CUY-90-14.90

PID 77332/85531

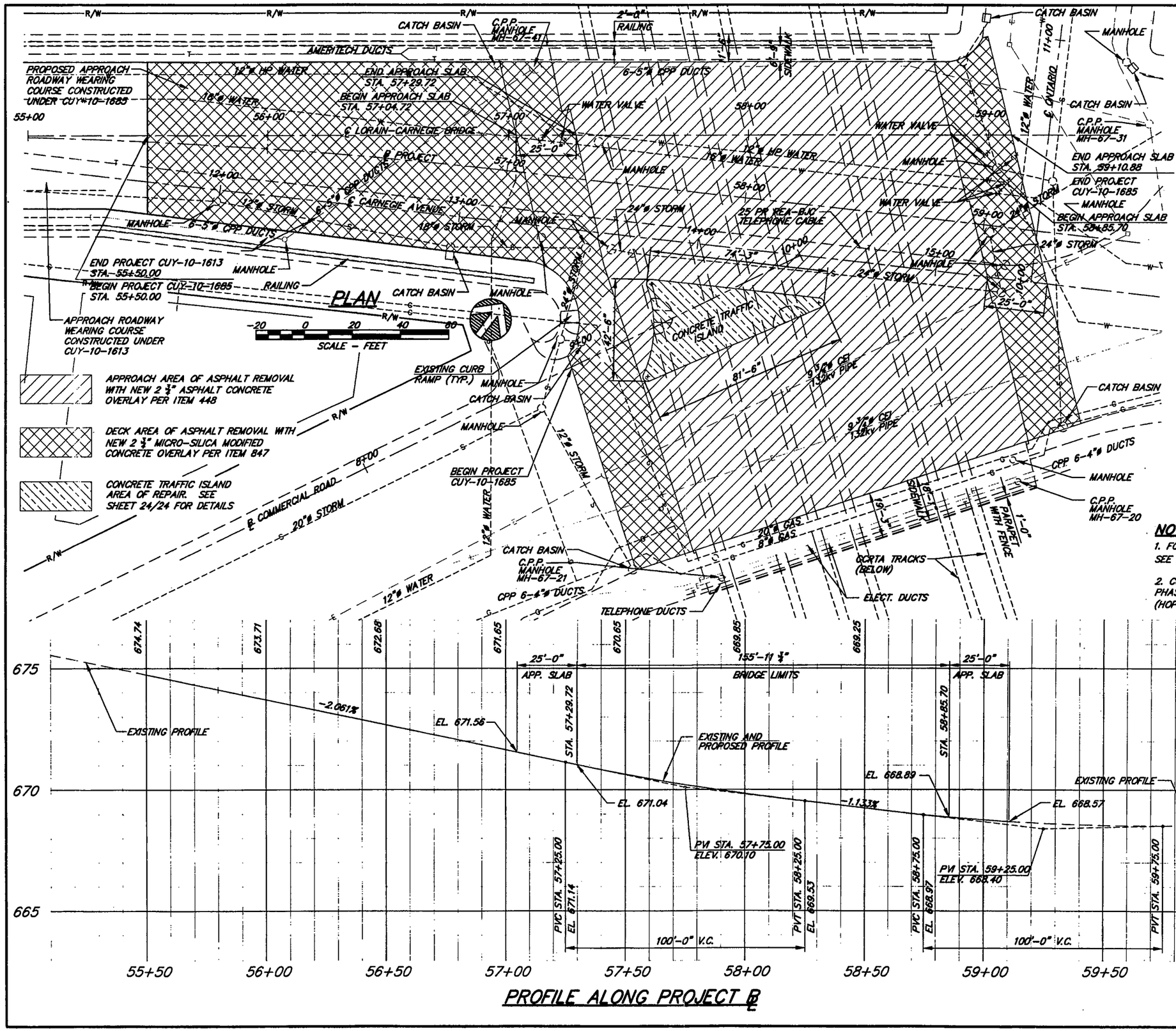
APPENDIX EX-65

Carnegie Bridge Plans
(Reference Document)

State of Ohio
Department of Transportation
Jolene M. Molitoris, Director

Innerbelt Bridge
Construction Contract Group 1 (CCG1)

Revision Date: 2002



PROFILE ALONG PROJECT ℄

LORAIN–CARNEGIE BRIDGE
CUY–10–1685 COUNTY BRIDGE No. 148

EXISTING STRUCTURE:

TYPE: REINFORCED CONCRETE GIRDER, DECK, AND SUBSTRUCTURE

SPAN: SEE PLAN

ROADWAY: VARIES
NORTH SIDEWALK 6'–9"
SOUTH SIDEWALK 18'–1"

LOADING: HS–20–44 CASE II AND THE ALTERNATE MILITARY LOADING

SKEW: VARIES

WEARING SURFACE: 2 ½" ASPHALT CONCRETE

APPROACH SLABS: WEST APP. SLAB 25'–0" ALIGNED WITH ℄ LORAIN–CARNEGIE BRIDGE
EAST APP. SLAB 25'–0" ALIGNED WITH ℄ CARNEGIE AVENUE

ALIGNMENT: TANGENT

SUPERELEVATION: VARIES

DATE BUILT: 1932, 1982

STR. FILE No.: 1801511

PROPOSED WORK:

ALL DATA IS SAME AS EXISTING STRUCTURE, EXCEPT AS FOLLOWS:

WEARING SURFACE: 2 ¾" MICRO–SILICA MODIFIED CONCRETE

BENCHMARK LOCATION:

O.M. 42 SQUARE IRON BOX
SOUTH WALK OF CARNEGIE AVENUE 250 FEET EAST OF BROADWAY AVENUE CENTERLINE

NOTES:

1. FOR EXISTING/PROPOSED PAVEMENT ELEVATIONS SEE SHEET 23/24.

2. COORDINATE MAINTENANCE OF TRAFFIC AND WORK PHASES WITH CONTRACTOR ON PROJECT CUY–10–1613 (HOPE MEMORIAL BRIDGE REHABILITATION).

DESIGN AGENCY
CUYAHOGA COUNTY ENGINEER
BRIDGE DESIGN DEPARTMENT

DESIGNED CPK | DRAWN CPK | CHECKED BGF | REVIEWED LJD 7/26/00 | REVISED | DATE | STRUCTURE FILE No. 1801511

B–No. 23
Report No. 7249

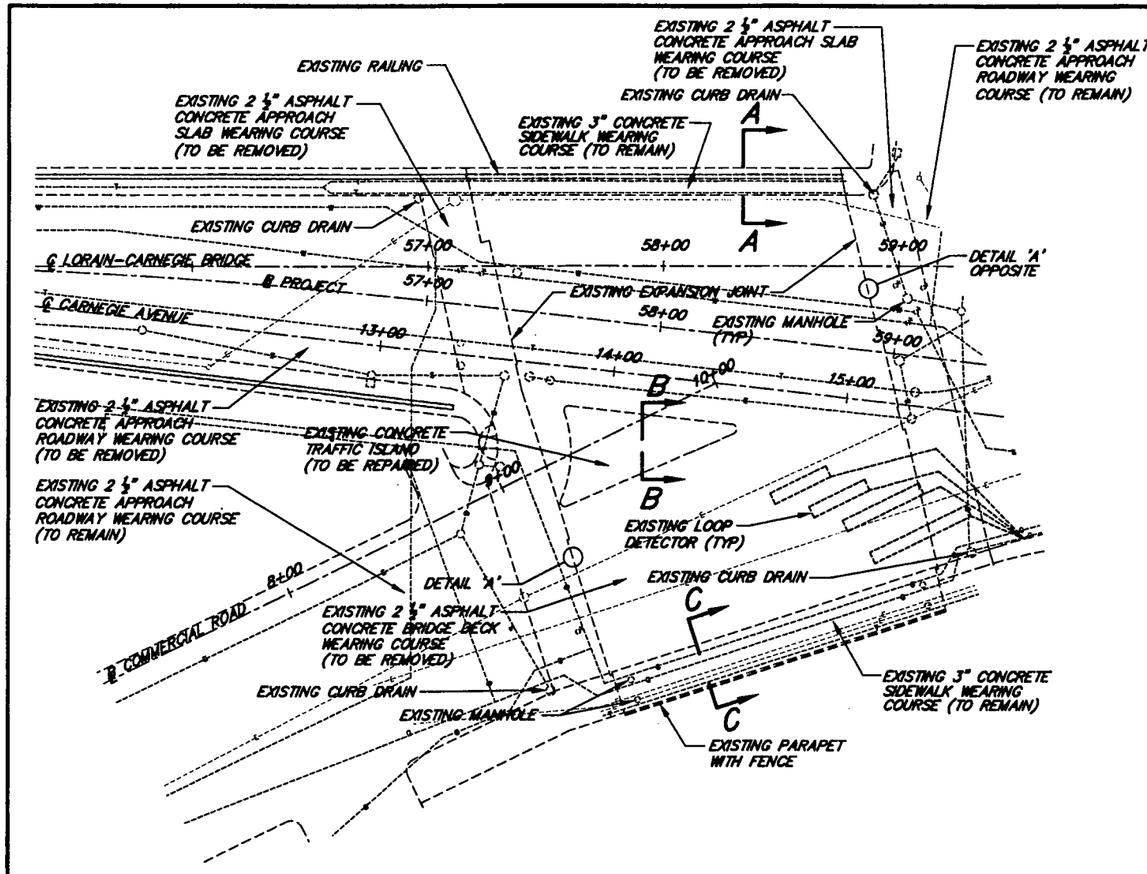
GENERAL PLAN AND PROFILE
LORAIN–CARNEGIE BRIDGE No. 148
OVER GCRTA TRACKS

CUY–10–1685

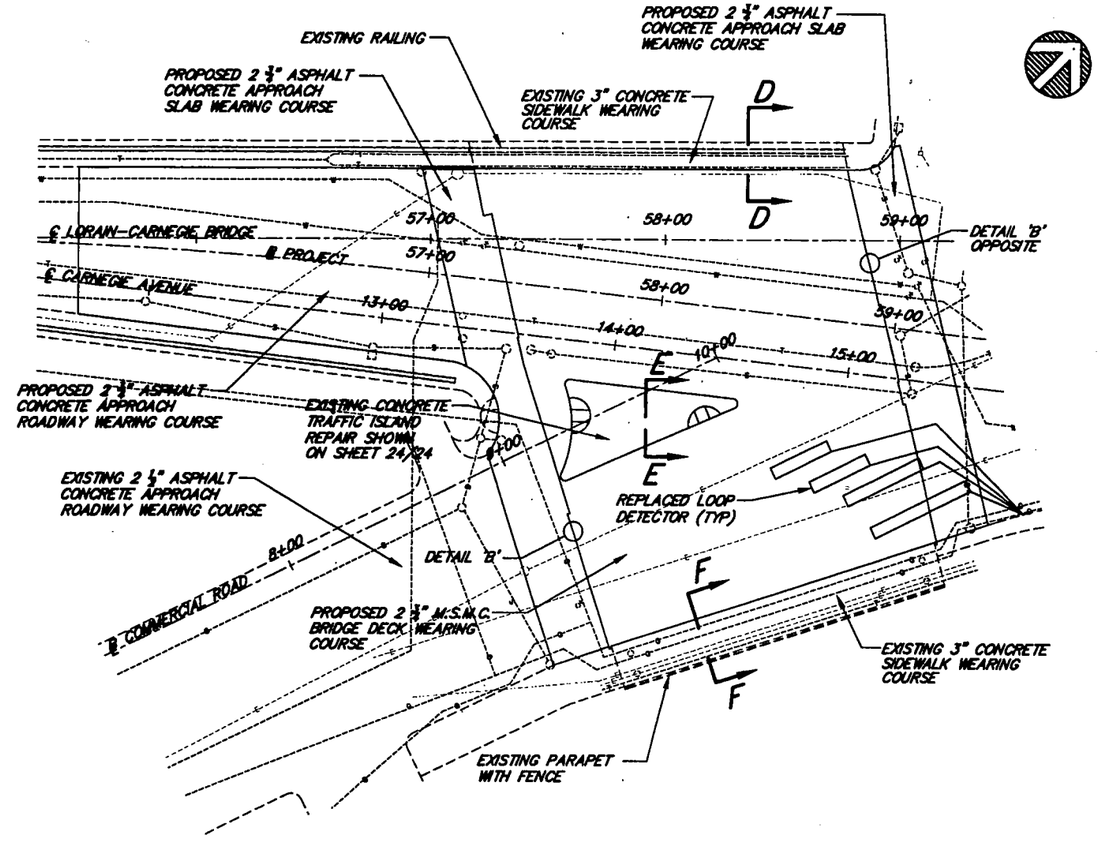
1/5

20/24

DRAWING NAME: S_GLONG
PLOTTING SCALE: 1=100
PLOT DATE: 02/24/00



EXISTING PLAN



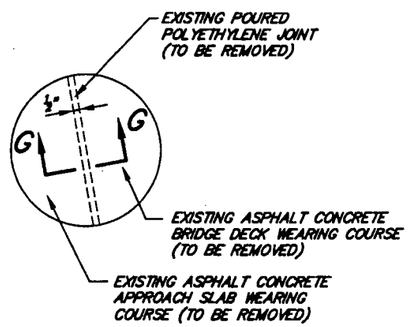
PROPOSED PLAN

-20 0 20 40 60

SCALE – FEET

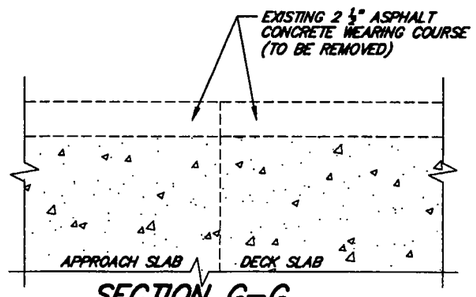
NOTE:

1. FOR SECTIONS A–A, B–B, C–C, D–D, E–E, AND F–F SEE SHEET 22/24.
2. FOR CONCRETE TRAFFIC ISLAND REPAIR DETAILS SEE SHEET 24/24.



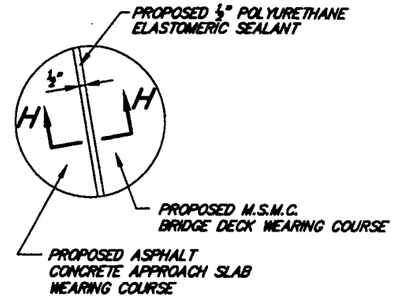
DETAIL 'A'

EXISTING JOINT



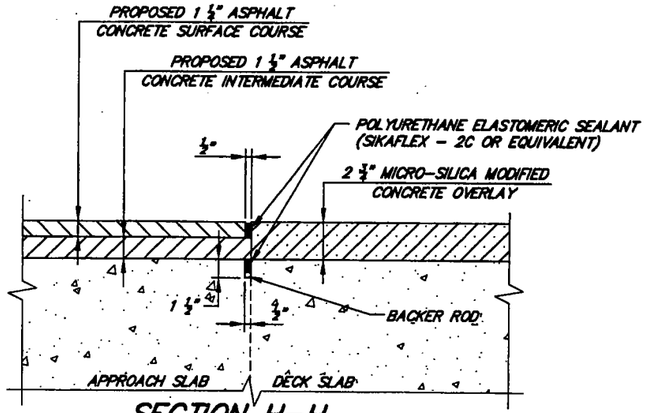
SECTION G–G

EXISTING JOINT DETAIL
WEST APPROACH SLAB SHOWN
EAST APPROACH SLAB OPPOSITE



DETAIL 'B'

PROPOSED JOINT SEALER



SECTION H–H

PROPOSED JOINT DETAIL
WEST APPROACH SLAB SHOWN
EAST APPROACH SLAB OPPOSITE

DESIGN AGENCY
CUYAHOGA COUNTY ENGINEER
BRIDGE DESIGN DEPARTMENT

REVIEWED DATE 2/28/00
STRUCTURE FILE No. 180/511

DESIGNED CPK | DRAWN CPK | REVIEWED | CHECKED BGF

B–No. 23
Report No. 7249

EXISTING AND PROPOSED PLANS AND SECTIONS

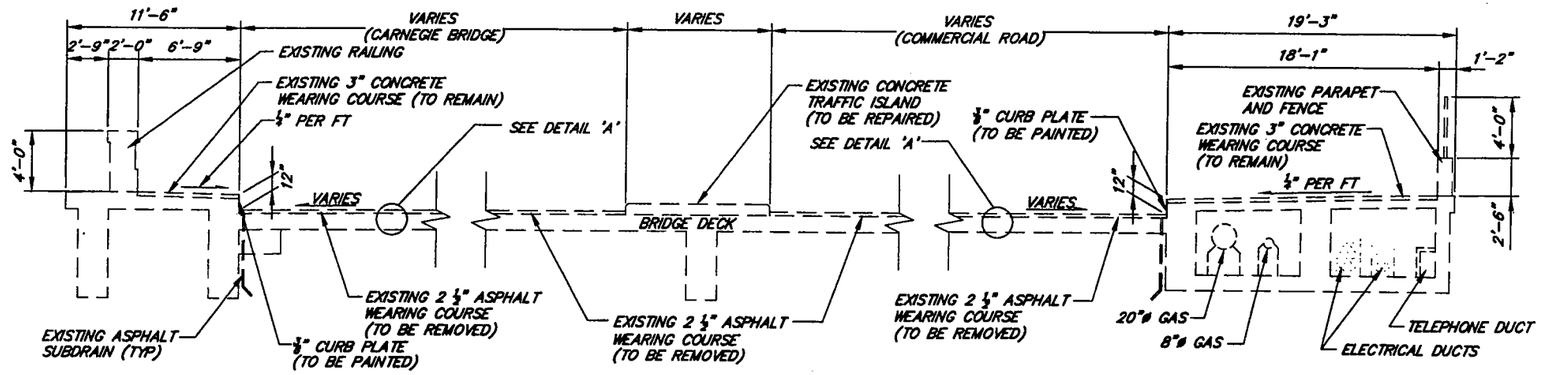
LORAIN–CARNEGIE BRIDGE No. 148
OVER GORTA TRACKS

CUY–10–1685

2/5

21/24

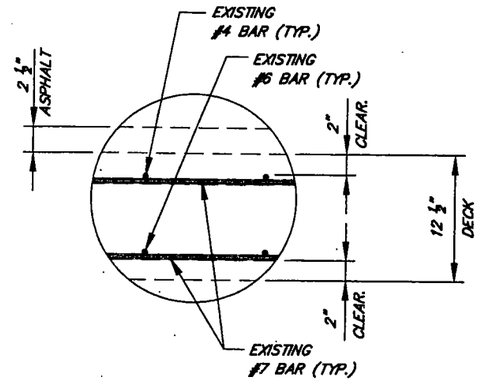
DRAWING NAME: s_21.dgn
PLOTTING SCALE: 1=44
PLOT DATE: 02/24/00



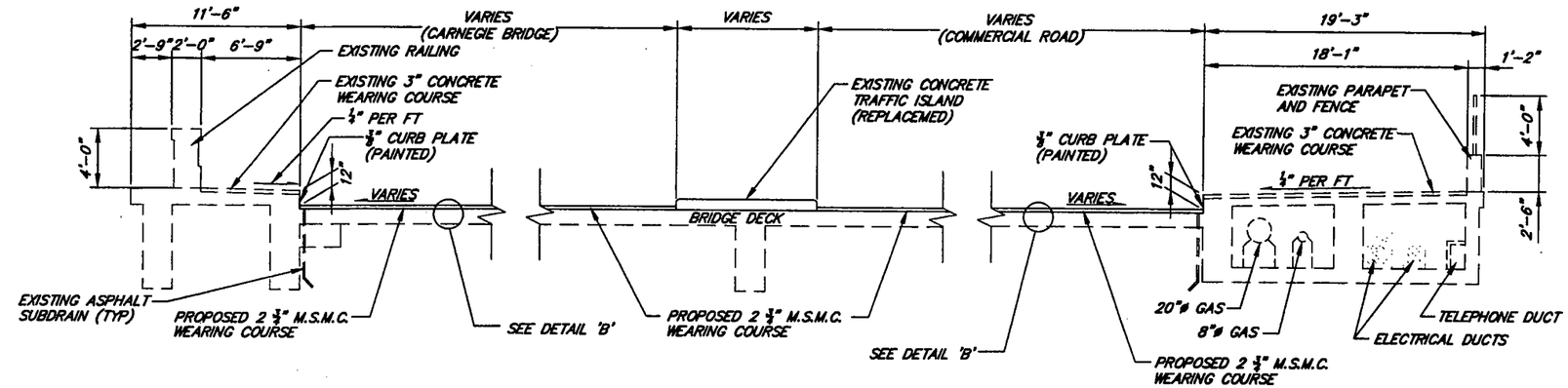
SECTION A–A
EXISTING NORTH SIDEWALK AND CURB DETAIL

SECTION B–B
EXISTING CONCRETE TRAFFIC ISLAND DETAIL

SECTION C–C
EXISTING SOUTH SIDEWALK AND CURB DETAIL



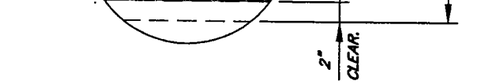
DETAIL 'A'



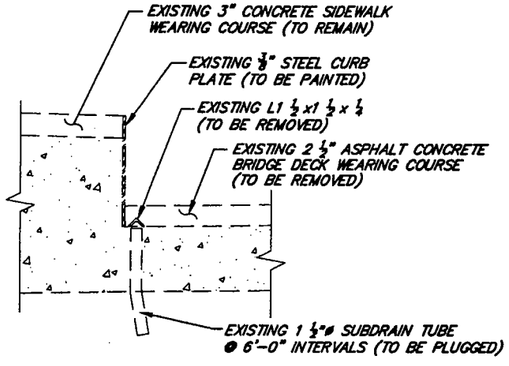
SECTION D–D
PROPOSED NORTH SIDEWALK AND CURB DETAIL

SECTION E–E
PROPOSED CONCRETE TRAFFIC ISLAND DETAIL

SECTION F–F
PROPOSED SOUTH SIDEWALK AND CURB DETAIL



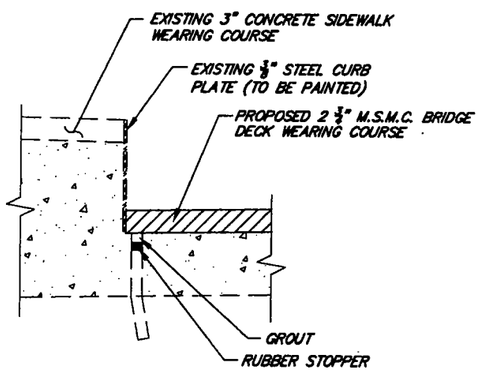
DETAIL 'B'



EXISTING SUBDRAIN DETAIL
REINFORCEMENT NOT SHOWN FOR CLARITY

SUBDRAIN PLUGGING PROCEDURE:

1. REMOVE ANGLES OVER SUBDRAIN TUBES. INCLUDE WITH ITEM 847 – WEARING COURSE REMOVED, ASPHALT, AS PER PLAN.
2. THOROUGHLY SANDBLAST OR WIREBRUSH CLEAN UPPER INSIDE OF EACH DRAIN PIPE TO 1" MINIMUM DEPTH.
3. DRIVE RUBBER STOPPER IN EACH DRAIN TUBE TO A MINIMUM DEPTH OF 1".
4. GROUT TUBE WITH CETLITE 42–14 EPOXY GROUT, SIKA GROUT 212, SIKAFLEX 1CSL OR AN EQUIVALENT TO A POINT LEVEL WITH THE DECK.



PROPOSED SUBDRAIN PLUGGING DETAIL
REINFORCEMENT NOT SHOWN FOR CLARITY

NOTES:

1. INCLUDE EXISTING L1 ½x1 ½x½ REMOVAL WITH ITEM 847 – WEARING COURSE REMOVED, ASPHALT, AS PER PLAN.
2. PAYMENT FOR PLUGGING ASPHALT SUBDRAINS SHALL BE MADE UNDER ITEM 518 – STRUCTURAL DRAINAGE, MISC.: PLUGGING ASPHALT SUBDRAINS.
3. SUBDRAIN PLUGGING ESTIMATE: 27–1 ½"ø PLASTIC TUBES ALONG NORTH GUTTER LINE AND 25– 1 ½"ø PLASTIC TUBES ALONG SOUTH GUTTER LINE FOR BRIDGE No. 148.
4. FOR SECTION LOCATIONS SEE SHEET 21/24.
5. FOR CONCRETE TRAFFIC ISLAND DETAILS SEE SHEET 24/24.

DESIGN AGENCY
CUYAHOGA COUNTY ENGINEER
BRIDGE DESIGN DEPARTMENT

DESIGNED	DRAWN	REVIEWED	DATE
CPK	CPK	WHD	2/28/00
CHECKED	REVISED	STRUCTURE FILE No.	
BGF		1801511	

B–No. 23
Report No. 7249

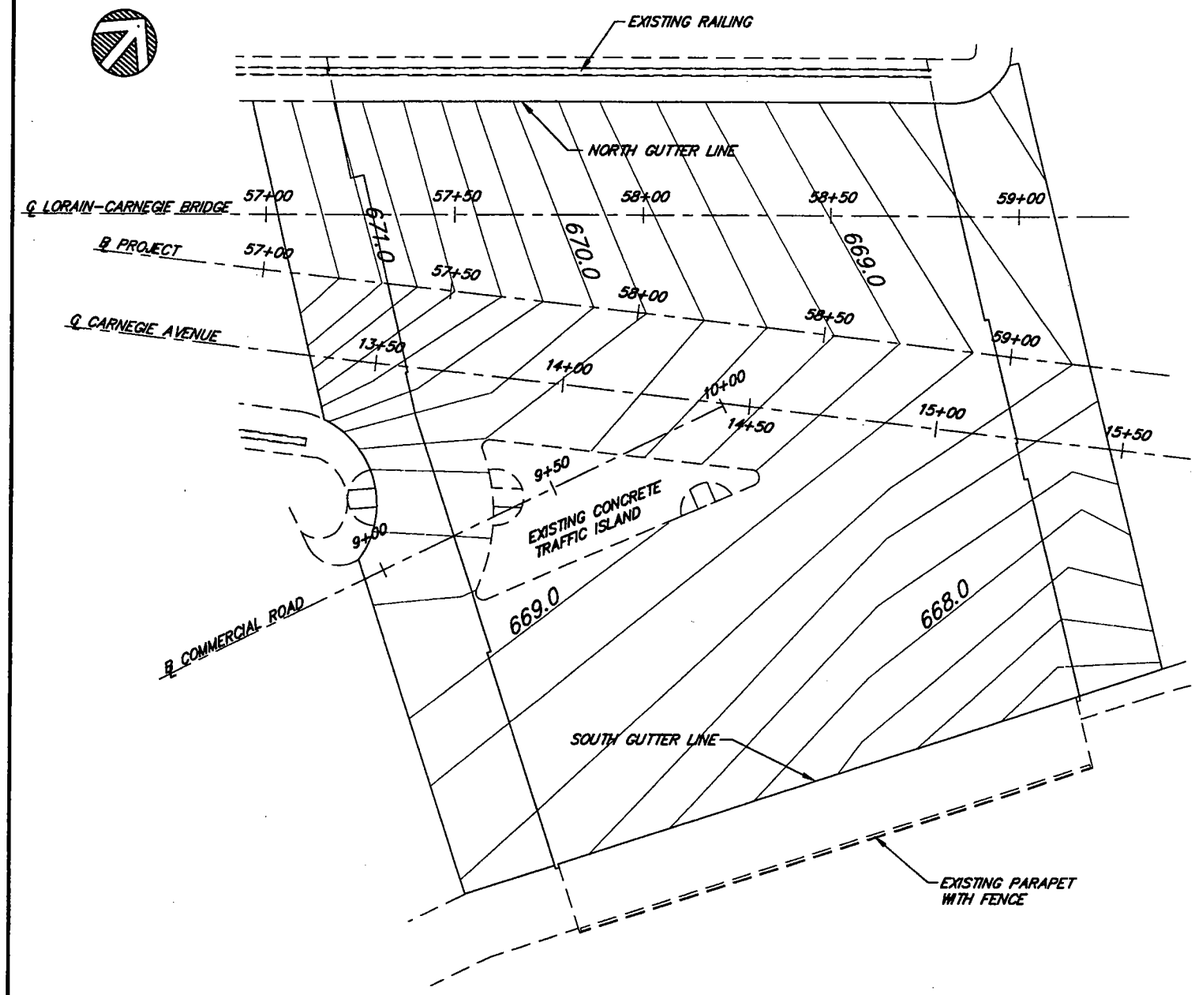
SECTIONS AND DETAILS
LORAIN–CARNEGIE BRIDGE No. 148
OVER GORTA TRACKS

CUY–10–1685

3/5

22/24

DRAWING NAME: s_22.dwg
PLOTTING SCALE: 1=60
PLOT DATE: 02/24/00



CONTOUR PLAN

TOP OF M.S.M.C. OVERLAY ON BRIDGE AND
ASPHALT WEARING COURSES ON APPROACH SLABS

-20 0 20 40 60

SCALE - FEET

DRAWING NAME: a_23.dwg
PLOTTING SCALE: 1=240
PLOT DATE: 02/24/00

DESIGN AGENCY
CUYAHOGA COUNTY ENGINEER
BRIDGE DESIGN DEPARTMENT

DESIGNED	DRAWN	REVIEWED	DATE
CPK	CPK	CWD	2/28/00

CHECKED BGF — REVIEWED STRUCTURE FILE No. 1801511

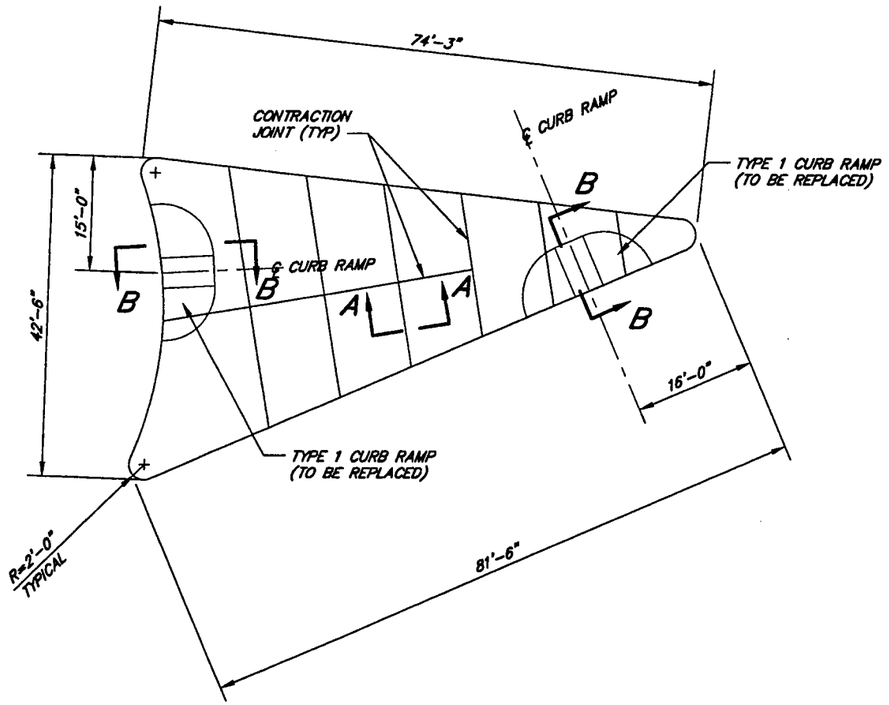
B-No. 23
Report No. 7249

CONTOUR PLAN
LORAIN-CARNEGIE BRIDGE No. 148
OVER GCRTA TRACKS

CUY-10-1685

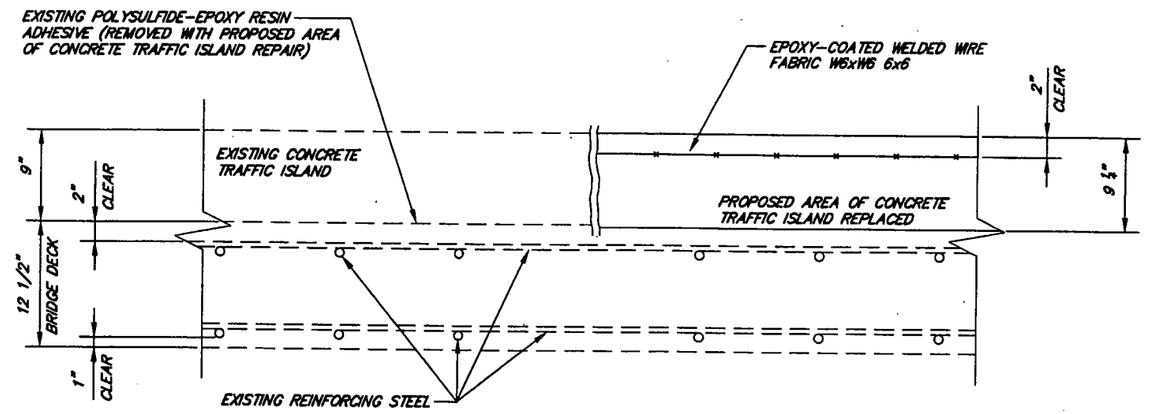
4/5

23/24



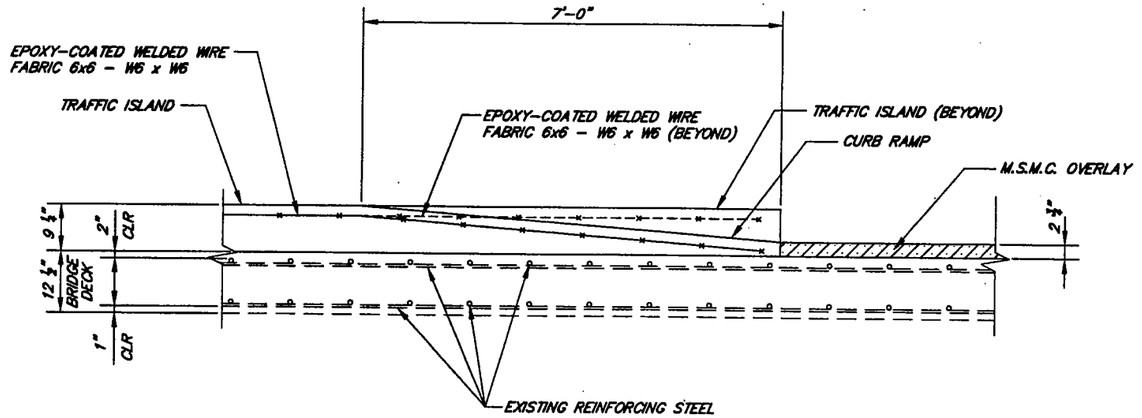
CONCRETE TRAFFIC ISLAND

AREA OF CONCRETE REMOVAL AND REPLACEMENT



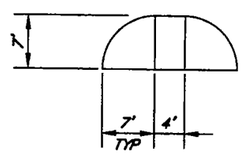
SECTION A-A

CONCRETE TRAFFIC ISLAND DETAIL



SECTION B-B

CONCRETE TRAFFIC ISLAND DETAIL



CURB RAMP DETAIL

CONCRETE TRAFFIC ISLAND

NOTES:

1. EPOXY-COATED WELDED WIRE FABRIC SHALL BE INCLUDED IN ITEM 842 - CLASS S CONCRETE, MISC.: 9" REINFORCED CONCRETE TRAFFIC ISLAND FOR PAYMENT.
2. SPACE CONTRACTION JOINTS AT 10'-0" MAXIMUM.

DRAWING NAME: s_24.DWG
PLOTTING SCALE: 1:120
PLOT DATE: 02/24/00

DESIGN AGENCY
CUYAHOGA COUNTY ENGINEER
BRIDGE DESIGN DEPARTMENT

DESIGNED	DRAWN	CHECKED	REVISED	REVISED	DATE
CPK	CPK	BCF		CWD	2/24/00

STRUCTURE FILE No. 1801481/1801511

B-No. 23
Report No. 7249

CONCRETE TRAFFIC ISLAND DETAIL
LORAIN-CARNEGIE BRIDGE No. 148
OVER GCRTA TRACKS

CUY-10-1685

5/5

24/24

FHWA REGION	STATE	PROJECT	
5	OHIO		

14
185

CUYAHOGA COUNTY
CUY-10-16.23

See Structure Plans for Details and Quantities

+04.56

P.C. Sta. 54+41.42 Proj. ℄ ℄ "A"

Remove existing railing and replace with Type "C" railing on the existing alignment.

R/W

R.U.D. 673.70

Reset Granite Curb

LORAIN-CARNEGIE BRIDGE

℄ "A"

676.0 675.0 674.0 673.0 672.0

55

MELP Ducts See Dwg. 7087-29 for location and placement details

R.U.D. 673.70

Remove existing railing and replace with Type "C" railing on the existing alignment.

+00 Proj. ℄ T/R = 678.29

+25 Proj. ℄ T/R = 677.78

P.T. Sta. 56+97.67 Proj. ℄ Sta. 13+15.29 ℄ "F"

+50 Proj. ℄ T/R = 677.25

+75 Proj. ℄ T/R = 676.76

R.U.D. 669.95

U-14 U-15 U-16

D-20 D-21 D-22 D-23

N.G. 671.15

+97.5 ℄ "A", 28.6' Lt. Adj. C.B. to Grade

+00 Proj. ℄ T/R = 676.28

+25 Proj. ℄ T/R = 675.81

+50 Proj. ℄ T/R = 675.37

CLEVELAND UNION TERMINAL CO.

Sta 59+24.97 ℄ "A" = Sta 10+60.64 ℄ "H"

D-35

+88 ℄ "H", 37.5' Lt. Adj. C.B. to Grade

Type 1 Curb Ramp +93 ℄ "H" Lt.

N.G. 668.10

R-16.5

ONTARIO AVE.

667.6 667.8

T/C 668.30

+00 ℄ "H" End Asphalt Overlay

+94 ℄ "H" 28.6' Rt. Adj. M.H. to Grade

+92.2 ℄ "H", 33.8' Rt. Adj. C.B. to Grade

D-36

R-25

N.G. 667.25

Type 1 Curb Ramp +88 ℄ "H" Rt.

Type 6 Curb

D-37

667.6 667.8 668.0 668.2 668.4

CARNEGIE AVE.

MELP Ducts See Dwg. 7087-30 for location and placement details

Begin Approach Slab Sta. 58+85.70 ℄ "A"

End Approach Slab Sta. 57+29.72 ℄ "A"

T/C 668.54

D-31

T/C 668.70

25' App. Slab

T/C 668.40

D-33

+75 Project ℄ End Asphalt Overlay

668.6

60 PROJECT ℄

669.6

21.00'

℄ "F"

+55.5 ℄ "F" 7' Rt. Adj. M.H. to Grade

+35 ℄ "F" 4.7' Rt. Adj. M.H. to Grade

21.00'

D-28

25' App. Slab

T/C 670.25

T/C 670.49

Item 612 Concrete Traffic Island per Std Const. Dwg. MC-6

D-29

D-30

T/C 668.30

Sta 10+00.00 ℄ "G" = Sta 14+42.81 ℄ "F"

CONCRETE TRAFFIC ISLAND

N.G. 669.44

U.D. 669.94

Type 1 Curb Ramp +09 ℄ "G" Lt. +37 ℄ "G" Lt. +88 ℄ "G" Rt.

R-2 (Typ.)

D-27

D-32

T/C 670.59

Sta 15+39.94 ℄ "F" = Sta 10+00.00 ℄ "H"

669.2

Type 6 Curb

667.8

667.4

N.G. 667.25

Type 1 Curb Ramp +81 ℄ "F" Rt.

D-34

For Deck Replacement, See Structure Plans

669.0

668.8

668.6

668.4

668.2

668.0

667.8

667.4

+99 ℄ "F", 4.7' Rt. Adj. M.H. to Grade

+97.7 ℄ "F", 12.7' Rt., Adj. M.H. to Grade

R.U.D. 671.31

+57 ℄ "G" Begin Asphalt Overlay

Type 6 Curb

D-24

T/C 669.17

669.0

25' App. Slab

668.8

Type 6 Curb

D-25

+03.8 ℄ "G", 7.3' Lt. Adj. C.B. to Grade

+93 ℄ "G", 87.6' Rt. Adj. C.B. to Grade

+95.6 ℄ "G", 13.0' Lt. Adj. M.H. to Grade

+76 ℄ "G", 9.6' Rt. Adj. M.H. to Grade

+21.8 ℄ "F", 44.5' Lt., +21 ℄ "F", 18' Lt. Adj. M.H. to Grade

+29 ℄ "F", 5' Rt. Adj. M.H. to Grade

+44 ℄ "F", 42' Lt. Adj. M.H. to Grade

+61 ℄ "F", 58.3' Rt. Adj. C.B. to Grade

END PROJECT
CUY-10-16.23
STA. 59+75

FIRE STATION

COMMERCIAL ROAD

℄ "G"

W/12

12"

* Existing tree to be protected during construction.

LEGEND

- Existing Conditions
- Project Work
- Railing Removed and Replaced
- Manhole Adjusted to Grade
- Catchbasin Adjusted to Grade
- Sidewalk Removed and Replaced

20 0 20 40 60 80
SCALE IN FEET

Note:

For Curb Height Transitions, see Sheet 17.
T/C indicates Top of Cover
N/G indicates Normal Gutter elevation
T/R indicates top of railing.
F/L indicates Flow Line

Project ℄ Curve Data

P.I Sta. 55+69.68 Proj. ℄ ℄ "A"
Δ = 6°24'22.5"
D = 2°30'00"
T = 128.259'
R = 2291.831'
L = 256.250'
E = 3.586'

SEWERS

Ref. No.	Station From	Station To	Side	604 Manhole Adjusted to Grade Each	604 Catch Basin Adjusted to Grade Each
D-20	11+99 ℄ F		Rt.	1	
D-21	12+97.7 ℄ F		Rt.	1	
D-22	12+97.7 ℄ F		Rt.		1
D-23	56+97.5 ℄ A		Lt.		1
D-24	8+76 ℄ G		Rt.	1	
D-25	8+93 ℄ G		Rt		1
D-26	8+95.5 ℄ G		Lt.	1	
D-27	9+03.8 ℄ G		Lt.		1
D-28	13+35 ℄ F		Rt.	1	
D-29	13+55.5 ℄ F		Rt.	1	
D-30	15+21 ℄ F		Lt.	1	
D-31	15+21.8 ℄ F		Lt.	1	
D-32	15+29 ℄ F		Rt.	1	
D-33	15+44 ℄ F		Lt.	1	
D-34	15+61 ℄ F		Rt		1
D-35	10+88 ℄ H		Lt.		1
D-36	10+92.2 ℄ H		Rt.		1
D-37	10+94 ℄ H		Rt.	1	
		Totals		11	7

UNDERDRAINS

Ref. No	Station From	Station To	Side	605 6" Pipe Underdrains 706.08 Perforated Lin.Ft.
U-14	55+04.56 ℄ A	56+97.5 ℄ A	Lt.	193
U-15	11+27 ℄ F	12+97.7 ℄ F	Rt.	171
U-16	13+03 ℄ F	9+03.8 ℄ G		71
	Total			435

MADE FWK DATE 6-26-78
TRACED KLE DATE 3-15-79
CHECKED FWK DATE 3-14-79
SCALE AS SHOWN

Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO

HNTB

LORAIN-CARNEGIE BRIDGE

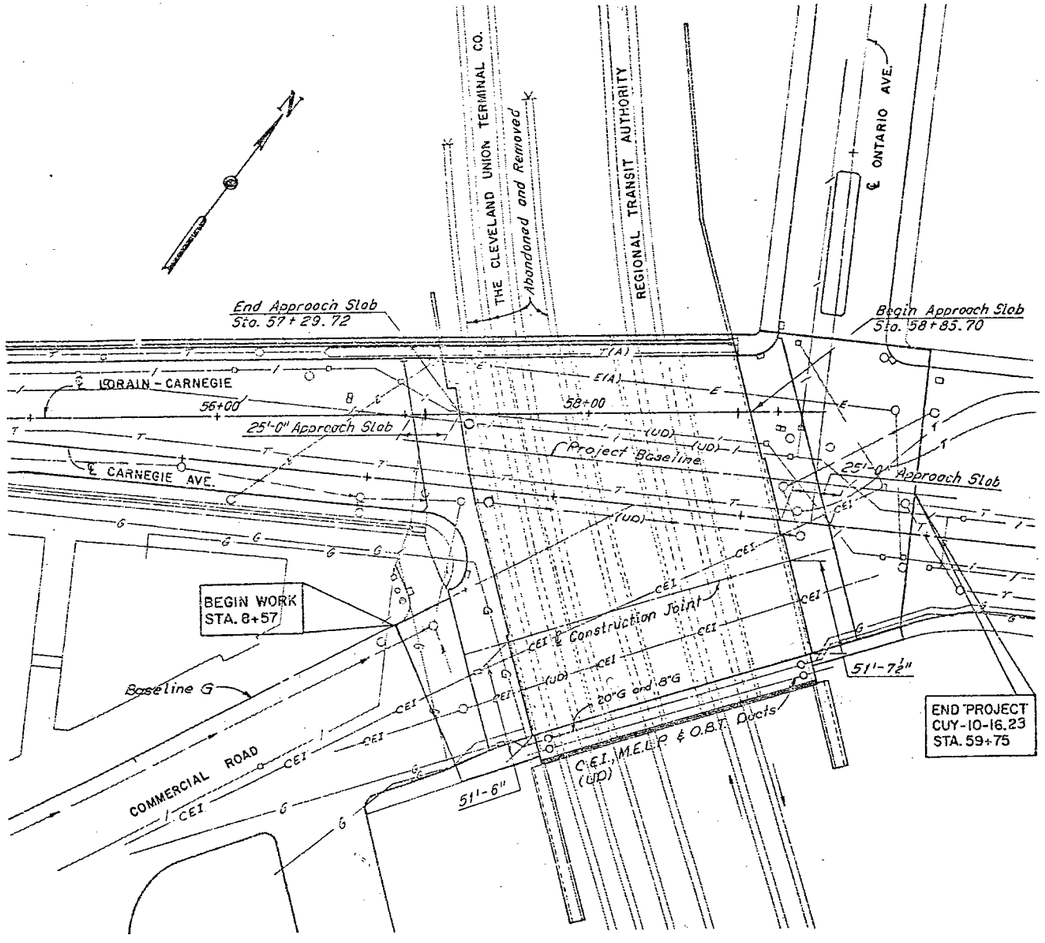
PAVEMENT PLAN STA. 55+04.56 TO STA. 56+75

(14)

FHWA REGION	STATE	PROJECT	
5	OHIO		

148/185

CUYAHOGA COUNTY
CUY-10-16.23

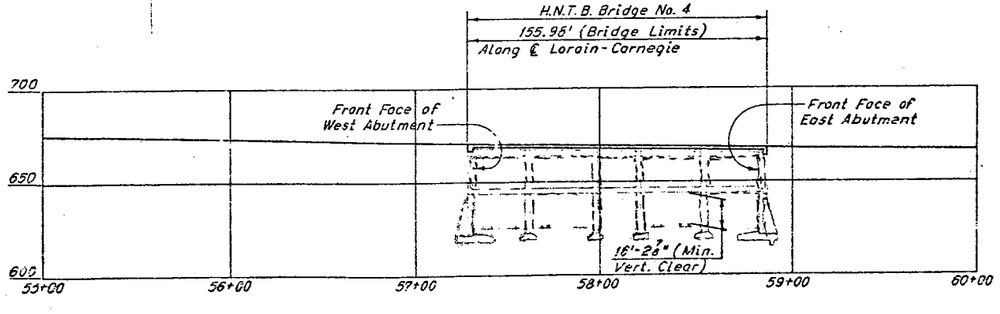


PLAN

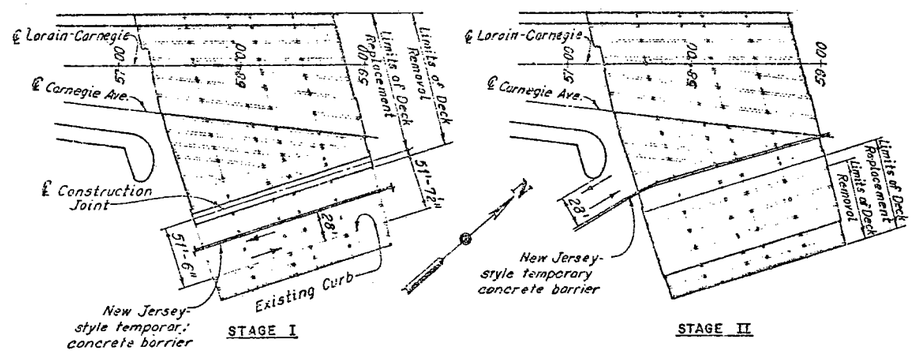
(Utilities not shown otherwise are underground utilities)

40 0 40 80 120 160

SCALE IN FEET



ELEVATION



TRAFFIC MAINTENANCE - CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
Scale: 1"=60'

The stage construction applies within the bridge and approach slab limits. All repair work shall be coordinated with the stage construction as shown.

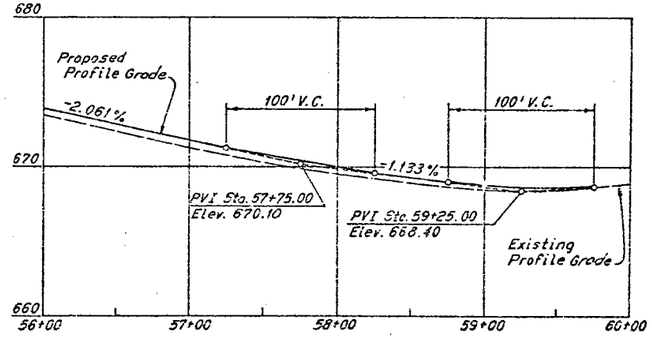
Notes:
Subdued linework indicates existing conditions.
For Project Baseline Data, and Baseline G Data, See Roadway Plans.

Note:

Underground and underdeck utilities not indicated as being abandoned shall remain. The information shown on this drawing concerning type and location of underground and underdeck utilities is not guaranteed to be accurate or all inclusive. The Contractor is responsible for making his own determination as to the type and location of underground and underdeck utilities as may be necessary to avoid damage thereto. Full expense involved in relocating the affected utility, except where the relocation is covered in these plans, shall be borne by the Owner of the utility. The Contractor and Owner are requested to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum.

UTILITY LEGEND

(A) – Indicates a utility to be abandoned
(UD) – Indicates an underdeck utility
—E— – Indicates Municipal Electric Light and Power line (M.E.L.P.)
—T— – Indicates Ohio Bell Telephone Line (O.B.T.)
—W— – Indicates water line
—G— – Indicates gas line
→ – Indicates sewer line
—CEI— – Indicates Cleveland Electric Illuminating Company line (C.E.I.)



PROFILE GRADE: GRADE SEPERATION ALONG PROJECT BASELINE

PROPOSED STRUCTURE DATA ON CONCRETE GIRDERS
BRIDGE NO. CUY-10-1685
TYPE: Reinforced Concrete Girder, Deck and Substructure
SPAN: See Framing Plan, Sheet No. 150.
ROADWAY: Varies
LOADING: HS 20-44 Case II and The Alternate Military Loading
SKEW: Varies
WEARING SURF: 2¾" Asphalt Concrete (Rubberized)
ALIGN: Tangent

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

SITE PLAN

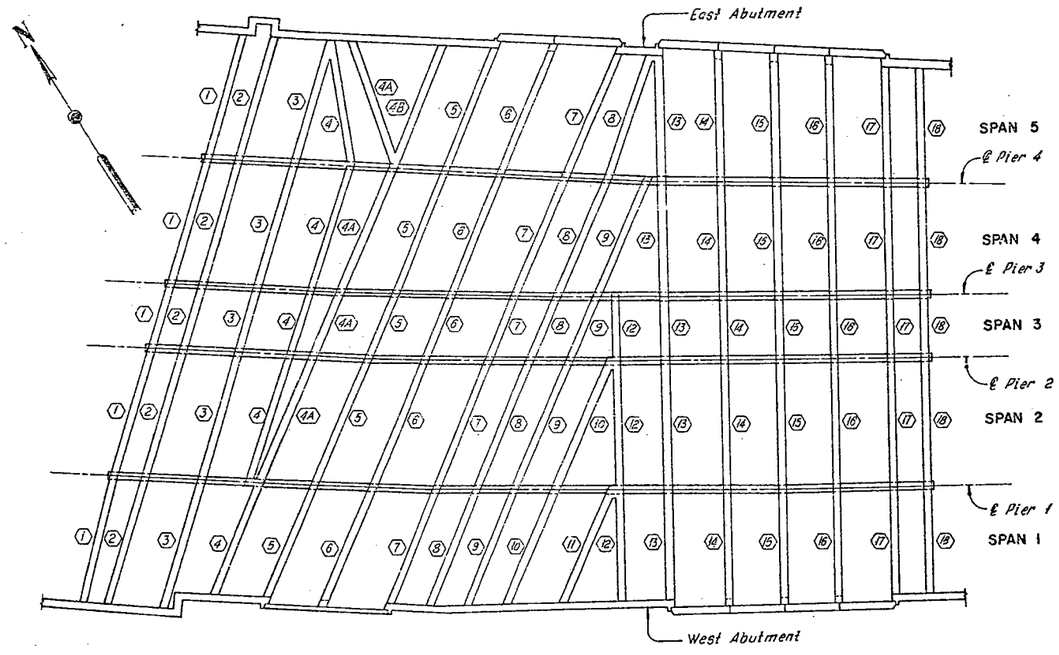
REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72 STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
DATE 8-29-75	DLB DATE 9-7-76	RAS DATE 9-25-76	DATE	SHEET 1 / 31

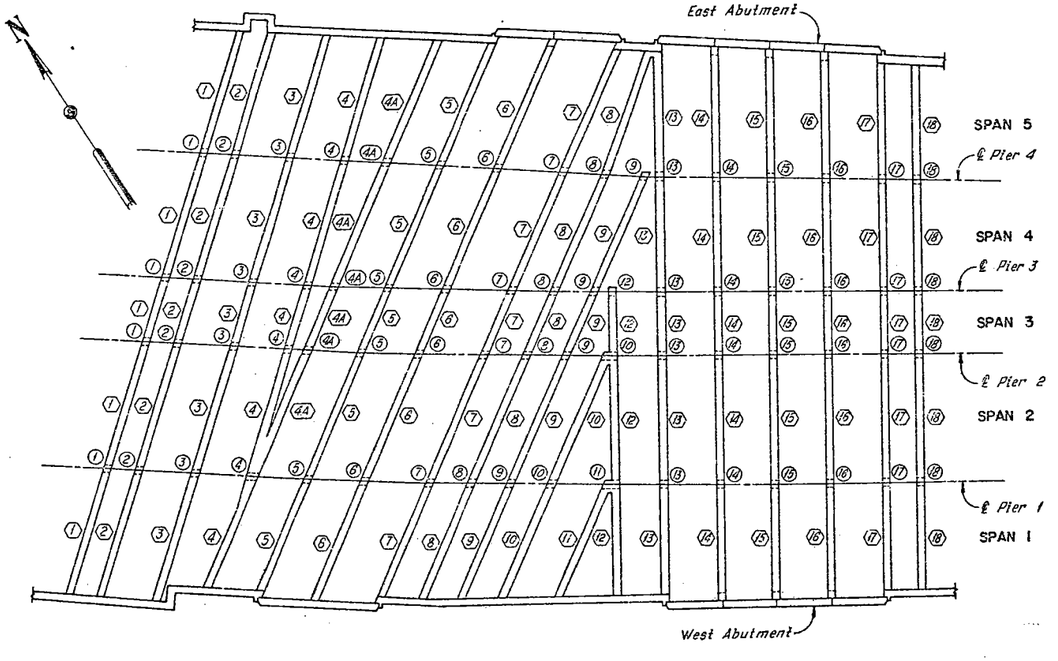
FHWA REGION	STATE	PROJECT	
5	OHIO		

149
185

CUYAHOGA COUNTY
CUY-10-16.23



STRUT AND PIER IDENTIFICATION PLAN
(Lower Level Framing)



GIRDER AND COLUMN IDENTIFICATION PLAN
(Upper Level Framing)

LEGEND:

- ⬡ *Strut or Girder*
- ○ *Column*

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

MEMBER IDENTIFICATION PLANS

REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72
STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
DATE	DATE	DATE	DATE	SHEET 2

FHWA REGION	STATE	PROJECT	
5	OHIO		

150 / 185

CUYAHOGA COUNTY
CUY-10-16.23

Note:
Prior to deck removal over the girders, Girders 2 thru 16 shall be shored. For Girders 2 thru 18 removal, see removal plans, typical section along Pier 3, Sheet 4/31.

Notes:
For typical deck and girder removal details, see Sheet 4/31.
The existing manholes shall be reconstructed to grade. For details, see Sheets 26/31 and 27/31.
For strut and column removal details, see Sheet 6/31.
For removal plans at the West Abutment, see Sheets 7/31 thru 9/31.
For removal plans at the East Abutment, see Sheets 10/31 thru 12/31.
For removal plans along Pier 3, see Sheets 4/31 and 5/31.
For stage construction, see Sheet 1/31.

DECK PLAN

HNTB BRIDGE NO. 4

HOWARD, NEEDLES TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

DECK REMOVAL AND FRAMING PLAN

REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)

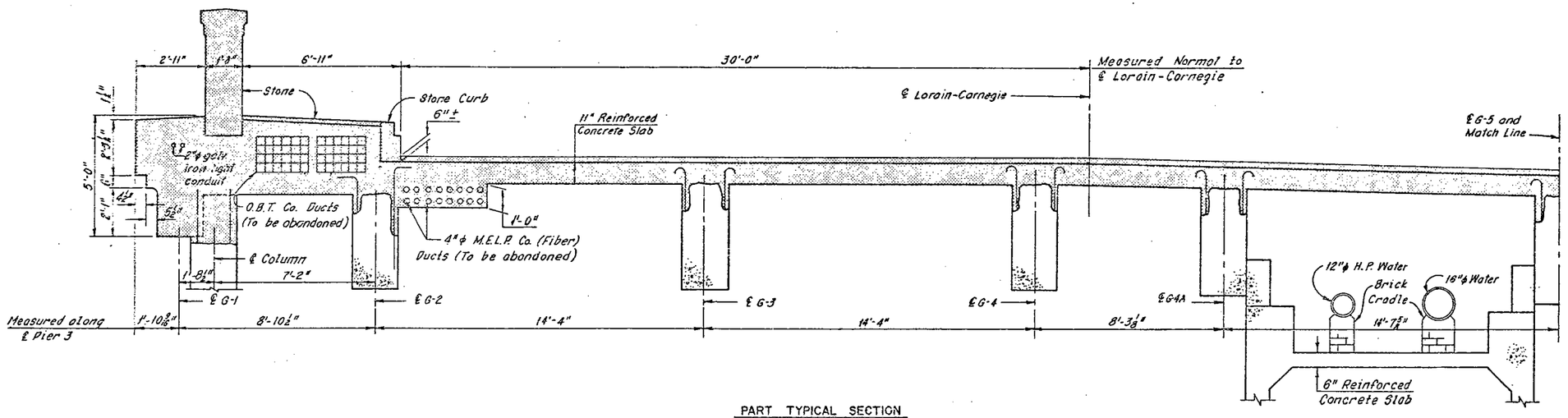
BR. NO. CUY.-10-1685 STA 57+29.72
STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
DATE 3-20-78	DATE 3-20-78	DATE 6-7-78	DATE	SHEET 3/31

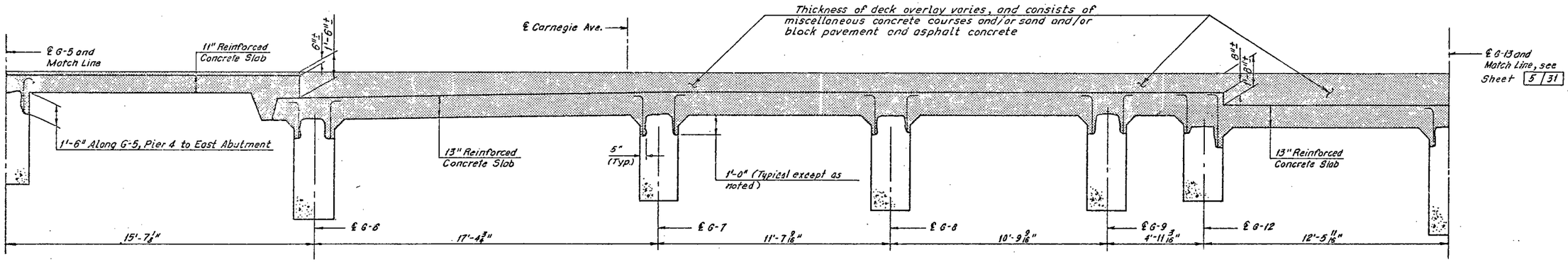
FHWA REGION	STATE	PROJECT	
5	OHIO		

151
185

CUYAHOGA COUNTY
CUY-10-16.23



PART TYPICAL SECTION
(Columns not shown)



PART TYPICAL SECTION
(Columns not shown)

SPECIAL REQUIREMENTS FOR GIRDER 1 AND DECK REMOVAL

1. The girders are under a compressive load from the abutments. Before Girder 1 replacement work begins the Contractor shall temporarily support the abutments at the girder. The supports shall be preloaded to resist a total compressive force of 35 kips at each abutment and shall be retained until the replacement Girder 1 attains its design strength. (For requirements and payment for temporary supports see General Note 9 on Sheet GN-1 and notes on Sheet E-1)
2. Suggested deck removal sequence:
   a) Laterally support Girders 2 thru 18 at each pier before deck removal operations begin.
   b) Remove the deck between girders.
   c) Shore girders 2 thru 18 continually throughout their length. Preload the supports with an upward force equal to the weight of the girder and remaining deck (Shoring shall remain in place until the replacement deck attains its design strength).
   d) Remove the remaining portion of the deck.
   e) An alternate sequence may be submitted to the Director for consideration and approval.

Notes:

Zip-a-tone indicates portions of the structure to be removed.

For Removal Details at Girders 2 thru 13, see Detail A, Sheet 5/31.

For Framing Plan, see Sheet 3/31.

For Modified Typical Section at Pier 3, see Sheets 22/31 and 23/31.

The following abbreviations are used:

Typ.	=	Typical
O.B.T.	=	Ohio Bell Telephone Company
C.E.I.	=	Cleveland Electric Illuminating Company
M.E.L.P.	=	Municipaly Electric Light and Power
P.E.H.P.	=	Plain end, high pressure
H.P.	=	High Pressure

All existing reinforcing shown shall be retained. Other existing reinforcing shall be removed, except as noted in Detail A, Sheet 5/31.

For Stage Construction, see Sheet 1/31.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

REMOVAL PLANS
TYPICAL SECTION ALONG PIER 3

REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)

BR. NO. CUY.-10-1685 STA. 57+29.72 STA. 58+85.70

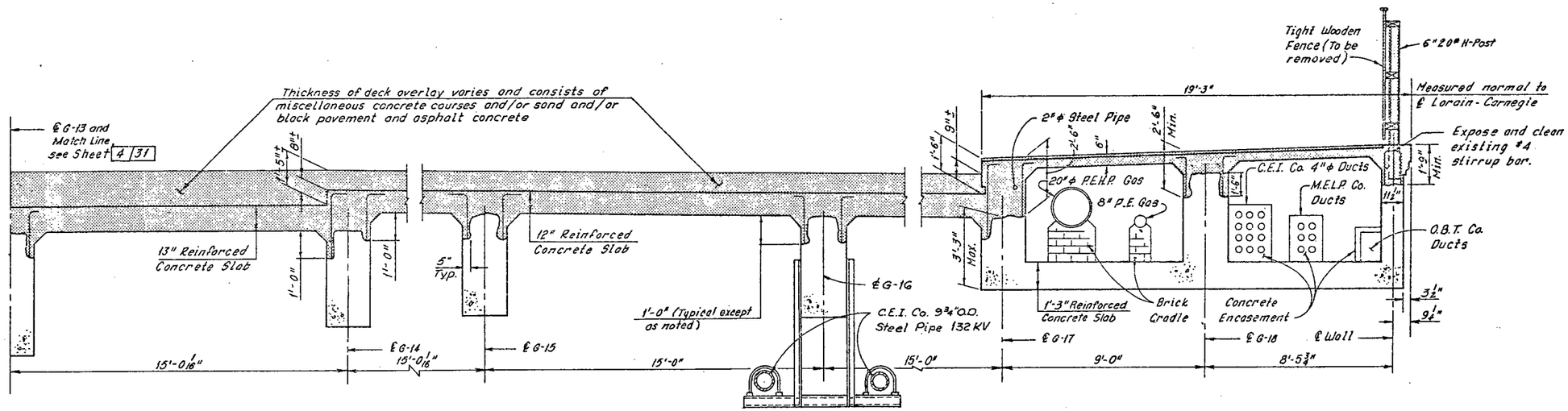
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
BD	BD	RS		
DATE 5-17-78	DATE 5-30-78	DATE 7-7-78	DATE	SHEET 4/31

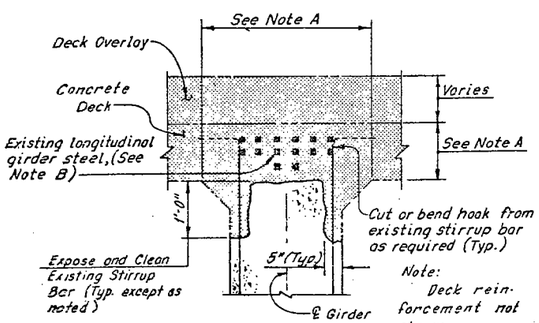
FHWA REGION	STATE	PROJECT	
5	OHIO		

152
185

CUYAHOGA COUNTY
CUY-10-16.23



PART TYPICAL SECTION
(Columns and C.E.I. Protection not shown)



DETAIL A
(Girder 2 Thru Girder 18)

Note A:

Concrete above the girders shall remain in place until the girders have been properly shored. Special requirements for Girder 1 and Deck Removal, see Sheet 4 31.

Note B:

All existing longitudinal girder reinforcement shall be retained except at the option of the Contractor and with the approval of the Engineer new bars may be substituted for the original bars. The new bars may be round or square with a cross-sectional area equal or greater than the original bars. No additional payment will be made for substituting new bars for the original bars.

Notes:

Zip-a-tone indicates portions of the structure to be removed.

For Framing Plan, see Sheet 3 31.

For Modified Typical Section at Pier 3, see Sheets 22 31 *and* 23 31.

