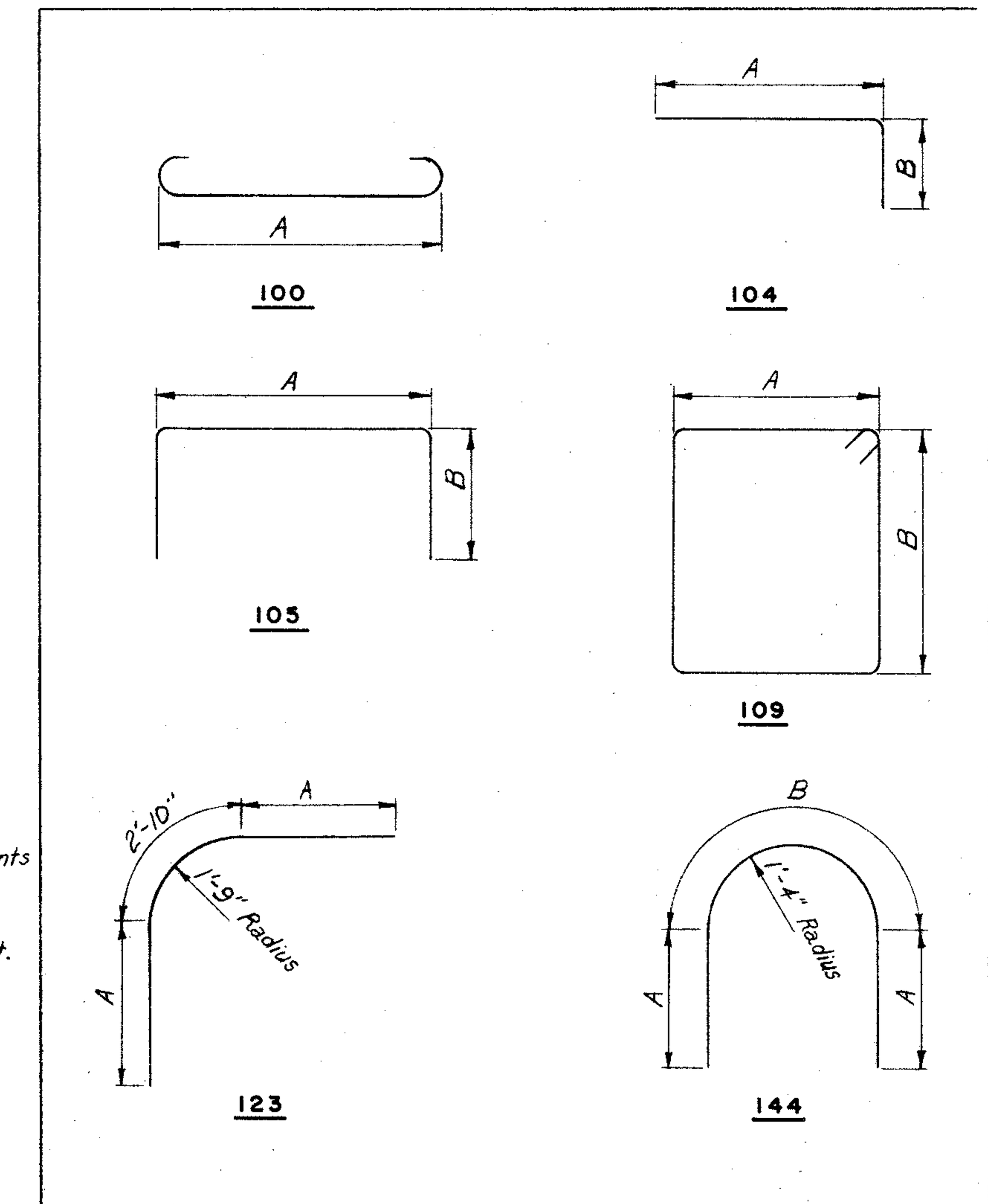


ELEVATION



FOOTING PLAN

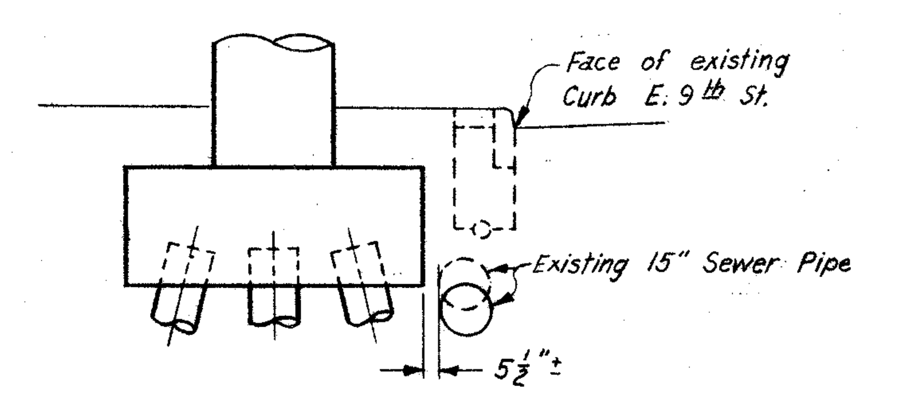
Note: Prefix "PB" shall be assigned to all bar marks.



BAR BENDING DIAGRAMS

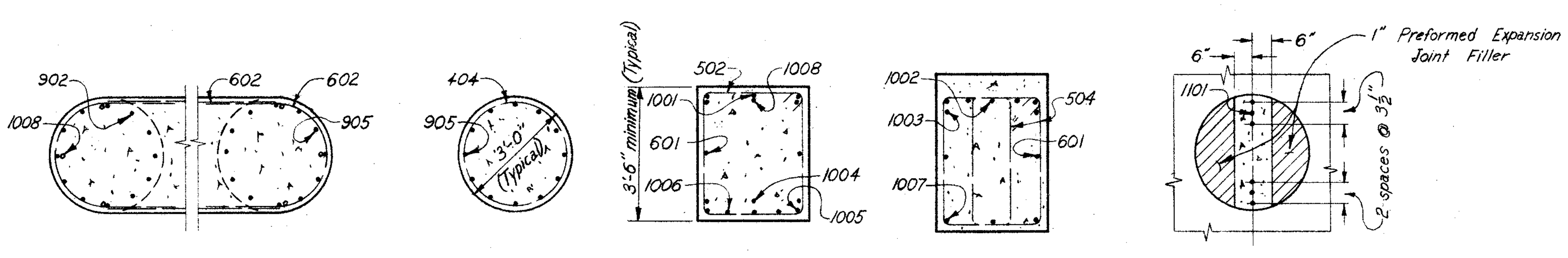
REINFORCEMENT SCHEDULE							
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SERIES INCREMENT	WEIGHT
501	43	3'-9"	105	2'-8"	8"		168
502	1 ser. of 5	12'-0" to 12'-4"	109	2'-8"	3'-1" to 3'-3"	1"	63
503	15	12'-6"	109	2'-8"	3'-4"		196
504	18	10'-8"	109	1'-9"	3'-4"		200
505	6	12'-4"	109	2'-8"	3'-3"		77
506	1 ser. of 8	12'-2" to 12'-8"	109	2'-8"	3'-2" to 3'-5"	7/8"	104
507	2	3'-7"	105	2'-6"	8"		7
601	4	25'-9"	str.				155
602	6	7'-11"	144	1'-11"	4'-1"		71
701	38	8'-10"	100	7'-2"			686
702	16	10'-4"	100	8'-8"			338
901	24	6'-5"	104	5'-5"	1'-3"		524
902	12	14'-6"	str.				592
903	12	15'-6"	str.				632
904	12	15'-9"	str.				643
905	12	16'-0"	str.				653
906	20	14'-2"	100	11'-8"			964
1001	6	10'-9"	str.				278
1002	5	36'-9"	str.				791
1003	4	12'-0"	str.				206
1004	6	9'-0"	str.				232
1005	3	19'-6"	str.				252
1006	4	17'-9"	str.				306
1007	3	35'-9"	str.				462
1008	6	10'-10"	123	4'-0"			280
1101	12	8'-10"	104	7'-8"	1'-6"		563
						Total =	9443

SPIRAL REINFORCEMENT SCHEDULE						
MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT
401	1	2'-8"	11'-0"	3"	47	289
402	1	2'-8"	11'-8"	3"	50	308
403	1	2'-8"	12'-3"	3"	52	320
404	1	2'-8"	12'-10"	3"	54	333
					Total =	1250



SECTION F-F

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



SECTION A-A | SECTION B-B | SECTION C-C | SECTION D-D | SECTION E-E

Typical for all columns except for bar marks.

Scale for Sections: 3/8" = 1'-0"

NOTES:

All piles shall be 14" ⌀, C.I.P. Reinforced Concrete.
All battered piles to be battered 3" in 12" in direction shown.
Pile spacings are given along bottom of footing.
Reinforcement bars shall be 3-inches clear from bottom of concrete in footings and 2-inches elsewhere.
For masonry plate details see Sheet 156-G
For Replacement Steel Schedule, see Sheet 97-G
All bar dimensions are given out to out.
For spiral reinforcing notes, see Sheet 94-G
Bars of a series shall vary in length by a constant increment.
For section through existing Standard 2-B Inlet see Section B-B sheet 133-G

H.N.T.B. BR. NO. 7 PART 6

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

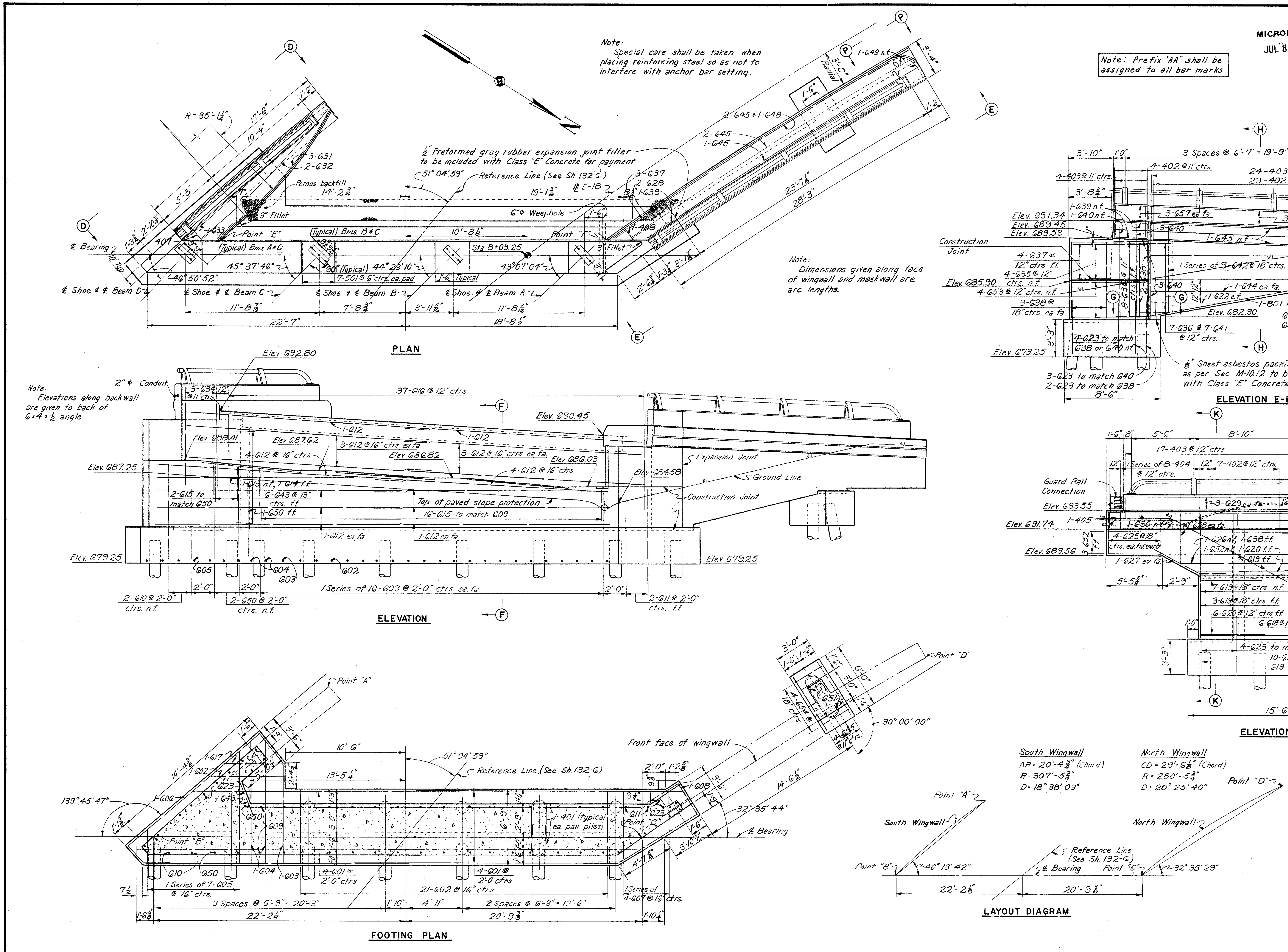
PIER 2

RAMPS E-15 AND E-18 OVER EAST 9th STREET
STA. 7+92.31 STA. 9+84.06 (E-15)
STA. 7+99.55 STA. 10+24.01 (E-18)
Scale: 1/4" = 1'-0" Except as noted

WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN C.L.M.	TRACED	CHECKED W.F.	REVIEWED JCT	REVISED 6-14-60
DATE 9-29-58	DATE	DATE 1-7-59	DATE 11-12-59	SHEET 134



MICROFILMED JUL 8 1985

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

135 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

NOTES:
For additional Notes and Sections see Sh. 138-G.
For Reinforcement Schedule see Sh. 139-G.

H.N.T.B. BR. NO. 7 — PART 6

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

ABUTMENT E-18

RAMPS E-15 AND E-18 OVER EAST 9th STREET
STA. 7+92.31 — STA. 9+84.06 (E-15)
STA. 7+99.55 — STA. 10+24.01 (E-18)
Scale: 1/4" = 1'-0"

WILLOW-INNER BELT FREEWAY

CLEVELAND — CUYAHOGA COUNTY — OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED	
CKO DATE 11/24/59	DATE	CM DATE 11/24/59	JCT DATE 11-12-59		SHEET 135

MICROFILMED JUL 8 1985

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

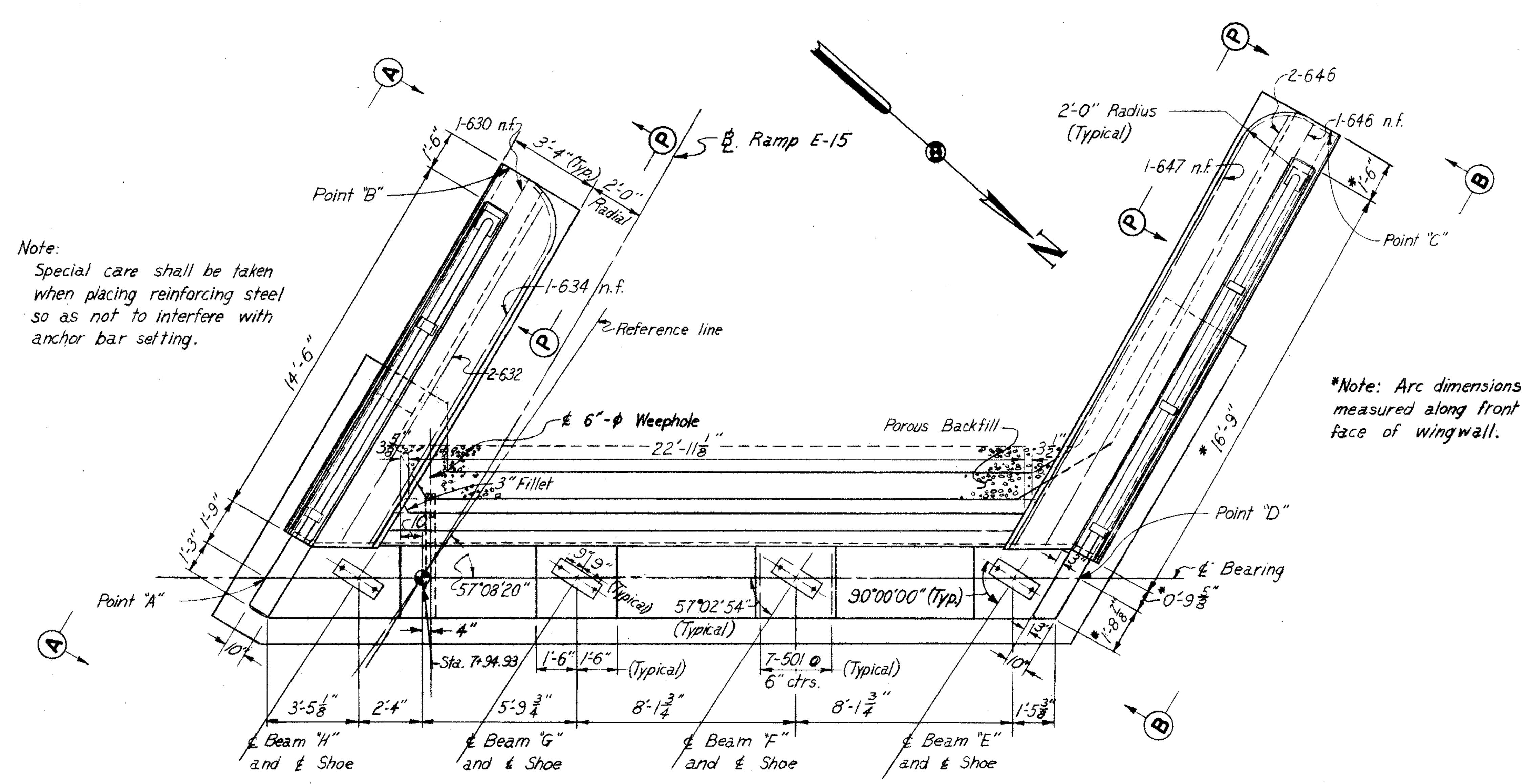
136 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

Note: End of railing parapet to be normal to top of safety curb.

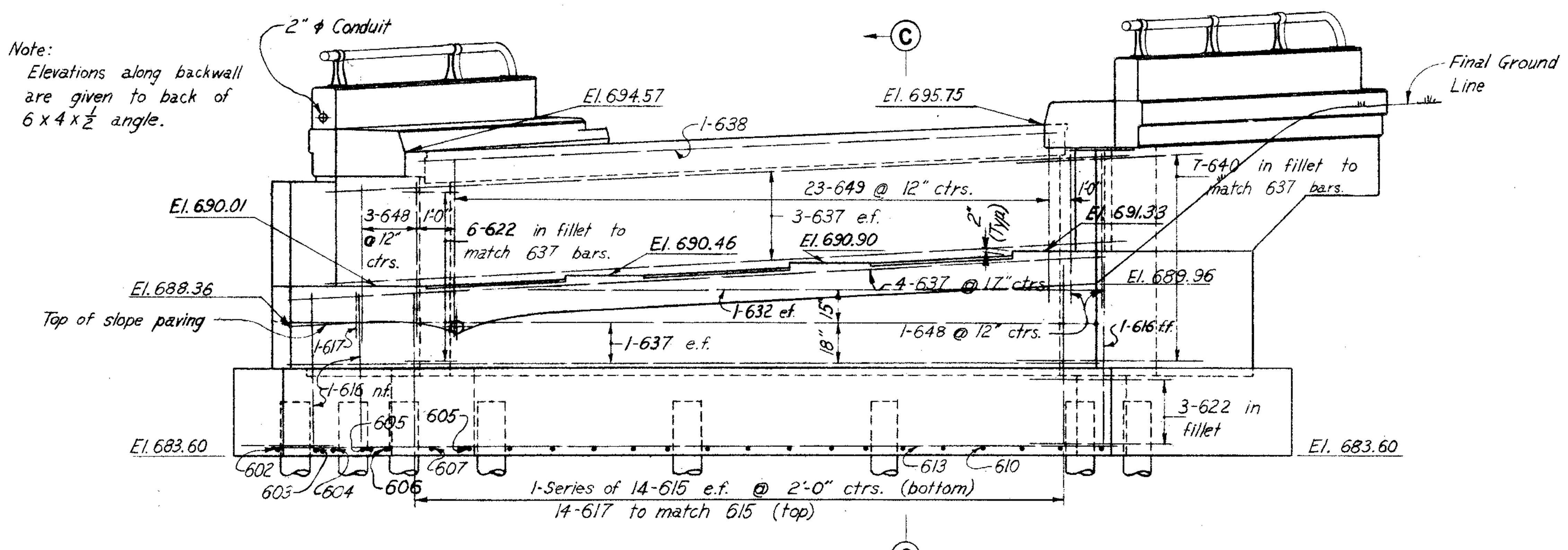
Note: Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bar setting.

*Note: Arc dimensions measured along front face of wingwall.

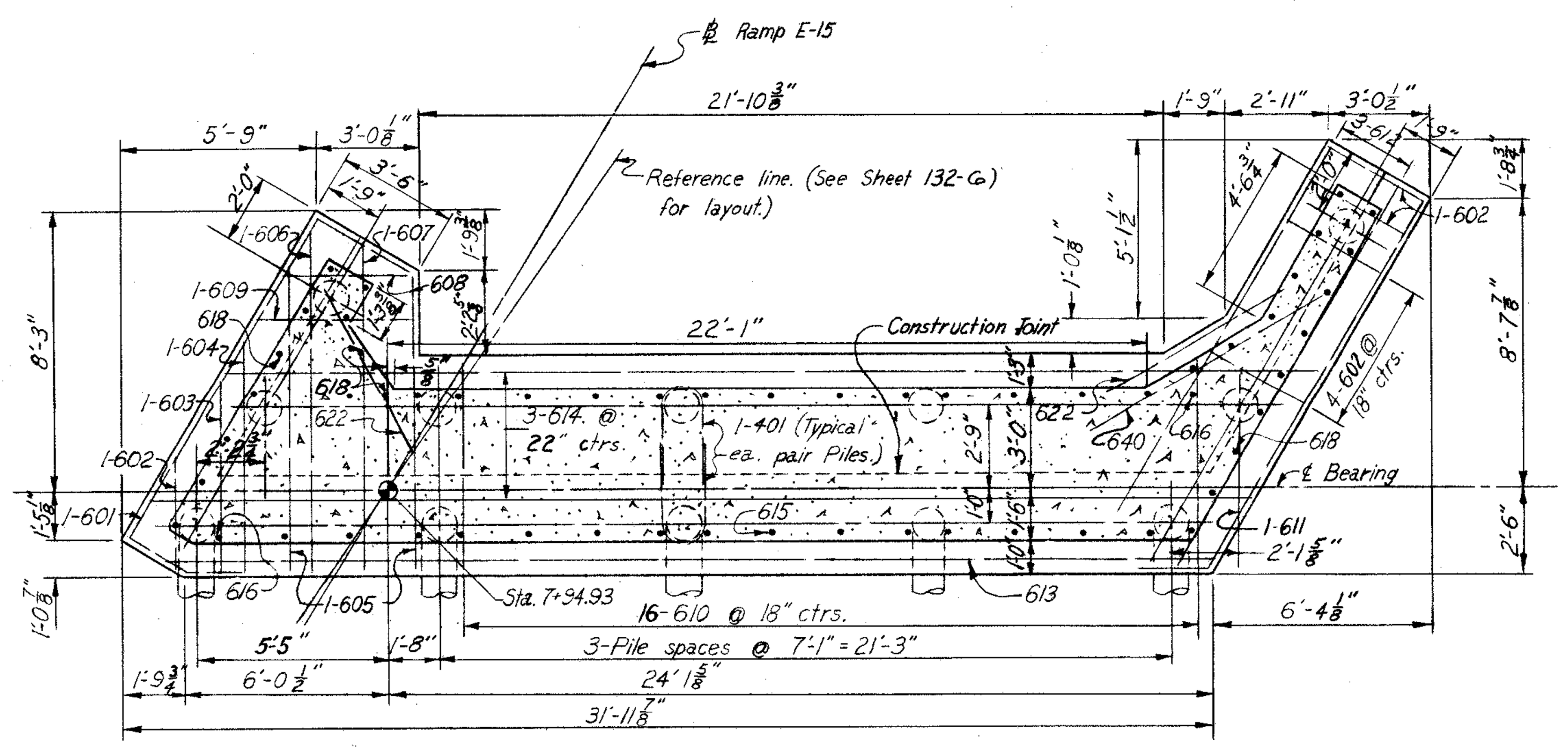


PLAN

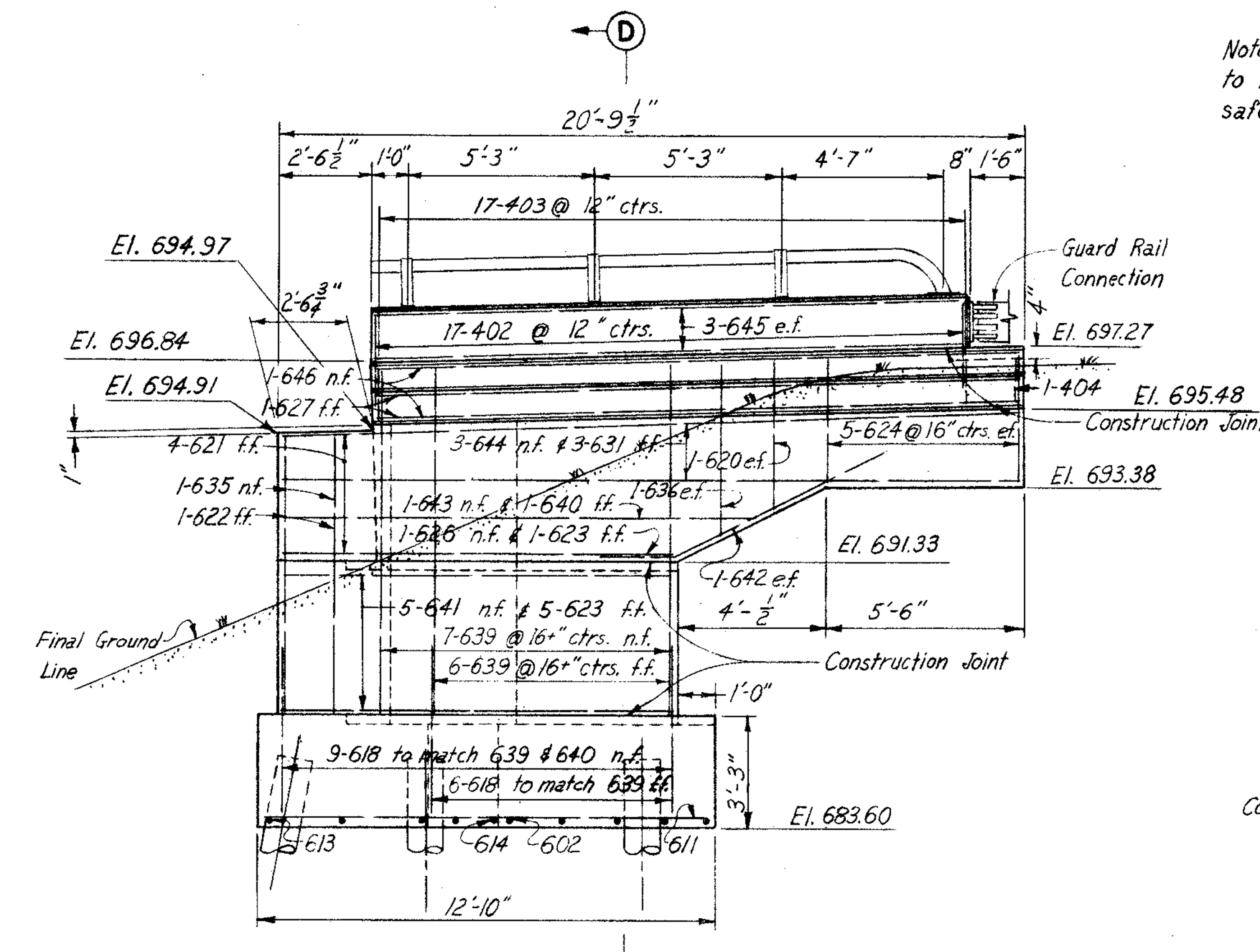
Note: Elevations along backwall are given to back of 6 x 4 x 1/2 angle.



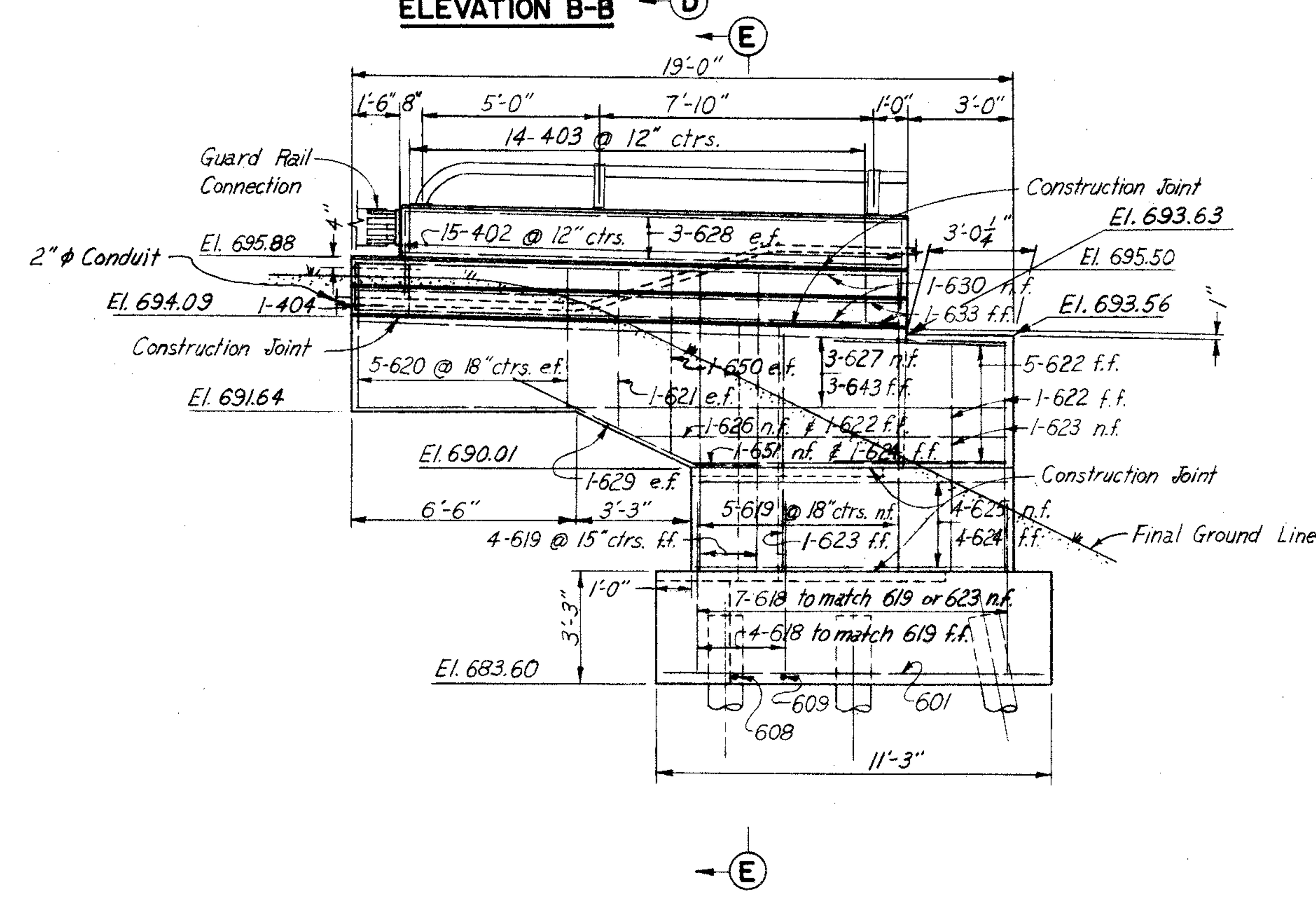
ELEVATION



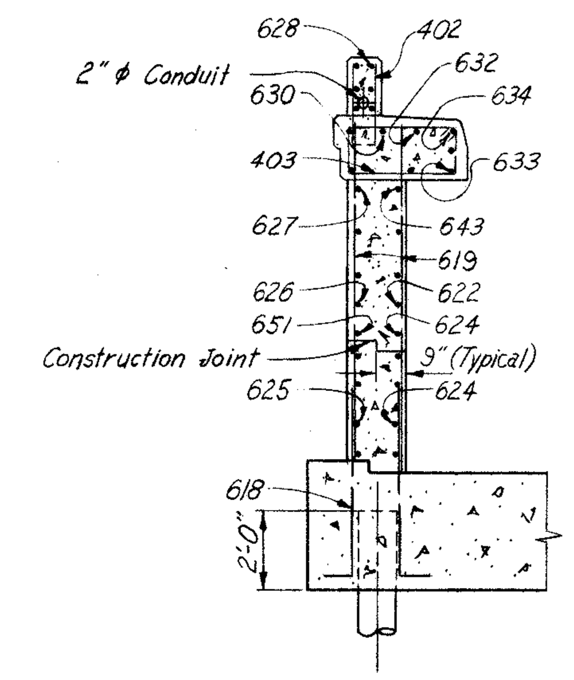
FOOTING PLAN



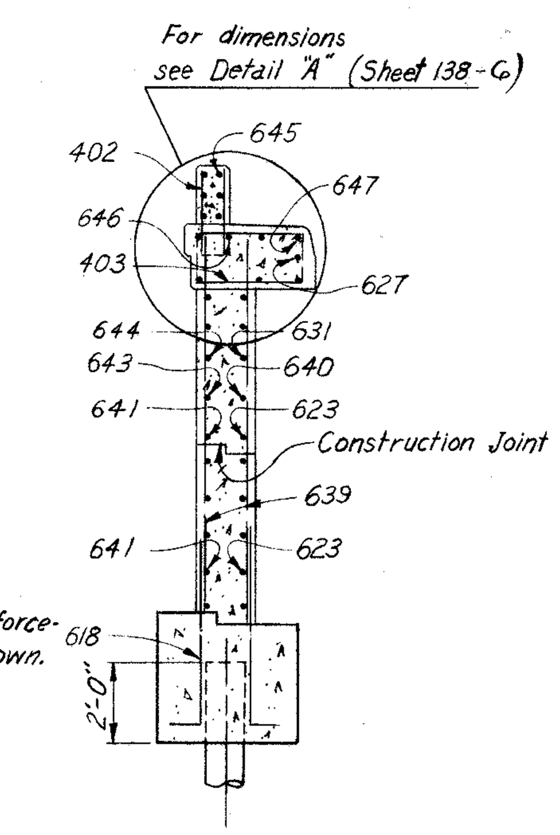
ELEVATION B-B



ELEVATION A-A



SECTION E-E



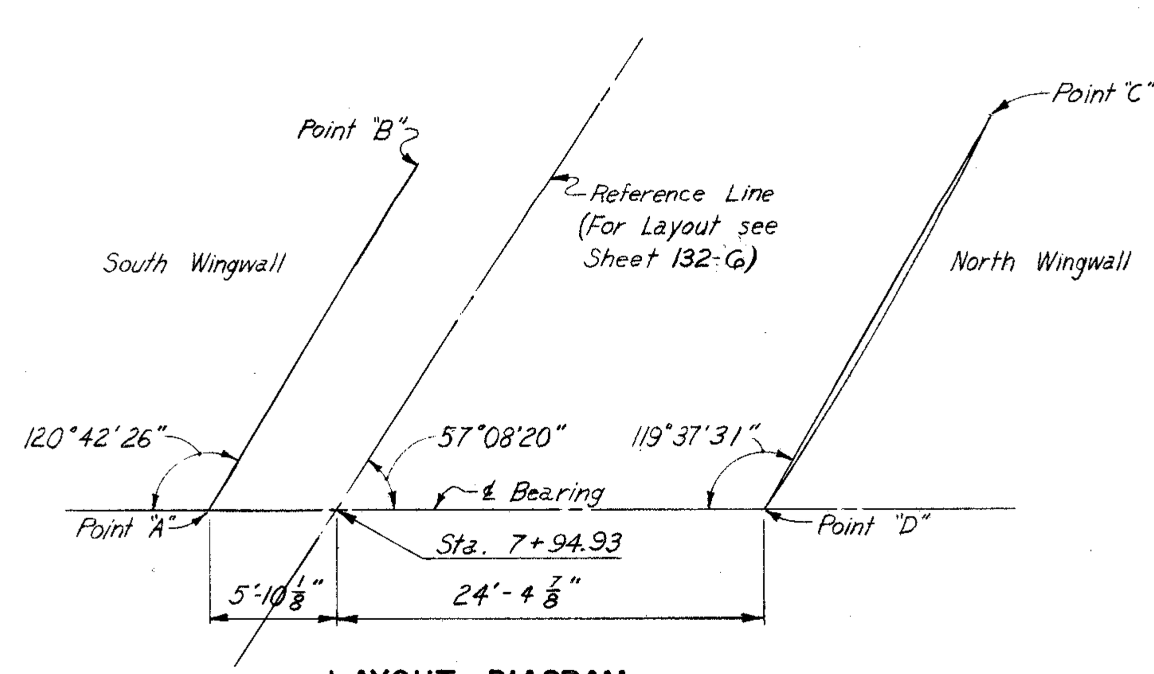
SECTION D-D

NOTES:
For additional notes and sections see Sheet 138-G.
For Reinforcement Schedule see Sheet 139-G.

Note: Prefix "AB" shall be assigned to all bar marks.

South Wingwall: Construct along chord.

North Wingwall: CD = 19'-0 5/8" (Chord), Radius = 839'-6 3/8", D = 6°49'30"



LAYOUT DIAGRAM

H.N.T.B. BR. NO. 7 — PART 6

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

ABUTMENT E-15

RAMPS E-15 AND E-18 OVER EAST 9th STREET
STA. 7+92.31 — STA. 9+84.06 (E-15)
STA. 7+99.55 — STA. 10+24.01 (E-18)
Scale: 1/4" = 1'-0"

WILLOW-INNER BELT FREEWAY

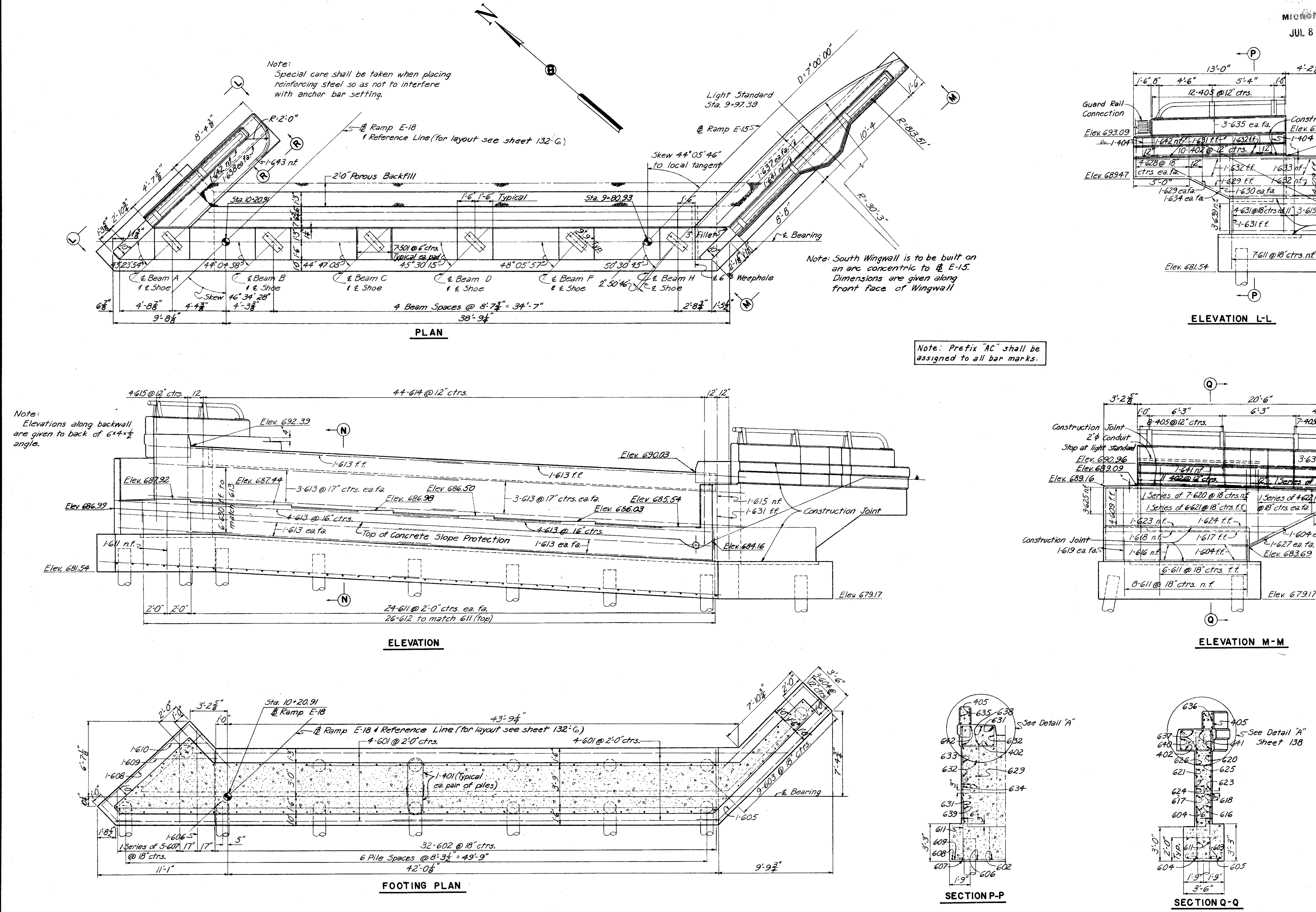
CLEVELAND — CUYAHOGA COUNTY — OHIO

DRAWN C.L.M. DATE 10-22-58	TRACED DATE	CHECKED C.K.B. DATE 12-9-58	REVIEWED J.C.T. DATE 11-12-59	REVISED	SHEET 136

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		
2	OHIO			

137
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



NOTES:

For additional notes and sections see Sheet 138-G.
For Reinforcement Schedule see Sheet 139-G.
For light standard support and other lighting details see Sheets 159-G & 160-G.
n.f.=near face; f.f.=far face; ea. fa.=each face

H.N.T.B. BR. NO. 7 PART 6

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

EAST ABUTMENT

RAMPS E-15 AND E-18 OVER EAST 9th STREET

STA. 7+92.31 STA. 9+84.06 (E-15)
STA. 7+99.55 STA. 10+24.01 (E-18)

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

WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

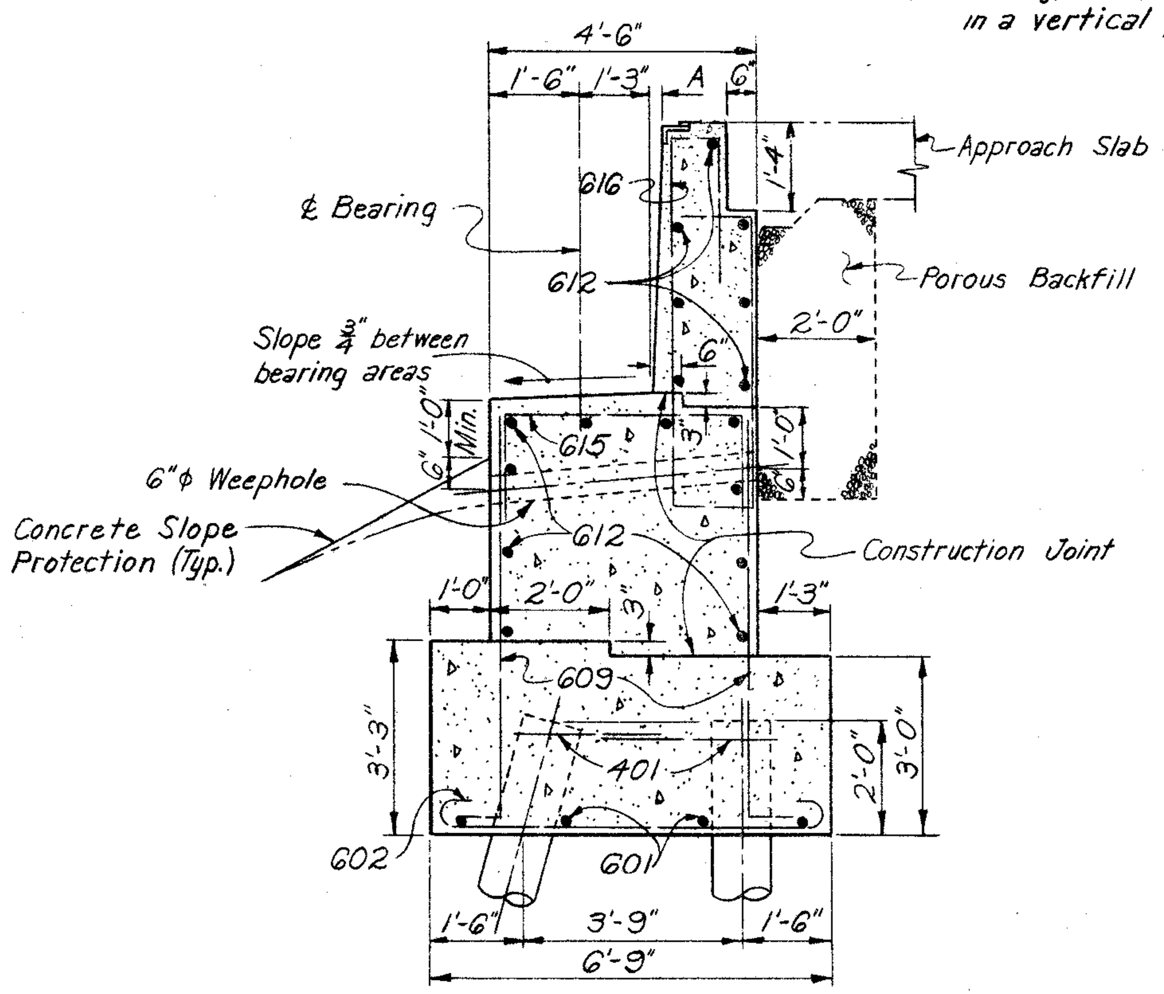
DRAWN	TRACED	CHECKED	REVIEWED	REVISED	
DATE 10-8-58	DATE	DATE 10-30-58	DATE 11-12-59		SHEET 137

MICROFILMED
JUL 8 1985

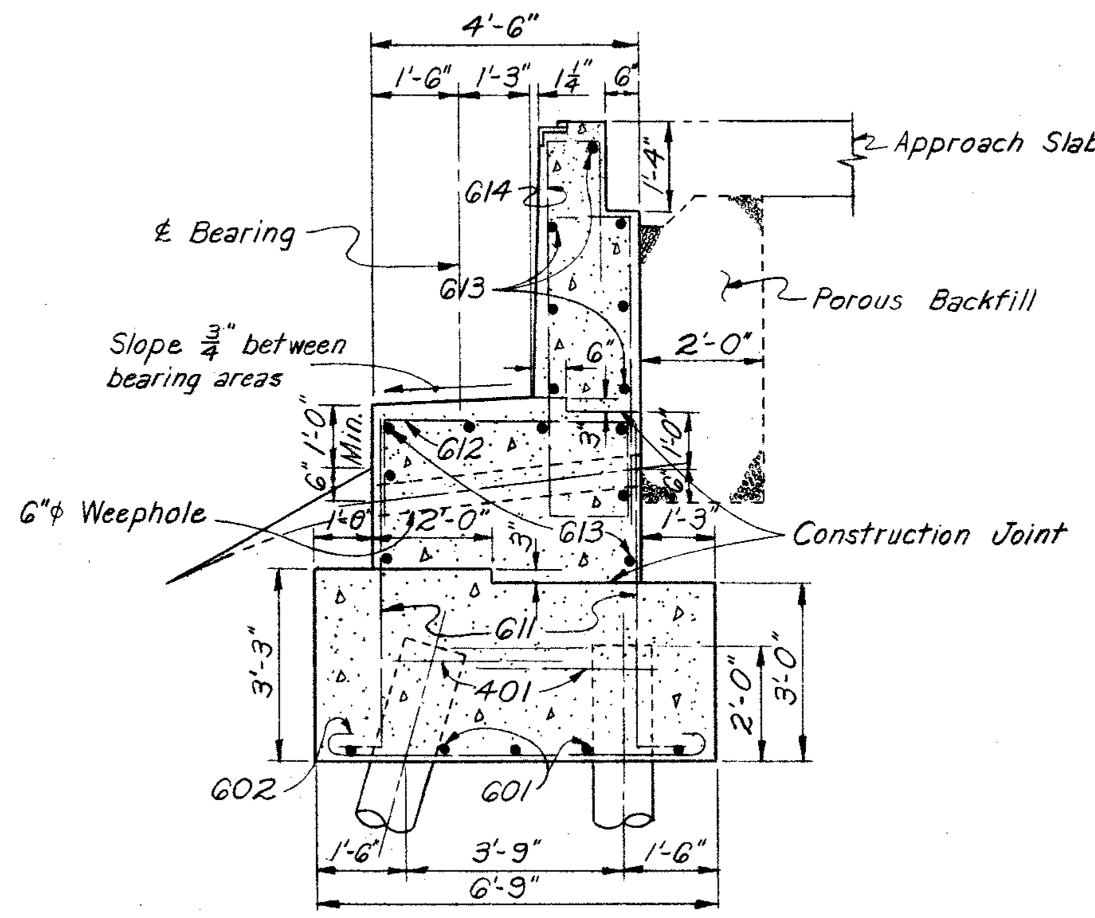
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

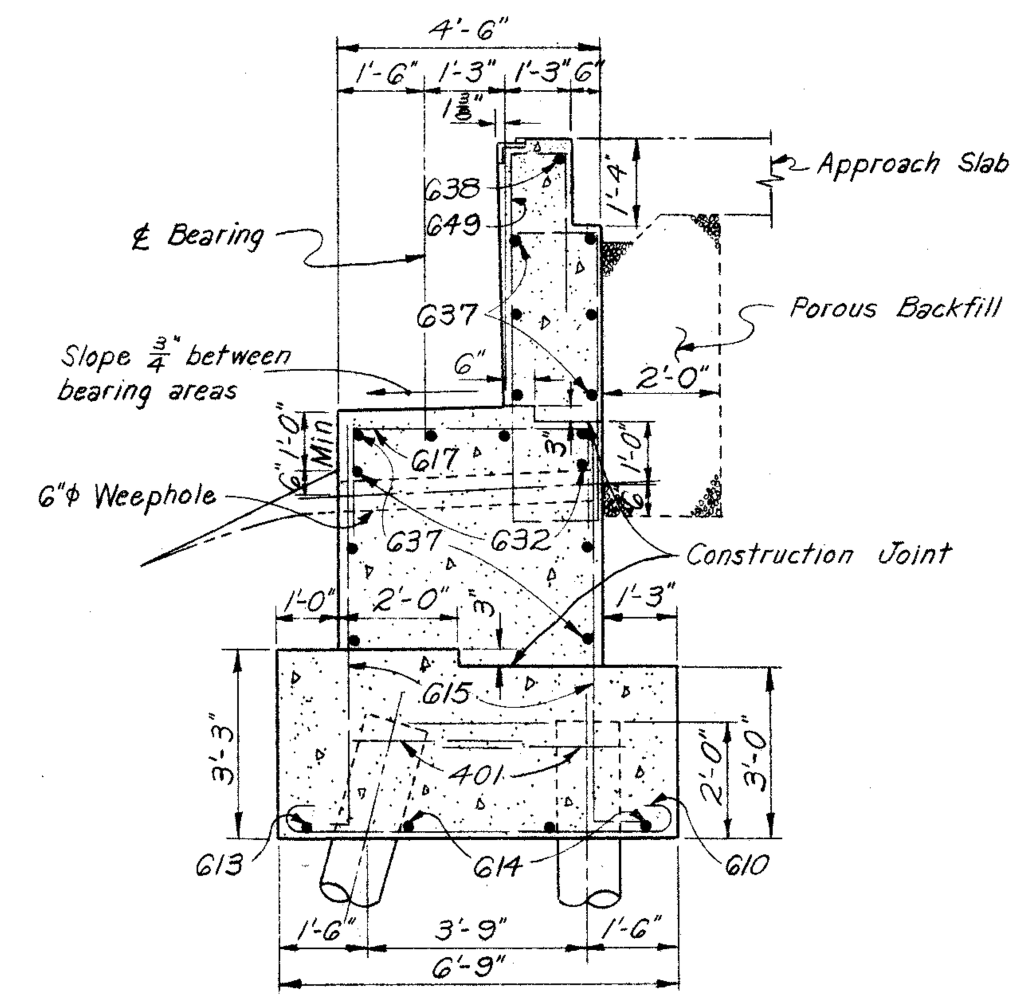
Note:
Backwall slope (Dimension "A") varies from 5/8" at Point "E" to 1 3/4" at Point "F" (See Sheet 135-G)
Leg of ∠6×4×1/2 shall be placed in a vertical position. (See Sheet 156-G)



SECTION F-F
Abutment E-18



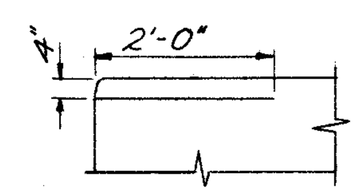
SECTION N-N
East Abutment



SECTION C-C
Abutment E-15

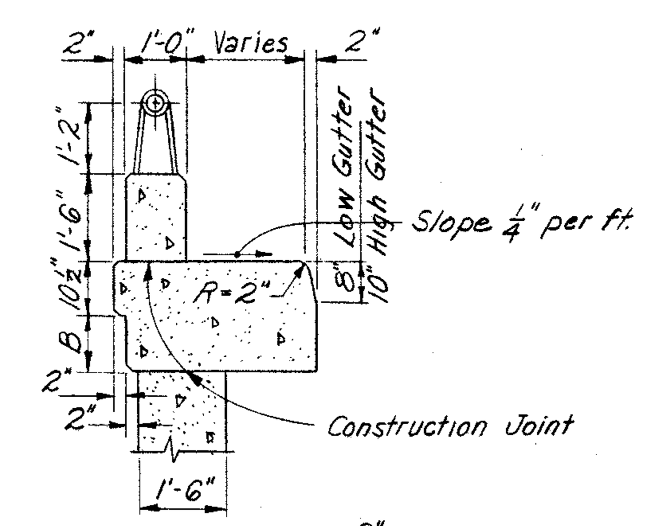
Note: Prefixes shall be assigned to bar marks as follows:
Abutment E-18 "AA"
Abutment E-15 "AB"
East Abutment "AC"

NOTES:
All piles shall be 12"ϕ C.I.P. reinforced concrete.
All battered piles shall be battered 3 in 12 in direction shown.
Pile spacings given along bottom of footing
For details of end dam see Sheet 156-G
For anchor bar details see Sheet 156-G
Reinforcement bars shall be 3 inches clear from bottom of footing and 2" elsewhere
For Reinforcement Schedule see Sheet 139-G
n.f. = near face, f.f. = far face, ea.fa or e.f. = each face
For slope protection details see Sheet 157-G
Backfill shall be completed prior to construction of curb.



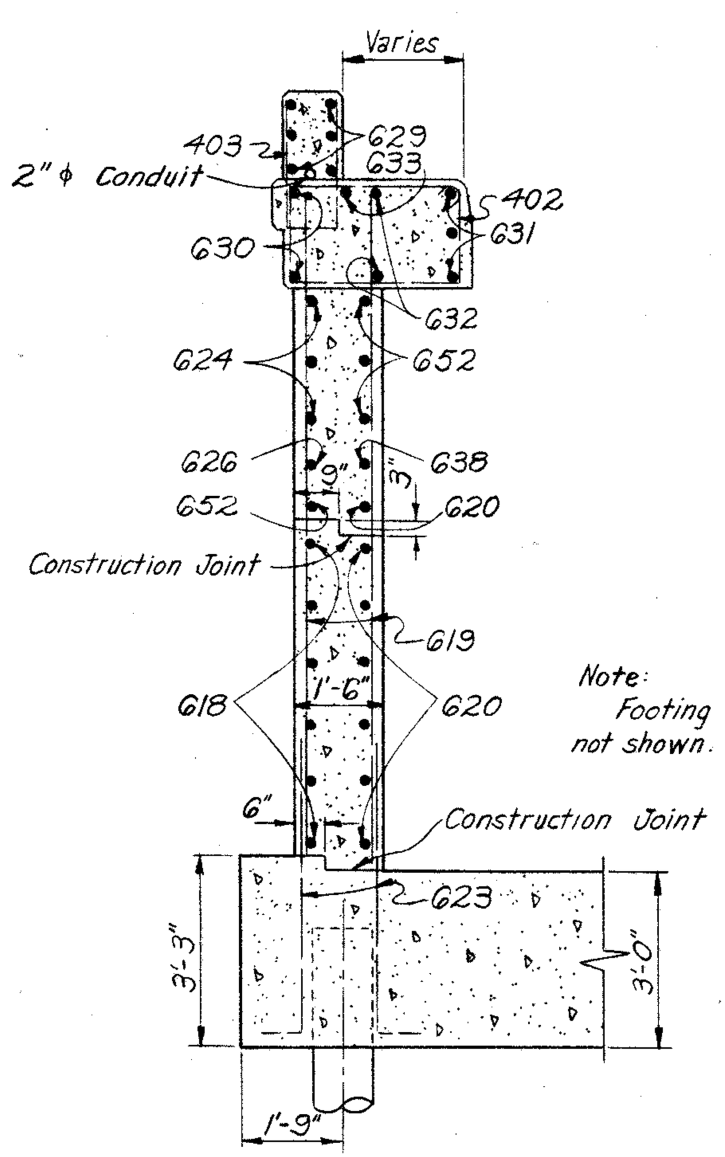
VIEW P-P

Note:
Dimension "B"
East Abutment = 11"
Abutment E-15 = 11 1/4"
Abutment E-18 = 11"



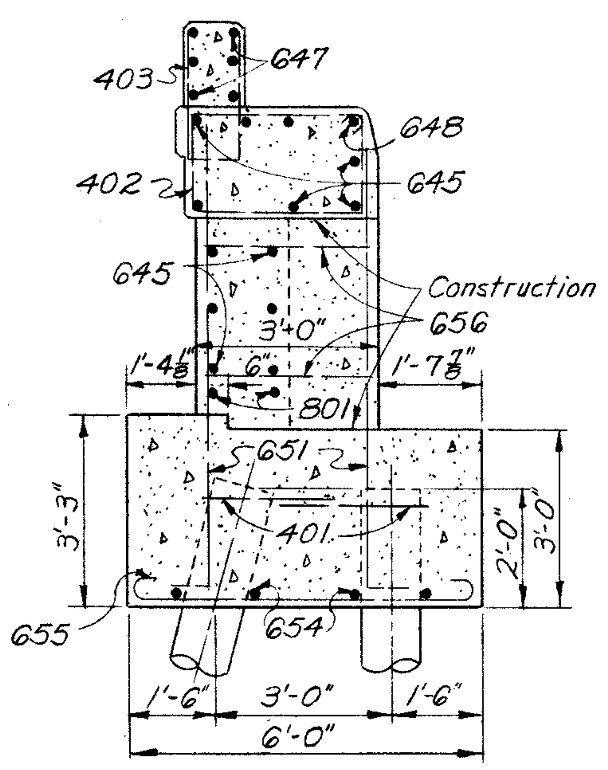
All chamfers to be 3/4"

DETAIL A

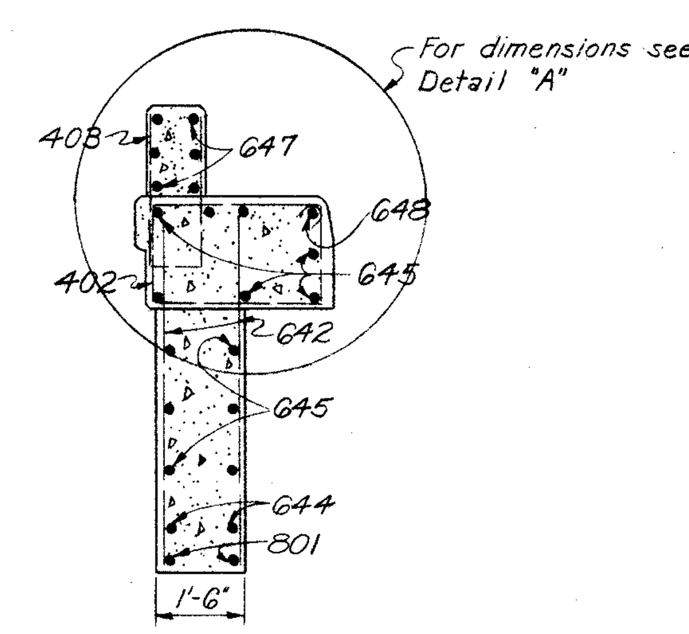


Note:
Footing reinforcement not shown.

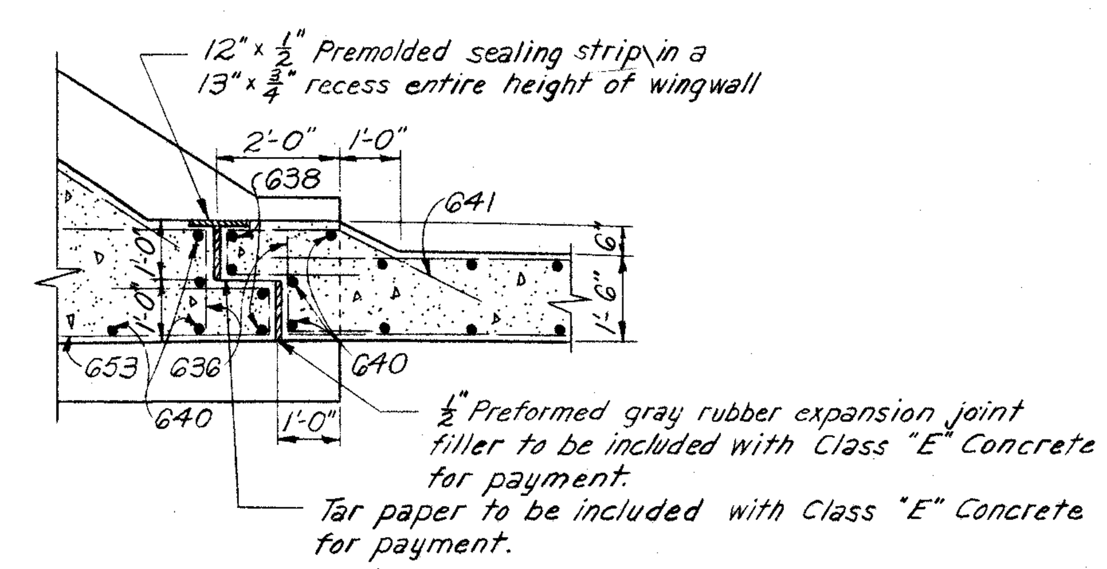
SECTION K-K
Abutment E-18



SECTION J-J
Abutment E-18



SECTION H-H
Abutment E-18



SECTION G-G
Abutment E-18

H.N.T.B. BR. NO. 7 PART 6

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

ABUTMENT SECTIONS
RAMPS E-15 AND E-18 OVER EAST 9th STREET
STA. 7+92.31 STA. 9+84.06 (E-15)
STA. 7+99.55 STA. 10+24.01 (E-18)
Scale: 3/8" = 1'-0"

WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN CKB DATE 11-11-58	TRACED DATE	CHECKED ARL DATE 12-4-58	REVIEWED JCT DATE 11-12-59	REVISED SHEET 138

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

EAST ABUTMENT

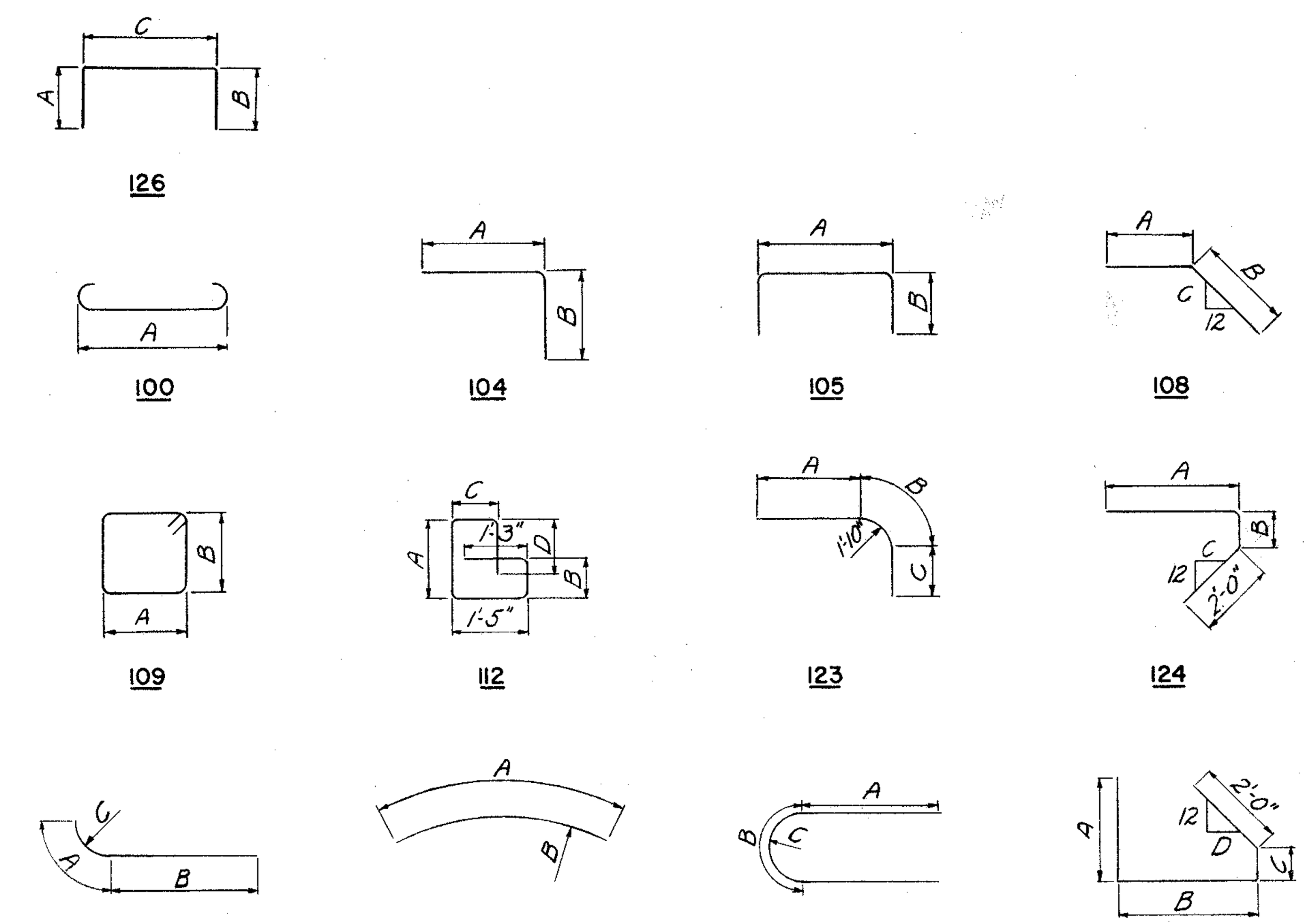
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D	SERIES INCREMENT	WEIGHT (LBS)
401	10	6'-10"	144	2'-6"	1'-10"	7"			46
402	21	8'-7"	109	2'-8"	1'-5"				120
403	1 Ser. of 10	4'-3" to 8'-5"	109	0'-6" to 2'-7"	1'-5"		5 3/16"		42
404	2	7'-1"	109	1'-11"	1'-5"				9
405	27	5'-7"	105	0'-8"	2'-7"				101
*451	2	8'-11"	131	2'-6"	1'-2"				12
*452	2	9'-11"	131	3'-0"	1'-8"				18
*453	3	9'-5"	131	3'-2"	1'-0"				19
*454	2	6'-7"	155	3'-2"					9
*455	2	7'-1"	155	3'-8"					9
*456	3	7'-3"	155	3'-10"					15
501	42	3'-6"	105	2'-5"	0'-8"				153
601	8	28'-0"	Str.						336
602	32	7'-9"	100	6'-5"					372
603	9	4'-6"	100	3'-2"					61
604	7	9'-9"	Str.						103
605	1	15'-2"	108	13'-3"	1'-11"	12			23
606	1	9'-4"	100	8'-0"					14
607	1 Ser. of 5	4'-1" to 9'-1"	100	2'-9" to 7'-9"				15"	49
608	1	18'-9"	149	5'-0"	10'-3"	2'-0"	12		28
609	9	5'-6"	Str.						74
610	9	3'-6"	Str.						47
611	71	5'-8"	104	5'-0"	10"				604
612	26	8'-10"	105	4'-2"	2'-6"				345
613	30	26'-9"	Str.						1205
614	44	17'-9"	112	6'-9"	5'-5"	9"	3'-0"		1173
615	6	9'-1"	104	7'-3"	2'-0"				82
616	2	13'-11"	108	12'-0"	1'-11"	12			42
617	1	12'-0"	Str.						18
618	1	16'-5"	108	14'-6"	1'-11"	12			25
619	10	6'-3"	Str.						94
620	1 Ser. of 7	8'-0" to 8'-3"	Str.					1/2"	85
621	1 Ser. of 6	8'-0" to 8'-3"	Str.					5/8"	73
622	2 Ser. of 4	3'-9" to 6'-3"	Str.					10"	60
623	1	15'-9"	Str.						24
624	1	13'-0"	Str.						20
625	3	23'-0"	Str.						104
626	3	20'-3"	Str.						91
627	2	4'-0"	108	2'-0"	2'-0"	6			12
628	8	3'-3"	Str.						39
629	3	4'-0"	Str.						18
630	8	4'-9"	Str.						57
631	9	8'-3"	Str.						112
632	5	10'-6"	Str.						79
633	2	16'-6"	Str.						50
634	2	7'-9"	108	5'-9"	2'-0"	6			23
**635	6	11'-0"	Str.						
**636	6	18'-6"	Str.						
637	2	18'-6"	Str.						56
638	2	11'-0"	Str.						33
639	3	10'-6"	124	8'-3"	7"	12			47
640	3	21'-9"	133	11'-6"	10'-3"	30'-0"			98
641	3	20'-0"	Str.						90
642	3	12'-6"	Str.						56
643	1	5'-10"	123	2'-0"	2'-10"	1'-0"			9
*651	2	9'-5"	141	2'-11"	1'-10"				28
*652	3	14'-6"	141	5'-3"	3'-0"				65
*653	1	5'-0"	Str.						8
								Total	6580

ABUTMENT E-18

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D	SERIES INCREMENT	WEIGHT (LBS)
401	14	6'-10"	144	2'-6"	1'-10"	0'-7"			64
402	34	8'-7"	109	2'-8"	1'-5"				195
403	45	5'-6"	105	0'-8"	2'-7"				165
404	1 Ser. of 8	5'-3" to 8'-5"	109	1'-0" to 2'-1"	1'-5"			5 7/16"	37
405	1	3'-4"	105	0'-9"	1'-5"				2
406	1	9'-4"	112	2'-8"	1'-6"	1'-1"	2'-1"		6
407	1	6'-9"	109	1'-9"	1'-5"				5
408	1	5'-3"	109	1'-0"	1'-5"				4
501	28	3'-6"	105	2'-5"	0'-8"				102
601	8	24'-0"	Str.						288
602	22	7'-9"	100	6'-5"					256
603	1	10'-2"	100	8'-10"					15
604	2	12'-1"	100	10'-9"					36
605	1 Ser. of	4'-2" to 11'-1"	100	2'-10" to 9'-9"				1'-1 13/16"	80
606	1	21'-11"	149	3'-2"	15'-2"	2'-0"	10		33
607	1 Ser. of 4	4'-10" to 7'-4"	100	3'-6" to 6'-0"				10"	38
608	1	15'-9"	149	3'-0"	3'-2"	8'-0"	7		24
609	2 Ser. of 6	6'-8" to 8'-5"	104	6'-0" to 7'-9"	0'-10"			1 3/8"	362
610	2	8'-8"	104	8'-0"	0'-10"				26
611	2	6'-8"	104	6'-0"	0'-10"				20
612	34	21'-3"	Str.						1085
613	1	17'-0"	Str.						26
614	1	13'-0"	Str.						20
615	18	9'-8"	105	4'-2"	2'-11"				261
616	37	17'-3"	112	6'-6"	5'-2"	0'-9"	3'-0"		959
617	1	6'-4"	100	5'-0"					9
618	6	15'-5"	124	13'-2"	0'-6"	10			139
619	11	10'-9"	Str.						178
620	7	5'-6"	Str.						58
621	6	9'-0"	Str.						81
622	6	6'-0"	Str.						54
623	23	5'-8"	104	5'-0"	0'-10"				196
624	3	21'-3"	Str.						96
625	8	3'-3"	Str.						39
626	1	14'-6"	Str.						22
627	2	7'-5"	108	5'-6"	2'-0"	6			22
628	4	4'-3"	Str.						25
**629	6	15'-6"	Str.						–
630	2	17'-0"	Str.						51
631	3	15'-0"	139	15'-0"	35'-0"				68
632	2	16'-3"	139	16'-3"	48'-0"				49
633	1	16'-9"	Str.						25
634	3	9'-4"	104	7'-6"	2'-0"				42
635	4	9'-0"	126	2'-0"	0'-8"	6'-8"			54
636	15	4'-2"	104	1'-6"	2'-10"				94
637	7	5'-6"	Str.						58
638	11	6'-9"	Str.						112
639	3	2'-9"	Str.						13
640	7	8'-3"	Str.						87
641	7	6'-0"	149	2'-0"	0'-8"	1'-8"	6		63
642	2 Ser. of 9	4'-9" to 7'-6"	Str.					3 1/8"	166
643	6	4'-0"	Str.						36
644	2	11'-6"	Str.						35
645	13	24'-9"	Str.						483
646	2 Ser. of 6	3'-6" to 4'-0"	Str.					1 3/16"	68
**647	6	23'-3"	Str.						
648	1	22'-6"	Str.						34
649	1	5'-10"	123	1'-0"	2'-10"	2'-0"			9
650	3	8'-5"	104	7'-9"	0'-10"				38
651	5	7'-8"	104	7'-0"	0'-10"				58
652	4	13'-3"	Str.						80
653	4	9'-0"	149	2'-0"	0'-8"	6'-8"	7		54
654	4	4'-0"	100	2'-8"					24
655	4	7'-0"	100	5'-8"					42
656	2	6'-2"	105	1'-2"	2'-8"				19
**657	6	2'-9"	Str.						
801	2	20'-0"	Str.						107
								Total	6997

ABUTMENT E-15

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D	SERIES INCREMENT	WEIGHT (LBS)
401	10	8'-6"	144	3'-4"	1'-10"	0'-7"			57
402	32	5'-7"	105	8"	2'-7"				119
403	31	8'-7"	109	2'-8"	1'-5"				178
404	2	9'-1"	112	2'-8"	1'-0"	1'-1"	2'-4"		12
501	28	3'-6"	105	2'-5"	0'-8"				102
601	1	17'-7"	149	3'-2"	10'-11"	1'-11"	5		26
602	7	4'-6"	100	3'-2"					47
603	1	7'-0"	100	5'-8"					11
604	1	8'-1"	100	6'-9"					12
605	2	10'-2"	100	8'-10"					31
606	1	11'-4"	100	10'-0"					17
607	1	10'-11"	100	9'-7"					16
608	1	5'-1"	100	3'-9"					8
609	1	5'-11"	100	4'-7"					9
610	16	7'-9"	100	6'-5"					186
611	1	14'-5"	108	12'-6"	2'-0"	21			22
612	3	12'-6"	Str.						56
613	1	30'-6"	Str.						46
614	3	32'-0"	Str.						144
615	2 Ser. of 14	6'-0" to 7'-2"	104	5'-4" to 6'-6"	0'-10"			1 1/8"	276
616	3	6'-4"	104	5'-8"	0'-10"				28
617	15	8'-6"	105	4'-2"	2'-4"				191
618	26	5'-6"	104	4'-10"	0'-10"				214
619	9	8'-3"	Str.						111
620	12	3'-9"	Str.						68
621	6	4'-3"	Str.						38
622	19	5'-3"	Str.						150
623	9	6'-3"	Str.						84
624	15	3'-6"	Str.						79
625	4	11'-2"	124	8'-11"	0'-6"	5			67
626	2	10'-9"	Str.						32
627	5	18'-9"	Str.						141
**628	6	14'-3"	Str.						–
629	2	7'-5"	108	5'-9"	1'-9"	6			22
630	3	15'-9"	Str.						71
631	3	15'-3"	Str.						69
632	2	21'-0"	Str.						63
633	2	14'-3"	Str.						43
634	1	15'-0"	123	12'-9"	1'-5"	0'-10"			22
635	2	7'-6"	Str.						22
636	2	4'-9"	Str.						14
637	14	29'-3"	Str.						614
638	1	26'-0"	Str.						38
639	13	9'-9"	Str.						190
640	8	7'-9"	Str.						93
641	5	12'-10"	108	10'-11"	2'-0"	21			96
642	2	8'-1"	108	6'-6"	1'-9"	6			24
643	4	13'-3"	Str.						80
644	3	20'-6"	Str.						92
**645	6	16'-3"	Str.						
646	3	18'-0"	Str.						81
647	1	19'-9"	123	17'-6"	1'-5"	0'-10"			30
648	5	7'-8"	104	7'-0"	0'-10"				58
649	23	18'-7"	112	6'-9"	5'-10"	0'-11"	3'-3"		641
650	2	5'-0"	Str.						15
651	1	9'-0"	Str.						14
								Total	4969



126 100 104 105 108 109 112 123 124 133 139 144 149

BENDING DIAGRAMS

Note: Prefixes shall be assigned to bar marks as follows:
Abutment E-18 "AA"
Abutment E-15 "AB"
East Abutment "AC"

NOTES:

Bars in a series shall vary in length by a constant increment.
* Denotes bars for the light standard support. For their placement and bending diagrams see Sheet 159-G.
All bar dimensions are given out to out.
** Denotes bars to be included with "Item 5-14, Railing" for payment.
For Replacement Schedule see Sheet 97-G.

H.N.T.B. BR. NO. 7 PART 6

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

REINFORCEMENT SCHEDULE-ABUTMENTS

RAMPS E-15 AND E-18 OVER EAST 9th STREET
STA. 7+92.31 STA. 9+84.06 (E-15)
STA. 7+99.55 STA. 10+24.01 (E-18)

Scale: None

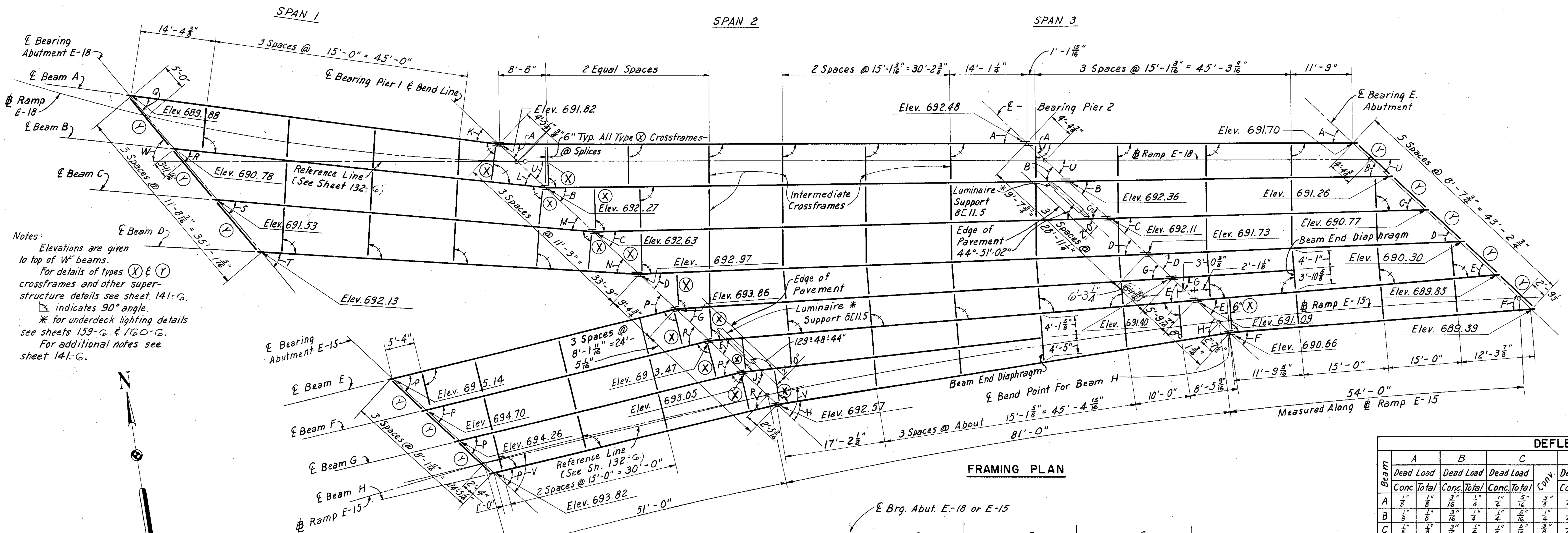
WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN GRK	TRACED	CHECKED DRK	REVIEWED JCT	REVISED
DATE 12-1-58	DATE	DATE 12-8-58	DATE 11-12-59	SHEET 139

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



Notes:
Elevations are given to top of WF beams.
For details of types Ⓧ & Ⓨ crossframes and other superstructure details see sheet 141-G.
⊾ indicates 90° angle.
* for underdeck lighting details see sheets 159-G & 160-G.
For additional notes see sheet 141-G.

FRAMING PLAN

TABLE OF ANGLES			
A	43°-23'-54"	K	35°-27'-37"
B	44°-04'-58"	L	36°-43'-43"
C	44°-47'-05"	M	37° 58' 19"
D	45°-30"-15"	N	39°-11'-25"
E	48°-05'-57"	P	57°-02'-54"
F	47°-39'-59"	Q	43°-07'-04"
G	46°-57'-27"	R	44°-23'-10"
H	52°-24'-40"	S	45°-37'-46"
J	50°-11'-16"	T	46°-50'-52"
U	43°-25'-32"	V	57°-08'-20"
W	51°-04'-59"		

DEFLECTION TABLE - SPAN 1

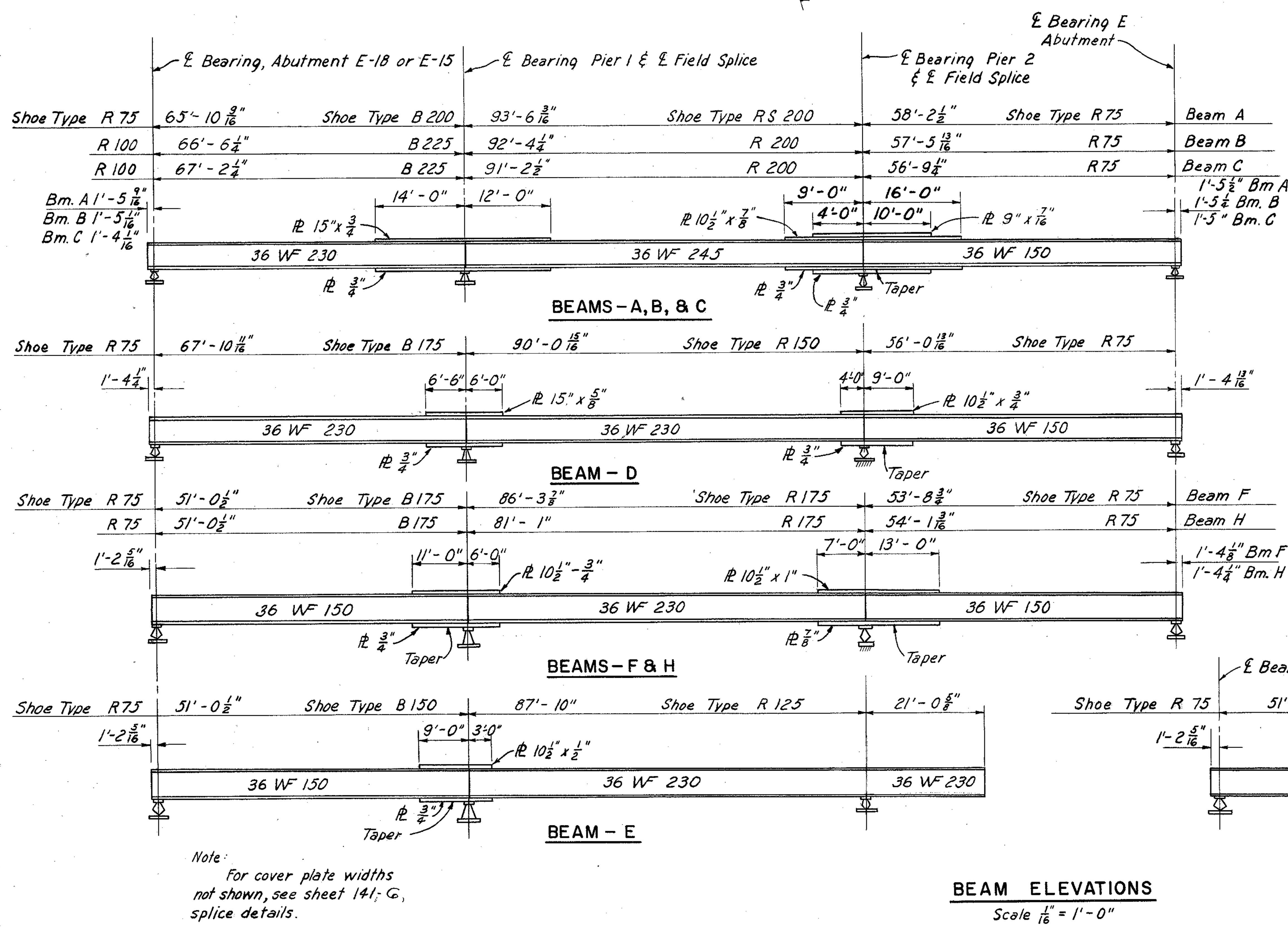
Beam	A Dead Load Conc.	A Dead Load Total	B Dead Load Conc.	B Dead Load Total	C Dead Load Conc.	C Dead Load Total	Conv.	D Dead Load Conc.	D Dead Load Total	E Dead Load Conc.	E Dead Load Total	Conv.	F Dead Load Conc.	F Dead Load Total	G Dead Load Conc.	G Dead Load Total	Conv.	H Dead Load Conc.	H Dead Load Total	J Dead Load Conc.	J Dead Load Total
A	1/8"	1/8"	3/16"	1/4"	1/4"	5/16"	3/8"	1/4"	5/16"	3/16"	3/16"	1/2"	1/16"	1/8"	0"	0"	1/2"	-1/8"	-1/8"	-1/8"	-1/8"
B	1/8"	1/8"	3/16"	1/4"	1/4"	5/16"	1/4"	1/4"	5/16"	3/16"	1/4"	1/2"	1/8"	3/16"	1/16"	1/16"	1/2"	-1/16"	-1/16"	-1/16"	-1/16"
C	1/8"	1/8"	3/16"	1/4"	1/4"	5/16"	3/8"	1/4"	5/16"	3/16"	1/4"	3/4"	1/8"	3/16"	1/16"	1/16"	13/16"	-1/16"	-1/16"	-1/16"	-1/16"
D	1/8"	3/16"	1/4"	5/16"	5/16"	3/8"	5/8"	3/8"	3/8"	5/16"	5/16"	1/2"	3/16"	3/16"	1/16"	1/16"	5/8"	-1/16"	-1/16"	-1/8"	-1/8"
E	1/16"	1/16"	1/16"	1/8"	1/8"	3/16"	0"	1/8"	3/16"	1/16"	1/8"	0"	0"	1/16"	-1/16"	0"	-1/8"	-1/8"	-1/16"	-1/16"	-1/16"
F	0"	0"	1/16"	1/16"	1/16"	1/16"	-1/8"	1/16"	0"	0"	0"	-1/4"	0"	1/16"	-1/16"	-1/8"	-1/4"	-1/16"	-1/8"	-1/16"	-1/8"
G	0"	1/8"	3/16"	3/16"	1/4"	1/4"	-3/8"	3/16"	1/4"	1/4"	1/4"	-1/2"	1/4"	1/4"	3/16"	3/16"	-3/8"	1/16"	1/16"	0"	0"
H	1/16"	1/16"	1/8"	1/8"	1/8"	1/8"	-3/8"	1/8"	1/8"	1/16"	1/16"	-1/4"	0"	0"	-1/16"	-1/16"	-1/4"	-1/16"	-1/8"	-1/16"	-1/8"

DEFLECTION TABLE - SPAN 2

Beam	A Dead Load Conc.	A Dead Load Total	B Dead Load Conc.	B Dead Load Total	C Dead Load Conc.	C Dead Load Total	Conv.	D Dead Load Conc.	D Dead Load Total	E Dead Load Conc.	E Dead Load Total	Conv.	F Dead Load Conc.	F Dead Load Total	G Dead Load Conc.	G Dead Load Total	Conv.	H Dead Load Conc.	H Dead Load Total	J Dead Load Conc.	J Dead Load Total
A	1/4"	5/16"	11/16"	13/16"	1 3/16"	1 3/8"	3 1/4"	1 1/2"	1 3/4"	1 5/8"	1 7/8"	3 3/4"	1 1/2"	1 13/16"	1 3/16"	1 7/16"	3 1/4	13/16"	15/16"	5/16"	3/8"
B	1/16"	1/8"	5/16"	7/16"	9/16"	3/4"	2 5/8"	3/4"	1"	13/16"	1 1/16"	3 1/4"	13/16"	1 1/16"	11/16"	7/8"	2 3/8"	7/16"	9/16"	3/16"	1/4"
C	1/16"	1/8"	5/16"	7/16"	9/16"	3/4"	3"	3/4"	1"	13/16"	1 1/16"	4 5/16"	13/16"	1 1/16"	11/16"	7/8"	3 1/4"	7/16"	9/16"	3/16"	1/4"
D	3/16"	3/16"	1/2"	9/16"	13/16"	1"	5 3/4"	1 1/8"	1 5/16"	1 1/4"	1 7/16"	6 1/4"	1 3/16"	1 3/8"	1"	1 1/8"	3 15/16"	5/8"	3/4"	5/16"	5/16"
E	1/8"	3/16"	5/16"	7/16"	1/2"	3/4"	-1/2"	3/4"	1"	13/16"	1 1/8"	-13/16"	3/4"	1"	11/16"	7/8"	-5/8"	1/2"	5/8"	3/16"	1/4"
F	3/16"	1/4"	3/8"	9/16"	5/8"	7/8"	-1/2"	13/16"	1 1/16"	7/8"	1 3/16"	-3/4"	13/16"	1 1/8"	11/16"	7/8"	-1/2"	7/16"	5/8"	3/16"	1/4"
G	0"	0"	1/16"	1/16"	1/16"	1/8"	-5/8"	1/8"	3/16"	3/16"	1/4"	-5/8"	3/16"	1/4"	1/8"	3/16"	-1/2"	1/8"	3/16"	1/16"	1/16"
H	1/4"	1/4"	5/8"	5/8"	15/16"	15/16"	-5/8"	1 3/16"	1 1/4"	1 1/4"	1 5/16"	-3/4"	1 3/16"	1 1/4"	15/16"	1"	-5/8"	5/8"	5/8"	1/4"	1/4"

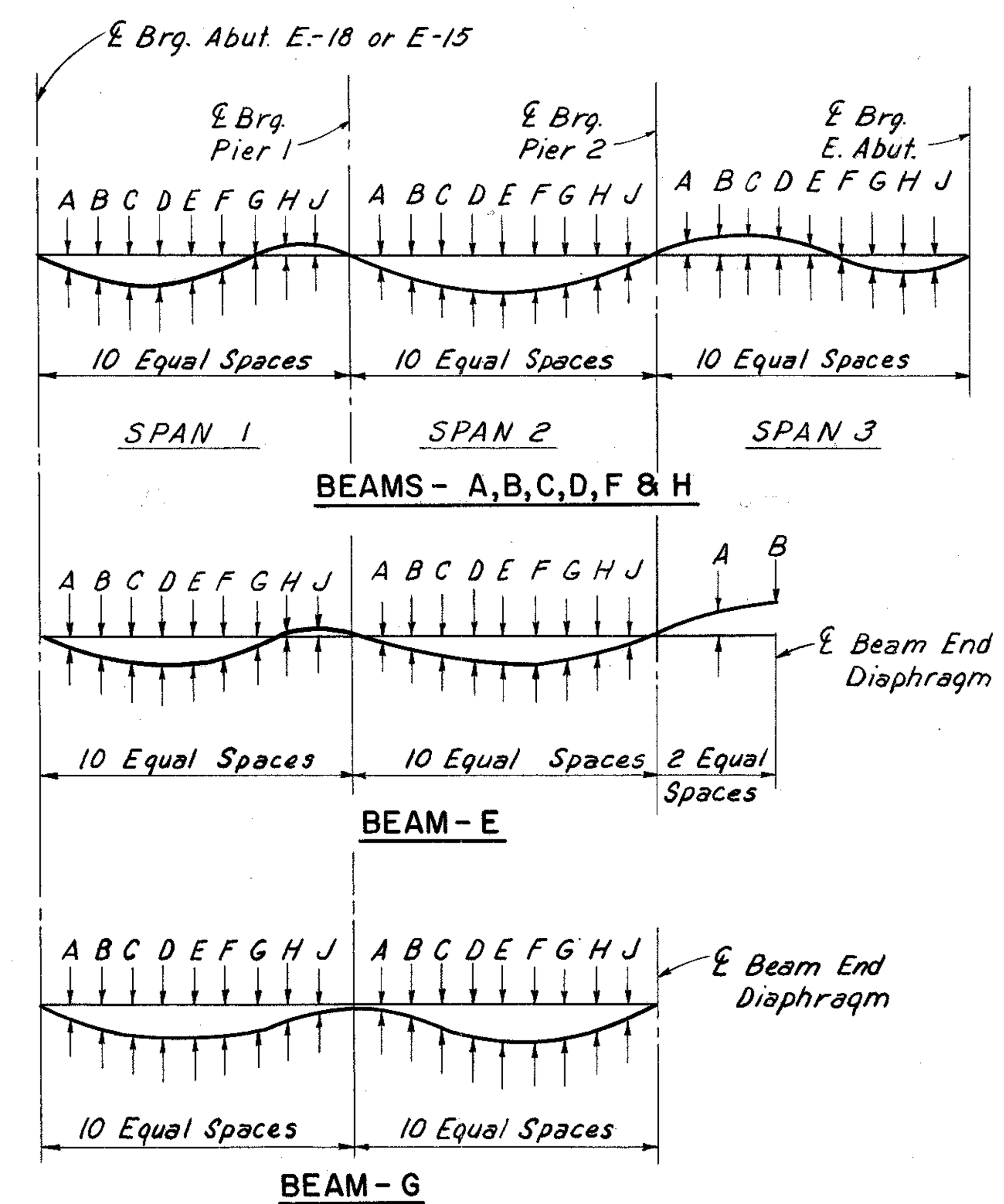
DEFLECTION TABLE - SPAN 3

Beam	A Dead Load Conc.	A Dead Load Total	B Dead Load Conc.	B Dead Load Total	C Dead Load Conc.	C Dead Load Total	Conv.	D Dead Load Conc.	D Dead Load Total	E Dead Load Conc.	E Dead Load Total	Conv.	F Dead Load Conc.	F Dead Load Total	G Dead Load Conc.	G Dead Load Total	Conv.	H Dead Load Conc.	H Dead Load Total	J Dead Load Conc.	J Dead Load Total
A	-3/16"	-3/16"	-3/16"	-3/16"	-1/16"	-1/8"	15/16"	0"	0"	0"	1/16"	1 7/16"	3/16"	3/16"	3/16"	3/16"	1/2"	3/16"	3/16"	1/8"	1/8"
B	-1/8"	-1/8"	-1/8"	-3/16"	-1/8"	-3/16"	1 5/15"	-1/16"	-1/8"	0"	-1/16"	1 7/16"	0"	0"	1/16"	1/16"	1 1/16"	1/16"	1/16"	1/16"	1/16"
C	-1/8"	-1/8"	-1/8"	-3/16"	-1/8"	-3/16"	13/16"	-1/16"	-1/8"	0"	-1/16"	5/8"	0"	0"	1/16"	1/16"	1/4"	1/16"	1/16"	1/16"	1/16"
D	-3/16"	-1/4"	-1/4"	-5/16"	-5/16"	-3/8"	3/4"	-5/16"	-5/16"	-1/4"	-1/4"	13/16"	-3/16"	-3/16"	-1/8"	-1/8"	3/4"	-1/16"	-1/16"	0"	0"
E	-1/8"	-3/16"	-1/16"	-1/8"	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
F	-1/16"	-1/8"	-1/16"	-1/8"	-1/16"	-1/8"	-3/8"	0"	-1/16"	0"	0"	-1/4"	0"	0"	1/16"	1/16"	-1/4"	1/16"	1/16"	0"	0"
H	-1/8"	-1/8"	-1/16"	-1/8"	-1/16"	-1/8"	-3/8"	0"	0"	1/16"	1/16"	-1/4"	1/8"	1/8"	1/8"	1/8	-1/4"	1/8"	1/8"	1/16"	1/16"

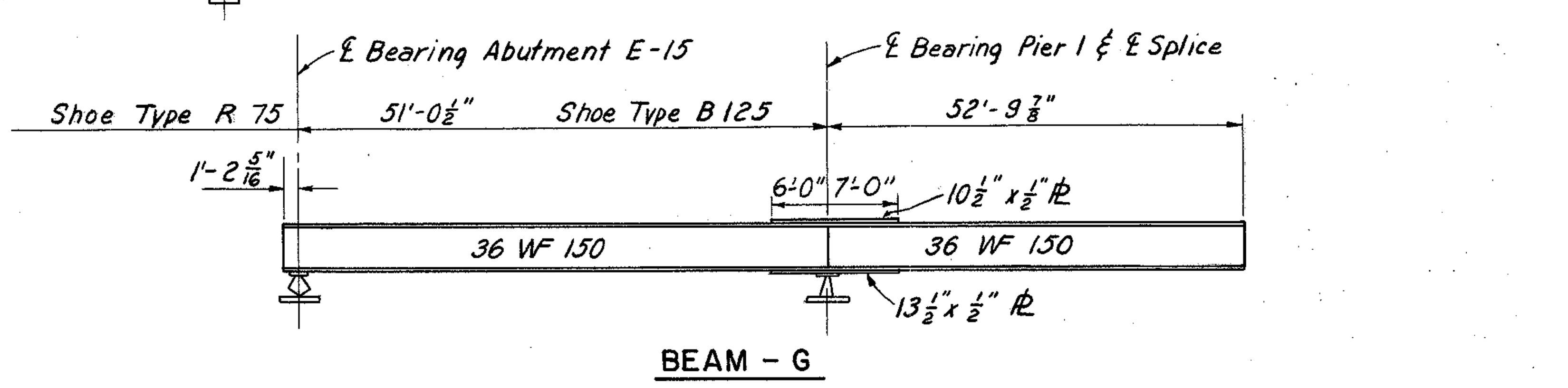


BEAM ELEVATIONS

Scale 1/16" = 1'-0"



DEFLECTION DIAGRAMS



BEAM - G

NOTES:
The beams shall be cambered as follows:
Where the sum of the deflections and convexity is 3/4" to 1", the required camber will be one inch, and if greater than 1", the required camber will be the same as this sum.
No camber will be required if this sum is less than 3/4".
Beams which do not require camber shall be fabricated so that any curved beam shall be placed with the convex flange up.
Deflections are given at the tenth points and are measured to the nearest 1/16 inch.
Legend for deflection tables:
Conc. denotes deflections for concrete.
Total denotes total deflection from dead load of steel and concrete.
Conv. denotes convexity corrections required for vertical curvature of the roadway gradient.

H.N.T.B. BR. NO. 7 PART 6

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

FRAMING PLAN

RAMPS E-15 AND E-18 OVER EAST 9th STREET
STA. 7+92.31 STA. 9+84.06 (E-15)
STA. 7+99.55 STA. 10+24.01 (E-18)
Scale: 1" = 10' Except as noted

WILLOW-INNER BELT FREEWAY

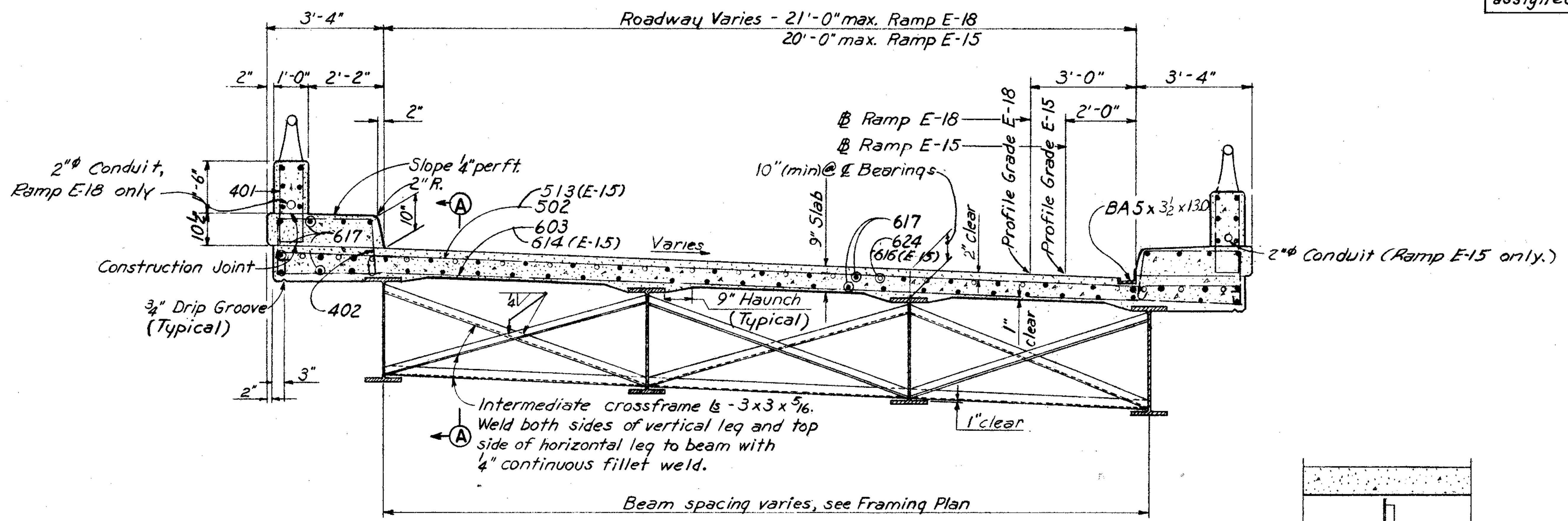
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN L.D.F.	TRACED J.A.G.	CHECKED G.A.T.	REVIEWED JCT	REVISED 6-14-60
DATE 5-8-58	DATE 4-9-59	DATE 4-12-59	DATE 11-12-59	SHEET 140

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		
2	OHIO			

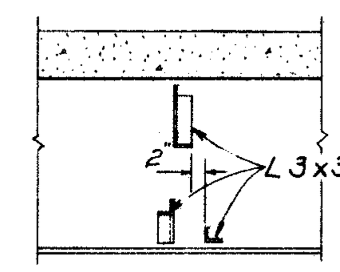
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

Note: Prefix "S" shall be assigned to all bar marks.