The following abbreviations are used:

Typ.	=	Typical
O.B.T.	=	Ohio Bell Telephone Company
C.E.I.	=	Cleveland Electric Illuminating Company
M.E.L.P.	=	Municipaly Electric Light and Power
P.E.H.P.	=	Plain end, high pressure
H.P.	=	High Pressure

All existing reinforcing shown shall be retained. Other existing reinforcing shall be removed, except as noted in Detail A.

For Stage Construction, see Sheet 1 31.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

REMOVAL PLANS
TYPICAL SECTION ALONG PIER 3

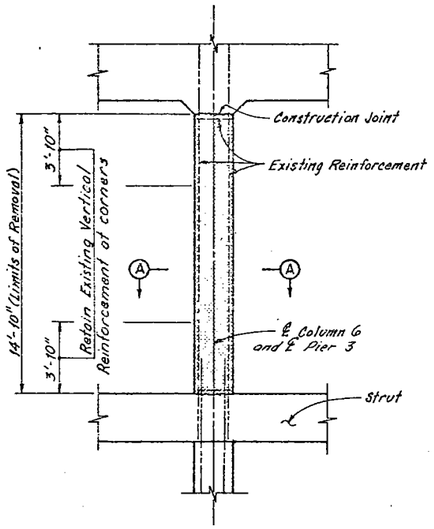
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72
STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
BP	SP	PS		
DATE 5-17-77	DATE 5-31-77	DATE 7-7-78	DATE	SHEET 5 31

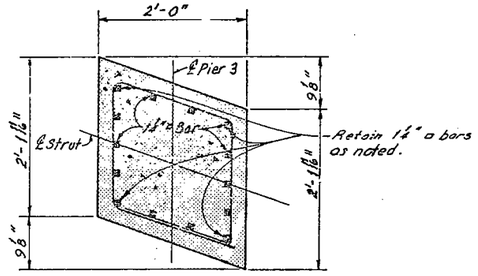
FHWA REGION	STATE	PROJECT	
5	OHIO		

153
185

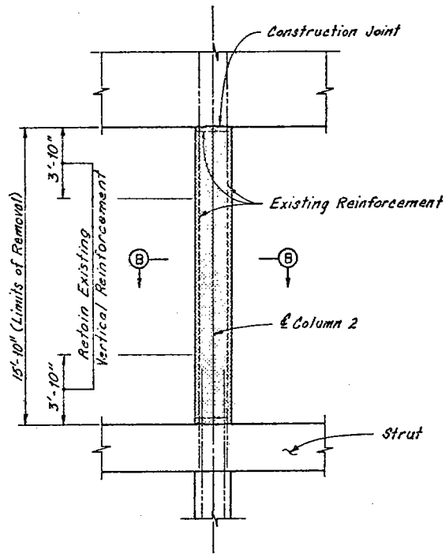
CUYAHOGA COUNTY
CUY-10-16.23



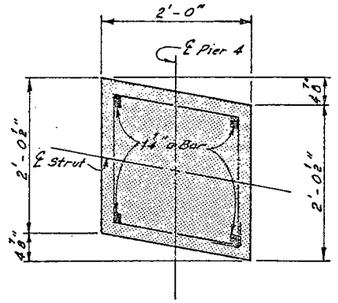
PIER 3 COLUMN 6



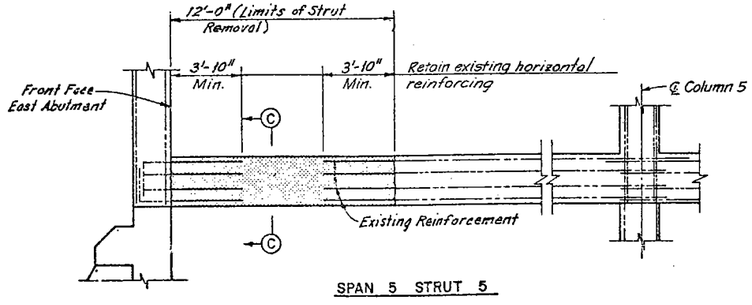
SECTION A-A



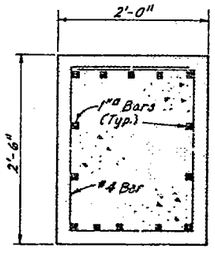
PIER 4 COLUMN 2



SECTION B-B



SPAN 5 STRUT 5



SECTION C-C

Special Requirements for Strut Removal

1. The strut removal and repair shall be accomplished prior to shoring the girders.
2. The strut is under a compressive load from the abutments. Before strut removal work begins, the Contractor shall install temporary supports between Column 5 and the East Abutment as close as possible to the strut top. The supports shall be preloaded with a total load 153.5 kips and this load shall be retained until the replacement strut attains design strength.

Note:

Zipatone indicates portions of structure to be removed.

For strut and column repair details, see Sheet 19 /31.

For member identification plans, see Sheet 2 /31.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

STRUT AND COLUMN REMOVAL DETAILS

REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)

BR. NO. CUY.-10-1685 STA. 57+29.72 STA. 58+85.70

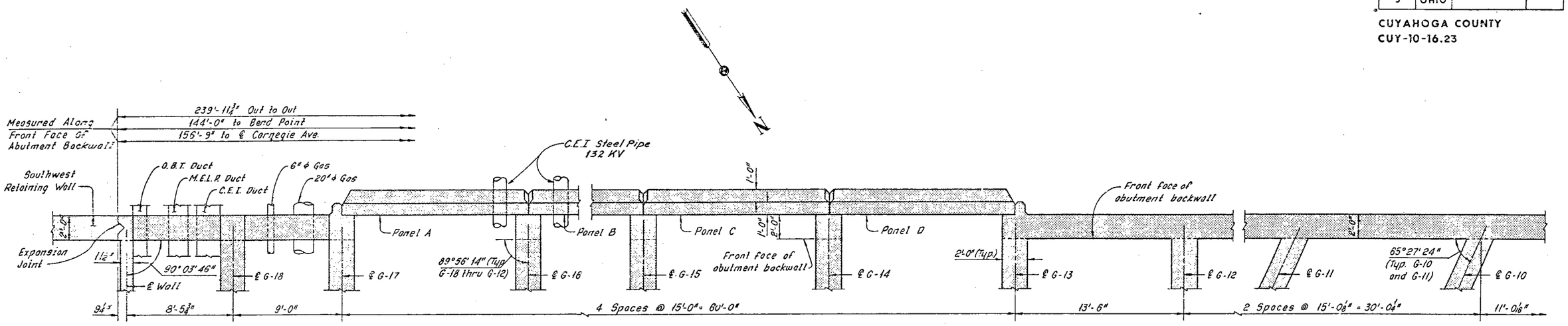
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
AJT	DES	KAS		
DATE 8-1-72	DATE 8-3-72	DATE 9-6-72	DATE	SHEET 5 31

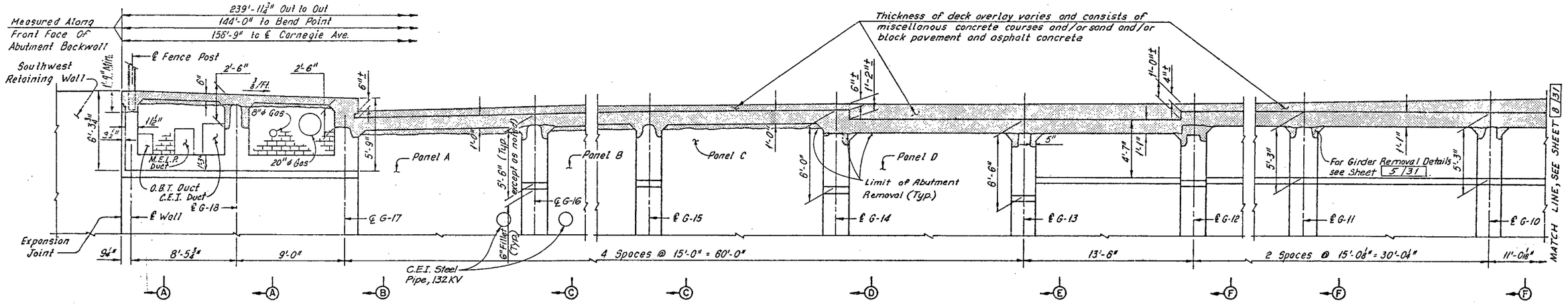
FHWA REGION	STATE	PROJECT	
5	OHIO		

154/185

CUYAHOGA COUNTY
CUY-10-16.23



PART PLAN - WEST ABUTMENT
(Slab not shown)



PART ELEVATION - WEST ABUTMENT

Note:
All existing vertical abutment reinforcement and all existing horizontal abutment reinforcement below the bottom of the new deck shall be retained as part of the new construction, except at new slab edge beams shown on Sheet 14/31. Horizontal reinforcement may be replaced in kind at no additional cost to the State.

Notes:
Zip-a-tone indicates portions of the structure to be removed.
For Sections A-A thru F-F, see Sheet 9/31.
For Modified West Abutment Details, see Sheets 13/31 thru 15/31.
The following abbreviations are used:
Typ. = Typical
M.E.L.P. = Municipal Electric Light and Power
O.B.T. = Ohio Bell Telephone Company
C.E.I. = Cleveland Electric Illuminating Company
For Stage Construction, see Sheet 1/31.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

REMOVAL PLANS WEST ABUTMENT

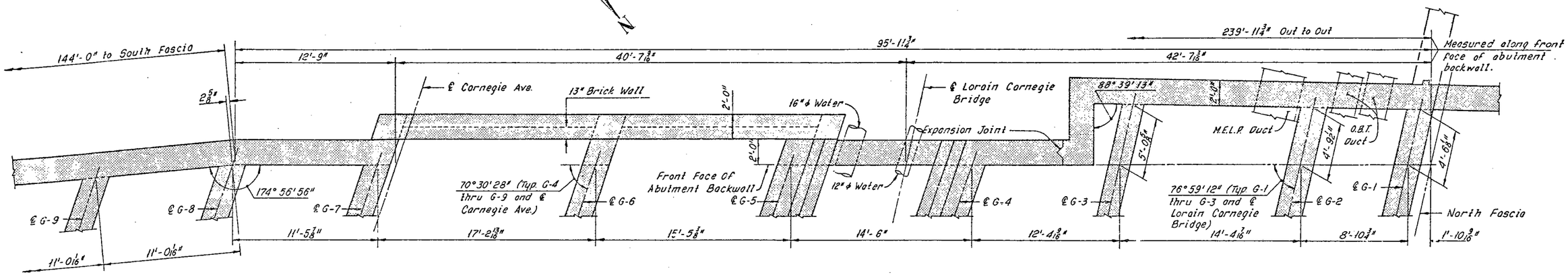
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72
STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
BP DATE 5-17-79	SP DATE 10-13-79	PB DATE 7-7-79	DATE	SHEET 7/31

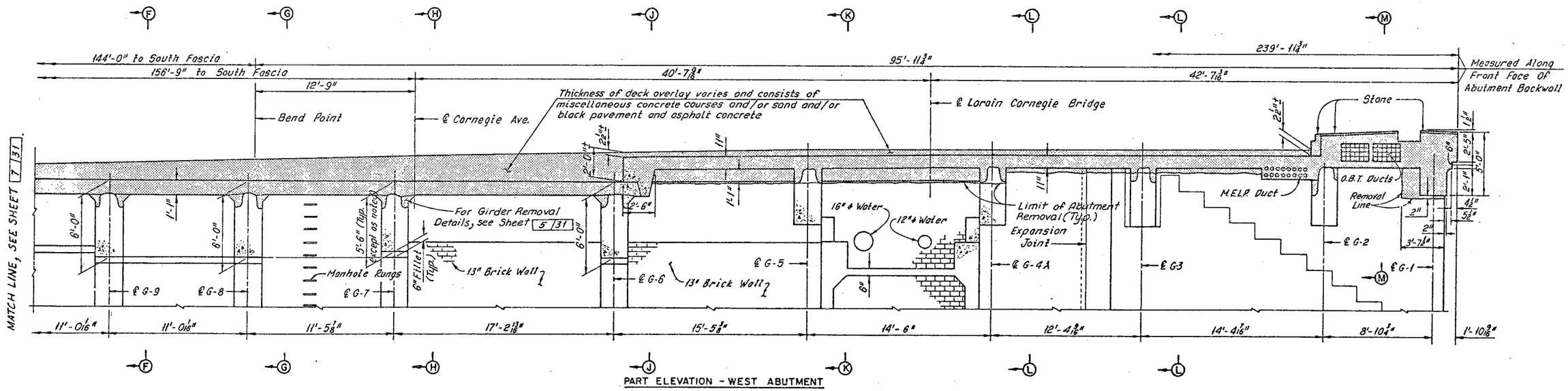
FHWA REGION	STATE	PROJECT	
5	OHIO		

155
185

CUYAHOGA COUNTY
CUY-10-16.23



PART PLAN - WEST ABUTMENT
(Slab not shown)



PART ELEVATION - WEST ABUTMENT

Note:
All existing vertical abutment reinforcement and all existing horizontal abutment reinforcement below the bottom of the new deck shall be retained as part of the new construction, except at new slab edge beams shown on Sheet 14 31. Horizontal reinforcement may be replaced in kind at no additional cost to the State.

Notes:
Zip-a-tone indicates portions of the structure to be removed.
For Sections F-F thru M-M, see Sheet 9 31.
For modified West Abutment details, see Sheets 13 31 thru 15 31.
The following abbreviations are used:
Typ. = Typical
M.E.L.P. = Municipal Electric Light and Power
O.B.T. = Ohio Bell Telephone Company
C.E.I. = Cleveland Electric Illuminating Company

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND
HNTB

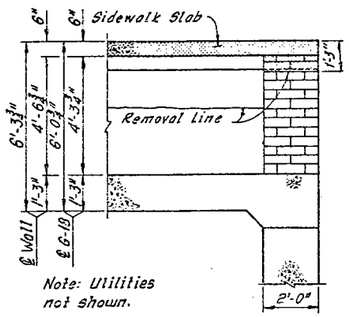
REMOVAL PLANS
WEST ABUTMENT
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72 STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
S.D. DATE 3-16-79	B.P. DATE 10-17-79	P.B. DATE 7-7-79	DATE	SHEET 8 31

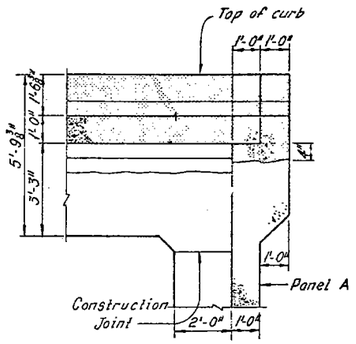
FHWA REGION	STATE	PROJECT	
5	OHIO		

156
185

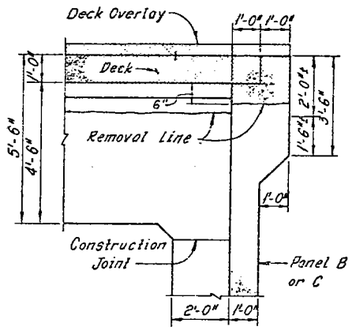
CUYAHOGA COUNTY
CUY-10-16.23



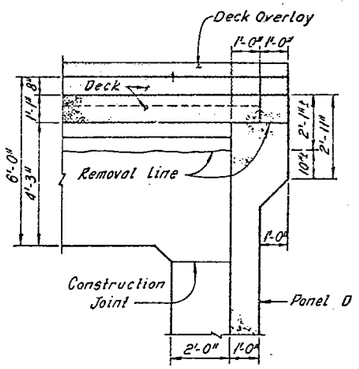
SECTION A-A



SECTION B-B



SECTION C-C



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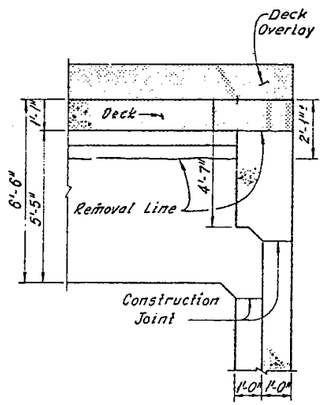
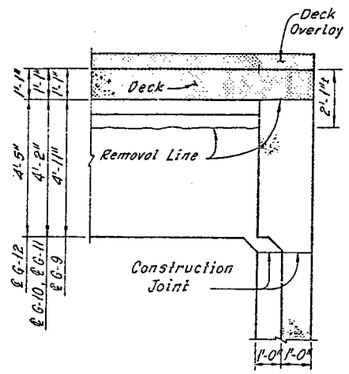


SECTION E-E



SECTION F-F

SECTION G-G

SECTION H-H

SECTION J-J

SECTION K-K

SECTION L-L

SECTION M-M

Note:
Existing reinforcement not shown. All existing vertical abutment reinforcement and all existing horizontal abutment reinforcement below the bottom of the new deck slab shall be retained as part of the new construction, except at new slab edge beams shown on Sheet 14/31. Horizontal reinforcement may be replaced in kind at no additional cost to the State.

Notes:
Zip-a-tone indicates portions of structure to be removed.
For limits of existing girder removal, see Detail A, Sheet 5/31.
For location of Sections A-A thru F-F, see Sheet 7/31.
For location of Sections F-F thru M-M, see Sheet 8/31.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND
HNTB

REMOVAL PLANS
WEST ABUTMENT

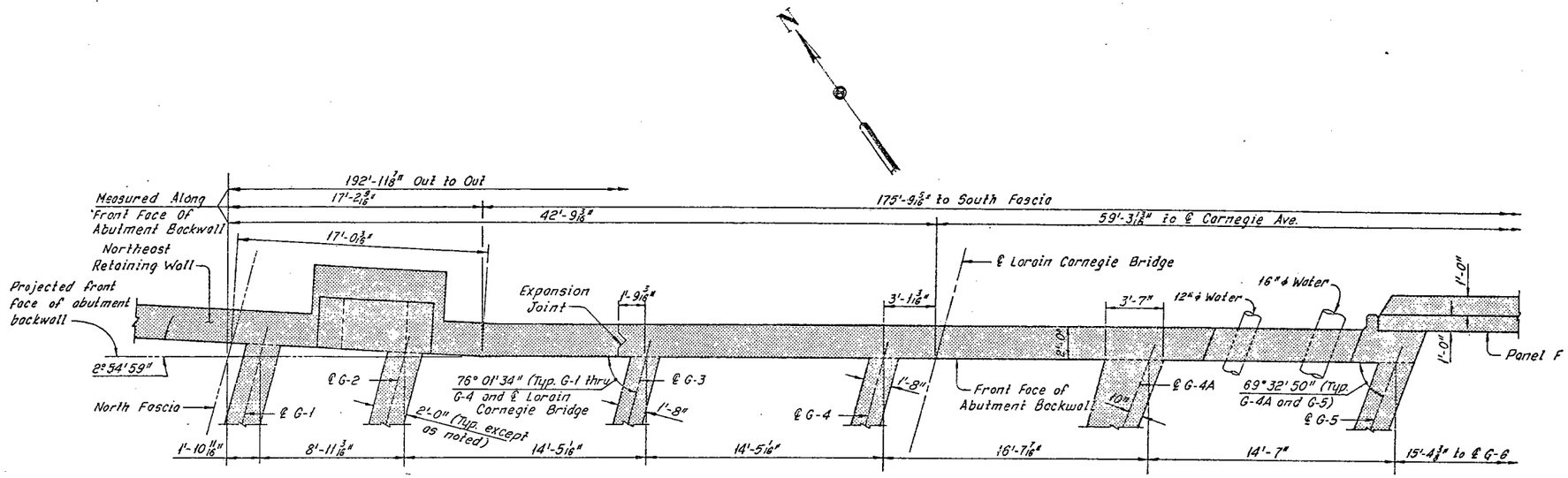
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72
STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
B.P.	B.P.	P.B.		
DATE 3-17-75	DATE 3-17-75	DATE 7-7-78	DATE	SHEET 9/31

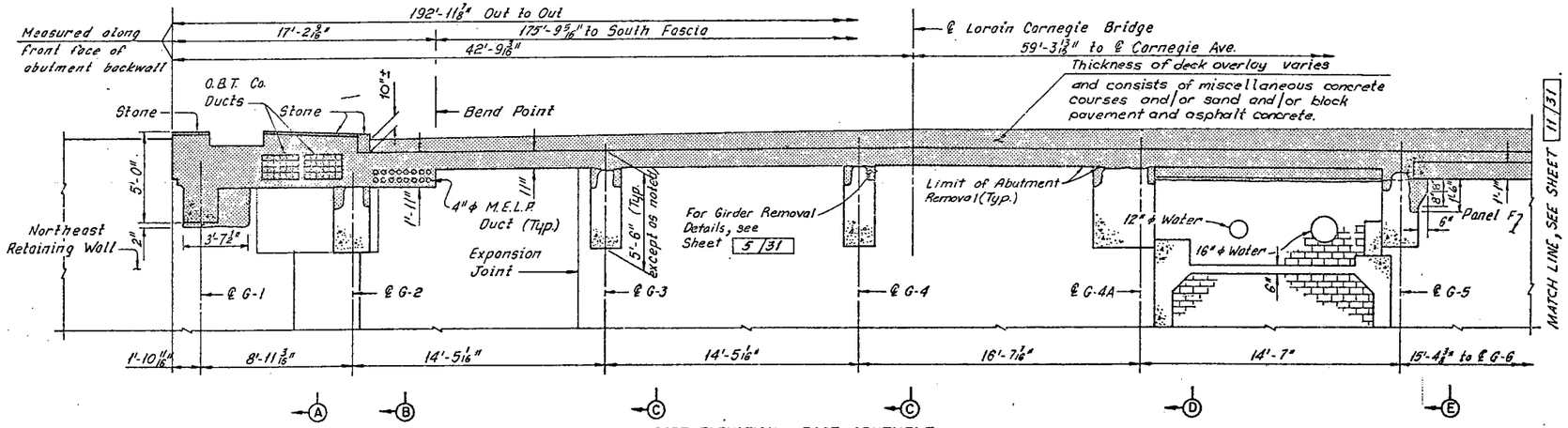
FHWA REGION	STATE	PROJECT	
5	OHIO		

157/185

CUYAHOGA COUNTY
CUY-10-16.23



PART PLAN - EAST ABUTMENT
(Slab not shown)



PART ELEVATION - EAST ABUTMENT

Note:
All existing vertical abutment reinforcement and all existing horizontal abutment reinforcement below the bottom of the new deck slab shall be retained as part of the new construction, except at new slab edge beams shown on Sheet 16/31. Horizontal reinforcement may be replaced in kind at no additional cost to the State.

Notes:
Zip-a-tone indicates portions of the structure to be removed.
For Sections A-A thru E-E, see Sheet 12/31.
For modified East Abutment details, see Sheets 16/31 thru 18/31.
The following abbreviations are used:
Typ. = Typical
M.E.L.P. = Municipal Electric Light and Power
O.B.T. = Ohio Bell Telephone Company
C.E.I. = Cleveland Electric Illuminating Company

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

REMOVAL PLANS EAST ABUTMENT

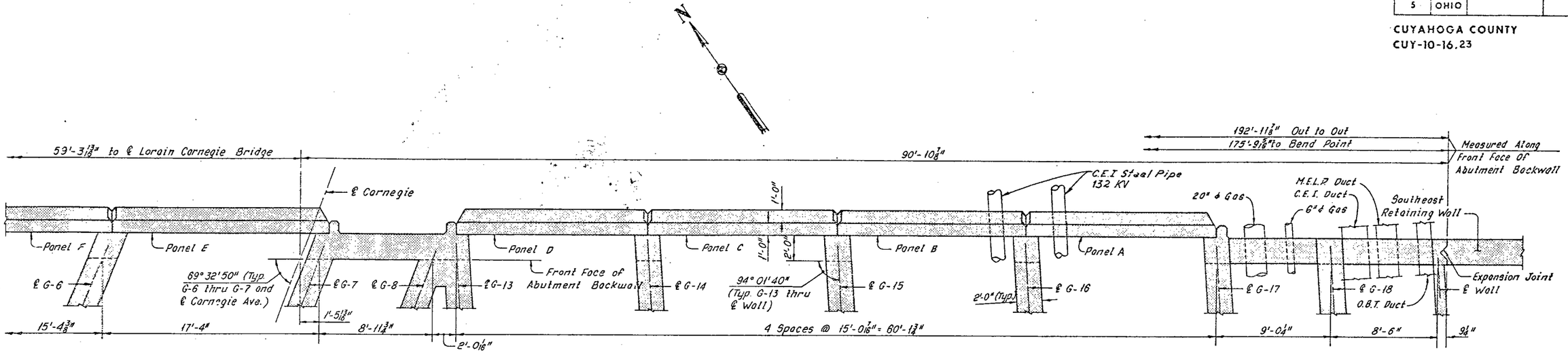
REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72 STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
BP	JP	FB		
DATE 3-17-72	DATE 3-10-72	DATE 7-7-72	DATE	SHEET 10/31

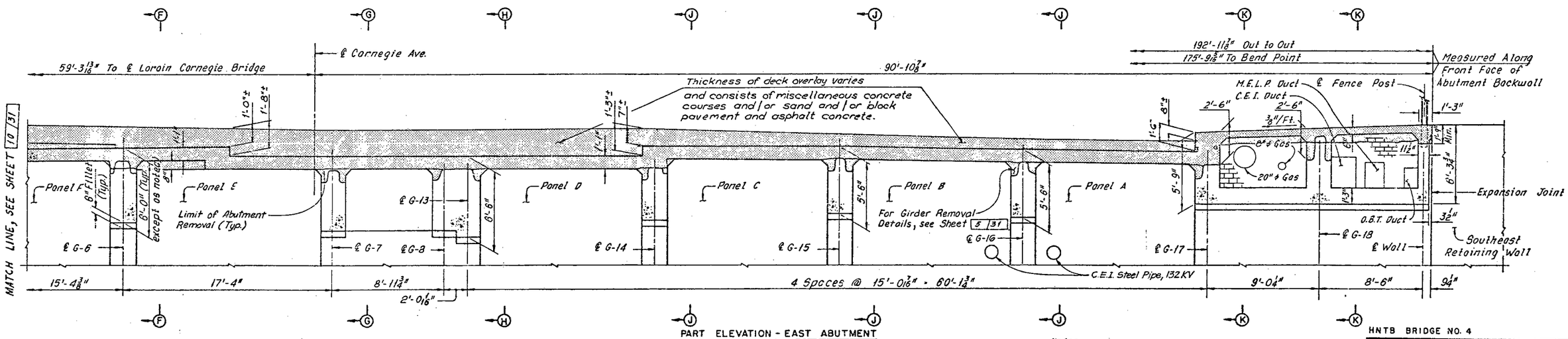
FHWA REGION	STATE	PROJECT	
5	OHIO		

158
185

CUYAHOGA COUNTY
CUY-10-16.23



PART PLAN - EAST ABUTMENT
(Slab not shown)



PART ELEVATION - EAST ABUTMENT

Note:
All existing vertical abutment reinforcement and all existing horizontal abutment reinforcement below the bottom of the new deck slab shall be retained as part of the new construction, except at new slab edge beams shown on Sheet 16/31. Horizontal reinforcement may be replaced in kind at no additional cost to the State.

Notes:
Zip-a-tone indicates portions of the structure to be removed.
For Sections F-F thru K-K, see Sheet 12/31.
For modified East Abutment details, see Sheets 16/31 thru 18/31.
The following abbreviations are used:
Typ. = Typical
M.E.L.P. = Municipal Electric Light and Power
O.B.T. = Ohio Bell Telephone Company
C.E.I. = Cleveland Electric Illuminating Company
For stage construction, see Sheet 1/31.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

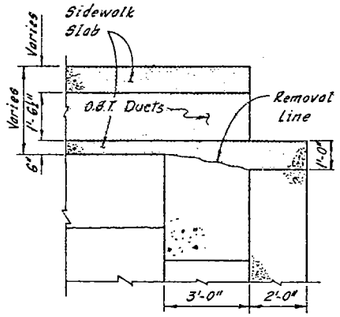
REMOVAL PLANS
EAST ABUTMENT
REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72
STA. 58+65.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
B.P. DATE 3-17-78	B.P. DATE 5-10-78	F.B. DATE 7-7-78	DATE	SHEET 11 31

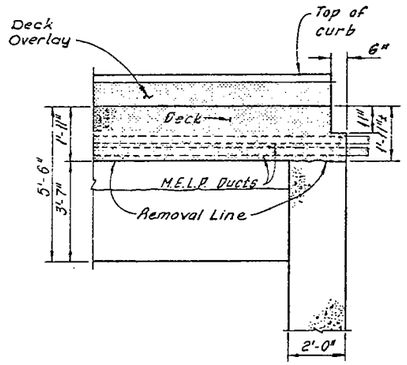
FHWA REGION	STATE	PROJECT	
5	OHIO		

159/185

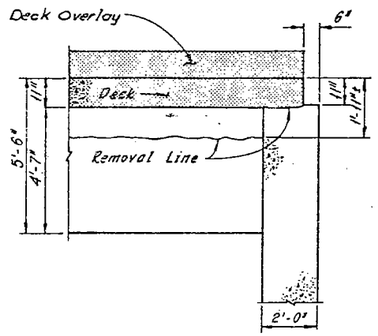
CUYAHOGA COUNTY
CUY-10-16.23



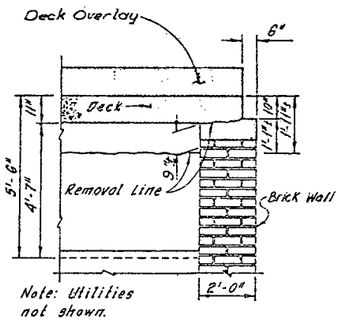
SECTION A-A



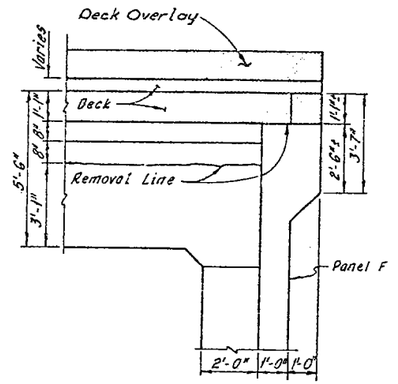
SECTION B-B



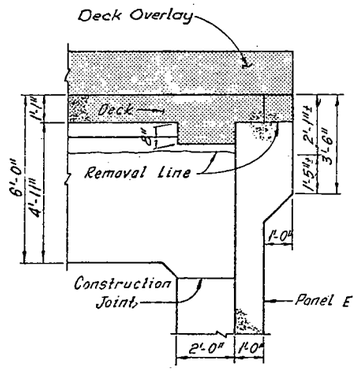
SECTION C-C



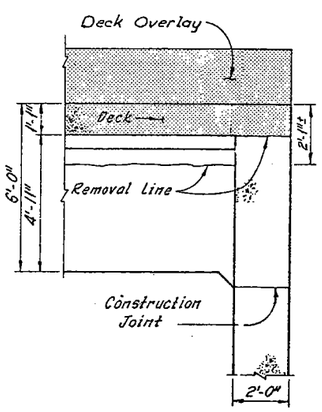
SECTION D-D



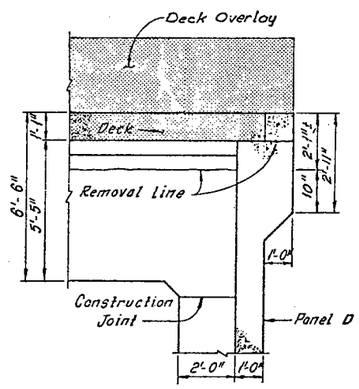
SECTION E-E



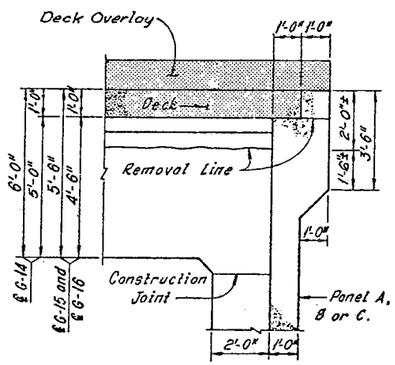
SECTION F-F



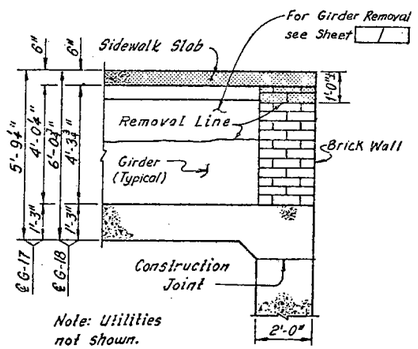
SECTION G-G



SECTION H-H



SECTION J-J



SECTION K-K

Note:
Existing reinforcement not shown. All existing vertical abutment reinforcement and all existing horizontal abutment reinforcement below the bottom of the new deck slab shall be retained as part of the new construction, except at new slab edge beams shown on Sheet 16/31. Horizontal reinforcement may be replaced in kind at no additional cost to the State.

Notes:
Zip-a-tone indicates portions of structure to be removed.
For limits of existing girder removal, see Detail A, Sheet 5/31.
For location of Sections A-A thru E-E, see Sheet 10/31.
For location of Sections F-F thru K-K, see Sheet 11/31.

H.N.T.B. BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

REMOVAL PLANS
EAST ABUTMENT

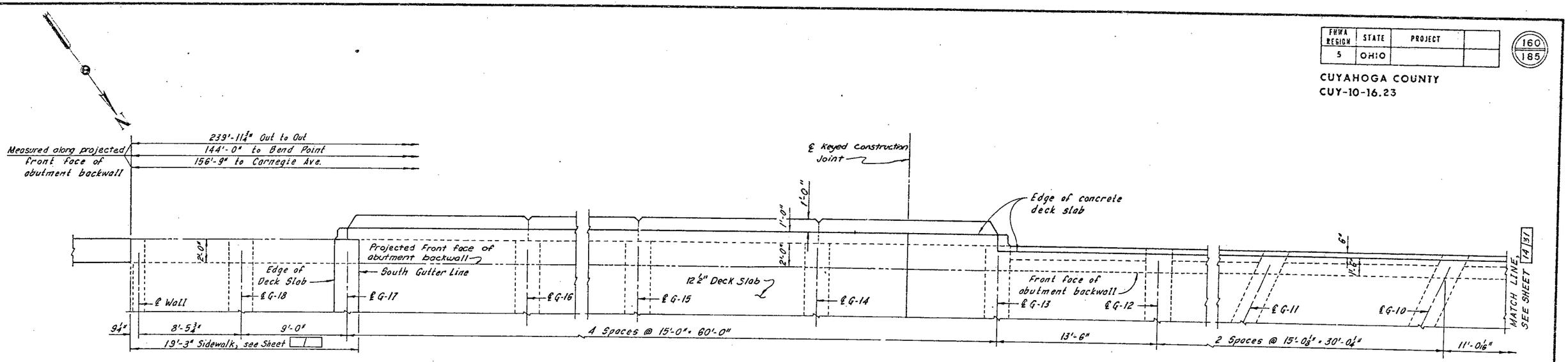
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72
STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
BP	FF	FJ		
DATE 3-17-75	DATE 10-13-75	DATE 6-21-76	DATE	SHEET 12/31

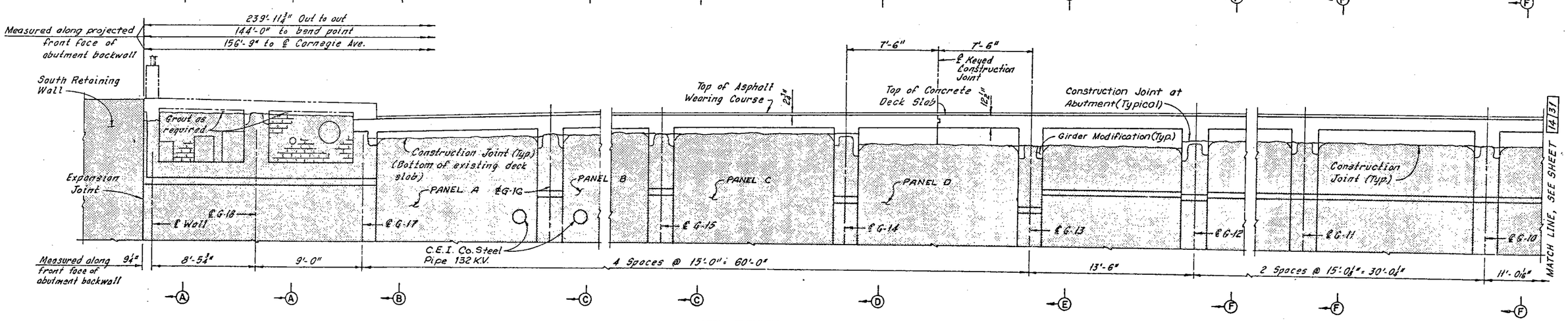
FHWA REGION	STATE	PROJECT	
5	OHIO		

160/185

CUYAHOGA COUNTY
CUY-10-16.23



PART PLAN - WEST ABUTMENT



PART ELEVATION - WEST ABUTMENT
(Deck slab, girder and retained abutment reinforcement not shown)

Notes:
Zip-a-tone indicates existing structure.
For removal at West Abutment, see Sheets 7/31 thru 9/31.
For Typical Girder Modification Repair, see Sheet 23/31.
For Sections A-A thru F-F, see Sheet 15/31.
For Sidewalk Details, see Sheet 27/31.
For Stage Construction, see Sheet 1/31.
For Contour Plan, see Sheet 30/31.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS CLEVELAND
HNTB

PART MODIFIED PLAN AND ELEVATION WEST ABUTMENT

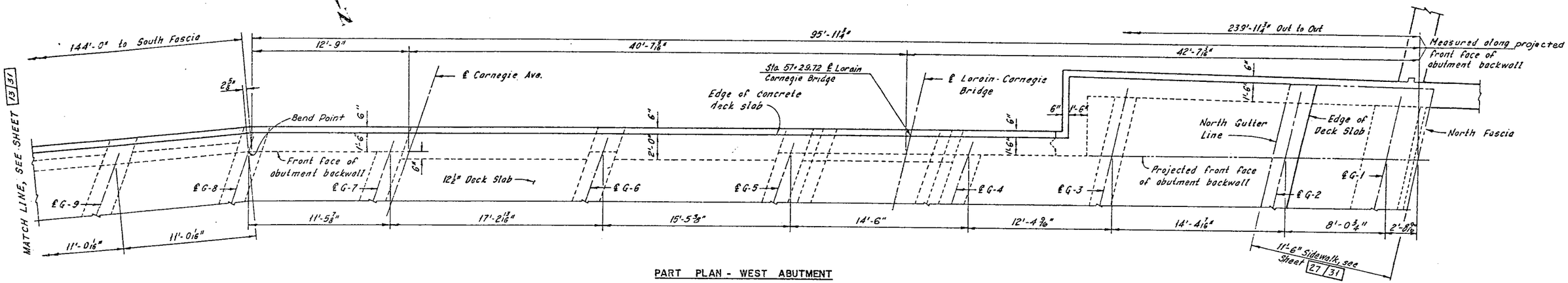
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72
STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
AJT DATE 4-21-78	CWB DATE 9-12-78	RMS DATE 9-27-78	DATE	SHEET 13/31

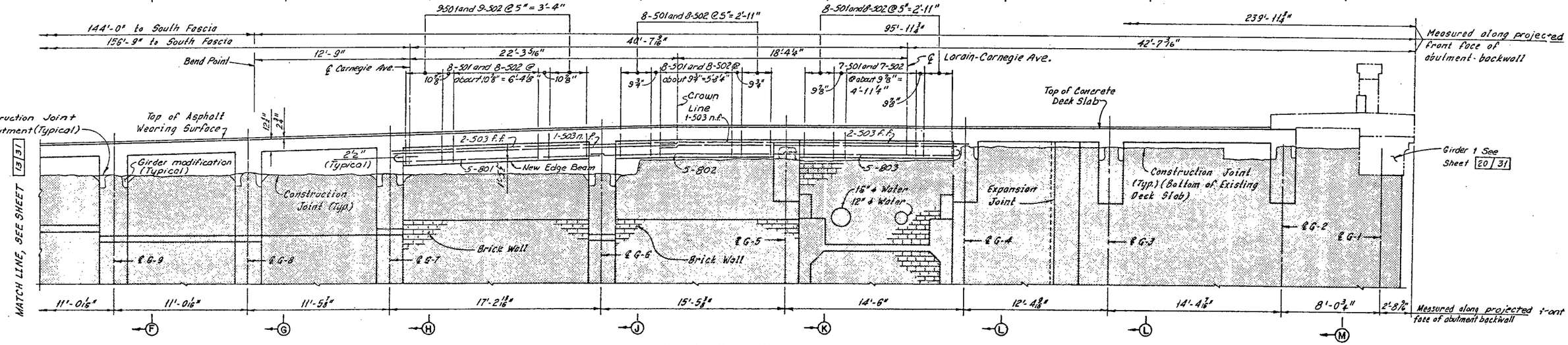
FHWA REGION	STATE	PROJECT	
5	OHIO		

161
185

CUYAHOGA COUNTY
CUY-10-16.23



PART PLAN - WEST ABUTMENT



PART ELEVATION - WEST ABUTMENT
(Deck slab, girder and retained abutment reinforcement not shown)

Note:
All reinforcing bar marks shall be prefixed W.A.

Notes:
Zip-a-tone indicates existing structure.
Phantom lines indicate new construction details of which are shown elsewhere in these plans.
For Sections F-F thru M-M, see Sheet 15/31.
For Reinforcement Schedule, see Sheet R/4.
For Stage Construction, see Sheet 1/31.
For Contour Plan, see Sheet 30/31.
For additional notes, see Sheet 13/31.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

PART MODIFIED PLAN AND ELEVATION WEST ABUTMENT

REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)

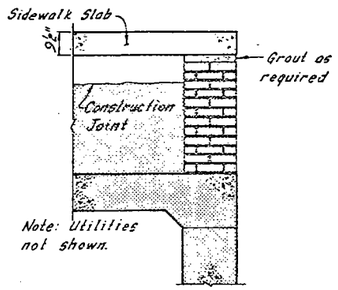
BR. NO. CUY.-10-1685 STA. 57+29.72
STA. 58+85.70

CUYAHOGA COUNTY OHIO

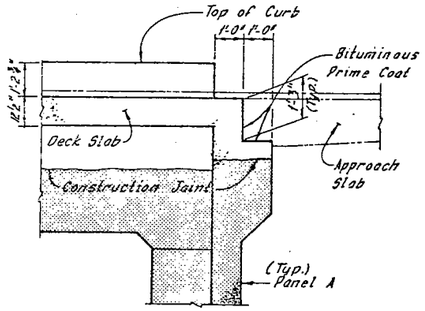
DRAWN J.F.	TRACED A.J.T.	CHECKED R.A.S.	REVIEWED	REVISED
DATE 6-24-81	DATE 8-17-79	DATE 9-28-78	DATE	SHEET 14/31

FHWA REGION	STATE	PROJECT	
5	OHIO		

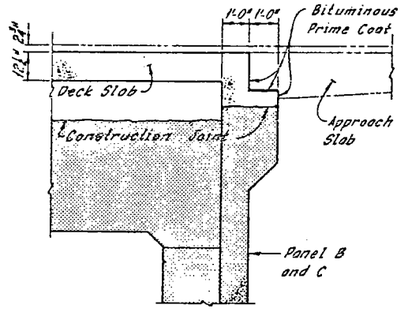
CUYAHOGA COUNTY
CUY-10-16.23



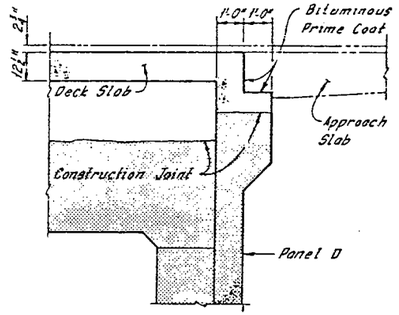
SECTION A-A



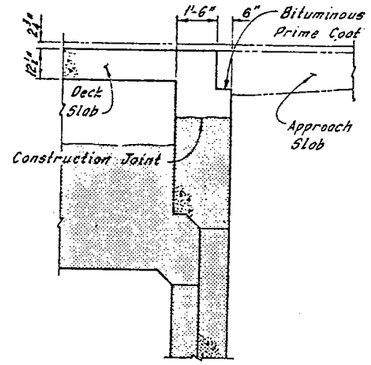
SECTION B-B



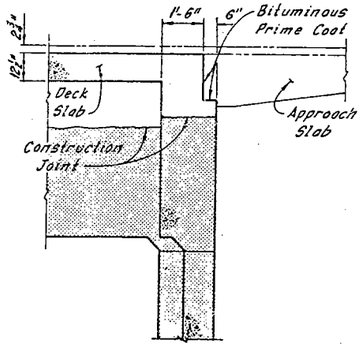
SECTION C-C



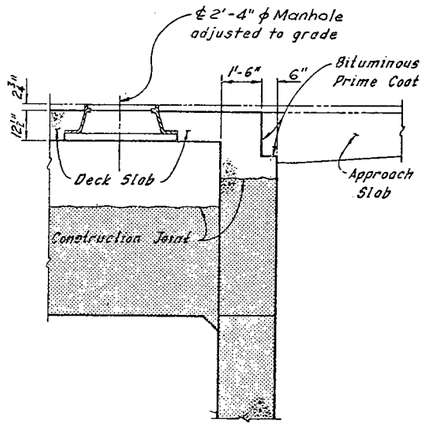
SECTION D-D



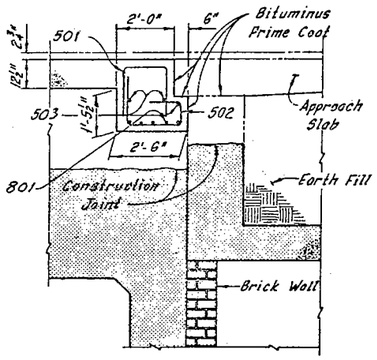
SECTION E-E



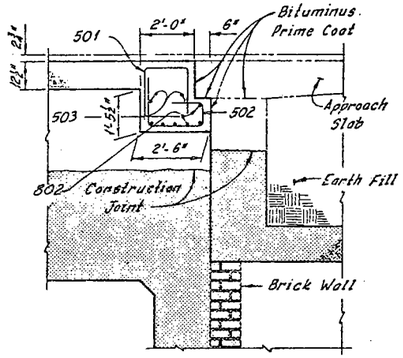
SECTION F-F



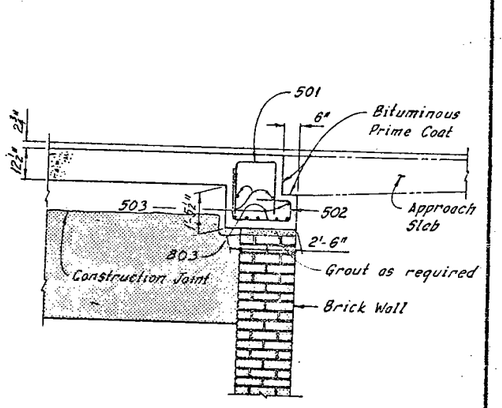
SECTION G-G



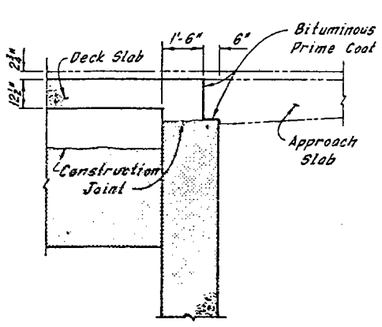
SECTION H-H



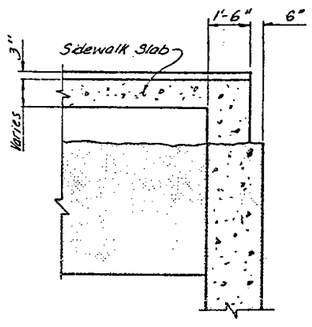
SECTION J-J



SECTION K-K



SECTION L-L



SECTION M-M

Note:
All reinforcing bar marks shall be prefixed WA.

Notes:
Zip-a-tone indicates existing structure.
Sidewalk, deck, girder and retained existing abutment reinforcement is not shown.
For location of Sections A-A thru F-F, see Sheet 13/31.
For location of Sections G-G thru M-M, see Sheet 14/31.
For manhole locations, see Sheet 26/31.
The cost of grouting shall be included with the unit price bid for Item 511, Class C Concrete, Abutments Above Footings, for payment.
For Reinforcement Schedule, see Sheet 8/4.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

MODIFIED TYPICAL CROSS SECTIONS WEST ABUTMENT

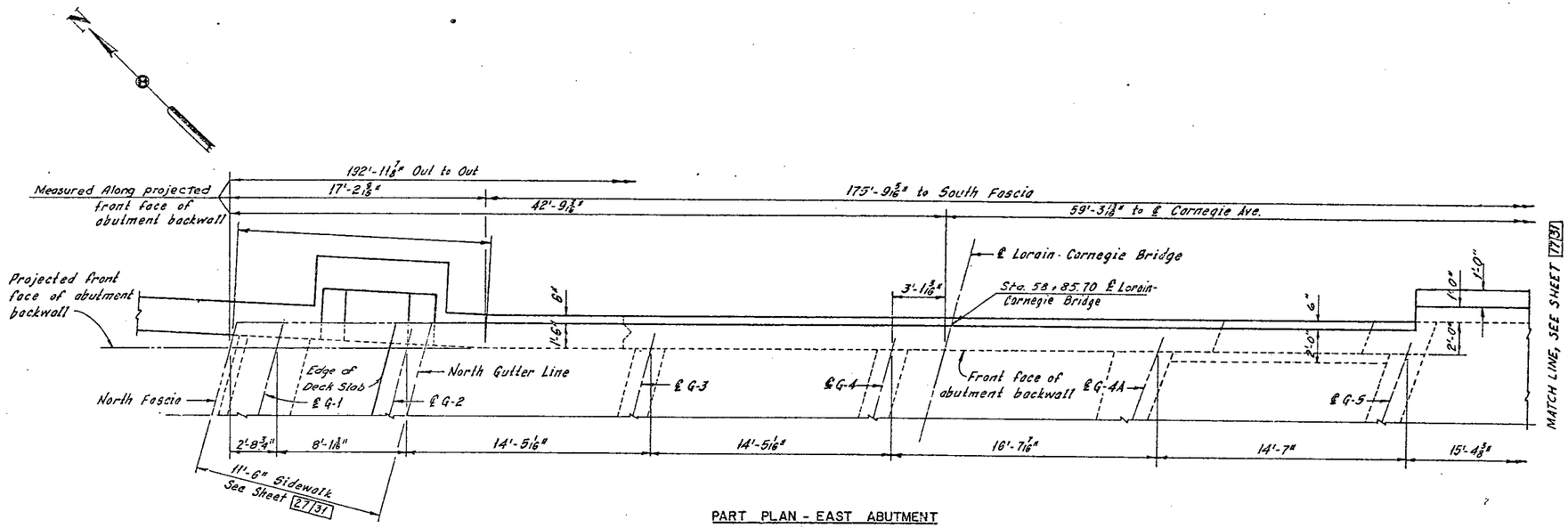
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72
STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
DJT DATE 8-24-78	CWB DATE 9-12-78	RAS DATE 9-21-78	DATE	SHEET 15/31

FHWA REGION	STATE	PROJECT	
5	OHIO		

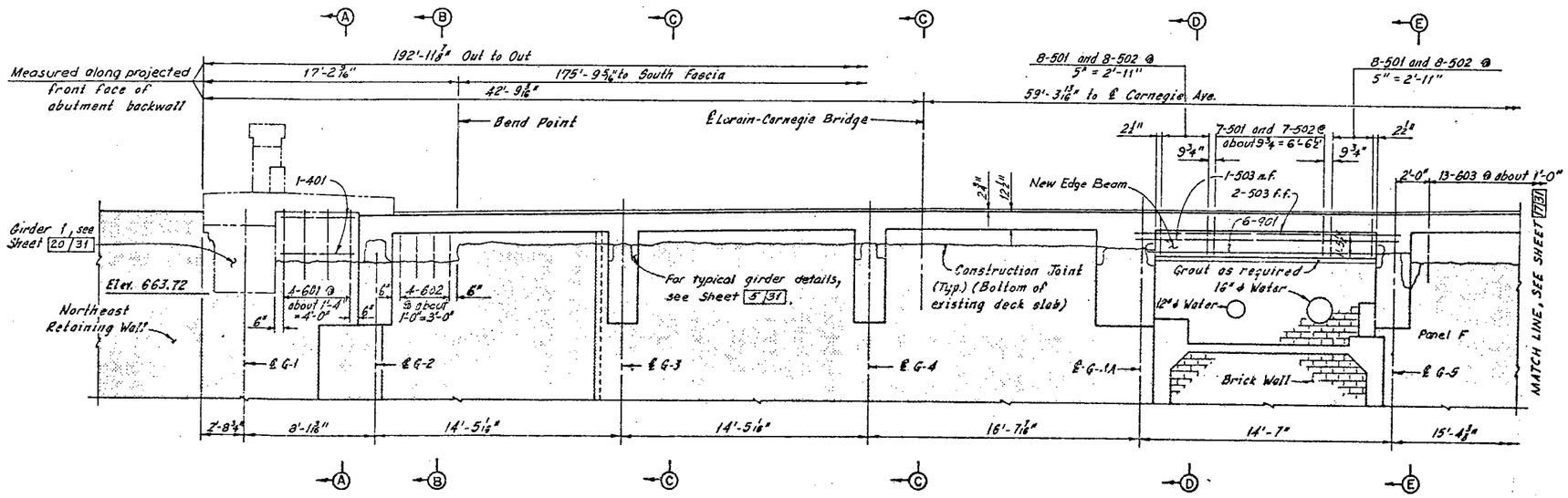
163
185

CUYAHOGA COUNTY
CUY-10-16.23



PART PLAN - EAST ABUTMENT

Note:
All reinforcing bar marks shall be prefixed EA.



PART ELEVATION - EAST ABUTMENT
(Deck slab, girder and retained abutment reinforcement not shown)

Notes:
Zip-a-tone indicates existing structure.
Phantom lines indicate new construction details of which are shown elsewhere on these plans.
For Removal at East Abutment, see Sheets 10 31 thru 12 31.
For Typical Girder Repair, see Sheet 23 31.
For Approach Slab Details, see roadway plans.
For Sections A-A thru E-E, see Sheet 18 31.
For Contour Plan, see Sheet 30 31.
For reinforcement schedule see Sheet R 4.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

PART MODIFIED PLAN AND ELEVATION EAST ABUTMENT

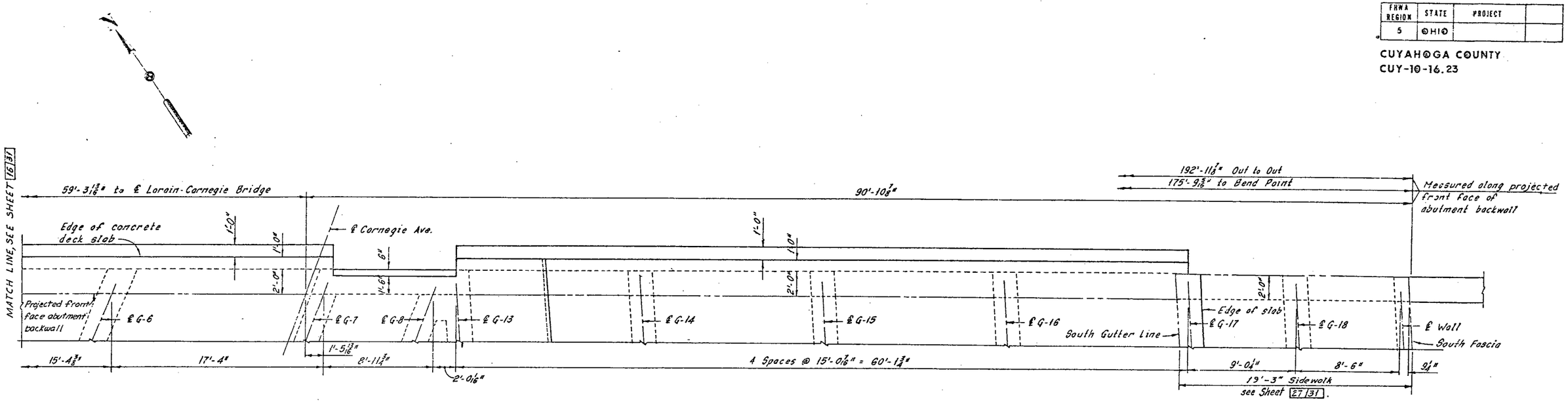
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72
STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REV.-EWED	REVISED
AJT	DES	MAS		
DATE 9-14-78	DATE 9-15-78	DATE 9-22-78	DATE	SHEET 16 31

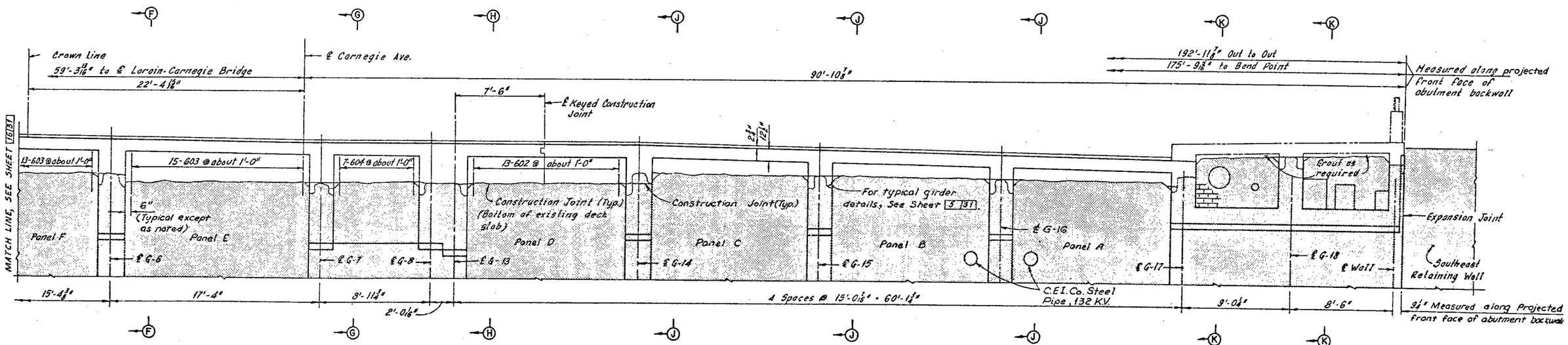
FHWA REGION	STATE	PROJECT	
5	OHIO		

184
185

CUYAHOGA COUNTY
CUY-10-16.23



PART PLAN - EAST ABUTMENT



PART ELEVATION - EAST ABUTMENT
(Deck slab, girder, and retained abutment reinforcement not shown)

Note:
All reinforcing bar marks shall be prefixed EA.

Notes:
Zip-a-tone indicates existing structures.
For Removal of East Abutment, see Sheets 10 31 thru 12 31.
For Typical Girder Repair, see Sheet 23 31.
For Approach Slab Details, see roadway plans.
For Sections F-F thru K-K, see Sheet 18 31.
For Contour Plan, see Sheet 30 31.
For reinforcement schedule, see Sheet 9 4.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

PART MODIFIED PLAN AND ELEVATION EAST ABUTMENT

REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)

BR. NO. CUY.-10-1685 STA. 57+29.72 STA. 58+85.70

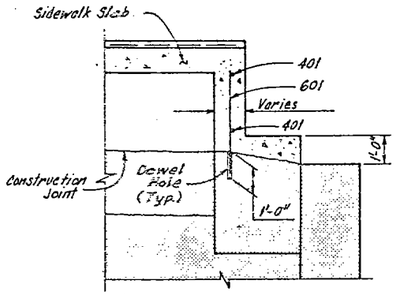
CUYAHOGA COUNTY OHIO

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
AJT	DES	RHJ		
DATE 2-4-76	DATE 8-15-75	DATE 8-22-75	DATE	SHEET 17 31

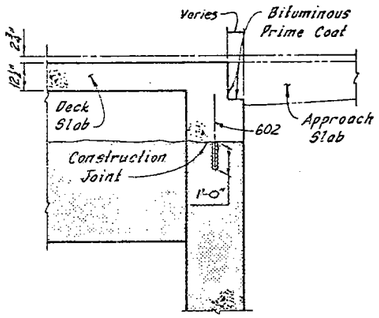
FHWA REGION	STATE	PROJECT	
5	OHIO		

165
185

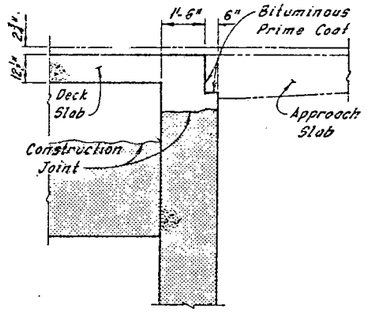
CUYAHOGA COUNTY
CUY-10-16.23



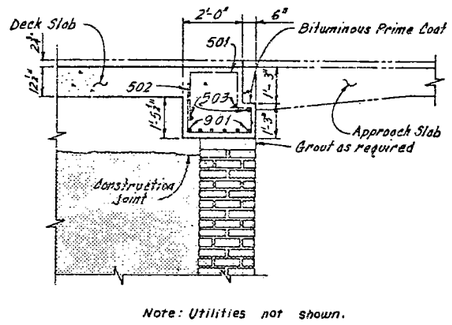
SECTION A-A



SECTION B-B

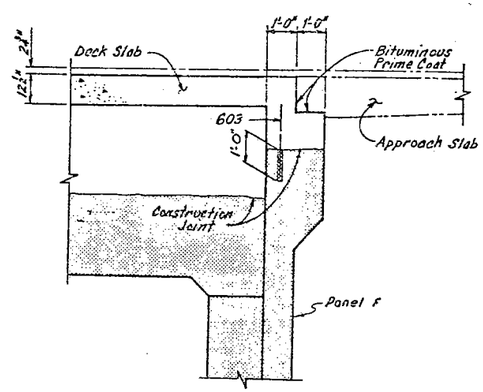


SECTION C-C

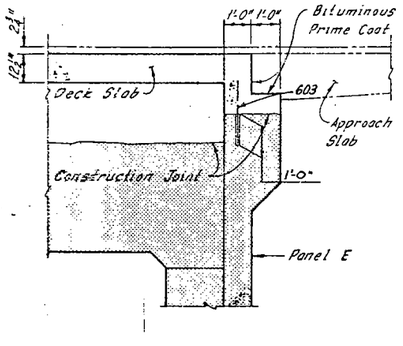


Note: Utilities not shown.

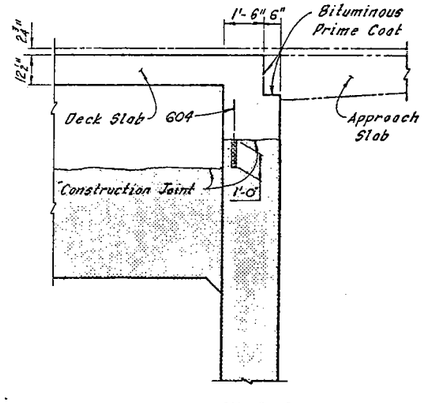
SECTION D-D



SECTION E-E



SECTION F-F



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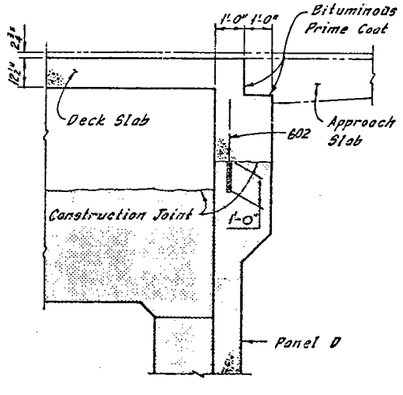
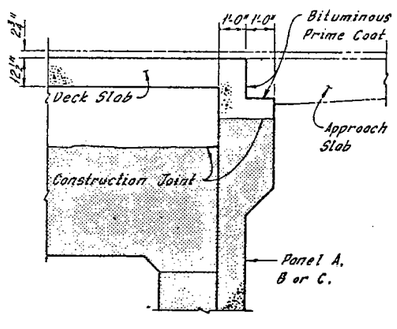
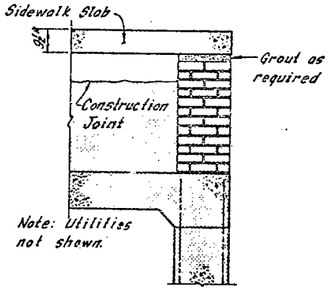


SECTION H-H



SECTION J-J



SECTION K-K

Note:
All reinforcing bar marks shall be prefixed EA.

Notes:
Zip-a-tone indicates existing structures.
Sidewalk, deck, existing girder and retained abutment reinforcement is not shown.
The cost of grouting shall be included with the unit price bid for Item 511, Class C Concrete, Abutments Above Footings, for payment.
For reinforcement schedule see Sheet R/4.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS CLEVELAND
HNTB

MODIFIED TYPICAL CROSS SECTIONS EAST ABUTMENT

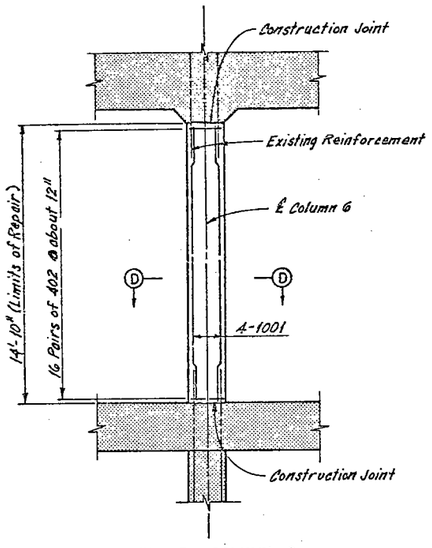
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72
STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
KJT	DES	RPS		
DATE 6-15-72	DATE 6-15-72	DATE 6-27-72	DATE	SHEET 18/31

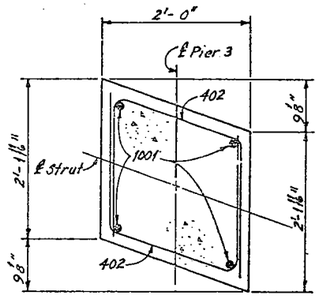
FHWA REGION	STATE	PROJECT	
5	OHIO		

166
185

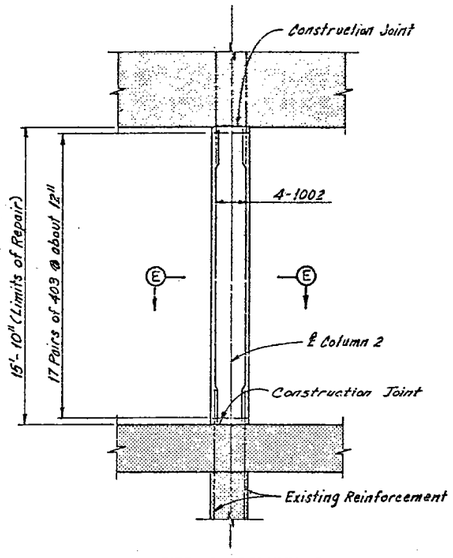
CUYAHOGA COUNTY
CUY-10-16.23



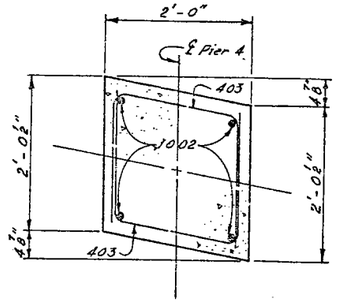
PIER 3 COLUMN 6



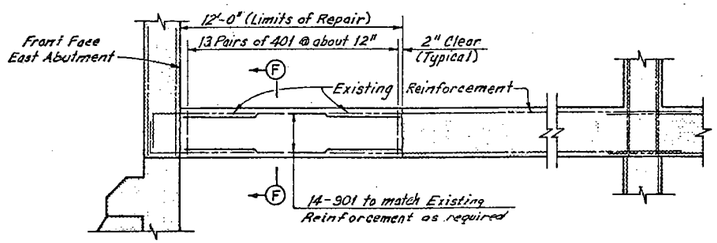
SECTION D-D



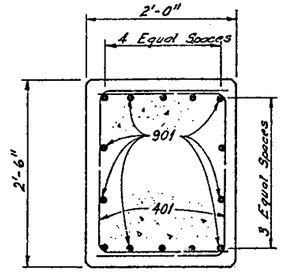
PIER 4 COLUMN 2



SECTION E-E



SPAN 5 STRUT 5



SECTION F-F

Note: All reinforcing bar marks shall be prefixed SC.