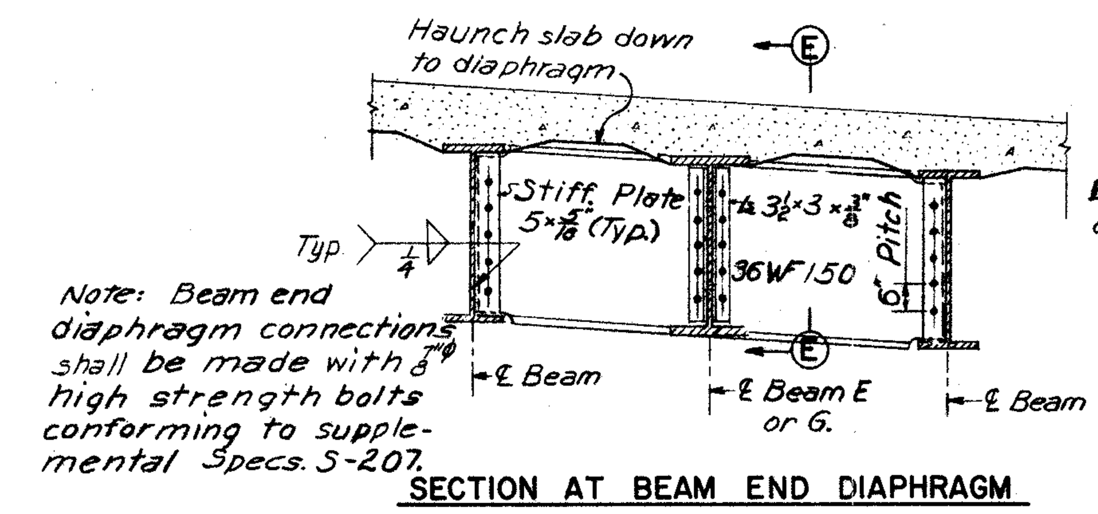


Note:
Slab thickness shown includes 1" for monolithic wearing surface.

TYPICAL SECTION AT INTERMEDIATE CROSS FRAME – SPAN I
Ramp E-18 shown, Ramp E-15 similar but opposite hand, and except as noted.

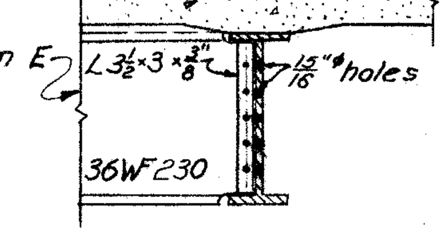


SECTION A-A



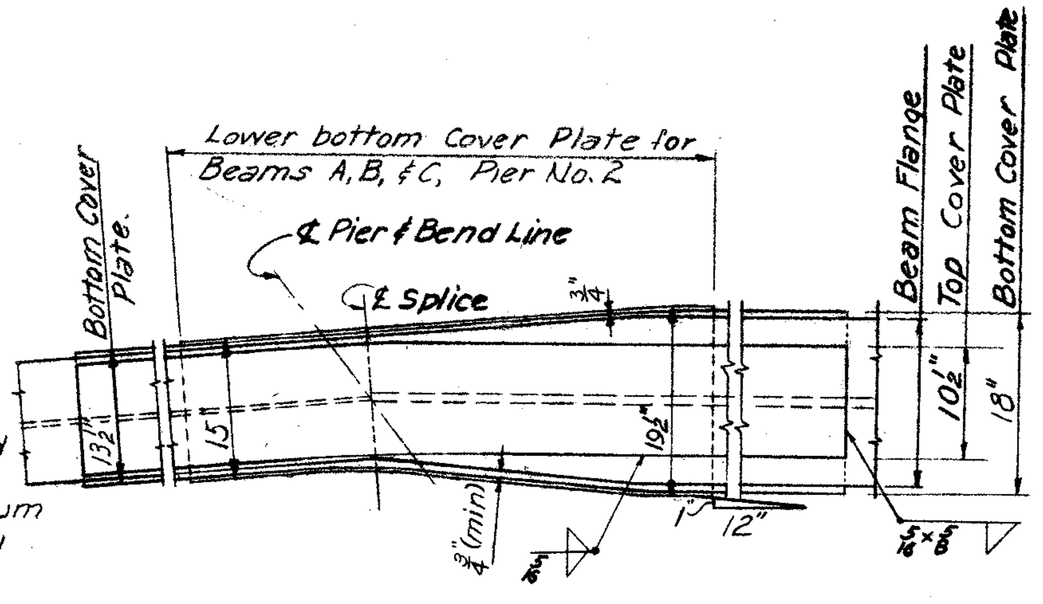
Note: Beam end diaphragm connections shall be made with 7/8"ϕ high strength bolts conforming to supplemental Specs. S-207.

SECTION AT BEAM END DIAPHRAGM



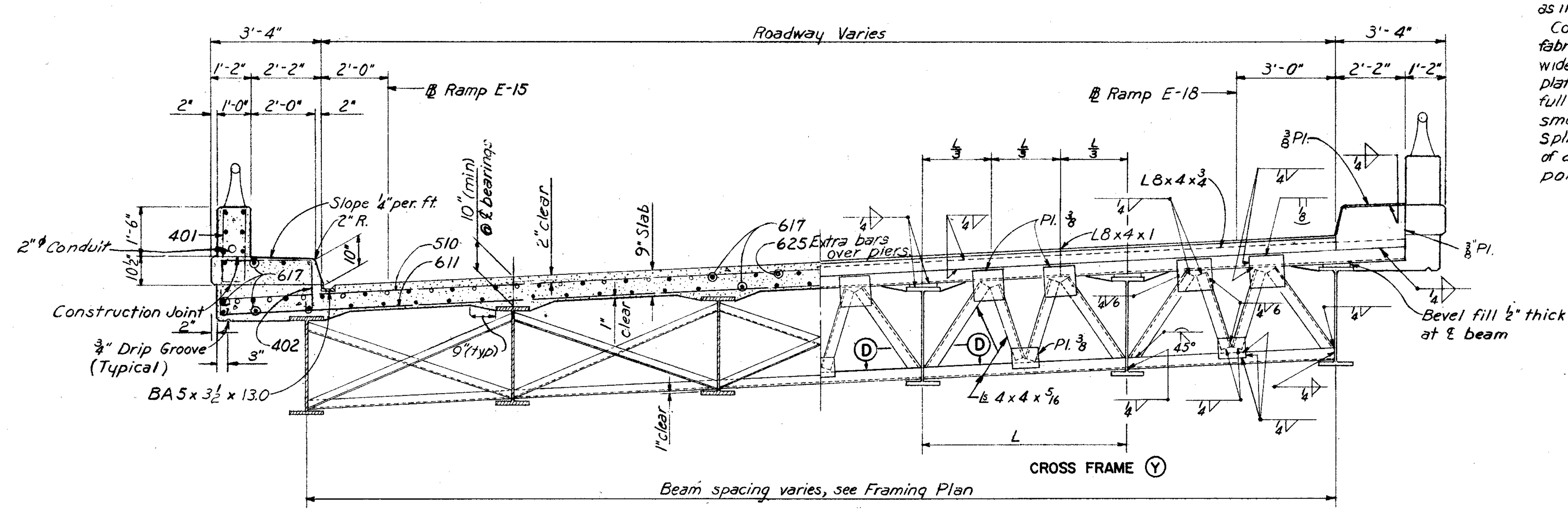
SECTION E-E

Note:
Welds not shown, same as in section B-B.
Cover plates may be fabricated from a single wide plate or from two plates butt welded for full strength and ground smooth in the shop.
Splice shall be a minimum of 2'-0" from the bend point.



PLAN
(For beams with flanges of unequal width)

NOTES:
For details of end dams, see sheet 156.-G.
For drainage details, see sheet 157.-G.
For details of rocker masonry plates, see sheet 156.-G.
For other rocker details, and details of bolsters, see Ohio Standards, Drawing RB-1-55.
For railing details, see sheet 158.-G.

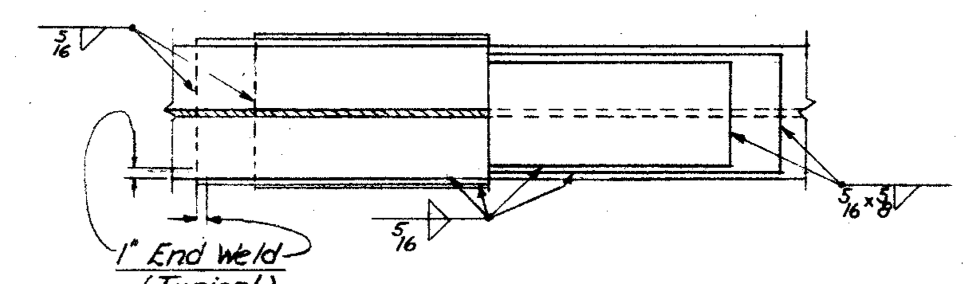


PART SECTION AT INTERMEDIATE CROSS FRAME
Spans 2 & 3

PART SECTION AT END FINISH-EAST ABUTMENT
Details at Abutments E-18 & E-15 similar

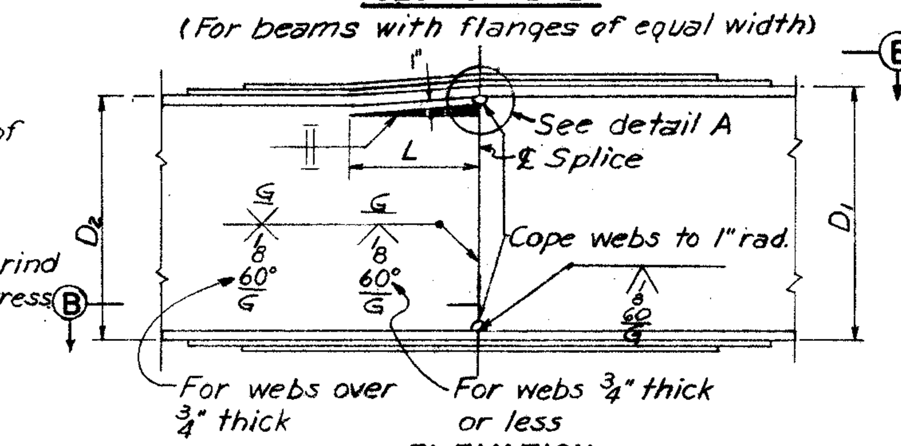
TYPICAL SECTION THROUGH ROADWAY

NOTE: Plan and Section B-B apply to straight or bent splices.



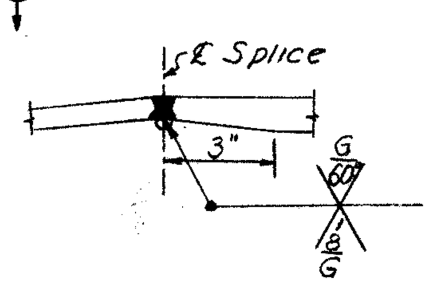
SECTION B-B
(For beams with flanges of equal width)

Note:
D_1 and D_2 are depths of beams in inches.
L is length of cut.
$L = 32(D_1 - D_2)$ in inches
"G" indicates a smooth grind in the direction of the stress.

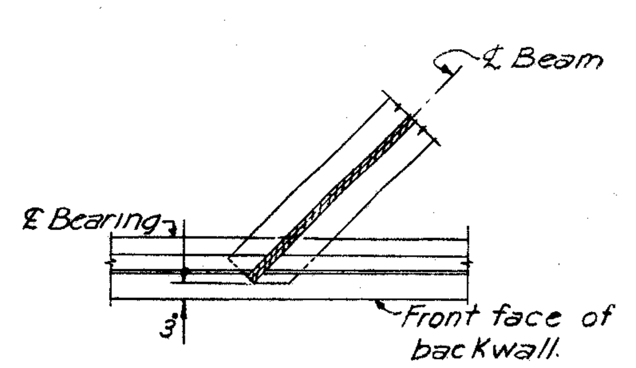


ELEVATION

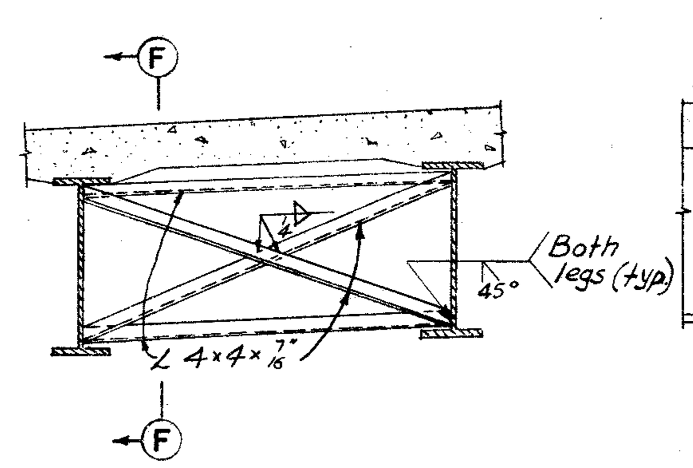
BEAM FIELD SPLICE DETAILS
TYPICAL



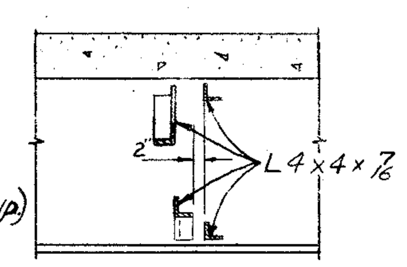
DETAIL A



SECTION D-D



BEND LINE CROSSFRAME Ⓧ



SECTION F-F

AMOUNT OF JACKING IN INCHES		
For splice at Pier	1	2
Raise beam at	Abut. E18 or E15	East Abut.
Beam A	2 3/16	1 1/16
Beams B and C	2 1/8	1 1/2
Beam D	2 1/16	1 3/8
Beam E	1	—
Beam F	1 1/16	1 1/8
Beam G	—	—
Beam H	7/8	15/16

BEAM SPLICE WELDING PROCEDURE

1. Raise the abutment ends of the beams to be spliced the tabulated amount in the Jacking Table.
2. Butt-weld the beam flanges and webs at Piers 1 and 2, using the following sequence: Make two passes on each flange, then then two on the web; Repeat, using one pass at each location, until welds are completed.
3. Weld the bottom and top cover plates.
4. Weld Type "X" Crossframe into position.
5. Lower the beam ends to final position.

H.N.T.B. BR. NO. 7 — PART 6

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

SUPERSTRUCTURE DETAILS
RAMPS E-15 AND E-18 OVER EAST 9th STREET
STA. 7+92.31 — STA. 9+84.06 (E-15)
STA. 7+99.55 — STA. 10+24.01 (E-18)
Scale: 3/8" = 1'-0"

WILLOW-INNER BELT FREEWAY
CLEVELAND — CUYAHOGA COUNTY — OHIO

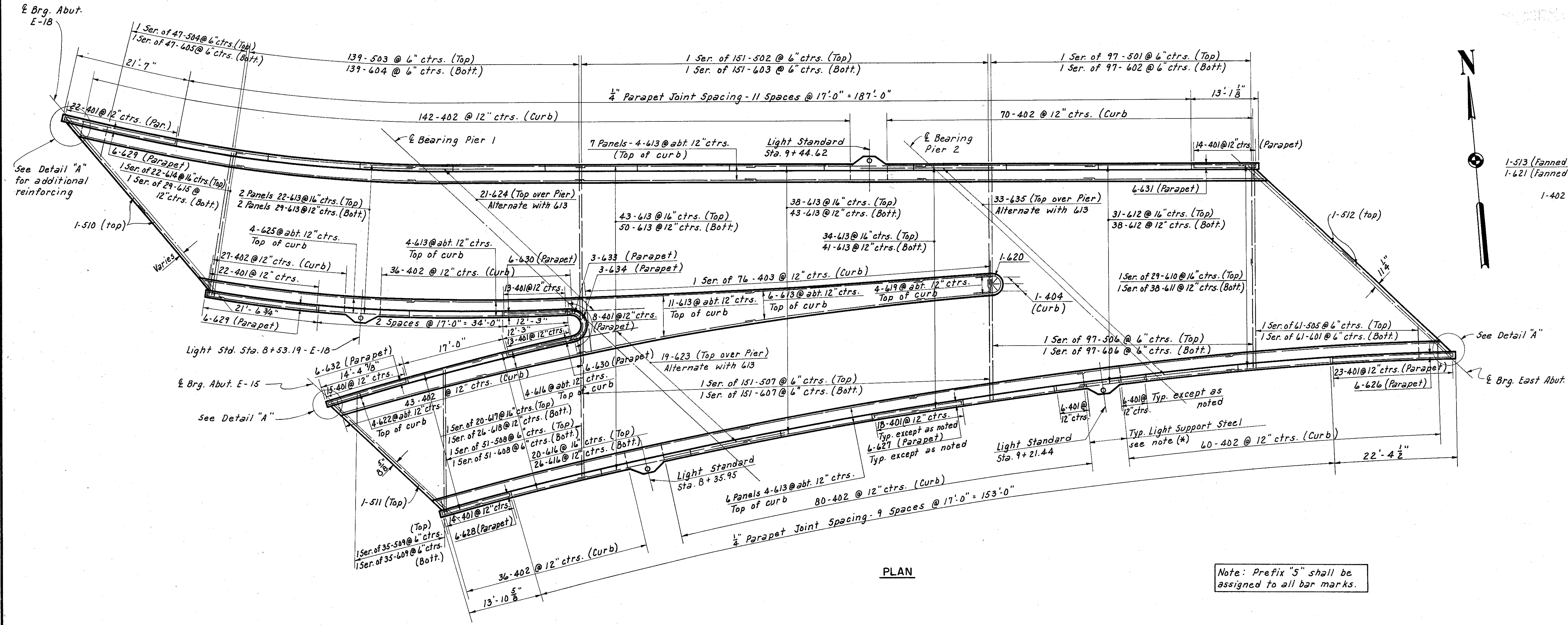
DRAWN	TRACED	CHECKED	REVIEWED	REVISED	
JEH DATE 5-19-58	DATE	DLM DATE 6-6-58	JCT DATE 11-12-58		SHEET 141

MICROFILMED
JUL 8 1985

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

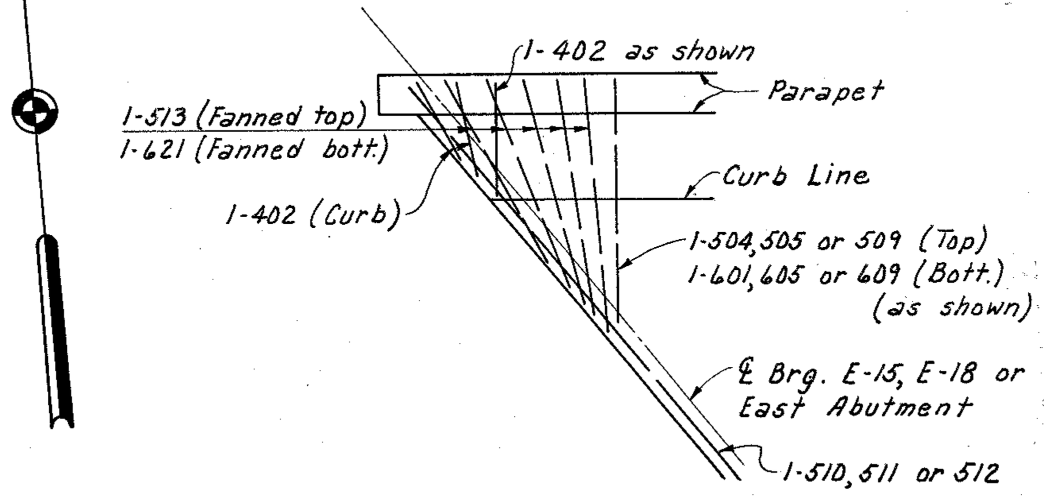
142/175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29



PLAN

Note: Prefix "5" shall be assigned to all bar marks.



DETAIL "A"
Scale: 1/4" = 1'-0"

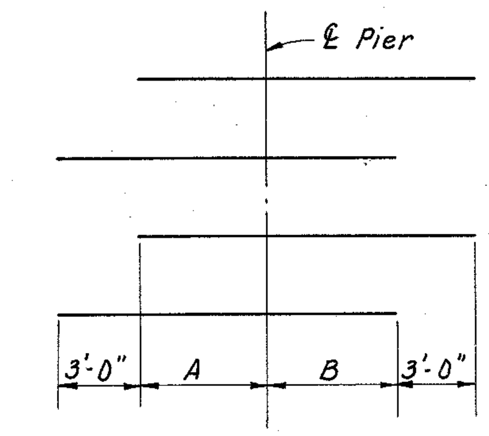


DIAGRAM SHOWING STAGGER OF 623, 624 OR 635 BARS OVER PIERS

LOCATION	A	B
Pier 1 (E-18)	10'-6"	13'-6"
Pier 1 (E-15)	7'-6"	13'-6"
Pier 2	13'-6"	9'-0"

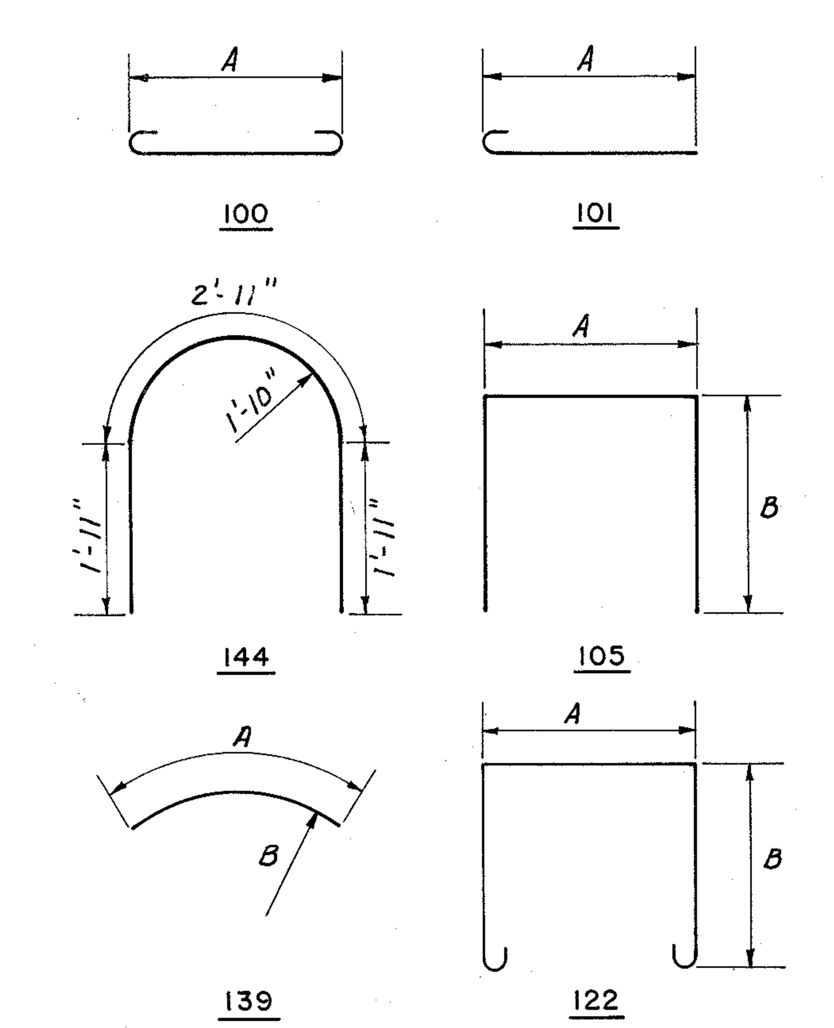
REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SERIES INC.	WEIGHT POUNDS
401	534	4'-5"	105	8"	2'-0"		1575
402	500	6'-5"	122	2'-10"	1'-5"		2143
403	1 Ser. of 76	7'-3" to 13'-6"	122	3'-8" to 9'-11"	1'-5"	1"	527
404	3	5'-2"	122	1'-7"	1'-5"		10
*451	8	8'-11"	131	2'-6"	1'-2"		48
*452	8	9'-11"	131	3'-0"	1'-8"		52
*453	12	9'-5"	131	3'-2"	1'-0"		76
*454	8	6'-7"	155	3'-2"	1'-4"		36
*455	8	7'-1"	155	3'-8"	1'-4"		36
*456	12	7'-3"	155	3'-10"	1'-4"		60
501	1 Ser. of 97	19'-4" to 23'-7"	101	18'-9" to 23'-0"		1/2"	2171
502	1 Ser. of 151	23'-7" to 31'-1"	101	23'-0" to 29'-6"		5/8"	4305
503	139	28'-6"	100	27'-4"			4132
504	1 Ser. of 47	27'-11" to 6'-7"	101	27'-4" to 6'-0"		5 1/2"	846
505	1 Ser. of 61	38'-1" to 6'-7"	101	37'-6" to 6'-0"		6 1/4"	1421
506	1 Ser. of 97	21'-1" to 23'-7"	101	20'-6" to 23'-0"		5/16"	2259
507	1 Ser. of 151	23'-7" to 30'-0"	101	23'-0" to 29'-5"		1/2"	4220
508	1 Ser. of 51	27'-11" to 28'-2"	100	26'-9" to 27'-0"		1/16"	1492
509	1 Ser. of 35	27'-7" to 6'-7"	101	27'-0" to 6'-0"		7 1/4"	624
510	2	23'-3"	101	22'-8"			48
511	1	30'-8"	100	29'-6"			32
512	2	27'-4"	101	26'-9"			57
513	15	6'-7"	101	6'-0"			103

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SERIES INC.	WEIGHT POUNDS
601	1 Ser. of 61	37'-6" to 6'-0"	Str.			6 1/4"	1993
602	1 Ser. of 97	22'-0" to 26'-3"	Str.			1/2"	3515
603	1 Ser. of 151	23'-3" to 29'-9"	Str.			1/2"	6010
604	139	27'-3"	Str.				5689
605	1 Ser. of 47	27'-4" to 6'-0"	Str.			5 7/16"	1177
606	1 Ser. of 97	17'-6" to 20'-0"	Str.			5/16"	2732
607	1 Ser. of 151	24'-0" to 30'-0"	Str.			1/2"	6124
608	1 Ser. of 51	26'-9" to 27'-0"	Str.			1/16"	2059
609	1 Ser. of 35	27'-0" to 6'-0"	Str.			7 1/4"	867
610	1 Ser. of 29	4'-0" to 40'-0"	Str.			1'-2 7/8"	958
611	1 Ser. of 38	4'-0" to 40'-0"	Str.			11 3/8"	1256
612	69	29'-3"	Str.				3031
613	424	33'-3"	Str.				21,175
614	1 Ser. of 22	10'-6" to 36'-0"	Str.			1'-1 7/8"	768
615	1 Ser. of 29	10'-6" to 36'-0"	Str.			10 1/2"	1013
616	50	22'-0"	Str.				1652
617	1 Ser. of 20	10'-3" to 27'-6"	Str.			10 3/8"	567
618	1 Ser. of 26	10'-3" to 27'-6"	Str.			8"	746
619	4	15'-0"	Str.				90
620	1	6'-9"	144	1'-11"	2'-11"		10
621	15	6'-0"	Str.				135

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SERIES INC.	WEIGHT POUNDS
622	4	27'-6"	Str.				165
623	19	24'-0"	Str.				685
624	21	27'-0"	Str.				852
625	4	40'-0"	Str.				240
‡626	6	22'-0"	Str.				
‡627	138	16'-6"	Str.				
‡628	6	13'-6"	Str.				
‡629	12	21'-3"	Str.				
‡630	12	11'-9"	Str.				
‡631	6	12'-9"	Str.				
‡632	6	14'-0"	Str.				
‡633	3	6'-5"	139	6'-5"	2'-2"		
‡634	3	8'-2"	139	8'-2"	2'-10"		
635	33	25'-6"	Str.				1264
*651	8	9'-5"	141	2'-11"	1'-10"		112
*652	12	14'-6"	141	5'-3"	3'-0"		260
*653	4	5'-0"	Str.				32
					Total		91,450

BAR BENDING DIAGRAMS



NOTES:

For sections through deck see sheet 141-6
For Light Standard Support and other lighting details see sheet 159-6
For Railing and Parapet Joint details see sheet 158-6
For End Dam details see sheet 156-6
For Drainage details see sheet 157-6
For Deck details not shown see sheet 143-6
All bar dimensions are given out to out.
For replacement schedule see sheet 97-6
* Bars 451 thru 456, and 651 thru 653 are for the Light Standard Support. For their placement and bending diagrams see sheet 159-6
‡ Bars 626 thru 634 are to be included with "Item S-14, Railing," for payment.
Bars of a series shall vary in length by a constant increment.

H.N.T.B. BR. NO. 7 PART 6

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

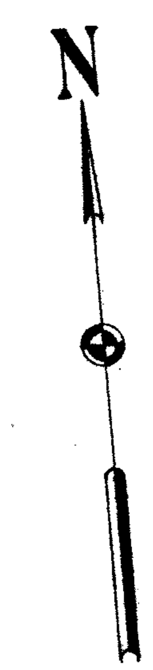
DECK PLAN
RAMPS E-15 AND E-18 OVER EAST 9th STREET
STA. 7+92.31 STA. 9+84.06 (E-15)
STA. 7+99.55 STA. 10+24.01 (E-18)
Scale: 1" = 10'
WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

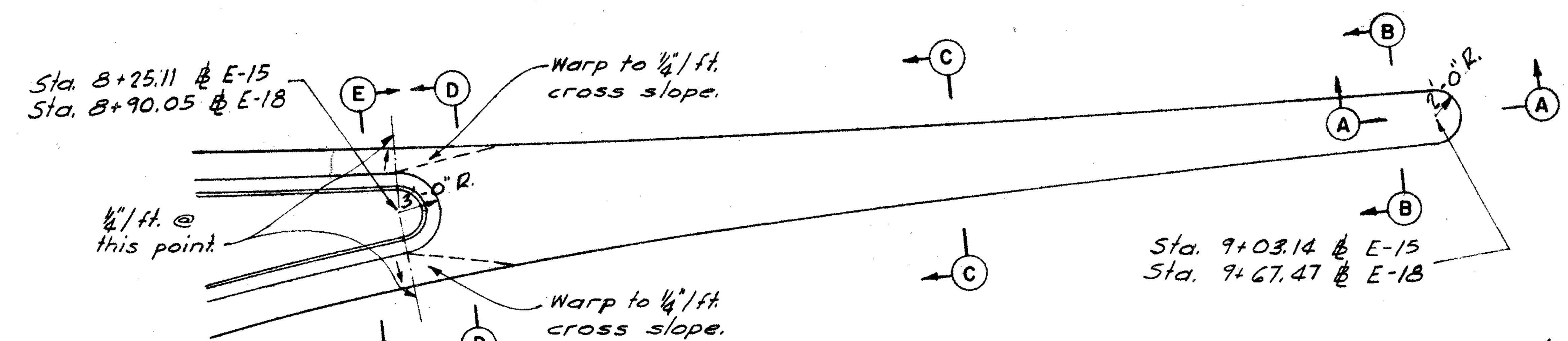
DRAWN RLR	TRACED AEK	CHECKED RSG	REVIEWED JCT	REVISED
DATE 5-13-58	DATE 4-29-59	DATE 5-17-58	DATE 11-12-59	SHEET 142

NOTES:
In order to facilitate water curing of the concrete of the deck slab, the placing of the concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are parallel to the transverse bars in the slab and are located near the center of any span.
For additional notes, see sheet 142-C.

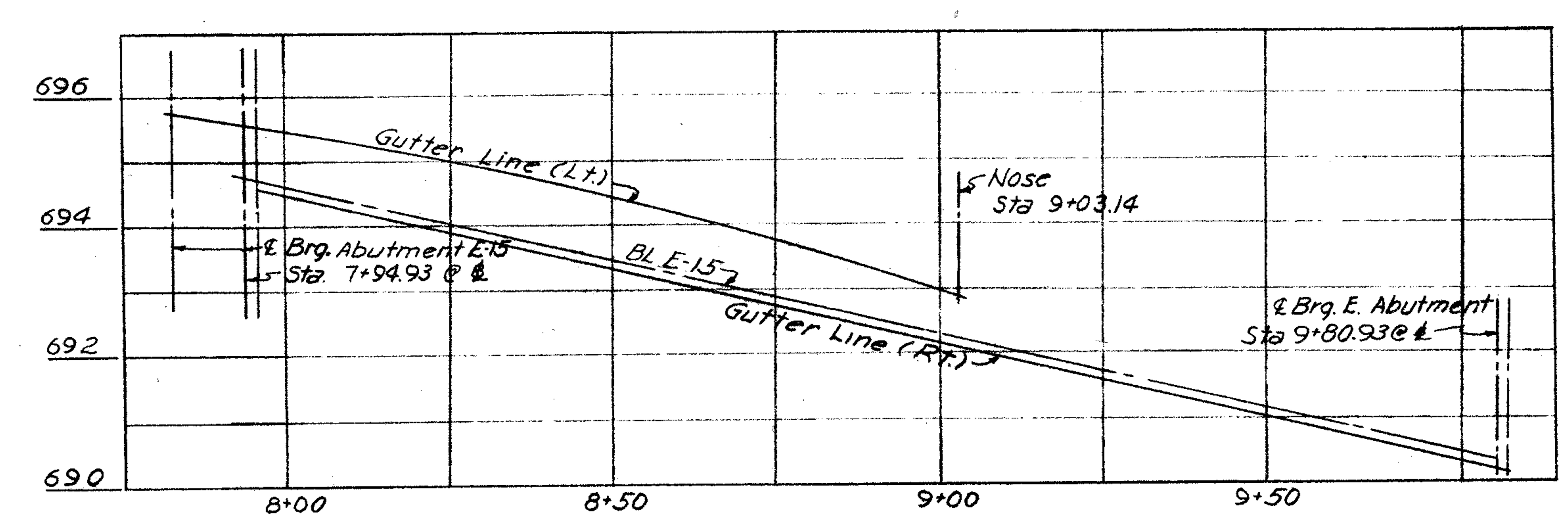
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

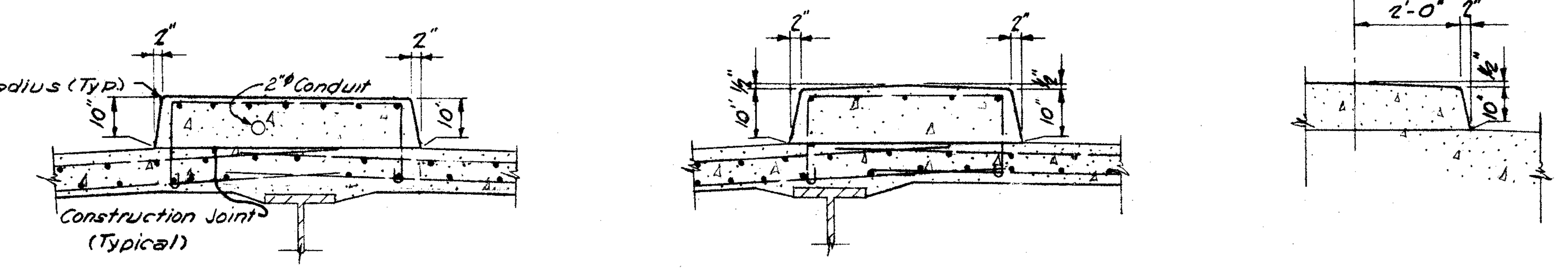




PLAN OF NOSE
Scale 1/8"=1'-0"



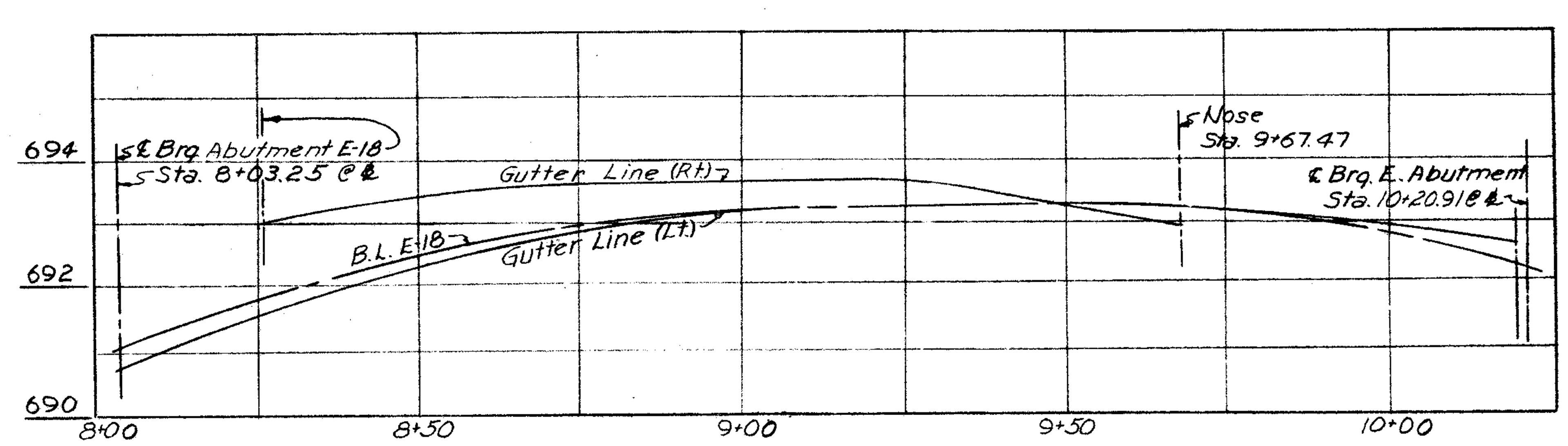
GUTTER LINE PROFILE - RAMP E-15



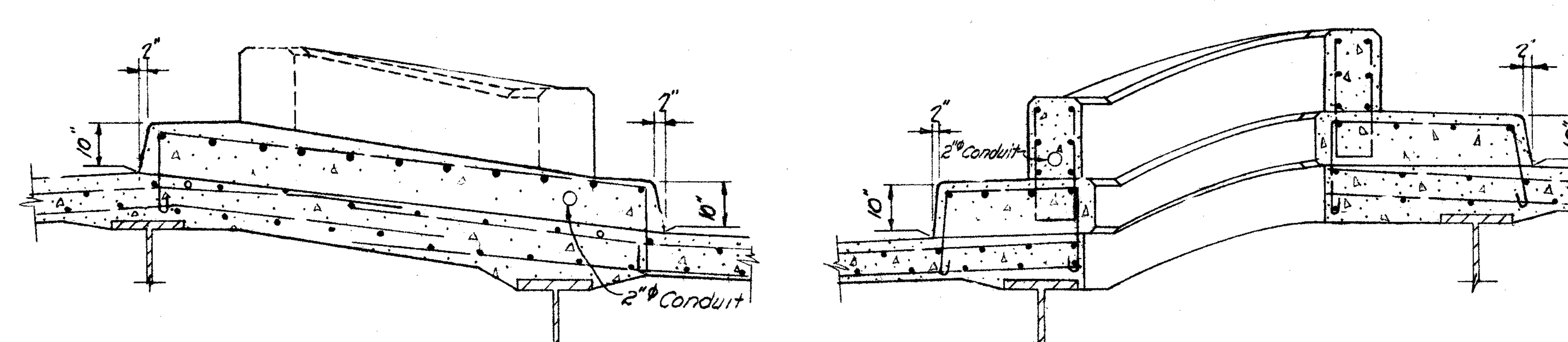
SECTION C-C

SECTION B-B

SECTION A-A



GUTTER LINE PROFILE - RAMP E-18



SECTION D-D

SECTION E-E

H.N.T.B. BR. NO. 7 PART 6

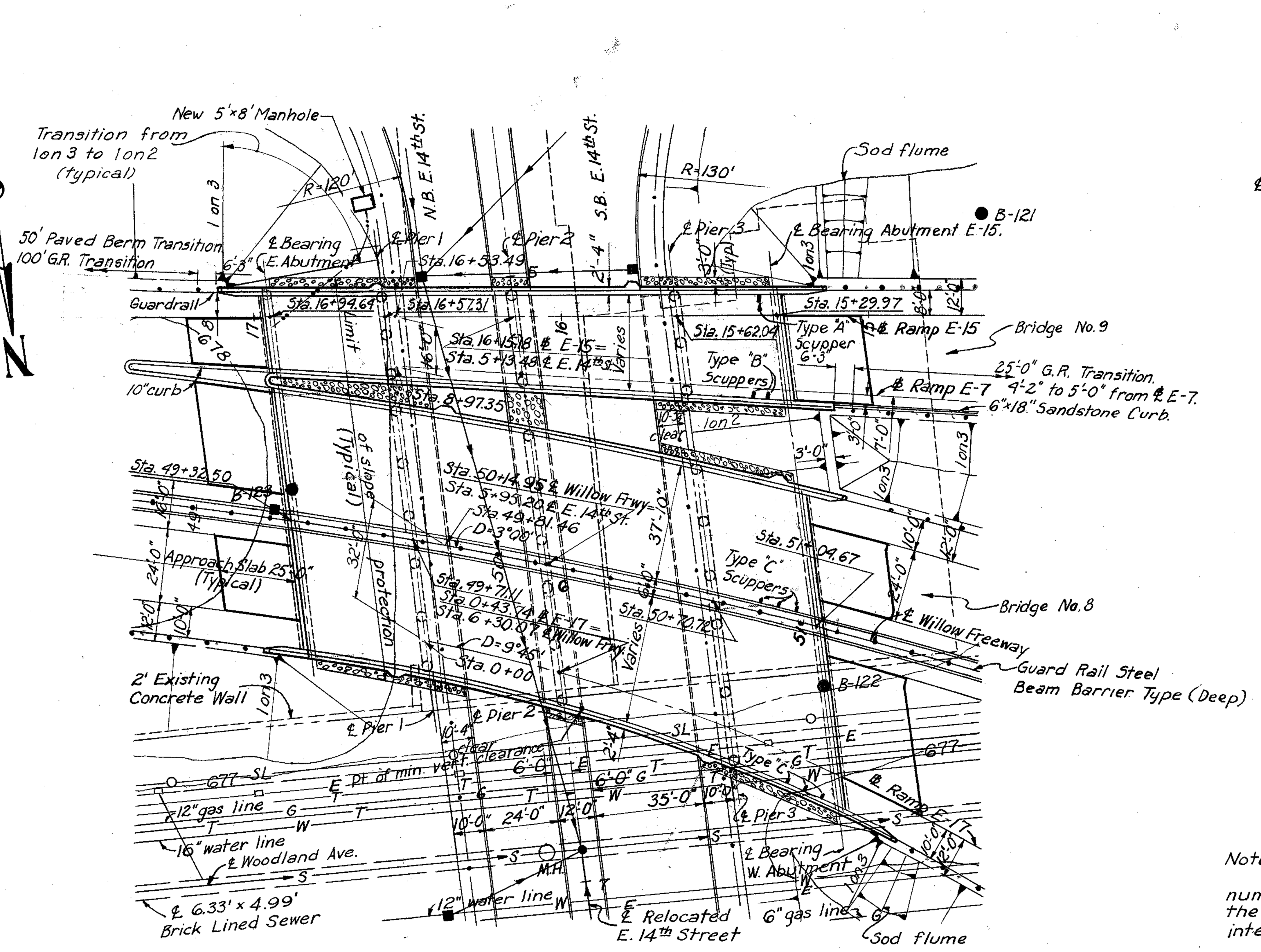
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

DECK DETAILS
RAMPS E-15 AND E-18 OVER EAST 9th STREET
STA. 7+92.31 STA. 9+84.06 (E-15)
STA. 7+99.55 STA. 10+24.01 (E-18)
Scale: As noted

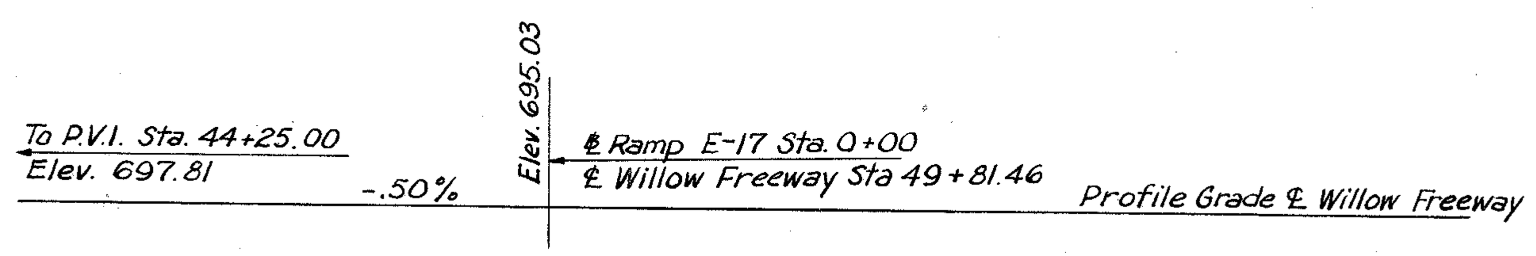
WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN L.D.F. DATE 5-14-58	TRACED DATE	CHECKED D.L.M. DATE 5-21-58	REVIEWED J.C.T. DATE 11-12-59	REVISED	SHEET 143

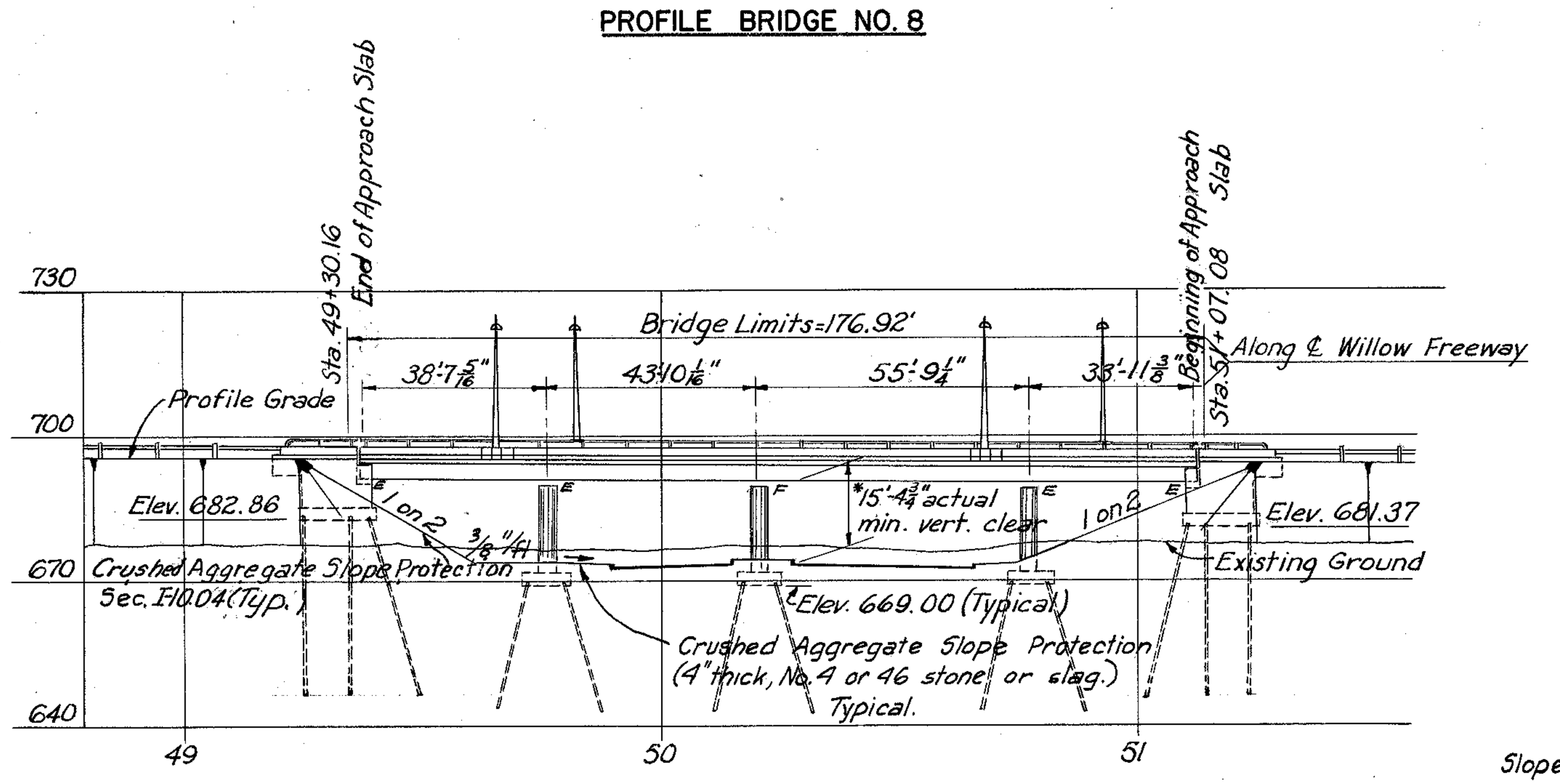
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



PLAN



PROFILE BRIDGE NO. 8



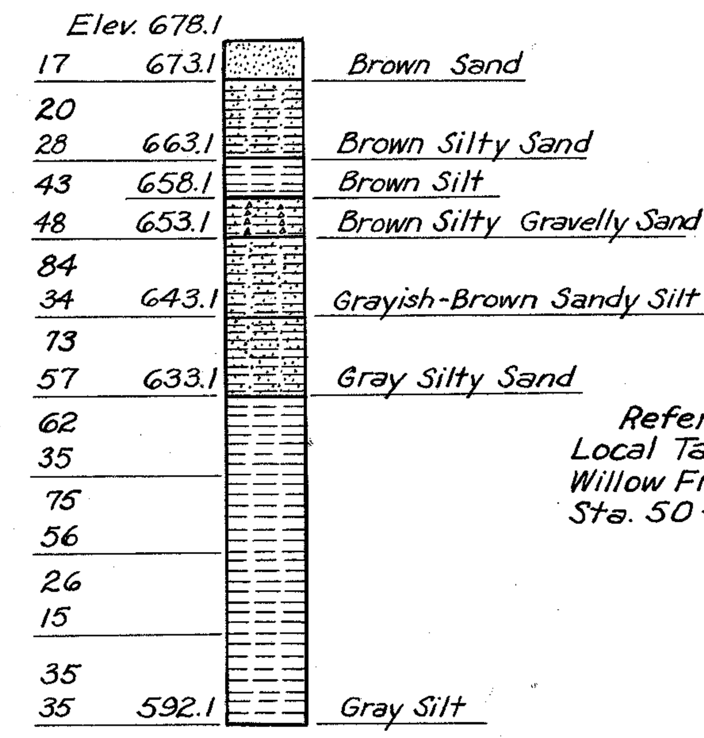
Slopes shown in Elevation are normal to E. 14th St.

ELEVATION BRIDGE NO. 8

*15'-0" required minimum vertical clearance. Point of actual minimum vertical clearance occurs at the median curb of Southbound E. 14th St. and the north exterior beam.

CURVE DATA

℄ Willow Freeway	℄ Ramp E-17
Δ= 23°06'48"	Δ= 60°33'40"
D= 3°00'00"	D= 9°45'00"
R= 1909.86'	R= 587.65
T= 390.54'	T= 343.13'
L= 770.50'	L= 621.14'

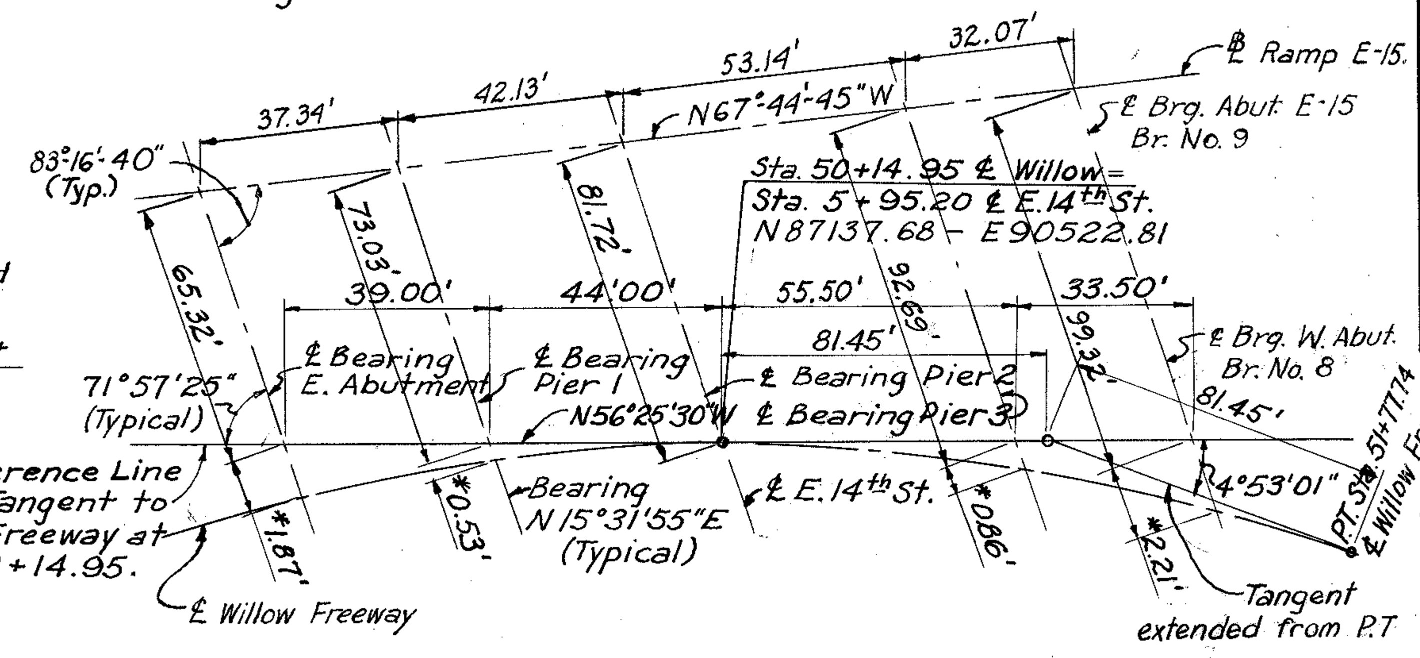


BORING 121
Vertical Scale: 1"=20'
Sta. 14+63 ℄ Ramp E-15 33' Rt.

Note:
The figures to the left indicate the number of hammer blows required to drive the sampling spoon 1 ft. They are given at 5' intervals starting at elev. 678.1.

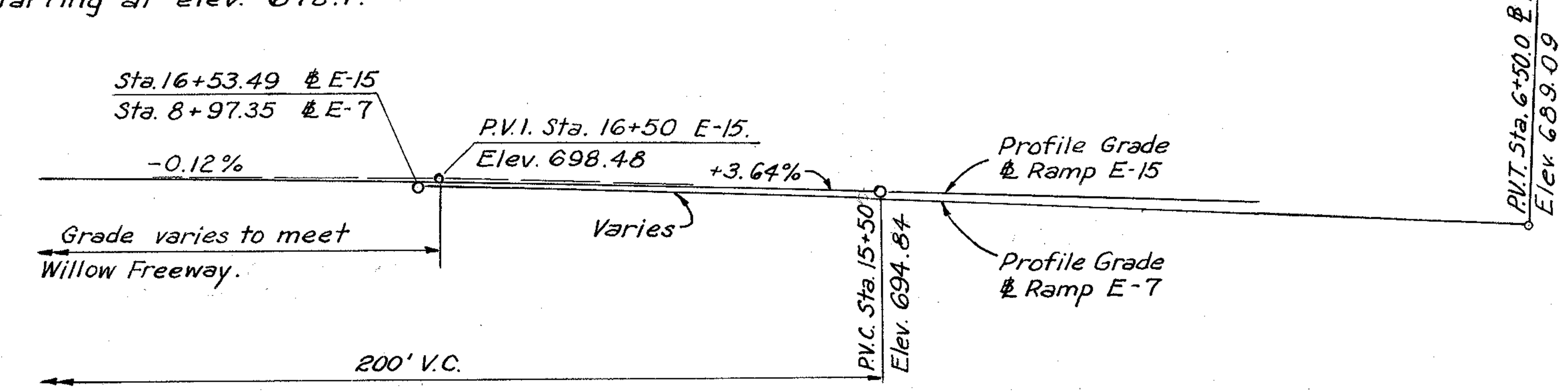
LEGEND

Existing R/W
Existing Edge of Pavement
Existing Sewer
OBT Line
Water Line
Gas Line
Street Lights
CEI Line
Existing Manhole
Existing Catch Basin
Proposed Sewers
Proposed Inlets
Proposed Manholes
Proposed 2" Duct
Proposed 4" Duct

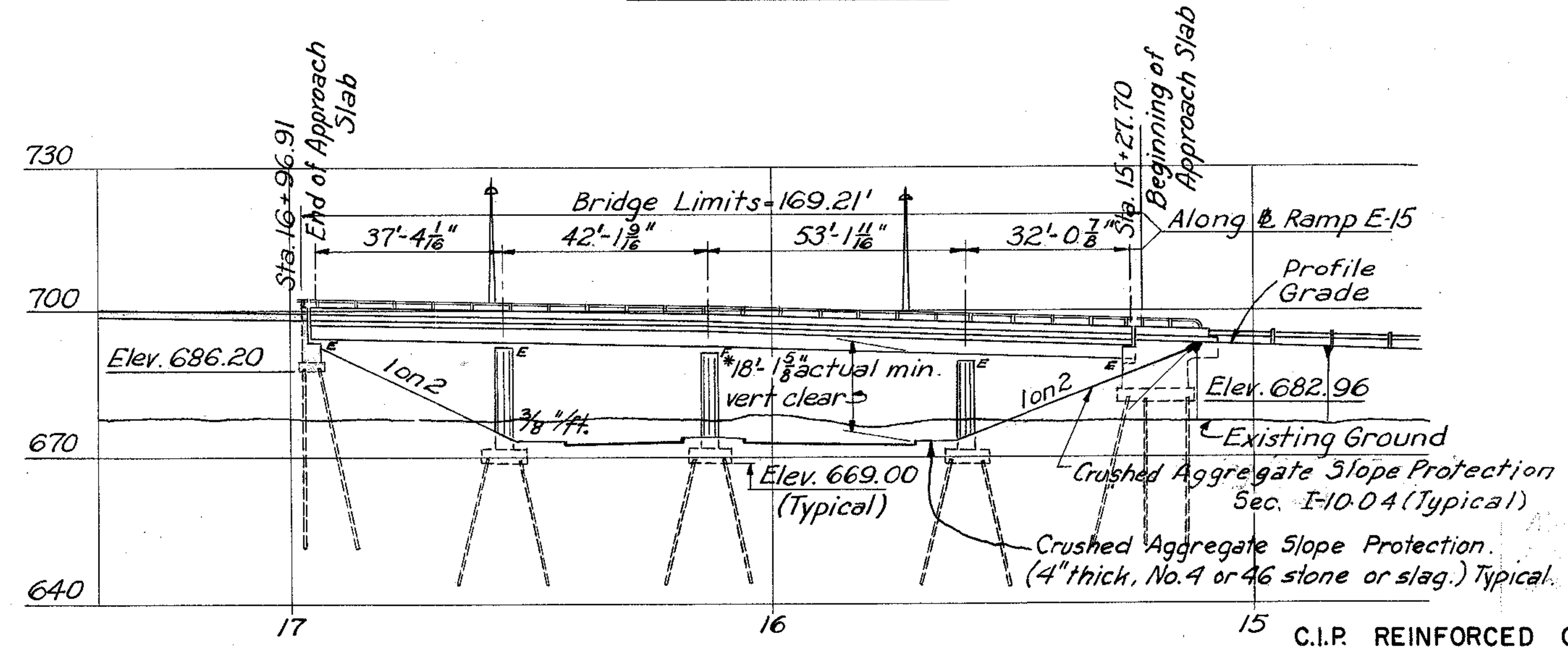


LAYOUT DIAGRAM BRIDGES NO. 8 & 9.
No Scale

*Offsets measured from reference line to ℄ Willow Freeway along ℄ bearings.



PROFILE BRIDGE NO. 9



ELEVATION BRIDGE NO. 9

*15'-0" required minimum vertical clearance. Point of actual minimum vertical clearance occurs at the west curb of Southbound E. 14th St. and the north exterior beam.

RAMP E-15 OVER EAST 14th ST.

PROPOSED STRUCTURE BR. NO. 8

Type: Continuous steel beam with reinforced concrete deck and substructure.
Spans: 38'-7 5/8", 43'-10 1/8", 55'-9 1/4", 33'-11 3/8" along ℄ Willow Frwy.
Roadway: 84'-0" (nominal) face to face parapets
Loading: CF-2000-Adequate for A.A.H.S.O. alternate loading.
Skew: Varies
Surface Course: 1" Monolithic Concrete.
Alignment: 3°00'00" Rt.
Approach Slabs: AS-1-54 (25' Long)
Superelevation: .05 ft/ft.

PROPOSED STRUCTURE BR. NO. 9

Type: Continuous steel beam with reinforced concrete deck and substructure.
Spans: 37'-4 1/16", 42'-1 1/8", 53'-1 1/16", & 32'-0 7/8" along ℄ E-15.
Roadway: Varies
Loading: CF-2000-Adequate for A.A.H.S.O. alternate loading.
Skew: 6°43'20"
Surface Course: 1" Monolithic Concrete.
Alignment: Tangent.
Approach Slabs: AS-1-54 (25' Long)
Superelevation: Varies.

NOTES:
Rod soundings only were taken at location B-122 and B-123. The core drilling made at B-121 is plotted.
Pile lengths are based on boring data and are approximate only. The Contractor shall assume full responsibility for length of piling selected for driving.
The following items are not included in the bridge plans: (See Roadway Plans for details).
Removal of existing pavements, etc.
Relocation or removal of existing utilities.
Approach grading, pavements, and slabs.
Roadway Guard Rail, Sod Flumes.
For details of slope protection see Sh. 157-C.

This includes only Piers 1, 2, & 3 for Brs. No. 8 and No. 9. Abutments and superstructure for these bridges are in Part 7A.

C.I.P. REINFORCED CONCRETE PILES.

Location	Diameter	Number	Estimated ave. length
Bridge 8			
West Abutment	12"	36	35 ft.
Piers 1, 2, & 3.	14"	75	27 ft.
Bridge No. 9.			
Abutment E-15	12"	14	35 ft.
Piers 1, 2, & 3.	14"	36	27 ft.
Bridge No. 8 & No. 9			
East Abutment	12"	40	37 ft.

H.N.T.B. BRS. NO. 8 AND 9 PART 6

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

SITE PLAN
WILLOW FREEWAY & RAMP E-15 OVER E. 14TH. STREET
STA. 49+30.16 STA. 51+07.08 (WILLOW FREEWAY)
STA. 15+27.70 STA. 16+96.91 (RAMP E-15)
BR. NO. CUY-21-1573A & B Scale: 1" = 30'
WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

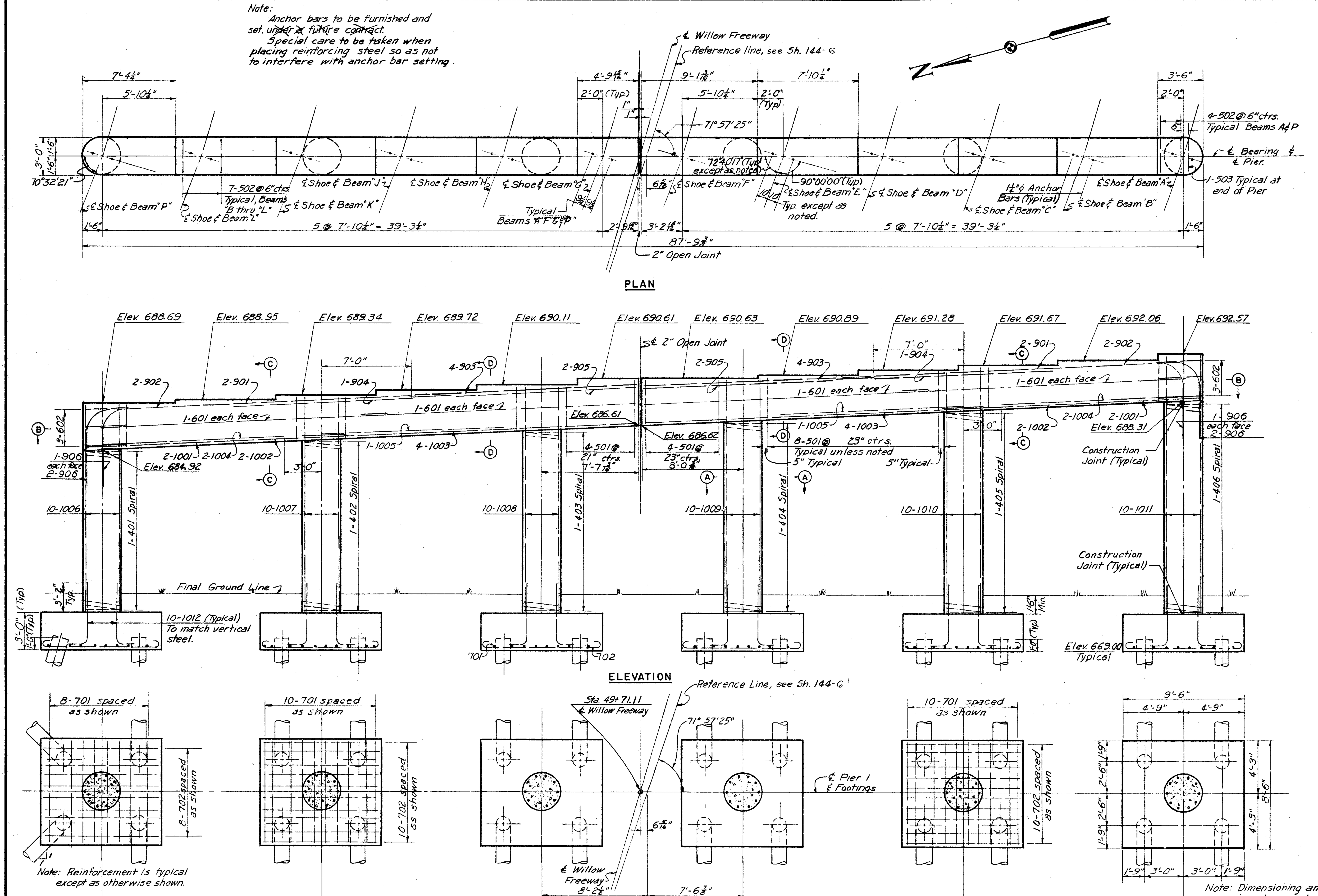
DRAWN AJS DATE 6-26-58	TRACED DLV DATE 7-29-58	CHECKED DRK DATE 7-14-58	REVIEWED JCT DATE 11-12-59	REVISED	SHEET 144

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

Note: Prefix "PA" shall be assigned to all bar marks.

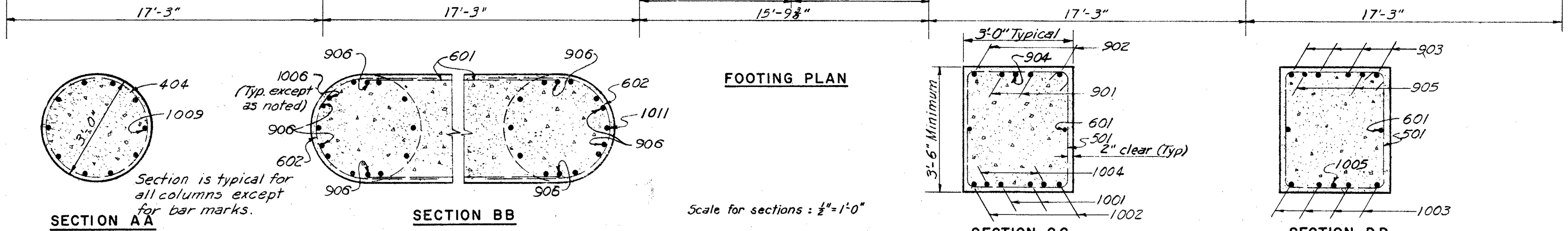
Note:
Anchor bars to be furnished and set under a future contract.
Special care to be taken when placing reinforcing steel so as not to interfere with anchor bar setting.



PLAN

ELEVATION

FOOTING PLAN



SECTION AA

SECTION BB

SECTION CC

SECTION DD

REINFORCEMENT SCHEDULE						
MARK	NO.	LENGTH	TYPE	DIMENSION A	DIMENSION B	WEIGHT (POUNDS)
501	40	12'-1"	109	2'-8"	3'-2"	504
502	78	3'-9"	105	2'-8"	8"	305
503	2	3'-7"	105	2'-6"	8"	7
601	8	22'-3"	Str.			267
602	6	8'-0"	144	1'-11"	4'-2"	72
701	52	10'-0"	100	8'-2"		1063
702	52	11'-0"	100	9'-2"		1169
901	4	28'-9"	Str.			391
902	4	27'-6"	Str.			374
903	8	17'-9"	Str.			483
904	2	14'-0"	Str.			95
905	4	14'-9"	Str.			201
906	8	12'-0"	123	4'-7"		326
1001	4	20'-3"	Str.			348
1002	4	19'-0"	Str.			327
1003	8	26'-6"	Str.			912
1004	4	14'-3"	Str.			245
1005	2	15'-3"	Str.			131
1006	10	16'-3"	Str.			699
1007	10	17'-0"	Str.			732
1008	10	17'-9"	Str.			764
1009	10	18'-3"	Str.			785
1010	10	19'-0"	Str.			818
1011	10	20'-3"	Str.			871
1012	60	6'-11"	104	5'-10"	17"	1786
						Total Weight = 13,675

SPIRAL REINFORCEMENT SCHEDULE						
MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT (POUNDS)
401	1	2'-8"	12'-10"	4½"	37	239
402	1		13'-7"		39	252
403	1		14'-3"		41	265
404	1		14'-10"		43	277
405	1		15'-7"		45	290
406	1	2'-8"	16'-3"	4½"	46	298
						Total Weight = 1,621

NOTES:
All piles shall be 14" ϕ C.I.P. Reinforced Concrete.
All battered piles to be battered 3 in 12 in direction shown.
For Masonry Plate Details, see Sh. 156-G
For bar bending diagrams, see Sh. 134-G
For replacement steel schedule, see Sh. 97-G
For spiral reinforcing notes, see Sh. 148-G
Pile spacings are given along bottom of footing.
All bar dimensions are given out to out.
Reinforcement bars shall be 3" clear from face of concrete at bottom of footings and 2" elsewhere.

H.N.T.B. BR. NO. 8 PART 6

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

PIER I

WILLOW FREEWAY OVER EAST 14th ST.
BR. NO. CUY-21-1573A STA. 49+30.16
Scale: 1/4"=1'-0" Except as noted STA. 51+07.08

WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
DRK DATE 6-15-58	DATE	C.A.B. DATE 6-27-58	JCT DATE 11-12-59	SHEET 145

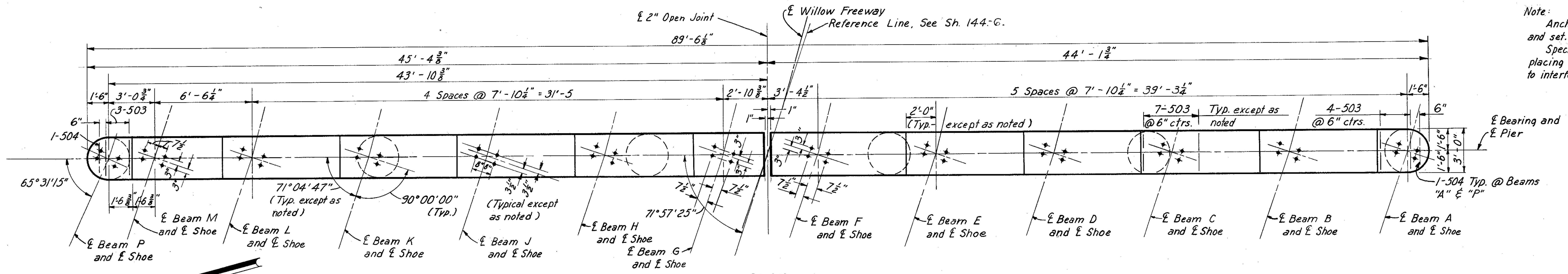
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

146
175

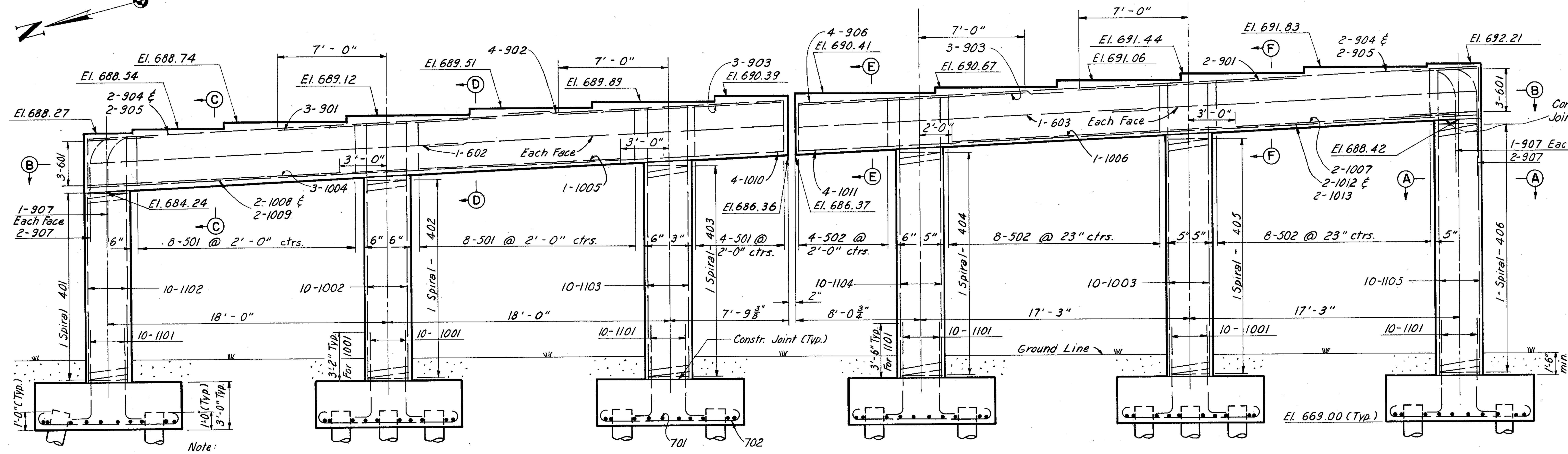
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42-18.29

MICROFILMED
JUL 9 1985

Note:
Anchor bolts to be furnished and set ~~under a future contract~~. Special care to be taken when placing reinforcing steel so as not to interfere with anchor bolt setting.

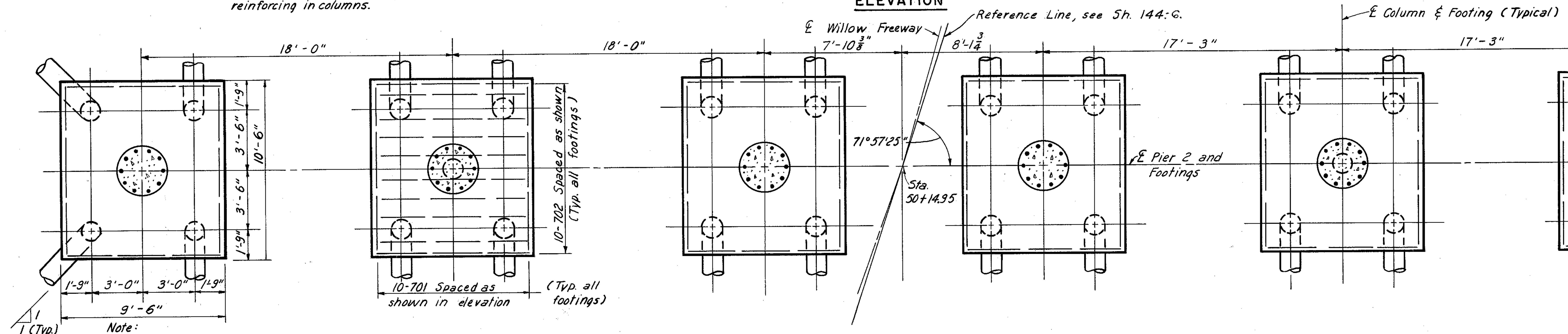


PLAN



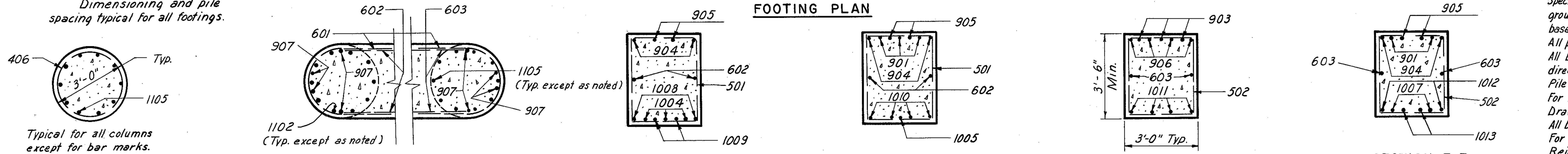
Note:
All dowels to match vertical reinforcing in columns.

ELEVATION



Note:
Dimensioning and pile spacing typical for all footings.

FOOTING PLAN



Scale for sections : 3/8" = 1'-0"

REINFORCEMENT SCHEDULE						
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT (POUNDS)
501	20	12'-8"	109	2'-8"	3'-5"	264
502	20	12'-2"	109	2'-8"	3'-2"	254
503	84	3'-9"	105	2'-8"	0'-8"	329
504	2	3'-7"	105	2'-6"	0'-8"	7
601	6	8'-0"	144	1'-11"	4'-2"	72
602	4	22'-9"	Str.			137
603	4	22'-3"	Str.			134
701	60	10'-10"	100	9'-2"		1328
702	60	11'-10"	100	10'-2"		1451
901	5	14'-0"	Str.			238
902	4	19'-3"	Str.			262
903	6	15'-0"	Str.			306
904	4	27'-6"	Str.			374
905	4	28'-9"	Str.			391
906	4	18'-0"	Str.			245
907	8	12'-6"	123	4'-10"		340
1001	20	6'-11"	104	5'-10"	1'-5"	596
1002	10	16'-9"	Str.			721
1003	10	18'-9"	Str.			807
1004	3	15'-0"	Str.			194
1005	1	13'-0"	Str.			56
1006	1	13'-3"	Str.			57
1007	2	14'-3"	Str.			123
1008	2	19'-9"	Str.			170
1009	2	21'-0"	Str.			181
1010	4	27'-3"	Str.			469
1011	4	26'-9"	Str.			460
1012	2	19'-0"	Str.			164
1013	2	20'-3"	Str.			174
1101	40	7'-4"	104	6'-2"	1'-6"	1558
1102	10	16'-0"	Str.			850
1103	10	17'-6"	Str.			930
1104	10	18'-0"	Str.			956
1105	10	19'-9"	Str.			1049
				TOTAL		15,647

Note: Prefix "PB" shall be assigned to all bar marks.

SPIRAL REINFORCEMENT SCHEDULE						
MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT (POUNDS)
401	1	2'-8"	12'-2"	4½"	35	226
402	1	2'-8"	13'-0"	4½"	38	245
403	1	2'-8"	13'-11"	4½"	40	259
404	1	2'-8"	14'-8"	4½"	42	272
405	1	2'-8"	15'-6"	4½"	44	285
406	1	2'-8"	16'-4"	4½"	47	303
				TOTAL		1,590

NOTES:

Provide electrical ground wire in outside columns. See notes on sheet 91A.-G.
Special care shall be taken in placing of electrical ground wire so as not to interfere with shoe base plate.
All piles shall be 14" C.I.P. Reinforced Concrete.
All battered piles shall be battered 3 in 12 in direction shown.
Pile spacings are given along bottom of footing
For masonary plate details see Ohio Standards, Drawing RB-1-55.
All bar dimensions are given out to out.
For Replacement Schedule see Sheet 97.-G
Reinforcement bars shall be 3 inches clear from face of concrete at bottom of footings and 2 inches elsewhere.
For spiral reinforcing notes, see Sh. 148.-G
For bar bending diagrams, see Sh. 134.-G

H.N.T.B. BR. NO. 8 PART 6

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

PIER 2

WILLOW FREEWAY OVER EAST 14th ST.
BR. NO. CUY-21-1573A STA. 49+30.16
STA. 51+07.08
Scale: 1/4" = 1'-0" Except as noted

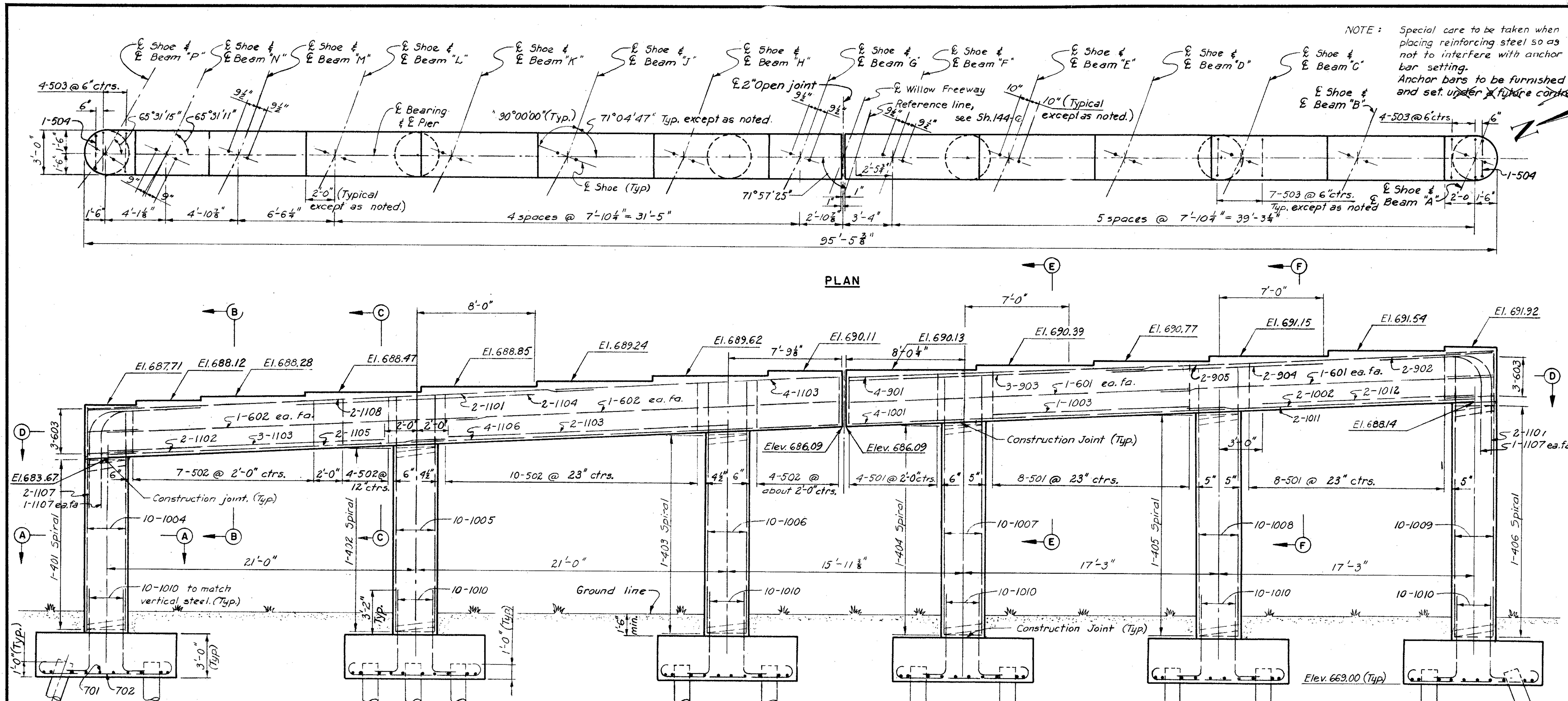
WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN C.L.M.	TRACED J.A.G.	CHECKED C.A.B.	REVIEWED JCT	REVISED
DATE 8-27-58	DATE 4-21-59	DATE 6-28-58	DATE 11-12-59	SHEET 146

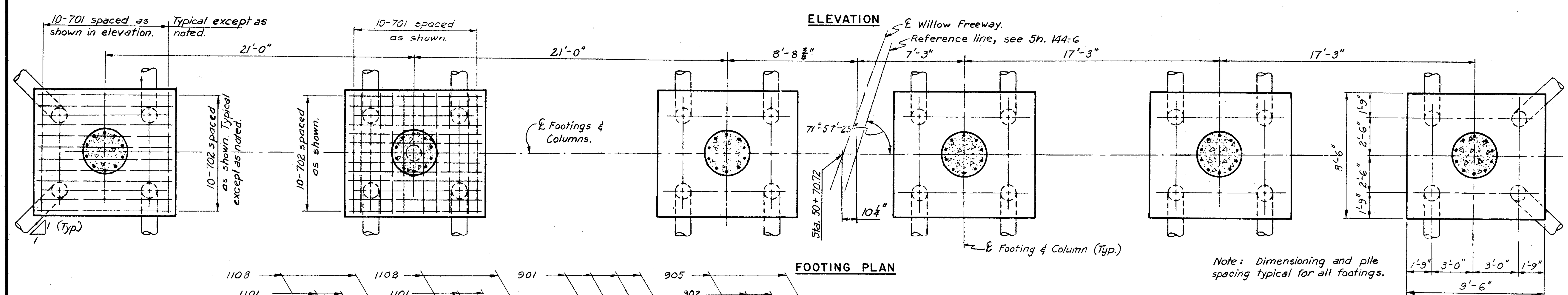
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

NOTE: Special care to be taken when placing reinforcing steel so as not to interfere with anchor bar setting.
Anchor bars to be furnished and set under ~~future~~ contract.

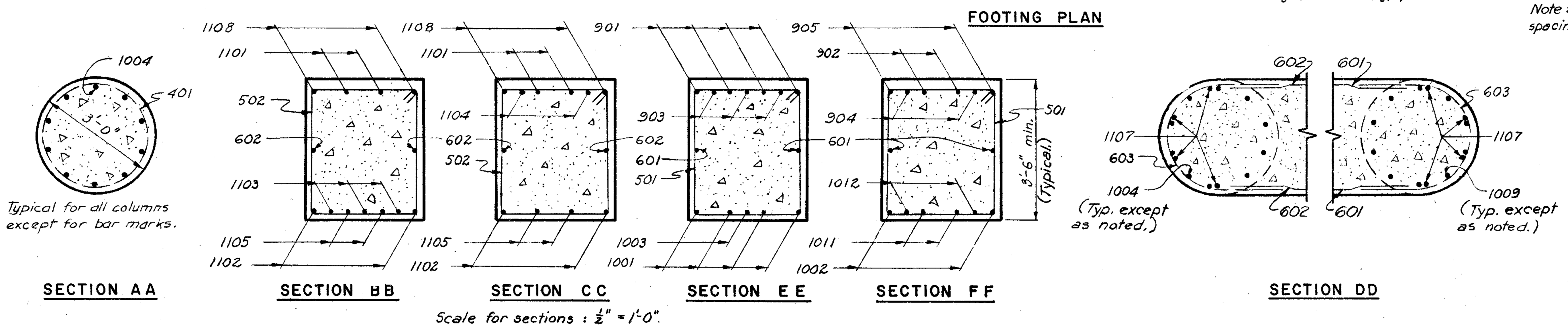


Note: Prefix "PC" shall be assigned to all bar marks

REINFORCEMENT SCHEDULE						
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT (POUNDS)
501	20	12'-2"	109	2'-8"	3'-2"	254
502	25	12'-8"	109	2'-8"	3'-5"	330
503	92	3'-9"	105	2'-8"	0'-8"	360
504	2	3'-7"	105	2'-6"	0'-8"	7
601	4	22'-3"	Str.			134
602	4	25'-9"	Str.			155
603	6	8'-0"	144	1'-11"	4'-2"	72
701	60	9'-10"	100	8'-2"		1206
702	60	10'-10'	100	9'-2"		1329
901	4	20'-6"	Str.			279
902	2	26'-6"	Str			180
903	3	15'-0"	Str.			153
904	2	14'-0"	Str.			95
905	2	25'-0"	Str			170
1001	4	25'-0"	Str.			430
1002	2	20'-9"	Str.			179
1003	1	13'-3"	Str.			57
1004	10	15'-0"	Str.			645
1005	10	16'-0"	Str.			688
1006	10	17'-0"	Str.			732
1007	10	17'-6"	Str.			753
1008	10	18'-3"	Str			785
1009	10	19'-6"	Str.			839
1010	60	7'-0"	104	5'-10"	1'-6"	1807
1011	2	21'-9"	Str.			187
1012	2	14'-3"	Str.			123
1101	2	35'-3"	Str			375
1102	2	24'-0"	Str.			255
1103	9	19'-0"	Str.			909
1104	2	16'-0"	Str.			170
1105	2	25'-6"	Str.			271
1106	4	29'-0"	Str.			616
1107	8	14'-0"	123	5'-7"		595
1108	2	34'-0"	Str			361
				Total		15501



SPIRAL REINFORCEMENT SCHEDULE						
MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURN	WEIGHT (POUNDS)
401	1	2'-8"	11'-8"	4½"	34	219
402	1	2'-8"	12'-8"	4½"	37	239
403	1	2'-8"	13'-8"	4½"	40	261
404	1	2'-8"	14'-5"	4½"	42	271
405	1	2'-8"	15'-3"	4½"	44	284
406	1	2'-8"	16'-1"	4½"	46	297
				Total		1571



NOTES:
Reinforcement bars shall be 3" clear from face of concrete at bottom of footings, and 2" elsewhere.
All bar dimensions are given out to out.
All piles shall be 14"Φ C.I.P. Reinforced Concrete.
All battered piles shall be battered 3 in 12 in direction
For masonry plate . details, see Sh. 156-G
For bar bending diagrams, see Sh. 134-G
For replacement steel schedule, see Sh. 97-G
For spiral reinforcing notes, see Sh. 148-G
Pile spacings are given along bottom of footing.

H.N.T.B. BR. NO. 8 PART 6

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

PIER 3

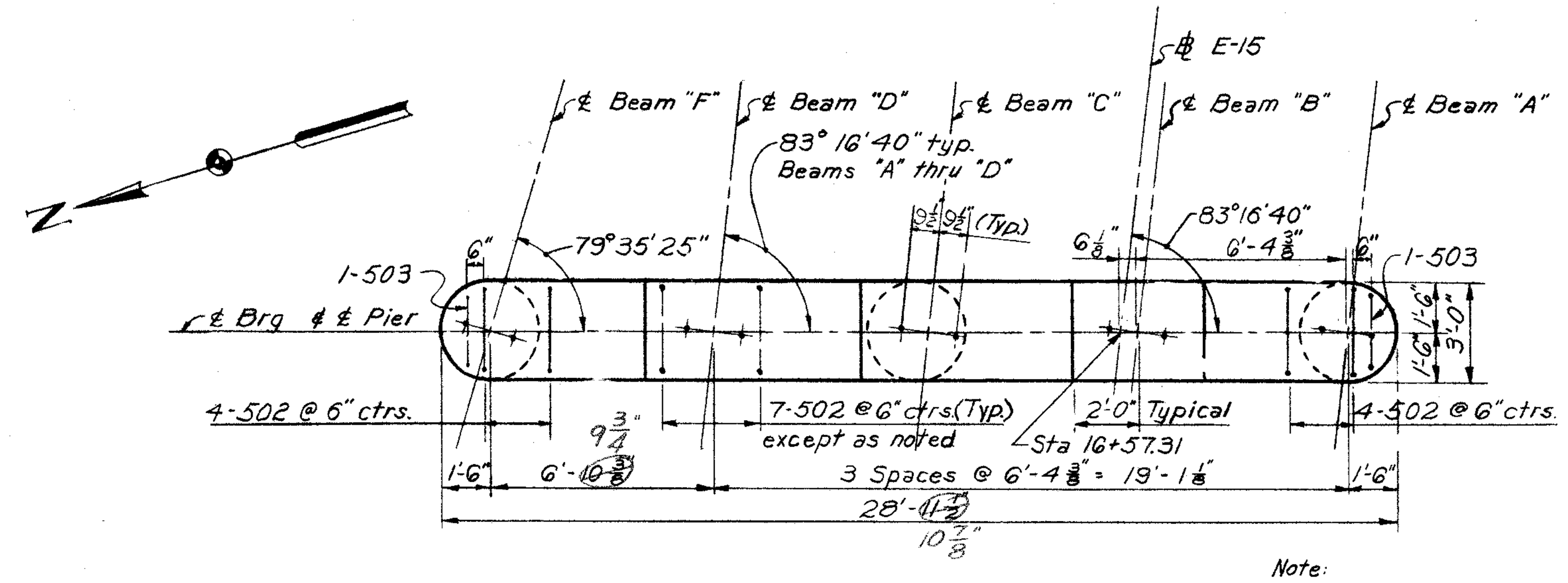
WILLOW FREEWAY OVER EAST 14th ST.
BR. NO. CUY-21-1573A STA. 49+30.16
Scale : 1/4" = 1'-0" Except as noted STA. 51+07.08

WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN A.L.	TRACED	CHECKED C.A.B.	REVIEWED JCT	REVISED
DATE 6-14-58	DATE	DATE 6-30-58	DATE 11-12-59	SHEET 147

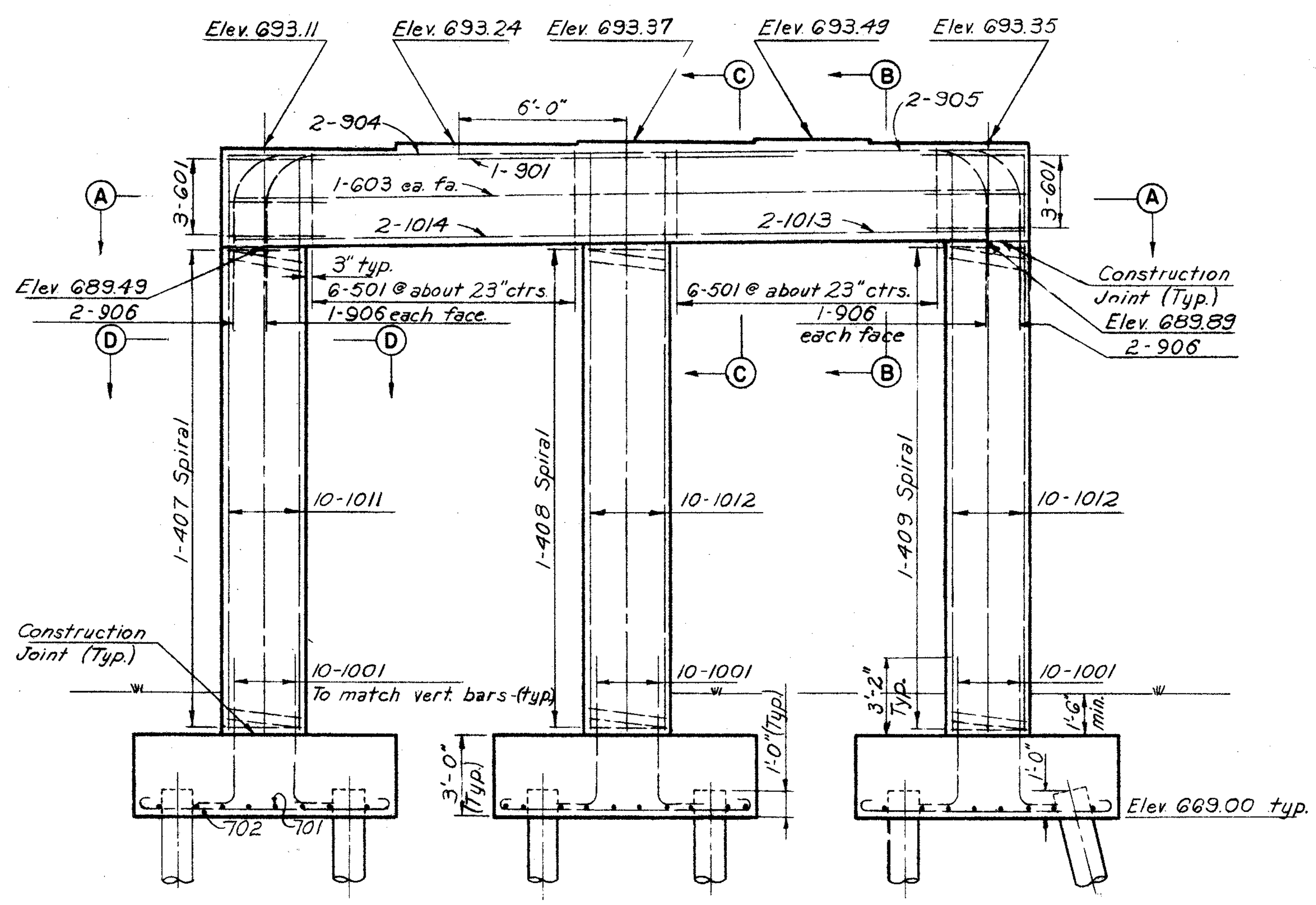
MICROFILMED
JUL 9 1985

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29

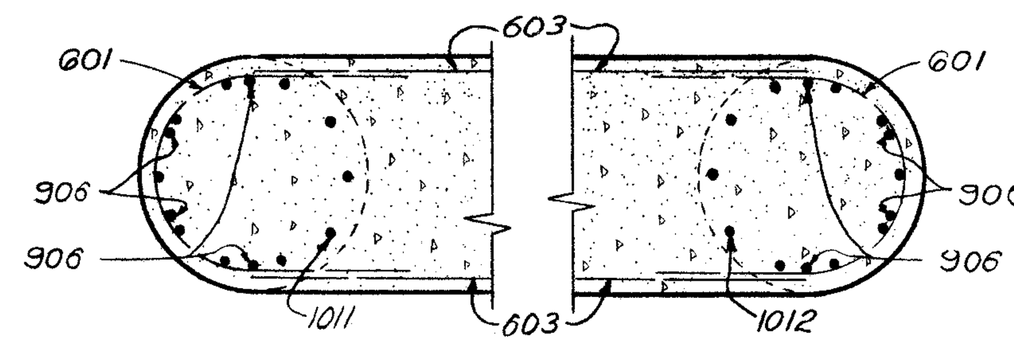


PLAN

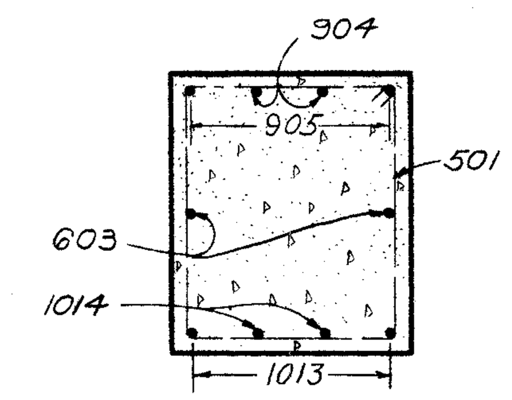
Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bar setting.
Anchor bars to be furnished and set. ~~under future contract.~~



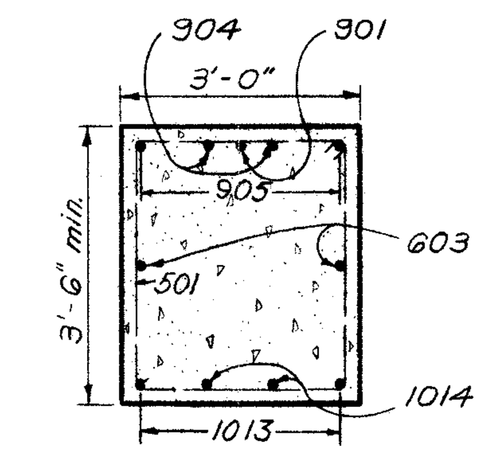
ELEVATION



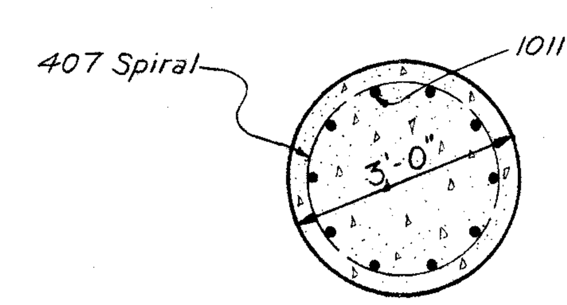
SECTION AA



SECTION BB



SECTION CC

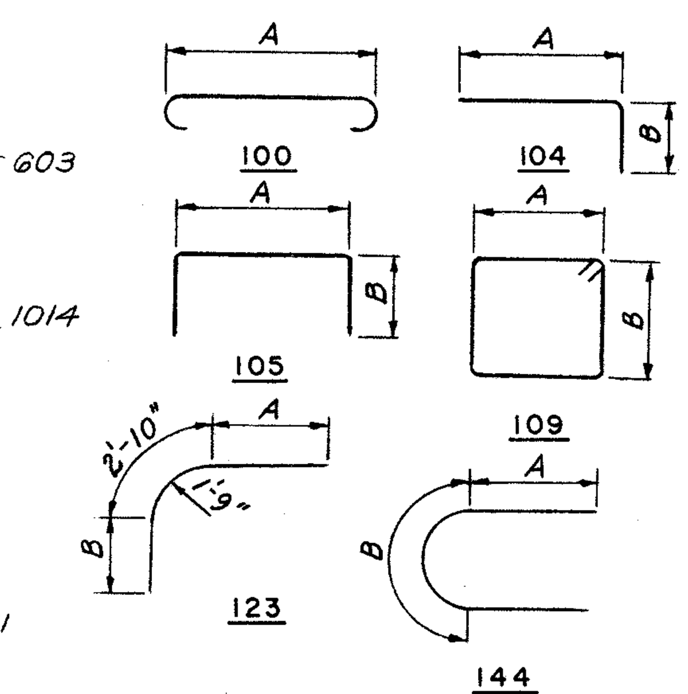


SECTION DD

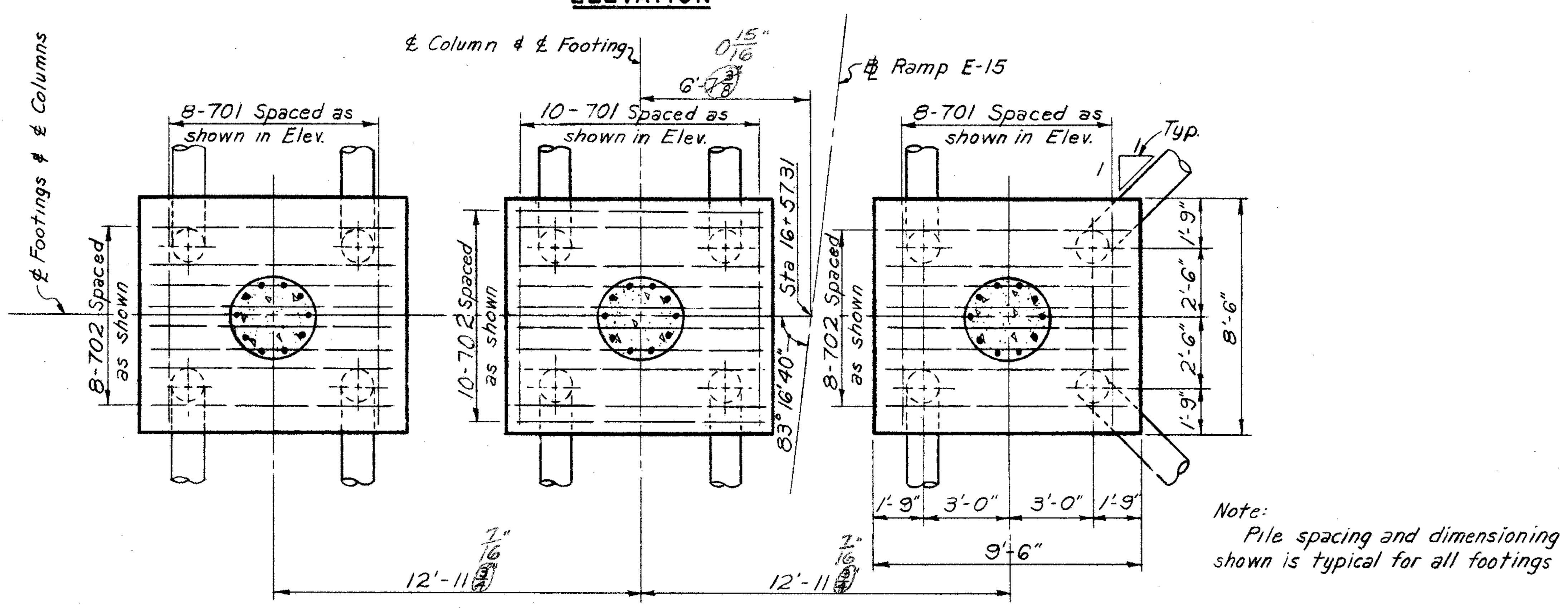
Typ. for all columns except for bar marks

Scale for sections: 1/2" = 1'-0"

NOTE:
Sections shown for Pier 1.
Sections for Piers 2 and 3 are similar except for bar marks.