Notes:
Zip-a-tone indicates existing structure.
For strut and column removal details, see Sheet 6/31.
For reinforcement schedule, see Sheet R/5.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS CLEVELAND
HNTB

STRUT AND COLUMN REPAIR DETAILS

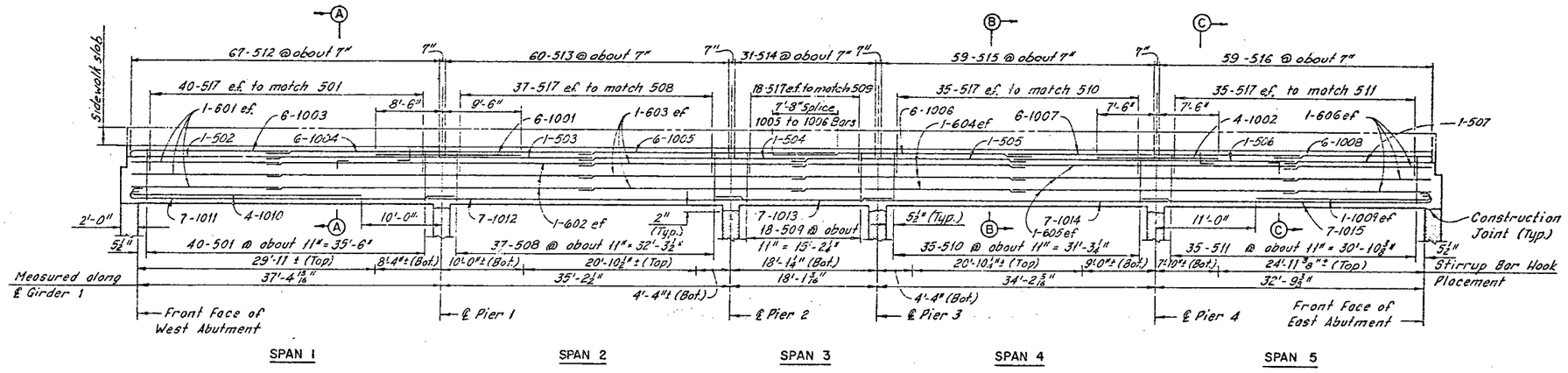
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72 STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
AJT	DES	RAS		
DATE 8-1-78	DATE 8-3-78	DATE 9-6-78	DATE	SHEET 19/31

FHWA REGION	STATE	PROJECT	
5	OHIO		

167
185

CUYAHOGA COUNTY
CUY-10-16.23



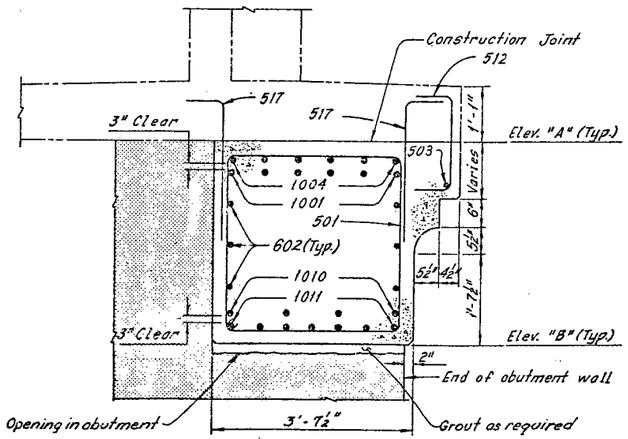
GIRDER ELEVATION
(Looking North)

Note: All reinforcing bar marks shall be prefixed GM.

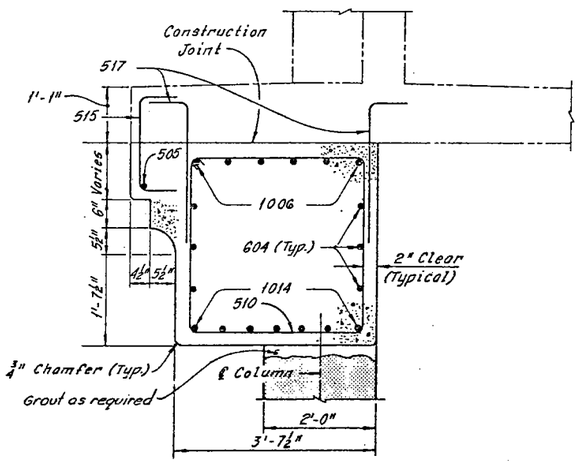
MINIMUM LAP LENGTHS (Except as noted)	
Bar No.	Lengths
5	1' - 7"
6	1' - 11"
10	3' - 2"

GIRDER DEPTH		
Location	Elev. A	Elev. B
*Front face of west abutment	670.95	667.60
℄ Pier 1	670.27	666.83
℄ Pier 2	669.62	666.13
℄ Pier 3	669.36	665.77
℄ Pier 4	668.91	665.07
*Front face of east abutment	668.48	663.72

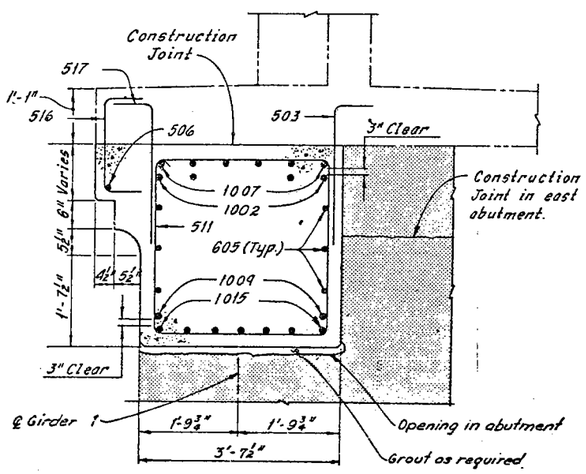
* Given to the actual front face of Abutment backwall



SECTION A-A



SECTION B-B
(Sidewalk reinforcement not shown)



SECTION C-C

Notes:

Zip-a-tone indicates existing structure.

Phantom lines indicate new construction, details of which are shown elsewhere in these plans.

For Removal Plans, see Sheets 4 / 31

For Sidewalk Plans, see Sheets 27 / 31

For Reinforcement Schedule, see Sheet R / 5

The following abbreviations are used:

Typ. = Typical Bot. = Bottom

e.f. = each face f.f. = far face

The cost of grouting shall be included with the unit price bid for Item 511, Class C Concrete, Abutments Above Footings, for payment.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

GIRDER-1 REPLACEMENT

REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)

BR. NO. CUY.-10-1685 STA. 57+29.72 STA. 58+85.70

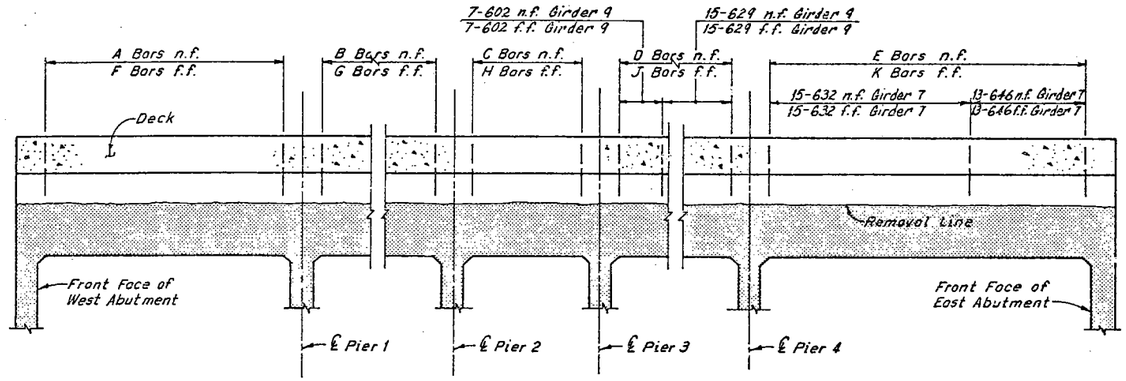
CUYAHOGA COUNTY OHIO

DRAWN AJF	TRACED JS	CHECKED RJS	REVIEWED	REVISED
DATE 7-28-76	DATE 8-1-76	DATE 8-2-76	DATE	SHEET 20 31

FHWA REGION	STATE	PROJECT	
5	OHIO		

168
185

CUYAHOGA COUNTY
CUY-10-16.23



TYPICAL GIRDER ELEVATION
(Existing Girder reinforcement and new slab reinforcement not shown)

Note:
Reinforcing bars shall be spaced to match existing girder reinforcement.

GIRDER REINFORCEMENT

GIRDER	BAR A		BAR B		BAR C		BAR D		BAR E		BAR F		BAR G		BAR H		BAR J		BAR K	
	NO.	MARK	NO.	MARK	NO.	MARK	NO.	MARK	NO.	MARK	NO.	MARK	NO.	MARK	NO.	MARK	NO.	MARK	NO.	MARK
2	24	602	22	602	4	605	1 Ser.16	607	1 Ser.16	609	24	601	22	601	4	603	1 Ser.16	606	1 Ser.16	608
3	26	610	24	610	4	611	1 Ser.20	612	1 Ser.18	613	26	610	24	610	4	611	1 Ser.20	612	1 Ser.18	613
4	16	614	18	615	4	611	1 Ser.16	616	1 Ser.20	617	16	614	18	615	4	611	1 Ser.16	616	1 Ser.20	617
4A	-	-	18	615	4	611	1 Ser.16	618	1 Ser.20	619	-	-	18	615	4	611	1 Ser.16	618	1 Ser.20	619
5	18	611	22	620	1 Ser.4	621	1 Ser.20	622	1 Ser.22	625	18	611	22	620	1 Ser.4	621	1 Ser.20	622	1 Ser.22	624
6	1 Ser.23	626	1 Ser.32	627	8	628	28	628	26	629	1 Ser.23	626	1 Ser.32	627	8	628	28	628	26	629
7	22	629	28	630	8	630	1 Ser.23	631	15 / 13	632 / 646	22	629	28	630	8	630	1 Ser.23	631	15 / 13	632 / 646
8	17	603	19	633	8	601	1 Ser.17	634	26	635	17	603	19	633	8	601	1 Ser.17	634	26	635
9	17	601	19	605	8	602	7 / 15	602 / 629	-	-	17	601	19	605	8	602	7 / 15	602 / 629	-	-
10	19	636	21	605	-	-	-	-	-	-	19	636	21	605	-	-	-	-	-	-
11	1 Ser.16	637	-	-	-	-	-	-	-	-	1 Ser.16	637	-	-	-	-	-	-	-	-
12	1 Ser.21	638	29	640	8	629	-	-	-	-	1 Ser.21	639	29	636	8	636	-	-	-	-
13	23	601	24	633	8	630	20	629	32	635	23	601	24	633	8	630	20	629	32	635
14	19	620	32	641	8	641	19	642	21	643	19	601	32	601	8	601	19	633	21	645
15	1 Ser.17	644	20	620	7	620	14	641	16	641	1 Ser.17	644	20	620	7	620	14	641	16	641
16	17	611	20	611	7	620	14	620	16	604	17	611	20	611	7	620	14	620	16	604
17	16	∓641	20	∓620	8	∓620	16	∓620	18	∓604	16	∓611	20	∓641	8	∓642	16	∓642	18	∓623
18	18	604	28	604	7	641	20	641	17	642	18	604	28	604	7	641	20	641	17	642

Note: All reinforcing bar marks shall be prefixed GR.

∓ denotes epoxy coated reinforcing steel

Notes:
Zip-a-tone indicates existing structure.
For Girder 1 replacement details, see Sheet 20/31.
For Reinforcement Schedule, see Sheet R/5.
For Member Identification Plans, see Sheet 2/31.
For Typical Section thru girders, see Modified Typical Section Along Pier 3, see Sheet 22/31.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS CLEVELAND
HNTB

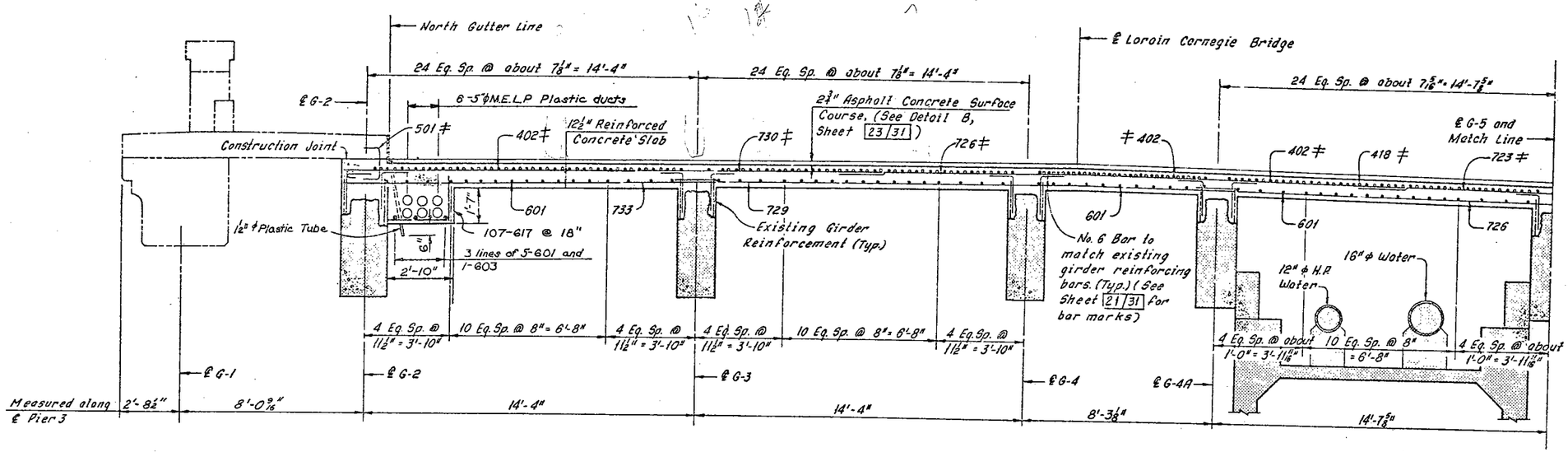
GIRDER REINFORCEMENT
GIRDERS 2 THRU 18
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72
STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
AJT	DES	AN		
DATE 8-2-78	DATE 8-4-78	DATE 8-7-78	DATE	SHEET 21/31

FHWA REGION	STATE	PROJECT	
5	OHIO		

169
185

CUYAHOGA COUNTY
CUY-10-16.23

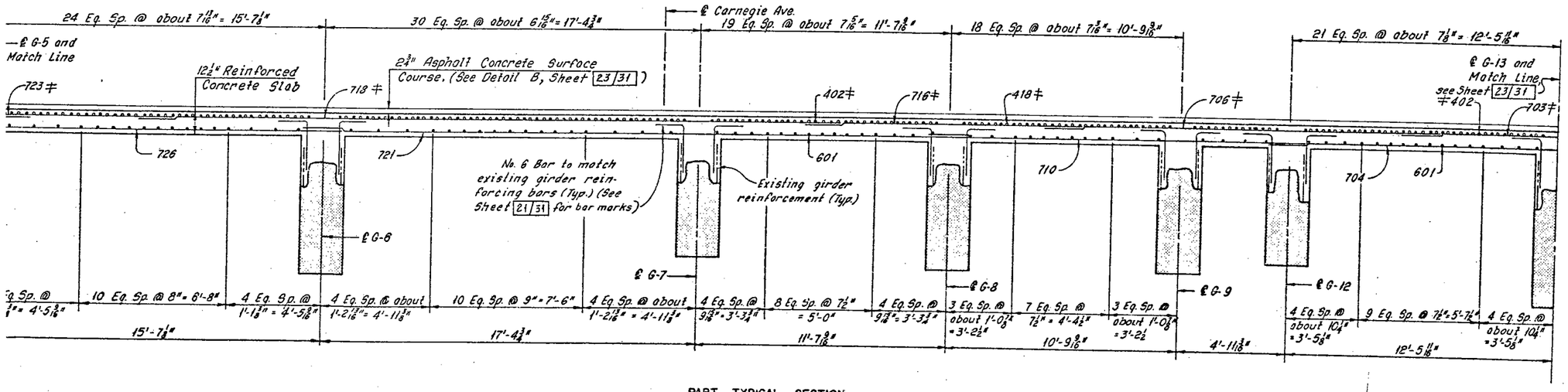


PART TYPICAL SECTION
(Columns Not Shown)

≠ denotes epoxy coated reinforcing steel

Note:
Existing Longitudinal Girder Reinforcement not shown.

Note:
Reinforcing bars shown shall be prefixed as follows:
BR = Bottom Transverse Reinforcing
TR = Top Transverse Reinforcing
LR = Longitudinal Reinforcing



PART TYPICAL SECTION
(Columns Not Shown)

Notes:
Zip-a-tone indicates existing structures.
Phantom lines indicate new construction, details of which are shown elsewhere in these plans.
For Removal Plans, see Sheet 4/31.
For Sidewalk Details, see Sheet 27/31.
For Girder 1 Details, see Sheet 30/31.
For Reinforcement Schedule, see Sheet R/4.
The following abbreviations are used:
Typ. = Typical
H.P. = High Pressure
Eq. Sp. = Equal Spaces
For Slab Plans, see Sheets 24/31, 25/31 and 26/31.

For stage construction see Sheet 1/31.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

MODIFIED TYPICAL SECTION ALONG PIER 3

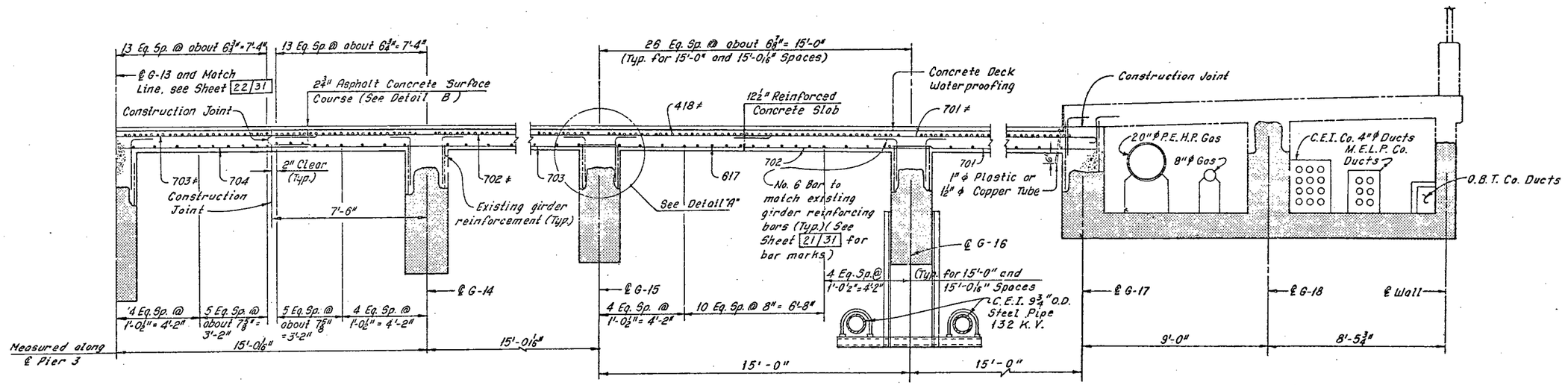
REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72 STA. 58+65.70
CUYAHOGA COUNTY OHIO

DRAWN B.A.	TRACED B.A.	CHECKED P.B.	REVIEWED	REVISED
DATE 9-25-78	DATE 10-3-78	DATE 7-7-78	DATE	SHEET 22/31

FHWA REGION	STATE	PROJECT	
5	OHIO		

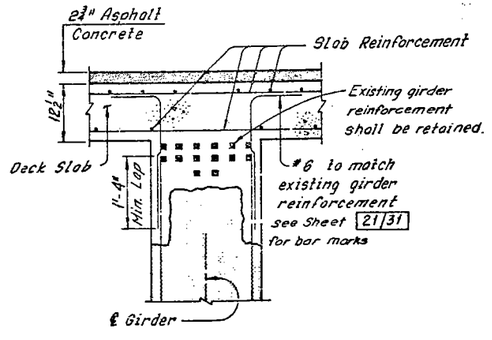
170
185

* CUYAHOGA COUNTY
CUY-10-16.23

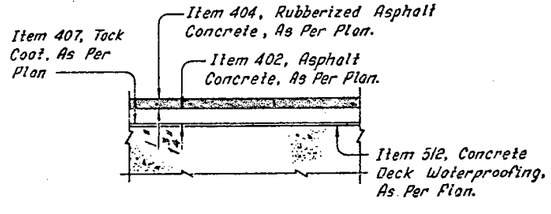


PART TYPICAL SECTION
(Columns Not Shown)

≠ Denotes epoxy coated reinforcing steel.



DETAIL A
(Girder 2 thru Girder 18)



DETAIL B

Note:
Reinforcing bars shown shall be prefixed as follows:
BR = Bottom Transverse Reinforcing
TR = Top Transverse Reinforcing
LR = Longitudinal Reinforcing

Note:
For Notes, see Sheet 22/31

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

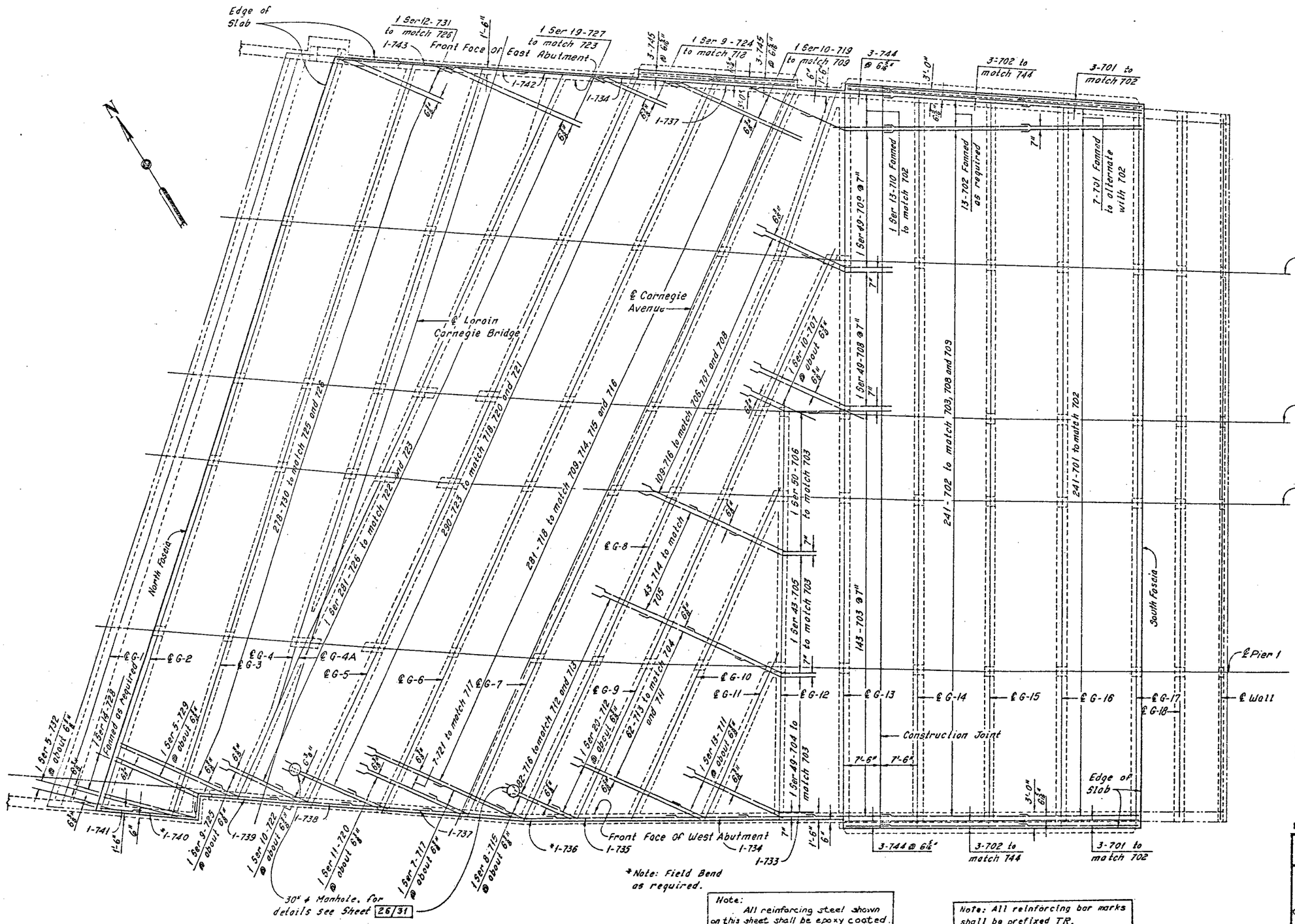
MODIFIED TYPICAL SECTION ALONG PIER 3
REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA 57+29.72
STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN BA	TRACED BA	CHECKED PS	REVIEWED	RES'D EU
DATE 9-25-73	DATE 10-3-73	DATE 7-1-73	DATE	SHEET 23/31

FHWA REGION	STATE	PROJECT	
5	OHIO		

171
185

CUYAHOGA COUNTY
CUY-10-16.23



*Note: Field Bend as required.

REQUIRED LAP LENGTHS	
No. 7 Bar	2'-0" Min.

Notes:

For longitudinal deck slab reinforcement, see Sheet 26/31.

For bottom transverse deck slab reinforcement, see Sheet 25/31.

For Modified Typical Section at Pier 3, see Sheet 22/31.

For Sidewalk Plans and Details, see Sheet 27/31.

For Railing Plans and Details, see Sheet 29/31.

For Approach Slab Details, see roadway plans.

For Reinforcement Schedule and Bending Diagrams, see Sheet R/4.

For additional reinforcement at 30" ϕ Manholes, see Detail A, Sheet 26/31.

For stage construction, see Sheet 1/31.

Note: All reinforcing steel shown on this sheet shall be epoxy coated.

Note: All reinforcing bar marks shall be prefixed TR.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

SLAB PLAN
TOP TRANSVERSE REINFORCEMENT

REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)

BR. NO. CUY.-10-1685 STA. 57+29.72
STA. 58+85.70

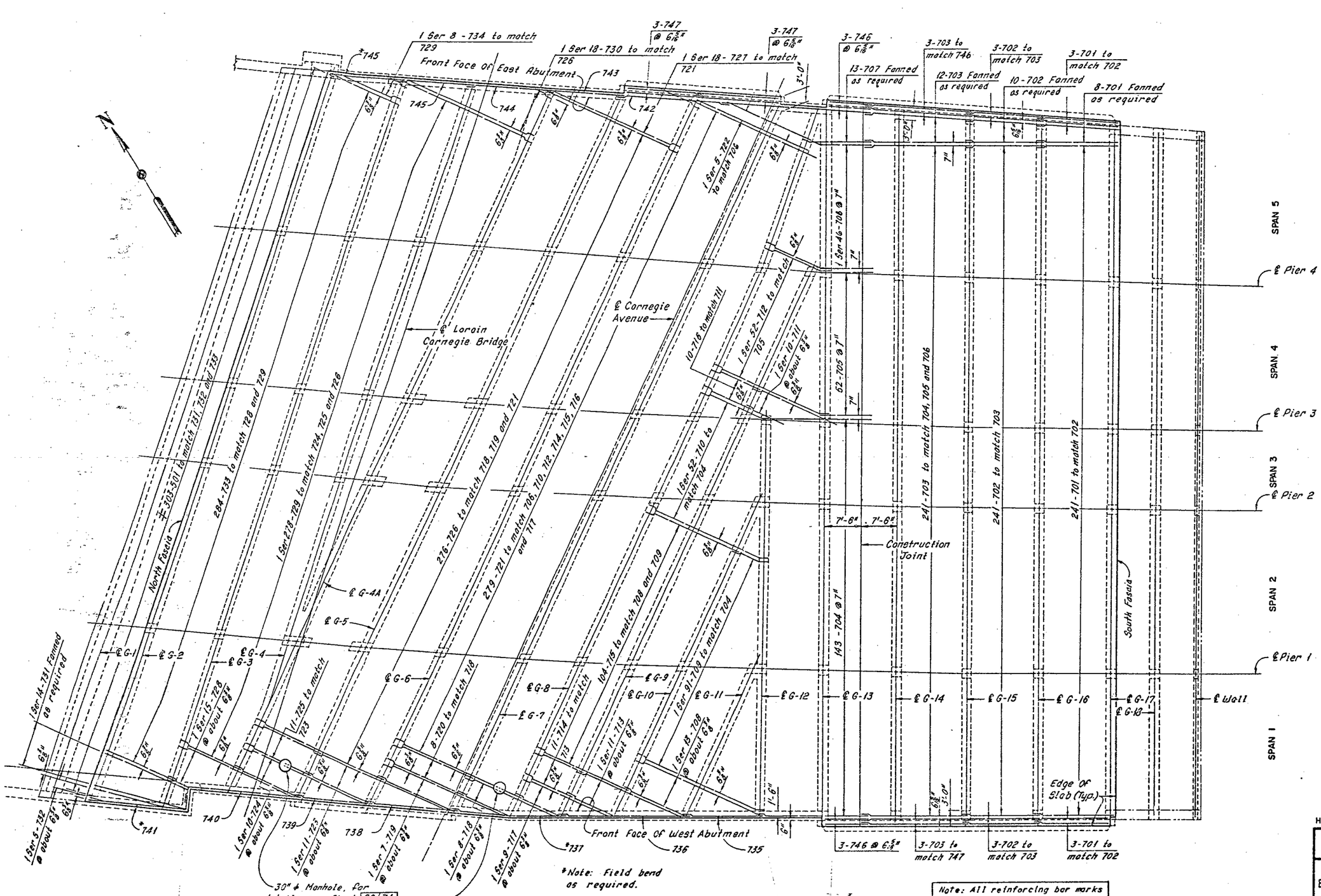
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
EP	BZ	PS		
DATE 3-7-78	DATE 3-11-78	DATE 3-7-78	DATE	SHEET 24/31

FHWA REGION	STATE	PROJECT	
5	OHIO		

172
185

CUYAHOGA COUNTY
CUY-10-16.23



REQUIRED LAP LENGTHS	
No. 7 Bar	2'-0" Min.

Notes:

For longitudinal deck slab reinforcement, see Sheet 26/31.

For top transverse deck slab reinforcement, see Sheet 24/31.

For Modified Typical Section at Pier 3, see Sheet 22/31.

For Sidewalk Plans and Details, see Sheet 27/31.

For Railing Plans and Details, see Sheet 29/31.

For Approach Slab Details, see roadway plans.

For Reinforcement Schedule and Bending Diagrams, see Sheet R 4.

For additional reinforcement at 30" ϕ Manhole, see Detail A, Sheet 26/31.

For slope construction, see Sheet 1/31

Note: All reinforcing bar marks shall be prefixed BR.

≠ denotes epoxy coated reinforcing steel.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

SLAB PLAN
BOTTOM TRANSVERSE REINFORCEMENT

REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)

BR. NO. CUY.-10-1685 STA. 57+29.72 STA. 58+85.70

CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
BP	BP	PB		
DATE 3-20-73	DATE 3-21-73	DATE 7-7-73	DATE	SHEET 25/31

FHWA REGION	STATE	PROJECT	
5	OHIO		

173
185

CUYAHOGA COUNTY
CUY-10-16.23

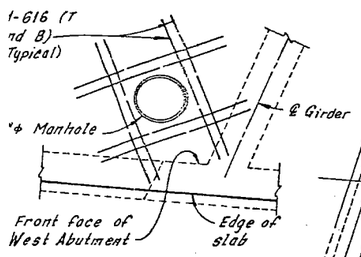
100-801 @ about 18" (Placed Normal To Edge Of Slab) (See Approach Slab Details)

Front Face of East Abutment

Front Face of West Abutment

142-801 @ about 18" (Placed Normal To Edge Of Slab) (See Approach Slab Details)

Note:
Field cut longitudinal and transverse deck slab steel to clear manhole opening.



DETAIL A

℄ Lorain Carnegie Bridge

℄ Carnegie Avenue

SPAN 5 ℄ Pier 4

SPAN 4 ℄ Pier 3

SPAN 3 ℄ Pier 2

SPAN 2 ℄ Pier 1

SPAN 1 ℄ Wall

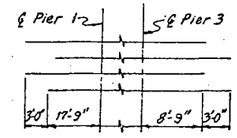
℄ G-1 ℄ G-2 ℄ G-3 ℄ G-4 ℄ G-4A ℄ G-5 ℄ G-6 ℄ G-7 ℄ G-8 ℄ G-9 ℄ G-10 ℄ G-11 ℄ G-12 ℄ G-13 ℄ G-14 ℄ G-15 ℄ G-16 ℄ G-17 ℄ G-18

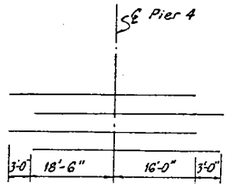
30"ϕ Manhole, Typ (See Detail A)

2" Clear (Typical)

Construction Joint

Edge of Slab (Typ.)





PLACEMENT OF ADDITIONAL REINFORCEMENT OVER PIERS

MINIMUM REQUIRED BAR SPLICE LENGTH	
Bar No.	Splice length
4	1'-0"
6	1'-5"

Notes:
- Indicates additional reinforcement over piers or at abutments.

For placement of longitudinal slab reinforcement, see Sheets 22/31 and 23/31.

For additional notes, see Sheet 24/31.

For Approach Slab Details, see roadway plans.

For stage construction, see Sheet 1/31.

≠ denotes epoxy coated reinforcing steel

Note: All reinforcing bar marks shall be prefixed L.R.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

SLAB PLAN
LONGITUDINAL REINFORCEMENT

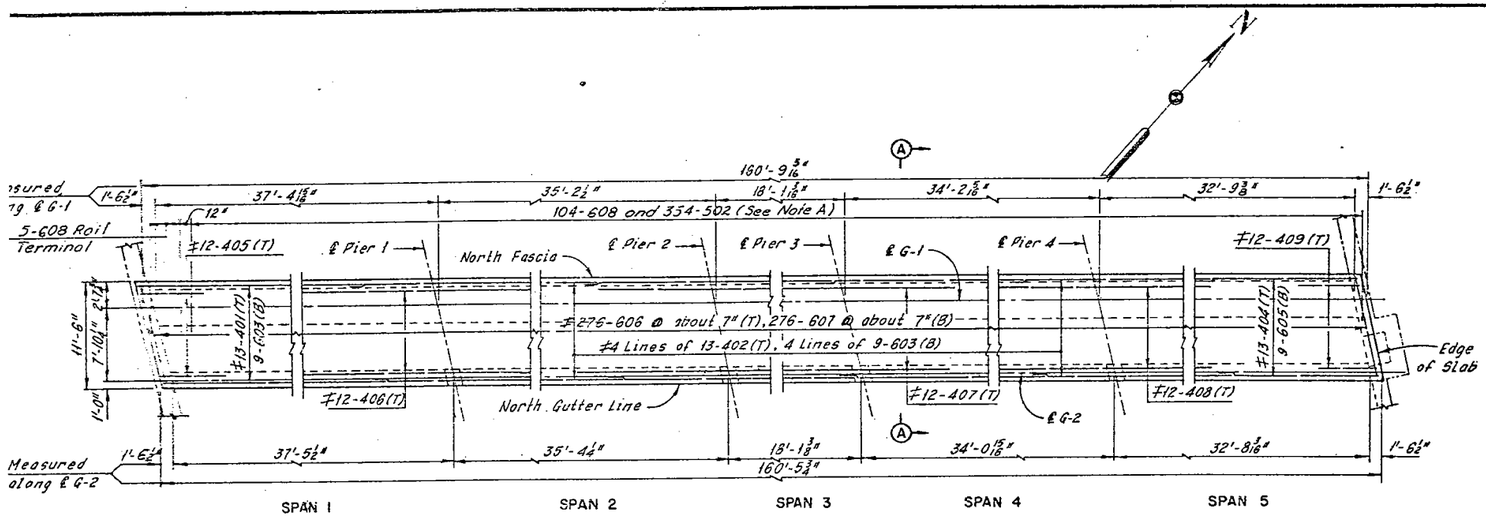
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR NO. CUY.-10-1685 STA. 57+29.72 STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
BP	SP	PB		
DATE 5-22-78	DATE 5-23-78	DATE 5-24-78	DATE	SHEET 26/31

FHWA REGION	STATE	PROJECT	
5	OHIO		

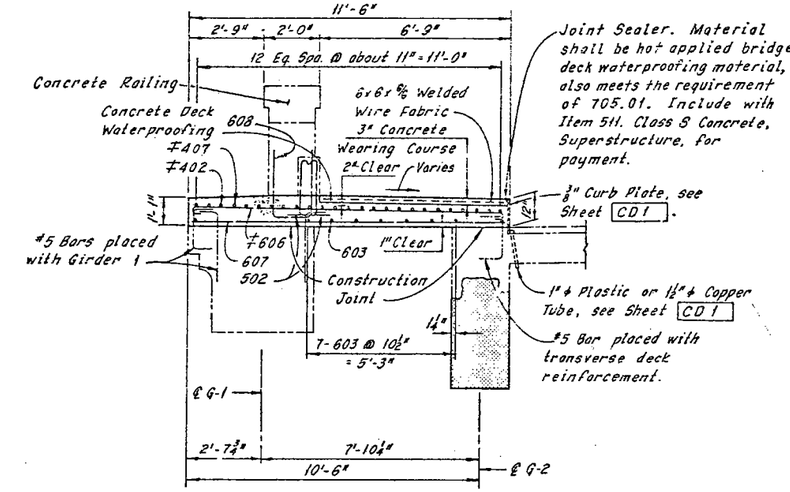
174
185

CUYAHOGA COUNTY
CUY-10-16.23



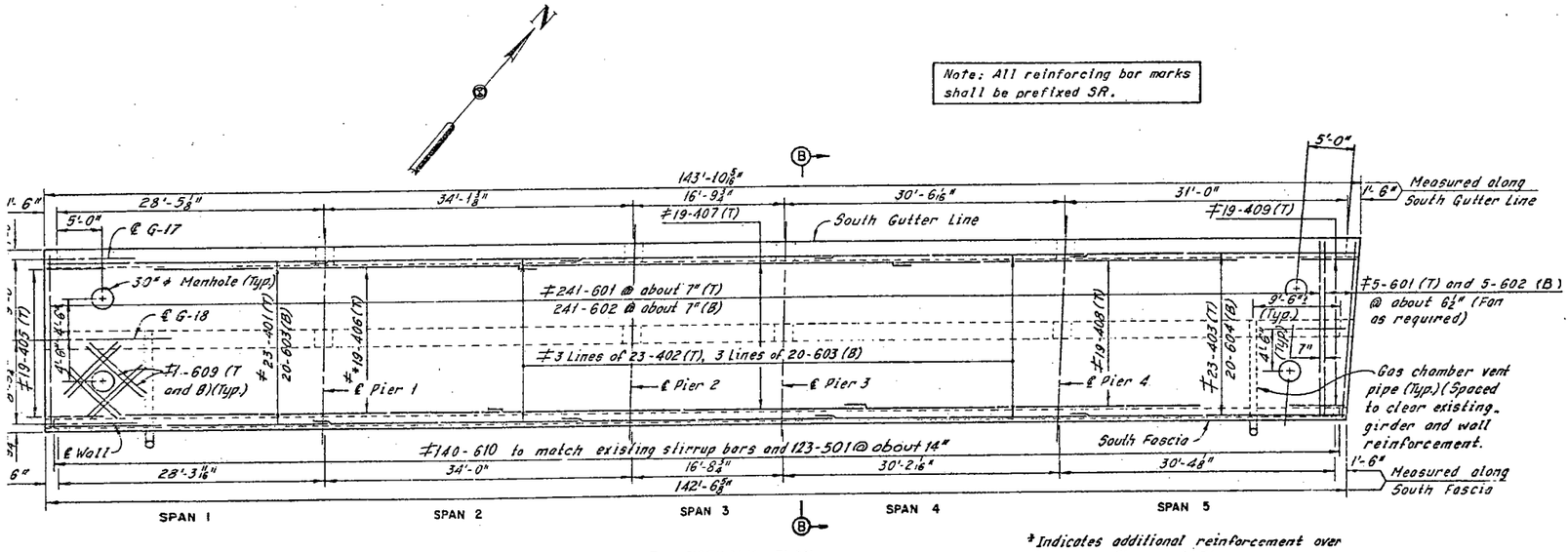
NORTH SIDEWALK PLAN
(Concrete railing not shown)

*Indicates additional reinforcement over piers, see Placement Diagram.



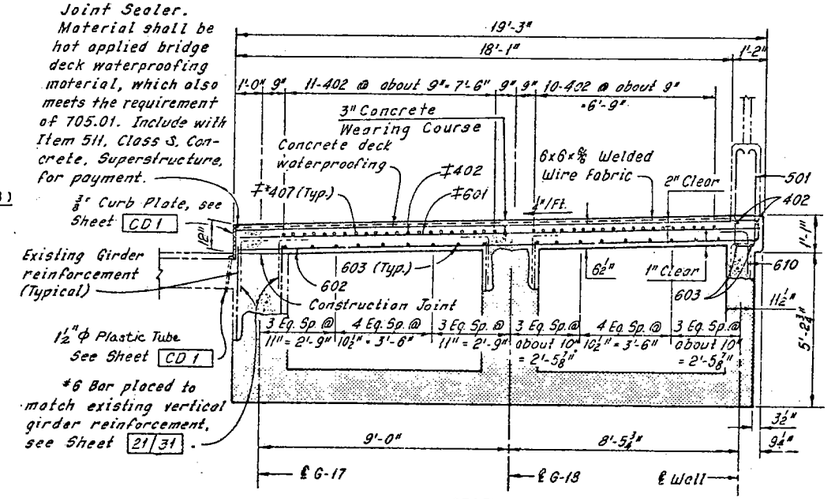
SECTION A-A

Note: All reinforcing bar marks shall be prefixed SR.

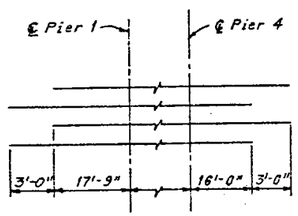


SOUTH SIDEWALK PLAN
(Parapet and fence not shown)

*Indicates additional reinforcement over piers, see Placement Diagram.



SECTION B-B
(Utilities Not Shown)



PLACEMENT OF ADDITIONAL REINFORCEMENT OVER PIERS

F denotes epoxy coated reinforcing steel

Note A:
Bars SR502 shall be placed at 2 equal spaces (3 sets of 2 bars) between railing posts and at 1 space (2 sets of 2 bars) between railing posts and deflection joints and or railing posts and open joints. Bars SR 608 shall be placed at each face of railing posts.

Notes:
Zip-a-tone indicates existing structure.
Phantom lines indicate new construction, details of which are shown elsewhere in these plans.
For Removal Plans, see Sheets 4/31 and 5/31.
For details of concrete railing on north sidewalk, see Sheet 29/31.
For details of fence and parapet on south sidewalk, see Sheet 22/31.
For Girder 1 Replacement Details, see Sheet 20/31.
For Reinforcement Schedule, see Sheet R/4.
For Gas Vent Detail, see Sheet 31/31.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

SIDEWALK PLANS

REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR NO. CUY.-10-1685 STA. 57+29.72 STA. 59+85.70
CUYAHOGA COUNTY OHIO

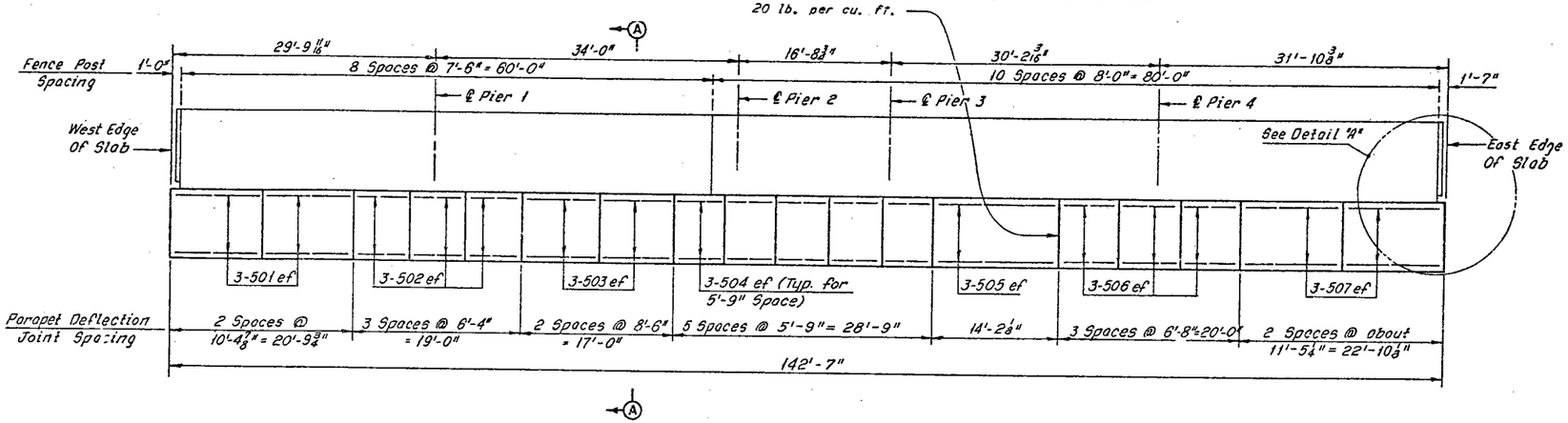
DRAWN	TRACED	CHECKED	REVIEWED	REVISED
SD	BP	PB		
DATE 5-21-76	DATE 5-27-76	DATE 7-7-76	DATE	SHEET 27/31

FHWA REGION	STATE	PROJECT	
5	OHIO		

175
185

CUYAHOGA COUNTY
CUY-10-16.23

Preformed Expansion Joint Filler in the fencing parapet deflection joints may be either ½" gray sponge rubber or ¼" gray cellular polyvinyl chloride (PVC) sponge. Either material shall meet the requirements of AASHO M-153, Type 1 except the density of PVC sponge shall be not less than 20 lb. per cu. ft.



SOUTH PARAPET AND FENCE DETAILS
(Looking North)

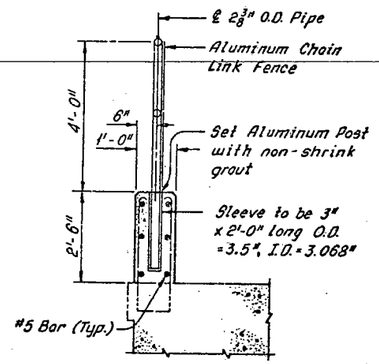
Notes:
Payment for parapet and fence shall be made at the contract unit price for Item 517, Railing (Concrete Parapet with Chain-Link Fence-AASHTO Designation M-181-Type III Aluminum alloy fabric, posts, hardware and fittings.) Payment length shall be the over-all length of the parapets. Sleeves, parapet expansion joint material, grout and longi-tudinal reinforcing steel in the parapets shall be included with the unit price bid for Item 517, Railing (Concrete Parapet with with Chain-Link Fence-AASHTO Designation M-181-Type III Aluminum alloy fabric, posts, hardware and fittings.), for payment. All other reinforcing steel in the parapets is included with Item 509, Reinforcing Steel, for payment.

Concrete parapets shall be placed in alternate sections by the use of bulkheads. Closing sections shall be placed after removal of bulkheads and after placement of sponge filler. Filler shall be flush with surface of mortar. The anchor posts shall be set in non-shrink grout.

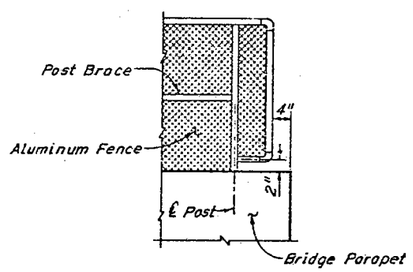
The following abbreviation is used:
ef= each face

Note:
All reinforcing bar marks shall be prefixed RB.

MARK	NO.	LENGTH	TYPE	WEIGHT (LBS)
RB501	12	10'-0"	Str.	125
RB502	18	6'-0"	Str.	113
RB503	12	8'-3"	Str.	103
RB504	30	5'-6"	Str.	172
RB505	6	13'-9"	Str.	86
RB506	18	6'-3"	Str.	117
RB507	12	11'-0"	Str.	138
		TOTAL WEIGHT =		854



SECTION A-A



DETAIL A

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

SOUTH PARAPET AND FENCE DETAILS

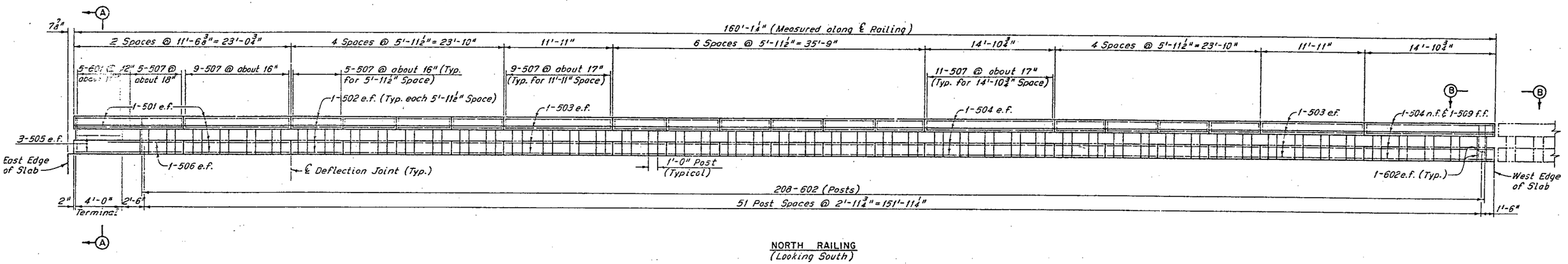
REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72
STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
R.A.S.	D.L.R.	C.K.R.		
DATE 9-11-78	DATE 9-14-78	DATE 9-18-78	DATE	SHEET 28 31

FHWA REGION	STATE	PROJECT	
5	OHIO		

176
185

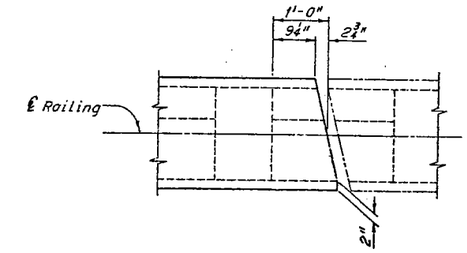
CUYAHOGA COUNTY
CUY-10-16.23



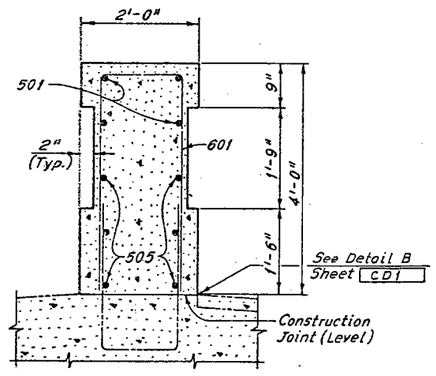
NORTH RAILING
(Looking South)

Note:
All reinforcing bar marks shall be prefixed RA.

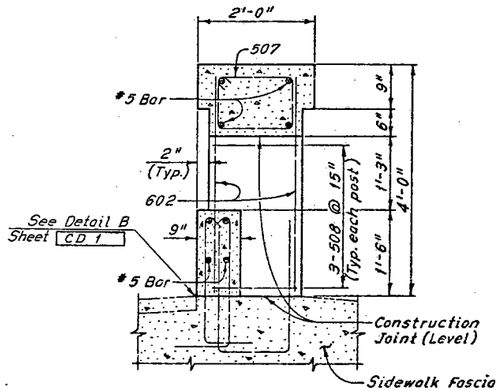
Note:
The deflection joints in the railing may be either ¼" gray sponge rubber or ½" gray cellular polyvinyl chloride (PVC) sponge. Either material shall meet the requirements of AASHTO M-153, Type 1, except the density of the (PVC) sponge shall be not less than 20 lb. per cu. ft.



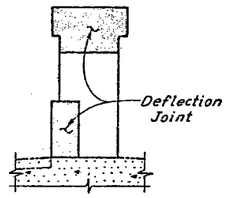
VIEW B-B



SECTION A-A



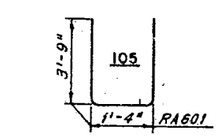
TYPICAL RAILING SECTION

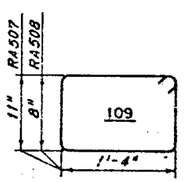


DEFLECTION JOINT DETAIL

MARK	NO.	LENGTH	TYPE	WEIGHT (LBS)
RA501	12	11'-3"	Str.	141
RA502	112	5'-6"	Str.	643
RA503	16	11'-6"	Str.	192
RA504	12	14'-6"	Str.	181
RA505	6	3'-9"	Str.	24
RA506	4	8'-9"	Str.	37
RA507	124	5'-2"	109	668
RA508	156	4'-8"	109	759
RA509	4	14'-3"	Str.	59
RA601	5	8'-6"	105	64
RA602	208	3'-9"	Str.	1172
	TOTAL WEIGHT =			3940

BENDING DIAGRAMS





Notes:
Payment for the railing shall be made at the contract unit price bid for Items 517, Railing, As Per Plan. Payment length shall be the overall length of the railings. Railing expansion joint and deflection joint material and all reinforcing steel that does not extend into the sidewalk shall be included with Item 517 for payment. Reinforcing steel extending from the sidewalk is included with Item 509, Reinforcing Steel, for payment.

Railings shall be placed in alternate sections by the use of bulkheads. Closing sections shall be placed after removal of bulkheads and after placement of sponge filler. The filler shall be attached to the face of the concrete on one side, flush with the surface of concrete and exposed edges shall be free of mortar.

The following abbreviations are used:
e.f. = each face n.f. = near face
Typ. = typical f.f. = far face

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

NORTH RAILING DETAILS

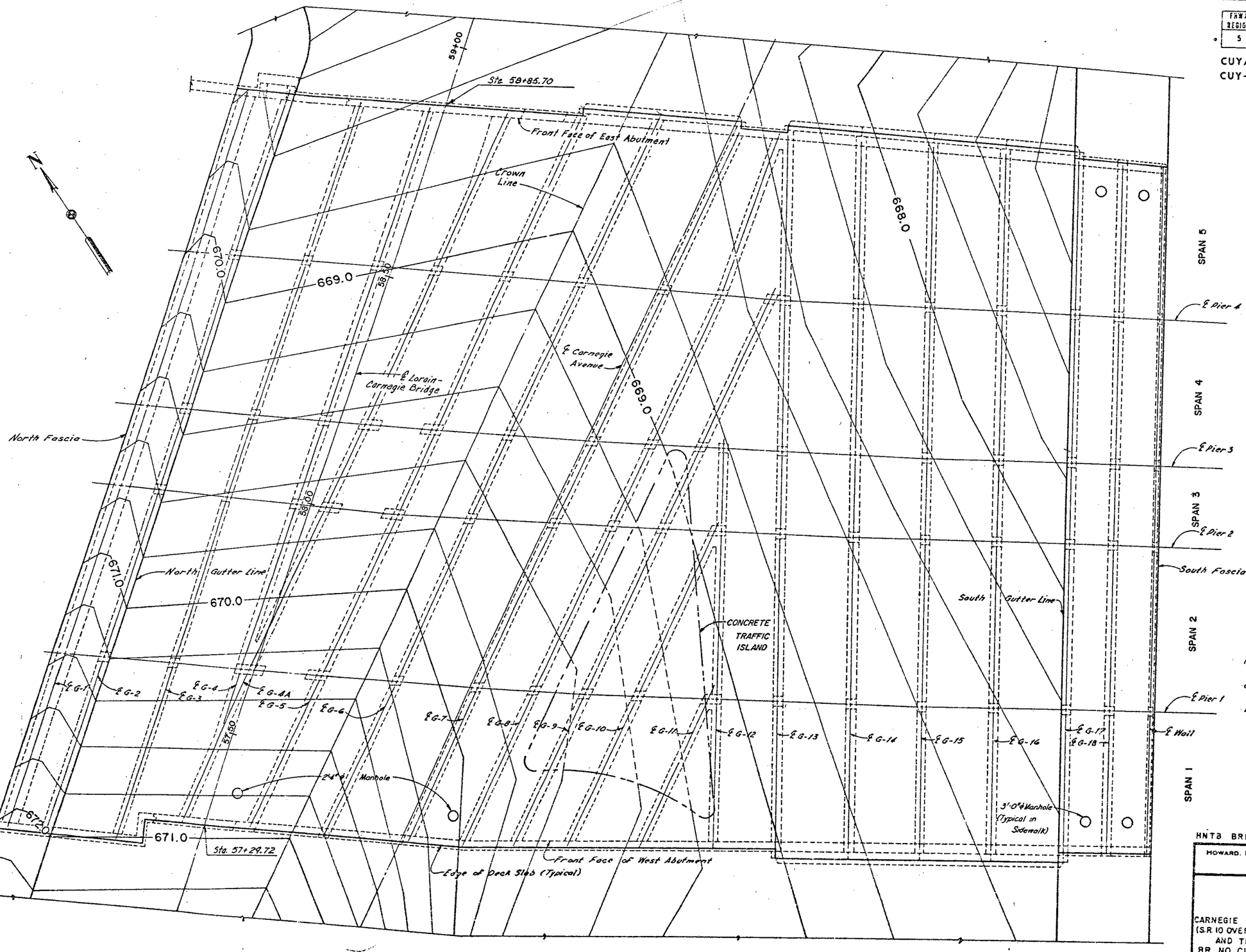
REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR NO. CUY.-10-1685 STA. 57+29.72
STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
RAS	DLR	LCKS		
DATE 9-11-78	DATE 9-14-78	DATE 9/18/78	DATE	SHEET 29 31

FHWA REGION	STATE	PROJECT	
5	OHIO		

177/185

CUYAHOGA COUNTY
CUY-10-16.23



CONTOUR PLAN

Note:
Contours are shown at top of the asphalt concrete surface course. For details of Concrete Traffic Island see Roadway Plans

10 5 0 5 10
SCALE IN FEET

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

CONTOUR PLAN

REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R 10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72 STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
DATE 9-25-72	DATE 6-29-73	DATE 9-18-73	DATE	SHEET 30/31

FHWA REGION	STATE	PROJECT	
5	OHIO		

178
185

CUYAHOGA COUNTY
CUY-10-16. 23

ESTIMATED REPAIR QUANTITIES

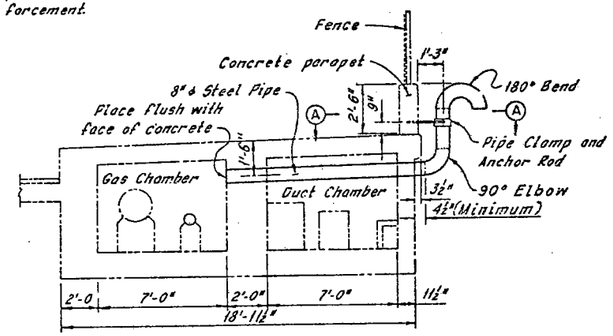
LOCATION	PCS SQ. FT.	REPAIR OF CRACKS LIN. FT.
PIERS		
1	34	188
2	99	114
3	75	114
4	311	69
STRUTS		
1-1	-	-
1-2	2	-
1-3	11	-
1-4	2	-
1-5	-	-
1-6	20	-
1-7	-	-
1-8	-	-
1-9	39	-
1-10	-	-
1-11	-	-
1-12	-	-
1-13	-	-
1-14	-	-
1-15	1	-
1-16	1	-
1-17	-	-
1-18	13	-
2-1	4	-
2-2	44	-
2-3	1	-
2-4	-	-
2-4A	1	-
2-5	1	-
2-6	14	-
2-7	-	-
2-8	-	-
2-9	1	-
2-10	-	-
-	-	-
2-12	-	-
2-13	-	-
2-14	-	-
2-15	-	-
2-16	1	-
2-17	20	1
2-18	70	6
3-1	-	-
3-2	-	6
3-3	1	2
3-4	2	2
3-4A	2	-
3-5	1	-
3-6	65	-
3-7	1	-
3-8	-	-
3-9	1	-
3-12	-	-
3-13	-	-
3-14	-	1
3-15	-	-
3-16	-	-
3-17	19	-
3-18	-	-
4-1	-	-
4-2	-	-
4-3	-	1
4-4	6	17
4-4A	6	-
4-5	1	-
4-6	58	-
4-7	1	-
4-8	-	-
4-9	6	-
4-13	2	-
4-14	-	-

LOCATION	PCS SQ. FT.	REPAIR OF CRACKS LIN. FT.
4-15	1	-
4-16	-	-
4-17	-	-
4-18	68	-
5-1	20	-
5-2	74	-
5-3	-	2
5-4	4	-
5-	65	-
5-4B	86	-
5-5		
5-6	97	9
5-7	12	-
5-8	8	-
5-13	11	-
5-14	-	-
5-15	-	-
5-16	-	-
5-17	65	-
5-18	25	-
COLUMNS		
1-1	1	-
1-2	18	13
1-3	2	-
1-4	-	-
1-5	-	-
1-6	-	-
1-7	-	-
1-8	1	-
1-9	1	-
1-10	1	-
1-11	1	-
1-13	1	-
1-14	-	-
1-15	-	-
1-16	-	-
1-17	26	-
1-18	6	13
2-1	-	-
2-2	-	-
2-3	-	-
2-4	1	-
2-4A	2	-
2-5	-	-
2-6	6	-
2-7	1	-
2-8	-	-
2-9	-	-
2-10	-	-
2-13	-	-
2-14	-	-
2-15	1	-
2-16	-	-
2-17	45	-
2-18	1	-
3-1	4	-
3-2	2	-
3-3	-	2
3-4	-	-
3-4A	1	-
3-5	-	-
3-6		
3-7	-	-
3-8	-	-
3-9	-	-
3-12	-	-
3-13	-	-
3-14	-	-
3-15	-	-
3-16	-	-
3-17	-	-
3-18	-	-

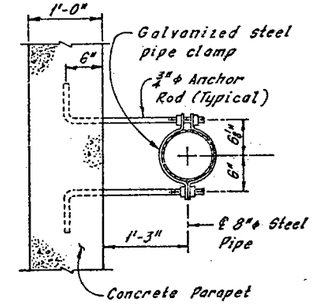
LOCATION	PCS SQ. FT.	REPAIR OF CRACKS LIN. FT.
4-1	-	-
4-2	-	-
4-3	1	-
4-4	-	-
4-4A	-	-
4-5	-	-
4-6	7	-
4-7	-	-
4-8	-	-
4-9	-	-
4-13	-	-
4-14	-	-
4-15	-	-
4-16	-	-
4-17	-	-
4-18	-	-
GIRDERS		
1-1	48	24
1-2	75	-
1-3	19	6
1-4	1	-
1-5	2	6
1-6	132	8
1-7	-	-
1-8	72	7
1-9	40	6
1-10	1	-
1-11	-	-
1-12	-	-
1-13	6	-
1-14	-	-
1-15	-	-
1-16	-	-
1-17	79	-
1-18	77	51
2-1	18	2
2-2	54	-
2-3	-	13
2-4	1	-
2-4A	2	-
2-5	1	-
2-6	190	-
2-7	6	-
2-8	11	-
2-9	13	-
2-10	7	-
2-12	-	-
2-13	1	-
2-14	3	-
2-15	-	-
2-16	8	-
2-17	80	22
2-18	86	55
3-1	54	-
3-2	158	-
3-3	-	-
3-4	-	-
3-4A	-	-
3-5	8	-
3-6	95	-
3-7	-	-
3-8	20	-
3-9	-	-
3-12	1	-
3-13	1	-
3-14	-	-
3-15	-	-
3-16	7	-
3-17	92	-
3-18	40	-
4-1	304	-
4-2	145	-

LOCATION	PCS SQ. FT.	REPAIR OF CRACKS LIN. FT.
4-3	-	4
4-4	-	-
4-4A	-	-
4-5	-	-
4-6	279	-
4-7	-	-
4-8	40	-
4-9	-	-
4-13	-	-
4-14	-	-
4-15	-	-
4-16	4	-
4-17	18	-
4-18	11	-
5-1	206	-
5-2	396	-
5-3	-	-
5-4	6	-
5-4A	-	-
5-5	33	-
5-6	74	-
5-7	7	-
5-8	-	-
5-13	2	-
5-14	-	-
5-15	-	-
5-16	1	-
5-17	132	-
5-18	18	-
ABUTMENTS AND WINGWALLS		
EAST	2297	253
WEST	543	196
UTILITY CHAMBERS		
17-18	1,265	-
7-8	7	-
4-5	567	-
At 2	539	24
GRAND TOTAL	10,002	1,237

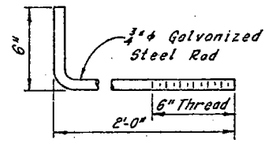
Note:
The 8"ϕ steel pipe shall be placed to clear vertical reinforcement.



TYPICAL GAS CHAMBER VENT DETAIL



SECTION A-A
(Parapet Reinforcement not shown)



ANCHOR BOLT DETAIL
4 Required

(Threads are to be Unified Standard Series for Basic Major Diameter of ¾".)

Notes:
PCS indicates Patching Concrete Structures.
For Member Identification Plans, see Sheet 2/31.
For location of Gas Chamber Vents, see Sheet 27/31.
Utility Chambers are identified as at or between the girders called out, for the entire length of the Grade Separation.

All costs for venting the gas chamber shall be borne by the gas company, and shall be paid for at the Lump Sum price bid for Item Special, East Ohio Gas Company H. P. Pipe Air Vents, Complete As Per Plan.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

ESTIMATED REPAIR QUANTITIES AND GAS CHAMBER VENT DETAILS

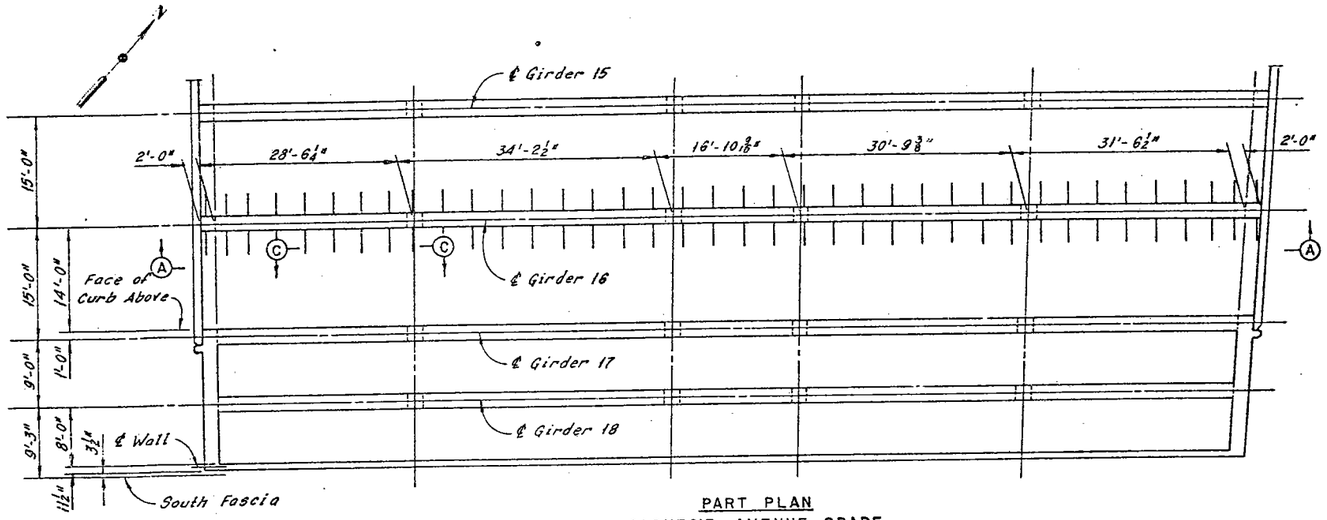
REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72 STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
BP	BP	RJS		
DATE 2-13-75	DATE 2-14-75	DATE 2-14-75	DATE	SHEET 31/31

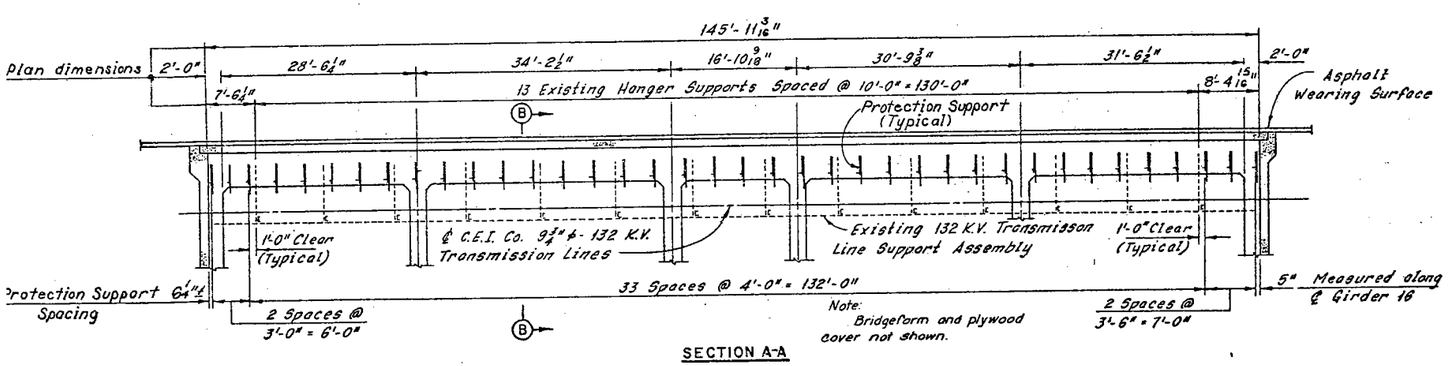
FHWA REGION	STATE	PROJECT	
5	OHIO		

179
185

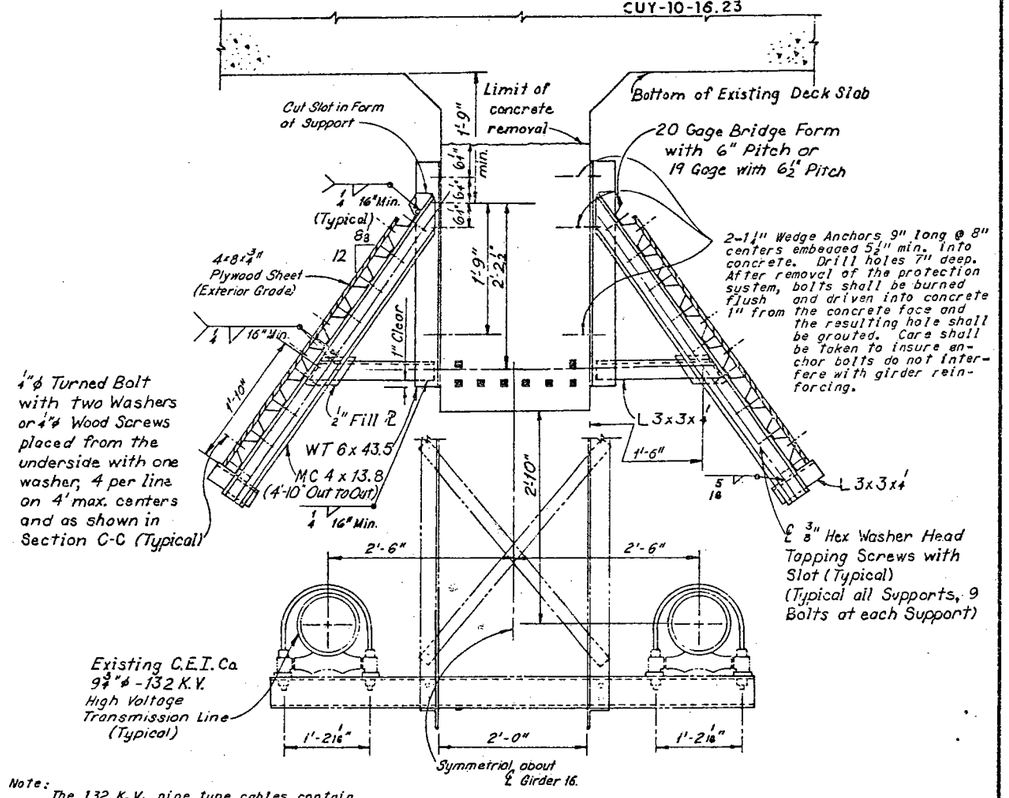
CUYAHOGA COUNTY
CUY-10-16.23



PART PLAN
CARNEGIE AVENUE GRADE
SEPARATION STRUCTURE
(Dimension shown are from original plans)

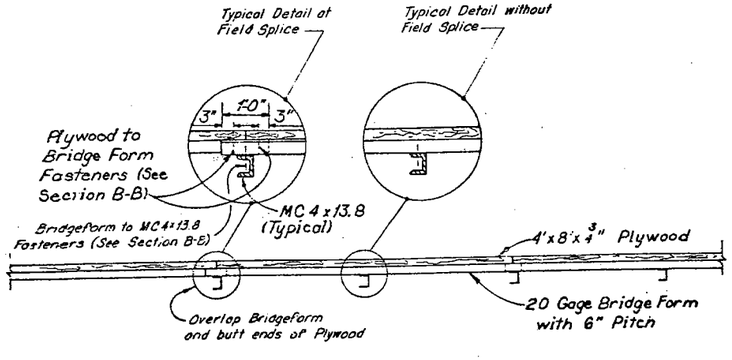


SECTION A-A



SECTION B-B

Note:
The 132 K.V. pipe type cables contain three copper insulated cables and insulating fluid at a nominal 200 psi. The steel pipes and corrosion control covering on the pipes must be protected from any and all damage.



SECTION C-C

Notes:

All structural steel shall be ASTM A572 except as noted. (Approx. 16,000 lbs.)

ASTM A572 shall be given one shop coat of primer as per Article 514, System B.

Bridge form, similar to Bethlehem Bridgform, shall be ASTM A446, Grade E with the following properties:

Thickness = 20 gage
Pitch = 6 in. Depth = 2 in.
I = .400 in.⁴/ft.
S.M. = 0.372 in.³/ft.
Fy = 80,000 psi
Allowable design stress = 30,000 psi

Wedge anchors shall be equivalent to Phillips Wedge Anchors with a minimum pullout load of 40,600 lbs. and a minimum shear load of 48,660 lbs.

¾" ϕ turned bolts shall be ASTM A307.

All temporary protection at the 132 K.V. Transmission Lines, as per plan, shall be in place prior to concrete deck and girder removal between Girder 15 and Girder 17, and shall remain in place until all required work is complete on the permanent structure between Girder 15 and Girder 17.

All labor, material and equipment required for the placement and removal of all temporary transmission line protection devices, as per plan, shall be included in the unit price bid for Item Special, Temporary Protection At 132 K.V. Transmission Lines.

Materials used in the protection system shall become the property of the Contractor upon completion of the work, and shall be removed by him from the site.

The Contractor shall assume full responsibility for any damage to the 132 K.V. lines and its supports, and for damages resulting from damage to these lines. The Contractor shall take extraordinary precautions to insure against any damage to the 132 K.V. lines during erection and removal of the temporary protection system and against concrete dropping between Girders 15 and 17. The protection system is designed only for an accidental occurrence of a 50 lb. block of concrete dropping from the level of the deck. If any concrete pieces drop on the protection system, the Contractor shall cease operations, inspect the protection system and make necessary repairs to the system subject to the approval, prior to resuming operations, by the State of Ohio Project Engineer assigned to implement the contract.

Supporting members have been designed for basic allowable stresses increased 50%. Anchors have been designed for a 1.6 Factor of Safety.

The Contractor or his agents must notify the Cleveland Electric Illuminating Company (623-1350, Extension 2445) at least 24 hours in advance if any work is to be performed in the vicinity of the two C.E.I. 132 K.V. pipe type cables. The Illuminating Company will provide a field representative during the time any work is performed near the 132 K.V. cables.

HNTB BRIDGE NO. 4

HOWARD NEEDLES TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

TEMPORARY PROTECTION FOR THE 132 K.V. TRANSMISSION LINES

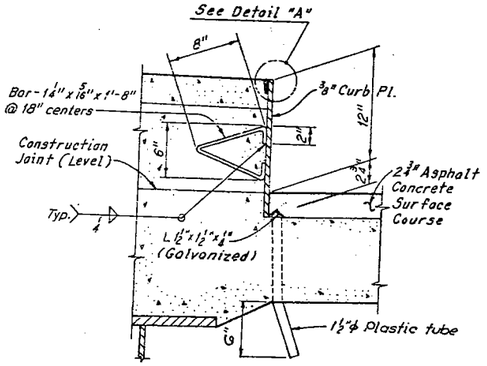
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72 STA. 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
B.M.P. DATE 3-1977	M.M.P. DATE 3-1977	DH.S.F.S.T. DATE 4-1977	DATE	SHEET 31A 31

FHWA REGION	STATE	PROJECT	
5	OHIO		

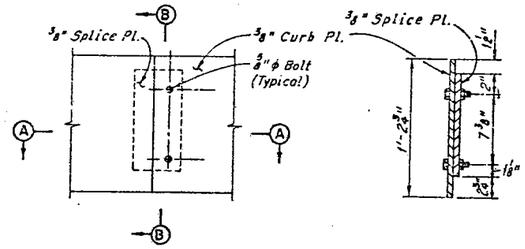
180
185

CUYAHOGA COUNTY
CUY-10-16.23



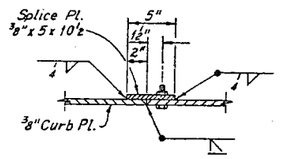
SIDEWALK CURB PLATE AND SUBDRAINAGE FOR SURFACE COURSE DETAIL

For location of drain tubes, see General Note 24, Sheet GN 5.



ELEVATION

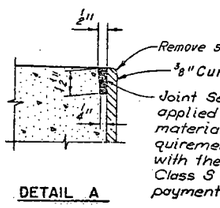
SECTION B-B



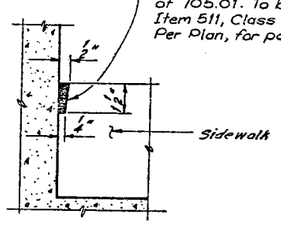
SECTION A-A

CURB PLATE SPLICE DETAIL

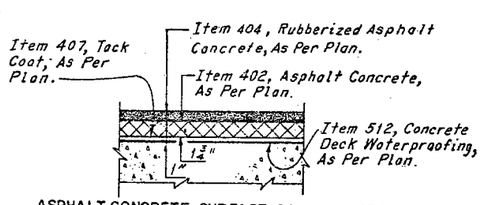
Note:
Remove bolts after field welds have been completed Plug weld holes flush with curb plate.



DETAIL A

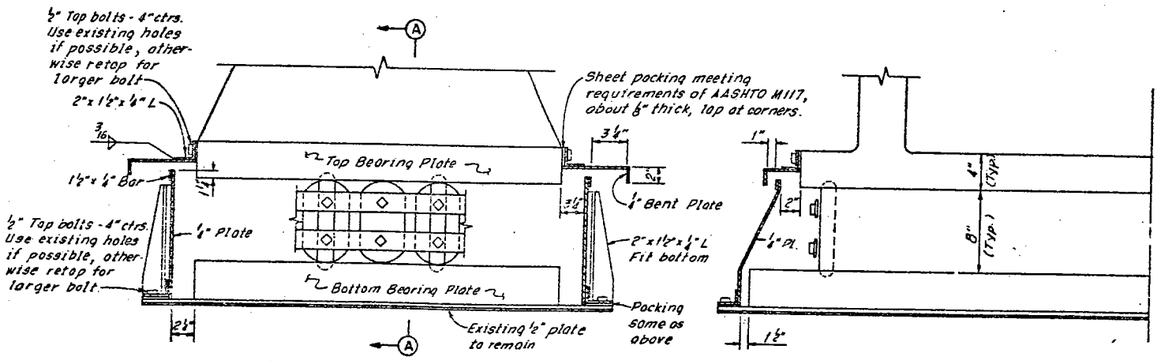


DETAIL B



ASPHALT CONCRETE SURFACE COURSE DETAIL

Note:
Curb plate, curb plate anchors and splice plates shall be ASTM A36 Steel.



SECTION THROUGH GREASE BOX

SECTION A-A

EXPANSION BEARING GREASE BOX REPLACEMENT DETAILS
All new metal parts shall be ASTM A588

BEARING PLATE DIMENSIONS

LOCATION	TOP PLATE		BOTTOM PLATE		NUMBER OF GREASE BOXES REQUIRED	BASE PLATE THICKNESS
	LONG.	TRANS.	LONG.	TRANS.		
West Pylon - Exterior	3'-4"	2'-8"	3'-6"	3'-5"	2	3½"
West Pylon - Interior	3'-4"	3'-1"	3'-6"	3'-11"	2	4"
East Abutment - Exterior	3'-4"	3'-3"	3'-6"	3'-11½"	2	4"
East Abutment - Center	2'-7"	2'-8"	2'-7"	3'-5"	1	3½"

HNTB BRIDGE NO. 3 AND 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

COMMON DETAILS

CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
CKP DATE 6-4-76	LSS DATE 8-16-76	RAS DATE 9-20-76	DATE	SHEET CD 1

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS.)
EAST ABUTMENT					
#EA401	52	29'-9"	Str		#1039
#EA402	42	10'-6"	Str		337
EA501	41	3'-2"	105		335
EA502	4	31'-3"	Str		330
EA503	264	3'-9"	163		4033
EA504	37	6'-0"	Str		232
EA505	13	18'-0"	Str		244
#EA601	118	12'-6"	100		2215
EA602	76	6'-0"	105		835
Total Weight (Uncoated)				=	2,459
# Total Weight (Epoxy Coated)				=	3,585
BOX AT E. ABUTMENT					
B401	26	21'-9"	Str		378
B501	96	3'-9"	163		375
B601	46	12'-6"	100		864
B602	28	6'-0"	105		252
Total Weight (Uncoated)				=	1627
# Total Weight (Epoxy Cooled)				=	1,242
WEST PYLON					
WP401	137	27'-6"	Str		2517
WP402	12	2'-9"	Str		22
WP501	54	15'-0"	109		845
WP502	4	26'-6"	Str		731
WP503	4	26'-9"	Str		732
WP504	12	23'-0"	Str		828
WP505	16	36'-3"	Str		935
WP506	205	13'-0"	109		2793
WP507	24	2'-9"	Str		69
WP601	82	12'-9"	Str		1519
WP602	82	27'-9"	Str		3818
WP603	82	23'-0"	Str		2853
WP604	41	29'-0"	Str		1786
WP605	4	5'-8"	108		34
WP606	4	5'-11"	109		36
WP607	52	3'-9"	105		203
WP608	52	5'-7"	105		280
WP609	52	7'-2"	100		540
WP610	16	9'-7"	100		230
WP611	12	7'-10"	105		147
WP612	12	8'-4"	105		150
WP801	111	28'-10"	100		8545
WP1001	10	28'-3"	100		1216
WP1002	8	28'-6"	100		981
WP1101	28	24'-3"	Str		3508
WP1102	14	31'-6"	Str		2343
WP1103	8	20'-0"	Str		859
WP1104	28	13'-9"	Str		2946
WP1105	28	31'-0"	Str		4632
Total Weight (Uncoated)				=	54,846
Total Weight (Epoxy Cooled)				=	37,948
PIER 7					
P401	4	16'-0"	Str		413
P402	4	23'-6"	Str		653
P403	2	16'-9"	Str		222
P404	1	16'-6"	Str		113
P405	7	13'-0"	Str		651
P406	3	7'-4"	104		345
P407	3	15'-7"	126		371
P408	2	9'-7"	104		213
P409	4	6'-6"	Str		417
P410	3	4'-4"	104		319
Total Weight =					4295

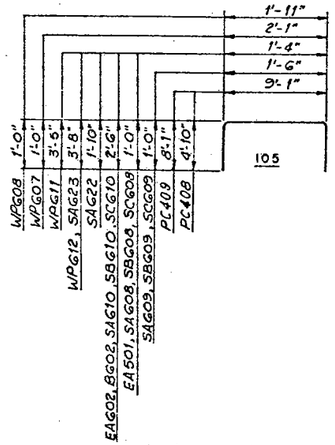
MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS.)
PIER 10					
10P401	10	19'-0"	Str		127
10P402	4	23'-5"	Str		63
10P403	1	9'-5"	Str		6
10P404	1	8'-5"	Str		6
10P405	1	8'-3"	Str		6
10P406	2	16'-9"	Str		22
10P407	1	16'-6"	Str		11
10P408	2	18'-6"	Str		25
10P409	6	4'-5"	Str		18
10P410	7	3'-11"	104		18
10P411	3	7'-3"	104		15
10P412	4	13'-5"	104		36
10P413	2	15'-10"	104		21
10P414	3	21'-3"	126		43
10P415	1	6'-0"	Str		4
10P416	2	5'-0"	Str		7
10P417	6	6'-2"	104		25
10P418	6	6'-5"	104		26
		Total Weight =			479
PIER 12					
12P401	36	16'-6"	Str		397
12P402	2	4'-0"	Str		5
12P403	2	3'-3"	Str		4
12P404	2	2'-9"	Str		4
12P405	2	11'-5"	Str		15
12P406	1	11'-3"	Str		8
12P407	20	7'-4"	104		98
12P408	4	18'-7"	105		50
12P409	2	25'-0"	105		33
12P410	2	5'-6"	Str		7
12411	2	6'-0"	Str		8
		Total Weight =			629
SLAB-W. L.E. SPAN					
#SA401	412	12'-0"	Str		3303
#SA402	91	13'-6"	Str		821
#SA403	82	30'-0"	101		1643
#SA404	440	30'-0"	Str		8818
#SA405	82	16'-0"	101		876
#SA406	14	28'-9"	Str		269
#SA407	28	16'-3"	Str		304
#SA408	103	13'-0"	Str		894
SA501	116	7'-10"	155		948
SA502	32	30'-0"	Str		1001
SA503	8	17'-6"	Str		146
SA504	62	7'-8"	155		496
SA505	600	31'-6"	163		2190
SA506	24	21'-9"	Str		69
#SA601	490	29'-2"	101		21466
#SA602	235	28'-9"	Str		12739
SA603	322	31'-9"	Str		15356
SA604	295	22'-0"	Str		9748
SA605	320	30'-0"	Str		14419
SA606	80	18'-0"	Str		2163
#SA607	246	12'-5"	100		4619
#SA608	298	3'-0"	105		1343
SA609	298	3'-2"	105		1418
SA610	176	6'-0"	105		1536
#SA611	18	24'-3"	101		667
SA612	18	27'-3"	Str		737
#SA613	24	24'-2"	101		871
SA614	24	26'-9"	Str		964
#SA615	59	23'-6"	101		2047
SA616	58	26'-3"	Str		2257
SA617	64	28'-3"	Str		2812
#SA618	10	8'-0"	100		120
#SA619	12	7'-6"	100		135
#SA620	30	6'-9"	100		304
SA621	168	29'-6"	Str		7444
SA622	12	4'-9"	105		84
SA623	12	8'-4"	105		150
SA801	40	30'-0"	Str.		3204
SA802	10	22'-6"	Str.		601
Total Weight (Uncoated)				=	67,823
# Total Weight (Epoxy Coated)				=	61,239

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS.)
SLAB - SPAN 1					
#SB401	103	13'-0"	Str		294
#SB402	103	24'-6"	Str		1686
#SB403	613	12'-0"	Str		4354
#SB404	82	30'-0"	101		1643
#SB405	688	30'-0"	Str		13788
#SB406	82	12'-9"	101		698
#SB407	28	12'-3"	Str		229
SB501	290	7'-10"	155		2369
SB502	8	23'-6"	Str		196
SB503	4	11'-6"	Str		48
SB504	28	21'-9"	Str		635
SB505	28	30'-0"	Str		876
SB506	4	14'-3"	Str		59
SB507	980	3'-6"	163		3577
#SB601	794	29'-2"	101		34784
#SB602	397	28'-9"	Str		17143
SB603	794	31'-9"	Str		37865
SB604	397	22'-0"	Str		13118
SB605	560	30'-0"	Str		25234
SB606	80	14'-6"	Str		1742
#SB607	400	12'-6"	100		7510
#SB608	400	3'-0"	105		1802
SB609	400	3'-2"	105		1903
SB610	288	6'-0"	105		2595
SB801	8	25'-4"	100		541
SB802	4	13'-5"	100		143
SB803	28	23'-7"	100		1763
SB804	42	30'-0"	Str		3364
SB805	6	23'-0"	Str		368
Total Weight (Uncoated)				=	96,398
# Total Weight (Epoxy Coated)				=	85,131
SLAB - SPAN 2					
#SC401	206	13'-0"	Str		1789
#SC402	82	30'-0"	101		1643
#SC403	138	30'-0"	Str		2766
#SC404	82	14'-9"	101		809
#SC405	28	13'-9"	Str		257
SC501	96	7'-10"	155		784
SC502	12	23'-6"	Str		294
SC503	8	30'-0"	Str		250
SC504	4	14'-6"	Str		61
SC505	324	3'-6"	163		1183
#SC601	268	29'-2"	101		11741
#SC602	134	28'-9"	Str		5786
SC603	268	31'-9"	Str		12781
SC604	134	22'-0"	Str		4428
SC605	160	30'-0"	Str		7210
SC606	80	14'-9"	Str		1772
#SC607	134	12'-6"	100		2516
#SC608	134	3'-0"	105		604
SC609	134	3'-2"	105		637
SC610	96	6'-0"	105		865
SC801	12	30'-0"	Str		961
SC802	6	17'-0"	Str		272
SC803	12	25'-4"	100		812
Total Weight (Uncoated)				=	32,310
# Total Weight (Epoxy Coated)				=	27,910

#Denotes Epoxy Coated Reinforcing Steel.

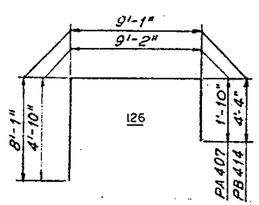
100

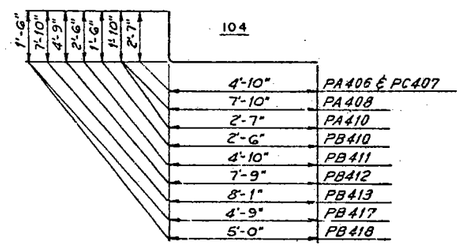
11'-2"	EA601, BG01, SA607 SBG07 & SCG07
6'-8"	SA618
6'-2"	SA619
5'-5"	SA620
23'-6"	SB801 & SC803
11'-7"	SB802
21'-9"	SB803
5'-10"	WPG09
8'-3"	WPG10
27'-0"	WP801
25'-5"	WP1001
25'-8"	WP1002

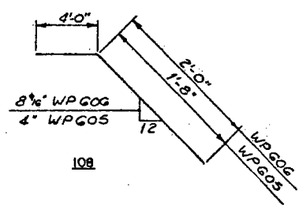


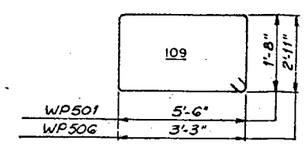
101

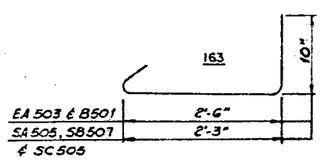
29'-6"	SA403, SB 404, SC402
15'-6"	SA405
28'-6"	SAG01, SBG01, SCG01
24'-0"	SAG11
23'-6"	SAG13
22'-10"	SAG15
12'-3"	SB406
14'-3"	SC404











FHWA REGION	STATE	PROJECT	
5	OHIO		

181/185

CUYAHOGA COUNTY
CUY-10-16.23

VOID 3/14/84

H.N.T.B. BRIDGE NO. 3

HOWARD NEEDLES TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

REINFORCEMENT SCHEDULE

REHABILITATION OF THE
LORAIN-CARNEGIE BRIDGE
(S.R. 10 OVER THE CUYAHOGA RIVER)
BR. NO. CUY.-10-1618 STA. 22+19.19
STA. 55+04.56
CUYAHOGA COUNTY OHIO

DESIGN	TRACED	CHECKED	REVIEWED	REVISED
RAS		DLR		
DATE 9-21-78	DATE	DATE 5-6-79	DATE	SHEET R-1

MARK	NO	LENGTH	TYPE	SER INCR.	WEIGHT (LBS.)
EAST ABUTMENT					
#EA401	52	29'-9"	Str		1033
#EA402	48	10'-6"	Str		337
EA501	41	3'-2"	105		135
EA502	4	31'-3"	Str		130
EA503	264	3'-9"	163		1033
EA504	37	6'-0"	Str		232
EA505	13	18'-0"	Str		244
#EA601	118	12'-6"	100		2215
EA602	76	6'-0"	105		595
Total Weight (Uncoated) =					2,459
# Total Weight (Epoxy Coated) =					3,585
BOX AT E. ABUTMENT					
#B401	26	21'-9"	Str		378
B501	98	3'-9"	163		375
#B601	46	12'-6"	100		864
B602	28	6'-0"	105		252
Total Weight (Uncoated) =					627
# Total Weight (Epoxy Coated) =					1,242
WEST PYLON					
#WP401	127	27'-6"	Str		2517
#WP402	12	2'-9"	Str		22
WP501	42	15'-3"	155		845
WP502	4	26'-6"	Str		111
WP503	4	26'-9"	Str		112
WP504	12	23'-0"	Str		288
WP505	16	36'-3"	Str		605
WP506	206	13'-0"	155		2707
WP507	24	21'-9"	Str		60
#WP601	82	12'-6"	Str		1537
#WP602	82	27'-9"	Str		3419
#WP603	82	23'-0"	Str		2827
#WP604	41	39'-3"	Str		1764
WP605	4	31'-9"	105		33
#WP606	4	51'-11"	155		32
#WP607	80	21'-3"	105		1827
#WP608	52	21'-7"	105		1180
#WP609	52	21'-2"	105		560
WP610	14	21'-7"	105		231
WP611	12	21'-11"	105		141
WP612	12	21'-3"	105		130
WP501	111	281'-11"	155		5845
#WP1001	10	281'-3"	155		1216
#WP1002	6	281'-6"	155		981
#WP1101	29	241'-3"	Str		3695
#WP1102	14	31'-6"	Str		1937
#WP1103	2	201'-0"	Str		844
#WP1104	22	191'-6"	Str		6318
#WP1105	98	31'-0"	Str		5412
Total Weight (Uncoated) =					24,846
Total Weight (Epoxy Coated) =					16,846
PIER 7					
B401	4	13'-3"	Str		53
B402	2	29'-6"	Str		59
B403	1	17'-3"	Str		17
B404	1	17'-6"	Str		18
B405	1	11'-6"	Str		12
B406	2	17'-6"	Str		35
B407	1	17'-6"	Str		18
B408	2	17'-6"	Str		35
B409	6	5'-6"	Str		33
B410	7	3'-11"	104		28
B411	3	7'-3"	104		23
B412	4	13'-5"	104		54
B413	2	15'-10"	104		32
B414	3	21'-7"	104		65
B415	1	6'-0"	Str		6
B416	2	5'-0"	Str		10
B417	6	6'-2"	104		38
B418	6	6'-5"	104		39
Total Weight =					479
PIER 12					
#P401	35	12'-2"	Str		427
#P402	2	4'-3"	Str		9
#P403	2	31'-3"	Str		67
#P404	2	21'-3"	Str		45
#P405	2	11'-6"	Str		24
#P406	1	11'-6"	Str		12
#P407	10	7'-6"	104		78
#P408	4	18'-7"	105		80
#P409	2	25'-3"	105		54
#P410	2	5'-6"	Str		12
P411	2	6'-3"	Str		13
Total Weight =					820
[illegible]					
#SB401	41	17'-6"	Str		3303
#SB402	91	13'-6"	Str		921
#SB403	82	30'-0"	101		1643
#SB404	440	30'-0"	Str		8818
#SB405	82	18'-6"	101		878
#SB406	14	28'-6"	Str		340
#SB407	25	18'-6"	Str		704
#SB408	103	13'-6"	Str		904
SB501	66	71-10"	155		988
SB502	13	23'-6"	Str		204
SB503	2	11'-6"	Str		48
SB504	26	21'-9"	Str		635
SB505	28	30'-0"	Str		876
SB506	4	14'-3"	Str		59
SB507	980	3'-6"	163		3577
#SB601	794	12'-9"	101		9098
SB603	97	40'-0"	Str		2600
SB604	397	13'-8"	Str		2038
SB605	560	30'-0"	Str		25234
SB606	80	14'-6"	Str		1742
#SB607	400	12'-6"	100		7510
#SB608	400	3'-0"	105		1803
SB609	400	3'-2"	105		1903
SB610	288	6'-0"	105		2595
SB801	8	25'-4"	100		541
SB802	4	13'-5"	100		143
SB803	28	23'-7"	100		1763
SB804	42	30'-0"	Str		3364
SB805	6	23'-0"	Str		369
Total Weight (Uncoated) =					3331
# Total Weight (Epoxy Coated) =					5413
SLAB - SPAN 2					
#S401	206	13'-0"	Str		1789
#S402	82	30'-0"	101		1643
#S403	138	30'-0"	Str		2766
#S404	82	14'-9"	101		808
#S405	28	13'-9"	Str		257
S501	66	71-10"	155		784
S502	13	23'-6"	Str		204
S503	2	30'-0"	Str		250
S504	4	14'-6"	Str		41
S505	324	3'-6"	163		1183
#SA401	269	2	101		7208
SA402	[illegible]	[illegible]	Str		313
SA403	133	4'-0"	Str		560
SA404	160	30'-0"	Str		7213
SA405	80	14'-0"	Str		1772
#SA406	198	12'-6"	100		2518
SA407	133	3'-0"	105		404
SA408	132	3'-2"	105		637
SA409	91	6'-0"	105		965
SA501	12	30'-0"	Str		451
SA502	[illegible]	[illegible]	Str		[illegible]
SA503	12	29'-6"	100		412
Total Weight (Uncoated) =					32.02
# Total Weight (Epoxy Coated) =					[illegible]

#Denotes Epoxy Coated Reinforcing Steel.

FHWA REGION	STATE	PROJECT	
5	OHIO		

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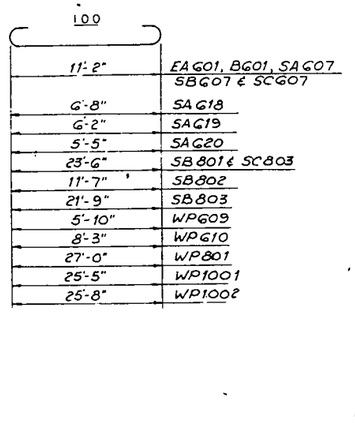
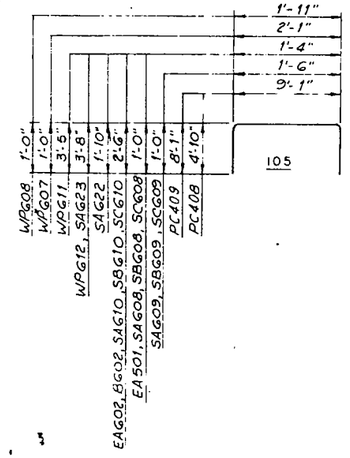
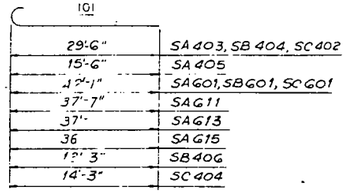
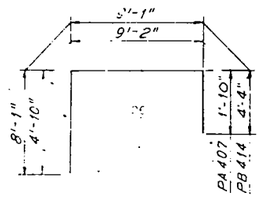
185

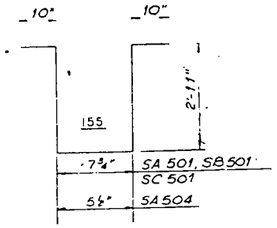
CUYAHOGA COUNTY
CUY-10-16 05

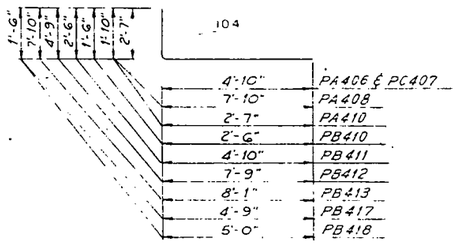


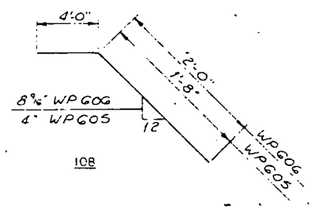


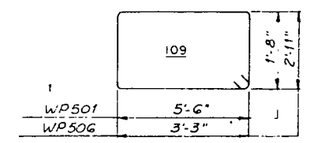


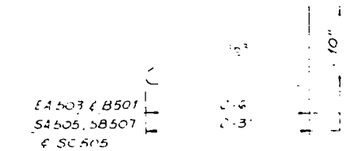












HNTB BRIDGE NO 3

H. WARD NEVILLE TAMMEN & BERGENDOFF
HNTB

REINFORCEMENT SCHEDULE

REHABILITATION OF THE
LORAIN-CARNEGIE BRIDGE
(S.R. 10 OVER THE CUYAHOGA RIVER)
BR NO CUY-10-1618 STA. 22+19.19
STA. 55+04.56

A.E. No. 19-1293-9-79

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS)
		SLAB-SPAN 3			
0401 #	224	13'-0"	Str		7156
0402 #	236	23'-0"	Str		3440
0403 #	32	33'-0"	101		1643
0404 #	508	35'-0"	Str		18196
0405 #	82	25'-3"	101		1383
0406 #	28	25'-3"	Str		454
0501	352	7'-10"	155		3121
0502	40	23'-6"	Str		980
0503	8	11'-6"	Str		96
0504	4	21'-6"	Str		90
0505	36	30'-0"	Str		1126
0506	4	27'-3"	Str		114
0507	1284	3'-6"	163		4687
0601 #	1056	23'-2"	101		46262
0602 #	528	28'-9"	Str		22800
0603	1056	31'-9"	Str		50359
0604	528	22'-0"	Str		17447
0605	720	30'-0"	Str		32443
0606	80	28'-0"	Str		3364
0607 #	528	12'-6"	100		9913
0608 #	528	3'-0"	105		2379
0609	528	3'-2"	105		2511
0610	380	6'-0"	105		3425
0801	40	25'-4"	100		2706
0802	8	13'-5"	100		287
0803	4	23'-4"	100		249
0804	60	30'-0"	Str		4806
0805	6	12'-0"	Str		192
Total Weight (Uncoated)				=	128,003
Total Weight (Epoxy Coated)				=	113,626
		SLAB-SPAN 4			
0401 #	206	13'-0"	Str		1789
0402 #	82	30'-0"	101		1643
0403 #	138	30'-0"	Str		2766
0404 #	82	14'-9"	101		809
0405 #	28	13'-9"	Str		257
0501	96	7'-10"	155		784
0502	12	23'-6"	Str		294
0503	8	30'-0"	Str		250
0504	4	14'-6"	Str		61
0505	324	3'-6"	163		1183
0601 #	268	29'-2"	101		11741
0602 #	134	28'-9"	Str		5786
0603	268	31'-9"	Str		12781
0604	134	22'-0"	Str		4428
0605	160	30'-0"	Str		7210
0606	80	14'-9"	Str		1772
0607 #	134	12'-6"	100		2516
0608 #	134	3'-0"	105		604
0609	134	3'-2"	105		637
0610	96	6'-0"	105		865
0801	12	30'-0"	Str		961
0802	6	17'-0"	Str		272
0803	12	25'-4"	100		812
Total Weight (Uncoated)				=	32,310
Total Weight (Epoxy Coated)				=	27,910
		SLAB-SPAN 5			
0101 #	927	13'-0"	Str		8050
0102 #	206	25'-0"	Str		3440
0103 #	82	33'-0"	101		1643
0104 #	1018	30'-0"	Str		20401
0105 #	82	13'-3"	101		1041
0106 #	28	18'-3"	Str		337
0101	414	7'-10"	155		3332
0102	44	23'-5"	Str		1078
0103	8	11'-6"	Str		96
0104	8	21'-6"	Str		179
0105	40	30'-0"	Str		1252
0106	1336	3'-6"	163		5096

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS)
#SF601	1140	29'-2"	101		49542
#SF602	570	29'-9"	Str		24814
SF603	1140	31'-9"	Str		54365
SF604	570	22'-0"	Str		12835
SF605	860	30'-0"	Str		36048
SF606	60	22'-3"	Str		2674
#SF607	570	12'-6"	100		10702
#SF608	570	3'-0"	105		2569
SF609	570	3'-2"	105		2711
SF610	412	6'-0"	105		3713
SF801	44	25'-3"	100		2966
SF802	8	13'-5"	100		297
SF803	4	23'-4"	100		249
SF804	66	30'-0"	Str		5287
SF805	6	6'-6"	Str		104
Total Weight (Uncoated)				=	138,322
# Total Weight (Epoxy Coated)				=	122,738
		SLAB-SPAN 6			
#SG401	412	12'-6"	Str		3440
#SG402	164	17'-0"	101		1862
#SG403	358	30'-0"	Str		7174
#SG404	28	2'-9"	Str		51
SG501	160	7'-10"	155		1307
SG502	16	30'-0"	Str		501
SG503	4	4'-3"	Str		18
SG504	20	23'-6"	Str		490
SG505	540	3'-6"	163		1971
#SG601	442	29'-2"	101		19363
#SG602	221	28'-9"	Str		9543
SG603	442	31'-9"	Str		21078
SG604	221	22'-0"	Str		7303
SG605	320	30'-0"	Str		14419
SG606	80	4'-6"	Str		541
#SG607	222	12'-6"	100		4168
#SG608	222	3'-0"	105		1000
SG609	222	3'-2"	105		1056
SG610	160	6'-0"	105		1442
SG801	24	30'-0"	Str		1922
SG802	6	9'-3"	Str		148
SG803	20	23'-2"	100		1344
Total Weight (Uncoated)				=	53,540
# Total Weight (Epoxy Coated)				=	46,601
		SLAB-SPAN 7			
#SH401	1030	13'-0"	Str		8945
#SH402	206	25'-0"	Str		3440
#SH403	82	30'-0"	101		1643
#SH404	1123	30'-0"	Str		22605
#SH405	82	14'-9"	101		808
#SH406	28	13'-9"	Str		257
SH501	446	7'-10"	155		3644
SH502	44	30'-0"	Str		1377
SH503	4	17'-6"	Str		73
SH504	48	23'-5"	Str		1176
SH505	8	11'-6"	Str		96
SH506	4	21'-3"	Str		89
SH507	1500	3'-6"	163		5476
#SH601	1230	29'-2"	101		53884
#SH602	615	29'-9"	Str		26557
SH603	1230	31'-9"	Str		58657
SH604	615	22'-0"	Str		20322
SH605	980	30'-0"	Str		39653
SH606	80	18'-6"	Str		2223
#SH607	616	12'-6"	100		11565
#SH608	616	3'-0"	105		2776
SH609	616	3'-2"	105		2930
SH610	422	6'-0"	105		4001
SH801	72	30'-0"	Str		5767
SH802	6	3'-9"	Str		60
SH803	48	25'-4"	100		3247
SH804	8	13'-5"	100		287
SH805	4	23'-2"	100		247
Total Weight (Uncoated)				=	149,325
# Total Weight (Epoxy Coated)				=	132,480

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS.)
		SLAB - SPAN 8			
#SJ401	412	13'-0"	Str		3578
#SJ402	154	17'-6"	101		1917
#SJ403	358	30'-0"	Str		7174
#SJ404	28	3'-9"	Str		70
SJ501	160	7'-10"	155		1307
SJ502	16	30'-0"	Str		501
SJ503	4	5'-0"	Str		21
SJ504	20	23'-6"	Str		490
SJ505	540	3'-6"	163		1971
#SJ601	444	23'-2"	101		19453
#SJ602	222	28'-9"	Str		9587
SJ603	444	31'-9"	Str		21173
SJ604	222	22'-0"	Str		7336
SJ605	320	30'-0"	Str		14419
SJ606	80	5'-3"	Str		631
#SJ607	224	12'-6"	100		4204
#SJ608	224	3'-0"	105		1009
SJ609	224	3'-2"	105		1065
SJ610	160	6'-0"	105		1442
SJ801	24	30'-0"	Str		1922
SJ802	6	10'-0"	Str		160
SJ803	20	25'-4"	100		1353
Total Weight (Uncoated)				=	53,791
# Total Weight (Epoxy Coated)				=	46,994
		SLAB-SPAN 9			
#SK401	1236	13'-0"	Str		10733
#SK402	206	25'-0"	Str		3440
#SK403	164	17'-6"	101		1917
#SK404	1348	30'-0"	Str		27014
#SK405	28	3'-9"	Str		70
SK501	510	7'-10"	155		4165
SK502	52	30'-0"	Str		1627
SK503	4	8'-3"	Str		34
SK504	56	23'-6"	Str		1373
SK505	8	11'-6"	Str		96
SK506	4	21'-6"	Str		90
SK507	1716	3'-6"	163		6264
#SK601	1408	23'-2"	101		61689
#SK602	704	28'-9"	Str		30400
SK603	1408	31'-9"	Str		67145
SK604	704	22'-0"	Str		23262
SK605	1040	30'-0"	Str		46862
SK606	80	9'-3"	Str		1111
#SK607	706	12'-6"	100		13255
#SK608	706	3'-0"	105		3181
SK609	706	3'-2"	105		3358
SK610	508	6'-0"	105		4578
SK801	78	30'-0"	Str		6248
SK802	6	24'-6"	Str		392
SK803	56	25'-4"	100		3788
SK804	8	13'-5"	100		287
SK805	4	23'-4"	100		249
Total Weight (Uncoated)				=	170,929
# Total Weight (Epoxy Coated)				=	151,699

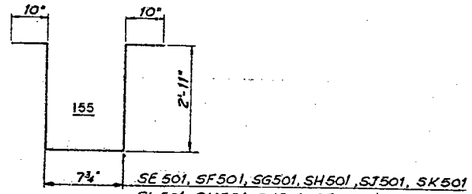
# Denotes Epoxy Coated Reinforcing Steel.

100

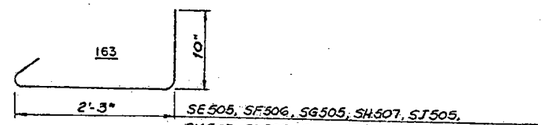
11'-2"	SD607, SE607, SF607, SG607, SH607 & SJ607
	SK607, SL607, SM607, SN607 & SP607
23'-6"	SD801, SE803, SH803, SJ803 SK803, SL803
	SM803, SN803 & SP803
23'-5"	SF801
11'-7"	SD802, SF802, SH804, SK804, SM804 & SP804
21'-6"	SF803, SK805, SM805, SP805 & SD803
23'-4"	SG803
21'-4"	SH806

101

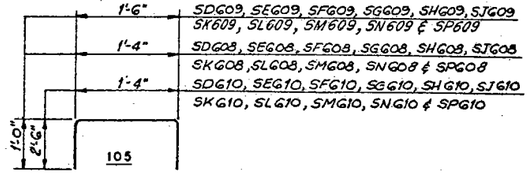
29'-6"	SE402, SF403, SH403, SL402
	SM403, SP403 & SD403
28'-6"	SD601, SE601, SF601, SG601, SH601, SJ601
	SK601, SL601, SM601, SN601 & SP601
18'-6"	SF405
16'-6"	SG402
14'-3"	SH405
17'-0"	SJ402, SK403, SN402
28'-3"	SL403 & SM405
14'-3"	SE404
13'-3"	SP405
24'-9"	SD405



SE501, SF501, SG501, SH501, SJ501, SK501
SL501, SM501, SN501, SP501 & SD501



SE505, SF506, SG505, SH507, SJ505,
SK507, SL505, SM507, SN505, SP507 & SD507



SDG09, SEG09, SFG09, SGG09, SHG09, SJG09
SKG09, SLG09, SMG09, SNG09 & SPG09
SDG08, SEG08, SFG08, SGG08, SHG08, SJG08
SKG08, SLG08, SMG08, SNG08 & SPG08
SDG10, SEG10, SFG10, SGG10, SHG10, SJG10
SKG10, SLG10, SMG10, SNG10 & SPG10

FHWA REGION	STATE	PROJECT	
5	OHIO		

182/185

CUYAHOGA COUNTY
CUY-10-16.23

VOID 3/14/84

H.N.T.B. BRIDGE NO. 3

HOWARD NEEDLES TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | HNTB

REINFORCEMENT SCHEDULE

REHABILITATION OF THE
LORAIN-CARNEGIE BRIDGE
(S.R. 10 OVER THE CUYAHOGA RIVER)
BR. NO. CUY.-10-1618 STA. 22+19.19
STA. 55+04.56
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
R.A.S.		D.L.R.		
DATE 9-27-79	DATE	DATE 6-29-79	DATE	SHEET R 2

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS)
SLAB-SPAN 2					
SD401 #	R24	131'-0"	Str		7154
SD402 #	206	251'-0"	Str		4440
SD403 #	82	301'-0"	101		1643
SD404 #	932	301'-0"	Str		18196
SD405 #	82	251'-3"	101		1383
SD406 #	29	241'-3"	Str		452
SD501	332	7'-10"	155		3121
SD502	40	231'-6"	Str		9251
SD503	2	11'-6"	Str		24
SD504	4	21'-6"	Str		90
SD505	36	301'-0"	Str		1126
SD506	4	271'-3"	Str		114
SD507	1284	31'-6"	163		5887
SD601 #	1054	2 [illegible]	101		c 80
SD603	[illegible]	[illegible]	Str		20
SD604	528	[illegible]'-0	Str		[illegible]0
SD605	720	301'-0"	Str		22443
SD606	80	281'-0"	Str		3366
SD607 #	528	121'-6"	100		6413
SD608 #	528	41'-0"	105		2376
SD609	528	31'-2"	105		2511
SD610	380	61'-0"	105		2625
SD801	40	251'-4"	100		[illegible]05
SD802	8	131'-5"	100		2[illegible]7
SD803	4	231'-4"	100		249
SD804	60	301'-0"	Str		[illegible]5
SD805	6	121'-0"	Str		192
Total Weight (Uncoated)				=	126,880
Total Weight (Epoxy Coated)				=	1123 C
SLAB-SPAN 4					
SD201 #	206	131'-0"	Str		1959
SD202 #	82	301'-0"	101		1643
SD203 #	138	301'-0"	Str		2766
SD204 #	82	141'-9"	101		809
SD205 #	28	131'-9"	Str		257
SD501	96	7'10"	155		784
SD502	12	231'-6"	Str		294
SD503	8	301'-0"	Str		259
SD504	4	141'-6"	Str	--	61
SD505	324	31'-6"	163		1183
SD601 #	268	9	101		7206
SD603	42	20'	Str		8135
SD604	134	43'-8"	Str		8769
SD605	160	301'-0"	Str		7210
SD606	80	141'-9"	Str		1772
SD607 #	134	121'-6"	100		2516
SD608 #	134	31'-0"	105		504
SD609	134	31'-2"	105		537
SD610	96	61'-0"	105		965
SD801	12	301'-0"	Str		961
SD802	6	171'-0"	Str		570
SD803	12	251'-4"	100		512
Total Weight (Uncoated)				=	32,385
# Total Weight (Epoxy Coated)				=	27,591
SLAB-SPAN 5					
SD301 #	927	131'-0"	Str		5850
SD302 #	208	251'-0"	Str		4440
SD303 #	82	301'-0"	101		1643
SD304 #	1,018	301'-0"	Str		20340
SD305 #	82	161'-0"	101		1631
SD306 #	28	181'-0"	Str		637
SD501	414	7'-10"	155		3906
SD502	44	231'-6"	Str		1095
SD503	8	11'-6"	Str		96
SD504	8	21'-6"	Str		179
SD505	40	301'-0"	Str		1505
SD601 #	1368	9'-6"	101		9576

MARK	NO	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS)
#SD401	1143	2'-9	101		73200
SD402	70	.0'	Str		14.0
SD403	82	.'-8	Str		3738
SD404	1,018	31'-0"	Str		25,018
SD405	82	231'-3"	Str		2674
#SD406	280	121'-6"	100		10732
#SD407	280	41'-0"	105		2520
SD408	280	31'-2"	105		2711
SD409	414	61'-0"	105		3713
SD501	44	25'-3"	100		1268
SD502	8	131'-5"	100		297
SD503	4	231'-4"	100		249
SD504	56	301'-0"	Str		5287
SD505	8	41'-6"	Str		194
Total Weight (Uncoated)				=	13 [illegible]
# Total Weight (Epoxy Coated)				=	[illegible]
SLAB-SPAN 6					
#SD601	412	121'-6"	Str		3441
#SD602	164	171'-0"	101		1442
#SD603	256	301'-0"	Str		7174
#SD604	28	281'-0"	Str		51
SD701	180	7'-10"	155		1307
SD702	16	301'-0"	Str		501
SD703	4	51'-3"	Str		21
SD704	40	231'-6"	Str		490
SD705	40	31'-6"	163		1971
#SD801	344	[illegible]'-9	101		28309
SD803	222	40' [illegible]	Str		17477
SD804	222	43'-8"	Str		14560
SD805	220	301'-0"	Str		14419
SD806	20	51'-3"	Str		631
#SD807	224	121'-6"	100		4204
#SD808	224	31'-0"	105		1009
SD809	224	31'-2"	105		1065
SD810	180	61'-0"	105		1442
SD901	200	31'-0"	Str		1322
SD902	8	131'-5"	Str		180
SD903	20	251'-3"	100		1353
Total Weight (Uncoated)				=	53 319
# Total Weight (Epoxy Coated)				=	46,463
SLAB-SPAN 8					
#SA401	1236	131'-0"	Str		10733
#SA402	206	251'-0"	Str		3440
#SA403	164	171'-6"	101		1917
#SA404	1,018	301'-0"	Str		27314
#SA405	28	31'-0"	Str		70
SA501	516	7'-10"	155		4165
SA502	50	301'-0"	Str		1627
SA503	4	51'-3"	Str		34
SA504	56	231'-6"	Str		1373
SA505	8	11'-6"	Str		96
SA506	4	21'-6"	Str		90
SA507	1716	31'-6"	163		6754
#SA601	1408	2'-9"	101		90408
SA603	0	.0-5	Str		.2
SA604	704	.3 8	Str		[illegible]
SA605	1,320	301'-0"	Str		46862
SA606	80	91'-3"	Str		1111
#SA607	706	121'-6"	100		13255
#SA608	706	31'-0"	105		3181
SA609	706	31'-2"	105		3358
SA610	508	61'-0"	105		4578
SA801	78	301'-0"	Str		6248
SA802	6	241'-5"	Str		392
SA803	56	251'-4"	100		3788
SA804	8	131'-5"	100		287
SA805	4	231'-4"	100		249
Total Weight (Uncoated)				=	169. 33
# Total Weight (Epoxy Coated)				=	150,018

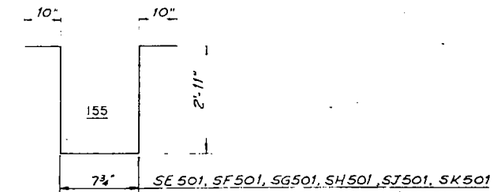
MARK	NO	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS)
SLAB-SPAN 7					
#SM401	1320	131'-0"	Str		5345
#SM402	206	251'-0"	Str		3440
#SM403	82	301'-0"	101		1643
#SM404	1128	301'-0"	Str		22815
#SM405	32	141'-9"	101		895
#SM406	28	131'-9"	Str		257
SM501	336	7'-10"	155		2644
SM502	44	301'-0"	Str		1627
SM503	4	171'-6"	Str		73
SM504	48	231'-6"	Str		1176
SM505	8	11'-6"	Str		96
SM506	4	21'-6"	Str		89
SM507	1500	31'-6"	163		5475
#SM601	1080	42'-9	101		78,979
SM603	615	40'-5"	Str		3 3[illegible]
SM604	[illegible]	43'-6"	Str		[illegible]0,336
SM605	[illegible]	[illegible]'-0"	Str		[illegible]653
[illegible]	[illegible]	13[illegible]'-6"	Str		[illegible]224
#[illegible]	616	1[illegible]'-6"	101		11565
[illegible]	616	[illegible]'-3	100		2776
[illegible]	616	[illegible]'-6	105		2930
[illegible]	[illegible]	[illegible]'-2	105		[illegible]231
SM801	72	301'-0"	Str		5767
SM802	6	3'-9"	Str		60
SM803	48	251'-4"	100		3247
SM804	8	131'-5"	100		267
SM805	4	231'-2"	100		247
Total Weight (Uncoated)				=	45,010
# Total Weight (Epoxy Coated)				=	14,018

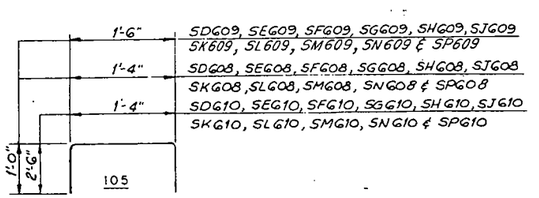
100

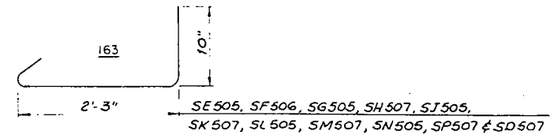
11'-2"	SD607, SE607, SF607, SG607, SH607 & SJ607 SK607, SL607, SM607, SN607 & SP607
23'-6"	SD801, SE803, SH803, SJ803 SK803, SL803 SM803, SN803 & SP803
23'-5"	SF801
11'-7"	SD802, SF802, SH804, SK804, SM804 & SP804
21'-6"	SF803, SK805, SM805, SP805 & SD803
23'-4"	SG803
21'-4"	SH806

101

29'-6"	SE402, SF403, SH403, SL402 SM403, SP403 & SD403
42'-1"	SD601, SE601, SF601, SG601, SH601, SJ601 SK601, SL601, SM601, SN601 & SP601
18'-6"	SF405
16'-6"	SG402
14'-3"	SH405
17'-0"	SJ402, SK403, SN402
28'-3"	SL403 & SM405
14'-3"	SE404
13'-3"	SP405
24'-9"	SD405







# Denotes Epoxy Coated Reinforcing Steel.

This sheet added 5-15-81 and supersedes Sheet [illegible].