BAR BENDING DIAGRAMS



Note:
Pile spacing and dimensioning shown is typical for all footings

FOOTING PLAN

PIER I

Note: Prefix "PD" shall be assigned to all bar marks.

REINFORCEMENT SCHEDULE FOR PIERS 1,2 & 3									
MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCRE-MENT	WEIGHT (POUNDS)
				A	B	C	D		
501	42	12'-1"	109	2'-8"	3'-2"				530
502	101	3'-9"	105	2'-8"	0'-8"				396
503	6	3'-7"	105	2'-6"	0'-8"				22
601	18	6'-9"	144	1'-4"	4'-1"				183
602	4	15'-6"	Str.						93
603	2	14'-0"	Str.						42
604	4	17'-0"	Str.						102
701	52	9'-10"	100	8'-2"					1045
702	108	10'-10"	100	9'-2"					2391
901	2	12'-0"	Str.						82
902	2	31'-3"	Str.						213
903	2	28'-9"	Str.						195
904	2	28'-6"	Str.						194
905	2	26'-0"	Str.						177
906	16	11'-8"	123	4'-5"	4'-5"				635
1001	90	6'-11"	104	5'-9"	1'-5"				2680
1002	10	18'-0"	Str.						775
1003	10	18'-3"	Str.						785
1004	10	18'-6"	Str.						796
1005	2	34'-6"	Str.						298
1006	2	32'-0"	Str.						275
1007	10	19'-9"	Str.						850
1008	10	20'-0"	Str.						861
1009	10	20'-3"	Str.						871
1010	8	17'-2"	Str.						591
1011	10	20'-9"	Str.						893
1012	20	21'-0"	Str.						1807
1013	2	26'-0"	Str.						224
1014	2	28'-4"	Str.						244
1015	8	12'-4"	123	4'-9"	4'-9"				425
1101	8	17'-9"	Str.						754
								Total	19,429

SPIRAL REINFORCEMENT SCHEDULE						
MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT (POUNDS)
401	1	2'-8"	15'-0"	4 1/2"	43	237
402	1	2'-8"	15'-2"	4 1/2"	43	237
403	1	2'-8"	15'-5"	4 1/2"	44	243
404	1	2'-8"	16'-7"	4 1/2"	47	259
405	1	2'-8"	16'-9"	4 1/2"	48	265
406	1	2'-8"	16'-11"	4 1/2"	48	265
407	1	2'-8"	17'-6"	4 1/2"	50	276
408	1	2'-8"	17'-8"	4 1/2"	50	276
409	1	2'-8"	17'-10"	4 1/2"	51	282
					Total	2,340

NOTES:
Reinforcement bars shall be 3" clear from face of concrete at bottom of footings and 2" elsewhere.
Pile spacings are given along bottom of footings.
All piles shall be 14"Φ C.I.P. reinforced concrete.
All battered piles to be battered 3 in 12 in direction shown.
All bar dimensions are given out to out.
For masonry plate details, see sh 156-6
For replacement steel schedule, see sh. 97-6

NOTES FOR SPIRAL REINFORCING BARS:
The "Length" shown in the reinforcement schedule for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.
The "No. of Turns" shown in the reinforcement schedule for the spiral bars is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. 1 1/2 closed coils shall be provided at the ends of each spiral unit.
Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lb per lin. ft. will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.
Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item S-4.

H.N.T.B BR. NO. 9 PART 6

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

PIER I

RAMP E-15 OVER EAST 14 th ST.
BR. NO. CUY-21-1573B STA. 15+27.70
Scale: 1/4" = 1'-0" Except as noted. STA. 16+96.91

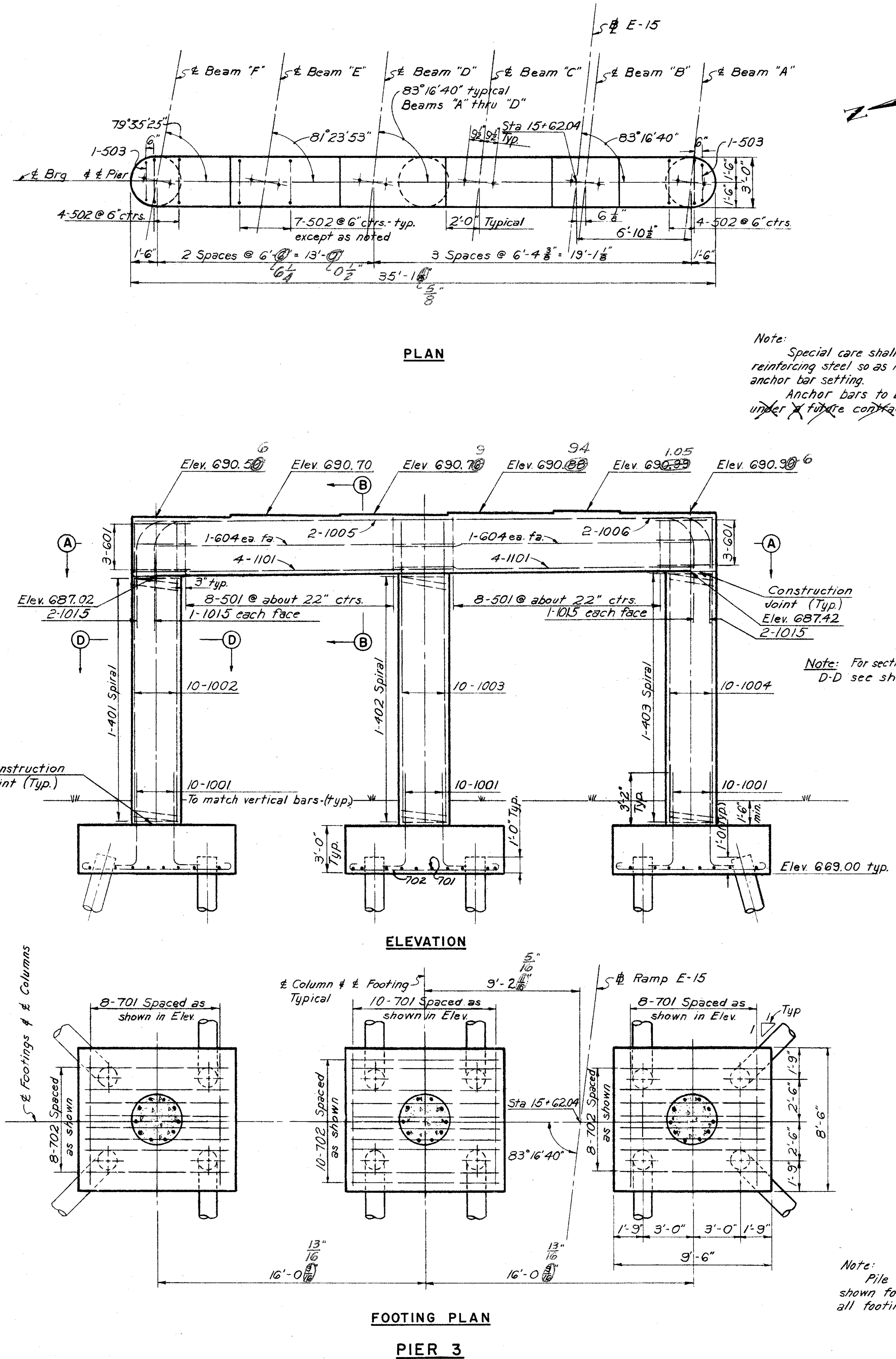
WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN CAB	TRACED	CHECKED G.T.	REVIEWED JCT	REVISED 9-21-60
DATE 9-4-58	DATE	DATE 6-18-58	DATE 11-12-59	SHEET 148

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

149 / 175

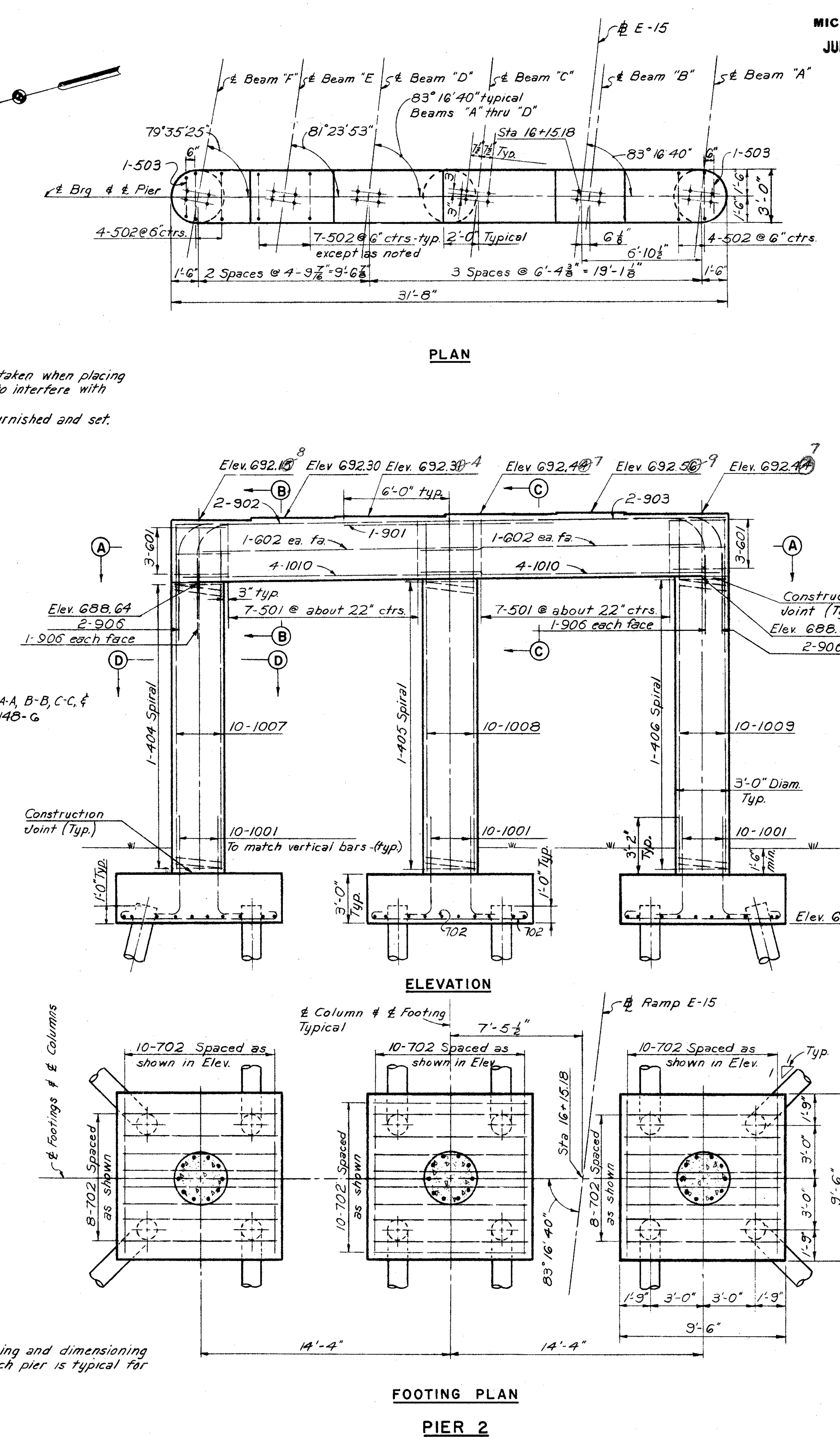
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bar setting.
Anchor bars to be furnished and set under ~~future~~ contract.

Note: For sections A-A, B-B, C-C, & D-D see sheet 148-G.

Note:
Pile spacing and dimensioning shown for each pier is typical for all footings.



Note:
Provide electrical ground wire in outside columns of Pier 2. See notes on Sh. 91A-G.
Special care shall be taken in placing of electrical ground so as not to interfere with shoe base plate.

Note: Prefix "PD" shall be assigned to all bar marks.

NOTE:
For Reinforcement Schedule and Notes see sheet 148-G.

H.N.T.B. BR. NO. 9 PART 6

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

PIERS 2 & 3

RAMP E-15 OVER EAST 14th ST.
BR. NO. CUY-21-1573B STA. 15+27.70
Scale: 1/4" = 1'-0" STA. 16+96.91

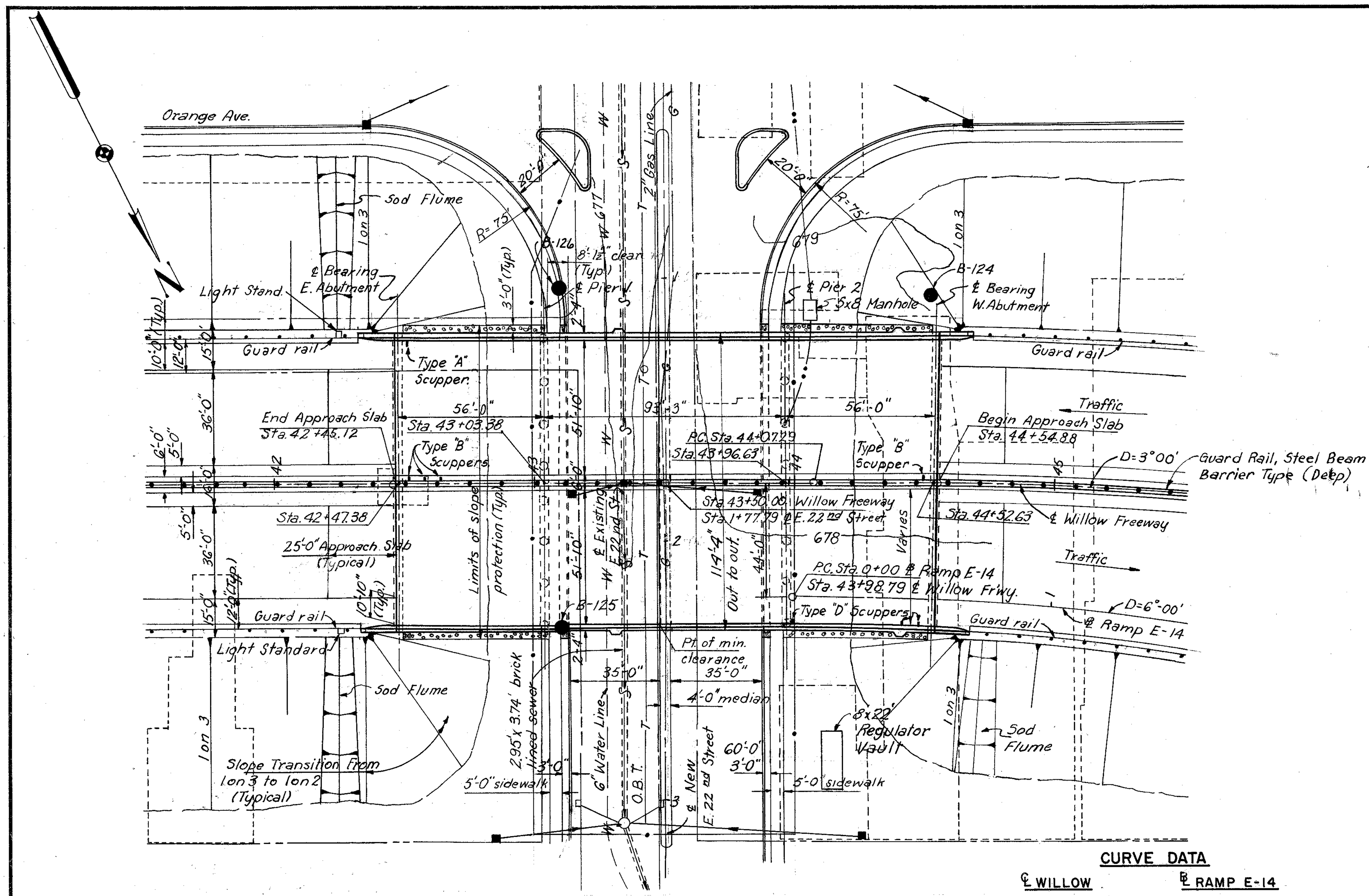
WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN CBB	TRACED	CHECKED G.T.	REVIEWED JCT	REVISED 7-22-60
DATE 9-11-58	DATE	DATE 6-19-58	DATE 11-12-59	SHEET 149

Revised 9-21-60.

LEGEND

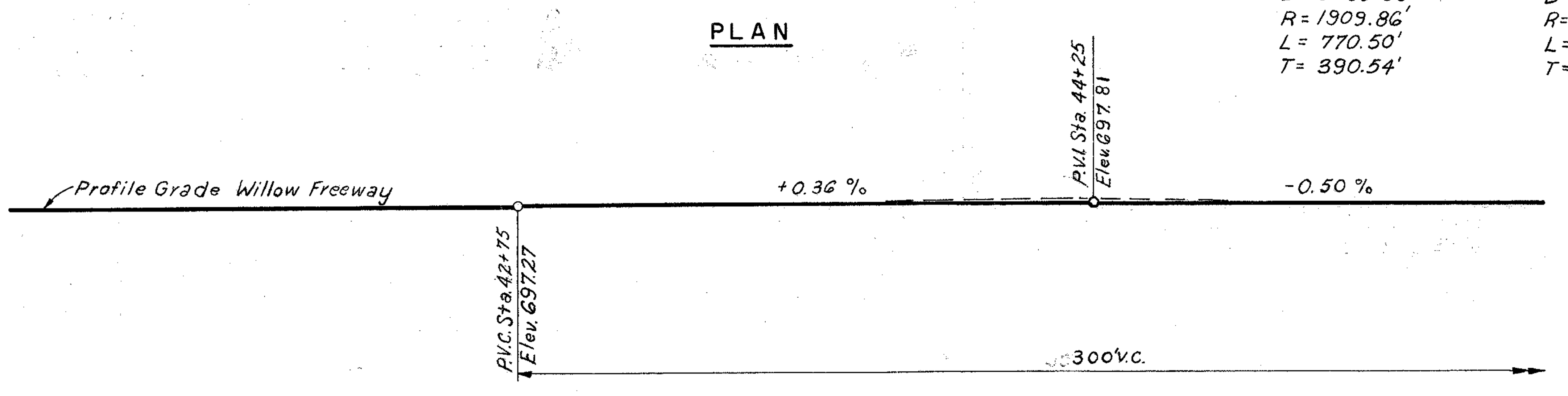
Existing Right of Way	
Existing Edge of Pavement	
Existing Sewer Line	S
O.B.T. Line	T
Water Line	W
Gas Line	G
Existing Manhole	
Existing Catch Basin	
Proposed Inlet	
Proposed Manhole	
Proposed Sewer	
Proposed 2"ϕ Duct	
Proposed 4"ϕ Duct	



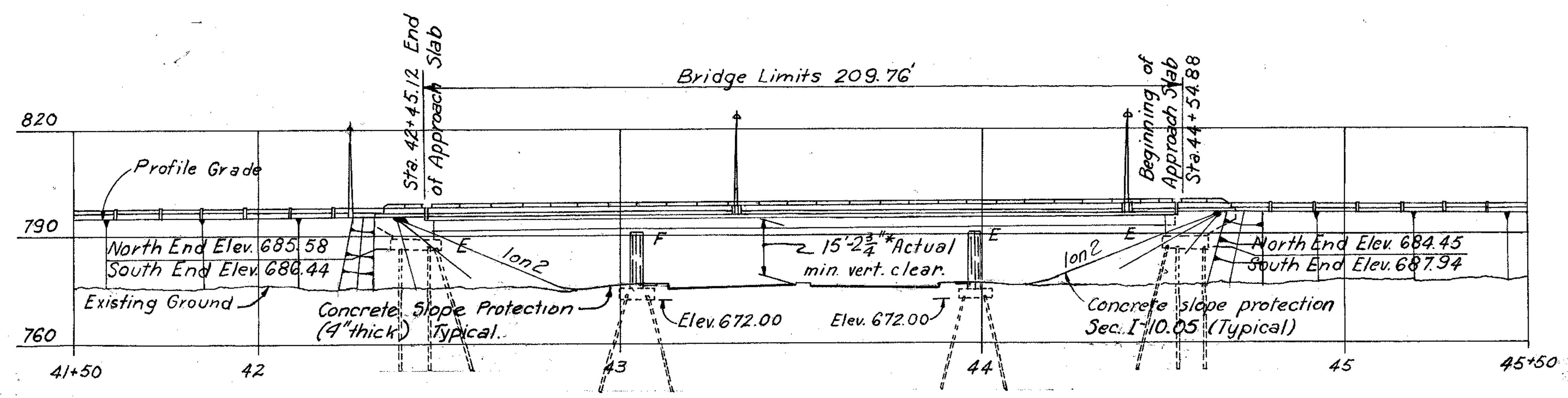
CURVE DATA

℄ WILLOW	℄ RAMP E-14
Δ= 23°06'48"	Δ= 17°52'41"
D= 3°00'00"	D= 6°00'00"
R= 1909.86'	R= 954.93'
L= 770.50'	L= 297.97'
T= 390.54'	T= 150.20'

PLAN

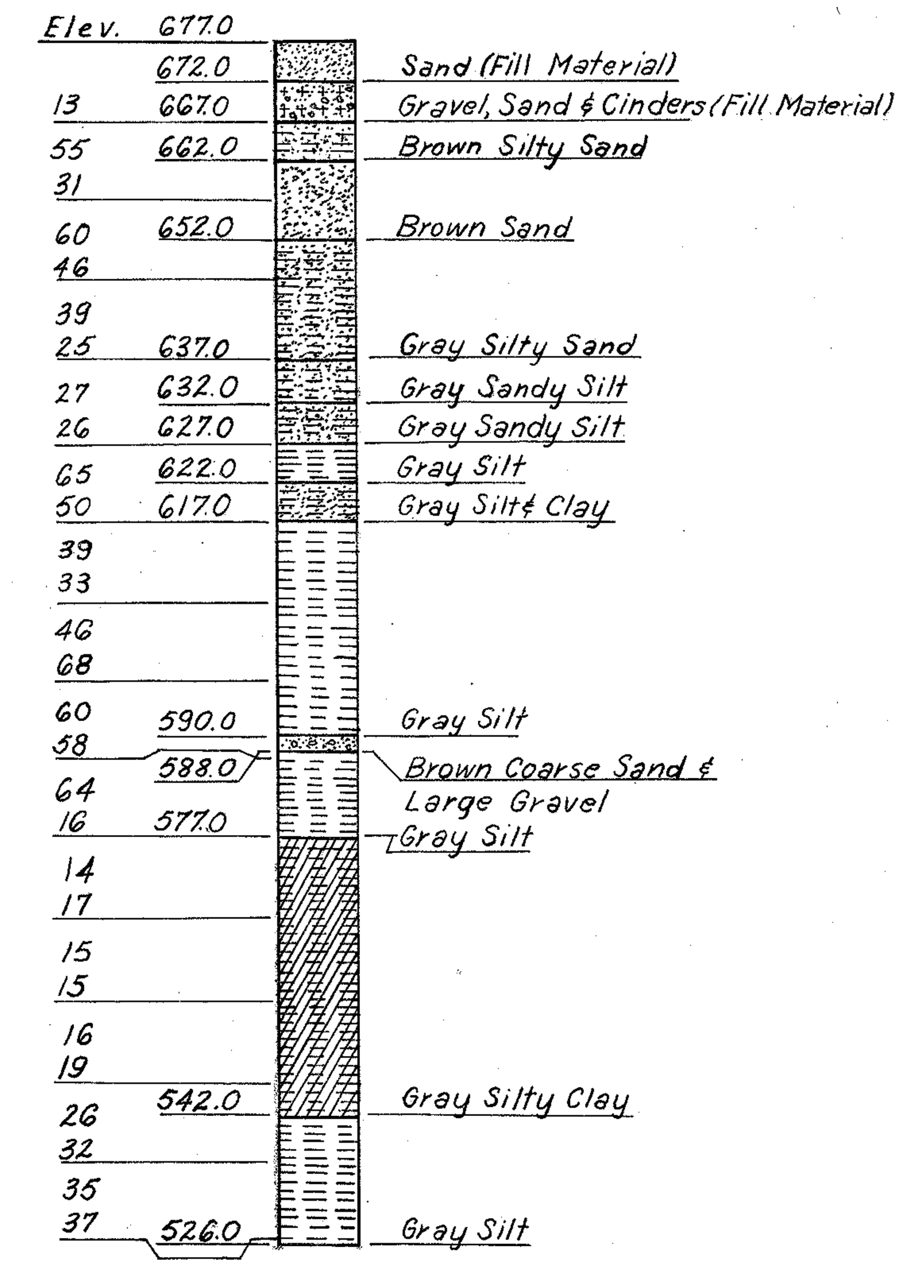


PROFILE



ELEVATION

* 15'-0" Required minimum vertical clearance. Point of actual minimum vertical clearance occurs at East edge of median and the North exterior beam.



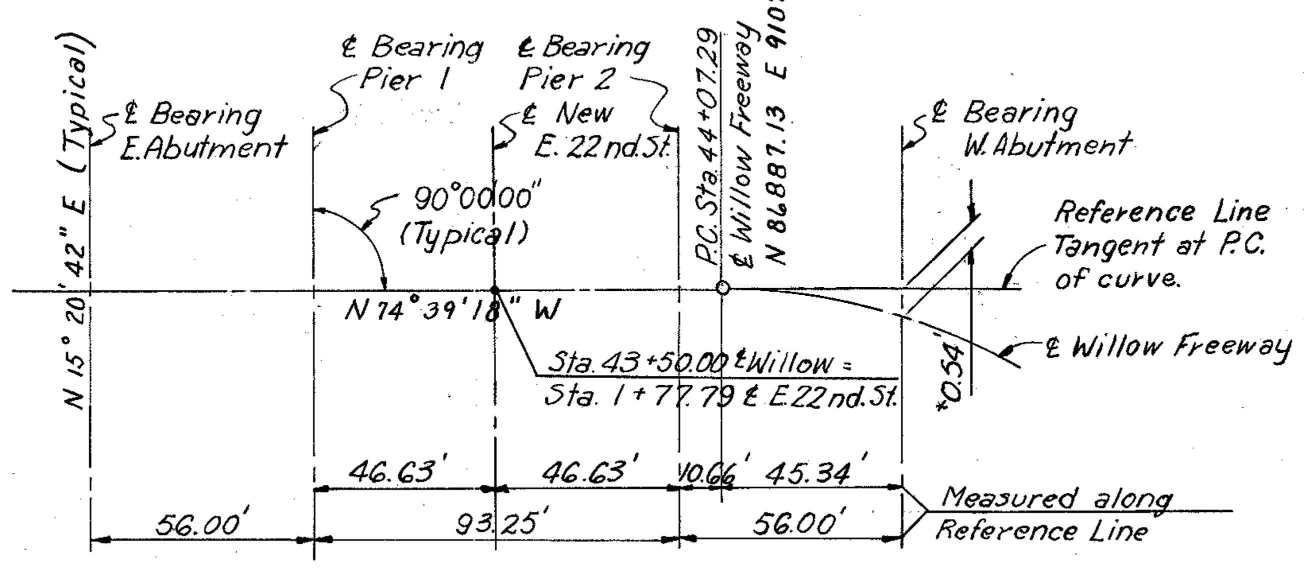
BORING B-125
Sta. 43+10 60' Rt.
Vertical Scale: 1" = 20'

Note:
The figures to the left indicates the number of hammer blows required to drive the sample spoon 1 ft. They are given at 5' intervals starting at elevation 667.0.

PROPOSED STRUCTURE

Type: Continuous steel beam with reinforced concrete deck and substructure.
Spans: 56'-0", 93'-3", & 56'-0" along ℄ Willow Frwy.
Roadway: 112'-0" (nominal) f/f. parapets.
Loading: CF 2000 - Adequate for A.A.S.H.O. alternate loading.
Surface Course: 1" Monolithic Concrete.
Alignment: Tangent to 3°00' Rt.
Approach Slabs: AS-1-54 (25' Long)
Superelevation: Varies.
Skew: 0°00'.

Note:
This includes only Piers 1 and 2 for Br. No. 10. Abutments and superstructure for this bridge are in Part 10.



BRIDGE LAYOUT DIAGRAM
No Scale

* Offset measured from reference line to ℄ Willow Freeway along ℄ Bearings

PILE INFORMATION			
Location	Diameter	Number	Estimated ave. length
E. Abutment	12"	42	34'
W. Abutment	12"	42	35'
Pier 1	14"	50	26'
Pier 2	14"	50	26'

All piling to be C.I.P. Reinforced Concrete.

NOTES:
Rod soundings only were taken at location B-124 & B-126. The core drilling made at B-125 is plotted.
Detail for slope protection see sheet 157-G.
Pile lengths are based on boring data and are approximate only. The Contractor shall assume full responsibility for length of piling selected for driving.
The following items are not included in the bridge plans. See Roadway Plans for details:
Removal of existing pavement, etc.
Relocation or removal of existing utilities.
Approach grading, pavements and slabs.
Roadway Guard Rail.
Sod Flumes.

H.N.T.B. BR. NO. 10 PART 6

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

SITE PLAN

WILLOW FREEWAY OVER EAST 22nd. ST.
BR. NO. CUY-21-1559 STA. 42+45.12
Scale: 1" = 30' STA. 44+54.88

WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN AJS	TRACED NES	CHECKED DRK	REVIEWED JCT	REVISED	
DATE 6/14/58	DATE 8-1-58	DATE 7-16-58	DATE 11-12-59		SHEET 150

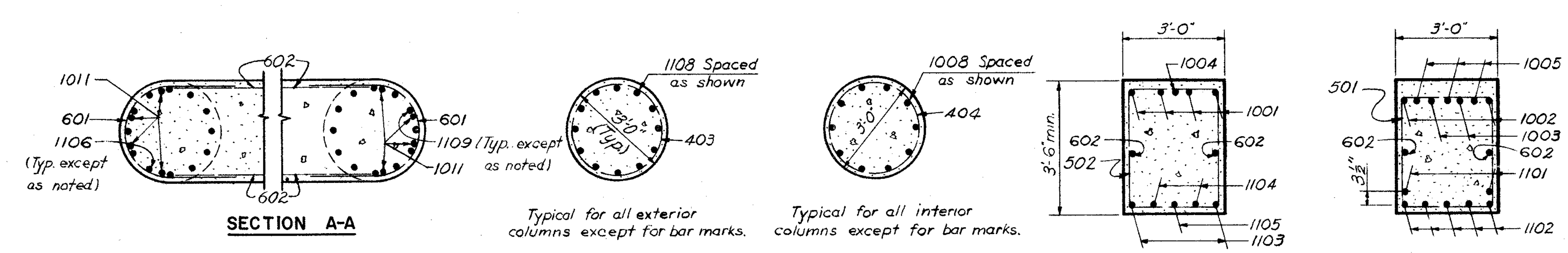
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29

PLAN

ELEVATION

FOOTING PLAN



SECTION A-A

Typical for all exterior columns except for bar marks.

SECTION D-D

Typical for all interior columns except for bar marks.

SECTION E-E

Scale for sections : $\frac{3}{4}$" = 1'-0"

SECTION C-C

SECTION B-B

NOTES:
All piles shall be 14"Φ C.I.P. reinforced concrete.
All battered piles to be battered 3 in 12 in direction shown.
For Reinforcement Schedule, see Sh. 153-G.
For Masonry plate and shoe details, see Ohio Stds. Drwg. RB-1-58.

Pile spacings are given along bottom of footings.
Reinforcement bars shall be 3" clear from face of concrete at bottom of footings, and 2" elsewhere.
Provide electrical ground wire in outside columns. See notes on sheet 91A-G.
Special care shall be taken in placing of electrical ground wire so as not to interfere with shoe base plate.

H.N.T.B. BR. NO. 10 — PART 6

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

PIER 1
WILLOW FREEWAY OVER EAST 22nd ST.
BR. NO. CUY-21-1559 — STA. 42+45.12
Scale: 1/4" = 1'-0" Except as noted — STA. 44+54.88
WILLOW-INNER BELT FREEWAY
CLEVELAND — CUYAHOGA COUNTY — OHIO

DRAWN T.J.P.	TRACED	CHECKED C.M.	REVIEWED J.C.T.	REVISED	
DATE 5-22-59	DATE	DATE 6-23-59	DATE 11-12-59		SHEET 151

NOTES:
For Reinforcement Schedule, see Sh. 153-G.
For masonry plate details, see Sh. 156-G.
For details of 4" Rigid Condurt, see Sh. 160.-G.
For other notes, see Sh. 151-G.

H.N.T.B. BR. NO. 10 — PART 6

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

PIER 2

WILLOW FREEWAY OVER EAST 22nd ST.
BR. NO. CUY-21-1559 — STA. 42+45.12
Scale: 1/4"=1'-0" Except as noted — STA. 44+54.88

WILLOW-INNER BELT FREEWAY
CLEVELAND — CUYAHOGA COUNTY — OHIO

DRAWN T.J.P.	TRACED	CHECKED CM	REVIEWED JCT	REVISED	
DATE 5-16-58	DATE	DATE 6-24-58	DATE 11-12-59		SHEET 152

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

153
175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29

MICROFILMED
JUL 9 1985

PIER 1

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCRE-MENT	WEIGHT (LBS)
501	14	12'-2"	109	2'-8"	3'-2"				178
502	37	12'-10"	109	2'-8"	3'-6"				495
503	4	12'-8"	109	2'-8"	3'-5"				53
504	7	12'-6"	109	2'-8"	3'-4"				91
505	8	6'-1"	105	2'-4"	2'-0"				51
506	98	6'-5"	105	2'-8"	2'-0"				656
507	2	6'-3"	105	2'-6"	2'-0"				13
601	6	7'-11"	144	1'-11"	4'-1"	1'-3$\frac{1}{4}$"			71
602	8	28'-6"	Str.						342
701	20	10'-10"	100	9'-2"					443
801	64	12'-4"	100	10'-2"					2108
901	60	11'-8"	100	9'-2"					2380
1001	8	30'-0"	Str.						1033
1002	4	27'-9"	Str.						478
1003	4	29'-0"	Str.						499
1004	2	12'-9"	Str.						110
1005	12	12'-0"	Str.						620
1006	10	17'-0"	Str.						732
1007	10	16'-9"	Str.						721
1008	10	16'-3"	Str.						609
1009	10	15'-9"	Str.						678
1010	40	6'-10"	104	5'-9"	1'-5"				1176
1011	8	12'-4	123	4'-9"	4'-9"				425
1101	4	12'-0"	Str.						255
1102	10	32'-0"	Str.						1700
1103	4	26'-3"	Str.						558
1104	4	27'-3"	Str.						579
1105	2	27'-6"	Str.						292
1106	12	17'-0"	Str.						1084
1107	12	16'-9"	Str.						1068
1108	12	16'-6"	Str.						1052
1109	12	15'-6"	Str.						988
1110	48	7'-3"	104	6'-1"	1'-6"				1849
								Total	23,477

PIER 2

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCRE-MENT	WEIGHT (LBS)
501	14	12'-2"	109	2'-8"	3'-2"				178
502	41	12'-10"	109	2'-8"	3'-6"				549
503	7	12'-6"	109	2'-8"	3'-4"				91
504	98	6'-5"	105	2'-8"	2'-0"				656
505	8	6'-1"	105	2'-4"	2'-0"				51
506	2	6'-3"	105	2'-6"	2'-0"				13
601	6	7'-11"	144	1'-11"	4'-1"	1'-3$\frac{1}{4}$"			71
602	8	28'-6"	Str.						342
701	84	10'-10"	100	9'-2"					1860
901	60	11'-8"	100	9'-2"					2380
1001	8	30'-0"	Str.						1033
1002	4	27'-9"	Str.						478
1003	4	29'-0"	Str.						499
1004	2	12'-9"	Str.						110
1005	12	12'-0"	Str.						620
1006	10	17'-6"	Str.						753
1007	10	17'-3"	Str.						742
1008	10	16'-0"	Str.						688
1009	10	15'-6"	Str.						667
1010	40	6'-10"	104	5'-9"	1'-5"				1176
1011	8	12'-4"	123	4'-9"	4'-9"				425
1101	4	12'-0"	Str.						255
1102	10	32'-0"	Str.						1700
1103	4	26'-3"	Str.						558
1104	4	27'-3"	Str.						579
1105	2	27'-6"	Str.						292
1106	12	17'-9"	Str.						1132
1107	12	16'-9"	Str.						1068
1108	12	16'-6"	Str.						1052
1109	12	15'-0"	Str.						956
1110	48	7'-3"	104	6'-1"	1'-6"				1849
								Total	22,823

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCRE-MENT	WEIGHT (LBS)

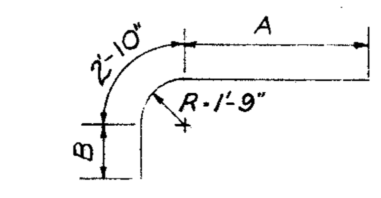
Note: Prefixes shall be assigned to bar marks as follows:
Pier 1 "PA"
Pier 2 "PB"

SPIRAL REINFORCEMENT SCHEDULE PIER 1

MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT (LBS.)
401	1	2'-8"	13'-10"	4$\frac{1}{2}$"	40	258
402	2	2'-8"	13'-5"	4$\frac{1}{2}$"	39	503
403	2	2'-8"	13'-0"	4$\frac{1}{2}$"	38	492
404	2	2'-8"	12'-7"	4$\frac{1}{2}$"	37	477
405	1	2'-8"	12'-4"	4$\frac{1}{2}$"	36	232
						1,962

SPIRAL REINFORCEMENT SCHEDULE PIER 2

MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT (LBS.)
401	1	2'-8"	14'-6"	4$\frac{1}{2}$"	42	272
402	1	2'-8"	14'-1"	4$\frac{1}{2}$"	41	265
403	1	2'-8"	13'-9"	4$\frac{1}{2}$"	40	259
404	1	2'-8"	13'-4"	4$\frac{1}{2}$"	39	252
405	1	2'-8"	13'-0"	4$\frac{1}{2}$"	38	246
406	1	2'-8"	12'-7"	4$\frac{1}{2}$"	37	239
407	1	2'-8"	12'-3"	4$\frac{1}{2}$"	36	233
408	1	2'-8"	11'-10"	4$\frac{1}{2}$"	35	226
						1,992



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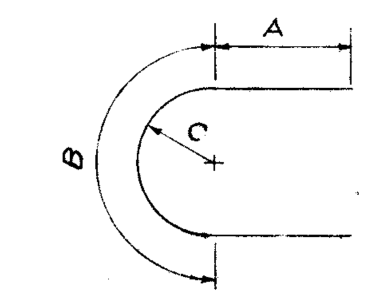

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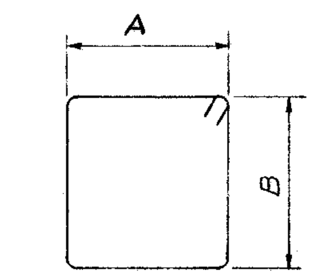
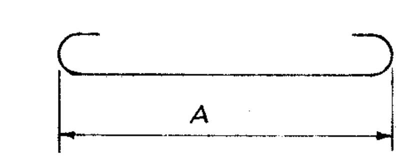
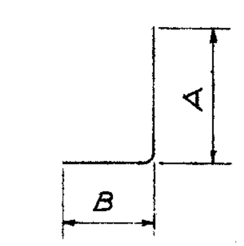


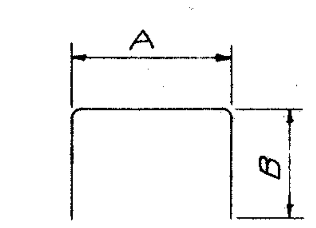
TYPE 109



TYPE 100



TYPE 104



TYPE 105

BENDING DIAGRAMS

NOTES FOR SPIRAL REINFORCING BARS

The "Length" shown in the reinforcement schedule for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.

The "No. of Turns" shown in the reinforcement schedule for the spiral bars is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. 1$\frac{1}{2}$ closed coils shall be provided at the ends of each spiral unit.

Four steel channels, tee or angle spacers, weighing approximately 0.68 lbs. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lbs. per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

Spiral reinforcing bars shall not have deformations but shall in ether respects conform to item S-4.

H.N.T.B. BR. NO. 10 PART 6

NOTES:

All bar dimensions are given out to out.
For Replacement Steel Schedule see Sh. 97-C.

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

REINFORCEMENT SCHEDULE - PIERS

WILLOW FREEWAY OVER EAST 22nd ST.
BR. NO. CUY-21-1559 STA. 42 + 45.12
Scale: None STA. 44 + 54.88

WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

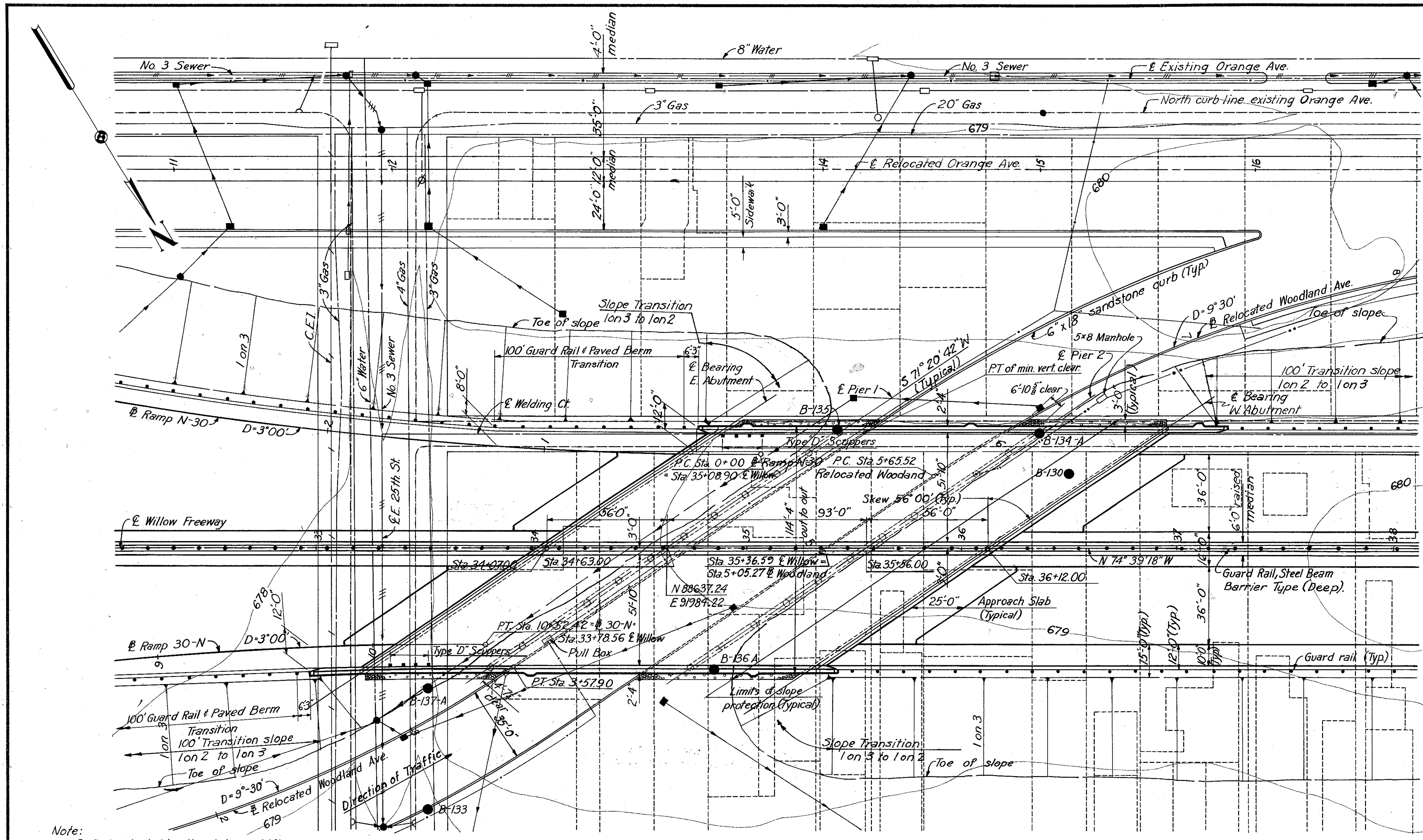
DRAWN TJP	TRACED	CHECKED CM	REVIEWED JCT	REVISED
DATE 5-25-58	DATE	DATE 6-24-58	DATE 11-12-59	SHEET 153

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

154
175

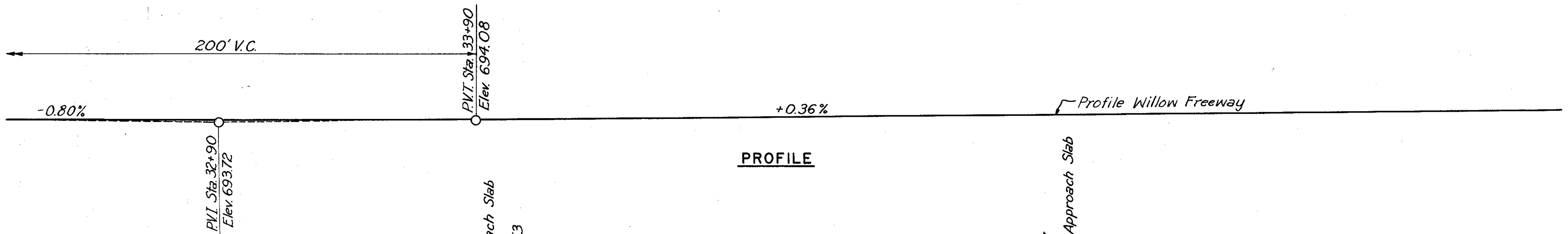
MICROFILMED JUL 9 1985

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

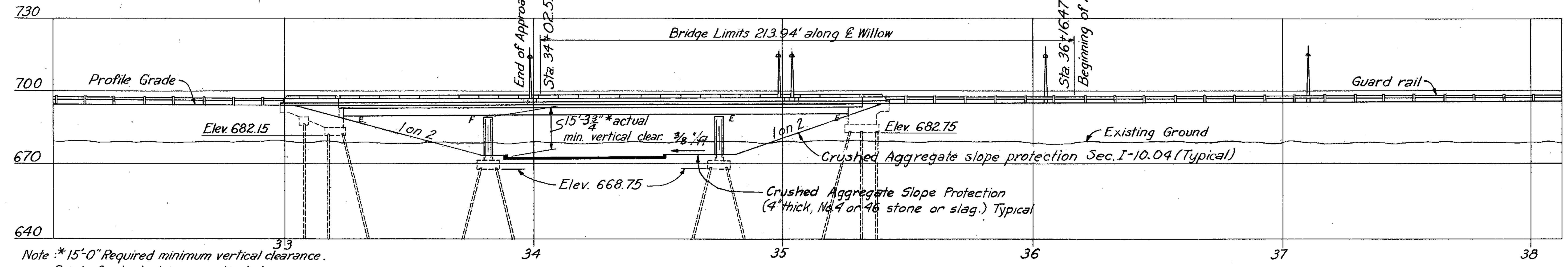


Note:
℄ Relocated Woodland Ave. shifts from left to right at Sta. 3+75.