FHWA REGION	STATE	PROJECT	
5	OHIO		

824
185

CUYAHOGA COUNTY
CUY-10-16.05

HNTB BRIDGE NO. 3

HOWARD NEEDLES TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

REINFORCEMENT SCHEDULE

REHABILITATION OF THE
LORAIN-CARNEGIE BRIDGE
(S.R. 10 OVER THE CUYAHOGA RIVER)
BR. NO. CUY.-10-1618 STA. 22+19.19
STA. 55+04.56
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
RAS 9-22-78	DATE	D.L.P. 9-29-78	DATE	DATE

SHEET R-24

MARK	NO	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS.)
SLAB - SPAN 10					
L401	515	13'-0"	Str		4472
L402	82	30'-0"	101		1643
L403	82	29'-0"	101		1575
L404	358	30'-0"	Str		7174
L405	28	27'-9"	Str		519
L501	192	7'-10"	155		1562
L502	16	30'-0"	Str		501
L503	4	29'-0"	Str		121
L504	24	23'-6"	Str		523
L505	648	3'-6"	163		2366
L601	532	29'-2"	101		23300
L602	266	28'-9"	Str		11487
L603	532	31'-9"	Str		25370
L604	266	22'-0"	Str		8790
L605	320	30'-0"	Str		14419
L606	80	29'-3"	Str		3515
L607	268	12'-6"	100		5032
L608	268	31'-0"	105		1,268
L609	268	31'-2"	105		1,275
L610	192	6'-0"	105		1730
L801	30	30'-0"	Str		2403
L802	6	6'-6"	Str		104
L803	24	25'-4"	100		1623
Total Weight (Uncoated)			=		64,373
Total Weight (Epoxy Coated)			=		56,419
SLAB - SPAN 11					
M401	1339	13'-0"	Str		11628
M402	205	25'-0"	Str		3440
M403	82	30'-0"	101		1643
M404	1348	30'-0"	Str		27014
M405	82	28'-9"	101		1575
M406	28	27'-9"	Str		519
M501	542	7'-10"	155		4426
M502	56	30'-0"	Str		1752
M503	4	31'-6"	Str		15
M504	60	23'-6"	Str		1471
M505	8	11'-6"	Str		96
M506	4	21'-6"	Str		90
M507	1824	3'-6"	163		6659
M601	1498	29'-2"	101		65632
M602	749	28'-9"	Str		32345
M603	1498	31'-9"	Str		71437
M604	749	22'-0"	Str		24750
M605	1120	30'-0"	Str		50467
M606	80	4'-9"	Str		571
M607	750	12'-6"	100		14081
M608	750	3'-0"	105		3380
M609	750	3'-2"	105		3567
M610	540	6'-0"	105		4866
M801	84	30'-0"	Str		6728
M802	6	21'-0"	Str		336
M803	60	25'-4"	100		4058
M804	8	13'-5"	100		287
M805	4	23'-4"	100		249
Total Weight (Uncoated)			=		181,825
Total Weight (Epoxy Coated)			=		161,257
SLAB - SPAN 12					
N401	412	13'-0"	Str		3578
N402	164	17'-8"	101		1917
N403	358	33'-0"	Str		7174
N404	28	3'-9"	Str		70
N501	160	7'-10"	155		1307
N502	16	30'-0"	Str		501
N503	4	5'-0"	Str		21
N504	20	23'-6"	Str		490
N505	540	3'-5"	163		1371
N801	444	29'-2"	101		19453
N802	222	28'-9"	Str		9587
N803	444	31'-2"	Str		21173
N804	222	22'-0"	Str		7326

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS)
SM505	320	3'-0"	Str		1441.9
SM506	80	5'-3"	Str		531
SM507 #	224	12'-6"	100		4206
SM508 #	224	3'-0"	105		1009
SM509	224	3'-2"	105		1965
SM510	160	6'-0"	105		1442
SM801	24	30'-0"	Str		1922
SM802	6	7'-0"	Str		160
SM803	20	25'-4"	100		1353
Total Weight (Uncoated)			=		53,791
# Total Weight (Epoxy Coated)			=		46,994
SLAB - SPAN 13					
SP401 #	927	13'-0"	Str		8050
SP402 #	103	25'-0"	Str		1720
SP403 #	82	30'-0"	101		1643
SP404 #	903	30'-0"	Str		18196
SP405 #	82	13'-9"	101		753
SP406 #	26	13'-9"	Str		238
SP501	366	7'-10"	155		2989
SP502	36	30'-0"	Str		1126
SP503	4	15'-0"	Str		65
SP504	40	23'-6"	Str		920
SP505	4	11'-6"	Str		46
SP506	4	21'-6"	Str		90
SP507	1223	3'-6"	163		4483
SP601 #	1014	29'-2"	101		24,427
SP602 #	507	28'-9"	Str.		21,893
SP603	1014	31'-9"	Str.		48,356
SP604	507	29'-0"	Str.		16,753
SP605	720	30'-0"	Str.		32,443
SP606	80	15'-6"	Str.		1,283
SP607 #	502	12'-6"	100		9,538
SP608 #	502	3'-0"	105		2,229
SP609	502	3'-2"	105		2,416
SP610	364	6'-0"	105		3,220
SP801	54	30'-0"	Str.		4,325
SP802	6	27'-0"	Str.		433
SP803	40	25'-4"	100		2,706
SP804	4	13'-5"	100		143
SP805	4	23'-4"	100		249
Total Weight (Uncoated)			=		122,869
# Total Weight (Epoxy Coated)			=		108,747
(M & N SPAN 1 THRU 13)					
SPAN 1					
MA401	250	25'-9"	Str		3951
MA402	216	23'-9"	100		3427
MA403	119	30'-0"	Str		2385
MA404	113	12'-0"	Str		906
MA405	16	13'-0"	Str		139
MA406	22	11'-0"	Str		162
MA407	16	25'-0"	Str		267
MA408	154	21'-0"	Str		2160
Total Weight			=		13397
SPAN 2					
MB401	116	28'-9"	Str		1763
MB402	72	23'-9"	100		1142
MB403	34	30'-0"	Str		681
MB404	17	12'-9"	Str		145
MB405	22	22'-6"	Str		331
MB406	32	13'-0"	Str		278
Total Weight			=		4340

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS)
SPAN 3					
MC401	508	22'-9"	Str		7720
MC402	288	23'-9"	100		4569
MC403	153	30'-0"	Str		3055
MC404	17	26'-3"	Str		233
MC405	128	13'-0"	Str		1112
MC406	44	11'-0"	Str		323
MC407	32	25'-0"	Str		534
MC408	22	23'-0"	Str		335
Total Weight			=		17960
SPAN 4					
MD401	116	22'-9"	Str		1763
MD402	72	23'-9"	100		1142
MD403	34	30'-0"	Str		681
MD404	17	12'-9"	Str		145
MD405	22	22'-6"	Str		331
MD406	32	13'-0"	Str		278
Total Weight			=		4340
SPAN 5					
ME401	399	22'-0"	Str		6064
ME402	311	23'-9"	100		4934
ME403	170	30'-0"	Str		3407
ME404	17	20'-3"	Str		230
ME405	144	13'-0"	Str		1250
ME406	44	11'-0"	Str		323
ME407	32	25'-0"	Str		534
ME408	22	23'-0"	Str		338
ME409	154	22'-6"	Str		2315
Total Weight			=		19395
SPAN 6					
MF401	141	22'-9"	Str		2143
MF402	119	23'-9"	100		1888
MF403	51	30'-0"	Str		1022
MF404	17	30'-9"	Str		349
MF405	64	12'-6"	Str		534
MF406	88	22'-6"	Str		1323
Total Weight			=		7259
SPAN 7					
MG401	622	22'-9"	Str		9453
MG402	336	23'-9"	100		5331
MG403	187	30'-0"	Str		3747
MG404	17	15'-9"	Str		179
MG405	160	13'-0"	Str		1389
MG406	44	11'-0"	Str		323
MG407	32	25'-0"	Str		534
Total Weight			=		20956
SPAN 8					
MH401	186	22'-9"	Str		2827
MH402	120	23'-9"	100		1904
MH403	51	30'-0"	Str		1022
MH404	17	31'-5"	Str		358
MH405	64	13'-0"	Str		556
MH406	22	23'-0"	Str		338
MH407	22	22'-6"	Str		331
Total Weight			=		7336
SPAN 9					
MI401	692	22'-9"	Str		10516
MI402	394	23'-9"	100		6092
MI403	221	30'-0"	Str		4429
MI404	17	6'-0"	Str		68
MI405	192	13'-0"	Str		1667
MI406	44	11'-0"	Str		323
MI407	32	25'-0"	Str		534
MI408	22	23'-0"	Str		338
Total Weight			=		23967

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS.)
SPAN 10					
MJ401	232	22'-9"	Str		3525
MJ402	144	23'-9"	100		2225
MJ403	68	30'-0"	Str		1363
MJ404	17	25'-6"	Str		301
MJ405	80	13'-0"	Str		695
MJ406	22	23'-0"	Str		339
MJ407	22	22'-6"	Str		331
Total Weight			=		8839
SPAN 11					
MK401	738	22'-9"	Str		11215
MK402	409	23'-9"	100		6473
MK403	238	30'-0"	Str		4770
MK404	209	13'-0"	Str		1806
MK405	44	11'-0"	Str		323
MK406	32	25'-0"	Str		534
MK407	22	23'-0"	Str		338
Total Weight			=		25459
SPAN 12					
ML401	186	22'-9"	Str		2927
ML402	120	23'-9"	100		1904
ML403	51	30'-0"	Str		1022
ML404	17	31'-6"	Str		358
ML405	64	13'-0"	Str		556
ML406	22	23'-0"	Str		338
ML407	22	22'-6"	Str		331
Total Weight			=		7336
SPAN 13					
MM401	495	22'-9"	Str		7523
MM402	275	23'-9"	100		4363
MM403	153	30'-0"	Str		3066
MM404	17	13'-6"	Str		153
MM405	144	13'-0"	Str		1250
MM406	22	11'-0"	Str		162
MM407	16	25'-0"	Str		267
MM408	22	23'-0"	Str		338
Total Weight			=		17122

100

221-9"	MA402
221-9"	MB402
221-9"	MC402
221-9"	MD402
221-9"	ME402
221-9"	MF402
221-9"	MG402
221-9"	MH402
221-9"	MI402
221-9"	MJ402
221-9"	MK402
221-9"	ML402
221-9"	MM402

# Denotes Epoxy Coated Reinforcing Steel.

FHWA REGION	STATE	PROJECT	
5	OHIO		

183/185

CUYAHOGA COUNTY
CUY-10-16.23

VOID 3/14/84

H.N.T.B. BRIDGE NO. 3

HOWARD NEEDLES TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

REINFORCEMENT SCHEDULE

REHABILITATION OF THE
LORAIN-CARNEGIE BRIDGE
(S.R. 10 OVER THE CUYAHOGA RIVER)
BR. NO. CUY.-10-16.18 STA. 22+19.19
STA. 55+04.56
CUYAHOGA COUNTY OHIO

SPAN	TRACED	CHECKED	REVIEWED	KEY SEQ
P.A.S. DATE 2-27-84	DATE	D.L.P. DATE 2-29-84	DATE	SHEET P 13

MARK	NO	LENGTH	TYPE	SER INCR	WEIGHT (LBS.)
		SLAB - SPAN 10			
SL401	515	13'-0"	Str		4472
SL402	82	30'-0"	101		1643
SL403	82	28'-9"	101		1575
SL404	358	30'-0"	Str		7174
SL405	29	27'-9"	Str		519
SL501	192	7'-10"	155		1568
SL502	16	30'-0"	Str		501
SL503	4	29'-0"	Str		121
SL504	24	23'-6"	Str		588
SL505	648	3'-6"	163		2366
SL601	532	4'-9	101		3216
SL603	266	40'-5"	Str		[illegible]
SL604	266	43'-8"	Str		17435
SL605	320	30'-0"	Str		14419
SL606	80	29'-3"	101		3515
SL607	268	12'-6"	100		5032
SL609	268	3'-0"	105		1,208
SL609	268	3'-2"	105		1,275
SL610	192	6'-0"	105		1730
SL801	30	30'-0"	Str		2403
SL802	6	6'-6"	Str		104
SL803	24	25'-4"	100		1623
Total Weight (Uncooted)			=		63,907
≠ Total Weight (Epoxy Cooted)			=		55,783
		SLAB - SPAN 11			
SM401	1339	13'-0"	Str		11629
SM402	206	25'-0"	Str		3440
SM403	82	30'-0"	101		1643
SM404	1348	30'-0"	Str		27014
SM405	82	28'-9"	101		1575
SM406	28	27'-9"	Str		519
SM501	542	7'-10"	155		4426
SM502	56	30'-0"	Str		1752
SM503	4	3'-6"	Str		15
SM504	60	23'-6"	Str		1471
SM505	8	11'-6"	Str		96
SM506	4	21'-6"	Str		90
SM507	1824	3'-6"	163		5659
SM601	1498	[illegible]'-9"	101		46,187
SM603	[illegible]	40'-5"	Str		[illegible],469
SM604	749	43'-8"	Str		[illegible],125
SM605	1120	30'-0"	Str		50467
SM606	80	41'-9"	Str		571
SM607	750	12'-6"	100		14081
SM608	750	3'-0"	105		3380
SM609	750	3'-2"	105		3567
SM610	540	6'-0"	105		4866
SM801	84	30'-0"	Str		6728
SM802	6	21'-0"	Str		336
SM803	60	25'-4"	100		4058
SM804	8	13'-5"	100		287
SM805	4	23'-4"	100		249
Total Weight (Uncooted)			=		18[illegible]2
≠ Total Weight (Epoxy Cooted)			=		[illegible]0[illegible]7
		SLAB - SPAN 12			
SN401	412	13'-0"	Str		3578
SN402	164	17'-6"	101		1917
SN403	358	30'-0"	Str		7174
SN404	28	31'-9"	Str		70
SN501	160	7'-10"	155		1307
SN502	16	30'-0"	Str		501
SN503	4	5'-0"	Str		21
SN504	20	23'-6"	Str		490
SN505	540	3'-6	163		1371
SN601	444	42'-	101		20,509
SN[illegible]	212	40'-5"	Str		[illegible]7
SN[illegible]	220	[illegible]8"	Str		[illegible]60

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS)
SN605	320	30'-0"	Str		14419
SN606	80	5'-3"	Str		631
SN607≠	224	12'-6"	100		4206
SN608≠	224	3'-0"	105		1009
SN609	224	3'-2"	105		1065
SN610	160	6'-0"	105		1442
SNR01	24	30'-0"	Str		1922
SNR02	6	10'-0"	Str		160
SNR03	20	25'-4"	100		1353
Total Weight (Uncooted)			=		[illegible]
≠ Total Weight (Epoxy Cooted)			=		45,[illegible]3
		SLAB - SPAN 13			
SP401≠	927	13'-0"	Str		8050
SP402≠	103	25'-0"	Str		1720
SP403≠	82	30'-0"	101		1643
SP404≠	908	30'-0"	Str		18196
SP405≠	82	13'-9"	101		753
SP406≠	28	12'-9"	Str		238
SP501	366	7'-10"	155		2989
SP502	36	30'-0"	Str		1126
SP503	4	15'-9"	Str		66
SP504	40	23'-6"	Str		980
SP505	4	11'-6"	Str		48
SP506	4	21'-6"	Str		90
SP507	1228	3'-6"	163		4483
SP601≠	1014	42'-[illegible]	101		[illegible]
SP603	50	[illegible]'-5	Str.		[illegible]
SP604	507	[illegible]'-8"	Str.		[illegible]27
SP605	720	30'-0"	Str.		32,443
SP606	80	16'-6"	Str.		1,983
SP607≠	508	12'-6"	100		9,538
SP608≠	508	3'-0"	105		2,289
SP609	508	3'-2"	105		2,416
SP610	364	6'-0"	105		3,280
SP801	54	30'-0"	Str.		4,325
SP802	6	27'-0"	Str.		433
SP803	40	25'-4"	100		2,706
SP804	4	13'-5"	100		143
SP805	4	23'-4"	100		249
Total Weight (Uncooted)			=		[illegible]21,[illegible]91
≠ Total Weight (Epoxy Cooted)			=		[illegible]5[illegible]0
		(M[illegible] DECK SPAN 1 THRU 13)			
		SPAN 1			
MA401	260	22'-9"	Str		3951
MA402	216	23'-9"	100		3427
MA403	119	30'-0"	Str		2395
MA404	113	12'-0"	Str		906
MA405	16	13'-0"	Str		139
MA406	22	11'-0"	Str		162
MA407	16	25'-0"	Str		267
MA408	154	21'-0"	Str		2160
		Total Weight	=		13397
		SPAN 2			
MB401	116	22'-9"	Str		1763
MB402	72	23'-9"	100		1142
MB403	34	30'-0"	Str		681
MB404	17	12'-9"	Str		135
MB405	22	22'-6"	Str		331
MB406	32	13'-0"	Str		278
		Total Weight	=		4330

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS)
		SPAN 3			
MC401	508	22'-9"	Str		7720
MC402	288	23'-9"	100		4569
MC403	153	30'-0"	Str		3066
MC404	17	26'-3"	Str		298
MC405	128	13'-0"	Str		1112
MC406	44	11'-0"	Str		323
MC407	32	25'-0"	Str		534
MC408	22	23'-0"	Str		338
		Total Weight	=		17960
		SPAN 4			
MD401	116	22'-9"	Str		1763
MD402	72	23'-9"	100		1142
MD403	34	30'-0"	Str		691
MD404	17	12'-9"	Str		145
MD405	22	22'-6"	Str		331
MD406	32	13'-0"	Str		278
		Total Weight	=		4340
		SPAN 5			
ME401	399	22'-9"	Str		6064
ME402	311	23'-9"	100		4934
ME403	170	30'-0"	Str		3407
ME404	17	20'-3"	Str		230
ME405	144	13'-0"	Str		1250
ME406	44	11'-0"	Str		323
ME407	32	25'-0"	Str		534
ME408	22	23'-0"	Str		338
ME409	154	22'-6"	Str		2315
		Total Weight	=		19395
		SPAN 6			
MF401	141	22'-9"	Str		2143
MF402	119	23'-9"	100		1888
MF403	51	30'-0"	Str		1022
MF404	17	30'-9"	Str		349
MF405	64	12'-6"	Str		534
MF406	88	22'-6"	Str		1323
		Total Weight	=		7259
		SPAN 7			
MG401	622	22'-9"	Str		9453
MG402	336	23'-9"	100		5331
MG403	197	30'-0"	Str		3747
MG404	17	15'-9"	Str		179
MG405	160	13'-0"	Str		1389
MG406	44	11'-0"	Str		323
MG407	32	25'-0"	Str		534
		Total Weight	=		20956
		SPAN 8			
MH401	186	22'-9"	Str		2827
MH402	120	23'-9"	100		1904
MH403	51	30'-0"	Str		1022
MH404	17	31'-6"	Str		358
MH405	64	13'-0"	Str		556
MH406	22	23'-0"	Str		338
MH407	22	22'-6"	Str		331
		Total Weight	=		7336
		SPAN 9			
MJ401	652	22'-9"	Str		10516
MJ402	384	23'-9"	100		6092
MJ403	201	30'-0"	Str		4428
MJ404	17	6'-0"	Str		68
MJ405	190	14'-0"	Str		1667
MJ406	44	11'-0"	Str		323
MJ407	32	25'-0"	Str		534
MJ408	22	23'-0"	Str		338
		Total Weight	=		23967

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS.)≠
		SPAN 10			
MJ401	232	22'-9"	Str		3526
MJ402	144	23'-9"	100		2285
MJ403	68	30'-0"	Str		1363
MJ404	17	26'-6"	Str		301
MJ405	80	13'-0"	Str		695
MJ406	22	23'-0"	Str		338
MJ407	22	22'-6"	Str		331
		Total Weight	=		8839
		SPAN 11			
MK401	738	22'-9"	Str		11215
MK402	408	23'-9"	100		6473
MK403	238	30'-0"	Str		4770
MK404	208	13'-0"	Str		1806
MK405	44	11'-0"	Str		323
MK406	32	25'-0"	Str		534
MK407	22	23'-0"	Str		338
		Total Weight	=		25459
		SPAN 12			
ML401	186	22'-9"	Str		2827
ML402	120	23'-9"	100		1904
ML403	51	30'-0"	Str		1022
ML404	17	31'-6"	Str		358
ML405	64	13'-0"	Str		556
ML406	22	23'-0"	Str		338
ML407	22	22'-6"	Str		331
		Total Weight	=		7336
		SPAN 13			
MM401	495	22'-9"	Str		7523
MM402	275	23'-9"	100		4363
MM403	153	30'-0"	Str		3066
MM404	17	13'-6"	Str		153
MM405	144	13'-0"	Str		1250
MM406	22	11'-0"	Str		162
MM407	16	25'-0"	Str		267
MM408	22	23'-0"	Str		339
		Total Weight	=		17122

≠ Denotes Epoxy Cooted Reinforcing Steel.

100

22'-9"	MA402
22'-9"	MB402
22'-9"	MC402
22'-9"	MD402
22'-9"	ME402
22'-9"	MF402
22'-9"	MG402
22'-9"	MH402
22'-9"	MI402
22'-9"	MJ402
22'-9"	MK402
22'-9"	ML402
22'-9"	MM402

FHWA REGION	STATE	PROJECT	
5	OHIO		

83A 185

CUYAHOGA COUNTY
CUY-10-16.05

This sheet added 6-15-81 and supersedes Sheet [illegible].

H.N.T.B. BRIDGE NO. 3

HOWARD NEEDLES TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND — HNTB

REINFORCEMENT SCHEDULE

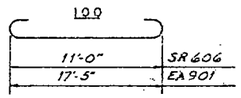
REHABILITATION OF THE
LORAIN-CARNEGIE BRIDGE
(S.R. 10 OVER THE CUYAHOGA RIVER)
BR. NO. CUY.-10-1618 STA. 22+19.19
STA. 55+04.56
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
R.A.S. DATE 9 28 78	DATE	D.L.R. DATE 6-29-79	DATE	SHEET R 34

MARK	NO	LENGTH	TYPE	SER INCR	WEIGHT (LBS.)
		WEST ABUTMENT			
101	73	41'-10"	105		368
102	73	51'-10"	127		444
103	6	24'-3"	Str.		152
201	5	101'-1"	101		255
202	5	171'-2"	Str.		234
203	5	161'-2"	101		213
		Total Weight =			1,671
		EAST ABUTMENT			
301	2	41'-8"	Str		6
401	25	41'-10"	105		126
402	25	51'-10"	127		152
403	3	171'-3"	Str.		54
501	4	41'-0"	Str.		24
502	17	21'-3"	Str.		57
503	28	21'-9"	Str.		105
504	7	21'-9"	Str.		29
601	6	191'-11"	100		406
		Total Weight =			959
		SLAB			
		Bottom Transverse Bars			
B101 #	303	31'-0"	105		948
B201	255	161'-9"	Str.		8,730
B202	257	171'-0"	Str.		8,930
B203	253	231'-6"	Str.		12,153
B204	143	241'-3"	Str.		7,088
B205	52	101'-0"	Str.		1,143
B206	1 Ser. 46	13'-9" / 23'-9"	109	2⅜"	1,810
B207	1 Ser. 13	14'-9" / 32'-0"	Str.	1'-5⅜"	628
B208	1 Ser. 13	14'-9" / 39'-9"	Str.	1'-3"	591
B209	1 Ser. 91	18'-6" / 29'-9"	109	2⅛"	3,557
B210	1 Ser. 52	16'-0" / 28'-6"	109	2⅛"	2,365
B211	1 Ser. 10	7'-0" / 20'-6"	Str.	1'-0"	281
B212	1 Ser. 52	15'-0" / 27'-0"	109	2⅛"	2,232
B213	1 Ser. 11	11'-0" / 28'-6"	Str.	1'-3"	388
B214	11	121'-0"	Str.		270
B215	104	221'-0"	Str.		4,677
B216	10	121'-0"	Str.		245
B217	1 Ser. 9	11'-0" / 20'-0"	Str.	1'-1⅝"	285
B218	1 Ser. 8	12'-0" / 20'-6"	Str.	1'-2⅝"	266
B219	1 Ser. 7	12'-3" / 36'-0"	Str.	1'-7"	315
B220	8	181'-3"	Str.		298
B221	279	201'-3"	Str.		14,681
B222	1 Ser. 5	19'-9" / 26'-3"	Str.	1'-7⅛"	235
B223	1 Ser. 11	13'-6" / 30'-6"	Str.	1'-6"	517
B224	1 Ser. 10	13'-0" / 29'-0"	Str.	1'-6⅛"	450
B225	11	151'-0"	Str.		354
B226	276	301'-3"	Str.		17,065
B227	1 Ser. 18	3'-6" / 26'-9"	Str.	1'-5⅜"	593
B228	1 Ser. 15	9'-0" / 26'-0"	Str.	1'-6"	475
B229	1 Ser. 279	14'-6" / 31'-0"	Str.	0⅛"	12,927
B230	1 Ser. 18	3'-6" / 30'-6"	Str.	1'-7⅛"	625
B231	1 Ser. 14	13'-0" / 20'-0"	Str.	0⅛"	558
B232	1 Ser. 5	3'-0" / 15'-0"	Str.	4'-0"	112
B233	284	151'-0"	Str.		9,143
B234	1 Ser. 8	3'-6" / 11'-0"	Str.	1'-6"	143
B235	1	171'-9"	Str.		36
B236	1	281'-0"	Str.		57
B237	1	261'-5"	Str.		54
B238	1	191'-5"	Str.		40
B239	1	171'-3"	Str.		35
B240	1	271'-4"	104		56
B241	1	231'-10"	104		49
B242	1	231'-0"	Str.		47
B243	1	151'-9"	Str.		34
B244	1	181'-5"	Str.		38
B245	2	151'-3"	Str.		66

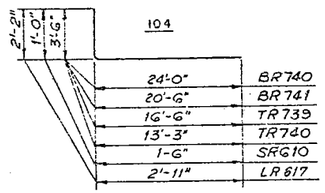
MARK	NO	LENGTH	TYPE	SER INCR	WEIGHT (LBS.)
BR746	6	91'-9"	Str.		120
BR747	6	171'-3"	Str.		212
		Top Transverse Bars			
TR701 #	254	251'-2"	101		13,066
TR702 #	240	301'-6"	Str.		14,342
TR703 #	142	171'-2"	Str.		5,079
TR704 #	1 Ser. 49	18'-3" / 28'-6"	109	2⅜"	2,404
TR705 #	1 Ser. 43	8'-3" / 36'-0"	109	2⅜"	2,229
TR706 #	1 Ser. 50	18'-3" / 36'-3"	109	2⅜"	2,491
TR707 #	1 Ser. 10	16'-9" / 27'-0"	Str.	1'-1⅜"	447
TR708 #	1 Ser. 49	18'-2" / 30'-8"	109	2⅜"	2,404
TR709 #	1 Ser. 20	13'-3" / 30'-8"	109	2⅜"	2,423
TR710 #	1 Ser. 13	12'-3" / 29'-3"	Str.	1'-5⅛"	558
TR711 #	1 Ser. 13	8'-9" / 23'-0"	Str.	1'-3"	412
TR712 #	1 Ser. 20	6'-3" / 29'-0"	Str.	1'-2⅝"	715
TR713 #	62	241'-3"	Str.		3,041
TR714 #	43	221'-3"	Str.		1,956
TR715 #	1 Ser. 8	8'-6" / 13'-6"	Str.	1'-3⅜"	130
TR716 #	101	121'-7"	Str.		4,782
TR717 #	1 Ser. 7	19'-0" / 18'-9"	Str.	1'-7½"	199
TR718 #	221	31'-3"	Str.		17,805
TR719 #	1 Ser. 10	15'-8" / 29'-6"	Str.	1'-6⅝"	462
TR720 #	1 Ser. 11	8'-3" / 25'-3"	Str.	1'-6"	354
TR721 #	"	171'-5"	Str.		250
TR722 #	1 Ser. 10	8'-0" / 25'-9"	Str.	1'-6"	294
TR723 #	290	161'-3"	Str.		9,484
TR724 #	1 Ser. 9	3'-9" / 14'-6"	Str.	1'-4½"	166
TR725 #	1 Ser. 9	6'-3" / 16'-0"	Str.	1'-7½"	230
TR725 #	1 Ser 221	14'-3" / 31'-3"	Str.	0⅜"	13,067
TR727 #	1 Ser. 19	3'-6" / 29'-3"	Str.	1'-5⅜"	636
TR728 #	1 Ser. 14	18'-10" / 20'-10"	101	0⅜"	582
TR729 #	1 Ser. 5	10'-10" / 25'-10"	101	1'-6"	233
TR730 #	278	231'-10"	101		13,543
TR731 #	1 Ser. 12	3'-6" / 21'-6"	Str.	1'-1⅜"	307
TR732 #	1 Ser. 5	3'-10" / 19'-10"	101	4'-0"	121
TR733 #	1	161'-3"	Str.		33
TR734 #	2	171'-0"	Str.		69
TR735 #	1	261'-0"	Str.		53
TR736 #	1	271'-5"	Str.		56
TR737 #	2	181'-5"	Str.		76
TR738 #	1	161'-0"	Str.		34
TR739 #	1	101'-10"	104		41
TR740 #	1	161'-7"	104		34
TR741 #	1	91'-10"	101		20
TR742 #	2	171'-9"	Str.		73
TR743 #	1	241'-4"	101		50
TR744 #	6	111'-6"	101		139
TR745 #	6	181'-1"	101		222
		Longitudinal Bars			
LR401 #	237	301'-0"	101		4,749
LR402 #	1,060	301'-0"	Str.		21,242
LR403 #	7	371'-0"	101		173
LR404 #	87	211'-0"	101		1,220
LR405 #	16	261'-0"	101		278
LR406 #	1 Ser. 10	15'-0" / 29'-0"	101	1'-6½"	147
LR407 #	1 Ser. 17	4'-0" / 29'-0"	Str.	1'-6⅜"	187
LR408 #	1 Ser. 15	4'-0" / 28'-0"	Str.	1'-7¼"	171
LR409 #	1 Ser. 13	6'-0" / 30'-0"	Str.	1'-2"	113
LR410 #	1 Ser. 12	15'-0" / 23'-0"	Str.	1'-2⅜"	156
LR411 #	1 Ser. 12	3'-0" / 18'-0"	Str.	1'-4⅜"	84
LR412 #	1 Ser. 9	10'-0" / 15'-0"	Str.	4½"	69
LR413 #	4	151'-3"	Str.		40
LR414 #	101	31'-5"	101		2,123
LR415 #	101	381'-5"	101		2,502
LR416 #	46	221'-4"	101		691
LR417 #	578	81'-0"	101		3,098
LR418 #	535	301'-3"	Str.		11,723
LR419 #	254	221'-3"	Str.		3,924
LR420 #	267	371'-4"	Str.		6,598
LR421 #	17	321'-3"	Str.		432
LR501	954	301'-3"	Str.		42,987
LR502	4	351'-3"	Str.		215
LR503	69	201'-5"	Str.		2,125
LR504	13	251'-5"	Str.		408
LR605	1 Ser. 8	15'-0" / 29'-0"	Str.	2'-0"	254

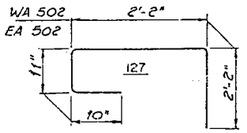
MARK	NO	LENGTH	TYPE	SER INCR	WEIGHT (LBS)
LR606	1 Ser. 12	4'-0" / 27'-0"	Str.	2'-3¼"	297
LR607	1 Ser. 11	4'-3" / 28'-0"	Str.	2'-4¾"	264
LR608	1 Ser. 12	6'-9" / 30'-0"	Str.	1'-3¾"	234
LR609	1 Ser. 7	13'-0" / 23'-0"	Str.	2'-2"	205
LR610	1 Ser. 9	3'-0" / 18'-0"	Str.	1'-10⅜"	142
LR611	1 Ser. 4	10'-0" / 15'-0"	Str.	1'-0"	69
LR612	2	151'-0"	Str.		45
LR613	69	31'-5"	Str.		3,265
LR614	69	371'-6"	Str.		3,886
LR615	34	221'-7"	Str.		1,123
LR616*	32	91'-0"	Str.		395
LR617	107	5'-0"	104		804
LR801	242	41'-0"	Str.		2,585
Total Weight (Uncoated)				=	175,983
* Total Weight (Epoxy Coated)				=	178,532
		SIDEWALK			
SR401 *	36	301'-0"	101		721
SR402 *	121	301'-0"	Str.		2,425
SR403 *	23	231'-5"	101		438
SR404 *	13	161'-2"	101		140
SR405 *	31	81'-0"	101		166
SR406 *	31	411'-3"	Str.		854
SR407 *	31	401'-6"	Str.		839
SR408 *	31	371'-5"	Str.		777
SR409 *	31	71'-0"	101		145
SR501	123	71'-11"	110		1,015
SR502	354	31'-11"	103		1,445
SR601 *	246	181'-9"	Str.		6,928
SR602	246	1919"	126		7,297
SR603	125	301'-0"	Str.		5,633
SR604	20	311'-0"	Str.		931
SR605	9	171'-5"	Str.		235
SR606 *	276	121'-4"	100		5,113
SR607	276	111'-3"	Str.		4,564
SR608	109	61'-2"	105		2,010
SR609 *	64	81'-0"	Str.		769
SR610 *	140	21'-4"	104		491
Total Weight (Uncoated)				=	23,230
* Total Weight (Epoxy Coated)				=	19,806

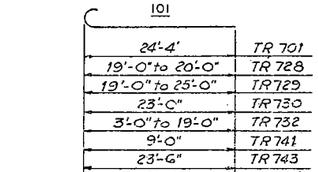


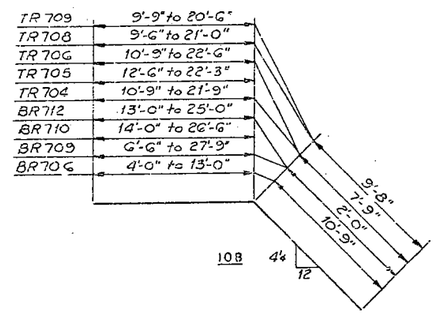
*Denotes Epoxy Coated Reinforcing Steel.

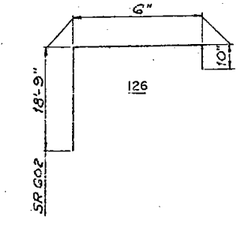
* Note:
Only 16-LR616 bars shall be epoxy coated.
Only 32-SR609 bars shall be epoxy coated.

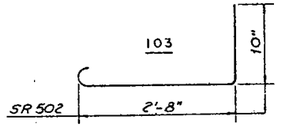


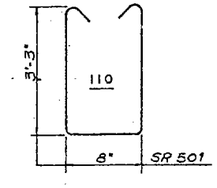


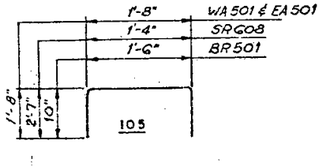












FHWA REGION	STATE	PROJECT	
5	OHIO		

184
185

CUYAHOGA COUNTY
CUY-10-16.23

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

REINFORCEMENT SCHEDULE

REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72
STA 58+85.70
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
P.A.S		J.T.		
DATE 9-21-73	DATE	DATE 4-29-75	DATE	SHEET: P: 4

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS.)
STRUT - COLUMN REPAIR					
SC401	25	51'-4"	105		93
SC402	52	51'-1"	163		192
SC403	34	41'-10"	163		110
SC901	14	11'-0"	Str.		559
SC1301	2	121'-6"	Str.		250
SC1302	4	15'-6"	Str.		259
		Total weight =			1,390
SIDEWALK					
GM501	40	13'-2"	109		549
GM502	1	1'-9"	Str.		21
GM503	1	3'-2"	Str.		40
GM504	1	2'-3"	Str.		30
GM505	1	2'-9"	Str.		29
GM506	1	3'-0"	Str.		38
GM507	1	1'-0"	Str.		20
GM508	37	13'-3"	109		511
GM509	19	13'-5"	109		251
GM510	35	13'-7"	109		496
GM511	1 Ser. 35	14'-3" - 18'-0"	109	0 3/4"	551
GM512	67	3'-0"	105		210
GM513	60	3'-1"	105		193
GM514	31	3'-2"	105		102
GM515	59	3'-3"	105		200
GM516	1 Ser. 56	3'-3" - 4'-5"	105	0 3/4"	224
GM517	330	3'-4"	104		1,146
GM601	6	8'-5"	Str.		185
GM602	6	3'-0"	Str.		351
GM603	6	2'-3"	Str.		259
GM604	6	2'-3"	Str.		255
GM605	6	3'-3"	Str.		327
GM606	6	1'-3"	Str.		174
GM1001	6	15'-2"	Str.		464
GM1002	6	15'-3"	Str.		258
GM1003	6	22'-9"	101		585
GM1004	6	42'-3"	Str.		1,093
GM1005	6	32'-3"	Str.		833
GM1006	6	31'-2"	Str.		820
GM1007	6	37'-6"	Str.		968
GM1008	6	20'-5"	101		527
GM1009	2	22'-11"	101		214
GM1010	4	30'-6"	101		525
GM1011	7	22'-1"	101		1,267
GM1012	7	35'-2"	Str.		1,160
GM1013	7	20'-6"	Str.		648
GM1014	7	37'-6"	Str.		1,130
GM1015	7	37'-6"	101		1,130
		Total Weight =			17,750
SIDEWALK 2-18					
GR601	221	3'-7"	104		1,082
GR602	78	3'-5"	104		390
GR603	33	3'-0"	104		209
GR604 #	142	3'-0"	104		587
GR605	84	3'-5"	104		442
GR606	1 Ser. 17	3'-9" - 4'-0"	104	3/4"	97
GR607	1 Ser. 17	3'-10" - 3'-10"	104	3/4"	89
GR608	1 Ser. 17	4'-3" - 4'-7"	104	3/4"	103
GR609	1 Ser. 17	3'-10" - 4'-1"	104	3/4"	95
GR610	133	2'-5"	104		383
GR611 #	75	2'-7"	104		592
GR612	2 Ser. 21	2'-7" - 2'-10"	104	3/4"	183
GR613	2 Ser. 17	2'-10" - 4'-2"	104	3/4"	162
GR614	82	2'-3"	104		112
GR615	93	2'-5"	104		270
GR616	2 Ser. 17	2'-10" - 2'-10"	104	3/4"	130
GR617	2 Ser. 21	2'-5" - 3'-2"	104	3/4"	189
GR618	2 Ser. 17	2'-10" - 3'-0"	104	3/4"	176
GR619	2 Ser. 17	2'-5" - 2'-5"	104	3/4"	173
GR620 #	201	1'-10"	104		213
GR621	2 Ser. 4	2'-1" - 2'-11"	104	0 1/4"	34

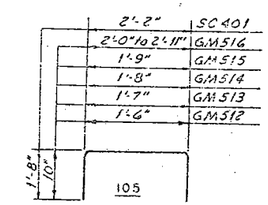
MARK	NO.	LENGTH	TYPE	SER INCR.	WEIGHT (LBS.)
GR622	2 Ser. 20	2'-1" - 3'-3"	104	0 3/4"	185
#GR623	12	31'-0"	104		81
GR624	1 Ser. 22	2'-3" - 3'-6"	104	0 1/4"	114
GR625	1 Ser. 22	4'-4" - 4'-9"	104	0 1/4"	150
GR626	2 Ser. 23	4'-4" - 4'-7"	104	0 1/4"	308
GR627	2 Ser. 32	4'-1" - 4'-4"	104	0 1/4"	405
GR628	72	41'-1"	104		441
GR629	174	41'-0"	104		1,045
GR630	83	31'-10"	104		507
GR631	2 Ser. 23	3'-9" - 4'-10"	104	0 3/4"	207
GR632	30	41'-10"	104		213
GR633	155	31'-6"	104		591
GR634	2 Ser. 17	3'-7" - 4'-2"	104	0 1/4"	199
GR635	119	41'-2"	104		725
GR636	75	31'-3"	104		366
GR637	2 Ser. 16	3'-10" - 3'-4"	104	0 3/4"	154
GR638	1 Ser. 21	3'-0" - 3'-9"	104	0 3/4"	114
GR639	1 Ser. 21	2'-10" - 3'-1"	104	0 1/4"	93
GR640	28	31'-11"	104		171
#GR641	100	21'-10"	104		809
#GR642	77	2'-11"	104		337
GR643	21	31'-1"	104		97
GR644	2 Ser. 17	2'-4" - 2'-7"	104	0 3/4"	126
GR645	21	31'-10"	104		121
GR646	24	41'-4"	104		169
Total Weight (uncoated)				=	13,400
# Total Weight (Epoxy Coated)				=	651

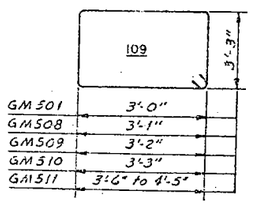
#Denotes Epoxy Coated Reinforcing Steel.

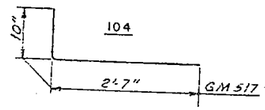
Note:
Only 18-GR604 bars, 16-GR611 bars, 44-GR620 bars, 36-GR641 bars and 24-GR642 bars shall be epoxy coated.

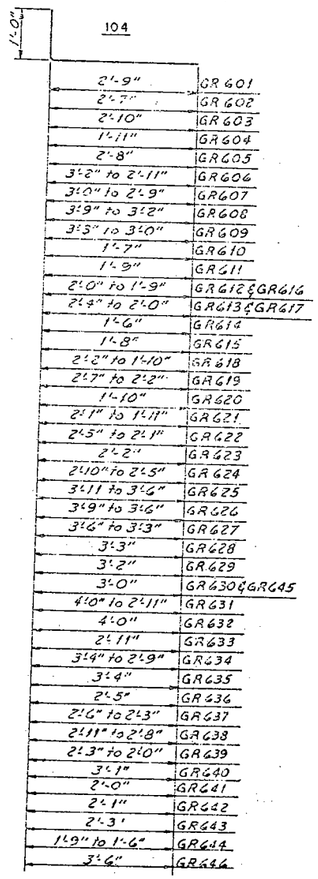
101

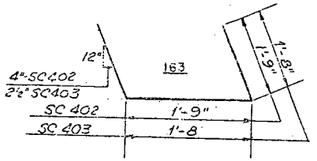
21'-3"	GM1003
19'-0"	GM1008
23'-6"	GM1003
29'-1"	GM1010
40'-8"	GM1011
36'-1"	GM1015











FHWA REGION	STATE	PROJECT	
5	OHIO		

185
185

CUYAHOGA COUNTY
CUY-10-16.23

HNTB BRIDGE NO 4

HOWARD NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS CLEVELAND
HNTB

RIENFORCEMENT SCHEDULE

REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY-10-1685 STA. 57+29.79
STA 58+85.70
CUYAHOGA COUNTY

DRAWN	TRACED	CHECKED	RE-LINED	REVISED
R.L.S. 4-19-77 DATE	DATE	C.M.O. 5-5-77 DATE	DATE	DATE

FORM SR268

COUNTY OF CUYAHOGA
CLEVELAND, OHIO

FROM Felix A. Spittler DATE October 7, 1974

TO Albert S. Porter, County Engineer SUBJECT Lorain-Carnegie Bridge Project (Carnegie Avenue Grade Separation).

In the initiated Ordinance No. 47814 authorizing the Mayor to enter into a contract with the Cleveland Union Terminals Company passed January 6, 1919, by a vote of 30,731 FOR to 19,859 AGAINST, effective January 8th, 1919, the Cleveland Terminals Company, in Sec. 29, agreed to build the Grade Separation (carry Central Avenue and Central Viaduct over the tracks of said Terminals Company). In Sec. 85 of the same ordinance the Terminals Company agreed to construct, maintain, repair and rebuild the structures mentioned in this ordinance as they became necessary, by and at the expense of the Terminals Company.

Ordinance No. 8552 passed January 28, 1929, effective March 10, 1929, amended section 30 of Ordinance No. 47814, and provided for the construction of a bridge carrying Central Avenue S.E. and Central Viaduct over the tracks of said Terminals Company, 15 ft. southerly from the center line of Ontario Street S.E. measured along the center line of said avenue and a point 185 feet southerly from the center line of Ontario Street S.E. measured along the center line of said avenue (Carnegie Avenue Grade Separation).

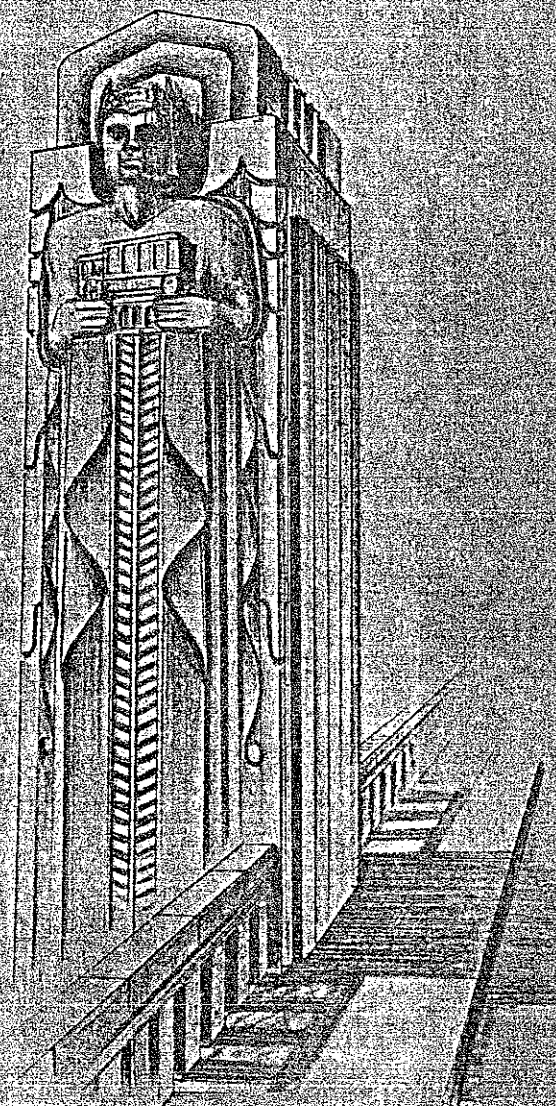
Ordinance No. 93109 passed December 8, 1930, mentioned the extension to the Cleveland Union Terminal Bridge in section 1(d) in connection with the Lorain-Central Bridge project.

Probate Court Case No. 200388 (Lorain-Carnegie Bridge Project) Parcels C, D, and H obligated the County to maintain the southwesterly and northeasterly walls of the Cleveland Union Terminals Company which were to be used as and for piers and/or abutments to support said bridge or bridges and/or approaches thereto and the extension to the Terminals Company bridge.

It appears that the County is responsible for the extension added to the northwest of the original bridge and the southwesterly and northeasterly walls affected, but that the Terminals Company is responsible for the original bridge. To completely follow through on this matter would seem to be a legal matter requiring considerable research by the Prosecutor's Office.

mll

PRELIMINARY ONLY



APRIL
1969

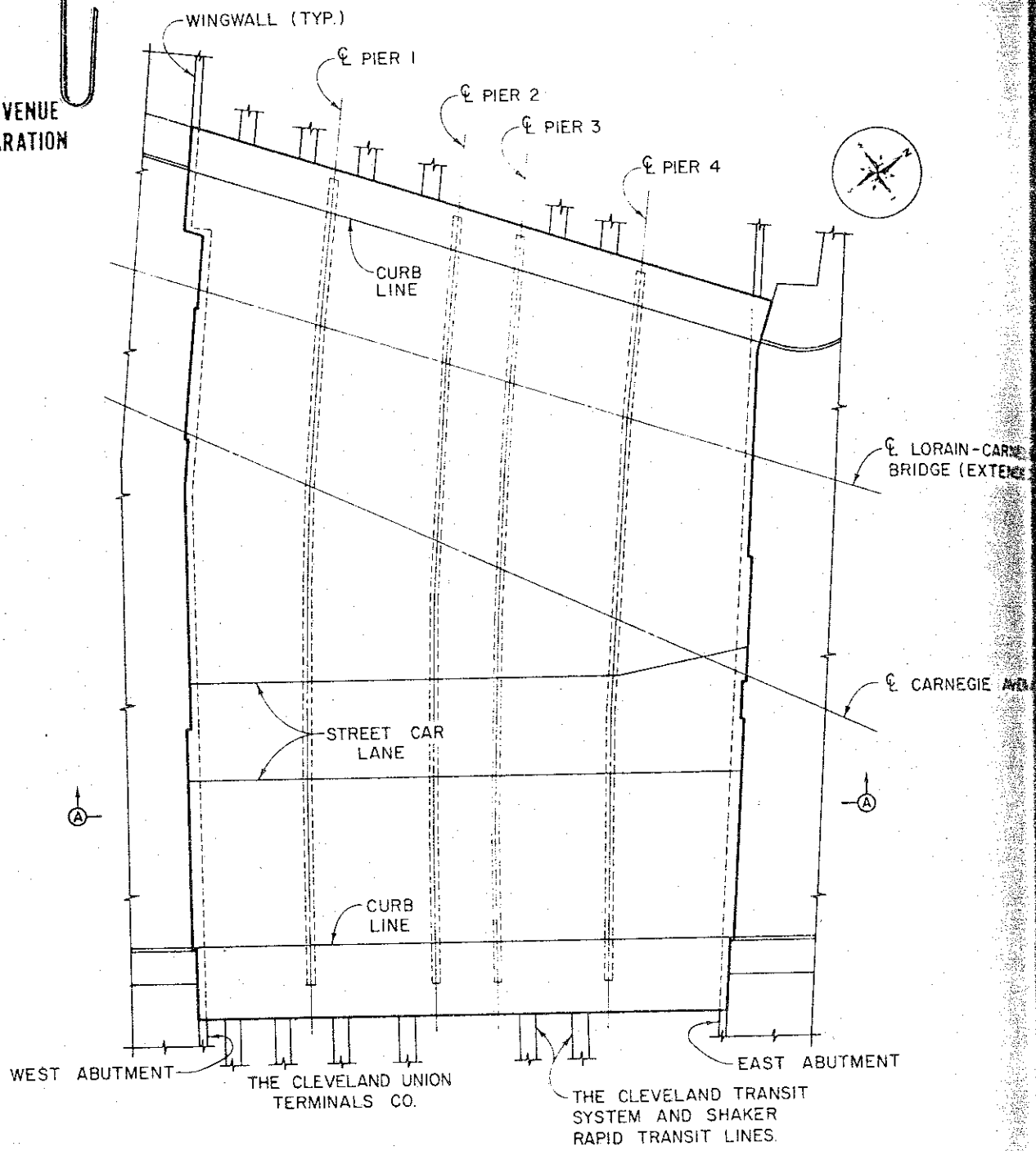
REHABILITATION STUDIES

LORAIN CARNEGIE BRIDGE

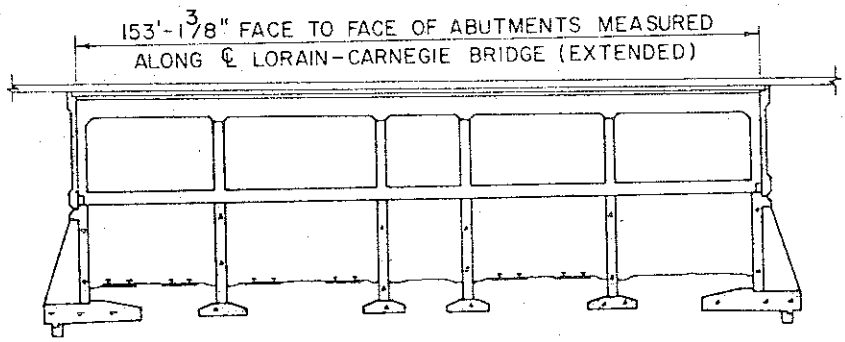
ALBERT S. PORTER
County Engineer
Cuyahoga County, Ohio

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
HNTB

FIGURE 5
CARNEGIE AVENUE
GRADE SEPARATION
STRUCTURE



PLAN
(SHOWING EXISTING CONDITIONS)



ELEVATION A-A

The approach roadways are supported on embankment between retaining walls. At the west approach, the retaining walls continue approximately 375 ft beyond the abutment bearings. At the east end, the north wall continues to adjoin the rapid transit grade separation structure, but the south wall terminates at the Commercial Road intersection.

A General Plan and Elevation of the Carnegie Avenue Grade Separation Structure over the Rapid Transit tracks is shown on Figure 5. This bridge was designed to carry two tracks of street railway traffic and several converging lanes of vehicular traffic on the upper deck with provisions for six tracks of street railway traffic on a future lower deck. The structure comprises five variable length reinforced concrete girder spans having a total length of 153 ft.

C. Lorain-Carnegie Bridge

1. Truss Spans

The steel truss spans over the Cuyahoga River Valley are of deck design, the main carrying elements being Pratt trusses. Each span has four parallel trusses except the simple span at the east end which has three variably spaced trusses. The main members of the trusses are box sections made up of plate and angle channel sections riveted together with lacing bars. Lateral bracing is provided in the exterior bays in the plane of the lower chord members. Each truss line is supported by a pair of bearings on reinforced concrete piers.

The upper roadway deck is a reinforced concrete slab topped with an asphaltic wearing surface. The deck is supported by longitudinal stringers which span between transverse floorbeams. The floorbeams are supported on the top chords of the trusses at panel points (See Figure 6). A planned lower roadway deck has not been constructed, but floorbeams for all three bays are in place. A reinforced concrete utility deck, located in the center bay below the planned lower deck, is carried on longitudinal stringers and transverse floorbeams which are connected to truss verticals.

TABLE II

DESIGN RATING OF EXISTING MEMBERS

LORAIN-CARNEGIE BRIDGE

Location	Member	HS Rating		
		4 Lanes	5 Lanes	6 Lanes
Truss Spans	Interior Stringers	22.2	22.2	20.7
	Fascia Stringers	41.4	42.0	11.7
	Intermediate Floorbeams			
	Center Bay	13.4	16.1	15.3
	Exterior Bays	28.8	24.5	22.9
West Approach Spans	Interior Stringers	25.3	25.3	23.8
	Fascia Stringers	30.1	30.5	8.5
	Intermediate Floorbeams			
	Center Bay	12.4	16.5	15.3
	Exterior Bays	14.1	14.0	13.8

bridge are as follows:

Minimum Yield Point

ASTM A7 - 30,000 psi

ASTM A94 - 45,000 psi

Basic Allowable Design Stress

ASTM A7 - 16,000 psi

ASTM A94 - 24,000 psi

The minimum design ratings obtained using the above allowable stresses are shown in Table II. In order to meet current design standards for modern loadings, the Lorain-Carnegie Bridge should be rehabilitated to provide a minimum rating of HS-20. From a study of Table II, it is apparent that, in the truss spans, the intermediate floorbeams in the center bay will require strengthening for all alternates, and that the fascia stringers will require strengthening for the six-lane alternate. In the approach spans, all floorbeams require strengthening for all alternates, and the fascia stringers must be strengthened for the six-lane alternate. Because of the complexities created by the difference in eccentricity for dead and live loads, the steel columns in the approach spans were not rated, but instead the stresses were checked for HS20 loading. All columns of the approach spans will require strengthening.

At the time of the original construction, the beams used for the intermediate floorbeams in the exterior bays of the truss spans were the minimum sections available with the desired depth. As a result, these floorbeams were understressed for the original design. The ratings shown in Table II assume these members to be in new condition. Deterioration though has occurred in some of the floorbeams adjacent to the curb stringers. Each beam flange could be corroded up to 1/16 inch without overstressing the members, and, for the purposes of this report, it has been assumed that repair or strengthening will not be required.

B. Carnegie Avenue Grade Separation

Design rating of deteriorated reinforced concrete members is not feasible. Therefore, preliminary design of the Carnegie Avenue Grade

Separation consisted of checking the capacity of the members for their repaired condition.

Allowable stresses used for existing concrete members were based on their original composition and on design stresses prevalent at the time of construction. These values should be checked by testing representative core borings prior to preparation of contract plans for reconstruction work. For analyzing the Carnegie Avenue Grade Separation the following values were used for existing materials:

Concrete:	Ultimate Compressive Strength	f'c = 3,000 psi
	Basic Allowable Compression	fc = 1,200 psi
	Shear	fv = 90 psi
	Modular Ratio(Es/Ec)	n = 10
Reinforcing Steel:	Basic Allowable Tension	fs = 18,000 psi

The allowable stresses for new materials were in accordance with the American Association of State Highway Officials 1965 Standard Specifications for Highway Bridges including the Ohio Department of Highways Supplement thereto.

Considering the deck slab to be ineffective, the longitudinal girders were found to be deficient at the supports. By properly bonding the new deck slab to the existing girders to function as a T-beam, the girders, when repaired, will be adequate to carry HS 20 loads. The columns and other substructure elements, when restored, will be adequate for HS 20 loadings without strengthening.

For Repaired Condition

PLAN OF EXTENSION OF CENTRAL AVE. BRIDGE
Scale 1/8"=1'-0"
(Carnegie Ave)

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

SECTION B-B
Scale 1/4"=1'-0"

SECTION C-C
Scale 1/4"=1'-0"

SECTION D-D
Scale 1/4"=1'-0"

SECTION E-E
Scale 1/4"=1'-0"

SECTION F-F
Scale 1/4"=1'-0"

SECTION G-G
Scale 1/4"=1'-0"

SECTION H-H
Scale 1/4"=1'-0"

SECTION J-J
Scale 1/4"=1'-0"

SECTION K-K
Scale 1/4"=1'-0"

SECTION L-L
Scale 1/4"=1'-0"

Note: Loads and stresses used in this design are those specified by the Ohio State Highway Department for Highway Structures for H-20 loading. (20 Ton Trucks)

APPROVED BY

CUYAHOGA COUNTY

BOARD OF COMMISSIONERS	COUNTY SURVEYOR
J. R. ZMUNT J. H. HARRIS W. E. COOK	F. R. WILLIAMS
	COUNTY BRIDGE ENGINEER A. M. FELGATE

LORAIN - CENTRAL BRIDGE
CLEVELAND, O.

CENTRAL AVE BRIDGE EXTENSION

SCALE 1/8"-1/4"-1'-0"

FILE No		DRAWING No
4366	WILBUR WATSON AND F.R.WALKER CONSULTING ENGINEERS AND ARCHITECTS CLEVELAND	18

DRAWING MADE	DRAWN BY	TRACED BY	CHECKED BY	DATE	APPROVED	DATE
JAN. 23, 1930	W.F.T.	W.F.T.	W.W.W.	9-15-30		

REV. BY	DATE	REMARKS	REV. BY	DATE	REMARKS

STRUT MOVED TO CLEAR CATENARY TOWER

EXISTING FOOTING FOR CATENARY STRUCTURE
SEE DETAIL OF INTERSECTION WITH NEW FOOTING ON SUPPLEMENTARY SHEET DATED 5-25-31. & 6-3-31. #366-19-A.

ANCHOR RODS TO BE LOCATED OVER R OF EACH TRACK WHICH IS OFFSET ON ACCOUNT OF SUPER ELEVATION

INSERTS TO BE PROVIDED FOR THE SUPPORT OF THE CATENARY SYSTEM

SECURITY INSERTS 2 in ø TO BE LOCATED OVER R OF TRACK WHICH IS OFFSET ON ACCOUNT OF SUPER ELEVATION. EXACT LOCATION OF INSERTS WILL BE GIVEN LATER.

Refuge Bay

West Side of Central Arc & present Bridge

(Cut opening in present wall for footings of Struts)

END OF BEAM

℄ LORAIN CENTRAL BRIDGE.

Present Wall

NOTE — THESE STRUTS ARE TO BE BUILT VERY CLOSE TO LIVE WIRES WHICH MUST BE PROTECTED.

ALL PARTS OF ANCHORS & INSERTS FOR CATENARY ATTACHMENTS TO BE HOT DIP GALVANIZED. ANCHOR RODS TO BE FORGED. (NOT WELDED)

LOCK WASHER

4"ø WASHER

TYPICAL DETAILS OF ANCHOR RODS
SCALE 1"=1'-0

4½"

5" Embedment

Present Street

Present Wall

DETAIL OF COLS ON LINES 1-2-3 & 4

DETAIL OF COLS ON LINES 5 & 6.

TYPICAL SECTION OF STRUTS S1. TO S19 INCL.

TYPICAL ELEVATION OF STRUTS.

4-1¼" Dowels at columns Except in col-A4 use 6-1¼"

Elev 49.50

¾" ø 1'-0" ctrs. Each Face.

¾" ø 2'-0" ctrs. Each Face. Lap Horizontal Bars 33" at Splices

2" clear.

¾" ø Dowels x 5'-6" 1'-0" ctrs Each Face

¾" ø 5" ctrs

¾" ø 2'-0" ctrs.

9'-0"

Elev 44.00

SECTION 'A-A'

4-1¼" Dowels at columns

Elev. 49.50

¾" ø 1'-0" ctrs Each Face.

¾" ø 2'-0" ctrs Each Face. Lap Horizontal Bars 33" at splices

2" clear.

¾" ø Dowels x 5'-6" 1'-0" ctrs Each Face.

¾" ø 6" ctrs.

¾" ø 2'-0" ctrs.

8'-0"

Elev 44.00

SECTION 'B-B'

4-1¼" ø Verticals Hoops ⅜" ø 1'-0" ctrs

DETAIL OF COLS A1-A2-A3. — DETAIL OF COLS B1-B2-B3-B4 — DETAIL OF COLS C1-C2-C3-C4. — DETAIL OF COLS D1-D2-D3-D4.

8-1¼" ø Verticals. Hoops ⅜" ø 1'-0" ctrs.

DETAIL OF COL-A4.

4-1¼" ø Verticals. Hoops ⅜" ø 1'-0" ctrs

DETAIL OF COL A6.

4-1¼" ø Verticals. Hoops ⅜" ø 1'-0" ctrs.

DETAIL OF COLS B5-B6.

4-1¼" ø Verticals. Hoops ⅜" ø 1'-0" ctrs.

DETAIL OF COLS C5-C6-D5-D6.

4-1¼" ø Verticals. Hoops ⅜" ø 1'-0" ctrs.

DETAIL OF COL-E6.

4-1¼" ø Verticals. Hoops ⅜" ø 1'-0" ctrs.

DETAIL OF COL-F6.

1-1" ø 9'-0" Each Face

1-1" ø 11'-0" Each face.

1-1" ø 14'-0" Each face

Top of Footing

DETAIL OF REFUGE BAY.

APPROVED BY:

CO. COMM.

CO. ENG.

CO. ARCHTEK.

BRIDGE ENG.

CUYAHOGA COUNTY

BOARD OF COMMISSIONERS
J. R. ZMUNT
J. H. HARRIS
W. E. COOK

COUNTY SURVEYOR
F. R. WILLIAMS

COUNTY BRIDGE ENGINEER
A. M. FELGATE

LORAIN - CENTRAL BRIDGE
CLEVELAND, O.

CENTRAL AVE. BRIDGE EXTENSION.

SCALE ⅜"-½"-½"=1'-0"

FILE #		DRAWING #
A366	WILBUR WATSON AND F. R. WALKER CONSULTING ENGINEERS AND ARCHITECTS CLEVELAND	19

DRAWING MADE	DRAWN BY	TRACED BY	CHECKED BY	DATE	APPROVED	DATE
11-11-1930	W.F.L.	A.R.	W.R.R.	5-15-30		

REV.	DATE	REMARKS	REV. BY	DATE	REMARKS
1	11-12-30	End of footing on line C and Strut S1			

Old Manhole cover could not be used City of Cleveland Standard manhole Frame. Cover from Old Manhole

DETAIL OF MANHOLE

SECTION P.F.

SECTION A-A

SECTION B-B

SECTION H-H

SECTION J-J

DETAIL OF LAMP BASE NORTH SIDE
SOUTH SIDE SIMILAR EXCEPT AS NOTED IN DETAIL OF SIDEWALK

DETAIL OF SIDEWALK. ON SOUTH SIDE

CROSS SECTION THROUGH TOP OF SLAB.
Scale 1/8"-1'-0" Horizontal - 1/2"=1'-0" Vertical.

SECTION LL

SECTION C-C

SECTION D-D

SECTION E-E

SECTION G-G

SECTION AT TROLLEY POLE MOUNTING.
Scale 1/2"=1'-0"
See Detail on Drawing No. 4366-20 A.

DETAIL OF CONDUITS

ELEVATION KK

NOTE. Elevations are to top of Roadway Slab.

APPROVED BY

CUYAHOGA COUNTY

BOARD OF COMMISSIONERS	COUNTY SURVEYOR
J. R. ZMUNT J. H. HARRIS W. E. COOK	F. R. WILLIAMS
	COUNTY BRIDGE ENGINEER A. M. FELGATE

LORAIN - CENTRAL BRIDGE
CLEVELAND, O

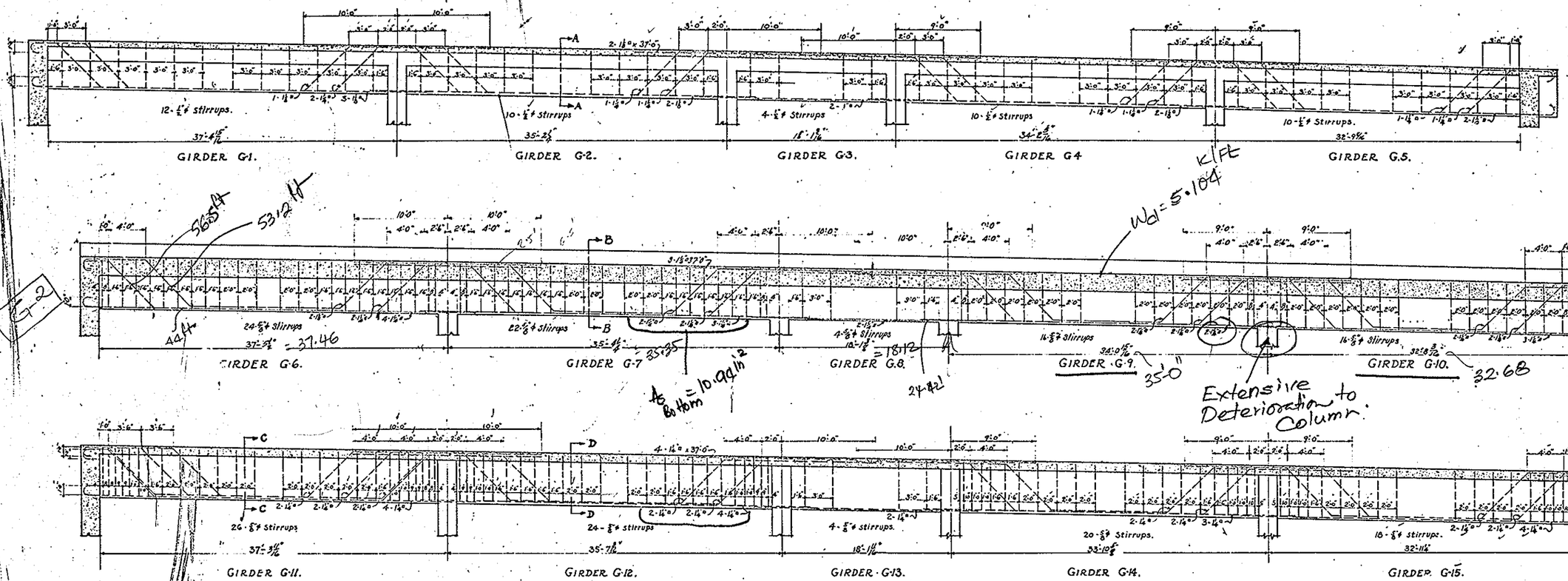
CENTRAL AVE. BRIDGE EXTENSION

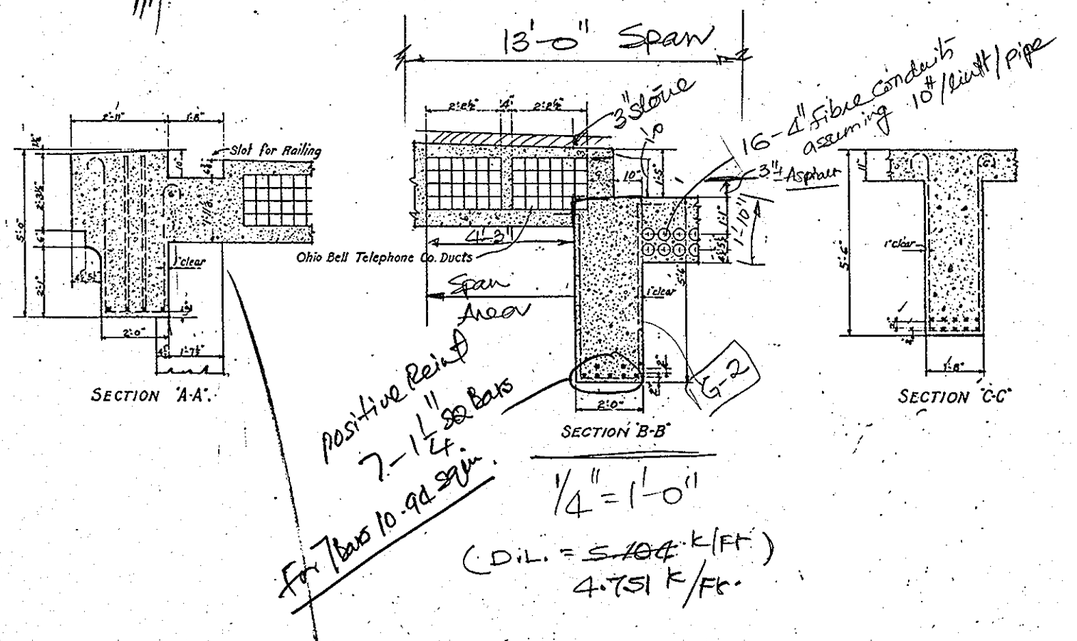
SCALE 1/8"-1/4"-1/2"=1'0"

FILE No.	WILBUR WATSON AND F. R. WALKER CONSULTING ENGINEERS AND ARCHITECTS CLEVELAND	DRAWING No.
4366		20

DRAWING MADE	DRAWN BY	TRACED BY	CHECKED BY	DATE	APPROVED BY	DATE
1/30 P.M. 1/30	F.R.W.	A.A.	W.W.W.	12-18-30		

NO.	DATE	REVISIONS	REV. BY	DATE	REMARKS
W.P.R.	1/31	INC. ATTORNEY FEE SCHEDULE			





APPROVED BY

CO. COMM. _____

CO. AUDITOR _____

CO. ENG. _____

BRIDGE ENG. _____

CUYAHOGA COUNTY	
BOARD OF COMMISSIONERS J. R. ZMUNT J. H. HARRIS W. E. COOK	COUNTY SURVEYOR F. R. WILLIAMS COUNTY BRIDGE ENGINEER A. M. FELGATE

LORAIN - CENTRAL BRIDGE
CLEVELAND, O.

CENTRAL AVE. BRIDGE EXTENSION

SCALE 3/16" - ½" - 1'-0"

FILE No.	WILBUR WATSON AND F. R. WALKER CONSULTING ENGINEERS AND ARCHITECTS CLEVELAND	DRAWING No.
4366		21

DRAWING MADE	DRAWN BY	TRACED BY	CHECKED BY	DATE	APPROVED BY	DATE
JAN. 23 1930	W.P.W.	A.K.	W.P.W.	1-15-30		

REV. BY	DATE	REMARKS	REV. BY	DATE	REMARKS

Carnegie Grade Separation Structure

3

1

Issue Nº A Oct. 11, 1926.

REVISIONS:

Issue Nº B Dec. 28, 1926.
Moved Gas and Duct Lines Chambers one bay east. Added Framing Plan.

Issue Nº C Mar. 8, 1927.
Revised Framing Plan and Section A-A. Added note on Water and Sewer lines.

Issue Nº 1 Mar. 14, 1927.
Revised Note. Approved by Chief Engineer.

Issue Nº 2 Mar. 16, 1927.
Removed Street lines for Atlas Pl.

Issue Nº 3 Apr. 14, 1927.
Moved 6" Water Line to the Chamber covering 30" Water Line.

Issue Nº 4 May 19, 1927.
Fixed Location of St. Car Tracks. Revised Framing Plan and Section.

Issue Nº 5 June 8, 1927.
Minor Revisions.

Issue Nº 6 July 1, 1927.
Redesigned and Redrawn.

Issue Nº 7 Oct. 12, 1927.
Revised for 2 Track Subway on West side of Bridge.

Issue Nº 8 Oct. 25, 1927.
Added C.E.I. Co. Pole Socket. Drawing Traced. Minor Revisions.

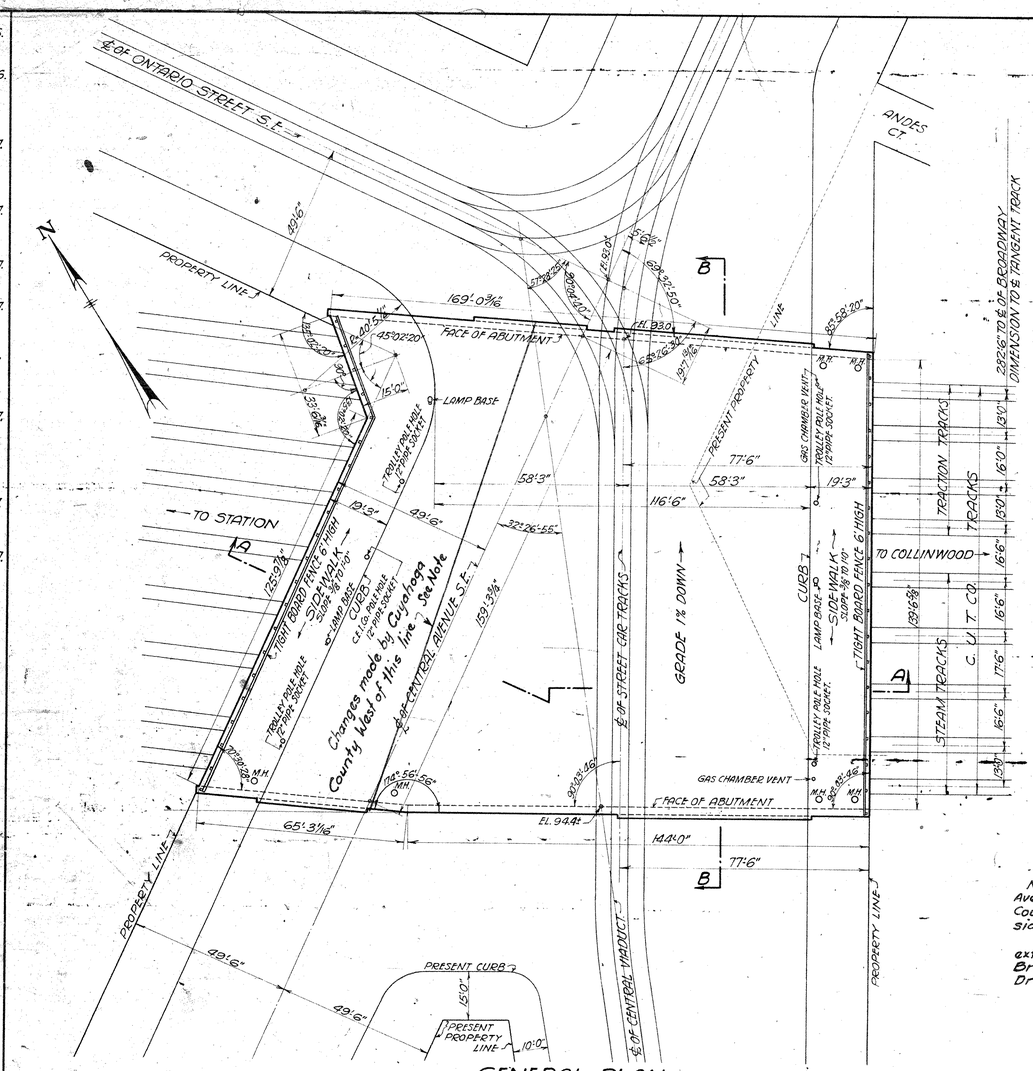
Issue Nº 9 Nov. 30, 1927.
Signed By Chief Engineer. Minor Revisions.