PLAN



PROFILE



Note: * 15'-0" Required minimum vertical clearance. Point of actual minimum vertical clearance occurs at the South exterior beam and the East curb line of Relocated Woodland Ave.

ELEVATION

Elev. 678.3

Blows	Elev.	Material
19	673.3	Brown Silty Gravelly Sand
10		
11	663.3	Brown Gravelly Sand
12	658.3	Brown Sand
15	653.3	Brown Silty Sand
36	648.3	Gray Silty Sand
11		
15	638.3	Gray Silt
32	633.3	Gray Gravelly Sand
51	628.3	Gray Sandy Silt
148		
47		
9		
20		
60		
26	598.3	Gray Silt

BORING B-134 A
Vertical Scale: 1"=20'
Sta. 36+36 55 Lt.

Note:
The figures to the left indicates the number of hammer blows required to drive the sample spoon 1 ft. They are given at 5' intervals starting at Elev. 678.3 and Elev. 676.5.

Elev. 676.5

Blows	Elev.	Material
5	671.5	Brown Sand
8	666.5	Brown Silty Gravelly Sand
8		
17	656.5	Brown Silty Sand
16		
14		
18	641.5	Gray Silt
36	636.5	Brown Gravelly Sandy Silt
57	631.5	Gray Sandy Gravelly Silt
67		
19		
40		
14		
70		
	601.5	Gray Silt

BORING B-137 A
Vertical Scale: 1"=20'
Sta. 33+52 65' Rt.

CURVE DATA

℄ RAMP N-30	℄ RAMP 30-N	℄ REL. WOODLAND AVE.	REL. WOODLAND AVE.
Δ=11°00'00"	Δ=7°42'07"	Δ=34°00'00"	Δ=33°59'37"
D=3°00'	D=3°00'	D=9°30"	D=9°30'
R=1909.86'	R=1909.86'	R=603.11'	R=603.11'
T=183.90'	T=128.56'	T=184.39'	T=184.35'
L=366.67'	L=256.73'	L=357.90'	L=357.83'

PROPOSED STRUCTURE

Type: Continuous steel beam with reinforced concrete deck and substructure.
Spans: 56'-0", 93'-0", & 56'-0".
Roadway: 112'-0" (normal) f/f parapets.
Loading: CF 2000 - Adequate for A.A.S.H.O. alternate loading.
Surface Course: 1" Monolithic Concrete.
Alignment: Tangent.
Approach Slabs: AS-1-54. (25' long).
Superelevation: None.
Skew: 56°00'.

LEGEND

Right of Way
Curb
M.E.L.P.
Sewer
C.E.I.
Water
Gas
Proposed Sewer
Proposed 2" ϕ Duct
Proposed 4" ϕ Duct
Sewer to be abandoned

Note: This includes only Piers 1 & 2 for Br. No. 11. Abutments and superstructure for this bridge are in Part 7A.

NOTES:

Rod soundings only were taken at location B-130, B-133, B-135A & B-136A. The core drillings made at B-134 A & B-137A are plotted.
For details of slope protection see sheet 157-G.
Foundation design and foundation quantities are based on a study of these borings.
The following items are not included in the Bridge Plans. See Roadway Plans for details.
Removal of existing pavements, etc.
Relocation or removal of existing utilities.
Approach grading, pavement and slabs.
Roadway guard rail.

PILE INFORMATION			
Location	Diameter	Number	Estimated ave. length
East Abutment	12"	61	49'
West Abutment	12"	61	50'
Pier 1	14"	56	35'
Pier 2	14"	56	35'

All piling to be C.I.P. Reinforced Concrete.
Pile lengths are based on boring data and are approximate only. The Contractor shall assume full responsibility for lengths of piling selected for driving.

H.N.T.B. BR. NO. 11 — PART 6

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

SITE PLAN

WILLOW FREEWAY OVER REL. WOODLAND AVE.
BR. NO. CUY-21-1544 STA. 34+02.53
Scale: 1"=30' STA. 36+16.47

WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN A.J.S. DATE 11-24-58	TRACED RJK DATE 12-30-58	CHECKED DRK DATE 12-11-58	REVIEWED JCT DATE 11-12-59	REVISED	SHEET 154

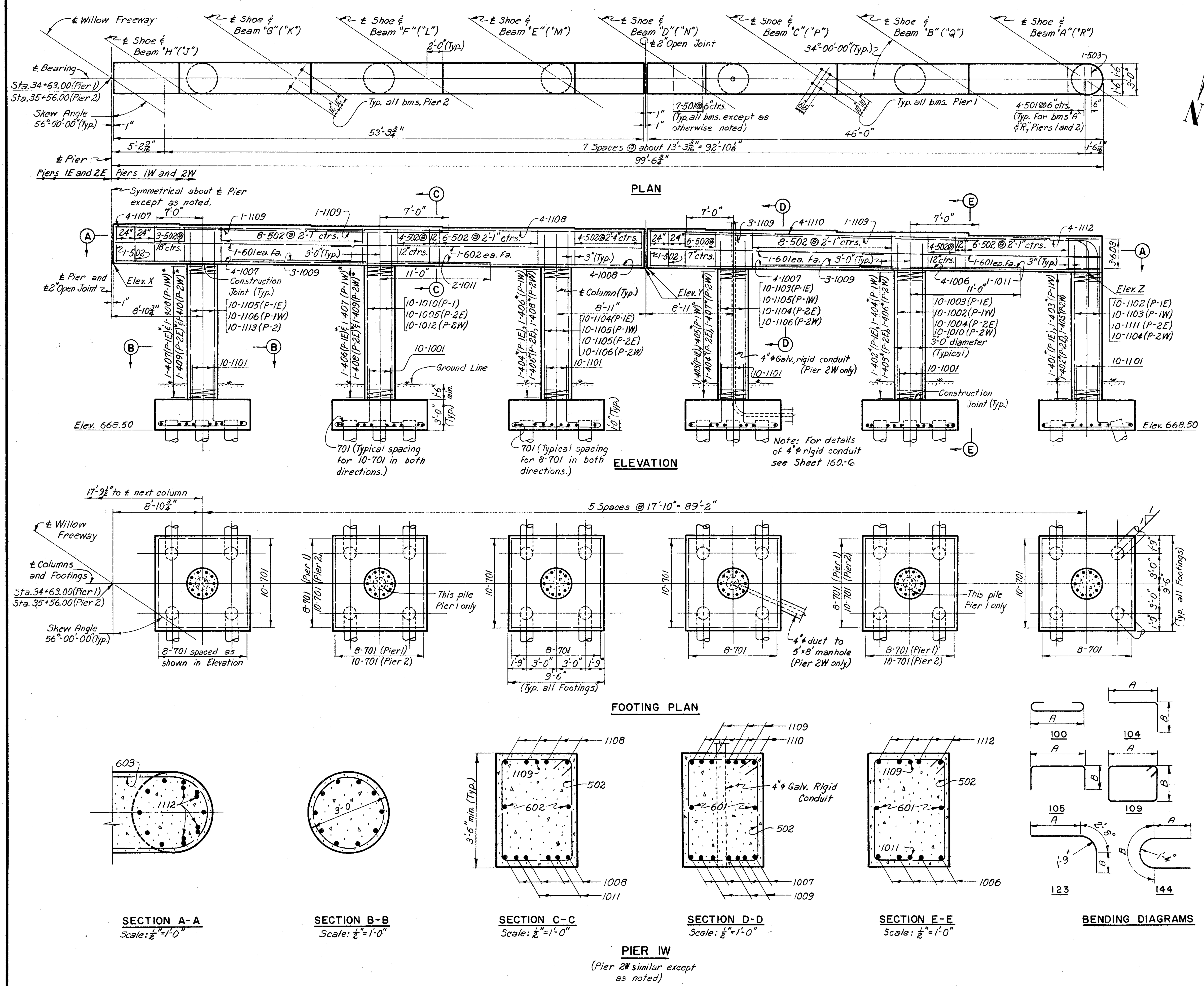
Note: Anchor bolts and anchor bars to be furnished and set under ~~a~~ future contract.
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bar or anchor bolt setting.

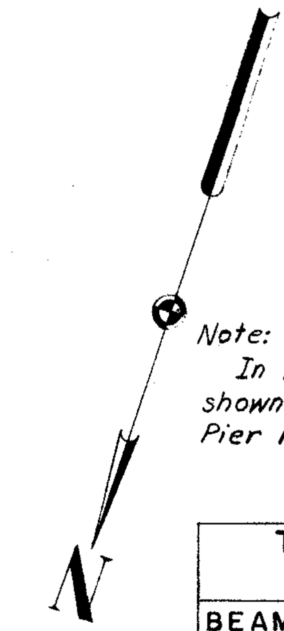
MICROFILMED JUL 9 1985

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		
2	OHIO			

155 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29





Note:
In Plan, the beam designations shown in parenthesis are for Pier 1E and 2E.

TOP OF MASONRY ELEVATIONS		
BEAM	PIER 1	PIER 2
A	688.23	688.57
B	688.50	688.84
C	688.67	689.00
D	688.74	689.08
E	688.82	689.15
F	688.90	689.23
G	688.97	689.31
H	689.05	689.38
J	689.02	689.35
K	688.86	689.20
L	688.71	689.04
M	688.55	688.89
N	688.40	688.73
P	688.24	688.58
Q	688.00	688.33
R	687.65	687.98

BOTTOM OF CAP BEAM ELEVATIONS		
ELEV.	PIER 1	PIER 2
Z (W)	684.64	684.98
Y (W)	685.02	685.36
X (W)	685.47	685.81
X (E)	685.47	685.81
Y (E)	684.66	684.99
Z (E)	683.98	684.31

REINFORCEMENT SCHEDULE								
MARK	NUMBER PIER 1	NUMBER PIER 2	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT PIER 1	WEIGHT PIER 2
501	106	106	5'-7"	105	2'-8"	1'-7"	617	617
502	106	106	12'-2"	109	2'-8"	3'-2"	1345	1345
503	2	2	5'-5"	105	2'-6"	1'-7"	11	11
601	12	12	23'-3"	Str.			419	419
602	4	4	31'-9"	Str.			191	191
603	6	6	7'-11"	144	1'-11"	4'-1"	71	71
701	208	224	10'-10"	100	9'-2"		4606	4960
1001	40	40	6'-11"	104	5'-10"	1'-5"	1191	1191
1002	10		16'-9"	Str.			721	
1003	10		16'-3"	Str.			699	
1004		10	16'-6"	Str.				710
1005		10	17'-3"	Str.				742
1006	8	8	24'-0"	Str.			826	826
1007	16	16	25'-0"	Str.			1721	1721
1008	8	8	31'-3"	Str.			1076	1076
1009	12	12	12'-0"	Str.			620	620
1010	20	10	17'-0"	Str.			1463	732
1011	6	6	11'-0"	Str.			284	284
1012		10	17'-6"	Str.				753
1101	80	80	7'-4"	104	6'-2"	1'-6"	3117	3117
1102	10		15'-9"	Str.			837	
1103	20		16'-6"	Str.			1753	
1104	10	20	16'-9"	Str.			890	1780
1105	30	10	17'-0"	Str.			2710	903
1106	10	20	17'-3"	Str.			916	1833
1107	8	8	24'-9"	Str.			1052	1052
1108	8	8	32'-0"	Str.			1360	1360
1109	12	12	14'-0"	Str.			893	893
1110	8	8	40'-0"	Str.			1700	1700
1111		10	16'-3"	Str.				863
1112	8	8	15'-4"	123	7'-5"	5'-3"	652	652
1113		20	17'-6"	Str.				1860
						Total	31,741	32,282

Note: Prefix "P" shall be assigned to all bar marks.

Note:
Provide electrical ground wire in outside columns of Pier 1. See notes on Sheet 91A-G.
Special care shall be taken in placing of electrical ground wire so as not to interfere with shoe base plate.

SPIRAL REINFORCEMENT SCHEDULE								
MARK	NUMBER PIER 1	NUMBER PIER 2	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT PIER 1	WEIGHT PIER 2
401	1		2'-8"	12'-5"	4½"	36	232	
402	1	1	2'-8"	12'-9"	4½"	37	239	239
403	2	1	2'-8"	13'-0"	4½"	38	490	245
404	2	1	2'-8"	13'-3"	4½"	38	492	246
405	1	1	2'-8"	13'-5"	4½"	39	252	252
406	2	2	2'-8"	13'-7"	4½"	39	504	504
407	2	1	2'-8"	13'-9"	4½"	40	516	258
408	1	2	2'-8"	13'-10"	4½"	40	258	516
409		2	2'-8"	14'-1"	4½"	41		528
410		1	2'-8"	14'-3"	4½"	41		265
						Total	2,983	3,053

Note: For note concerning spiral reinforcing bars, see Sheet 148

NOTES:
All piles shall be 14"ϕ cast-in-place reinforced concrete.
All battered piles to be battered 3 in 12 in direction shown.
Pile spacings given along bottom of footing.
Reinforcement bars shall be 3 inches clear from bottom of footing and 2 inches elsewhere.
For masonry plate details, see Sheet 156-G and Ohio Standards, Drawing RB-1-55.
For Replacement Schedule, see Sheet 97-G.
All bar dimensions given out to out.
Dowels to match vertical reinforcement in columns.
The following abbreviations are used: P=Pier, E=East, W=West, ea. fa.=each face and * denotes Spiral.

H.N.T.B. BR. NO. 11 — PART 6

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

PIERS 1 & 2

WILLOW FREEWAY OVER REL. WOODLAND AVE.

BR. NO. CUY-21-1544 — STA. 34+02.53 — STA. 36+16.47

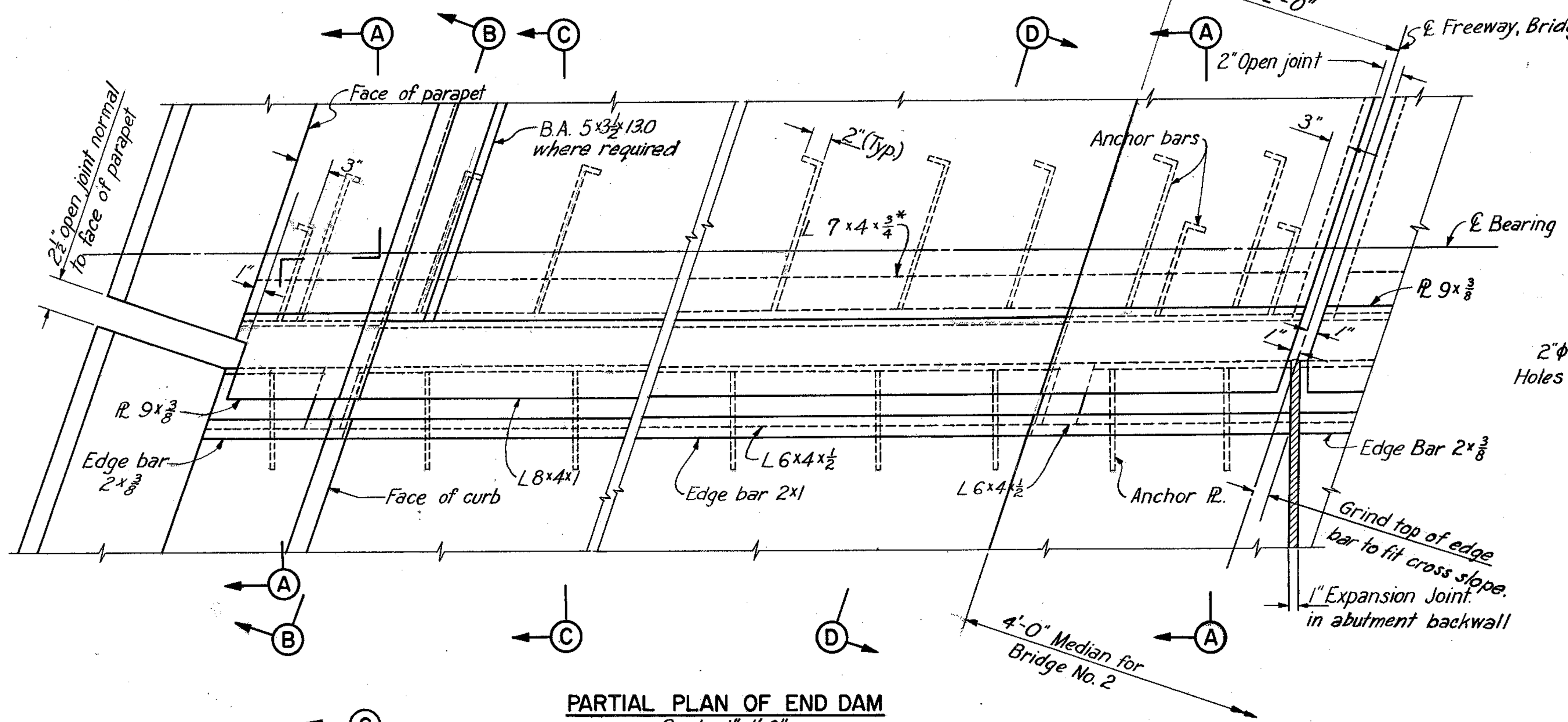
Scale: 3/16" = 1'-0" Except as noted

WILLOW-INNER BELT FREEWAY

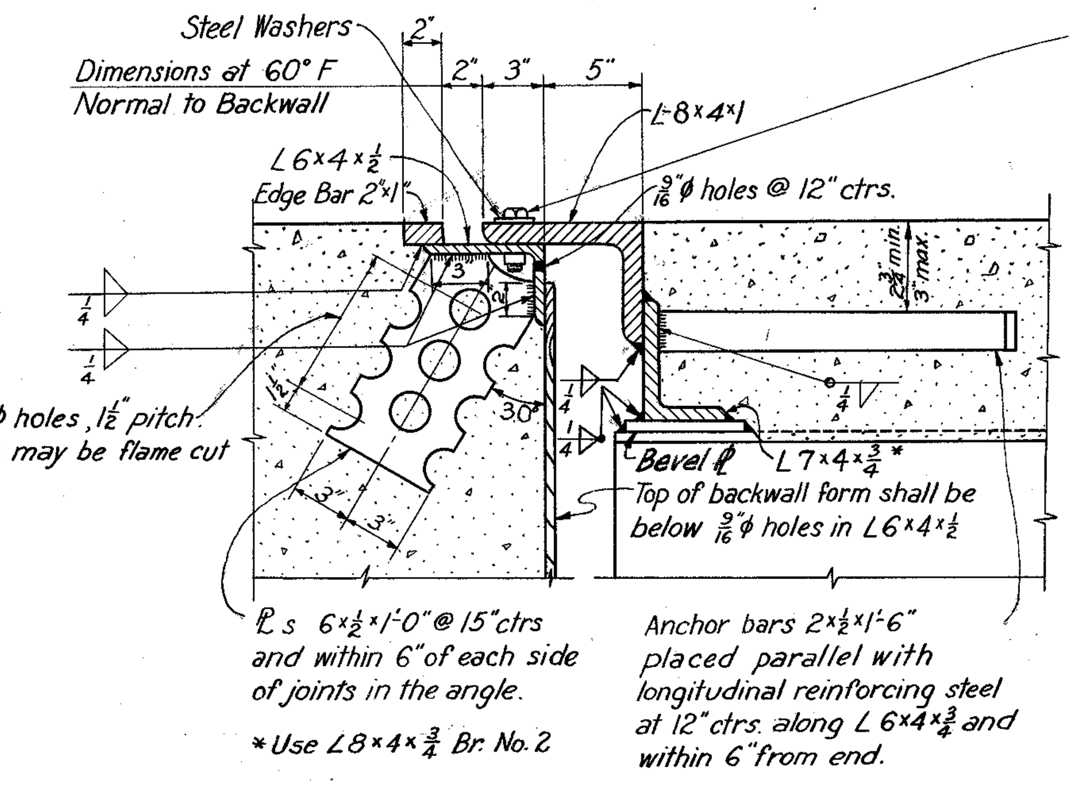
CLEVELAND — CUYAHOGA COUNTY — OHIO

DRAWN F.S.J.	TRACED	CHECKED ARL	REVIEWED JCT	REVISED
DATE 11-24-58	DATE	DATE 12-15-58	DATE 11-12-59	SHEET 155

Note : Roadway 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. Omit shop coat on all portions of end dams. Portions in contact with steel or concrete shall not be painted. All other portions shall be cleaned and given the shop coat in the field as well as the two field coats.
All sliding contact surfaces of the expansion joint materials shall not be painted and shall be lubricated with flake graphite prior to placing of backwall concrete.



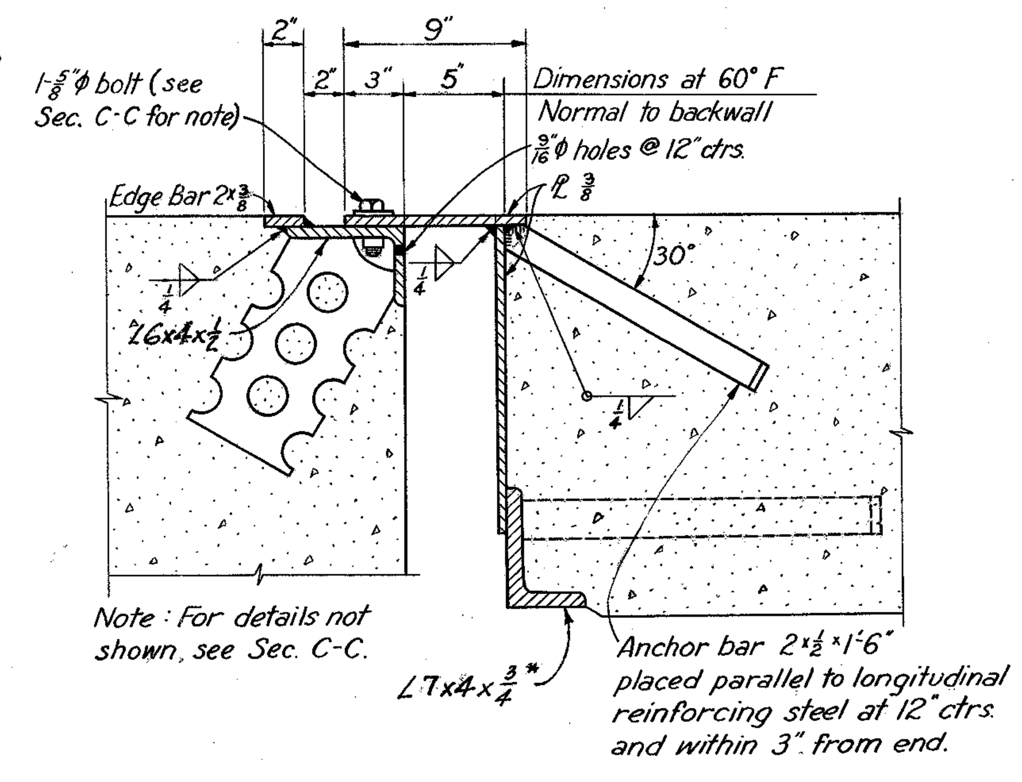
PARTIAL PLAN OF END DAM
Scale 1"=1'-0"



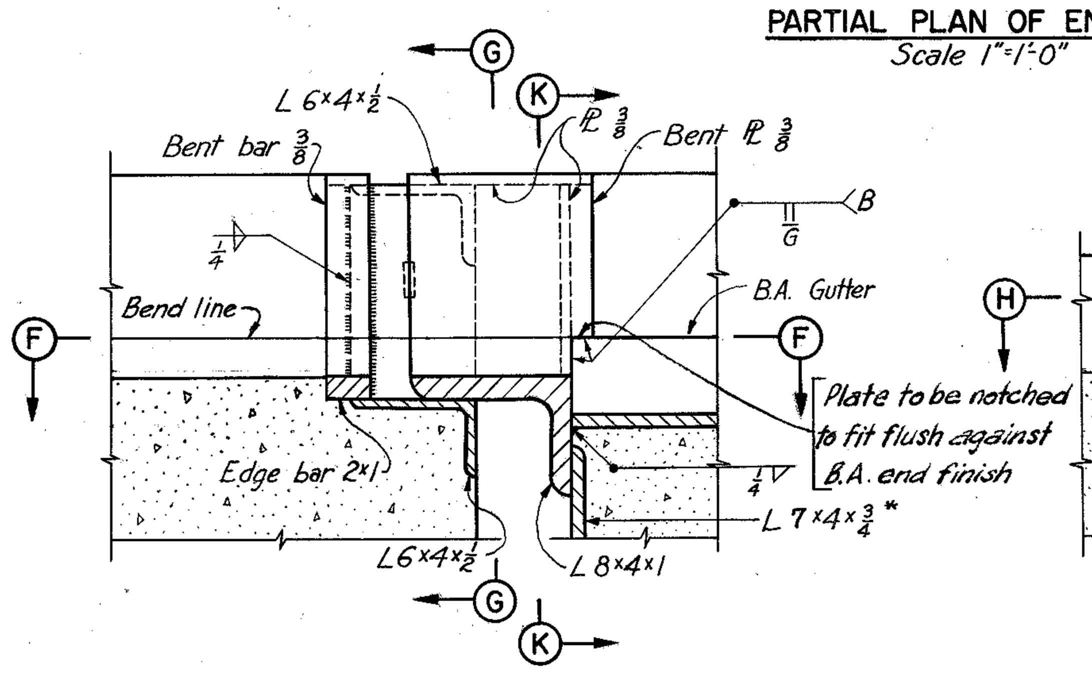
SECTION C-C
(Typical except as modified for Bridge No. 6 Abutments and where beveled bearing bar is required. For Section at Bridge No. 6 Abutments see Section K-K, sheet 129-G.)

⅝"φ×2 bolts at not more than 2'-0" ctrs. with nuts tack-welded to under side of lower angle. Holes to be 1⅛"φ in upper angle. Center ⅝"φ bolts in 1⅛"φ holes. Apply flake graphite between washers and angles. Turn bolts tight and release one-half turn. Remove bolts as soon as concrete has reasonably set, preferably within 2 hours after placing. Fill holes with bituminous material.

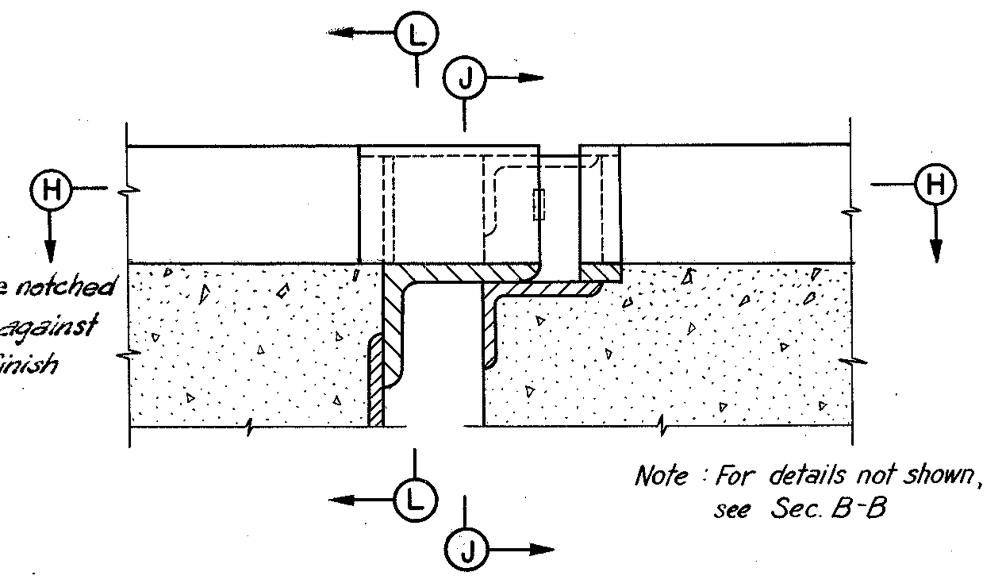
Note : A welded butt joint shall be provided at the apex of the 5'-0" rounding for that portion of the end dam attached to the superstructure of Bridge No. 2 (See detail of Welded Butt Joint). The portion attached to the backwall shall be placed in segments not less than 6'-0" in length with a joint at the apex of the 5'-0" rounding and at all abutment contraction joints. These shall be closely butted but shall not be welded.
Beveled bearing bars shall be used for end dams at the following locations only :
1. Bridge No. 2, Abutment E-5.
2. Bridge No. 6, West Abutment.
See detail of Beveled Bearing Bar.



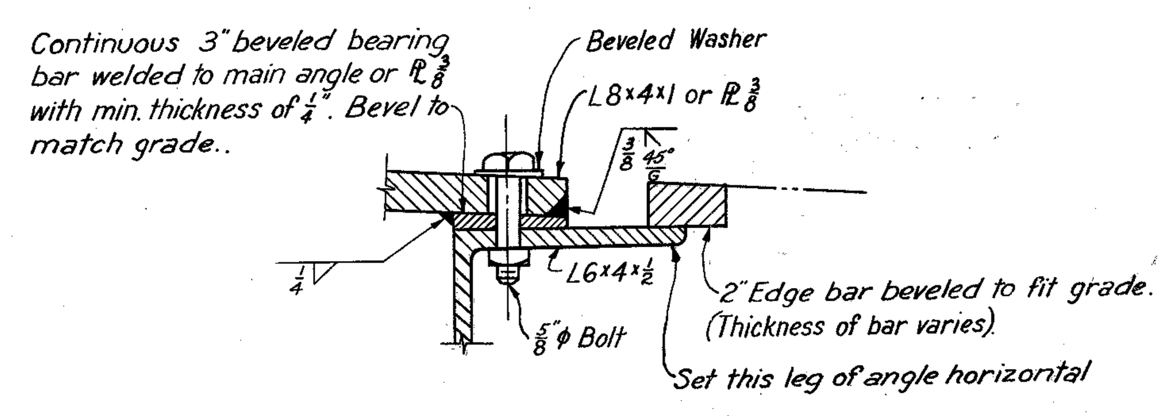
SECTION A-A
(Typical except as modified where beveled bearing bar is required.)



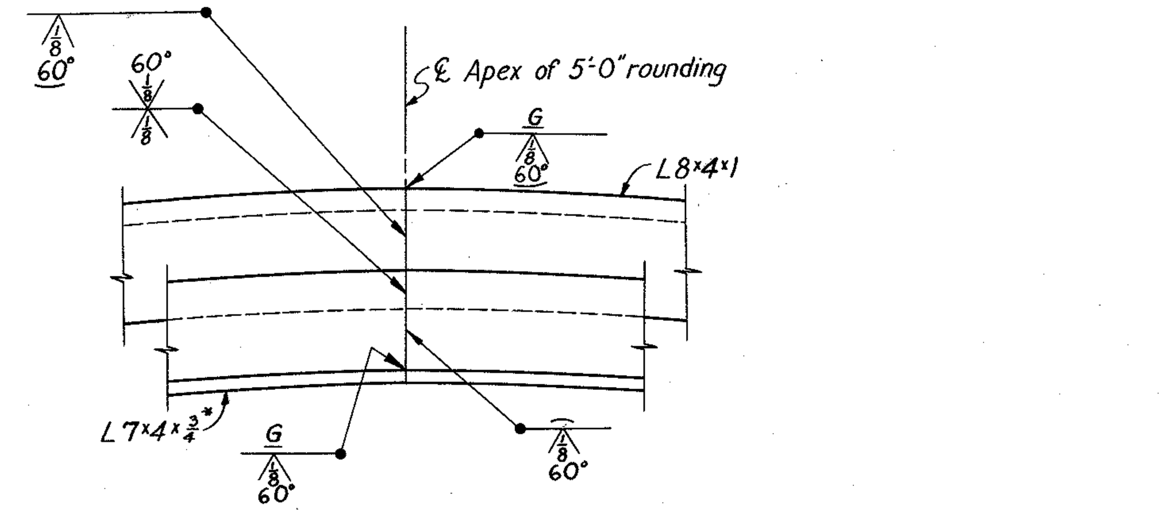
SECTION B-B



SECTION D-D

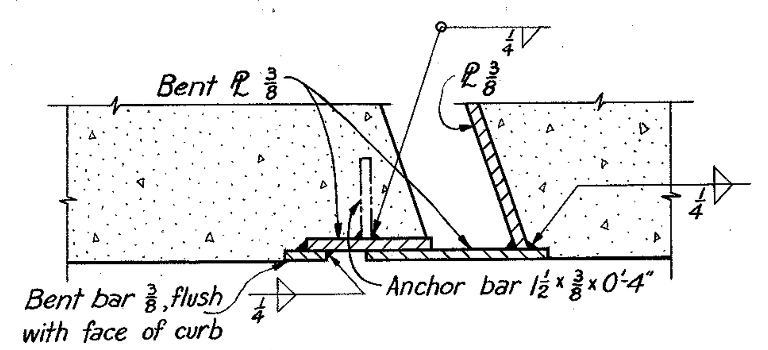


DETAIL OF BEVELED BEARING BAR
(This section taken parallel to line of expansion)
Scale 3"=1'-0"

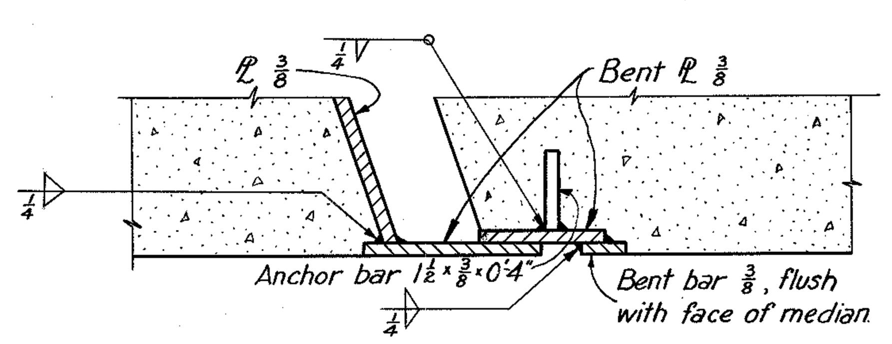


WELDED BUTT JOINT IN SUPERSTRUCTURE END DAM ANGLES AT APEX OF 5'-0" ROUNDING

Note:
All end dam steel shall be included with "Item 5-7, Structural Steel" for payment.

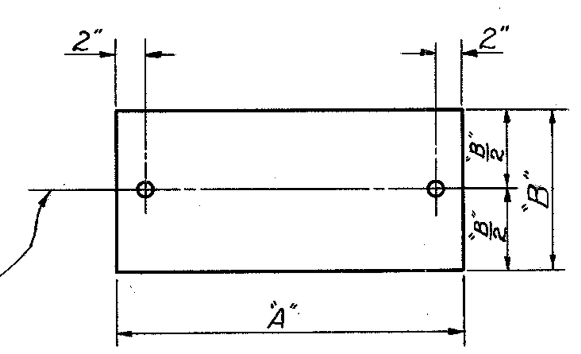


SECTION F-F



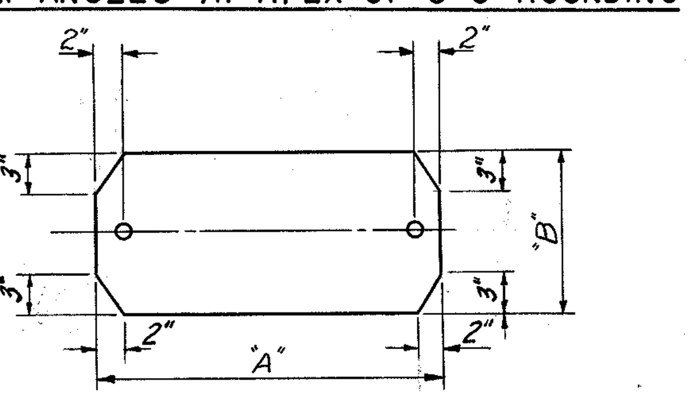
SECTION H-H

1⅛"φ holes for 1⅛"φ×1'-6" anchor bars. Anchor bars to be embedded to such depth that the top of bar is ¼" below the top of masonry ℞. (Typical for all rocker masonry plates)



PLAN OF TYPICAL ROCKER MASONRY PLATE
No Scale

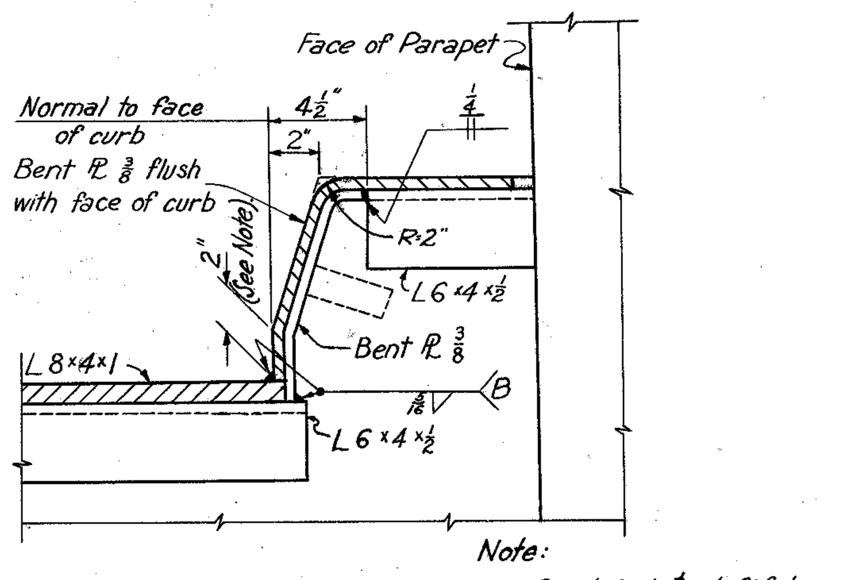
Note :
For other Rocker Details, see Ohio State Standard Drawing RB-1-55.



PLAN OF SPECIAL ROCKER MASONRY PLATE FOR ROCKERS MARKED "RS"
No Scale

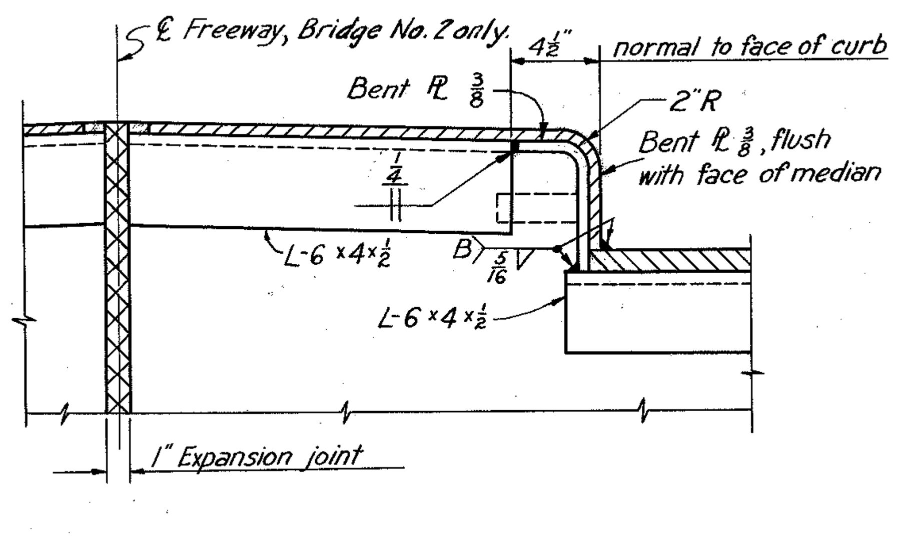
ROCKER NO.	DIMENSIONS A (in.)	B (in.)
R-75	22	8
R-100	23	10
R-125	24	11
R-150	26	12
R-175	27	14
R-200	28	16

Note : Details for Rockers marked "RS" are the same as for those marked "R".

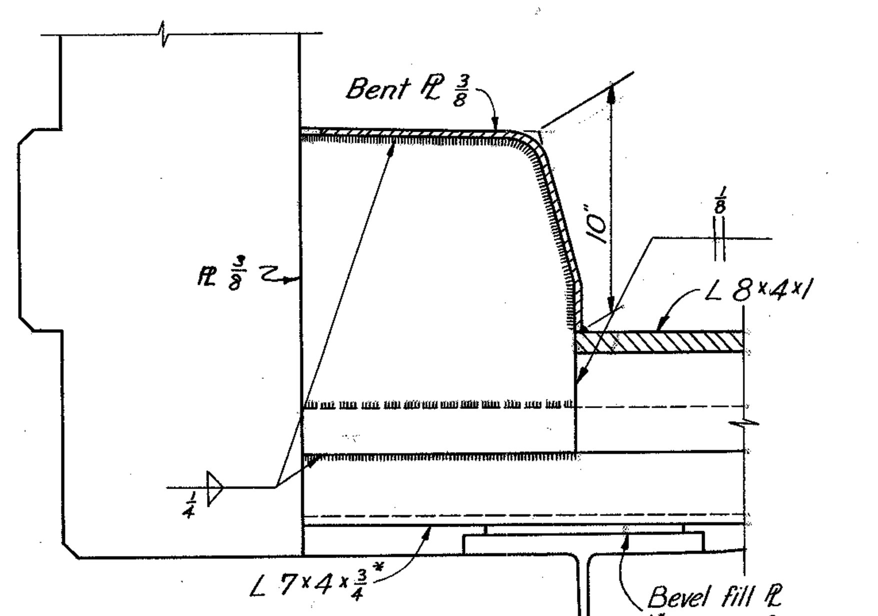


SECTION G-G

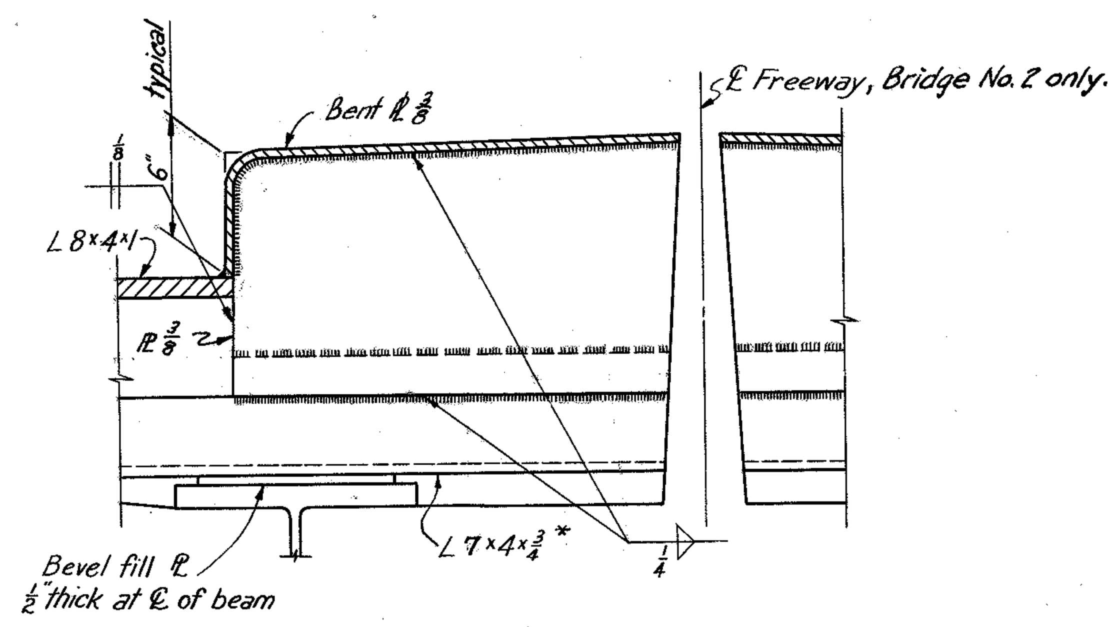
Note:
Bend Curb ℞ at Safety Curb with B.A. Gutter only.



SECTION J-J



SECTION K-K



SECTION L-L

PART 6

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

END DAM DETAILS

Scale: 1 1/2 = 1'-0" Except as noted

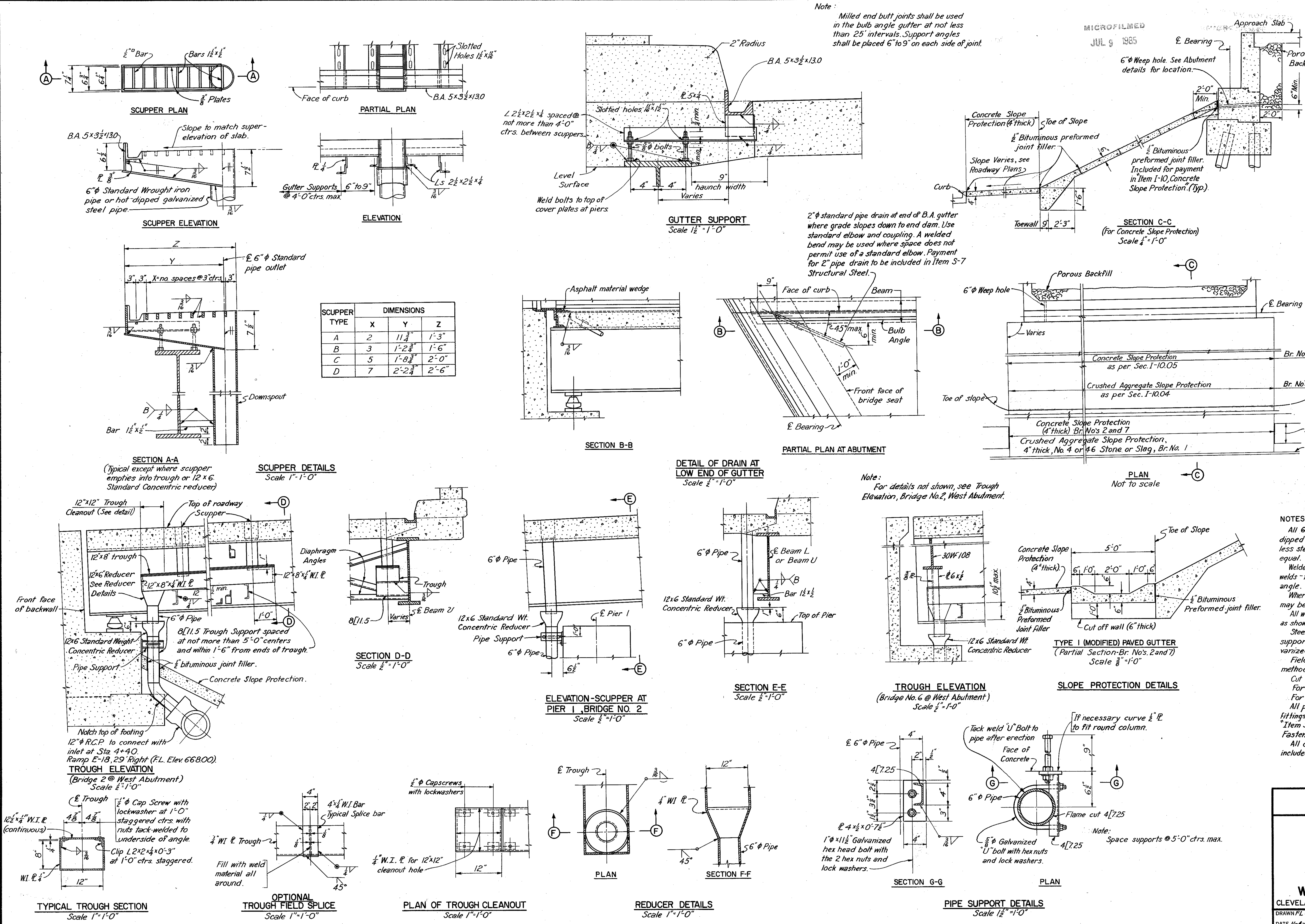
WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN FLC	TRACED RJK	CHECKED A.J.	REVIEWED JCT	REVISED	
DATE 11-24-58	DATE 11-26-58	DATE 12-5-58	DATE 11-12-59		SHEET 156

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29

MICROFILMED
JUL 9 1985



Note:
Milled end butt joints shall be used in the bulb angle gutter at not less than 25' intervals. Support angles shall be placed 6" to 9" on each side of joint.

2" φ standard pipe drain at end of B.A. gutter where grade slopes down to end dam. Use standard elbow and coupling. A welded bend may be used where space does not permit use of a standard elbow. Payment for 2" pipe drain to be included in Item S-7 Structural Steel.

SCUPPER TYPE	DIMENSIONS X	Y	Z
A	2	11¾"	1'-3"
B	3	1'-2¾"	1'-6"
C	5	1'-8¾"	2'-0"
D	7	2'-2¾"	2'-6"

Note:
For details not shown, see Trough Elevation, Bridge No. 2, West Abutment.

Note:
Concrete or Crushed Aggregate Slope Protection material, as required, shall be placed within the limits shown on the Site Plans.
Slope Protection material required on all roadway areas beyond the toe of slopes shall be as follows:
Concrete shall conform to Sec. I-10.05 except that it shall be 4" thick.

Crushed aggregate shall be 4" thick and shall consist of No. 4 or 46 stone or slag placed flush with the adjacent finished ground.
Where pier columns extend through the slab, 1" preformed expansion joint material, as per Sec. M-10.02 shall be placed around the columns for the full thickness of the slab, and shall be included with "Item I-10 Concrete Slope Protection, (4")" for payment.

NOTES:
All 6" φ pipe shall be standard weight wrought iron or hot dipped galvanized steel pipe with extra strong weld type seamless steel fittings or galvanized Victaulic couplings or approved equal.
Welded joints of all pipes and fittings to be single bevel butt welds - full penetration with ⅛ root opening and 45° included angle.
Where W.I. plates are called for, Mayari R or Cor-Ten steel may be used.
All welds on drainage fittings shall be 3/16 fillet welds except as shown.
Steel pipe, all steel fittings, all pipe supports, trough supports, nuts, bolts and washers shall be hot dipped galvanized after fabrication.
Field welds shall be field galvanized by an approved method.
Cut 7" φ holes in 10 Ga. ℄ of trough for 6" φ pipes.
For scupper locations, see Deck Plans.
For trough location, see Framing Plan Bridge No. 2.
All pipes attached to the substructure including fittings, supports, and accessories shall be included in "Item S-23, 6" φ W.I. Galvanized Steel Pipe including Fastenings & Specials" for payment.
All other metalwork of the drainage system shall be included in Item S-7.

PART 6

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

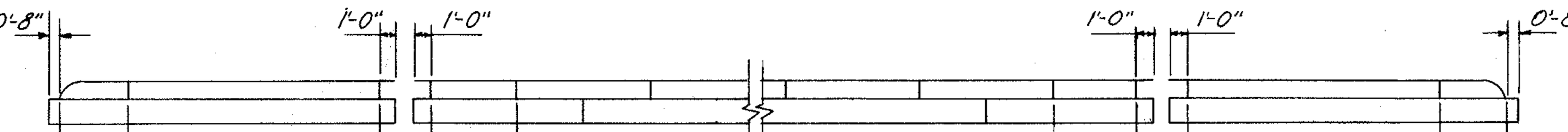
DRAINAGE DETAILS

Scale : As shown

WILLOW-INNER BELT FREEWAY

CLEVELAND CUYAHOGA COUNTY OHIO

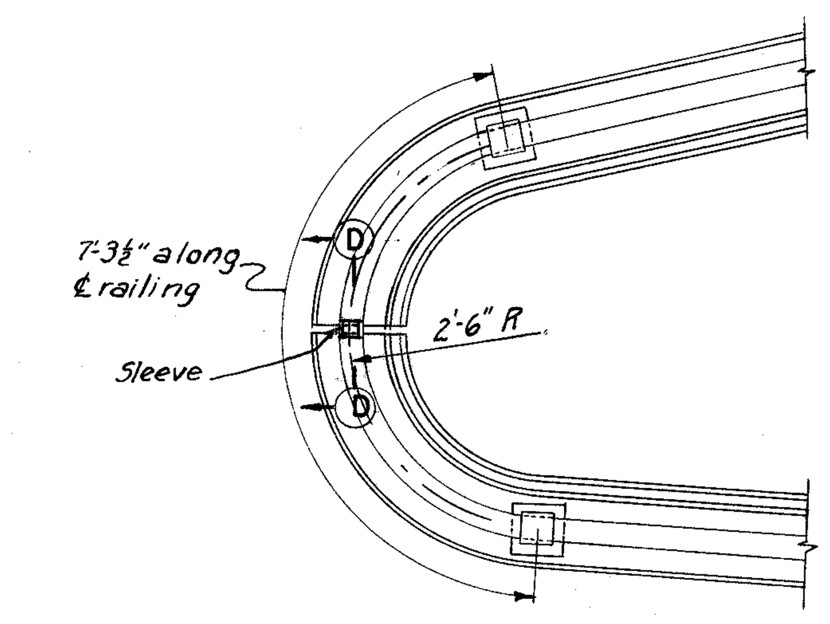
DRAWN F.L.C.	TRACED R.J.K.	CHECKED F.J.J.	REVIEWED J.C.T.	REVISED	
DATE 11-4-58	DATE 11-24-58	DATE 12-22-58	DATE 11-12-59		SHEET 157



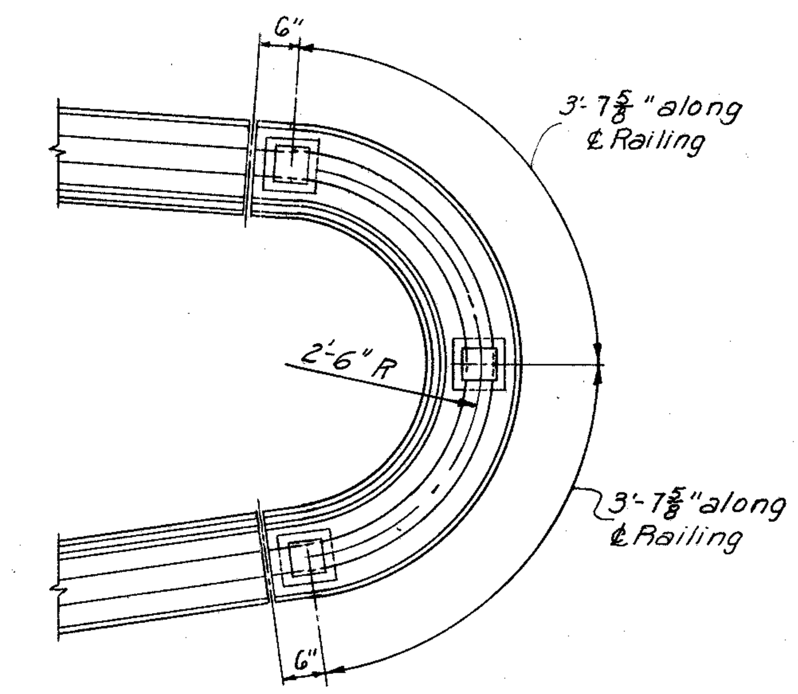
Bridge No.	Railing		West Abutment	(See Detail at ends of railing)			East Abutment	
1	North	5'-1½"	2 Spaces @5'-6"	7'-9⅜"	17 Spaces @ 8'-3"=140'-3"	1'-7⅞"	1 Space @8'-1"	4'-6"
	South	4'-6"	1 Space @7'-5"	8'-2⅞"	16 Spaces @ 8'-5"=134'-8"	8'-0⅛"	1 Space @ 8'-1"	4'-6"
2	North (Ramp E-5)	5'-1"	1 Space @7'-0"	7'-5⅝"	29 Spaces @ 7'-3"=195'-9"	8'-0"	2 Spaces @ 5'-6"	4'-7"
	South (Ramp E-5)	(See Nose Detail)		8'-3¾"	19 Spaces @ 7'-3"=137'-9"	8'-1⅛"	2 Spaces @ 6'-6"	4'-10"
	North (I.B.F.)	(")		8'-3⅛"	18 Spaces @ 8'-3"=148'-6"	8'-5⅛"	2 Spaces @ 6'-0"	5'-11"
	South (I.B.F.)	5'-2⅞"	1 Space @ 7'-0"	7'-6"	29 Spaces @ 7'-6"=217'-6"	8'-10⅝"	2 Spaces @ 7'-6"	4'-10"
6	North	5'-1⅛"	2 Spaces @ 7'-9"	6'-5⅜"	36 Spaces @ 7'-0"=252'-0"	6'-5⅜"	2 Spaces @ 5'-6"	4'-7"
	South	*	2 Spaces @ 5'-0½"	6'-7"	36 Spaces @ 7'-0"=252'-0"	6'-7"	3 Spaces @ 8'-0"	4'-7"
7	North (Ramp E-18)	5'-4"	3 Spaces @ 6'-7"	7'-10"	24 Spaces @ 8'-6"=204'-0"	7'-10⅞"	1 Space @ 5'-4"	4'-6"
	South (Ramp E-18)	5'-6"	1 Space @ 8'-10"	7'-9⅞"	7 Spaces @ 8'-6"= 59'-6"		(See Nose Detail)	
	North (Ramp E-15)	4'-7"	2 Spaces @ 5'-3"	9'-1⅞"	4 Spaces @ 8'-6"= 34'-0"		(")	
	South (Ramp E-15)	5'-0"	1 Space @ 7'-10"	8'-7⅞"	20 Spaces @ 8'-6"=170'-0"	8'-7⅞"	2 Spaces @ 6'-3"	4'-10"

*See Retaining Wall Railing Post Spacing

RAILING POST SPACING
No Scale

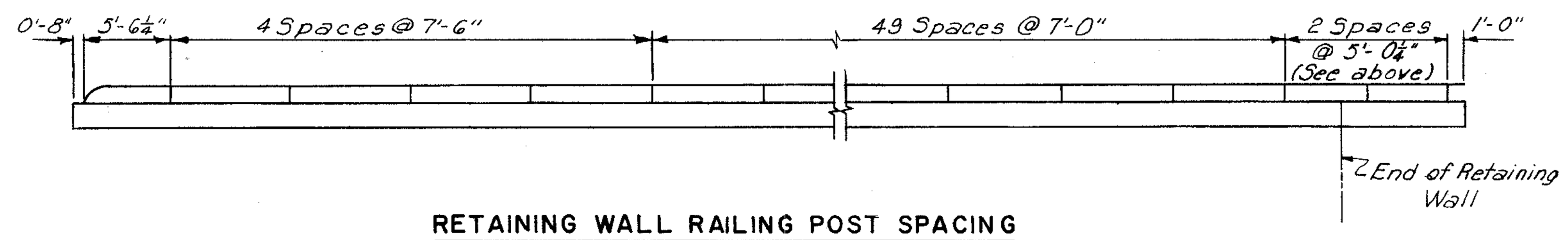


NOSE DETAIL FOR BR. NO. 2
Scale: ½" = 1'-0"

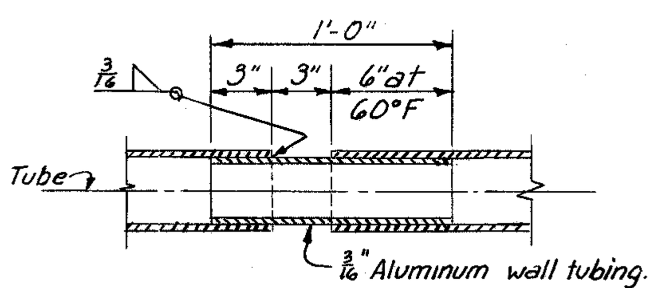


NOSE DETAIL FOR BR. NO. 7
Scale: ½" = 1'-0"

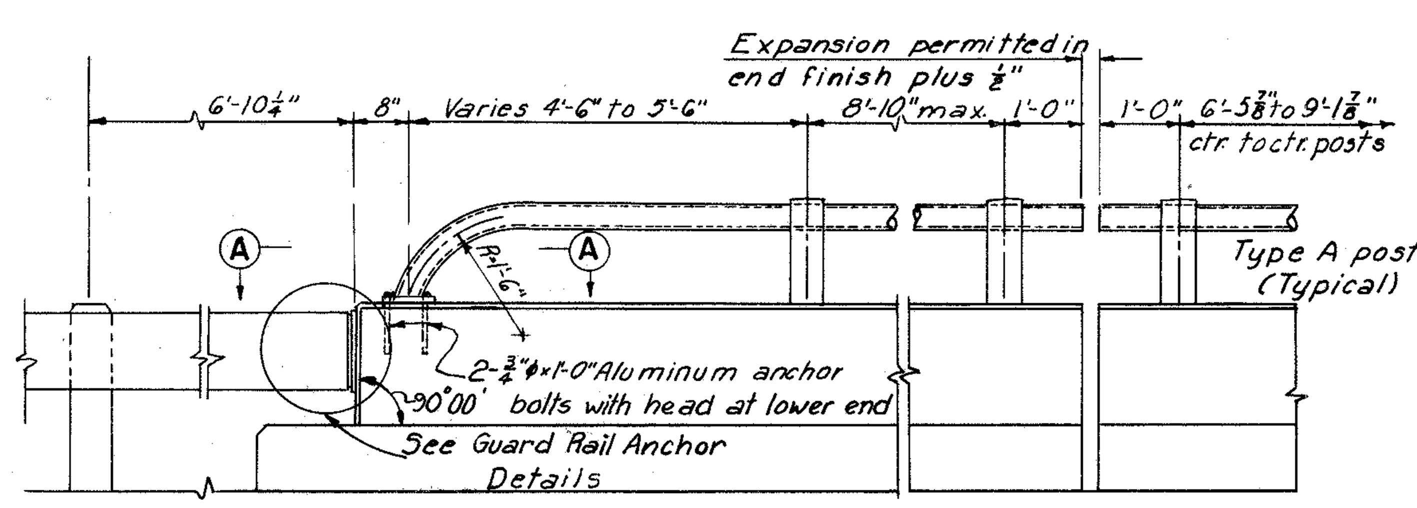
Note: Contraction and expansion joints in the wall shall be continued through the parapet. 1" preformed gray rubber expansion joint filler shall be included with "Item S-14, Railing" for payment.



RETAINING WALL RAILING POST SPACING
No Scale

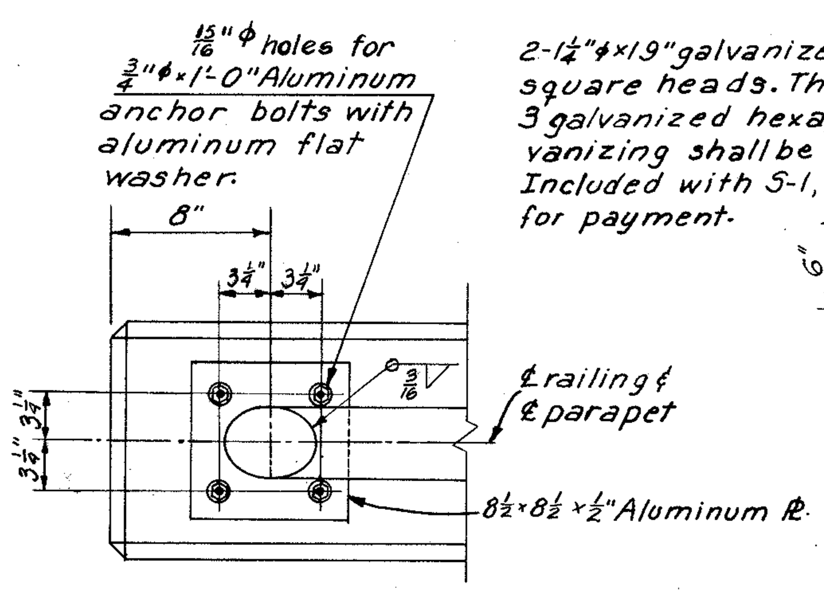


SECTION D-D
Scale 1½" = 1'-0"

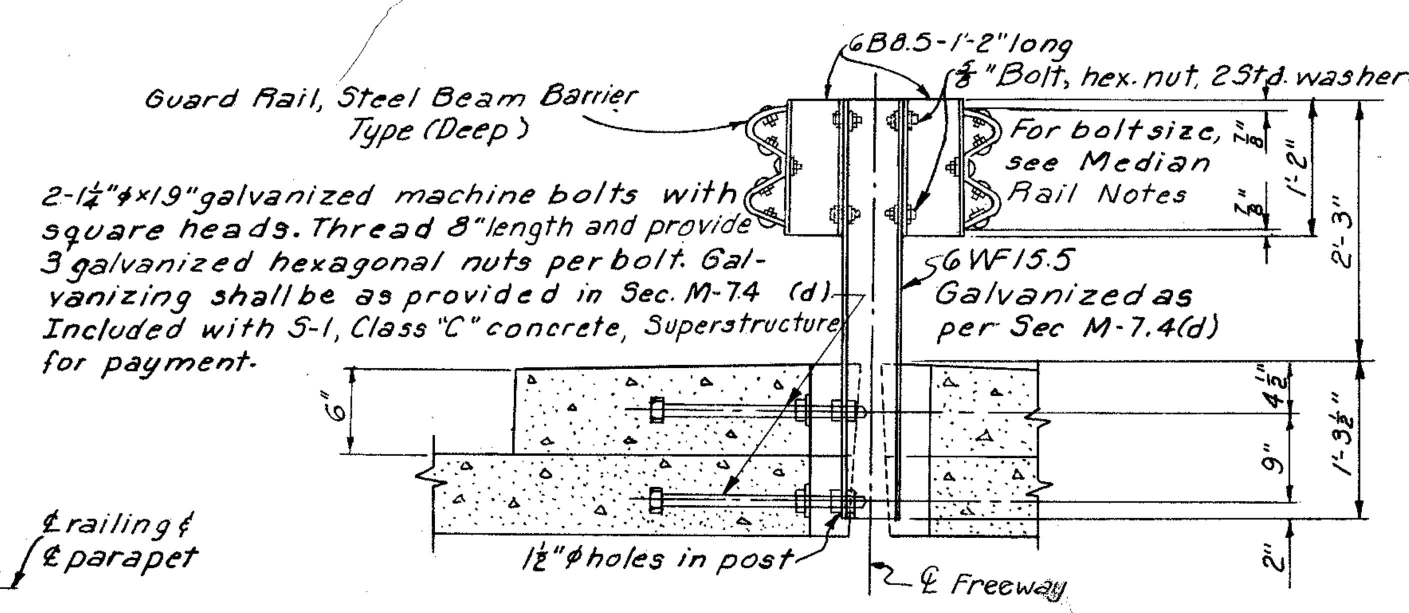


ELEVATION
Scale: ½" = 1'-0"

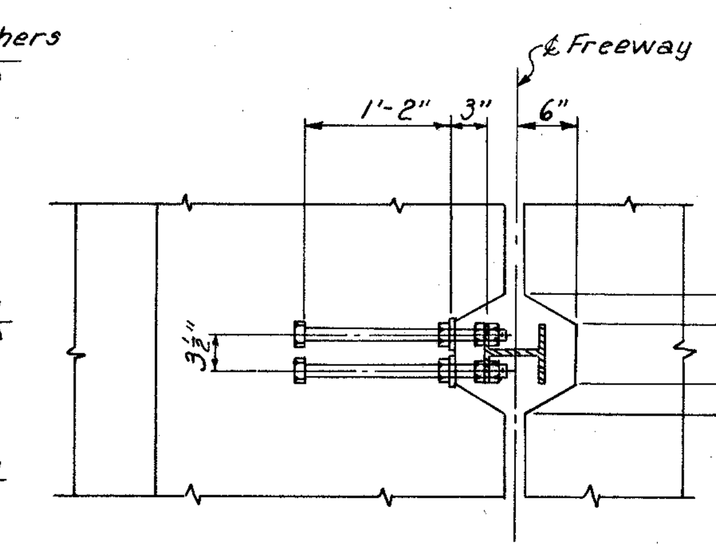
DETAILS AT END OF RAILING



SECTION A-A
Scale: 1½" = 1'-0"

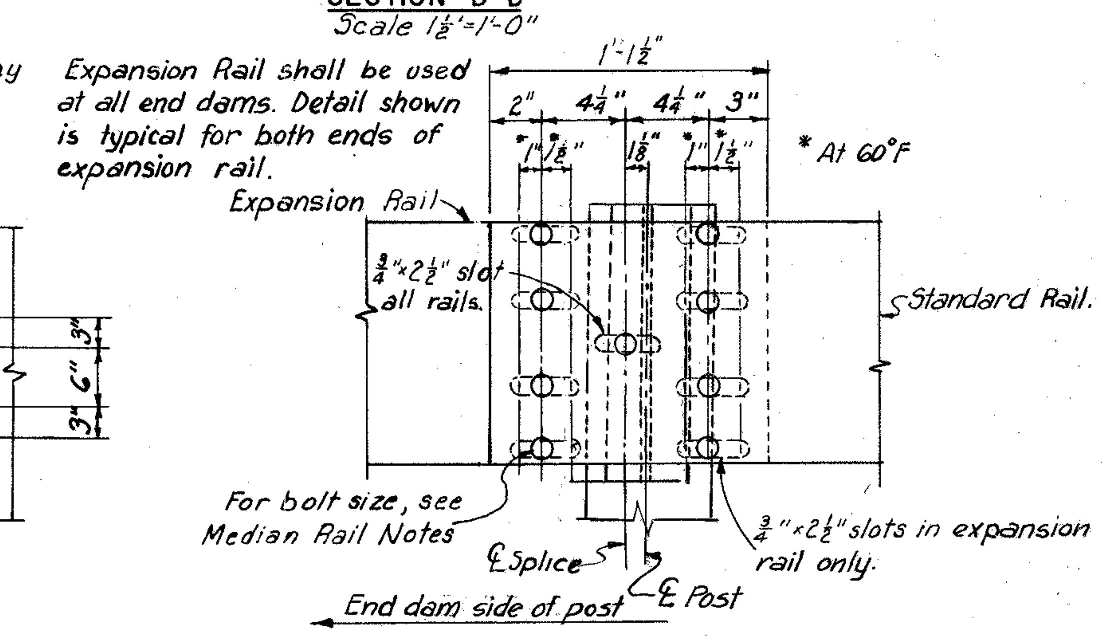


MEDIAN GUARD RAIL
Scale: ¾" = 1'-0"



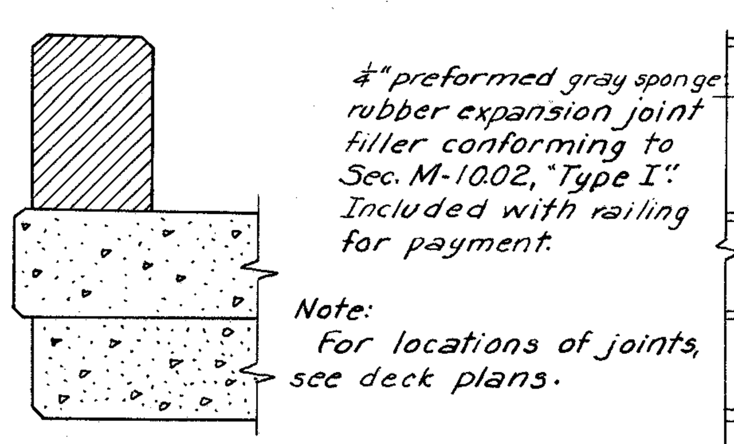
POST ANCHOR DETAIL
Scale: ¾" = 1'-0"

Expansion Rail shall be used at all end dams. Detail shown is typical for both ends of expansion rail.

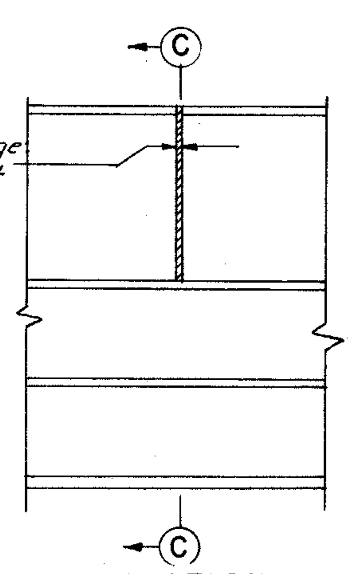


MEDIAN GUARD RAIL SPLICE
Scale: 1½" = 1'-0"

Median Rail Notes.
Bolts for rail splice and for fastening rail to posts shall be ⅝" diameter with button head, washer and hexagon nuts.
For median guard rail spacing See Deck plans.



SECTION C-C



ELEVATION

PARAPET JOINT
Scale: ¼" = 1'-0"

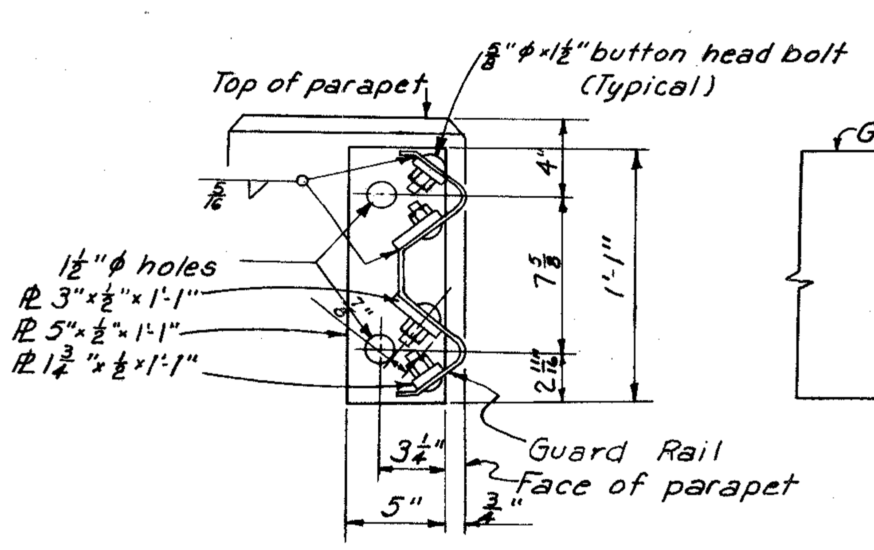
NOTES:

Railing shall be fabricated in lengths not less than three panels each and furnished railing shall be free of burrs, sharp corners and rough surfaces. Shims if required for adjustment to line or grade, shall be of aluminum alloy, 2⅜"×1/16"×8", and shall be slotted to permit insertion after posts are in place. Anchor bolts shall be aluminum with a head or nut at lower end. They shall be 1'-0" long and shall have a minimun diameter of 0.62" at the root of the thread. Bolts and nuts shall be anodized. Railing posts shall be normal to grade and the final adjustment of the railing shall be such that that the top rail shall not depart more than ⅛" from correct line or grade.

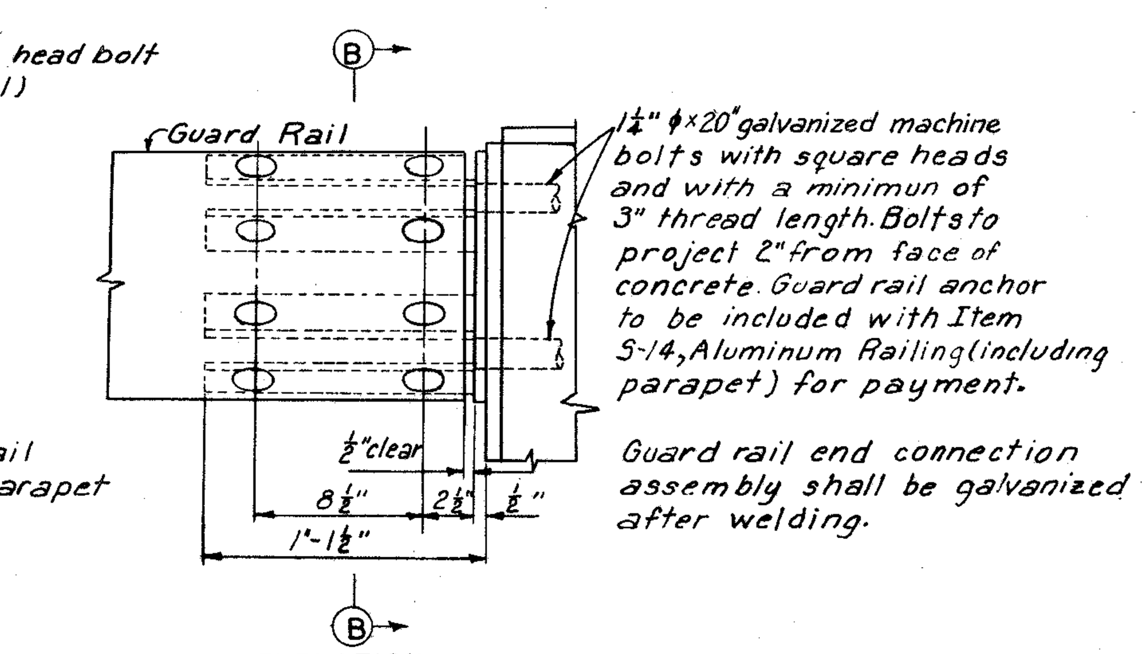
For additional details and notes regarding railing see Ohio Standard Drawing AR-1-57.

Payment for Railing shall be made at the contract unit price bid for Item S-14, Aluminum Railing (including parapet). Pay length shall be the overall length of the parapets and shall include cost of anchor bolts, set screws, nuts, shims and etc. necessary to complete the installation of railing.

Concrete and longitudinal reinforcing steel in the parapet shall be included in "Item S-14, Railing, (including parapet)" for payment. All other reinforcing steel in parapet shall be included in Item S-4 for payment.



SECTION B-B



1¼"φ×20" galvanized machine bolts with square heads and with a minimun of 3" thread length. Bolts to project 2" from face of concrete. Guard rail anchor to be included with Item S-14, Aluminum Railing (including parapet) for payment.

Guard rail end connection assembly shall be galvanized after welding.

ELEVATION
(As seen from pavement side)

GUARD RAIL ANCHOR DETAILS
Scale: 1½" = 1'-0"

PART 6

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

RAILING AND GUARD RAIL DETAILS

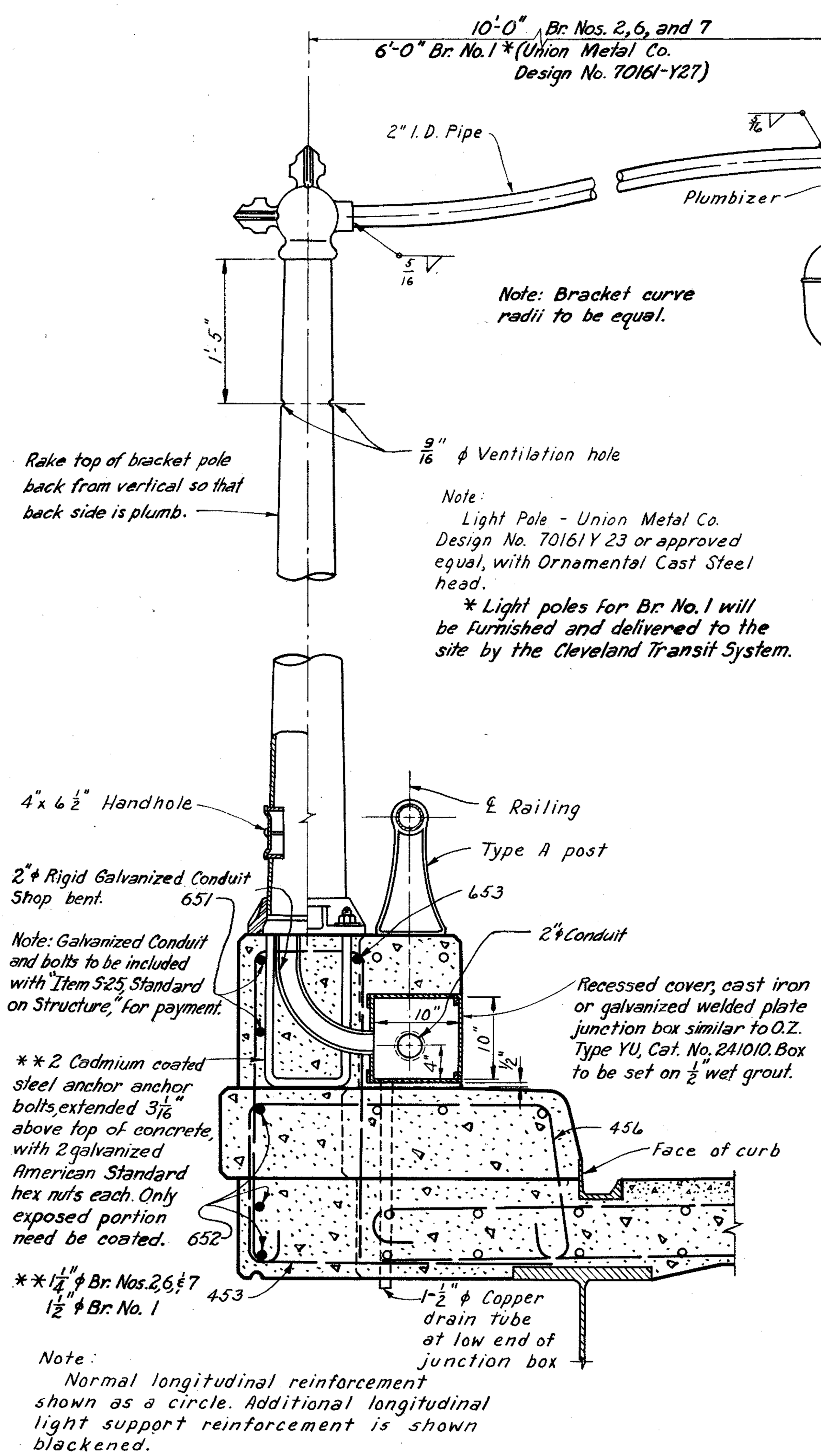
Scale: As noted

WILLOW-INNER BELT FREEWAY

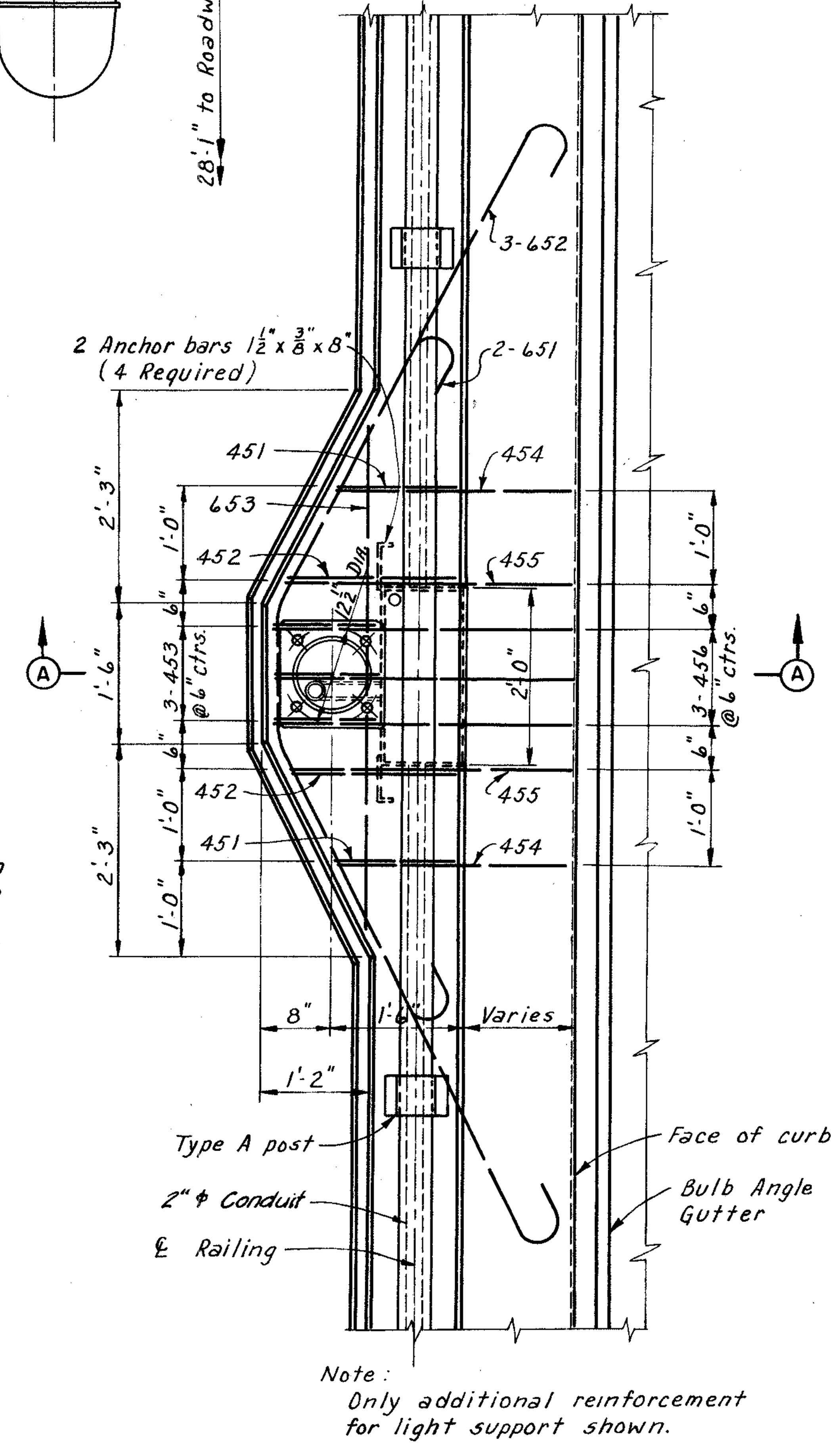
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN R.A.	TRACED R.A.	CHECKED A.L.	REVIEWED JCT	REVISED	
DATE 1-11-58	DATE 11-24-58	DATE 12-6-58	DATE 11-12-59		SHEET 158

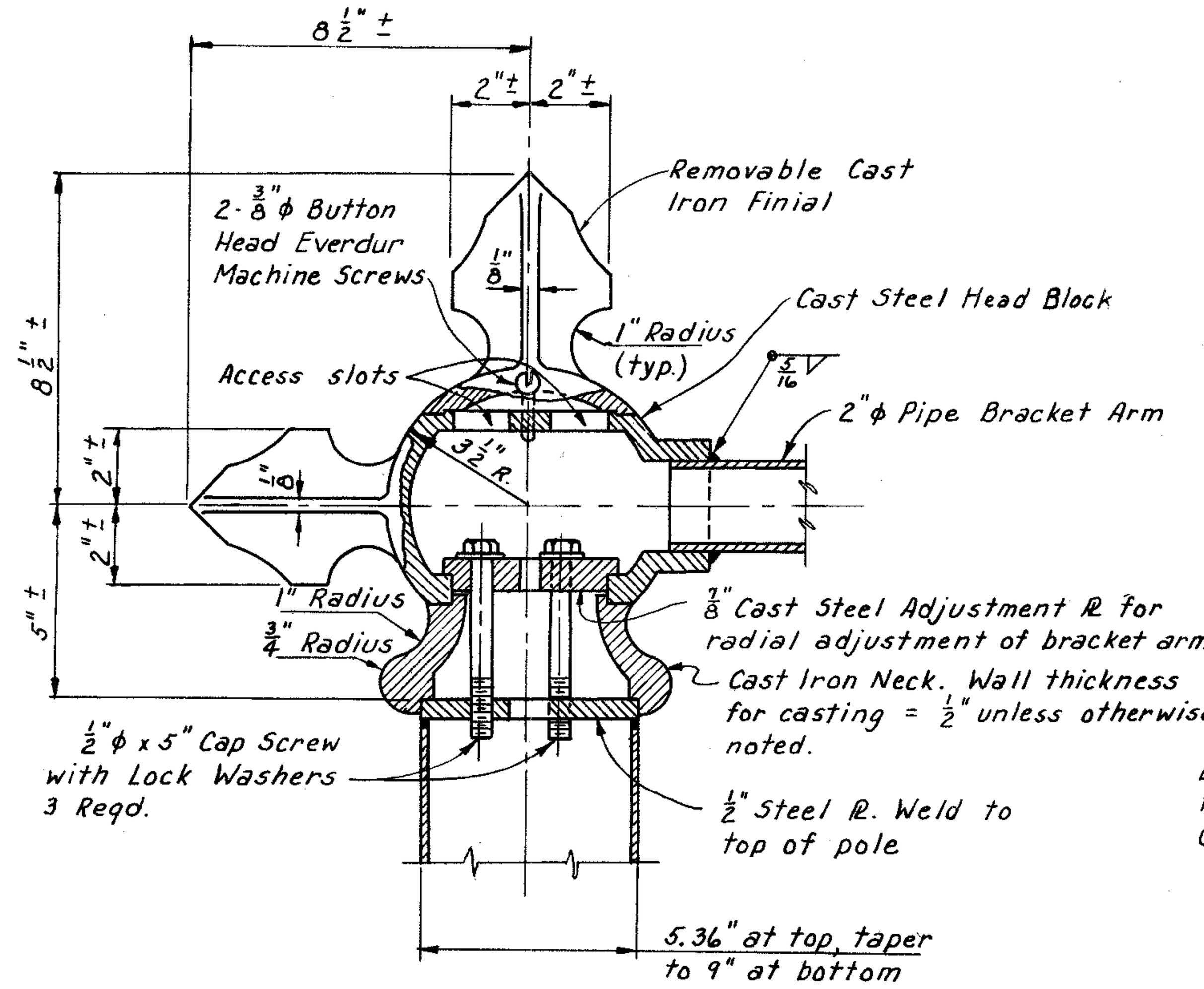
CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29



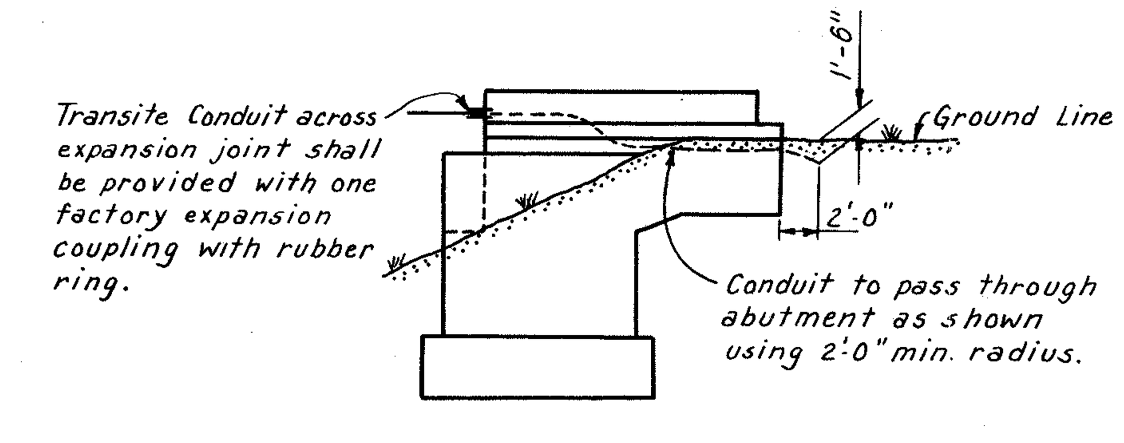
SECTION A-A
Scale : 1' = 1' - 0"



PARTIAL PLAN OF LIGHT STANDARD SUPPORT
Scale : ¾" = 1'-0"

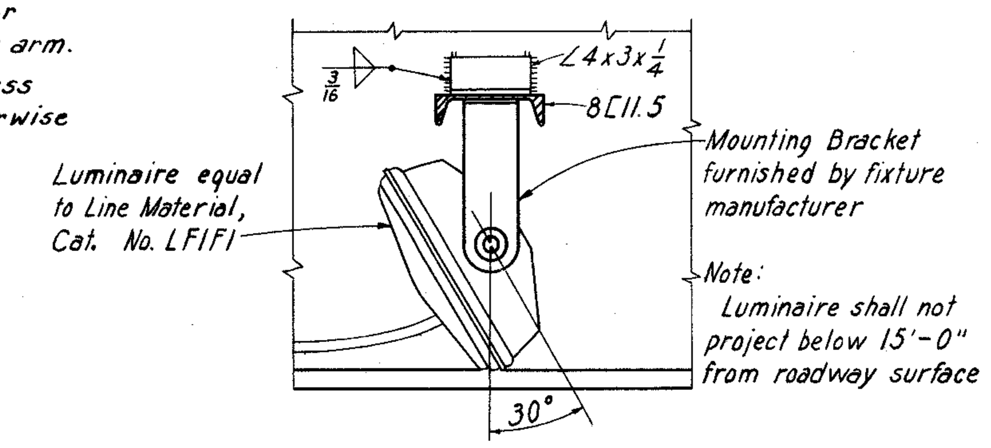


ORNAMENTAL LIGHT POLE HEAD
Scale : 3" = 1'-0"

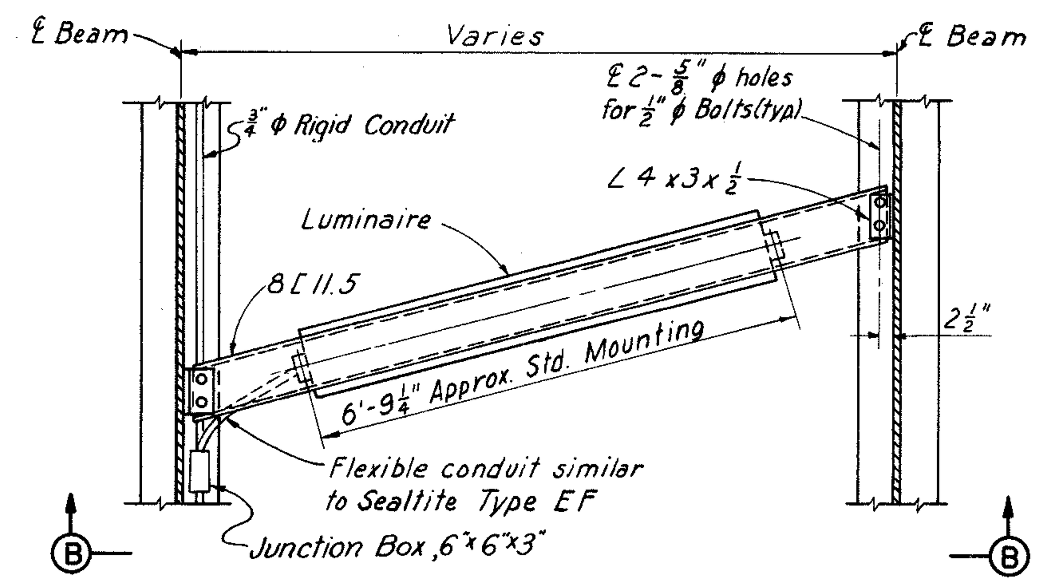


TYPICAL DETAIL FOR CONDUIT AT ABUTMENT.
No Scale

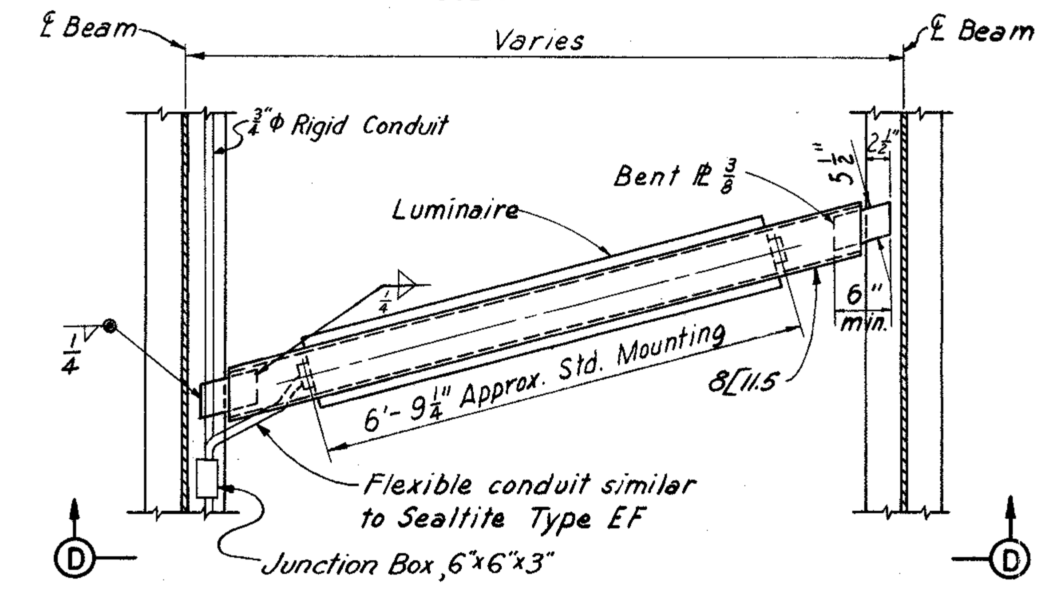
Note: Expansion Coupling in Conduit shall be provided at expansion joints between abutment and wingwalls and at all parapet joints.



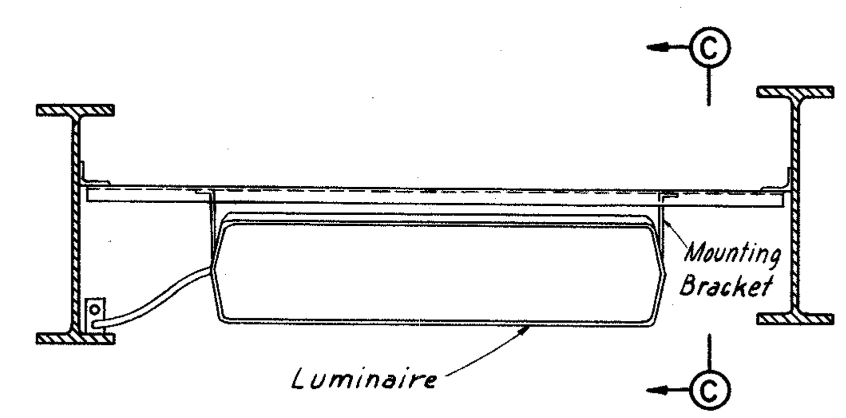
SECTION C-C
Scale : 1" = 1'-0"



PARTIAL PLAN

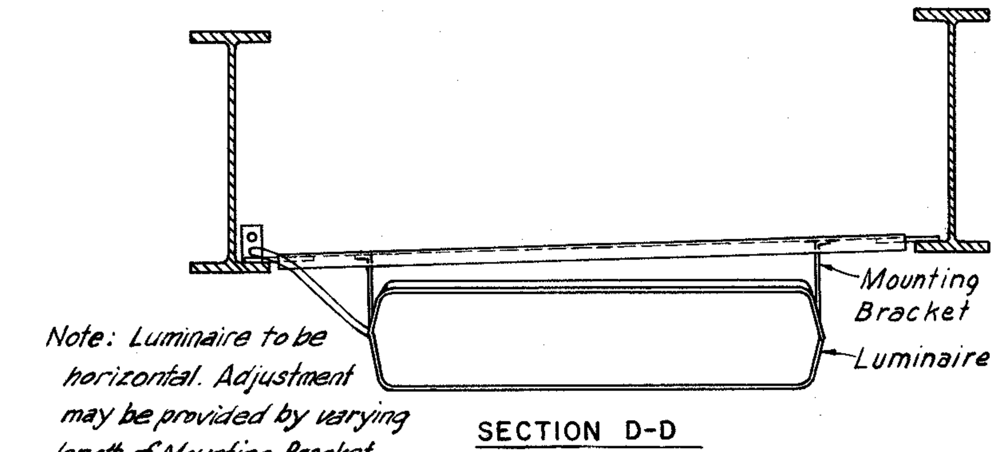


PARTIAL PLAN



SECTION B-B

TYPE A LUMINAIRE MOUNTING
Scale : ½" = 1'-0"



SECTION D-D

TYPE B LUMINAIRE MOUNTING
Scale : ½" = 1'-0"

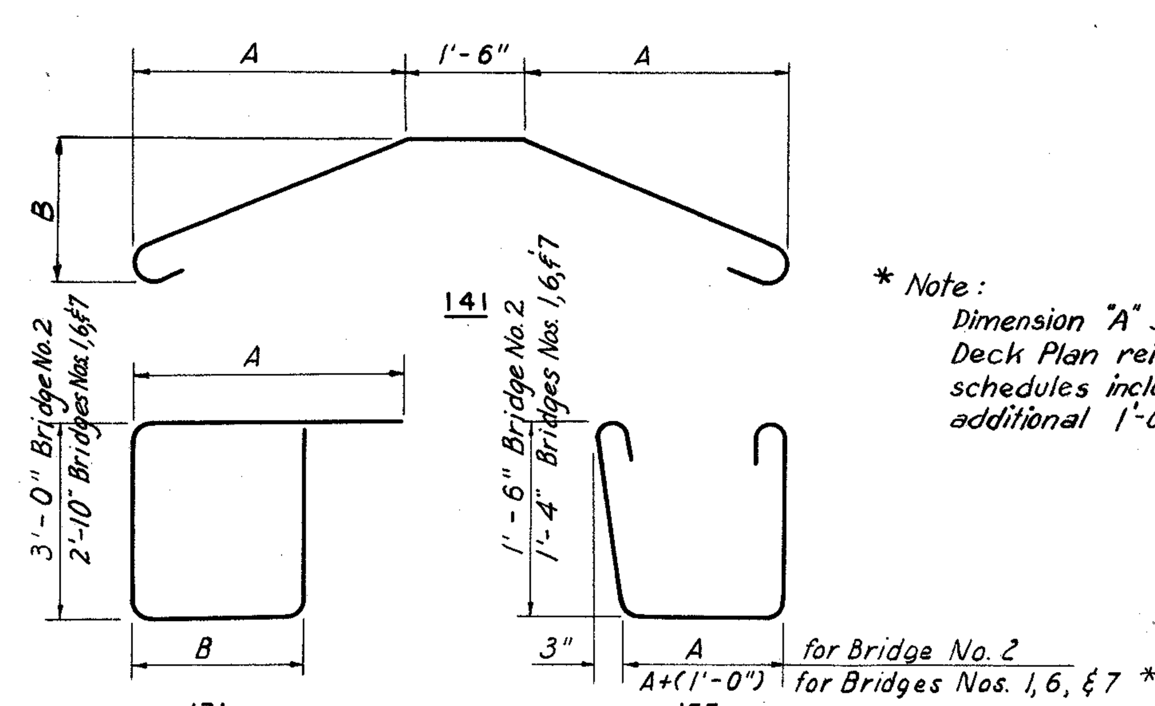
NOTES:
For location of light standards and conduit, see Deck Plans.
For location of Underdeck Luminaires see sheet 160-G.
For additional lighting notes, see Sh 51-G & 91A-G.
Junction box 6"x6"x3" to be included with "Item 525, Fluorescent Underdeck Light" for payment.
The 8[11.5 supports and connections to beams are to be included with "Item 5-7 Structural Steel" for payment.
Underdeck luminaires shall be equal to Line Material No. LF1F1.
For size of safety switch, contactor and photo-cell control unit in Service Panel, see Sheet 51-8F Roadway Plans.