Issue Nº 10 Jan. 24, 1928.
Approved By Heads of Departments.

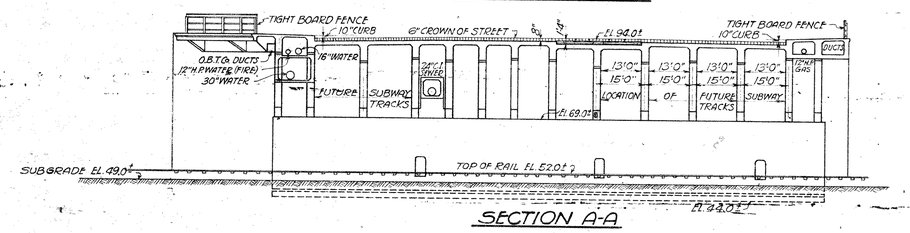
Issue Nº 11 Feb. 6, 1928.
All Water Lines Moved to West Side of Bridge.

Issue Nº 12 April 24, 1928.
Revised details of water lines. Approved by the City.

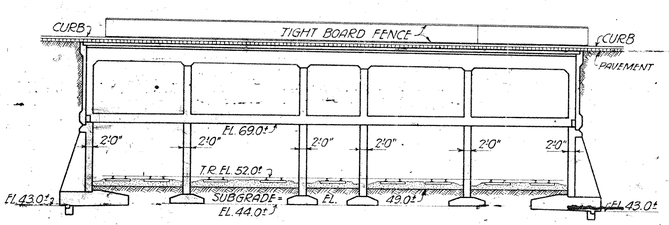
Issue Nº 13 Sept. 1, 1933.
Plan Conforms to Structure as Built.



GENERAL PLAN



SECTION A-A

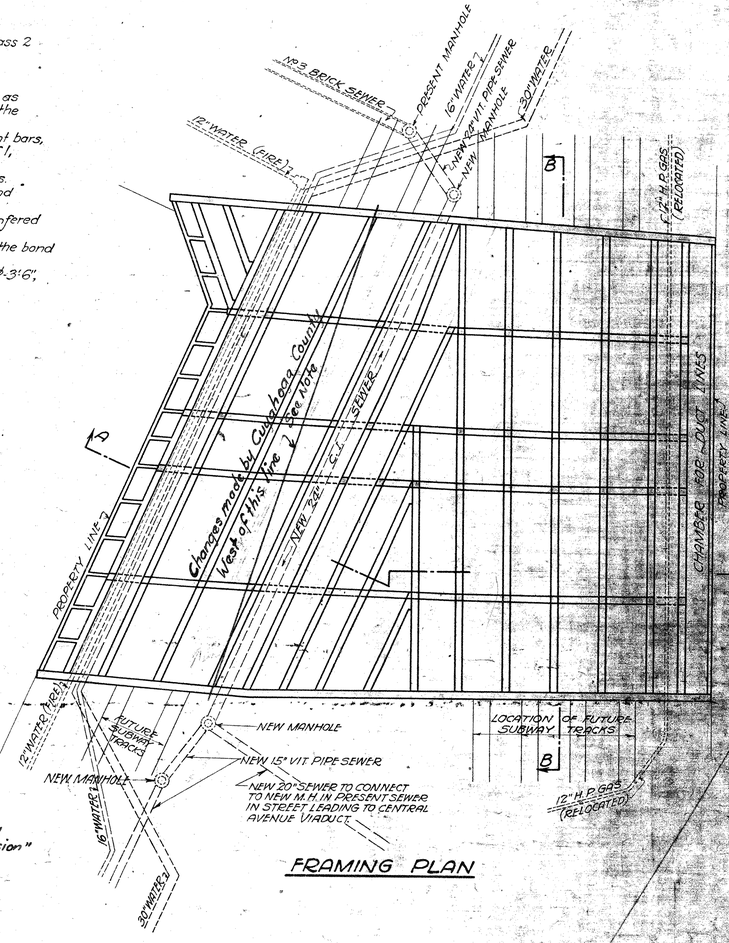


SECTION B-B

GENERAL NOTES:

All Concrete except duct encasement to be Class 2 (6 Bags of Cement per Cu. Yd.)
Duct encasement concrete to be Class 3 (4½ Bags of Cement per Cu. Yd.)
No Construction Joints to be made, except as shown, without specific authority from the Engineer of Structures, C.U.T. Co.
For explanation of method of marking bent bars, see "Standard Bar Marks" Sheet Nº 1 of 1, Issue Nº 2 dated June 20, 1927.
Specifications used for design - C.U.T. Co's. "Specifications for Highway Bridges and Viaducts" Issue Nº 1 dated July 10, 1924.
All exposed edges of Concrete to be chamfered ¾" unless otherwise noted.
In making splices for reinforcement bars the bond distance shall be as follows:
⅜"ø .1'6", ½"ø 2'0", ⅝"ø 2'6", ¾"ø 3'0", ⅞"ø 3'6", 1"ø & 1⅛"ø 4'0", 1⅛"ø 4'6" and 1¼"ø 5'0".

Note: Subsequent to the completion of the Central Avenue Bridge in accordance with this Plan, the County of Cuyahoga made alterations in the westerly side of this Bridge and extended it to the west.
For information concerning the alterations and extensions see the County's Plans for "Lorain-Central Bridge, Cleveland, Ohio; Central Ave. Bridge Extension" Drawings Nos. 18 to 22 inclusive.
E.P. Marsh Asst.



FRAMING PLAN

We Hereby Certify That This Plan Shows The Structure As Built.

E. P. Marsh 8/11/34
ENGINEER OF STRUCTURES

H. L. Rigelow 8/21/34
ASST. ENGINEER OF CONSTRUCTION

Designed By G.T.C. & J.H.C. 7-1-1927.
Detailed By S.H. Oct. 12, 1927.
Traced By S.H. Oct. 25, 1927.
Checked By G.T.C. Nov. 1, 1927.
Correct Mar 30, 1927.
G. P. Thomas
Designing Engineer

Approved E. P. Marsh
Engineer of Structures
Approved [illegible] 11/29/28
Principal Assistant Engineer
Approved [illegible] 11/29/28
Assistant Electrical Engineer
Approved [illegible] 11/23/28
Engineer of Construction

Plan Approved
CITY OF CLEVELAND
By ROBERT HOFFMANN
Commissioner of Engineering & Construction
Date 4-19-28

113-06.5:5

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE. BRIDGE
GENERAL PLAN AND SECTIONS
CLEVELAND, OHIO.
OFFICE OF ENGINEER OF STRUCTURES
SCALE: 1" = 20'-0" DATE: 10-1-26
ISSUE Nº 13 REVISED 9-1-33

CHIEF ENGINEER

FILED 113-06.5

Issue No A July 1, 1927.
REVISIONS:

Issue No B Oct. 26, 1927.
Traced & Checked.

Issue No 1 Nov. 30, 1927.
Signed By Chief Engineer.
Minor Revisions.

Issue No 2 Jan. 24, 1928.
Approved By Heads of Department

Issue No 3 April 24, 1928.
Approved by the City.

Issue No 4. Sept. 1, 1933.
Plan Conforms to Structure as Built.

PLAN OF N.W. CORNER
Scale: 1/2" = 1'-0"

PLAN OF S.W. CORNER
Scale: 1/2" = 1'-0"

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

We Hereby Certify That This Plan Shows The Structure As Built.

E. O. Marsh 9/11/34
Engineer Of Structures

T. C. Cleveland 9-7-34
Asst. Engineer Of Construction

Designed By G.T.C. July 1, 1927
Detailed By J.H.C. July 1, 1927
Traced By S.H. Oct. 26, 1927
Checked By J.H.C. & T.W. 10-26-1927
Correct Nov 30, 1927
F. L. Gorman
Designing Engineer

Approved E. O. Marsh
Engineer of Structures
Approved Chas Bacon 11/20/34
Principal Assistant Engineer
Approved [illegible]
Assistant Electrical Engineer
Approved [illegible] 11/23/34
Engineer of Construction

Plan Approved
CITY OF CLEVELAND
By ROBERT HOFFMANN
Commissioner of Engineering & Construction
Date 4-13-28.
For Original of this Signature
See P.L. Print Filed under No. 113-065-5

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE. BRIDGE
LAYOUT PLAN
CLEVELAND, OHIO.
OFFICE OF ENGINEER OF STRUCTURES
SCALE: AS SHOWN
ISSUE No. 4
DATE JULY 1, 1927.
REVISED 9-1-33
E. O. Marsh 11/27/34
CHIEF ENGINEER

FILE No 113-065 (2)

Issue N°A Oct. 3, 1927.

Revisions:-

Issue N°B Oct. 10, 1927.
Section "A-A" added. Drawing traced.

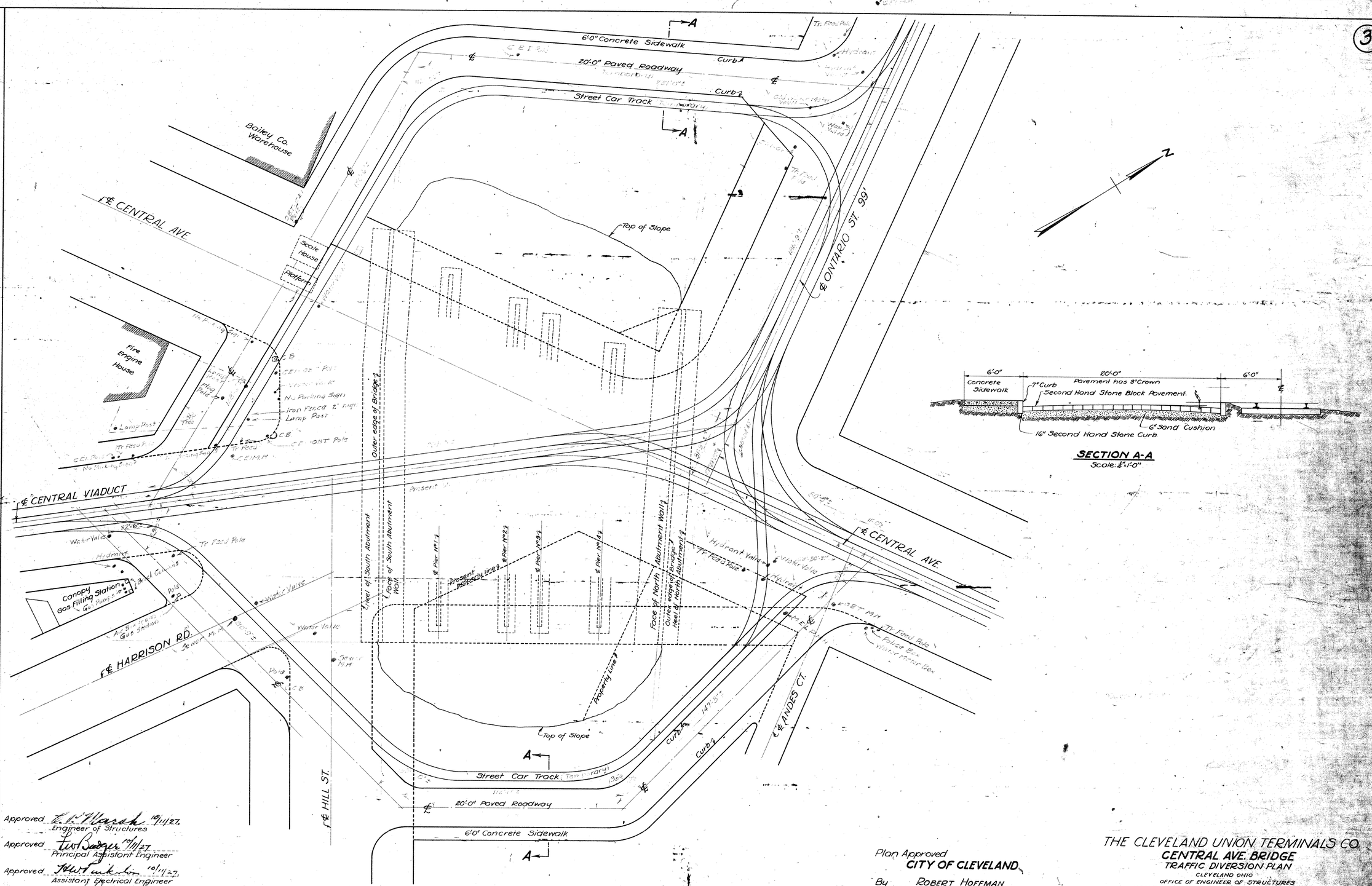
Issue N°1 Oct. 11, 1927.
Approved by Chief Engineer.

Issue N°2 Oct. 17, 1927.
Approved by Commissioner of Engineering & Construction of the City of Cleveland.

Issue N°3 Oct. 19, 1927.
Revised to conform with The Cleveland Railway Co's Drawing N°3456.

Issue N°4 Jan. 23, 1928
Approved By Heads of Departments.

Issue N°5 Sept. 1, 1933.
Plan Conforms to Structure as Built.



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

We Hereby Certify That This Plan Shows The Structure As Built.

H. O. Marsh 6/11/34.
Engineer Of Structures

H. P. Rigdon 6/27/34
Asst. Engineer Of Construction

Designed By F.I.G. Oct. 3, 1927
Detailed By G.T.C. Oct. 4, 1927
Traced By H.B. Oct. 10, 1927
Checked By G.T.C. Oct. 11, 1927
Correct Oct. 11, 1927
H. L. Gorman
Designing Engineer

Approved H. O. Marsh 10/11/27.
Engineer of Structures
Approved Fred Badger 10/11/27
Principal Assistant Engineer
Approved Robert Hoffman 10/11/27
Assistant Electrical Engineer
Approved M. M. Orloff 10/11/27
Engineer of Construction

Plan Approved
CITY OF CLEVELAND
By ROBERT HOFFMAN
Commissioner of Engineering & Construction
Date Oct. 14, 1927
For Original of this Signature
See Blue-Print filed under N°113-065-3

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE. BRIDGE
TRAFFIC DIVERSION PLAN
CLEVELAND OHIO
OFFICE OF ENGINEER OF STRUCTURES
SCALE: 1"=20'-0" DATE: Oct. 3, 1927.
ISSUE N° 5 REVISED: 9-1-33.

M. M. Orloff
CHIEF ENGINEER

FILE N°113-065

Issue No A May 26, 1927.

REVISIONS:

Issue No B Oct. 27, 1927.
Checked and Traced.

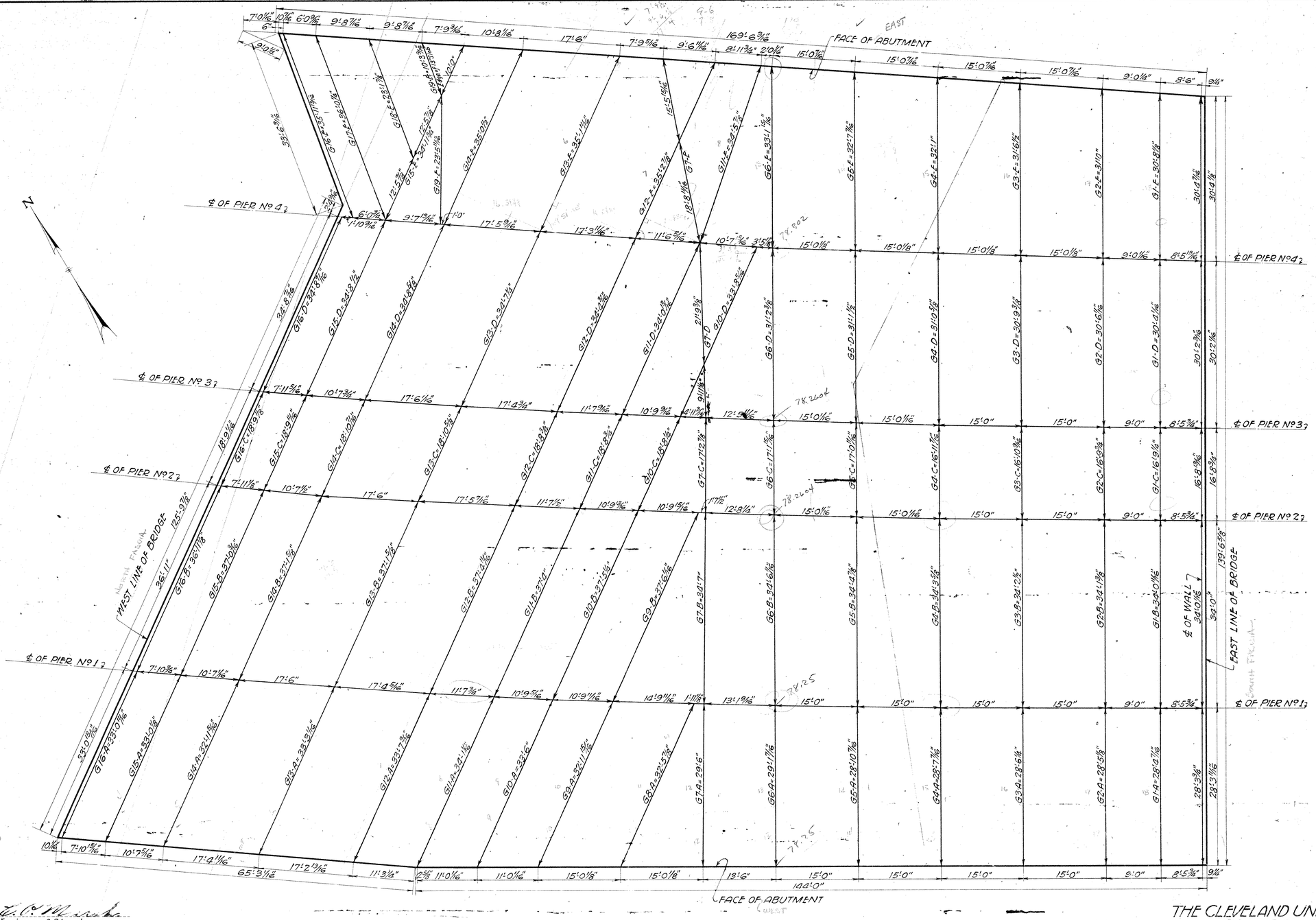
Issue No 1 Nov. 30, 1927.
Signed By Chief Engineer

Issue No 2 Jan. 24, 1928.
Approved By Heads of Departments.

Issue No 3 Feb. 6, 1928.
Changed G10-E to G6-E.

Issue No 4 April 24 1928
Approved by the City.

Issue No 5 Sept. 1, 1933.
Plan Conforms to Structure as Built.



Note: Lengths as given for Girders are along the ℄.

We Hereby Certify That This Plan Shows The Structure As Built.

E. O. Wendt 9/4/33
Engineer Of Structures

Asst. Engineer Of Construction

Designed By G.T.C. & J.H.C. 5-26-1927.
Detailed By H.B. May 26, 1927.
Traced By S.H. Oct. 27, 1927.
Checked By T.W. Nov. 10, 1927.
Correct Nov. 30, 1927.
H. L. Gorman
Designing Engineer

Approved E. O. Wendt
Engineer of Structures
Approved [illegible] 1/30/28
Principal Assistant Engineer
Approved [illegible]
Assistant Electrical Engineer
Approved [illegible]
Engineer of Construction

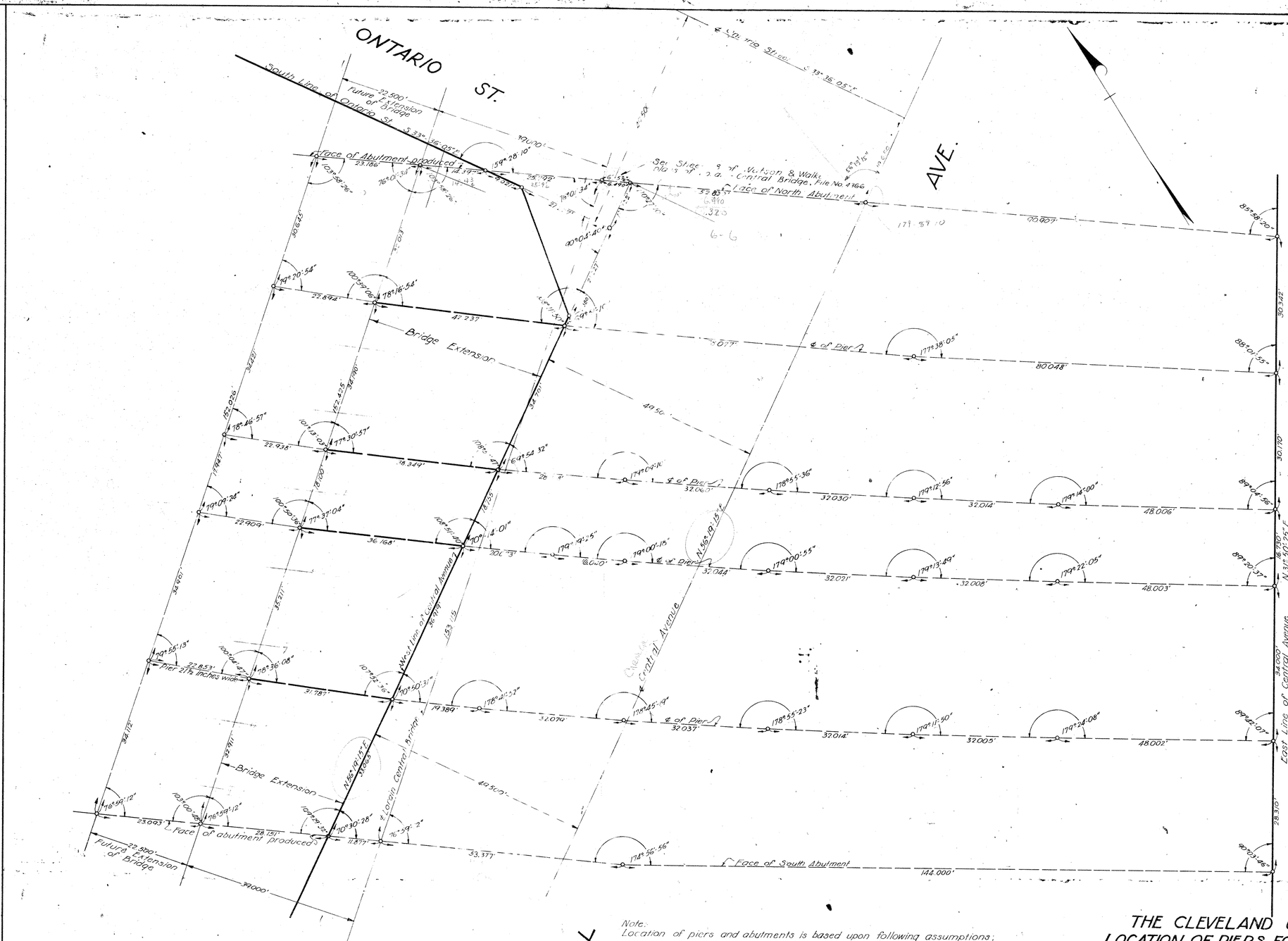
Plan Approved
CITY OF CLEVELAND
By ROBERT HOFFMANN
Commissioner of Engineering & Construction
Date 4-13-28.

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE. BRIDGE
FRAMING PLAN
FOR DECK
CLEVELAND, OHIO.
OFFICE OF ENGINEER OF STRUCTURES
SCALE: 1/8"=1'-0" DATE: MAY 26, 1927.
ISSUE No 5 REVISED 9-1-33
E. O. Wendt 11/30/27
CHIEF ENGINEER

FILE No 113-065
113-065-5

Issue B Oct. 24, 1930
Added note No. 6 and revised title.

Issue No. 1 Oct. 27, 1930.
Signed by the chief engineer.



Issue No A Oct. 18, 1927.

REVISIONS:

Issue No 8 Nov. 3, 1927.
Revised for C.E.I. Co. Insert.
Drawing Checked and Traced.

Issue No 1 Nov. 30, 1927.
Signed By Chief Engineer

Issue No 2 Jan. 24, 1928.
Approved By Heads of Departments.

Issue No 3 Feb. 7, 1928.
Removed Water Chambers.

Issue No 4. April 24, 1928.
Approved by the City.

Issue No 5 Sept. 1, 1933.
Plan Conforms to Structure as Built

We Hereby Certify That This Plan Shows The Structure As Built.

W. C. Wilcox 1/11/34
Engineer Of Structures

T. P. Kiernan 1/24/34
Asst. Engineer Of Construction

Designed By G.T.C. May 27, 1927.
Detailed By S.H. Oct. 18, 1927.
Traced By S.H. Nov. 3, 1927.
Checked By L.C.B. Nov. 5, 1927.
Correct Nov 30, 1927.
A. L. Lyssman
Designing Engineer

Approved W. C. Wilcox
Engineer of Structures

Approved Fred Lavis 11/20/28
Principal Assistant Engineer

Approved J. H. Winchester 11/21/28
Assistant Electrical Engineer

Approved [illegible] 11/23/28
Engineer of Construction

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

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

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

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

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

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

SECTION D-D
Scale: 1/8"=1'0"

SECTION E-E
Scale: 1/8"=1'0"

PLAN OF ROADWAY & SIDEWALK SLABS
Scale: 1/8"=1'0"

NOTE: For Sections M-M and N-N See Sheet No 19
For Sections O-O, P-P, Q-Q, R-R & S-S See Sh. No 11
All Manholes are City of Cleveland Standard 2'-4" ø Manholes.
For Details of Manholes, Lamp Post Base, 9" ø Hole for Gas Chamber Vent, Trolley Pole & C.E.I. Co. Pole Anchorage See Sheet No 19.
See Sheets #18 & 18A for Details at Curtain Walls.

Plan Approved
CITY OF CLEVELAND
By ROBERT HOFFMANN
Commissioner of Engineering & Construction
Date 4-18-28

For Original of this Signature
See Blue Print Filed under No. 113-065-S

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE. BRIDGE
ROADWAY AND SIDEWALK SLABS
CLEVELAND, OHIO.
OFFICE OF ENGINEER OF STRUCTURES
SCALE: AS NOTED
ISSUE No 5
DATE: 10-18-1927.
REVISED 9-1-33

A. L. Lyssman 11/24/27
CHIEF ENGINEER

FILE No 113-065

5

Issue Nº A Aug. 5, 1927.

REVISIONS:-

Issue Nº B Nov. 16, 1927.
Drawing Checked.

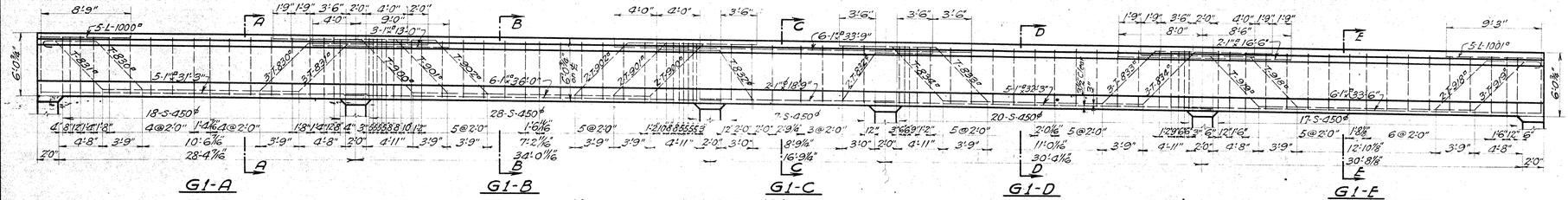
Issue Nº C Dec. 5, 1927.
Drawing Traced.

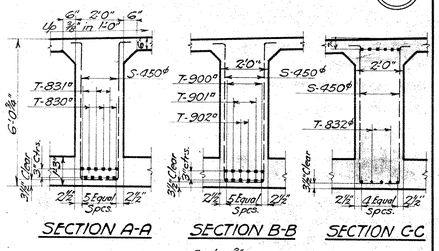
Issue Nº 1 Dec. 16, 1927.
Signed By Chief Engineer.

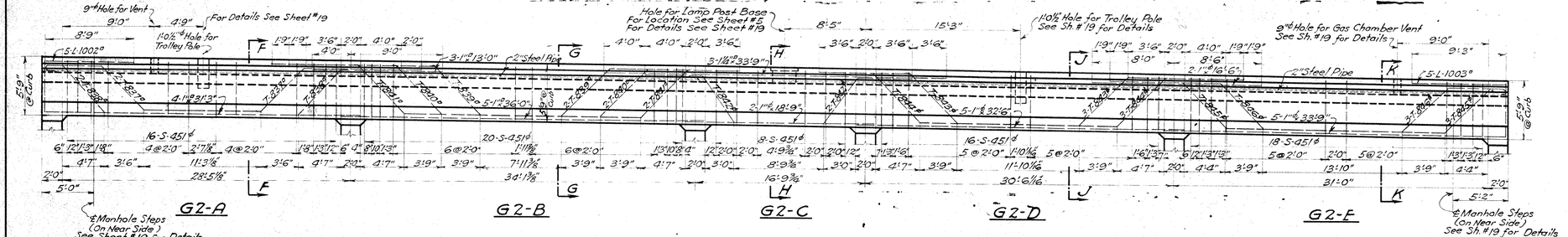
Issue Nº 2 Jan. 24, 1928.
Approved By Heads of Departments

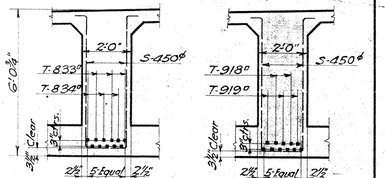
Issue Nº 3 April 24, 1928.
Approved by the City.

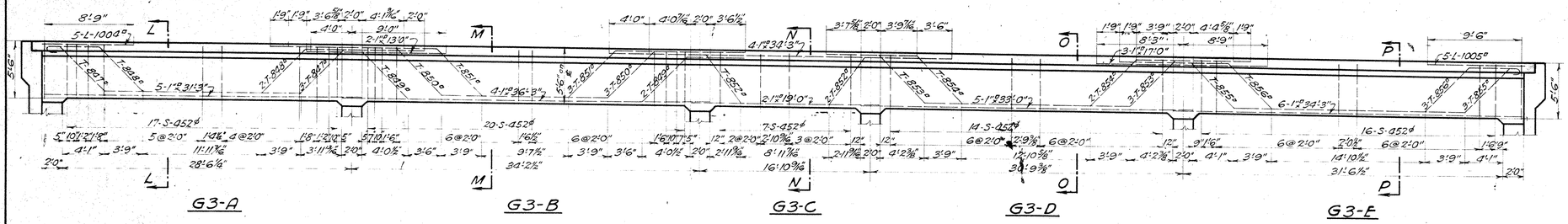
Issue Nº 4 Sept 1, 1933.
Plan Conforms to Structure as Built.

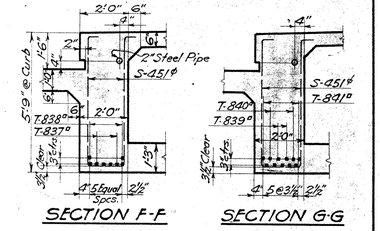


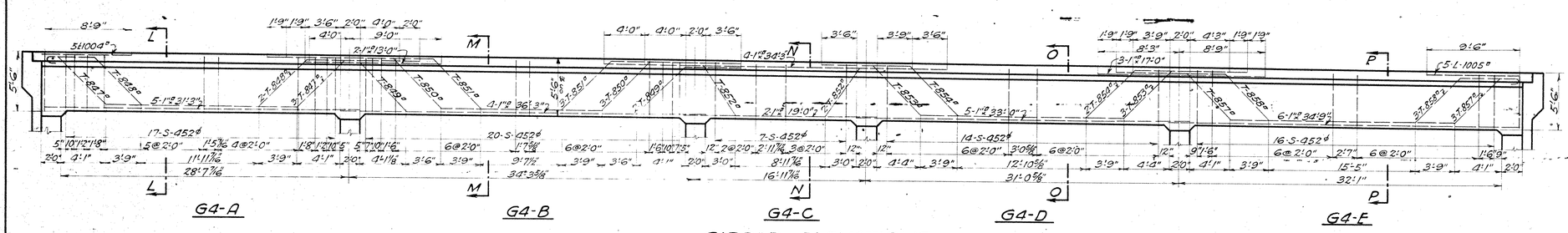




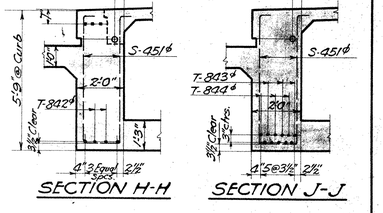


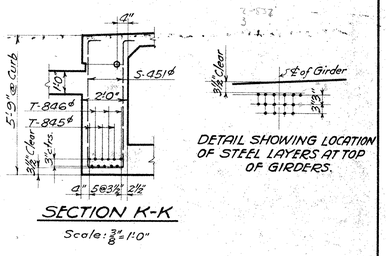


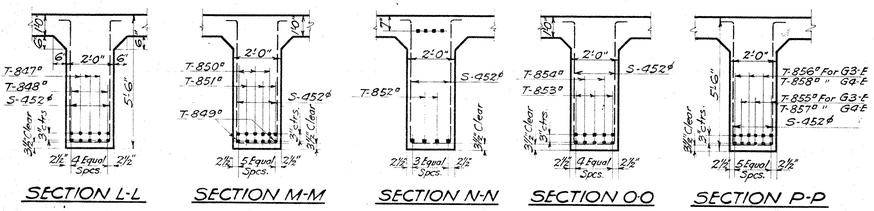




GIRDER ELEVATIONS
Scale: 1/8"=1'-0"







Note:- All Dimensions on Elevations are measured on ℄ of Girder.

We Hereby Certify That This Plan Shows The Structure As Built

E. V. Mueish 7/11/34
Engineer Of Structures

Asst. Engineer Of Construction

Designed By G.T.C. July 5, 1927.
Detailed By L.C.B. Aug. 5, 1927.
Traced By S.H. Dec. 5, 1927.
Checked By T.W. Dec. 16, 1927.
Correct Dec. 16, 1927.
H. L. Gipman
Designing Engineer

Approved E. V. Mueish
Engineer of Structures
Approved
Principal Assistant Engineer
Approved
Assistant Electrical Engineer
Approved
Engineer of Construction

Plan Approved
CITY OF CLEVELAND
By ROBERT HOFFMANN
Commissioner of Engineering & Construction
Date 4-13-28
For Original of this Signature
See Blue Print Filed under Nº 113-065-S

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE. BRIDGE
DETAILS OF GIRDERS
Nº 1, 2, 3 AND 4
CLEVELAND, OHIO.
OFFICE OF ENGINEER OF STRUCTURES
SCALE: AS SHOWN
ISSUE NO. 4
DATE AUG. 5, 1927.
REVISED 9-1-33

H. Gawthrop 12/4/27
CHIEF ENGINEER 7/11/34

FILE Nº 113-065

Issue No. A — Aug. 11, 1927
Revisions

Issue No. B — Nov. 16, 1927
Drawing Checked.

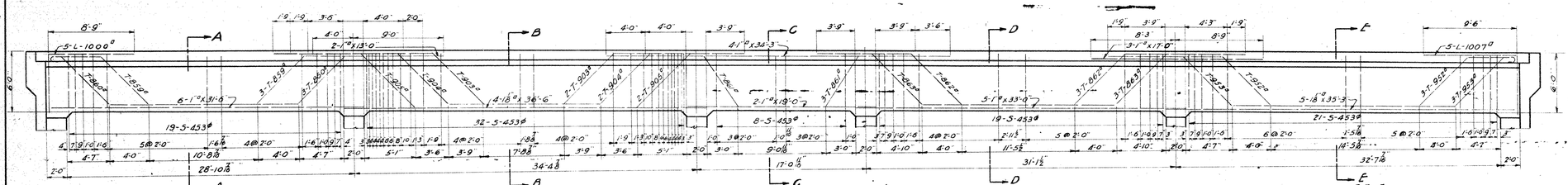
Issue No. 1 — Dec. 16, 1927
Signed by Chief Engineer
Traced

Issue No. 2 — Jan. 24, 1928.
Approved By Heads of Departments.

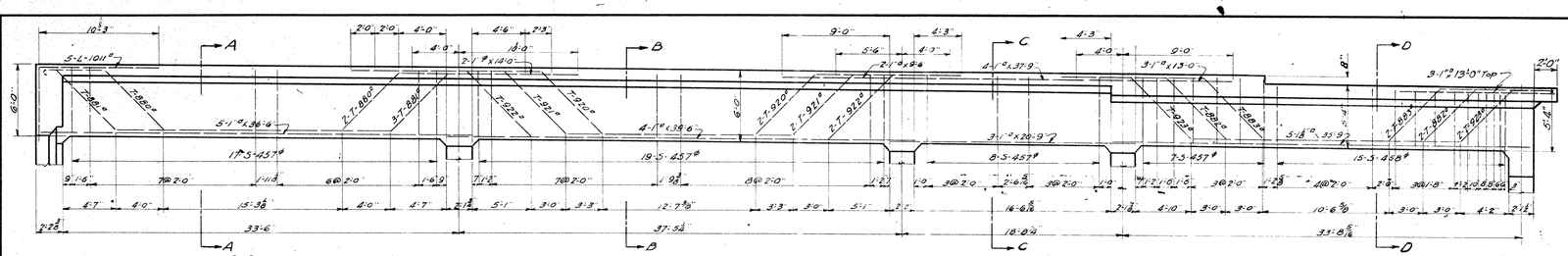
Issue No. 3 — Feb. 17, 1928.
Revised to move Water Chambers to West side of Bridge, and added Girder G6-E.

Issue No. 4 — April 24, 1928.
Approved by the City.

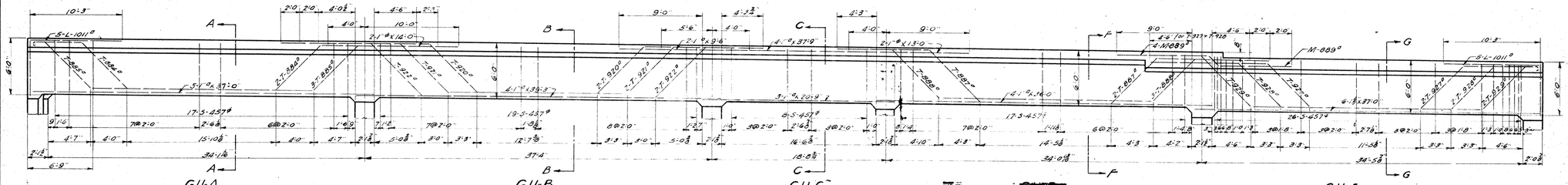
Issue No. 5 — Sept. 1, 1933.
Plan Conforms to Structure as Built.

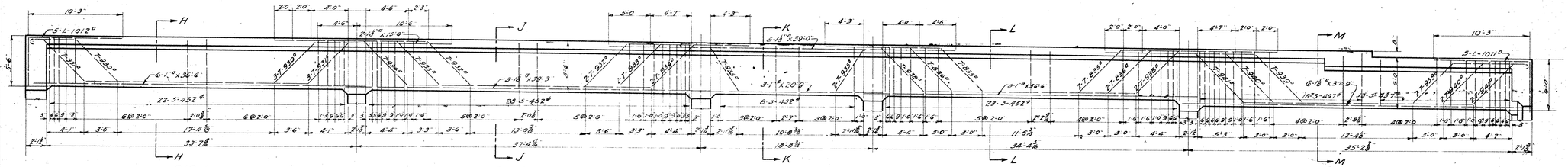


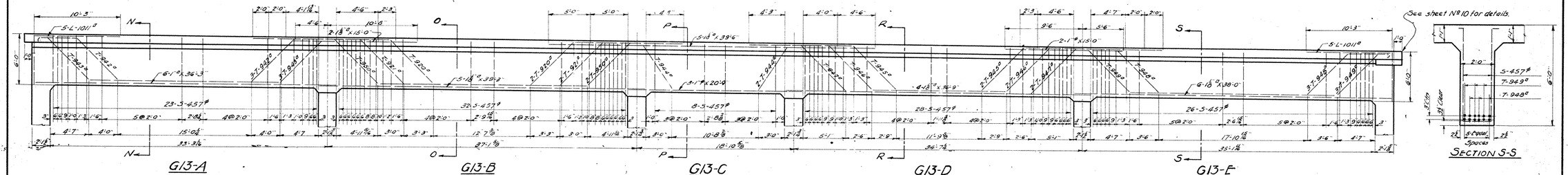
Issue N°A	Aug. 17, 1927
Revisions	
Issue N° B	Nov. 15, 1927
Drawing Checked.	
Issue N°1	Nov. 30, 1927
Approved by Chief Engineer.	
Issue N°2	Dec. 20, 1927
Traced & Checked	
Issue N°3	Dec. 29, 1927.
Signed by the Chief Engineer.	
Issue N°4	Jan. 24, 1928.
Approved By Heads of Departments.	
Issue N°5	Feb. 8, 1928.
Removed Water Chamber from Elevation and Sections. Removed Girder G10-E	
Issue N°6	April 24, 1928.
Approved by the City.	
Issue N°7	Sept 1, 1933.
Plan Conforms to Structure as Built.	

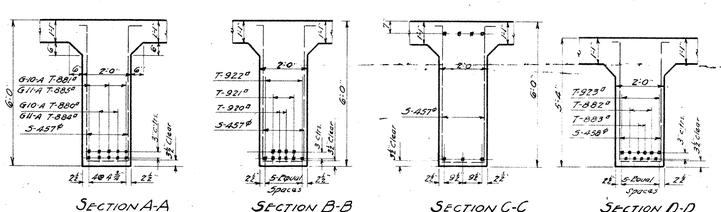


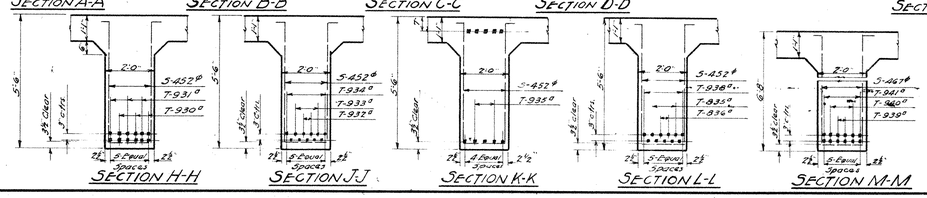
Note: All dimensions on elevations are measured on ℄ Girder.











We Hereby Certify That This Plan Shows The Structure As Built.

G. C. Whitnah 9/11/34
Engineer Of Structures

T. L. Condron
Asst. Engineer Of Construction

Designed By G.T.C. July 5, 1927
Detailed By L.C.B. Aug. 14, 1927
Traced By J.J.N. Dec. 19, 1927
Checked By T.W. Dec. 20, 1927
Correct Dec 24 1927
G. A. Gorman
Designing Engineer

Approved G. C. Whitnah
Engineer of Structures
Approved T. W. Boggs
Principal Assistant Engineer
Approved
Assistant Electrical Engineer
Approved
Engineer of Construction

Plan Approved
CITY OF CLEVELAND
By ROBERT HOFFMANN
Commissioner of Engineering & Construction
Date 9-13-28.
For Original of this Signature
See Blue Print Filed under No. 113-065-S

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE BRIDGE
DETAIL OF GIRDERS
N° 10, 11, 12, & 13.
CLEVELAND, OHIO.
OFFICE OF ENGINEER OF STRUCTURES.
SCALE: 3/16"=1'-0" Sections 3/8"=1'-0"
ISSUE N° 7
DATE Aug. 17, 1927
REVISED 9-1-33.
G. A. Gorman 9-24-28
CHIEF ENGINEER.

FILE N° 113-065

Issue N°A Oct. 20,- 1927
Revisions

Issue N°B Nov. 15,- 1927
Drawing Checked.

Issue N°1 Nov. 30,- 1927
Approved by Chief Engineer.

Issue N°2 Dec. 22,- 1927
Traced & Checked

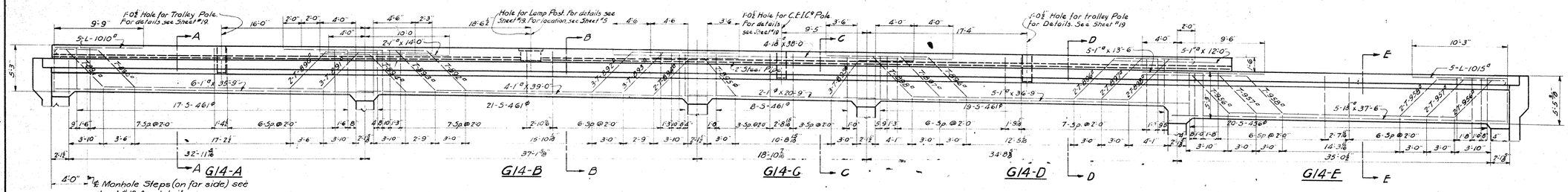
Issue N°3 Dec. 29, 1927.
Signed by the Chief Engineer.

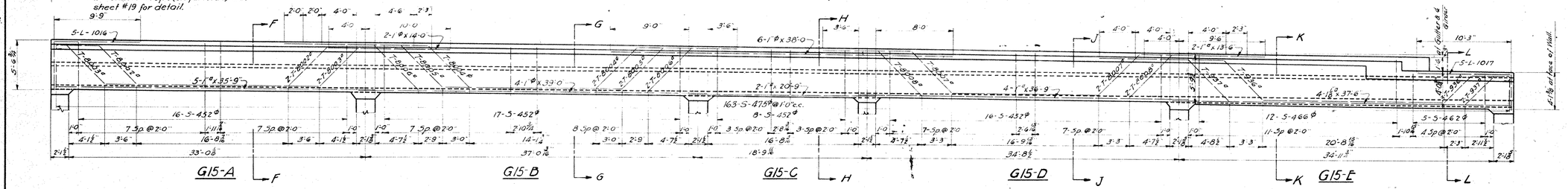
Issue N°4 Jan. 24, 1928.
Approved By Heads of Departments.

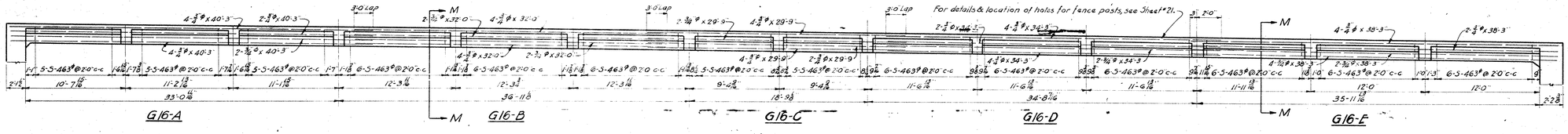
Issue N°5 Feb. 8, 1928.
Removed Water Chamber from Elevation and Sections.

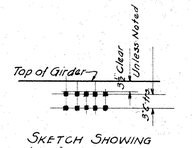
Issue N°6 April 24, 1928.
Approved by the City.

Issue N° 7 Sep't. 1, 1933.
Plan Conforms to Structure as Built.

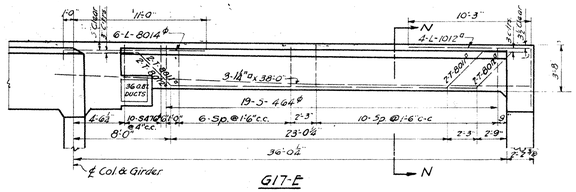


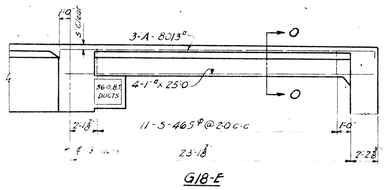


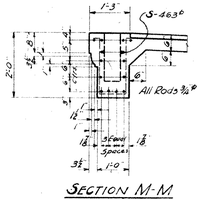


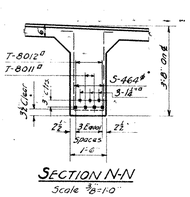


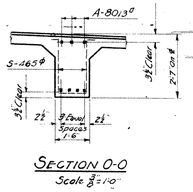
SKETCH SHOWING LOCATION OF STEEL IN TOP OF GIRDERS.

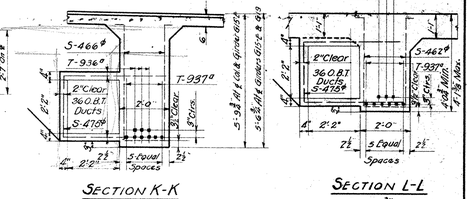


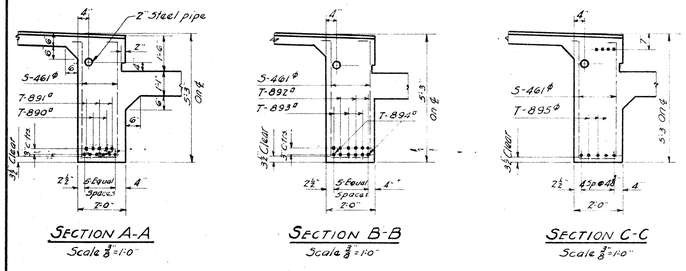


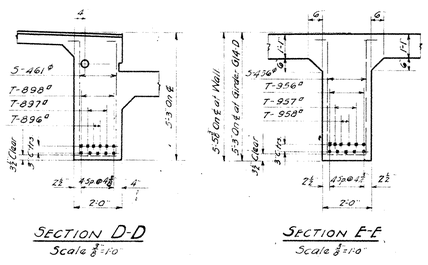


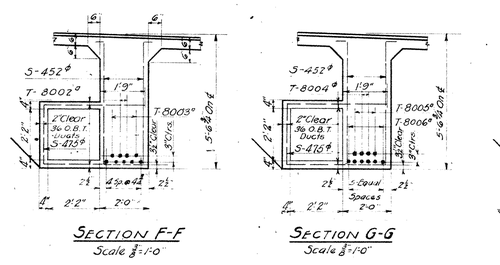












Note: All Dimensions on Elevations are measured on ℄ Girders.

We Hereby Certify That This Plan Shows The Structure As Built.

E. V. Murdock 7/11/34
Engineer Of Structures

T. J. Rockwell 7/11/34
Ass't. Engineer Of Construction

Designed By G.T.C. & J.H.C. Oct. 10, 1927
Detailed By L.C.B. Oct. 20, 1927
Traced By J.J.N. Dec. 22, 1927
Checked By T.W. Dec. 22, 1927
Correct Dec. 29 1927
F. L. Gorman
Designing Engineer

Approved E. V. Murdock
Engineer of Structures
Approved Earl Kingsley 11/24/27
Principal Assistant Engineer
Approved H. W. Tuttle
Assistant Electrical Engineer
Approved T. J. Rockwell
Engineer of Construction

Plan Approved
CITY OF CLEVELAND
By Robert Hoffmann
Commissioner of Engineering & Construction
Date 4-13-28
For Original of this Structure See Blue Print Filed under No. 113-065-S

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE BRIDGE
DETAIL OF GIRDERS
G14, G15, G16, G17, & G18.
CLEVELAND, OHIO.
OFFICE OF ENGINEER OF STRUCTURES.
SCALE: Plan ⅜" Details As Shown. DATE 10-20-27
ISSUE N° 7 REVISED 9-1-33
F. A. Wolf
CHIEF ENGINEER

FILE N° 113-065

Issue Nº A Oct. 20, 1927

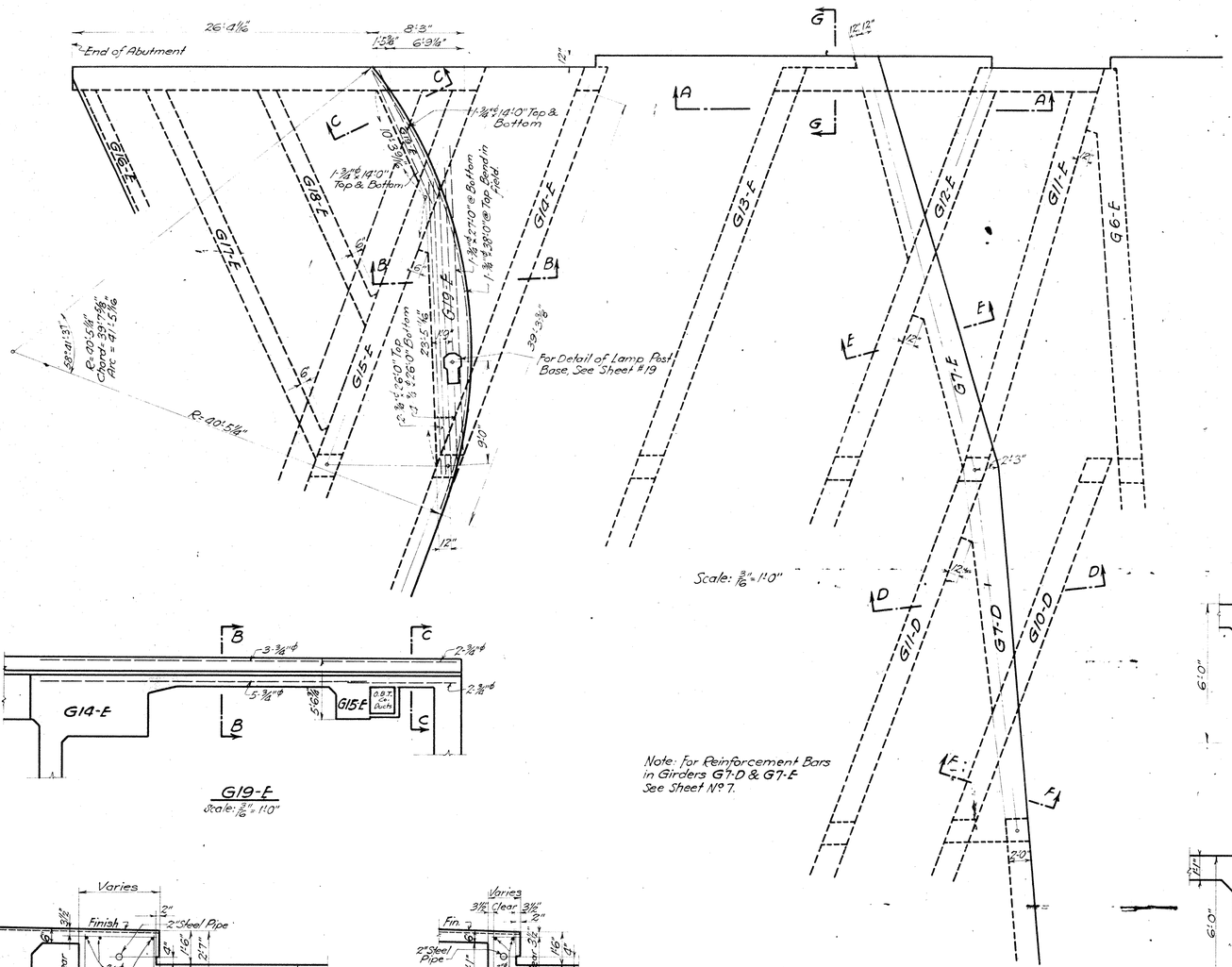
REVISIONS:-

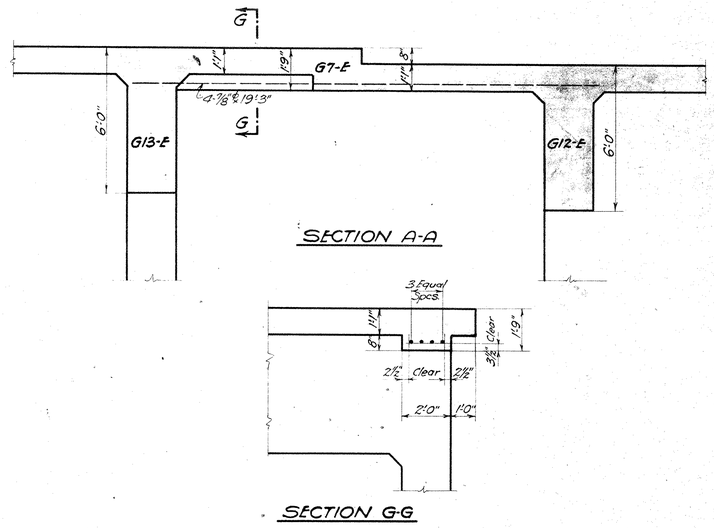
Issue Nº B Nov. 22, 1927.
Drawing Checked and Traced.

Issue Nº 1 Nov. 30, 1927.
Signed By Chief Engineer.

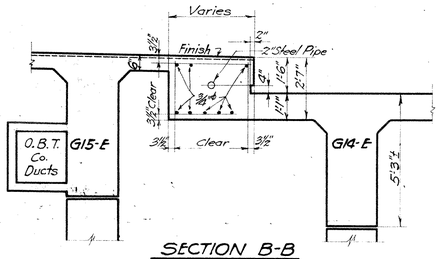
Issue Nº 2 Jan. 24, 1928.
Approved By Heads of Departments.
Issue Nº 3 Feb. 21, 1928.
Revised to move all Water Chambers to West side of Bridge, removed Girder G10-E, added G6-E.
Issue Nº 4 April 24, 1928.
Approved by the City.

Issue Nº 5 Sept. 1, 1933.
Plan Conforms to Structure as Built.

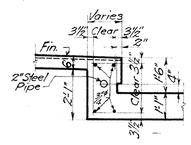




G19-E
Scale: 3/16"=1'-0"



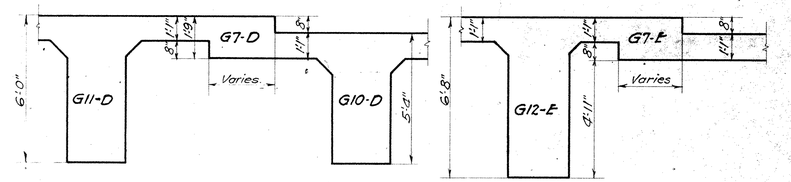
SECTION B-B

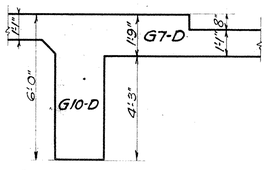


SECTION C-C

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

Note: for Reinforcement Bars in Girders G7-D & G7-E See Sheet Nº 7.





SECTION F-F

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

We Hereby Certify That This Plan Shows The Structure As Built.

E. C. Wheelock 7/11/34
Engineer Of Structures

Asst. Engineer Of Construction

Designed By G.T.C. Sept. 30, 1927.
Detailed By T.W. Oct. 20, 1927.
Traced By S.H. Nov. 22, 1927.
Checked By L.C.B. Nov. 15, 1927.
Correct Nov. 30, 1927.
Designing Engineer

Approved E. C. Wheelock
Engineer of Structures
Approved [illegible] 1/20/28
Principal Assistant Engineer
Approved [illegible]
Assistant Electrical Engineer
Approved [illegible]
Engineer of Construction

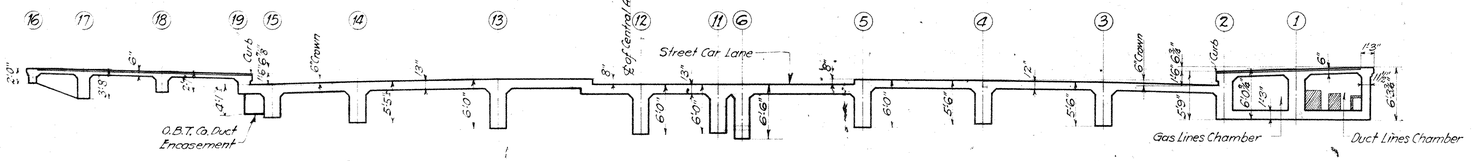
Plan Approved
CITY OF CLEVELAND
By ROBERT HOFFMANN
Commissioner of Engineering & Construction
Date 4-13-28
For Original of this Signature
See Blue Print Filed under No. 113-065-S

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE. BRIDGE
DETAILS OF GIRDERS G7-D, G7-E & G19-E
CLEVELAND, OHIO.
OFFICE OF ENGINEER OF STRUCTURES
SCALE- AS SHOWN
ISSUE Nº 5
DATE- OCT. 20, 1927.
REVISED. 9-1-33

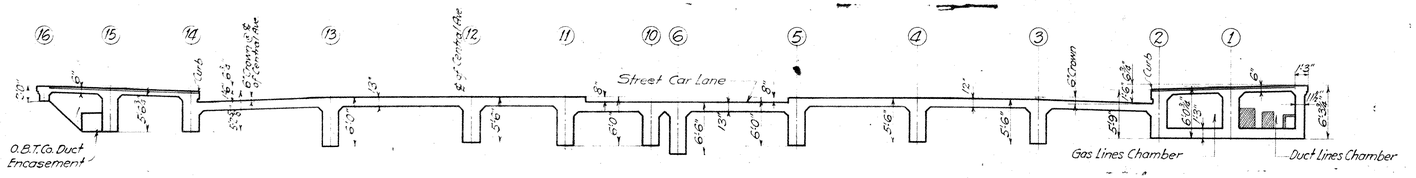
[illegible] 11/30/27
CHIEF ENGINEER 17-4-1-S

FILE Nº 113-065

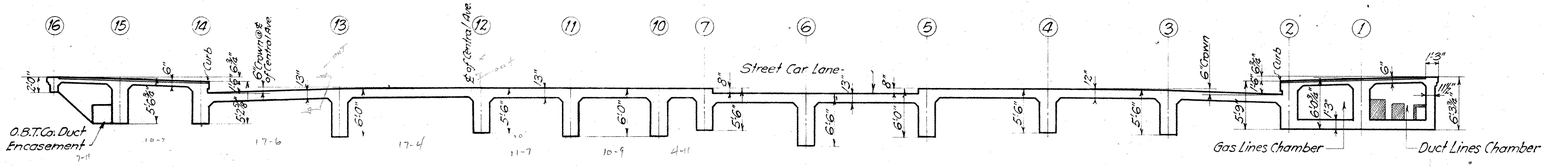
Issue Nº A Oct. 20, 1927.
REVISIONS::
Issue Nº B Nov. 21, 1927.
Checked and Drawing Traced.
Issue Nº 1 Nov. 30, 1927.
Signed By Chief Engineer.
Issue Nº 2 Jan. 24, 1928.
Approved By Heads of Departments.
Issue Nº 3 Feb. 8, 1928.
Removed Water Chambers.
Issue Nº 4 April 24, 1928.
Approved by the City.
Issue Nº 5 Sep't 1, 1933.
Plan Conforms to Structure as Built.



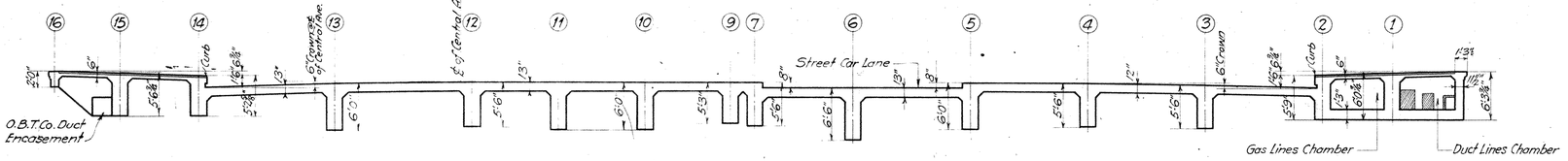
SECTION O-O



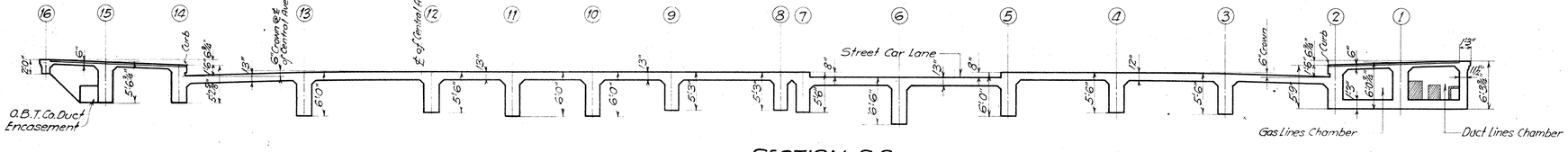
SECTION P-P



SECTION Q-Q



SECTION R-R



SECTION S-S

NOTE: For Location of Sections See Sheet Nº 5

We Hereby Certify That This Plan Shows The Structure As Built.

E. P. Marsh 7/11/28
Engineer Of Structures

Asst. Engineer Of Construction

Designed By G.T.C. & J.H.C. 7-5- 1927.
Detailed By S.H. Oct. 20, 1927.
Traced By S.H. Nov. 21, 1927.
Checked By T.W. Nov. 18, 1927.
Correct Nov - 30 1927
H. L. Yeoman
Designing Engineer

Approved E. P. Marsh
Engineer of Structures
Approved Fwt Engr 11/21/27
Principal Assistant Engineer
Approved
Assistant Electrical Engineer
Approved
Engineer of Construction

Plan Approved
CITY OF CLEVELAND
By ROBERT HOFFMANN
Commissioner of Engineering & Construction
Date 4-13-28.
For Original of this Signature
See Blue Print Filed under No. 113-065-9

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE. BRIDGE
CROSS SECTIONS OF DECK
CLEVELAND, OHIO.
OFFICE OF ENGINEER OF STRUCTURES
SCALE: 1/4" 1:0" DATE: OCT. 20, 1927.
ISSUE Nº 5 REVISED 9-1-33.
H. L. Yeoman 11/30/27
CHIEF ENGINEER 9/1/33

FILE Nº 113-065

Issue N°A May 31, 1927.
REVISIONS:

Issue N°B Nov. 23, 1927.
Drawing Checked and Traced.

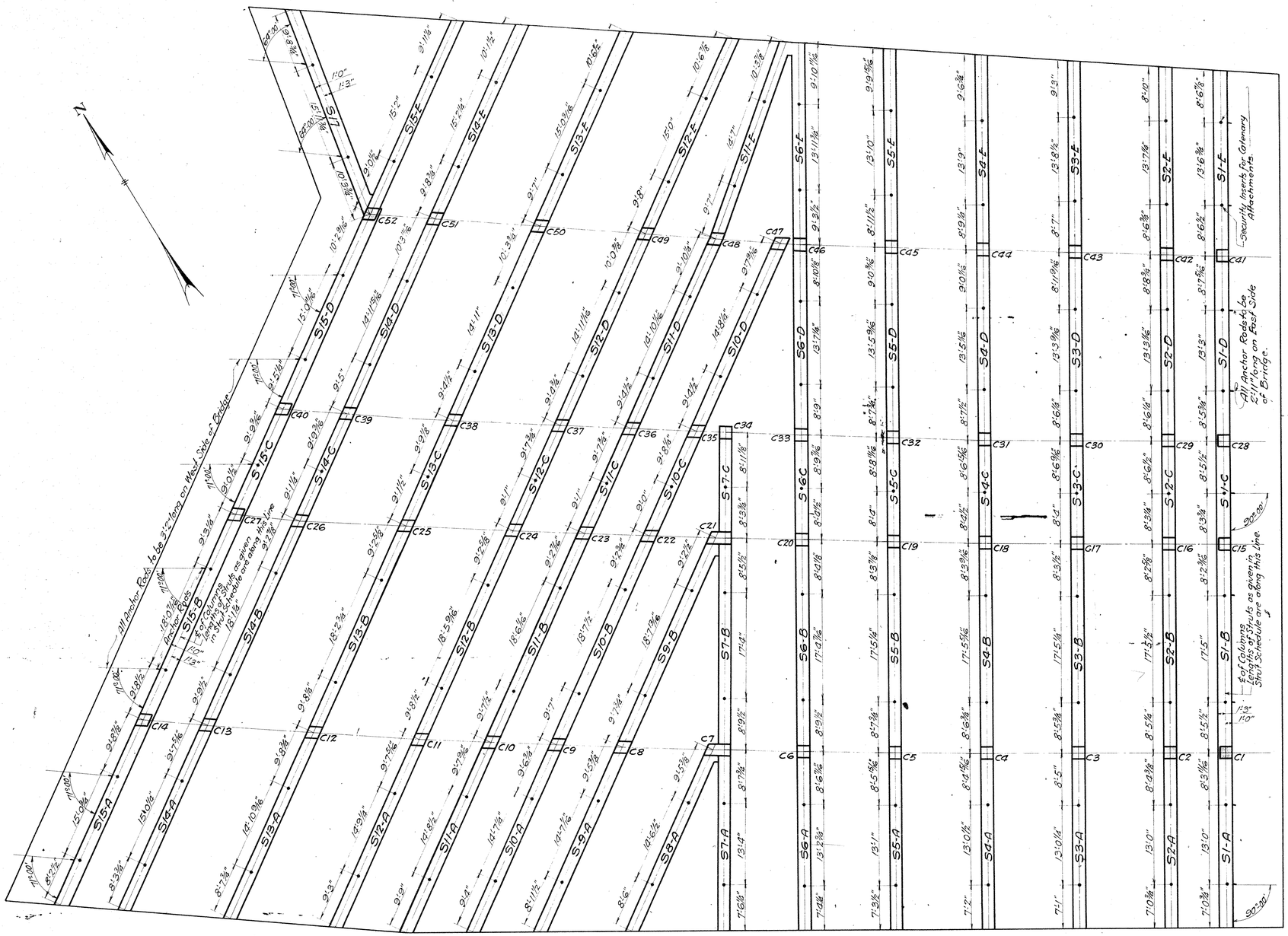
Issue N° 1 Nov. 30, 1927.
Signed By Chief Engineer.

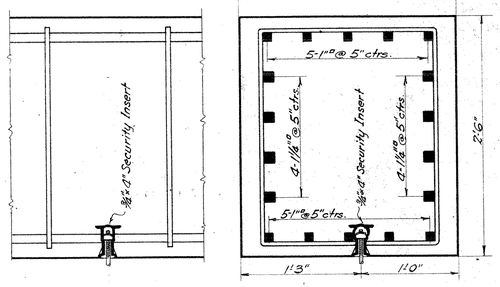
Issue N° 2 Jan. 24, 1928.
Approved By Heads of Departments.

Issue N° 3 April 24, 1928.
Approved by the City.

Issue N°4 July 30, 1928.
Revised Details of Catenary Anchor Rods.

Issue N° 5 Sept. 1, 1933.
Plan Conforms to Structure as Built.

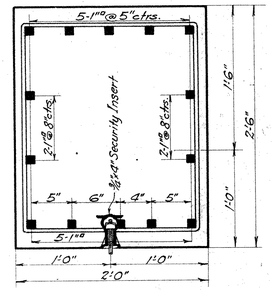




LONGITUDINAL SECTION CROSS SECTION

TYPICAL SECTIONS OF EXTERIOR STRUTS

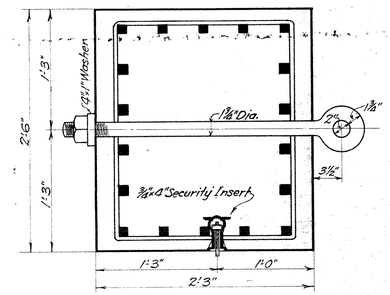
Showing Catenary Attachments and Reinforcement.
Scale: 1½"=1'-0"



Required:-
119-Inserts as shown.
18-1⅛" Rods as shown.

TYPICAL SECTION OF INTERIOR STRUTS

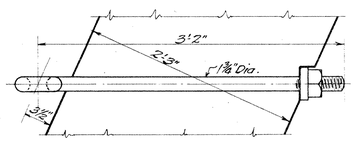
Showing Catenary Attachments and Reinforcement.
Scale: 1½"=1'-0"



TYPICAL SECTION OF EXTERIOR STRUTS

Showing Anchor Rod for O.H. Catenary
Scale: 1½"=1'-0"

Note: All parts of Catenary Attachments to be hot dip galvanized.



TYPICAL DETAIL OF ANCHOR RODS IN WEST SIDE STRUT

Scale: 1½"=1'-0"

FRAMING PLAN OF STRUTS

Scale: ⅛"=1'-0"
Note: for Dimensions See Sheet N°2.

We Hereby Certify That This Plan Shows The Structure As Built

E. L. Ulrich 10/1/34
Engineer Of Structures

Asst Engineer Of Construction

Designed By G.T.C. May 31, 1927.
Detailed By H.B. May 31, 1927.
Traced By S.H. Nov. 23, 1927.
Checked By J.H.C. Nov. 23, 1927.
Correct Nov. 30, 1927.
Designing Engineer

Approved E. L. Ulrich
Engineer of Structures
Approved
Principal Assistant Engineer
Approved
Assistant Electrical Engineer
Approved
Engineer of Construction

Plan Approved
CITY OF CLEVELAND
By ROBERT HOFFMANN
Commissioner of Engineering & Construction
Date 4-19-28

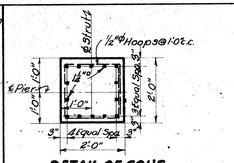
For Original of this Signature
See Blue Print Filed under N. 113-065-5

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE. BRIDGE
PLAN OF COLUMNS AND STRUTS
CLEVELAND, OHIO.
OFFICE OF ENGINEER OF STRUCTURES
SCALE: AS SHOWN. DATE: MAY 31, 1927.
ISSUE N° 5 REVISED: 9-1-33.

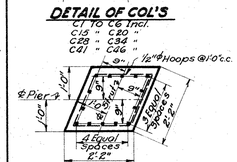
CHIEF ENGINEER 11/4/27

FILE N° 113-065 (12)

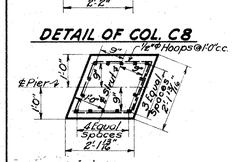
Issue Nº A June 20, 1927.
Revisions:-
Issue Nº B Nov. 12, 1927.
Drawing checked & Minor revisions traced.
Issue Nº 1 Nov. 30, 1927.
Signed By Chief Engineer.
Issue Nº 2 Jan. 24, 1928.
Approved By Heads of Departments.
Issue Nº 3. April 24, 1928.
Approved by the City.
Issue Nº 4. Aug. 2, 1928.
Revised Hoops in C7 & C21.
Issue Nº 5 Sept. 1, 1933.
Plan Conforms to Structure as Built.



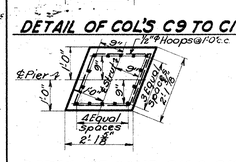
DETAIL OF COL'S
C1 TO C6 Incl.
C13 " C20 "
C28 " C34 "
C41 " C46 "



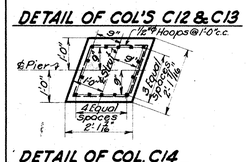
DETAIL OF COL. C8



DETAIL OF COL'S C9 TO C11 Incl.



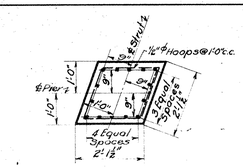
DETAIL OF COL'S C12 & C13



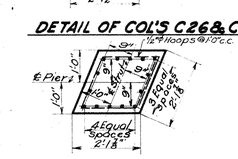
DETAIL OF COL. C14

DETAIL OF COL. C22

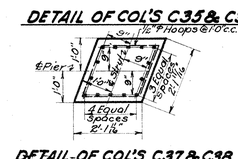
DETAIL OF COL'S C23 TO C25 Incl.



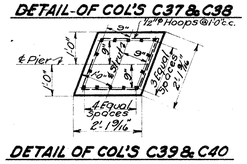
DETAIL OF COL'S C26 & C27



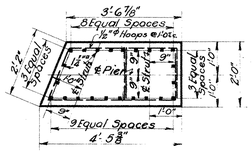
DETAIL OF COL'S C35 & C36



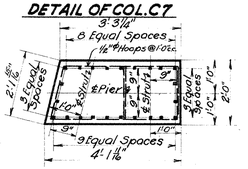
DETAIL-OF COL'S C37 & C38



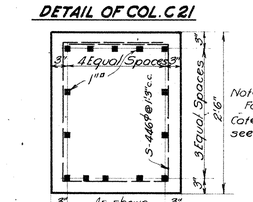
DETAIL OF COL'S C39 & C40 AND COL'S C47 TO C52 Incl.



DETAIL OF COL. C7

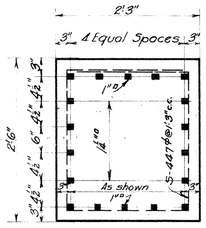


DETAIL OF COL. C21



Note:- For location of Catenary Insert see sheet Nº12

TYPICAL INSIDE STRUT DETAIL
Scale: 1"=1'-0"



OUTSIDE STRUTS
5-1-A, B, C, D, E; 5-15-A, B, C, D; 5-17

COLUMN SCHEDULE

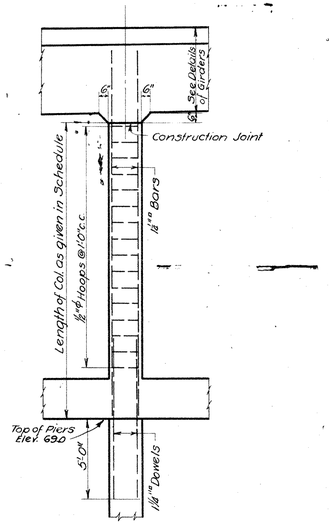
NO.	SIZE	LENGTH	HOOPS	VERTICAL STEEL REINFORCEMENT
C1	2'0"×2'0"	19'-2 3/16"	17-H-440#	14-1 1/16"ø, 25'0"
C2	2'0"×2'0"	19'-2 3/16"	17-H-440#	14-1 1/16"ø, 22'9"
C3	2'0"×2'0"	18'-3"	16-H-440#	14-1 1/16"ø, 23'0"
C4	2'0"×2'0"	18'-5 1/16"	16-H-440#	14-1 1/16"ø, 23'0"
C5	2'0"×2'0"	17'-11 3/16"	16-H-440#	14-1 1/16"ø×22'6"
C6	2'0"×2'0"	16'-9 3/16"	15-H-440#	14-1 1/16"ø, 22'6"
C7	SEE SECTION	18'-5 1/16"	16-H-440S 16-H-441S	23-1 1/16"ø×22'6"
C8	2'2"×2'2"	18'-8 3/16"	17-H-443#	14-1 1/16"ø, 23'3"
C9	2'1 3/16"×2'1 3/16"	17'-11 9/16"	16-H-443#	14-1 1/16"ø, 23'3"
C10	2'1 3/16"×2'1 3/16"	17'-11 1/16"	16-H-443#	14-1 1/16"ø, 23'3"
C11	2'1 3/16"×2'1 3/16"	18'-5 7/16"	16-H-443#	14-1 1/16"ø, 23'3"
C12	2'1 7/16"×2'1 7/16"	17'-10 7/8"	16-H-443#	14-1 1/16"ø×23'0"
C13	2'1 3/16"×2'1 3/16"	19'-9 3/16"	18-H-443#	14-1 1/16"ø, 22'9"
C14	2'1 7/16"×2'1 7/16"	19'-9 1/16"	18-H-443#	14-1 1/16"ø×25'0"
C15	2'0"×2'0"	18'-10 3/4"	17-H-440#	14-1 1/16"ø, 24'9"
C16	2'0"×2'0"	18'-10 3/4"	17-H-440#	14-1 1/16"ø×22'6"
C17	2'0"×2'0"	17'-10 5/16"	16-H-440#	14-1 1/16"ø, 22'9"
C18	2'0"×2'0"	18'-1"	16-H-440#	14-1 1/16"ø, 22'9"
C19	2'0"×2'0"	17'-7 7/8"	16-H-440#	14-1 1/16"ø×22'3"
C20	2'0"×2'0"	16'-5 5/8"	14-H-440#	14-1 1/16"ø, 22'3"
C21	SEE SECTION	18'-1 9/16"	16-H-440S 16-H-441S	23-1 1/16"ø, 22'3"
C22	2'1 3/16"×2'1 3/16"	17'-7 7/16"	16-H-443#	14-1 1/16"ø, 23'0"
C23	2'1 3/16"×2'1 3/16"	17'-7 7/16"	16-H-443#	14-1 1/16"ø, 23'0"
C24	2'1 3/16"×2'1 3/16"	18'-1 7/16"	16-H-443#	14-1 1/16"ø, 23'0"
C25	2'1 3/16"×2'1 3/16"	17'-6 1/16"	16-H-443#	14-1 1/16"ø, 22'9"
C26	2'1 1/16"×2'1 1/16"	19'-5 7/16"	17-H-443#	14-1 1/16"ø, 22'6"
C27	2'1 1/16"×2'1 1/16"	19'-5"	17-H-443#	14-1 1/16"ø, 24'9"
C28	2'0"×2'0"	18'-8 3/16"	17-H-440#	14-1 1/16"ø, 24'6"
C29	2'0"×2'0"	18'-8 1/16"	17H-440#	14-1 1/16"ø, 22'3"
C30	2'0"×2'0"	17'-8 7/16"	16-H-440#	14-1 1/16"ø, 22'6"
C31	2'0"×2'0"	17'-10 7/16"	16-H-440#	14-1 1/16"ø, 22'9"
C32	2'0"×2'0"	17'-5 7/16"	15-H-440#	14-1 1/16"ø×22'0"
C33	2'0"×2'0"	16'-3 7/16"	14-H-440#	14-1 1/16"ø×22'0"
C34	2'0"×2'0"	17'-11 1/2"	16H-440#	14-1 1/16"ø, 22'0"
C35	2'1 7/16"×2'1 7/16"	17'-5 7/16"	15-H-443#	14-1 1/16"ø, 22'9"
C36	2'1 7/16"×2'1 7/16"	17'-5 7/16"	15-H-443#	14-1 1/16"ø×22'9"
C37	2'1 7/16"×2'1 7/16"	17'-11 7/16"	16-H-443#	14-1 1/16"ø×22'9"
C38	2'1 7/16"×2'1 7/16"	17'-4"	15-H-443#	14-1 1/16"ø, 22'6"
C39	2'1 7/16"×2'1 7/16"	19'-3 1/16"	17-H-443#	14-1 1/16"ø, 22'9"
C40	2'1 7/16"×2'1 7/16"	19'-2 7/16"	17-H-443#	14-1 1/16"ø, 24'6"
C41	2'0"×2'0"	18'-5 1/16"	16-H-440#	14-1 1/16"ø, 24'3"
C42	2'0"×2'0"	18'-5 1/16"	16-H-440#	14-1 1/16"ø, 22'0"
C43	2'0"×2'0"	17'-5 3/16"	15-H-440#	14-1 1/16"ø, 22'3"
C44	2'0"×2'0"	17'-7 1/16"	16-H-440#	14-1 1/16"ø, 22'3"
C45	2'0"×2'0"	17'-7 7/8"	15-H-440#	14-1 1/16"ø, 21'9"
C46	2'0"×2'0"	15'-11 13/16"	14-H-440#	14-1 1/16"ø, 21'9"
C47	2'1 7/16"×2'1 7/16"	17'-1 13/16"	15-H-443#	14-1 1/16"ø, 21'9"
C48	2'1 7/16"×2'1 7/16"	16'-5 7/16"	15-H-443#	14-1 1/16"ø, 21'9"
C49	2'1 7/16"×2'1 7/16"	16'-5 7/16"	14-H-443#	14-1 1/16"ø, 22'6"
C50	2'1 7/16"×2'1 7/16"	17'-0 7/16"	15-H-443#	14-1 1/16"ø, 22'3"
C51	2'1 7/16"×2'1 7/16"	17'-5 1/16"	15-H-443#	14-1 1/16"ø×22'0"
C52	2'1 7/16"×2'1 7/16"	18'-8 1/16"	17-H-443#	14-1 1/16"ø, 24'9"

STRUT SCHEDULE

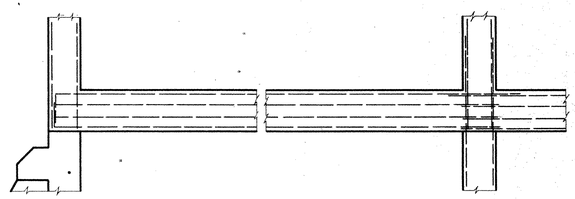
NO.	SIZE	LENGTH	STIRRUPS	TOP STEEL	BOTTOM STEEL	SIDE STEEL
S-1-A	2'3"×2'6"	28'-4 1/2"	22-S-447#	5-L-820ª	5-L-820ª	8-L-1025ª
S-2-A	2'0"×2'6"	28'-5 5/8"	22-S-446#	5-L-820ª	5-L-820ª	4-1"ª×31'6"
S-3-A	" "	28'-6 1/4"	22-S-446#	5-L-820ª	5-L-820ª	4-1"ª, 31'6"
S-4-A	" "	28'-7 1/8"	23-S-446#	5-L-820ª	5-L-820ª	4-1"ª, 31'6"
S-5-A	" "	28'-8"	23-S-446#	5-L-820ª	5-L-820ª	4-1"ª, 31'6"
S-6-A	" "	29'-1/16"	23-S-446#	5-L-821ª	5-L-821ª	4-1"ª, 32'3"
S-7-A	" "	29'-6"	23-S-446#	5-L-821ª	5-L-821ª	4-1"ª, 32'3"
S-8-A	" "	32'-3 7/8"	26-S-446#	5-A-822ª	5-L-828ª	4-1"ª×34'-6"
S-9-A	" "	32'-11 5/8"	26-S-446#	5-L-823ª	5-L-823ª	4-1"ª×36'0"
S-10-A	" "	33'-6"	26-S-446#	5-L-824ª	5-L-824ª	4-1"ª, 36'6"
S-11-A	" "	34'-1 1/16"	27-S-446#	5-L-819ª	5-L-819ª	4-1"ª×37'-3"
S-12-A	" "	33'-7 1/16"	27-S-446#	5-L-824ª	5-L-824ª	4-1"ª, 36'6"
S-13-A	" "	33'-3 1/2"	26-S-446#	5-L-824ª	5-L-824ª	4-1"ª, 36'6"
S-14-A	" "	32'-11 5/8"	26-S-446#	5-L-823ª	5-L-823ª	4-1"ª, 36'0"
S-15A	2'3"×2'6"	33'-0 3/8"	26-S-447#	5-L-823ª	5-L-823ª	8-L-1026ª
S-1-B	" "	34'-0 1/16"	26-S-447#	5-1"ª, 38'0"	5-1"ª, 36'0"	8-1 1/2"ª, 36'0"
S-2-B	2'0"×2'6"	34'-1 3/8"	26-S-446#	5-1"ª, 38'0"	5-1"ª, 36'0"	4-1"ª×36'0"
S-3-B	" "	34'-2 1/2"	26-S-446#	5-1"ª×98'0"	5-1"ª, 36'0"	4-1"ª, 36'0"
S-4-B	" "	34'-3 3/8"	26-S-446#	5-1"ª×38'0"	5-1"ª, 36'0"	4-1"ª, 36'0"
S-5-B	" "	34'-4 1/2"	26-S-446#	5-1"ª×38'0"	5-1"ª, 36'0"	4-1"ª, 36'0"
S-6-B	" "	34'-5 3/8"	27-S-446#	5-1"ª×38'0"	5-1"ª, 36'0"	4-1"ª×36'0"
S-7-B	" "	34'-7"	27-S-446#	5-1"ª×38'0"	5-1"ª, 36'0"	4-1"ª×36'0"
S-9-B	" "	37'-6 1/2"	29-S-446#	5-L-816ª	5-1"ª, 39'6"	4-1"ª, 39'6"
S-10-B	" "	37'-5 3/8"	29-S-446#	5-1"ª×41'-6"	5-1"ª×39'6"	4-1"ª, 39'6"
S-11-B	" "	37'-4"	29-S-446#	5-1"ª×41'-6"	5-1"ª, 39'6"	4-1"ª, 39'6"
S-12-B	" "	37'-4 1/2"	29-S-446#	5-1"ª×41'-6"	5-1"ª×39'6"	4-1"ª×39'6"
S-13-B	" "	37'-1 5/8"	28-S-446#	5-1"ª×41'-6"	5-1"ª, 39'6"	4-1"ª, 39'6"
S-14-B	" "	37'-1 5/8"	28-S-446#	5-1"ª×41'-6"	5-1"ª, 39'6"	4-1"ª, 39'6"
S-15-B	2'3"×2'6"	37'-0 3/8"	28-S-447#	5-1"ª×41'-6"	5-1"ª, 39'6"	8-1 1/2"ª, 39'6"
S-1-C	" "	16'-9 3/4"	12-S-447#	5-1"ª×21'-0"	5-1"ª, 19'0"	8-1 1/2"ª, 19'0"
S-2-C	2'0"×2'6"	16'-9 3/8"	12-S-446#	5-1"ª×21'-0"	5-1"ª, 19'0"	4-1"ª, 19'0"
S-3-C	" "	16'-10 1/2"	12-S-446#	5-1"ª×21'-0"	5-1"ª, 19'0"	4-1"ª, 19'0"
S-4-C	" "	16'-11 5/8"	12-S-446#	5-1"ª×21'-0"	5-1"ª, 19'0"	4-1"ª, 19'0"
S-5-C	" "	17'-0 1/4"	12-S-446#	5-1"ª×21'-0"	5-1"ª, 19'0"	4-1"ª, 19'0"
S-6-C	" "	17'-1 1/8"	13-S-446#	5-1"ª×21'-0"	5-1"ª, 19'0"	4-1"ª×19'0"
S-7-C	" "	17'-2 3/8"	13-S-446#	5-L-815ª	5-1"ª×19'0"	4-1"ª×19'0"

STRUT SCHEDULE

NO.	SIZE	LENGTH	STIRRUPS	TOP STEEL	BOTTOM STEEL	SIDE STEEL
S-10-C	2'0"×2'6"	18'-8 3/4"	14-S-446#	5-1"ª×22'9"	5-1"ª×20'9"	4-1"ª×20'9"
S-11-C	" "	18'-8 3/4"	14-S-446#	5-1"ª, 22'9"	5-1"ª×20'9"	4-1"ª×20'9"
S-12-C	" "	18'-8 3/4"	14-S-446#	5-1"ª, 22'9"	5-1"ª×20'9"	4-1"ª×20'9"
S-13-C	" "	18'-10 3/8"	14-S-446#	5-1"ª, 22'9"	5-1"ª×20'9"	4-1"ª×20'9"
S-14-C	" "	18'-10 3/8"	14-S-446#	5-1"ª, 22'9"	5-1"ª×20'9"	4-1"ª×20'9"
S-15-C	2'3"×2'6"	18'-9 1/2"	14-S-447#	5-1"ª, 22'9"	5-1"ª×20'9"	8-1 1/2"ª×20'9"
S-1-D	" "	30'-4 1/2"	23-S-447#	5-1"ª×34'9"	5-1"ª×32'9"	8-1 1/2"ª×32'9"
S-2-D	2'0"×2'6"	30'-6 1/4"	23-S-446#	5-1"ª×34'9"	5-1"ª×32'9"	4-1"ª×32'9"
S-3-D	" "	30'-7 3/8"	23-S-446#	5-1"ª×34'9"	5-1"ª×32'9"	4-1"ª×32'9"
S-4-D	" "	31'-0 3/8"	24-S-446#	5-1"ª×34'9"	5-1"ª, 32'9"	4-1"ª×32'9"
S-5-D	" "	31'-1 1/4"	24-S-446#	5-1"ª×34'9"	5-1"ª, 32'9"	4-1"ª×32'9"
S-6-D	" "	31'-2 3/8"	24-S-446#	5-1"ª×34'9"	5-1"ª×32'9"	4-1"ª×32'9"
S-10-D	" "	33'-0 1/2"	26-S-446#	5-L-819ª	5-1"ª, 36'0"	4-1"ª×36'0"
S-11-D	" "	34'-0 1/16"	26-S-446#	5-1"ª×38'0"	5-1"ª, 36'0"	4-1"ª×36'0"
S-12-D	" "	34'-4 1/2"	26-S-446#	5-1"ª×38'0"	5-1"ª×36'0"	4-1"ª×36'0"
S-13-D	" "	34'-7 1/4"	27-S-446#	5-1"ª×38'0"	5-1"ª×36'0"	4-1"ª×36'0"
S-14-D	" "	34'-8 3/8"	26-S-446#	5-1"ª×38'0"	5-1"ª, 36'0"	4-1"ª×36'0"
S-15-D	2'3"×2'6"	34'-8 1/2"	26-S-447#	5-1"ª×38'0"	5-1"ª×36'0"	8-1 1/2"ª×36'0"
S-1-E	" "	30'-8 1/2"	24-S-447#	5-L-818ª	5-L-818ª	8-L-1027ª
S-2-E	2'0"×2'6"	31'-0"	24-S-446#	5-L-818ª	5-L-818ª	4-1"ª, 34'0"
S-3-E	" "	31'-6 3/8"	25-S-446#	5-L-818ª	5-L-818ª	4-1"ª×34'0"
S-4-E	" "	32'-1"	25-S-446#	5-L-817ª	5-L-817ª	4-1"ª×35'0"
S-5-E	" "	32'-7 1/2"	26-S-446#	5-L-825ª	5-L-825ª	4-1"ª×35'6"
S-6-E	" "	33'-1 1/2"	26-S-446#	5-L-825ª	5-L-825ª	4-1"ª×35'6"
S-11-E	" "	34'-0 3/8"	27-S-446#	5-L-819ª	5-L-819ª	4-1"ª×37'3"
S-12-E	" "	34'-7 3/8"	28-S-446#	5-L-827ª	5-L-827ª	4-1"ª×38'0"
S-13-E	" "	35'-1 1/4"	28-S-446#	5-L-827ª	5-L-827ª	4-1"ª×38'0"
S-14-E	" "	35'-0 1/2"	28-S-446#	5-L-827ª	5-L-827ª	4-1"ª×38'0"
S-15-E	" "	34'-11 3/8"	28-S-446#	5-L-827ª	5-L-827ª	4-1"ª×38'0"
S-17	2'3"×2'6"	36'-0 1/2"	29-S-447#	5-A-826ª	5-L-814ª	4-M-1028ª 4-M-1029ª



TYPICAL COLUMN ELEVATION
Scale: 1/4"=1'0"



TYPICAL STRUT DETAIL AT WALL & COLUMN
Scale: 1/4"=1'0"

NOTE: Lengths of Struts given c to c of Columns and center of Columns to Face of Abutment.

We Hereby Certify That This Plan Shows The Structure As Built

E. P. Marsh 11/1/33
Engineer Of Structures

Asst. Engineer Of Construction

Designed By G.T.C. June 20 1927.
Detailed By J.H.C. Oct. 19 1927.
Traced By H.B. Nov. 18 1927.
Checked By L.C.B. & T.W. Nov. 12 1927.
Correct Nov 30, 1927
H. F. Brown
Designing Engineer

Approved E. P. Marsh
Engineer of Structures
Approved Tw Badger
Principal Assistant Engineer
Approved
Assistant Electrical Engineer
Approved
Engineer of Construction

Plan Approved
CITY OF CLEVELAND
By ROBERT HOFFMANN
Commissioner of Engineering & Construction
Date 9-13-28
For Original of this Signature
See Blue Print Filed under No. 113-065-S

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE. BRIDGE
DETAILS OF COLUMNS AND STRUTS
CLEVELAND, OHIO.
OFFICE OF ENGINEER OF STRUCTURES
SCALE: 1/2"=1'0" Except as shown
ISSUE Nº 5
DATE: Oct. 19 1927
REVISED 9-1-33
H. A. Brown 11/30/33
CHIEF ENGINEER

FILE Nº 113-065

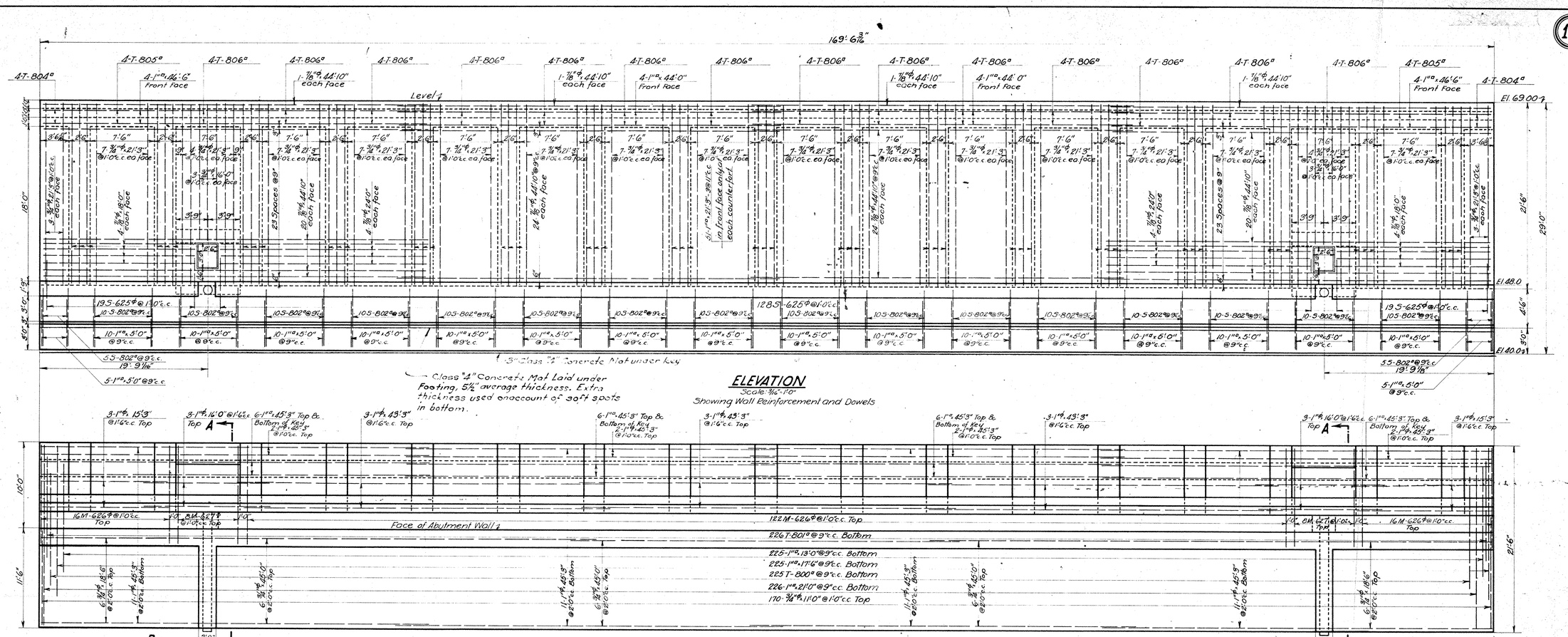
Issue N° A June 20,1927.
Revisions:-
Issue N° B Nov. 14,1927.
Checked and drawing traced.

Issue N° 1 Nov. 30,1927.
Signed By Chief Engineer.

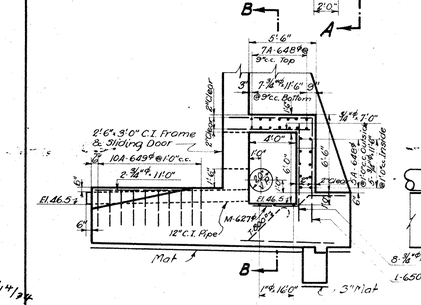
Issue N° 2 Jan. 24,1928.
Approved By Heads of Departments.

Issue N° 3 April 29,1928.
Approved by the City.

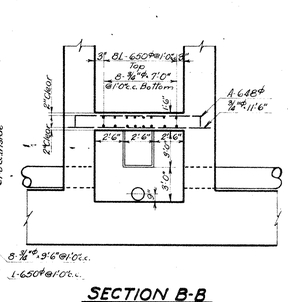
Issue N° 4 Sept. 1,1933.
Plan Corrected to Conform to Structure as Built.



ELEVATION
Scale: 3/16"-1'0"
Showing Wall Reinforcement and Dowels

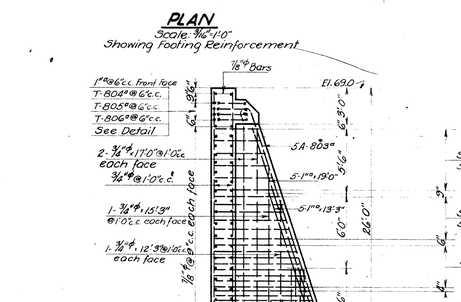


SECTION A-A SHOWING DRAINAGE SUMP
Scale: 3/16"-1'0"

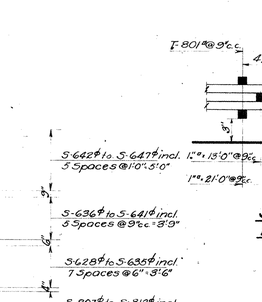


SECTION B-B
Scale: 3/16"-1'0"

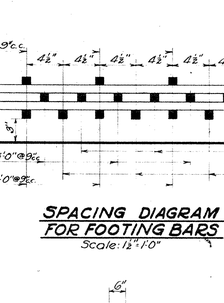
SECTION THRU WALL
Scale: 1/4"-1'0"
Showing Footing Reinforcement



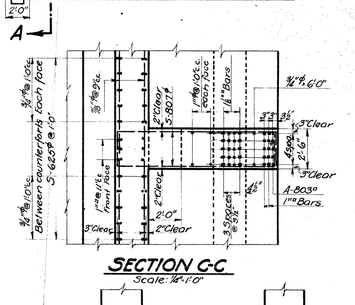
PLAN
Scale: 3/16"-1'0"
Showing Footing Reinforcement



SPACING DIAGRAM FOR FOOTING BARS
Scale: 1½"-1'0"



USE THIS DETAIL AT BOTH ENDS OF WALL
Scale: 1½"-1'0"



We Hereby Certify That This Plan Shows The Structure As Built.

E. L. Ilsley 9/14/28
Engineer of Structures

Ass't. Engineer of Construction

Designed By G.T.C. June 20,1927.
Detailed By H.B. June 20,1927.
Traced By H.B. Nov.14,1927.
Checked By I.C.B. Nov.14,1927.
Correct May 22, 1928.
Designing Engineer

Approved E. P. Ilsley
Engineer of Structures
Approved
Principal Assistant Engineer
Approved
Assistant Electrical Engineer
Approved
Engineer of Construction

Plan Approved
CITY OF CLEVELAND
By Robert Hoffmann
Commissioner of Engineering & Construction
Date 4-13-28.
For Original of this Signature
See Blue Print Filed under No. 113-065-S.

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE. BRIDGE
PLAN AND DETAILS
NORTH ABUTMENT
CLEVELAND, OHIO.
OFFICE OF ENGINEER OF STRUCTURES
SCALE: As shown
ISSUE N° 4
DATE: June 20,1927.
REVISED 7-1-33.
C. P. Ilsley 11/1/27
CHIEF ENGINEER 7/1/33

FILE N° 113-065

Issue No A June 20, 1927.

REVISIONS:

Issue No B Nov. 10, 1927. Checked and Drawing Traced.

Issue No 1 Nov. 30, 1927. Signed By Chief Engineer.

Issue No 2 Jan. 24, 1928. Approved By Heads of Departments

Issue No 3 April 24, 1928. Approved by the City

Issue No 4 Sept. 1, 1933. Plan Corrected to Conform to Structure as Built.

We Hereby Certify That This Plan Shows The Structure As Built.

E. L. Wheeler Jr. Engineer Of Structures

Asst. Engineer Of Construction

Designed By G.T.C. June 20, 1927.

Detailed By L.C.B. June 20, 1927.

Traced By S.H. Nov. 10, 1927.

Checked By J.H.C. Nov. 3, 1927.

Correct Nov. 30, 1927.

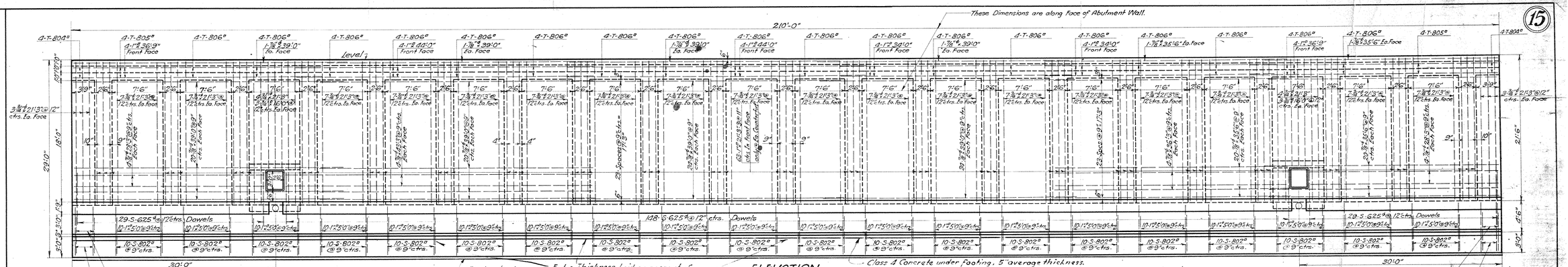
F. L. Eyman Designing Engineer

Approved E. L. Wheeler Engineer of Structures

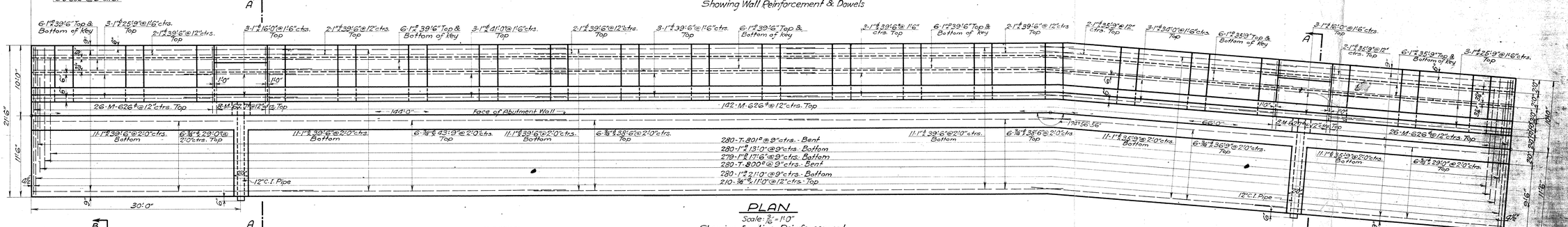
Approved [illegible] Principal Assistant Engineer

Approved [illegible] Assistant Electrical Engineer

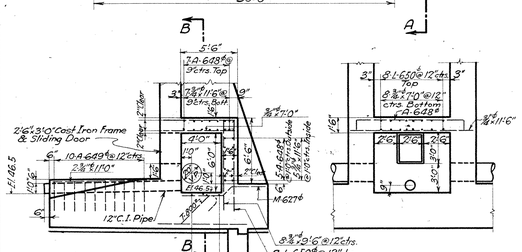
Approved [illegible] Engineer of Construction



ELEVATION
Scale: 3/16"=1'0"
Showing Wall Reinforcement & Dowels

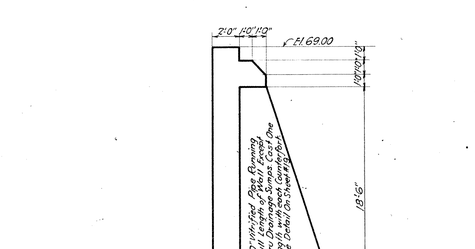


PLAN
Scale: 3/16"=1'0"
Showing Footing Reinforcement

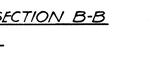


SECTION A-A SHOWING DRAINAGE SUMP
Scale: 3/8"=1'0"

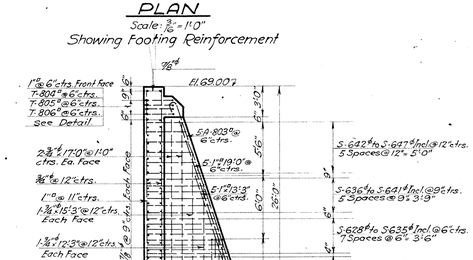
SECTION B-B

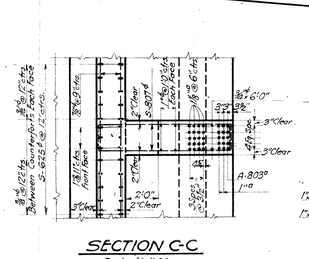


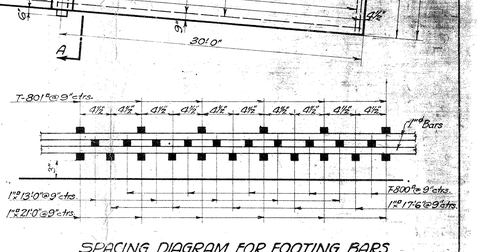
SECTION THRU WALL
Scale: 1/4"=1'0"
Showing footing Reinforcement



USE THIS DETAIL AT BOTH ENDS OF WALL
Scale: 1/2"=1'0"







Plan Approved
CITY OF CLEVELAND
By ROBERT HOFFMANN
Commissioner of Engineering & Construction
Date 4-13-28

For Original of this Signature
See Blue Print Filed under No. 113-0655

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE. BRIDGE
PLAN AND DETAILS
SOUTH ABUTMENT
CLEVELAND, OHIO.
OFFICE OF ENGINEER OF STRUCTURES
SCALE: AS SHOWN
ISSUE NO 4
DATE 6-20-1927
REVISED 9-1-33

E. L. Wheeler 11/1/33
CHIEF ENGINEER DATE

FILE No 113-065

15

Issue Nº A Oct. 12, 1927.
REVISIONS:

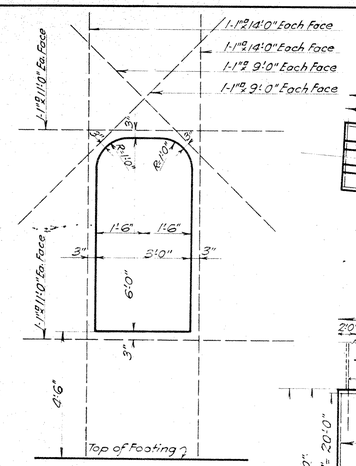
Issue Nº B Nov. 3, 1927.
Drawing Checked & Traced.

Issue Nº 1 Nov. 30, 1927.
Signed By Chief Engineer.

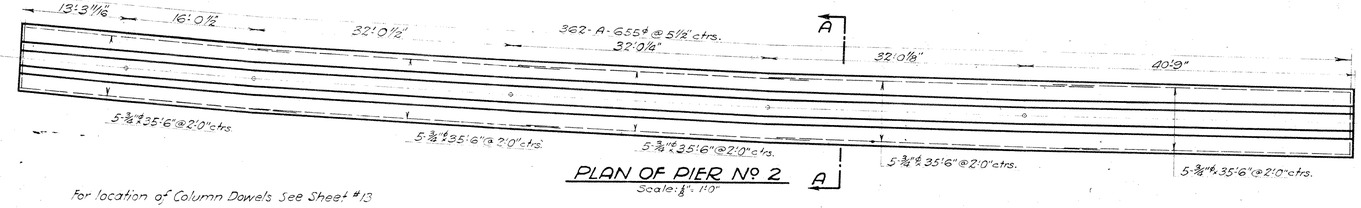
Issue Nº 2 Jan. 24, 1928.
Approved By Heads of Departments.

Issue Nº 3 April 24, 1928.
Approved by the City

Issue Nº 4 Sept. 1, 1933.
Plan Corrected to Conform to Structure as Built

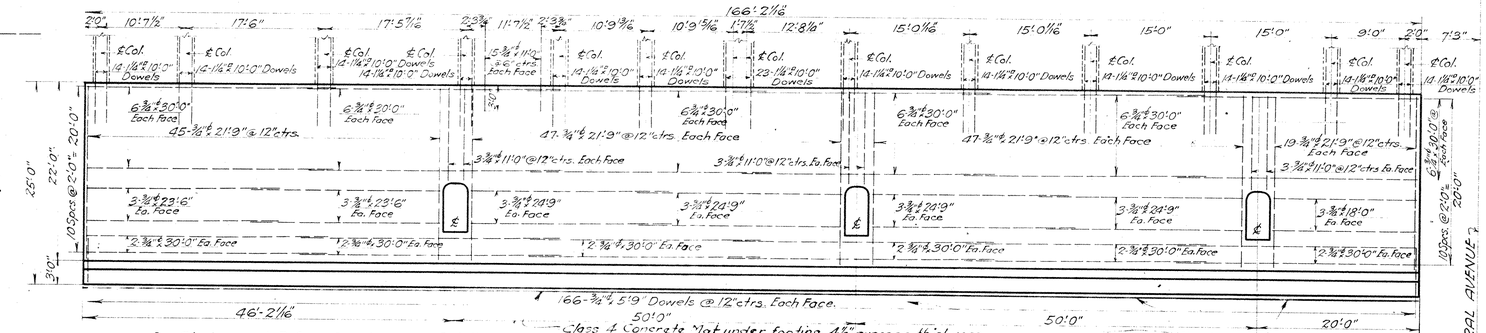


DETAIL OF REFUGE OPENING
Scale: ½" = 1'0"



PLAN OF PIER Nº 2
Scale: ⅛" = 1'0"

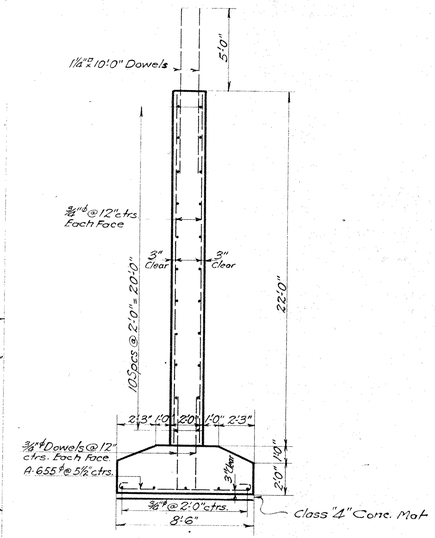
For location of Column Dowels See Sheet #13



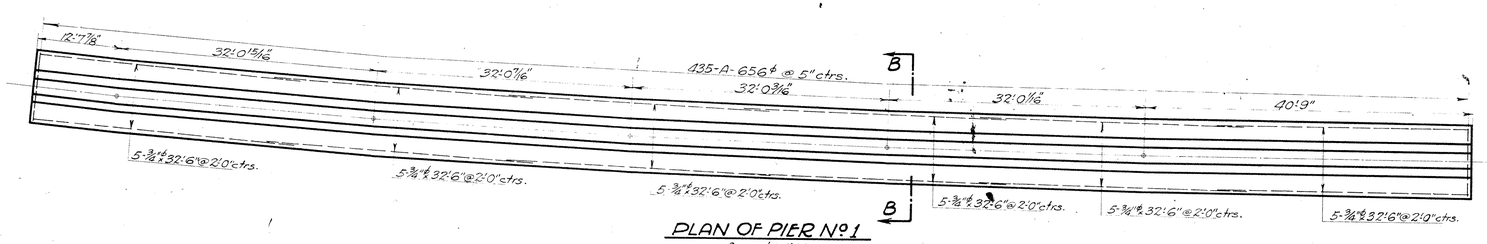
for Steel around Refuge Openings See Detail.

Dimensions are along ℄ of Pier. Extra Thickness Laid on account of soft spots in bottom.

ELEVATION OF PIER Nº 2
Scale: ⅛" = 1'0"

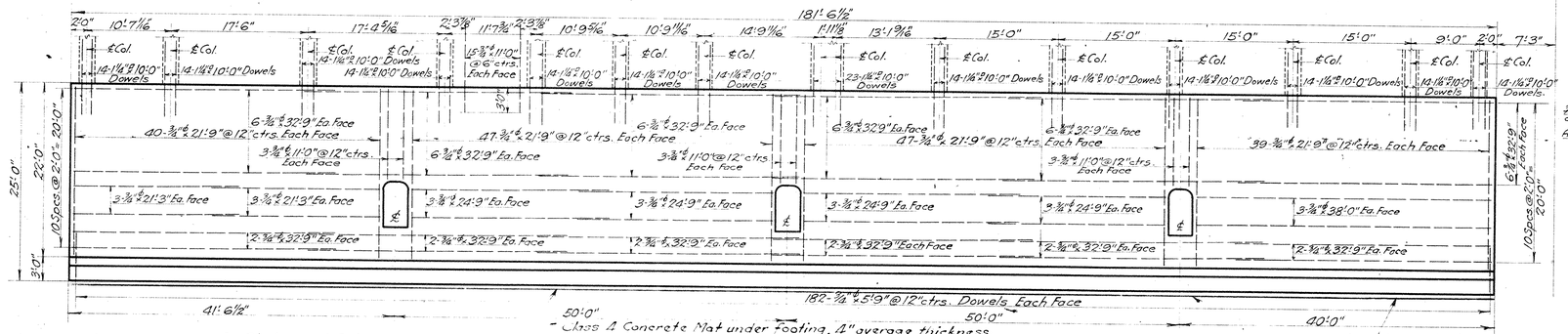


SECTION A-A
Scale: ½" = 1'0"



PLAN OF PIER Nº 1
Scale: ⅛" = 1'0"

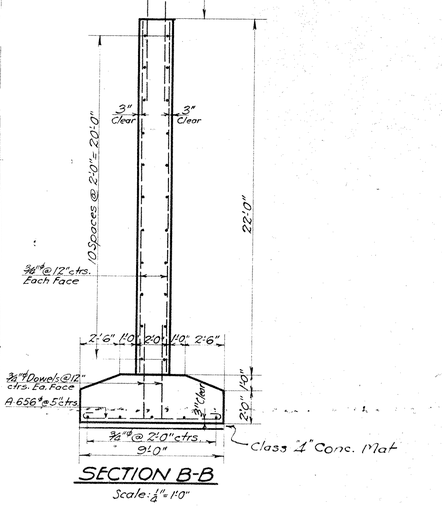
For location of Column Dowels See Sheet #13



for Steel around Refuge Openings See Detail.

Dimensions are along ℄ of Pier. Extra Thickness laid on account of soft spots in bottom.

ELEVATION OF PIER Nº 1
Scale: ⅛" = 1'0"



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

EAST LINE OF CENTRAL AVENUE

We Hereby Certify That This Plan Shows The Structure As Built.

E. O. Marsh 11/30/27
Engineer Of Structures

T. Stanton Estes
Asst. Engineer Of Construction

Designed By G.T.C.	6-10-1927.	Approved	E. O. Marsh. Engineer of Structures
Detailed By G.T.C.	10-12-1927.	Approved	Principal Assistant Engineer
Traced By S.H.	11-3-1927.	Approved	Assistant Electrical Engineer
Checked By J.H.C.	11-29-1927.	Approved	Engineer of Construction
Correct Nov 30, 1927.			
G. T. Seaman			
Designing Engineer			

Plan Approved
CITY OF CLEVELAND
By Robert Hoffmann
Commissioner of Engineering & Construction
Date 4-13-28
For Original of this Signature
See Blue Print Filed under No. 113-065-S.

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE. BRIDGE
PLAN AND DETAILS OF
PIERS Nº 1 & 2
CLEVELAND, OHIO.
OFFICE OF ENGINEER OF STRUCTURES
SCALE: AS SHOWN
ISSUE Nº 4
DATE Oct. 12-27.
REVISED 9-1-33.
Chief Engineer 11/30/27 4/24/28

FILE Nº 113-065

Issue Nº A Oct. 14, 1927.

REVISIONS:

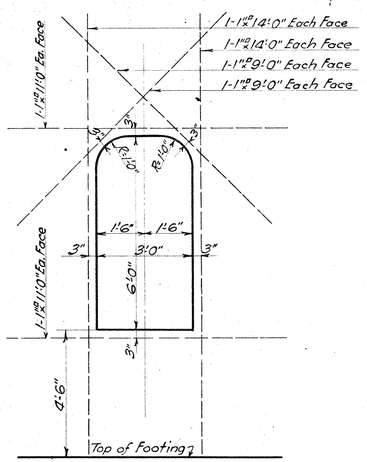
Issue Nº B Nov. 7, 1927.
Checked and Drawing Traced.

Issue Nº 1 Nov. 30, 1927.
Signed By Chief Engineer.

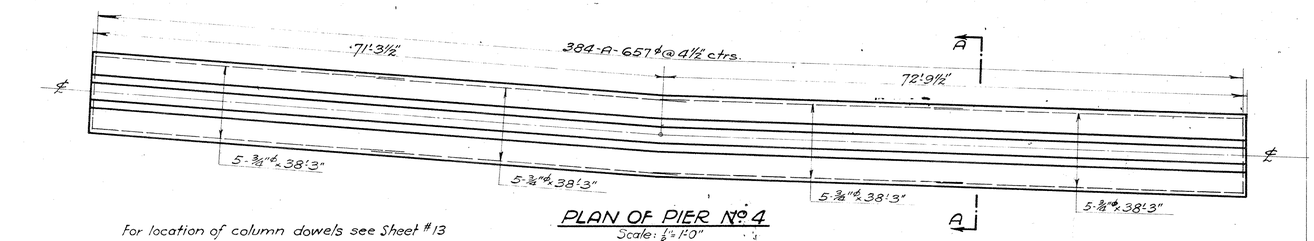
Issue Nº 2 Jan. 20, 1928.
Approved By Heads of Departments.

Issue Nº 3 April 24, 1928.
Approved by the City.

Issue Nº 4 Sept. 1, 1933.
Plan Corrected to Conform to Structure as Built.

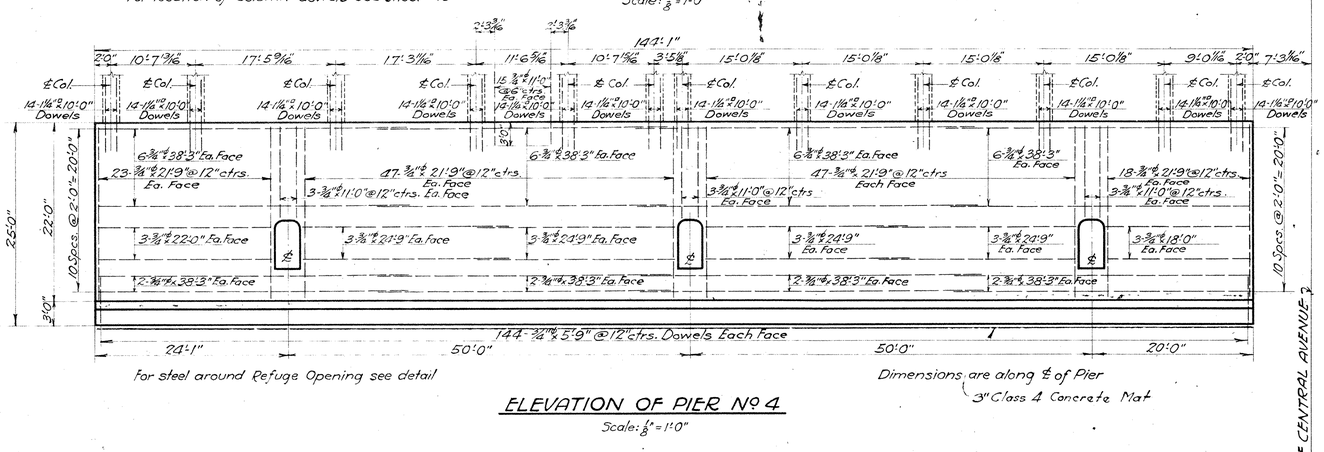


DETAIL OF REFUGE OPENING
Scale: 1"=1'0"



For location of column dowels see Sheet #13

PLAN OF PIER Nº 4
Scale: ⅛"=1'0"

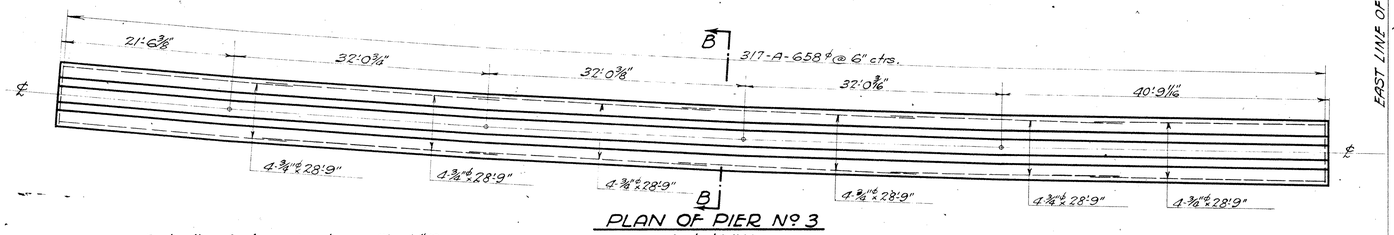


For steel around Refuge Opening see detail

Dimensions are along ℄ of Pier

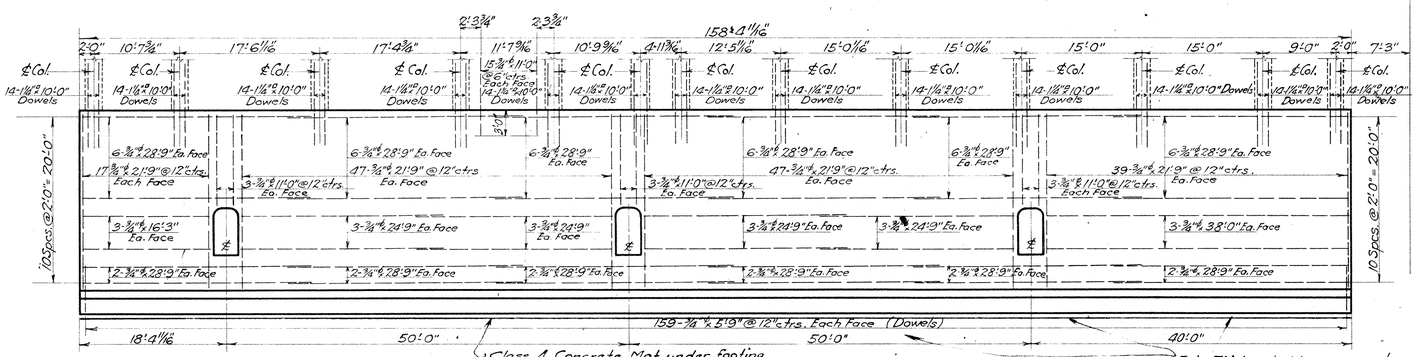
3" Class 4 Concrete Mat

ELEVATION OF PIER Nº 4
Scale: ⅛"=1'0"



For location of column dowels see Sheet #13

PLAN OF PIER Nº 3
Scale: ⅛"=1'0"



For steel around Refuge Opening see detail

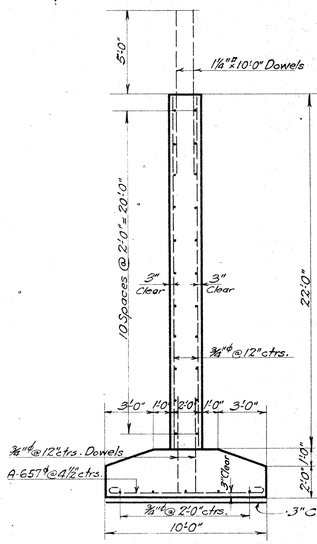
Class A Concrete Mat under footing, 4½" average thickness.

Dimensions are along ℄ of Pier

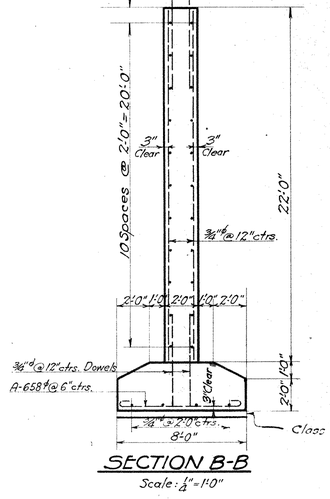
Extra Thickness laid on account of soft spots in bottom.

ELEVATION OF PIER Nº 3
Scale: ⅛"=1'0"

EAST LINE OF CENTRAL AVENUE



SECTION A-A
Scale: ¼"=1'0"



SECTION B-B
Scale: ¼"=1'0"

WE HEREBY CERTIFY THAT THIS PLAN SHOWS THE STRUCTURE AS BUILT.

C. P. Marsh 6/14/34
ENGINEER OF STRUCTURES

T. L. Duncan 6/21/34
ASST. ENGINEER OF CONSTRUCTION

Designed By G.T.C. 6-10-1927.
Detailed By G.T.C. 10-14-1927.
Traced By S.H. 11-7-1927.
Checked By J.H.C. 10-31-1927.
Correct Nov. 30, 1927.
G. T. Gorman
Designing Engineer

Approved C. P. Marsh
Engineer of Structures
Approved Ivan Sipe
Principal Assistant Engineer
Approved H. W. Newton
Assistant Electrical Engineer
Approved T. L. Duncan
Engineer of Construction

Plan Approved
CITY OF CLEVELAND
By ROBERT HOFFMANN
Commissioner of Engineering & Construction
Date 4-13-28
For Original of this Signature
See Blue Print Filed under No. 113-065-S

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE. BRIDGE
PLAN AND DETAILS OF PIERS Nº 3 & 4
CLEVELAND, OHIO.
OFFICE OF ENGINEER OF STRUCTURES
SCALE: AS SHOWN
ISSUE Nº 4
DATE: 10-14-1927
REVISED 9-1-33.

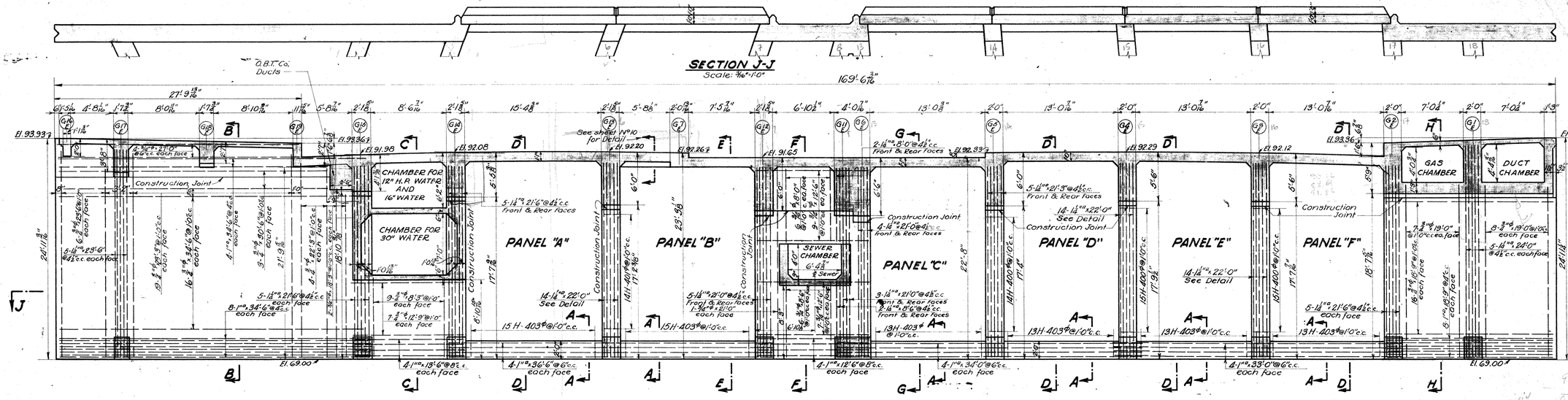
C. P. Marsh 6/11/34
CHIEF ENGINEER
Approved 4/24/28

FILE Nº 113-065

Issue N° A Nov. 1, 1927.
Revisions:-
Issue N° 1 Nov. 30, 1927.
Approved by Chief Engineer.
Issue N° 2 Dec. 28, 1927.
Drawing traced and checked.
Issue N° 3 Dec. 29, 1927.
Signed by the Chief Engineer.
Issue N° 4 Jan. 24, 1928.
Approved By Heads of Departments.
Issue N° 5 Feb. 13, 1928.
Moved all Water Lines to West side of Bridge.
Issue N° 6 April 24, 1928.
Revised details of water lines.
Approved by the City.

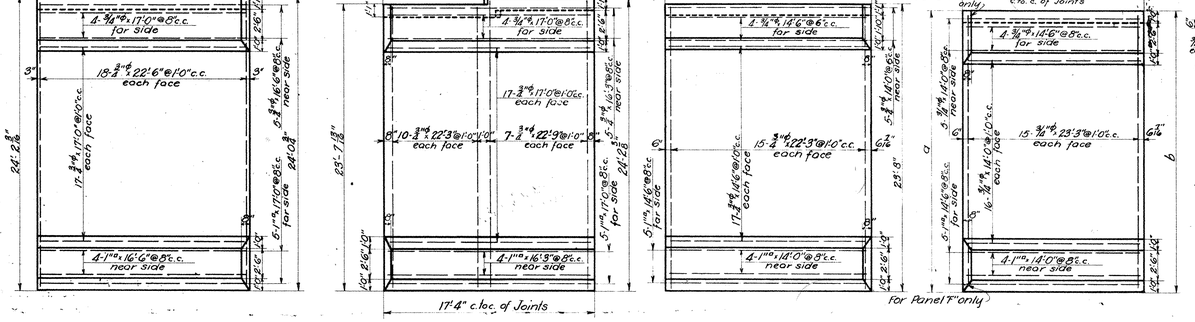
Issue N° 7 Sept. 1, 1933.
Plan Conforms to Structure as Built.