Note: Reference to Bridge No. 6 includes the Light Standards on the adjoining retaining wall.

REINFORCEMENT SCHEDULE FOR LIGHT STANDARD SUPPORT								
MARK	NO.	LENGTH		TYPE	DIMENSIONS		WEIGHT	
		BRIDGES NOS. 1, 6 & 7	BRIDGE NO. 2		A	B	BRIDGES NOS. 1, 6 & 7	BRIDGE NO. 2
451	2	8'-11"	9'-3"	131	2'-6"	1'-2"	12	12
452	2	9'-11"	10'-3"	131	3'-0"	1'-8"	13	14
453	3	9'-5"	9'-9"	131	3'-2"	1'-0"	19	20
454	2	6'-7"	5'-11"	155	2'-2"		9	8
455	2	7'-1"	6'-5"	155	2'-8"		9	9
456	3	7'-3"	6'-7"	155	2'-10"		15	13
651	2	9'-5"	9'-5"	141	2'-11"	1'-10"	28	28
652	3	14'-6"	14'-6"	141	5'-3"	3'-0"	65	65
653	1	5'-0"	5'-0"	Str.			8	8
						Total	178	177

Notes: Bar list is for one light standard support. Bar dimensions are given out to out.

Total No. Required: Bridges Nos. 1, 6 & 7 - 15; Bridge No. 2 - 8



BENDING DIAGRAMS

* Note: Dimension "A" shown on the Deck Plan reinforcement schedules includes the additional 1'-0"

PART 6

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

LIGHTING DETAILS

Scale as noted

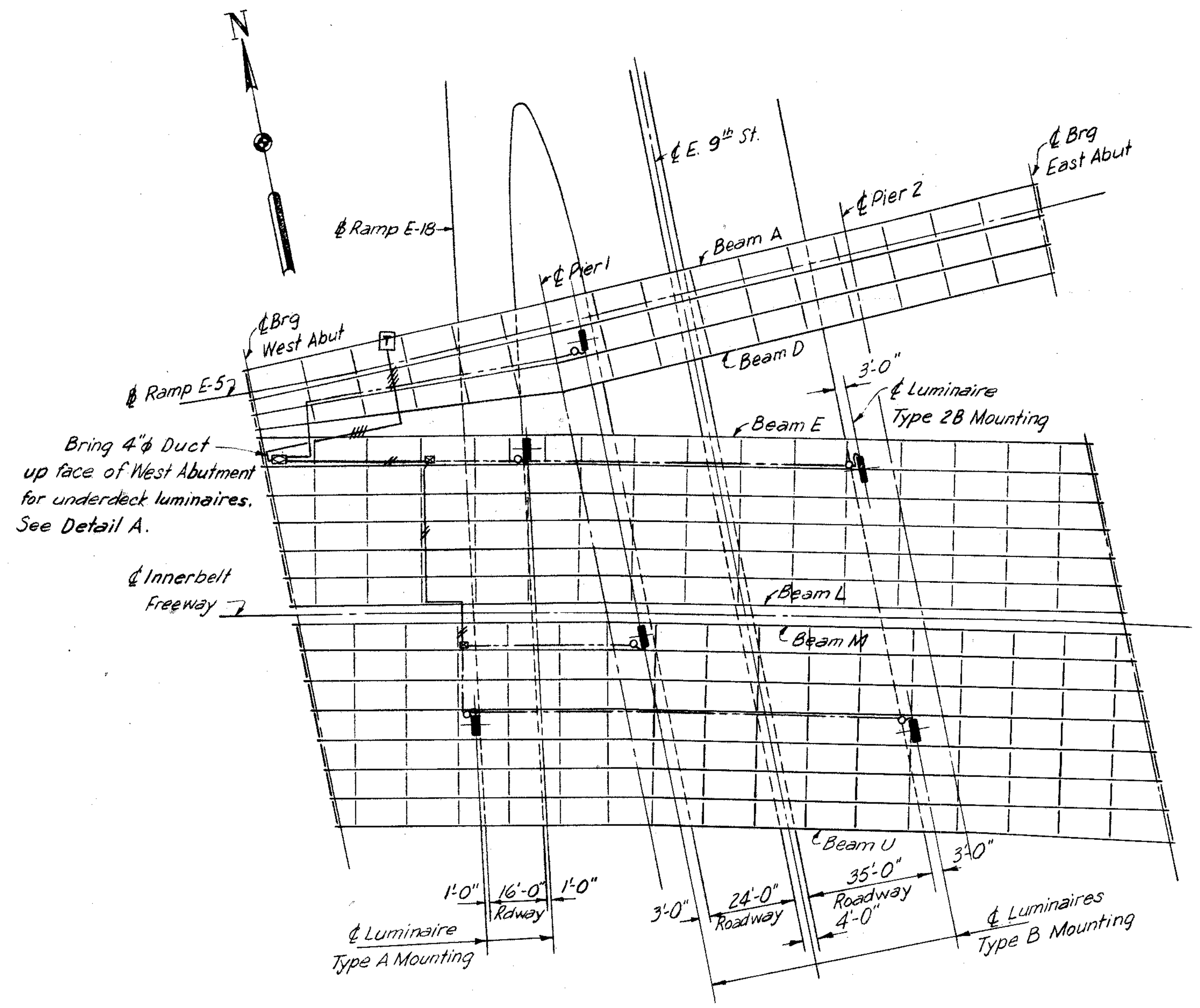
WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN F.L.C.	TRACED J.A.G.	CHECKED F.S.Z.	REVIEWED JCT	REVISED
DATE 9-24-58	DATE 11-26-58	DATE 12-18-58	DATE 11-12-59	SHEET 159

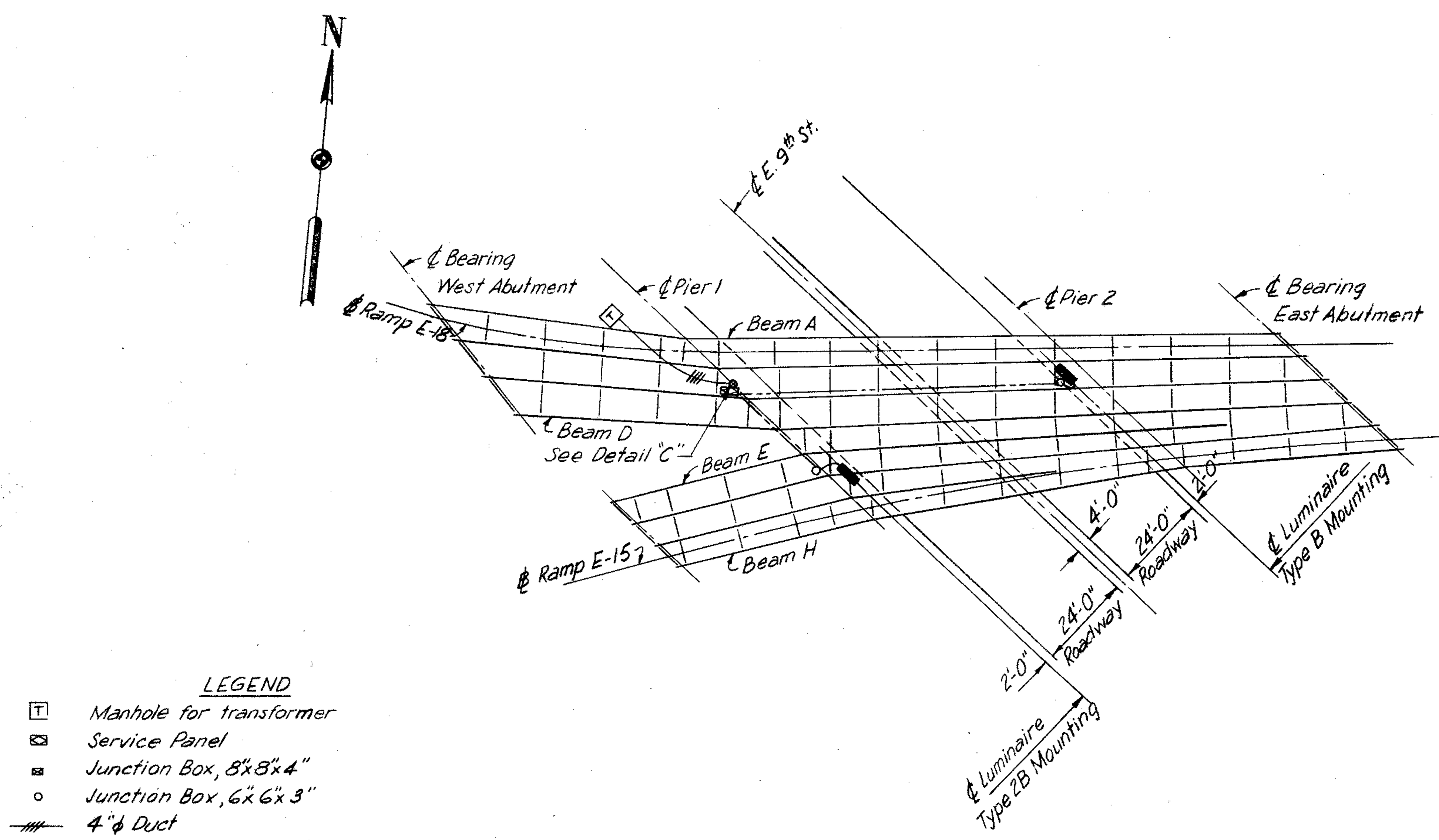
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

160 / 175

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY-42-18.29



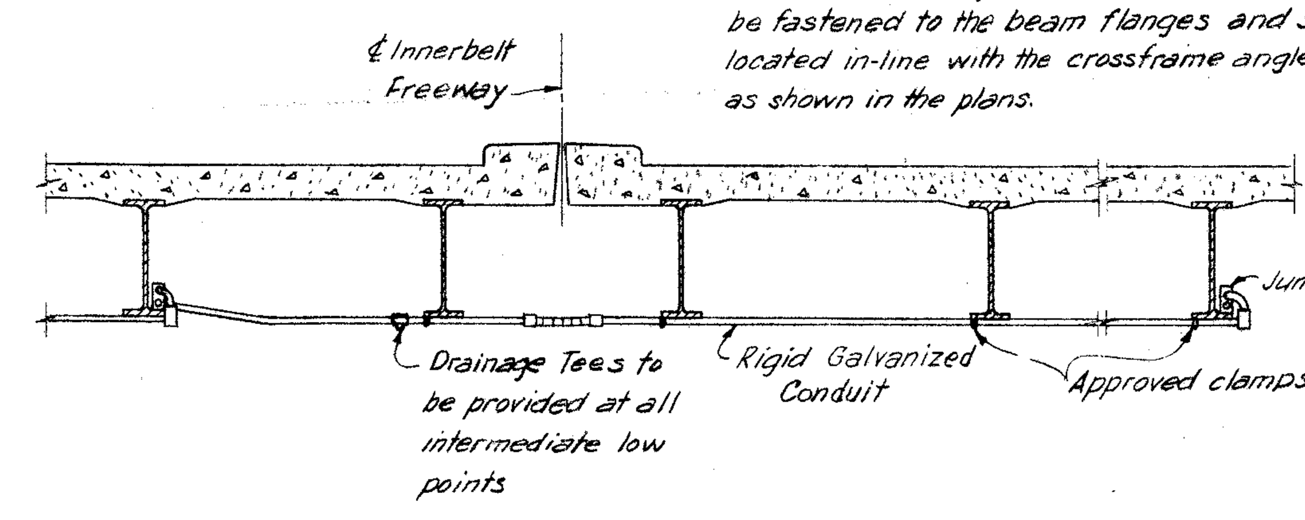
LOCATION OF UNDERDECK LUMINAIRES - BRIDGE NO. 2
(For additional information see Sheets 109-G, 110-G, 112-G)
Scale 1"=30'-0"



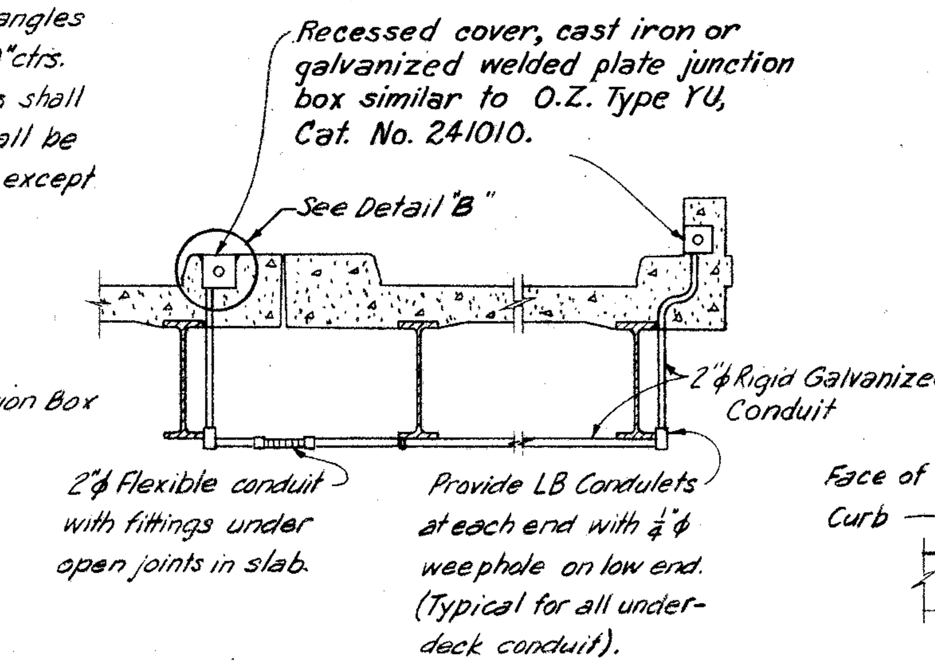
LEGEND
- T Manhole for transformer
- Service Panel
- Junction Box, 8"x8"x4"
- Junction Box, 6"x6"x3"
- 4"φ Duct
- 2"φ Rigid Galvanized Conduit
- ¾"φ Rigid Galvanized Conduit
- Underdeck Luminaire

LOCATION OF UNDERDECK LUMINAIRES - BRIDGE NO. 7
(For additional information, see Sheet 140-G)
Scale 1"=30'-0"

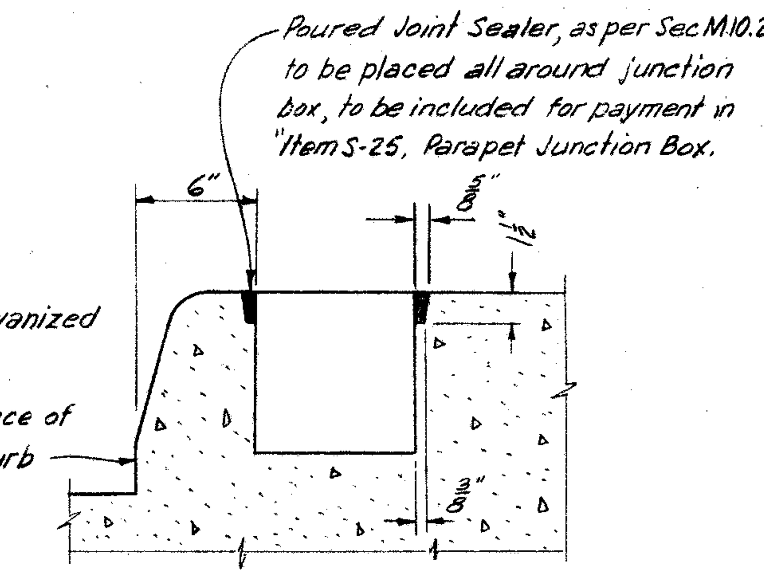
Note:
Conduit running parallel to the beams shall be fastened to the beam web just above the intersection of the diagonal and bottom chord crossframe angles with approved clamps at not more than 6'-0" ctrs.
Conduit running transversely to the beams shall be fastened to the beam flanges and shall be located in-line with the crossframe angles, except as shown in the plans.



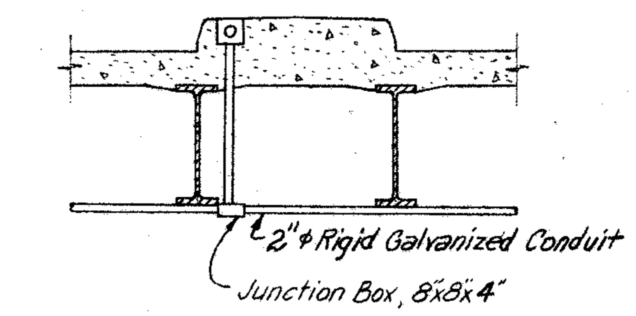
UNDERDECK LIGHTING-CONDUIT DETAILS
Scale ¼"=1'-0"



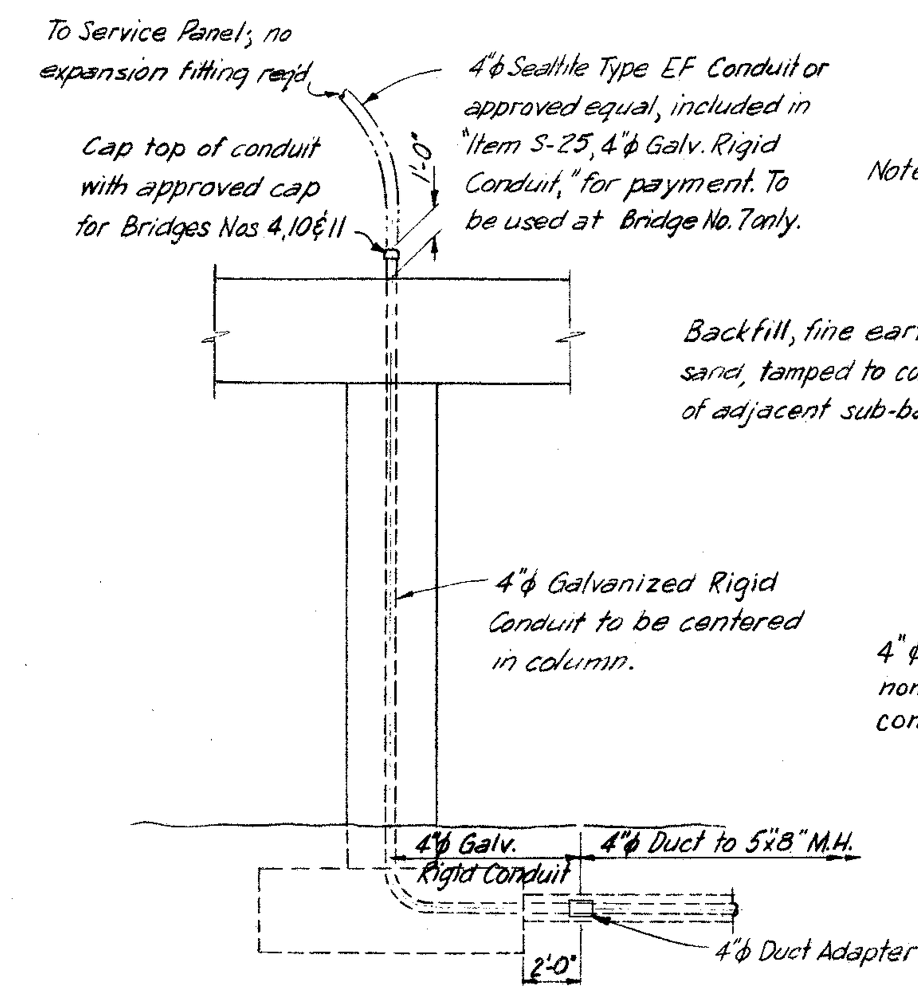
CONDUIT CROSSOVER DETAIL
Bridge No. 2 - Crossover shown.
Bridge No. 7 - Crossover similar except as shown in Detail "D". See Slab Plans for location.
Scale ¼"=1'-0"



DETAIL B
Scale 1½"=1'-0"

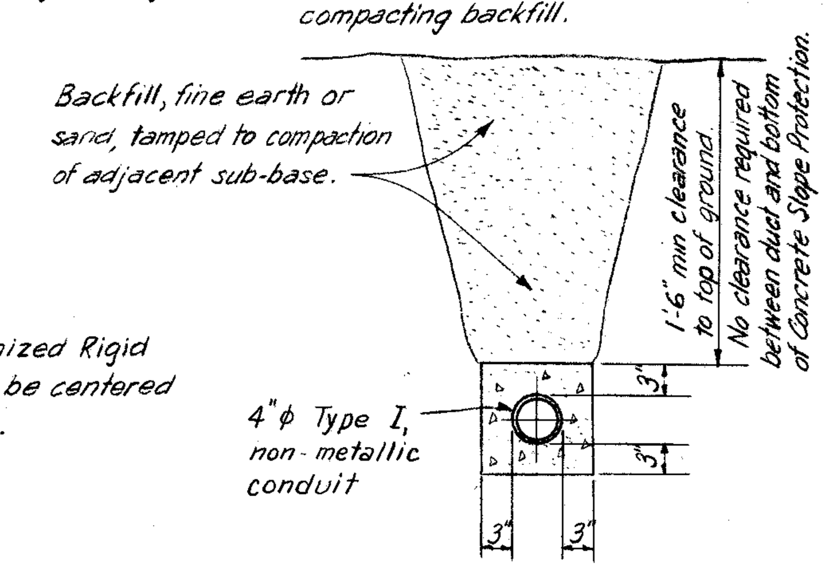


DETAIL D
Scale ¼"=1'-0"

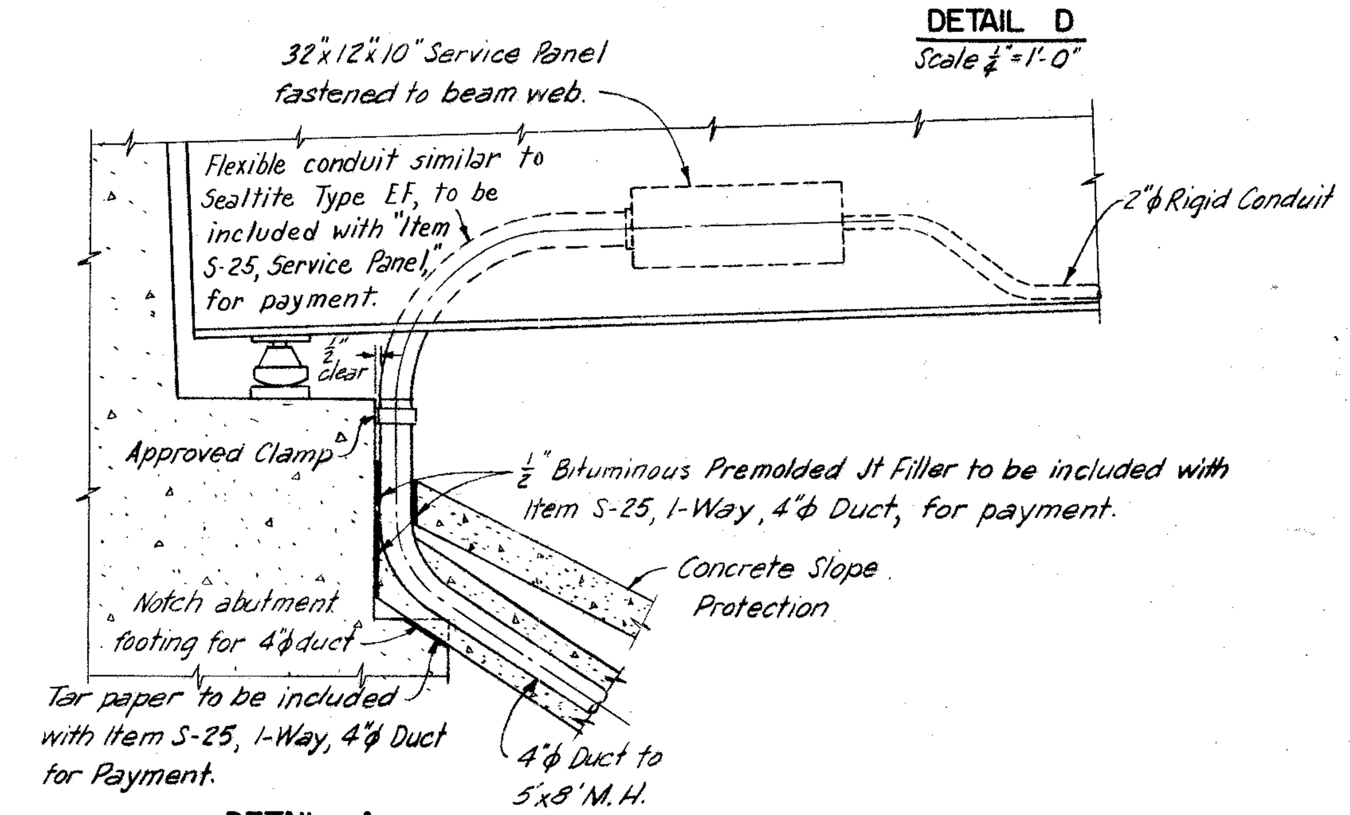


DETAIL C
Pier 3 of Bridge No 4; Pier 1 of Bridge No. 7; Pier 2 of Bridge No. 10; and Pier No. 2 of Bridge No. 11. See Pier Sheets for location.
Scale ⅜"=1'-0"

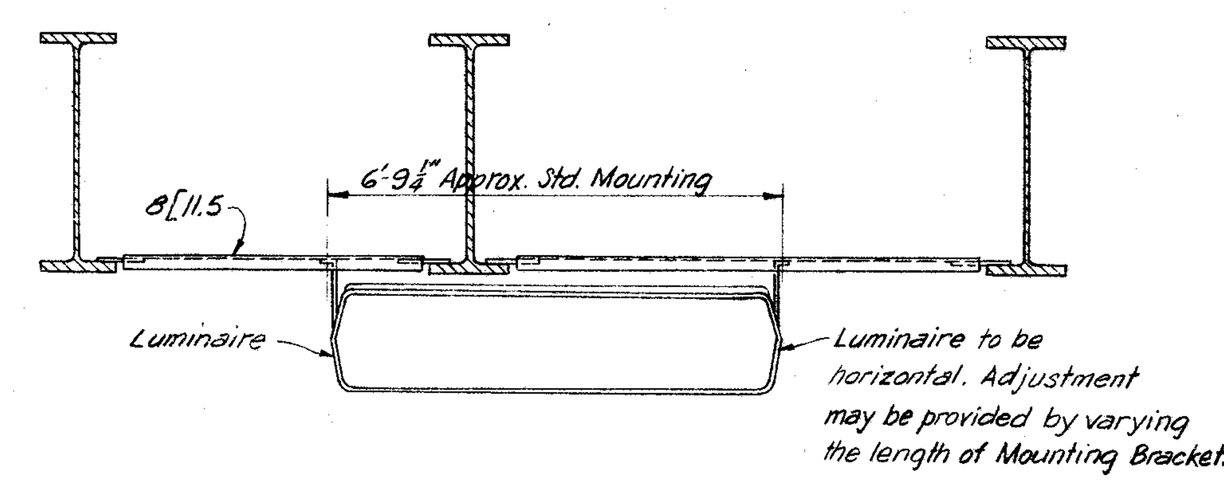
Note: Allow at least 4 days after pouring duct casing before compacting backfill.



ONE WAY DUCT BANK
Scale: ¾" = 1'-0"



DETAIL A
Scale ½"=1'-0"



TYPE 2B LUMINAIRE MOUNTING
Scale 1½"=1'-0"

PART 6

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

LIGHTING DETAILS

Scale as noted

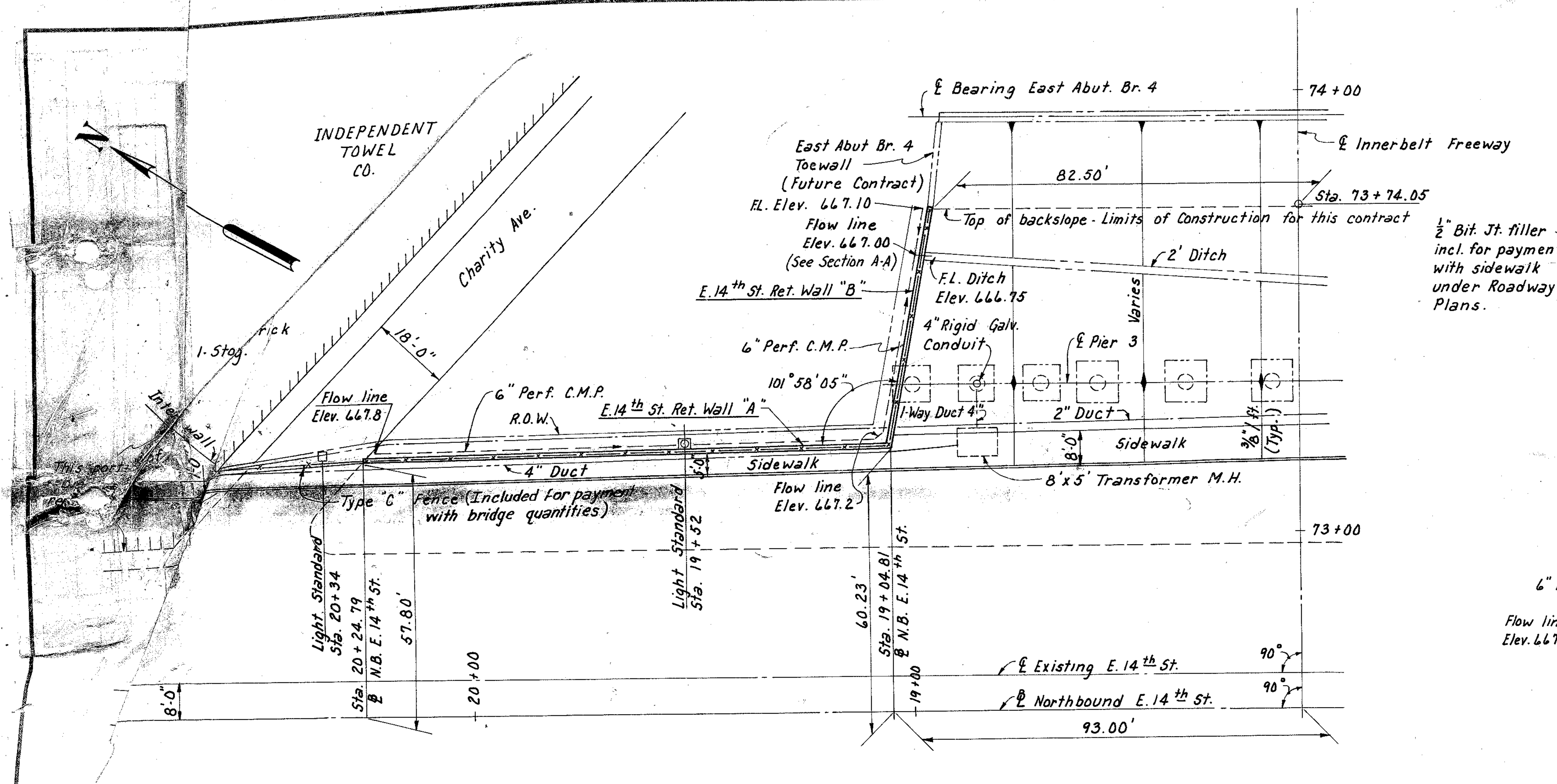
WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN FLC	TRACED	CHECKED RSJ	REVIEWED JCT	REVISED	
DATE 12-8-59	DATE	DATE 12-18-59	DATE 11-12-59		SHEET 160

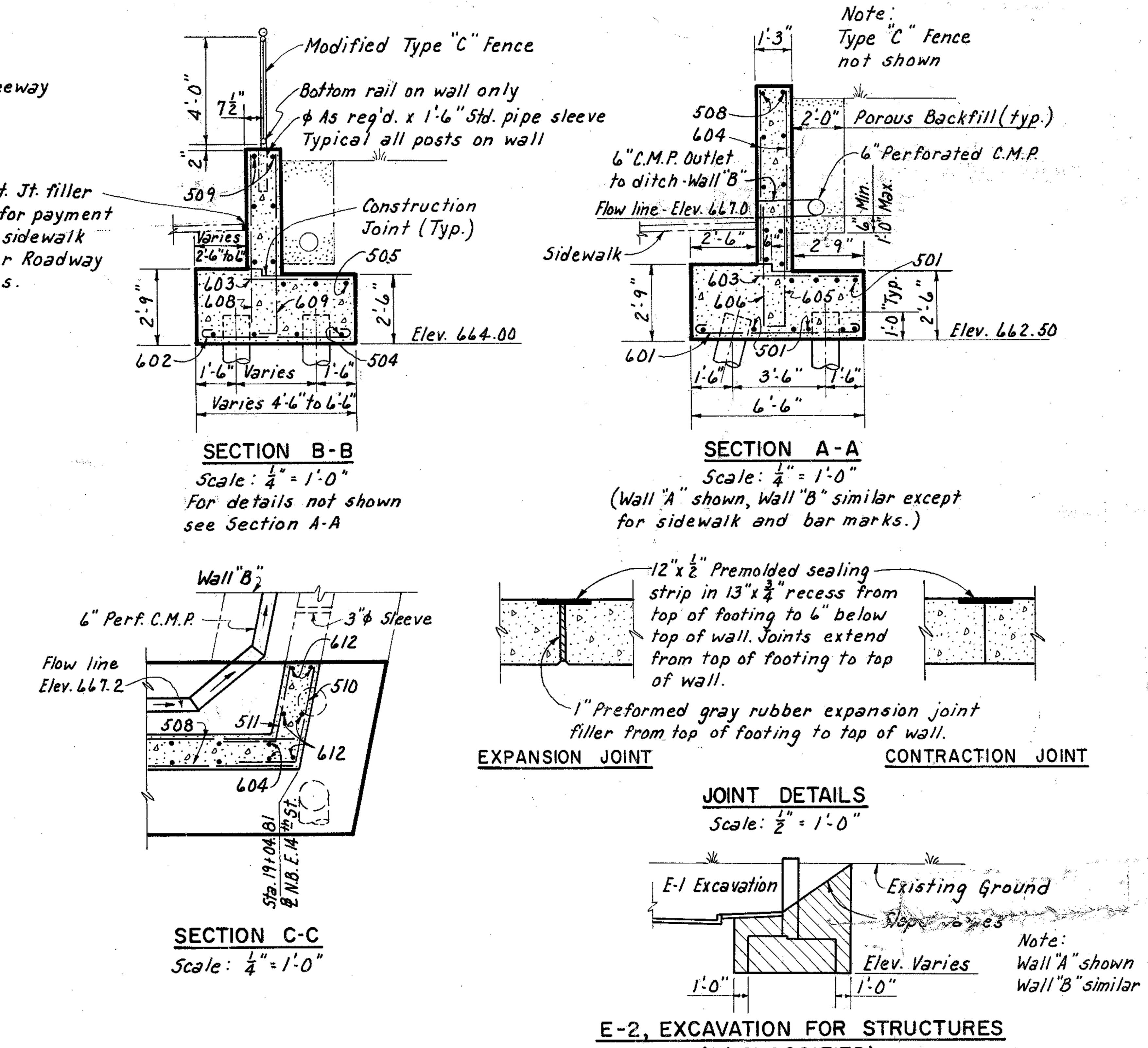
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.
2	OHIO	

CUYAHOGA COUNTY
CITY OF CLEVELAND
CUY - 42 - 18.29

Note: Prefix "W" shall be assigned all bar marks.



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



SECTION B-B
Scale: 1/4" = 1'-0"
For details not shown see Section A-A

SECTION C-C
Scale: 1/4" = 1'-0"

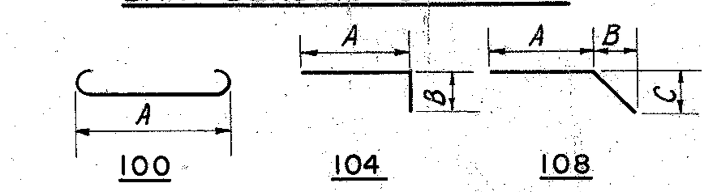
SECTION A-A
Scale: 1/4" = 1'-0"
(Wall "A" shown, Wall "B" similar except for sidewalk and bar marks.)

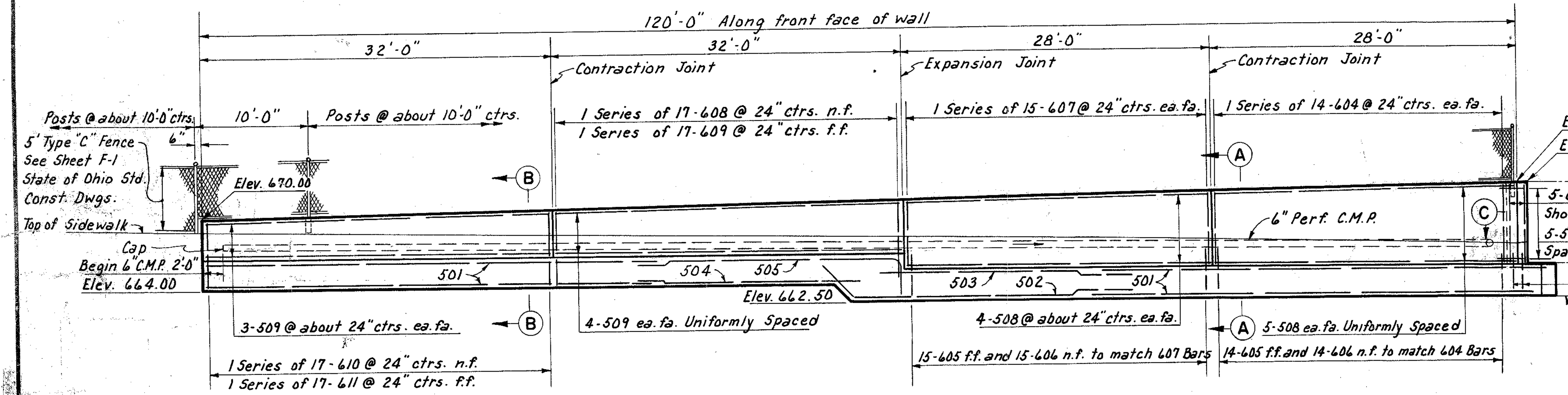
EXPANSION JOINT
CONTRACTION JOINT
JOINT DETAILS
Scale: 1/2" = 1'-0"

E-2, EXCAVATION FOR STRUCTURES
(UNCLASSIFIED)
Not to scale

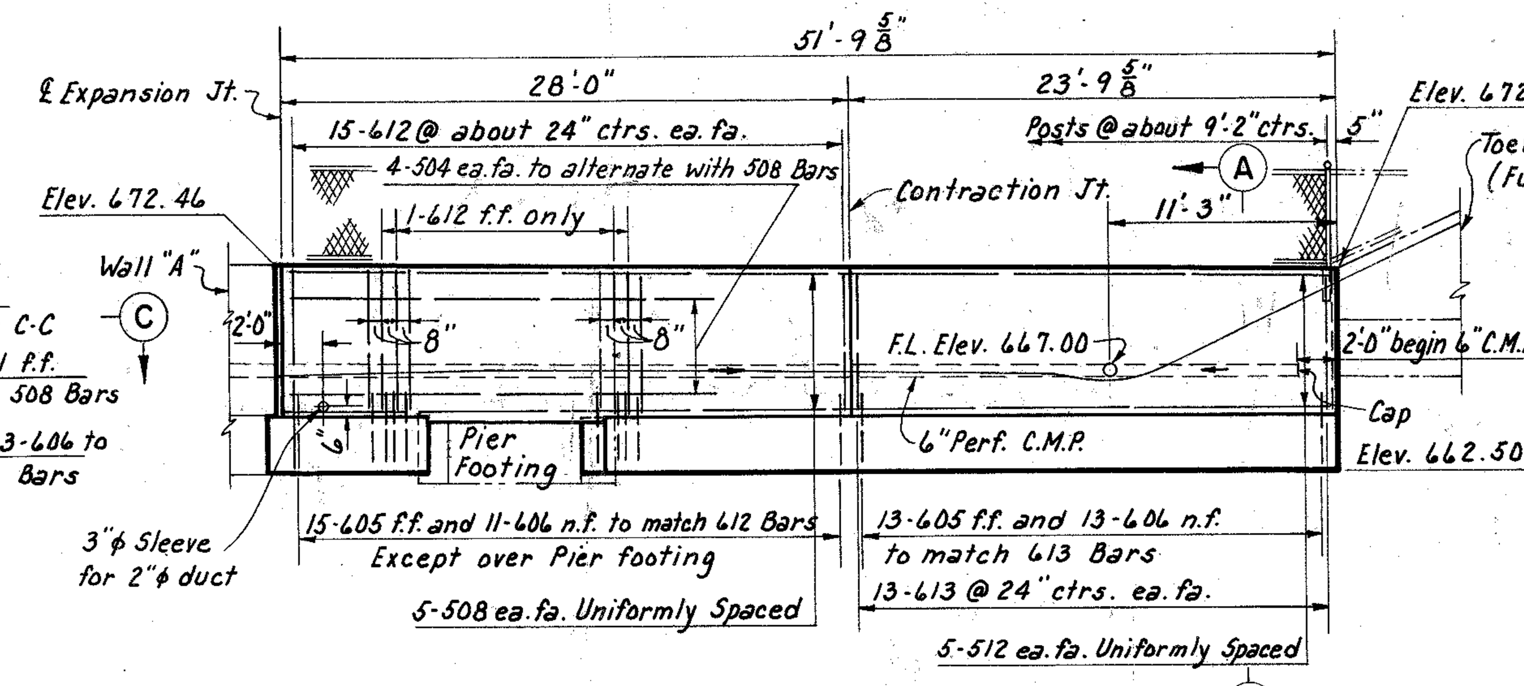
REINFORCEMENT SCHEDULE								
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES INCREMENT	WEIGHT (LBS.)
501	17	40'-0"	Str.					709
502	6	30'-3"	108	26'-0"	3'-0"	3'-0"		189
503	4	23'-0"	Str.					96
504	12	20'-6"	Str.					257
505	3	27'-4"	104	24'-0"	3'-6"			86
506	10	6'-6"	Str.					68
507	10	35'-6"	Str.					370
508	28	27'-6"	Str.					803
509	14	31'-6"	Str.					460
510	5	5'-3"	108	1'-8"	0'-10"	3'-8"		27
511	5	4'-0"	108	1'-8"	0'-7"	2'-5"		21
512	10	23'-6"	Str.					245
601	57	7'-6"	100	6'-2"				642
602	1 Ser. of 29	5'-6" to 7'-6"	100	4'-2" to 6'-2"			1/8"	283
603	85	4'-0"	Str.					511
604	2 Ser. of 14	6'-6" to 7'-0"	Str.				1/16"	284
605	59	4'-11"	104	4'-3"	0'-10"			436
606	56	4'-6"	Str.					379
607	2 Ser. of 15	6'-0" to 6'-6"	Str.				1/16"	282
608	1 Ser. of 17	6'-3" to 6'-9"	Str.				3/8"	166
609	1 Ser. of 17	6'-11" to 7'-5"	104	6'-3" to 6'-9"	0'-10"		3/8"	183
610	1 Ser. of 17	5'-6" to 6'-3"	Str.				3/8"	150
611	1 Ser. of 17	6'-2" to 6'-11"	104	5'-6" to 6'-3"	0'-10"		9/16"	167
612	39	6'-9"	Str.					395
613	26	6'-6"	Str.					254
							Total	7,463

BAR BENDING DIAGRAMS





ELEVATION
Scale: 1/8" = 1'-0"
(Piles not shown)



ELEVATION
Scale: 1/8" = 1'-0"
(Piles not shown)

NOTES:

All piles shall be 12"ϕ Cast-in-place reinforced concrete.

Batter piles shown battered 3 in 12 in the direction shown.

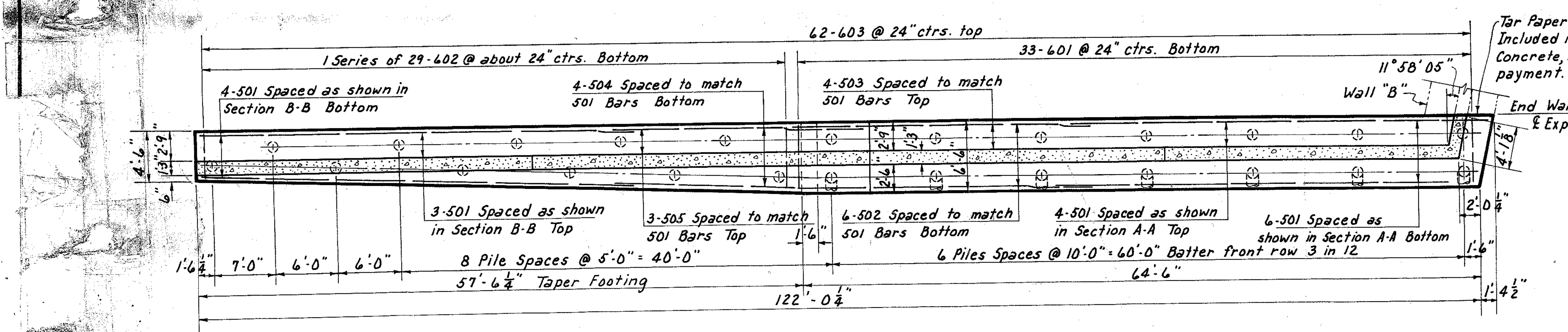
Pile spacings are given along bottom of footing.

Reinforcement bars shall be 3 inches clear from bottom of footing and 2 inches elsewhere.

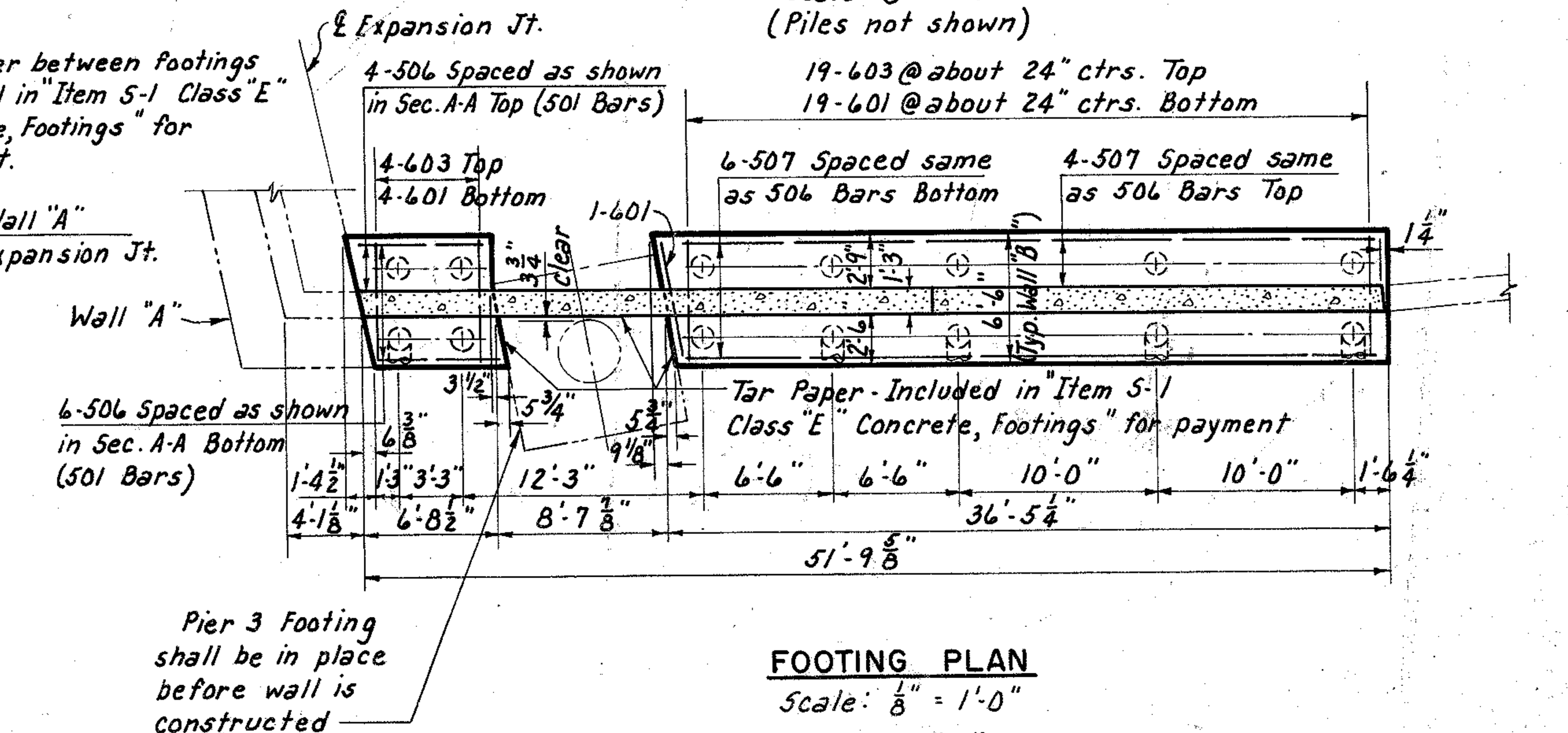
n.f. = near face; f.f. = far face; ea. fa. = each face

All 6" C.M.P. to be perforated bituminous coated pipe.

Type "C" Fence shall conform to Supp. Spec. SS-18, Fence and Gates, except as otherwise noted. All posts and rails shall be round. Rails shall closely parallel top of wall and/or existing grade, with all posts set vertical. Knuckle finish to be provided at top rail. Standard pipe sleeves, 18" long are to be included for payment with "Item SS-18, Fence, Type "C" as per plan."



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



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

PART 6

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

E. 14th ST. RETAINING WALLS

Scale: As noted

WILLOW-INNER BELT FREEWAY
CLEVELAND CUYAHOGA COUNTY

DRAWN W.F.	TRACED A.S.K.	CHECKED C.A.B.	REVIEWED J.C.T.	REVISED F.S.J. 11-[illegible]
DATE 11-9-59	DATE 11-12-59	DATE 11-13-59	DATE 11-13-59	SHEET [illegible]