SECTION J-J
Scale: 3/16"=1'0"



ELEVATION OF NORTH CURTAIN WALL LOOKING NORTH
Scale: 3/16"=1'0"

NOTE:- ALL DIMENSIONS TO BE MEASURED ALONG FACE OF WALL

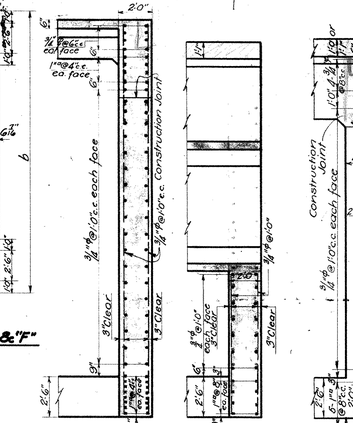


SLAB FOR PANEL "A"
Scale: 3/16"=1'0"

SLAB FOR PANEL "B"
Scale: 3/16"=1'0"

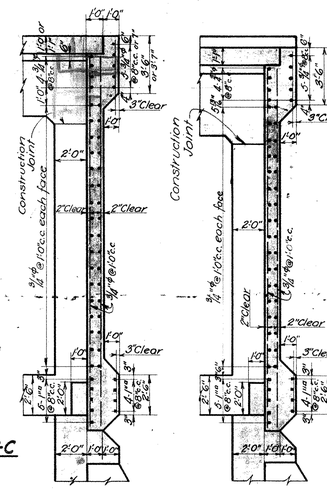
SLAB FOR PANEL "C"
Scale: 3/16"=1'0"

SLAB FOR PANELS "D", "E" & "F"
Scale: 3/16"=1'0"



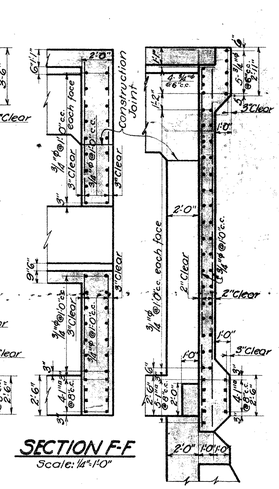
SECTION B-B
Scale: 1/4"=1'0"

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

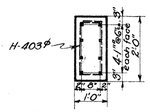


SECTION D-D
Scale: 1/4"=1'0"

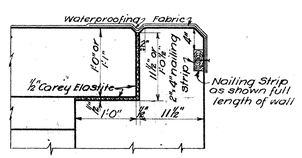
SECTION F-F
Scale: 1/4"=1'0"



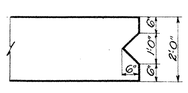
SECTION G-G
Scale: 1/4"=1'0"



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

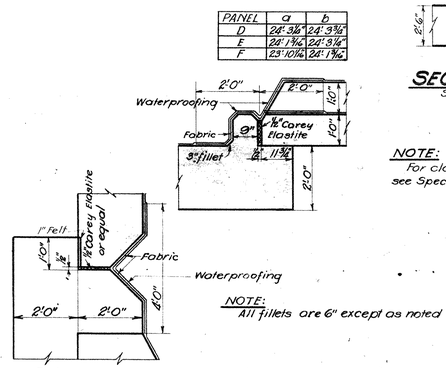


JOINT BETWEEN REMOVABLE SLABS AND DECK SLAB
Scale: 1"=1'0"



USE THIS DETAIL AT BOTH ENDS OF WALL
Scale: 1/2"=1'0"

PANEL	a	b
D	26'-3 5/16"	24'-3 5/16"
E	26'-1 9/16"	24'-3 5/16"
F	23'-10 1/16"	24'-1 9/16"



SECTIONS SHOWING WATERPROOFING AROUND REMOVABLE SLABS
Scale: 1/2"=1'0"

NOTE: For classes of Waterproofing see Specifications.

NOTE: All fillets are 6" except as noted

DETAIL OF REINFORCING STEEL IN COLUMNS AT WALL
Scale: 1/2"=1'0"

Note:- The ends of all service tunnels shall be bricked up after the utilities are in place.

We Hereby Certify That This Plan Shows The Structure As Built.

C. O'Mara 4/1/34
Engineer Of Structures

Asst. Engineer Of Construction

Designed By G.T.C. July 7 1927
Detailed By H.B. Nov. 1 1927
Traced By H.B. Dec 28, 1927
Checked By J.H.C. Dec. 29 1927
Correct Dec. 29 1927
G. L. Gorman
Designing Engineer

Approved C. O'Mara
Engineer of Structures
Approved Principal Assistant Engineer
Approved Assistant Electrical Engineer
Approved Engineer of Construction

Plan Approved
CITY OF CLEVELAND
By Robert Hoffmann
Commissioner of Engineering & Construction
Date 4-13-28.

Per Original of this Signature
See Blue Print Filed under No. 113-065-S

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE. BRIDGE
ELEVATION AND DETAIL OF NORTH CURTAIN WALL
CLEVELAND, OHIO.
OFFICE OF ENGINEER OF STRUCTURES
SCALE: As shown. DATE: Nov. 1, 1927.
ISSUE N°. 7 REVISED 7-1-33.
C. O'Mara 4/12/34
CHIEF ENGINEER

FILE N° 113-065

Issue N° A Nov. 8, 1927.
Revisions:-
Issue N° B Nov. 25, 1927.
Drawing checked and traced
Issue N° 1 Dec. 16, 1927.
Signed By Chief Engineer.
Issue N° 2 Dec. 29, 1927.
Changed note on Waterproofing.
Issue N° 3 Jan. 24, 1928.
Approved By Heads of Departments.
Issue N° 4 Feb. 15, 1928.
Moved all Water lines to West side of Bridge.
Issue N° 5 April 24, 1928.
Revised details of water lines.
Approved by the City.
Issue N° 6 Sept. 1, 1933.
Plan Conforms to Structure as Built.

We Hereby Certify That This Plan Shows The Structure As Built.

C. V. Worth 6/11/34
Engineer Of Structures

Asst. Engineer Of Construction

Designed By G.T.C. July 7, 1927.
Detailed By H.B. Nov. 8, 1927.
Traced By M.B. Nov. 24, 1927.
Checked By T.W. Nov. 25, 1927.
Correct Nov. 30, 1927.
Designing Engineer

Approved C. V. Worth
Engineer of Structures
Approved
Principal Assistant Engineer
Approved
Assistant Electrical Engineer
Approved
Engineer of Construction

18 A

SECTION K-K
Scale: 3/16"-1'0"

DEVELOPED ELEVATION OF SOUTH CURTAIN WALL LOOKING SOUTH
Scale: 3/16"-1'0"

NOTE:
ALL DIMENSIONS TO BE MEASURED ALONG FACE OF WALL

SLAB FOR PANELS "A" "B" & "C"
Scale: 3/16"-1'0"

PANEL	a	b
A	25'-6 1/2"	26'-3"
B	25'-8"	25'-6 1/2"
C	25'-2"	25'-8"

SLAB FOR PANEL "D"
Scale: 3/16"-1'0"

SLAB FOR PANEL "E"
Scale: 3/16"-1'0"

SLAB FOR PANEL "F"
Scale: 3/16"-1'0"

SECTION A-A
Scale: 1/2"-1'0"

DETAILS SHOWING REINFORCING STEEL IN COLUMNS AT WALL
Scale: 1/2"-1'0"

JOINT BETWEEN REMOVABLE SLABS AND DECK SLAB
Scale: 1"-1'0"

NOTE:-
All fillets are 6" except as noted

SECTIONS SHOWING WATERPROOFING AROUND REMOVABLE SLABS
Scale: 1/2"-1'0"

SECTION J-J
Scale: 1/4"-1'0"

SECTION C-C
Scale: 1/4"-1'0"

SECTION D-D
Scale: 1/4"-1'0"

NOTE:
For classes of Waterproofing see Specifications.

SECTION E-E
Scale: 1/4"-1'0"

SECTION F-F
Scale: 1/4"-1'0"

SECTION G-G
Scale: 1/4"-1'0"

SECTION H-H
Scale: 1/4"-1'0"

SECTION I-I
Scale: 1/4"-1'0"

SECTION B-B
Scale: 1/4"-1'0"

USE THIS DETAIL AT BOTH ENDS OF WALL
Scale: 1/2"-1'0"

Note:-
The ends of all service tunnels shall be bricked up after the utilities are in place.

Plan Approved
CITY OF CLEVELAND
By Robert Hoffmann
Commissioner of Engineering & Construction
Date 4-19-28
Original of this Signature Set Show Prints Filed under No. 113-06 S

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE BRIDGE
ELEVATION AND DETAIL OF SOUTH CURTAIN WALL
CLEVELAND, OHIO.
OFFICE OF ENGINEER OF STRUCTURES
SCALE: As shown DATE: Nov. 8, 1927.
ISSUE N° 2 REVISED 9-1-33.
C. V. Worth
CHIEF ENGINEER

FILE N° 113-06

113-003 2-17-64

Issue Nº A June 30, 1927.

REVISIONS:

Issue Nº B Nov. 28, 1927.
Drawing Checked and Traced.

Issue Nº 1 Nov. 30, 1927.
Signed By Chief Engineer.

Issue Nº 2 Dec. 6, 1927.
Minor Revisions.

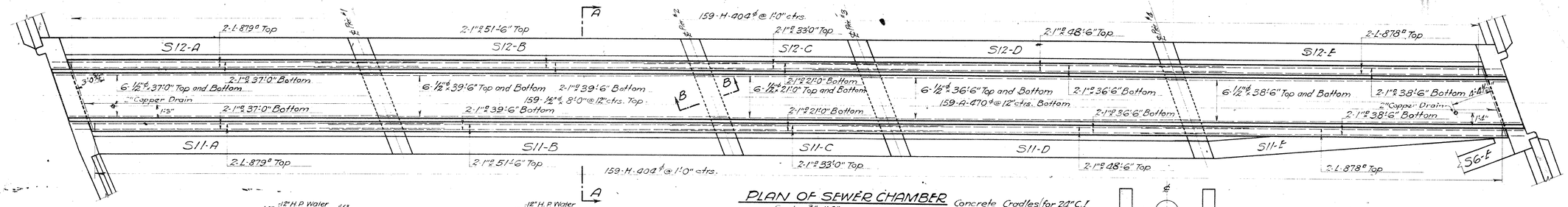
Issue Nº 3 Dec. 28, 1927
Changed note on Waterproofing

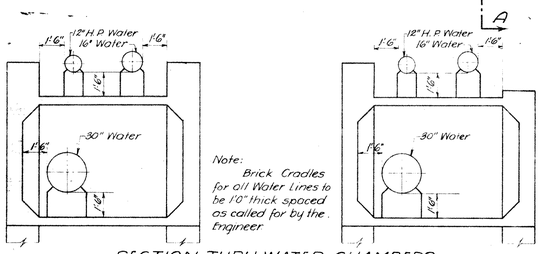
Issue Nº 4 Jan. 24, 1928
Approved By Heads of Department.

Issue Nº 5 Feb. 24, 1928.
Revised to move all Water Chambers to West side of Bridge. Added section showing new Water Chamber.

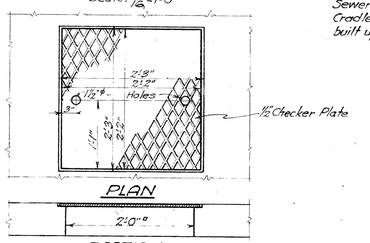
Issue Nº 6. April 24, 1928.
Revised details of water lines. Approved by the City.

Issue Nº 7 Sept. 1, 1933.
Plan Corrected to Conform to Structure as Built.





SECTION THRU WATER CHAMBERS
WEST SIDE OF BRIDGE
Showing all Water Lines
Scale: 4'=1'0"

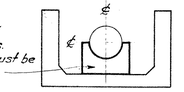


PLAN OF SEWER CHAMBER
Scale: 1½"=1'0"

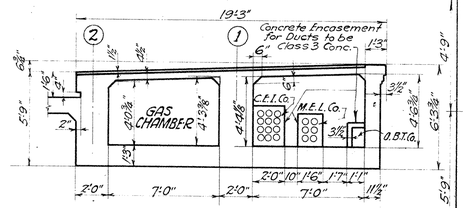
PLAN
SECTION

DETAIL OF COVER PLATE
FOR MANHOLE TO 30"& 6" WATER CHAMBER
Scale: 1"=1'0"

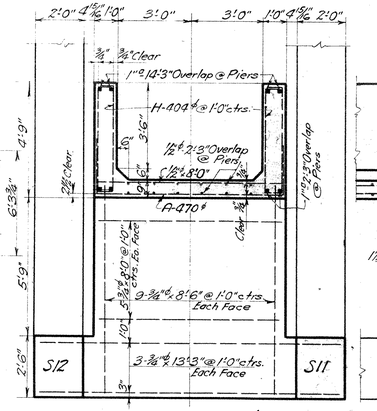
Concrete Cradles for 24" C.I. Sewer Pipe 3'0"± 1'0"@ 6'0" ctrs. Cradles vary in height and must be built up to center line of Pipe.



DETAIL OF SEWER CRADLE



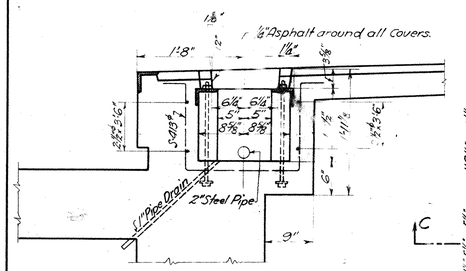
SECTION THRU EAST SIDEWALK
SHOWING GAS & DUCT CHAMBERS
Scale: ¼"=1'0"



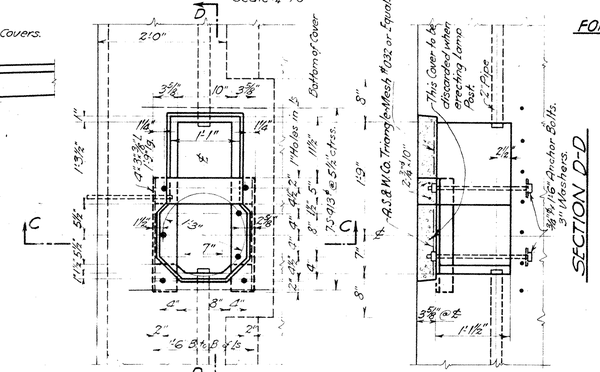
SECTION A-A
Scale: 3/16"=1'0"

Note: Same for all Piers.

SECTION B-B

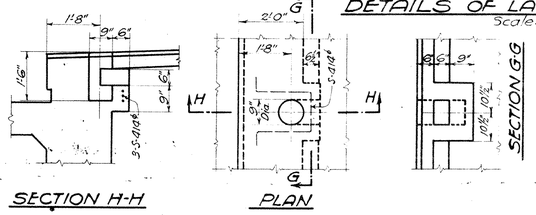


SECTION C-C

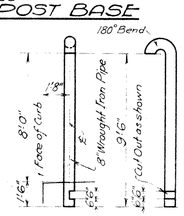


SECTION D-D

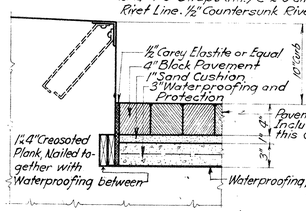
DETAILS OF LAMP POST BASE
Scale: 1"=1'0"



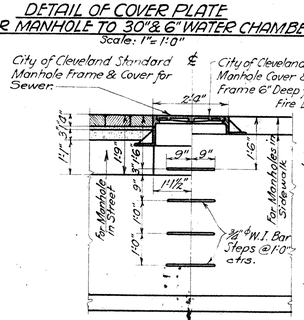
DETAILS OF GAS CHAMBER VENT ANCHORAGE
Scale: ½"=1'0"



DETAIL OF VENT
FOR GAS CHAMBER
Scale: 1"=1'0"



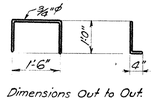
CURB AND PAVING DETAIL
Scale: 1½"=1'0"



For Location of Steps See Sheets #6, #8 & #18A

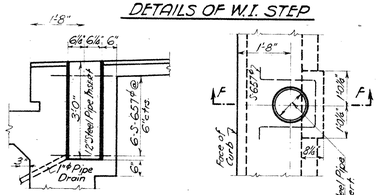
DETAIL SHOWING
MANHOLE FRAMES
Scale: ½"=1'0"

No of Steps Required
4 @ Girder G2-A
4 " " G2-E
4 " " G4-A
11 @ South Curtain Wall
23 Total.

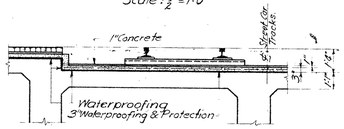


Dimensions Out to Out.

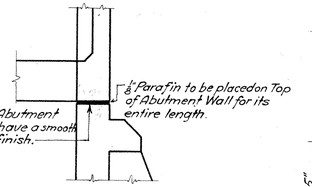
DETAILS OF W.I. STEP



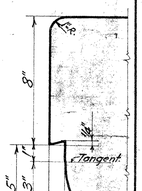
DETAILS OF TROLLEY POLE ANCHORAGE
Scale: ½"=1'0"



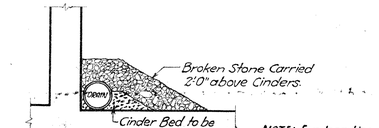
SECTION THRU STREET CAR TRACKS
Scale: ¼"=1'0"



SECTION SHOWING JOINT BETWEEN
CURTAIN & ABUTMENT WALLS
Scale: ¼"=1'0"

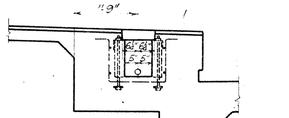


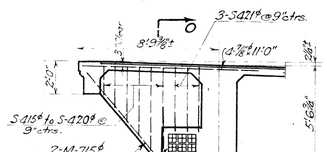
DETAIL AT
COPING
Scale: 3"=1'0"

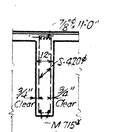


SECTION THRU ABUTMENT
SHOWING DRAIN FILTER
Scale: ¼"=1'0"

NOTE: For location of Manholes, Lamp Posts, Trolley Poles and Gas Chamber Vents, See Sheet Nº 5. For classes of Waterproofing and Waterproofing Protection see Specifications.







For location of Sections See Sh. #5

We Hereby Certify That This Plan Shows The Structure As Built.

E. P. Ware 4th 7/14/34
Engineer Of Structures

Asst. Engineer Of Construction

Designed By G.T.C. June 30, 1927
Detailed By L.C.B. June 30, 1927
Traced By S.H. Nov. 28, 1927
Checked By T.W. Nov. 28, 1927
Correct W. F. 3C., 1927
G. T. Gorman
Designing Engineer

Approved E. P. Ware 4th
Engineer of Structures
Approved [illegible] 11/20/27
Principal Assistant Engineer
Approved [illegible]
Assistant Electrical Engineer
Approved [illegible] 11/23/27
Engineer of Construction

Plan Approved
CITY OF CLEVELAND
By ROBERT HOFFMANN
Commissioner of Engineering & Construction
Date 4-13-28

For Original of this Signature see Blue Print Filed under No. 113-065-S

THE CLEVELAND UNION TERMINALS CO.
CENTRAL AVE. BRIDGE
UTILITIES SUPPORTS,
MISCELLANEOUS DETAILS
CLEVELAND, OHIO.
OFFICE OF ENGINEER OF STRUCTURES
SCALE: AS SHOWN
ISSUE Nº 7
DATE JUNE 30, 1927.
REVISED 9-1-33.

E. P. Ware 4th 11/30/27
CHIEF ENGINEER 11/24/28

FILE Nº 113-065

LORAIN CENTRAL BRIDGE

COMMISSIONERS OF CUYAHOGA COUNTY

J. R. ZMUNT, J. H. HARRIS, W. E. COOK

COUNTY SURVEYOR

F. R. WILLIAMS

COUNTY BRIDGE ENGINEER

A. M. FELGATE

CONSULTING ENGINEERS AND ARCHITECTS

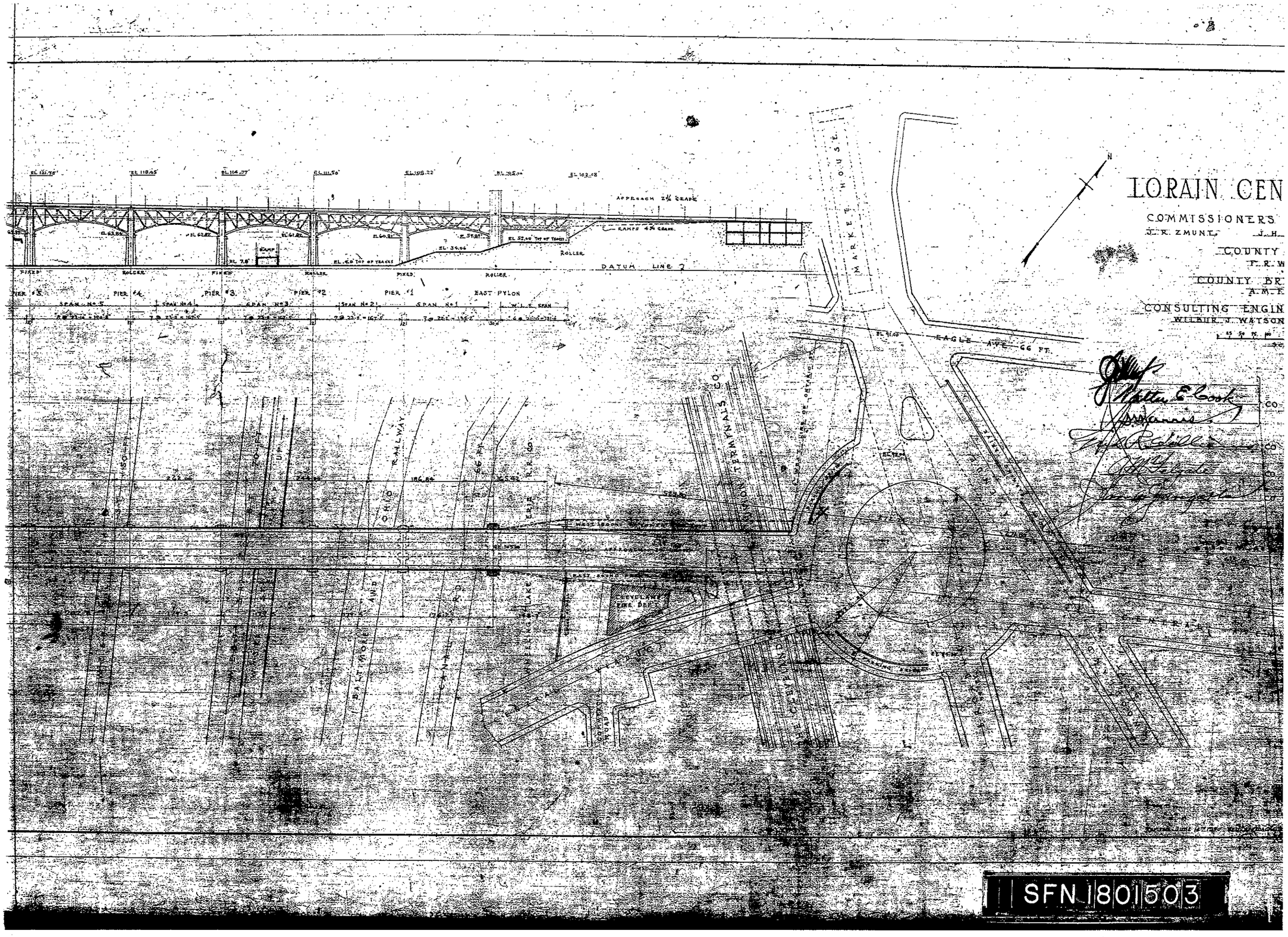
WILBUR J. WATSON AND F. R. WALKER

Walter E. Cook — CO. COMMR.

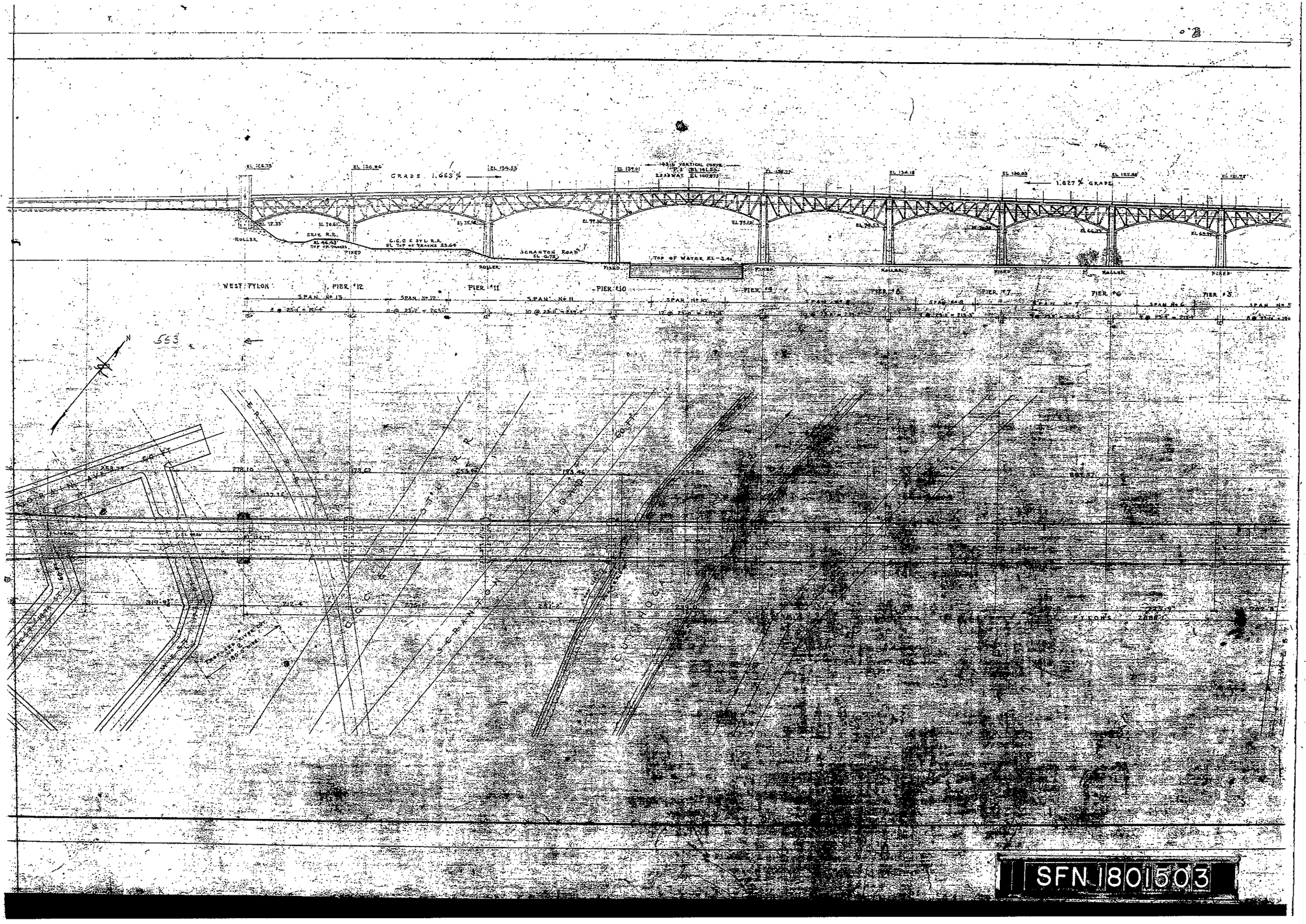
CO. SURVEYOR

CO. BRIDGE ENG.

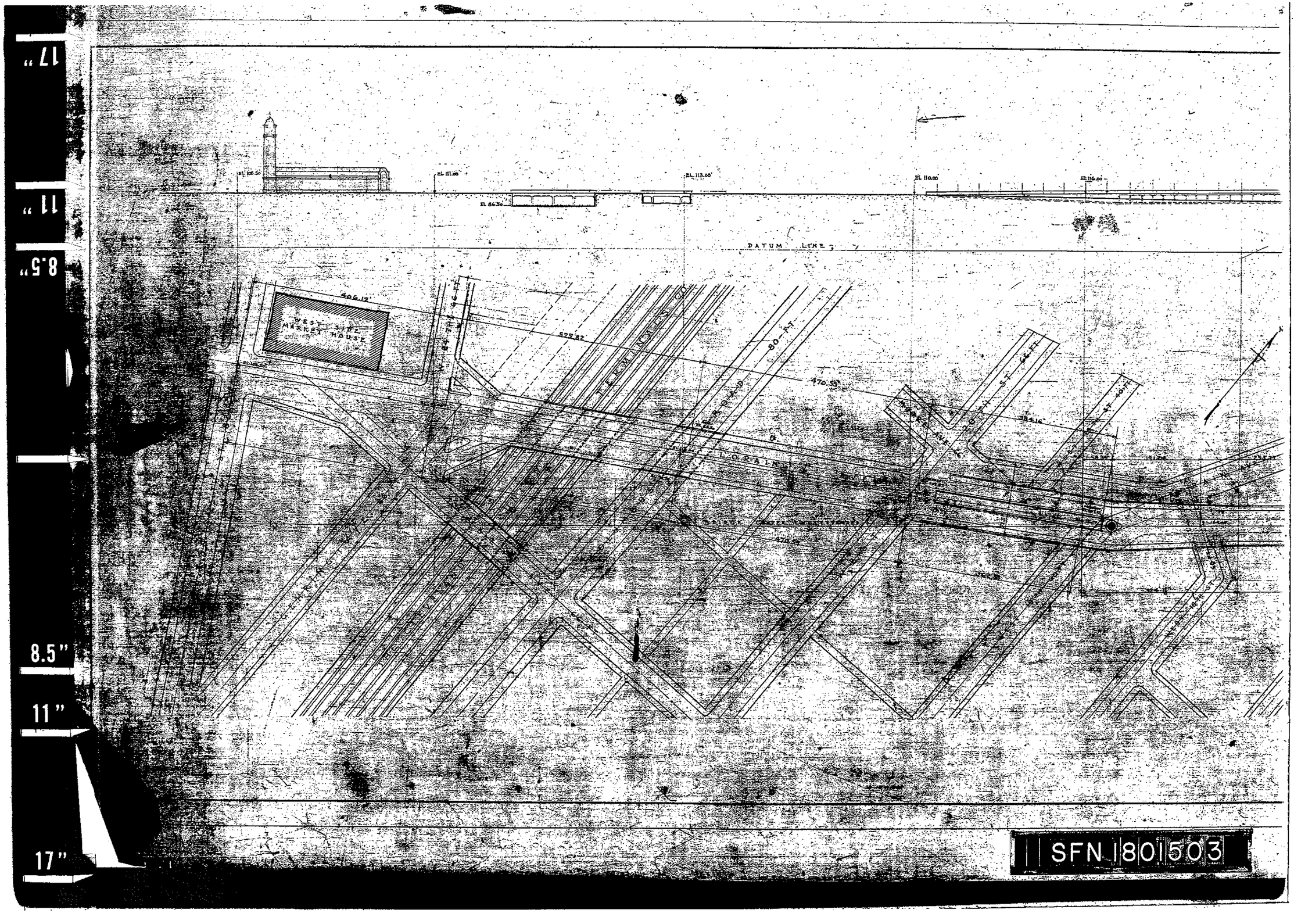
CO. AUDITOR

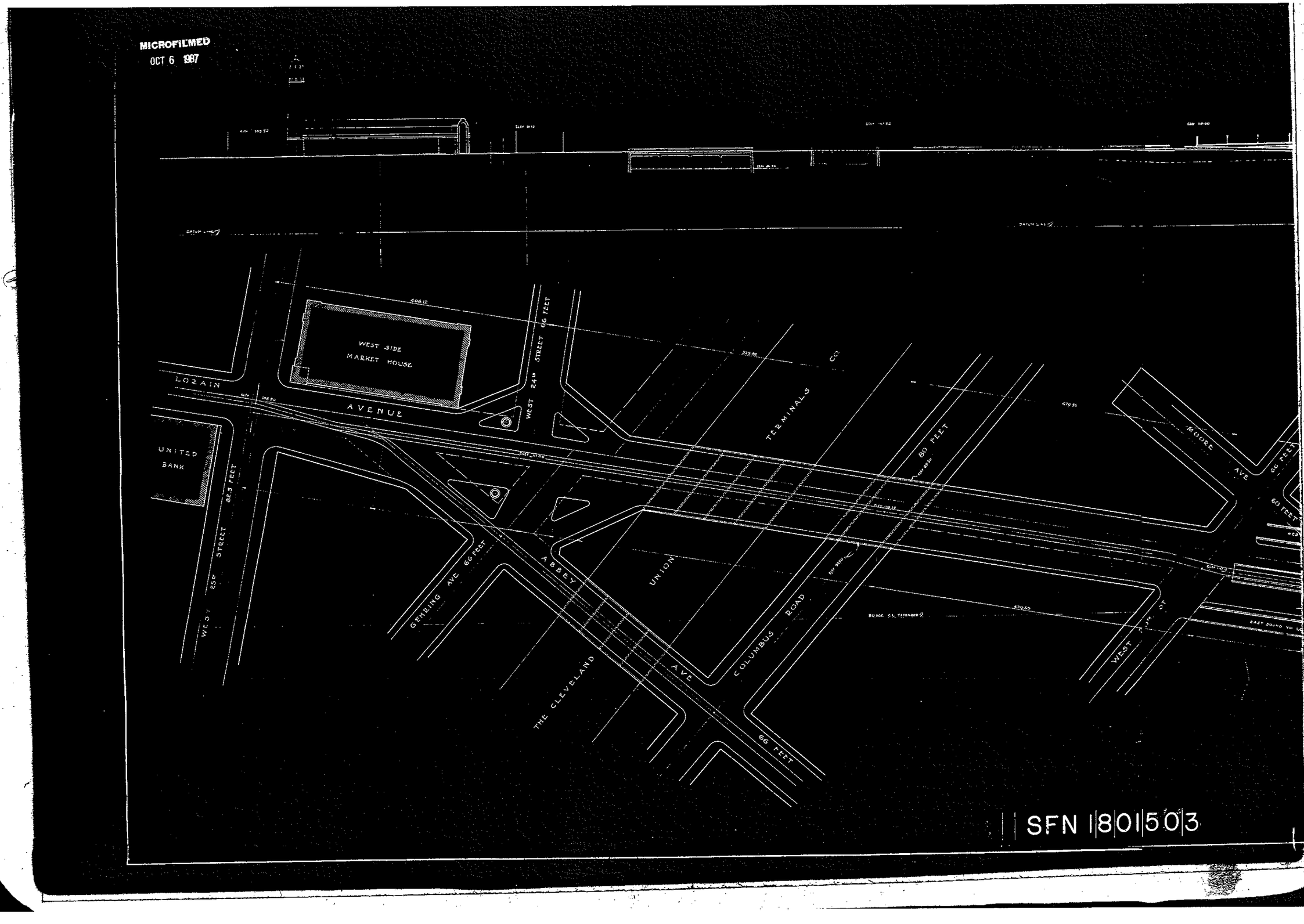

LORAIN CEN
COMMISSIONERS
J.R. ZMUNT
J.H.
COUNTY
F.R.W
COUNTY BR
A.M.F
CONSULTING ENGIN
WILBUR J. WATSON
EAGLE AVE 66 FT.
MARKEE HOUSE
DATUM LINE
PIER #5
PIER #4
PIER #3
PIER #2
PIER #1
EAST PYLON
SPAN No.5
SPAN No.4
SPAN No.3
SPAN No.2
SPAN No.1
W.L.E. SPAN
APPROACH 2½ GRADE
RAMPS 4% GRADE
ROLLER
FIXED
CLEVELAND UNION TERMINALS CO.
CLEVELAND ELECTRIC ILLUMINATING CO.
BALT. & OHIO RAILWAY
N.Y.C. & ST.L. R.R.
P.R.R.
U.P.
CLEVELAND FIRE DEPT.
N

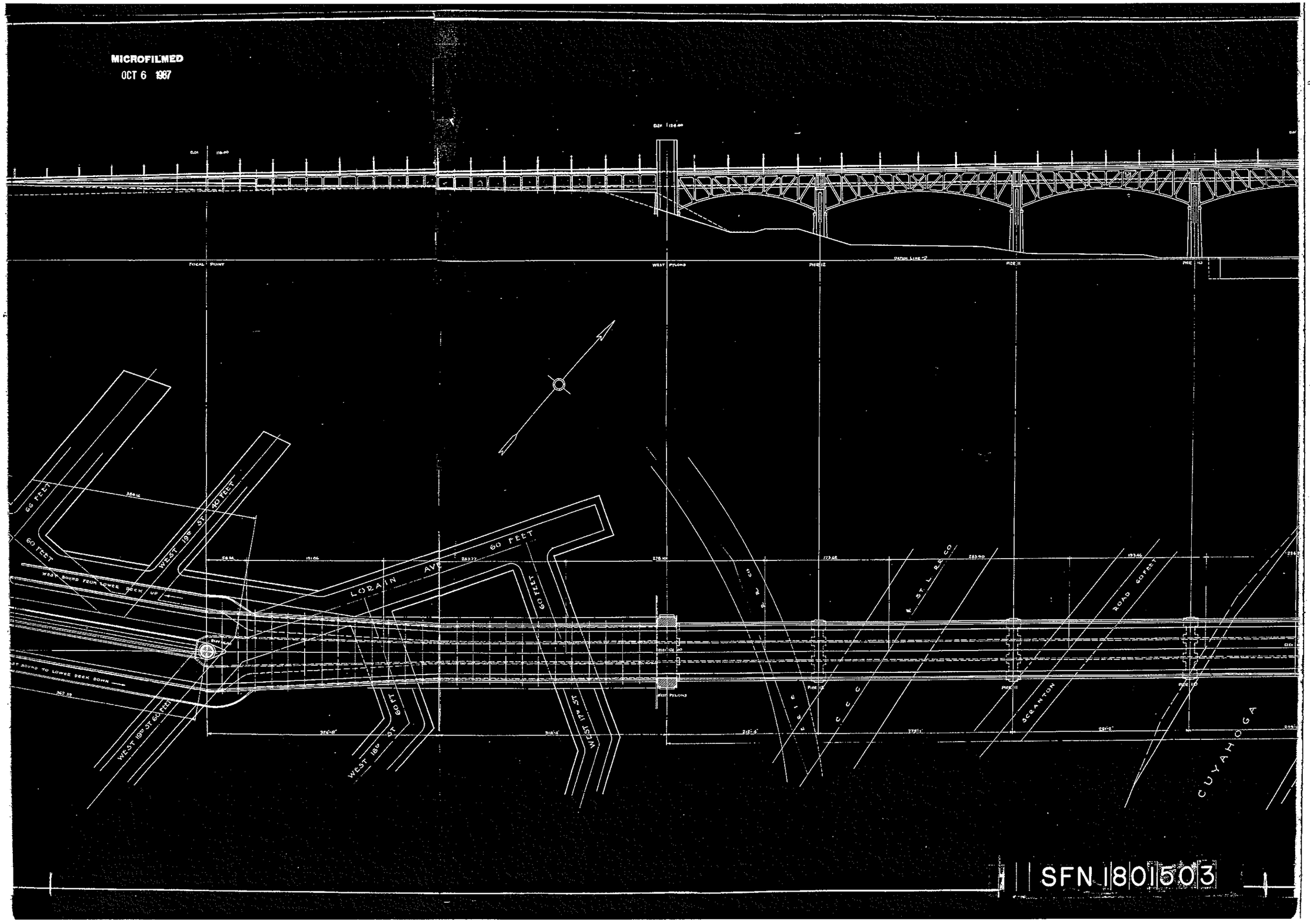
SFN 1801503

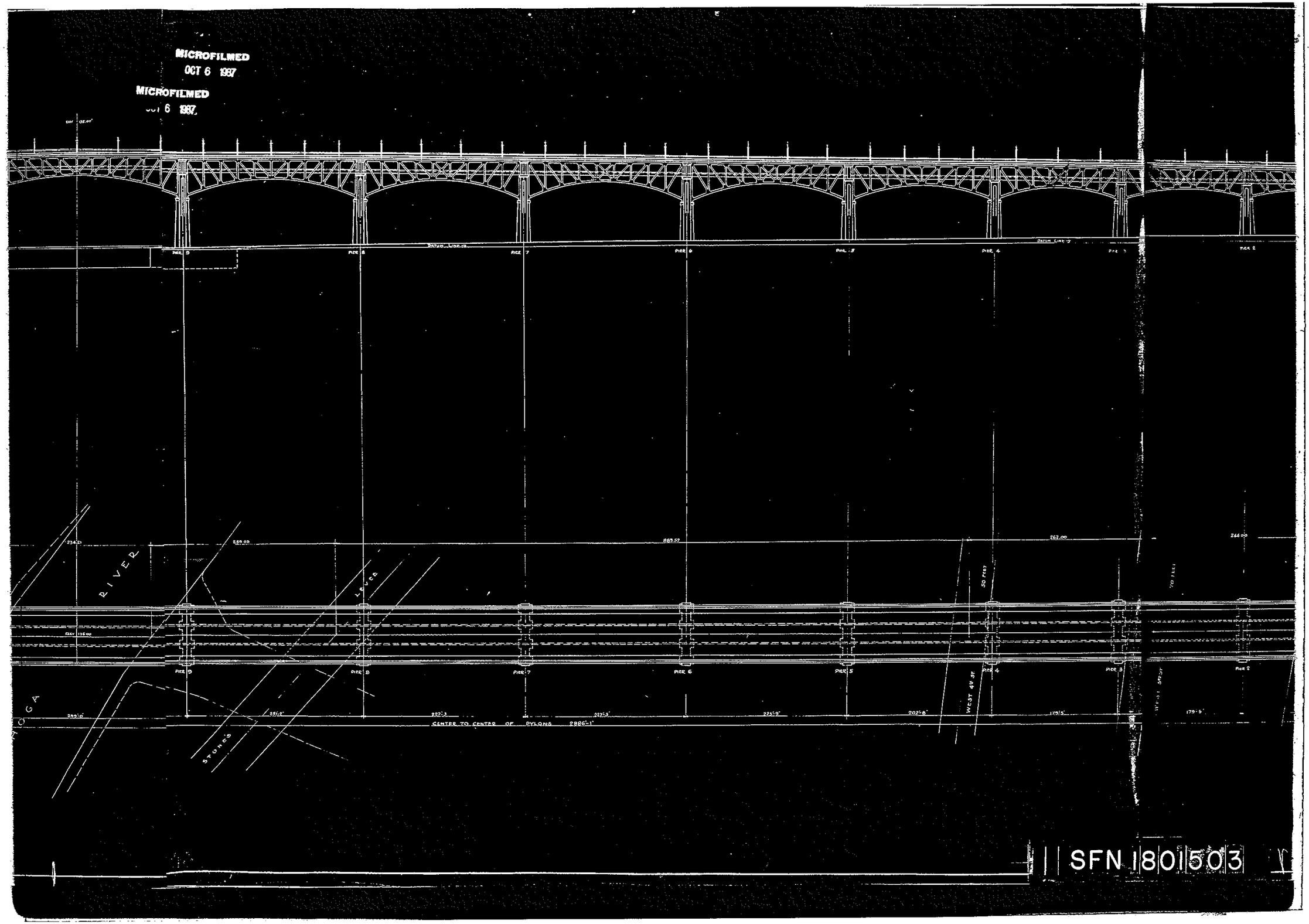

GRADE 1.663 %
1.627 % GRADE
WEST PYLON
PIER #12
PIER #11
PIER #10
PIER #9
PIER #8
PIER #7
PIER #6
PIER #5
SPAN No 13
SPAN No 12
SPAN No 11
SPAN No 10
SPAN No 9
SPAN No 8
SPAN No 7
SPAN No 6
SPAN No 5
ROLLER
FIXED
SCRANTON ROAD
Top of Water El - 3.46
N
553
60 Ft
SCRANTON ROAD

SFN 801503


DATUM LINE
WEST MARKET ST.
HOUSE
TERMINALS CO.
80-FT.
529.82'
470.55'
506.12'
EL. 111.00'
EL. 113.00'
EL. 110.00'
EL. 116.00'
EL. 86.30'
17"
11"
8.5"
8.5"
11"
17"
SFN 8015O3







LORAIN

COMMI
J. R. ZMUN
COUNTY SURVEYOR F. R. WILL
CONSULTING
SCALE 30 FE

See Revised Plans E.C. "As Built"

LORAIN CENTRAL BRIDGE

COMMISSIONERS OF CUYAHOGA COUNTY

J. R. ZMUNT J. H. HARRIS W. G. COOK

COUNTY SURVEYOR F. R. WILLIAMS COUNTY BRIDGE ENGINEER A. M. FELGATE

CONSULTING ENGINEERS AND ARCHITECTS WILBUR J. WATSON AND F. R. WALKER

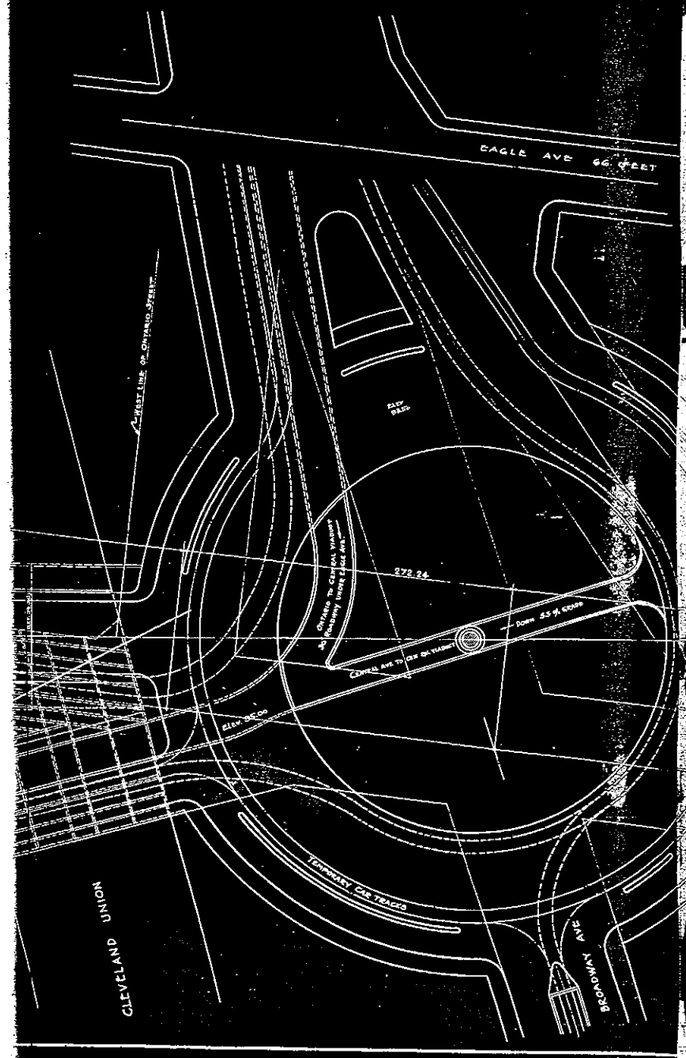
SCALE 30 FEET - 1 INCH JULY 31 1929

Recommended for Approval 9/5 — 1929.
H. B. Burke
Chief Engineer, Bureau of Highways.

APPROVED Robert O'Shaughnessy 9-5 1929

See Revised Plans for "As Built"

O.K. W.W. Rehe 8/29/29



22"
17"
11"
8.5"

ELEVATION AT SOUTH SIDE OF LORAIN AVE
BETWEEN W. 20TH AND W. 24TH STREETS
SCALE 1 INCH = 30'-0"

NORTH

MOORE AVE. 66'-0"

LORAIN AVE

SIDE WALK

RETAINING WALL SEE DRAWING NO 16

CLEVELAND UNION TERMINALS CO. LORAIN AVE BRIDGE

COLUMBUS ROAD BRIDGE SEE DRAWINGS

COLUMBUS ROAD - 80'-0"

SMITH COURT - 16'-0"

WEST 21ST STREET

WEST 20TH STREET 66'-0"

N.Y.C.R.R. C.U.T. TRACKS

TYPICAL SECTION OF LORAIN AVE. PAVEMENT.

NOTE - HEIGHTS OF CURBS ARE 12" TO 18" AND 12" TO 8" SEE PLAN.
ALL PAVEMENTS CROWNED 4½".

PLAN OF LORAIN AVE
BETWEEN W. 20TH AND W. 24TH STS.
SCALE 1 INCH = 30'-0"

TYPICAL DETAIL OF EXPANSION JOINTS IN PAVEMENT BASE.

THIS DETAIL TYPICAL FOR ALL JOINTS EXCEPT THOSE OVER BRIDGE ABUTMENTS. OMIT DOWELS AND PLACE 1" ELASTIC FILLER IN JOINTS OVER ABUTMENTS.
PLACE 1" ELASTIC FILLER AROUND ALL MANHOLES IN PAVEMENT AND SIDEWALKS.

APPROVED BY

CITY ENG.
CO. COMM.
CO. AUDITOR
CO. ENG.
BRIDGE ENG.

CUYAHOGA COUNTY

BOARD OF COMMISSIONERS
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J. H. HARRIS
J. F. O'GORMAN

COUNTY SURVEYOR.
F. R. WILLIAMS
COUNTY BRIDGE ENGINEER.
A. M. FELGATE

LORAIN CENTRAL BRIDGE
COLUMBUS ROAD GRADE ELIMINATION
CLEVELAND

LOCATION PLAN
WITH ELEVATION ALONG LORAIN AVE.

SCALE

FILE NO. 4371

WILBUR WATSON AND ASSOCIATES
CONSULTING ARCHITECTS & ENGINEERS
CLEVELAND

DRAWING NO. 1

DRAWING MADE	DRAWN BY	TRACED BY	CHECKED BY	DATE	APPROVED BY	DATE
4-27-31	C.G.P.	C.G.P.	W.W.			

REV. BY DATE	REMARKS	REV. BY DATE	REMARKS
W. & B.	ELEVATION AND SIDEWALK ENGINEERS		

SFN 1801503

APPROVED BY

Co. Comm.

Co. Auditor

Co. Engr. Bridge Engr.

CUYAHOGA COUNTY

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W.L. COOK

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F.R. WILLIAMS

COUNTY BRIDGE ENGINEER
A.M. PELGATE

LORAIN CENTRAL BRIDGE
CLEVELAND

TYPICAL CROSS SECTION AT PIERS

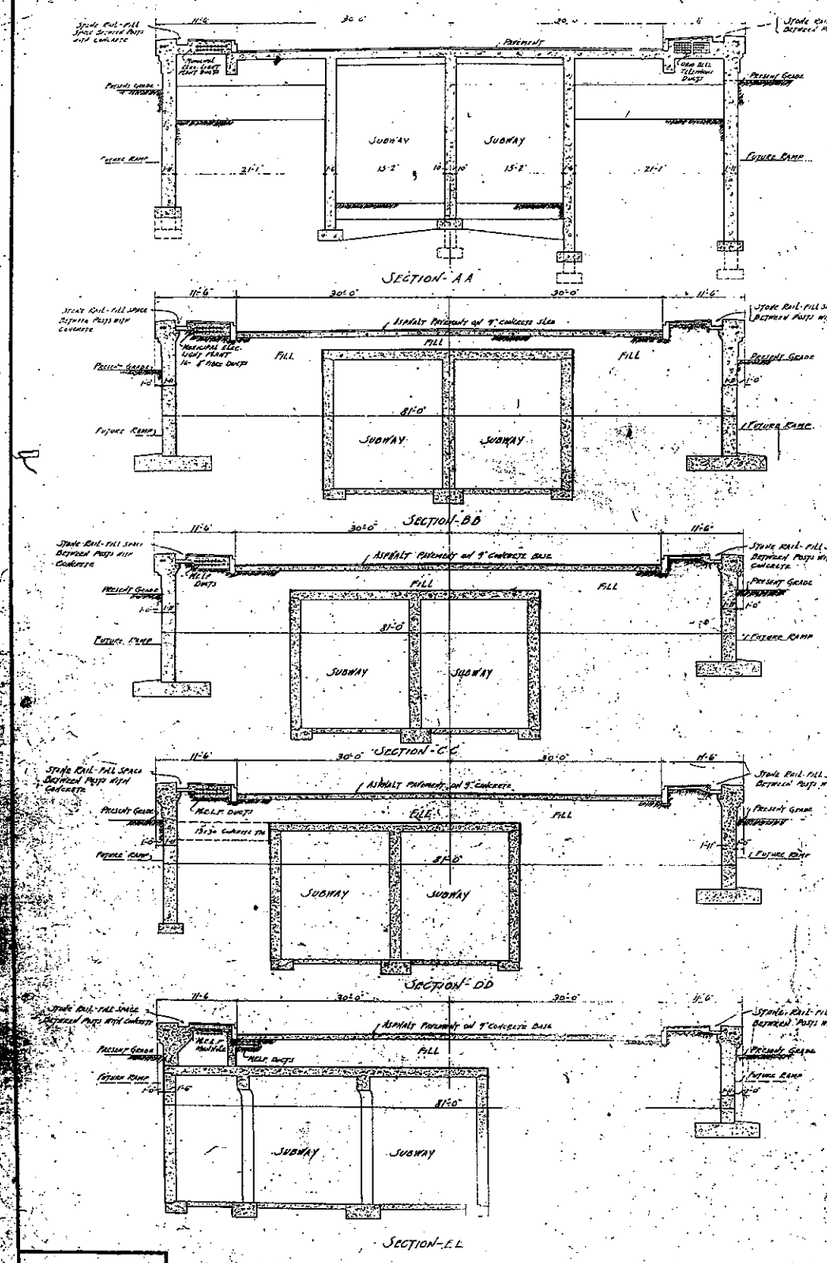
SCALE 1" = 1'-0"

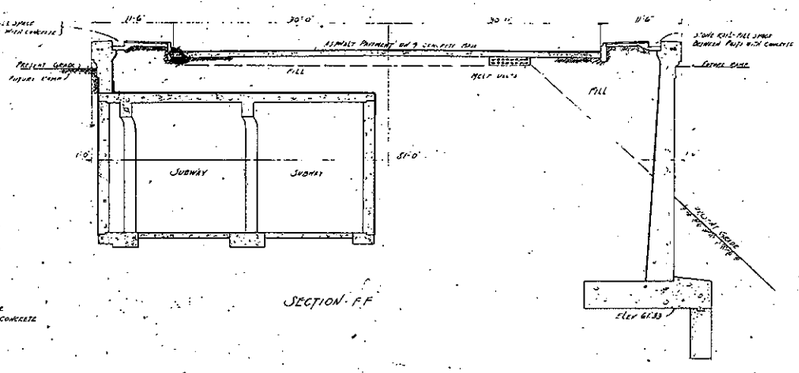
FILE NO.	WILBUR WATSON AND F.R. WALKER	DRAWING NO.
1237	CONSULTING ENGINEERS AND ARCHITECTS CLEVELAND	3

DRAWING MADE	SCALE	TRACED BY	CHECKED BY	DATE	APPROVED BY	DATE
4-22-30	1/4" = 1'-0"	B.S.F.	M.K.	6-24-30		

NO. OF SHEET	CANCELS	SUPPLEMENTS	DATE	REVISED
1 of 1				

SFN 1801503





NOTE — FOR LOCATIONS OF SECTIONS SEE DRG. 12

CUYAHOGA COUNTY	
BOARD OF COMMISSIONERS: J.R. ZMUNT, J.H. HARRIS, W.E. COOK	COUNTY SURVEYOR: F.R. WILLIAMS; COUNTY BRIDGE ENGINEER: A.M. FELGATE
LORAIN CENTRAL BRIDGE CLEVELAND	
EAST APPROACH, CROSS SECTIONS	
SCALE 1/11FT.	
FILE NO. 4366	WILBUR WATSON AND F.R. WALKER CONSULTING ENGINEERS AND ARCHITECTS CLEVELAND
DRAWING MADE 7-17-30	DRAWN BY W.E.B. TRACED BY A.J.J. CHECKED BY S.C.N. DATE 8-13-30 APPROVED BY DATE
REV. NO. DATE REMARKS	REV. NO. DATE REMARKS

APPROVED BY

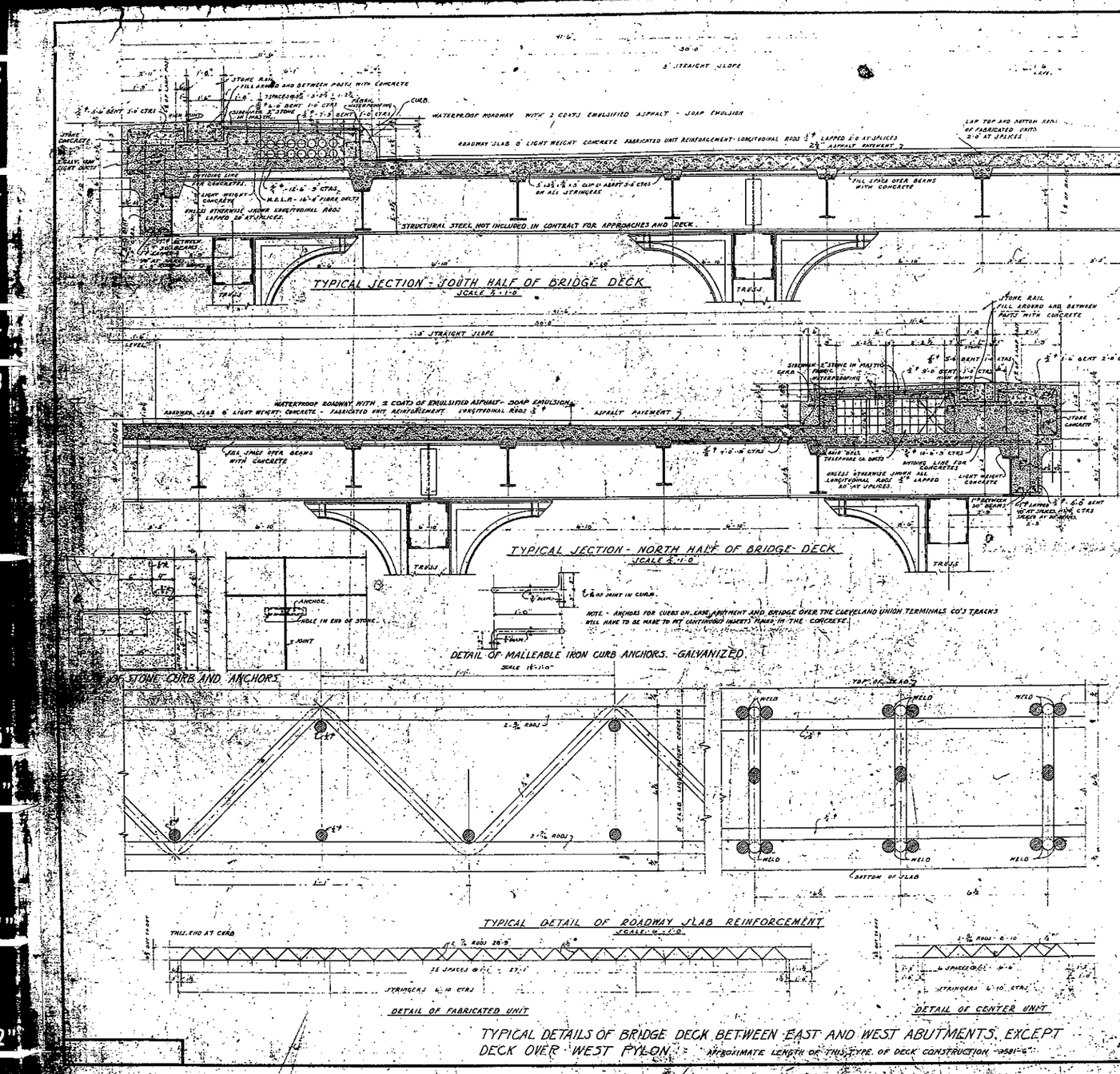
Co. Comm

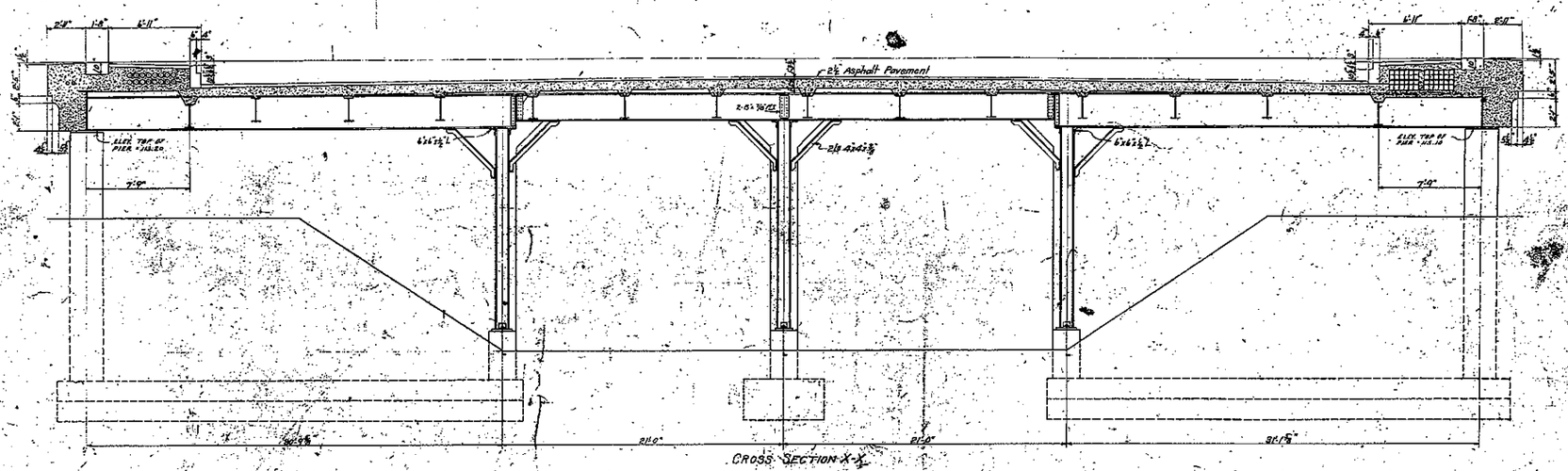
Co Auditor

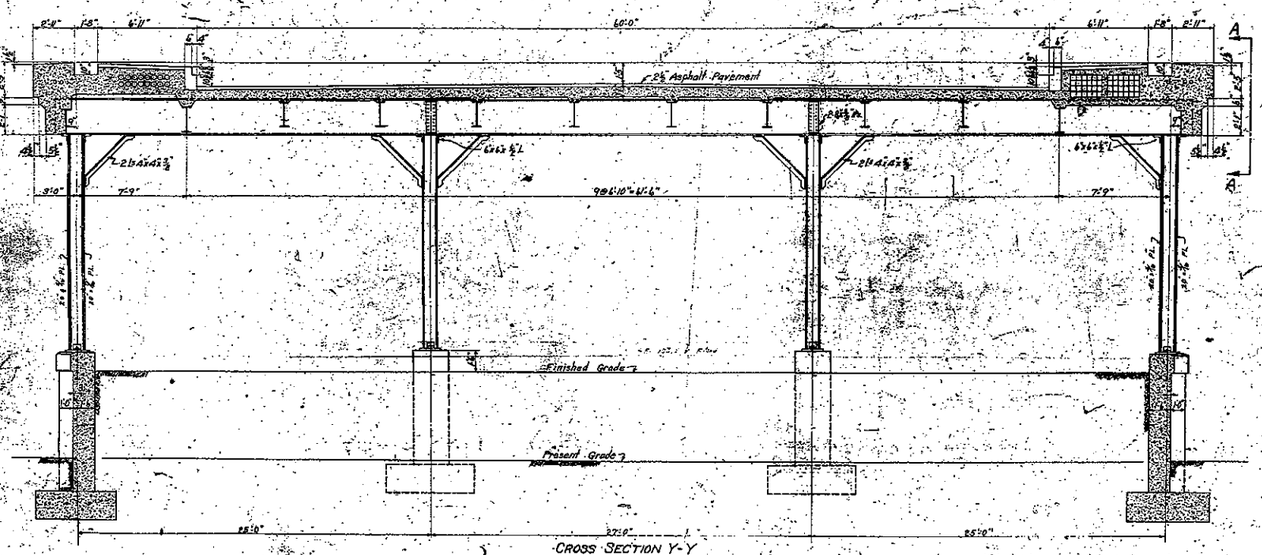
Co Eng

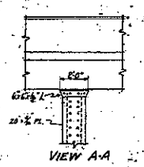
Bridge Eng.

SFN 180503


TYPICAL JECTION - SOUTH HALF OF BRIDGE DECK
SCALE ½"=1'-0
TYPICAL JECTION - NORTH HALF OF BRIDGE DECK
SCALE ½"=1'-0
DETAIL OF MALLEABLE IRON CURB ANCHORS. -GALVANIZED.
SCALE 1½"=1'-0
TYPICAL DETAIL OF ROADWAY SLAB REINFORCEMENT
SCALE 1½"=1'-0
DETAIL OF FABRICATED UNIT
DETAIL OF CENTER UNIT
TYPICAL DETAILS OF BRIDGE DECK BETWEEN EAST AND WEST ABUTMENTS, EXCEPT DECK OVER WEST PYLON.
APPROXIMATE LENGTH OF THIS TYPE OF DECK CONSTRUCTION 4581'-6"
STRUCTURAL STEEL NOT INCLUDED IN CONTRACT FOR APPROACHES AND DECK.
WATERPROOF ROADWAY WITH 2 COATS EMULSIFIED ASPHALT - SOAP EMULSION
ASPHALT PAVEMENT 2"
STONE RAIL FILL ARCHED AND BETWEEN POSTS WITH CONCRETE
5" STRAIGHT SLOPE
CURB
TRUSS
PLAN OF LIGHT POST BASE
JECTION C-C
JECTION A-A
JECTION B-B FOR JOUTH SIDE OF BRIDGE
JECTION B-B FOR NORTH SIDE OF BRIDGE
SCALE OF JECTIONS ½"=1'-0
DETAILS OF BASES FOR LIGHT POSTS BETWEEN EAST ABUTMENT AND WEST PYLON.
FOR LOCATION SEE DRAWING NO. 4366-28, 29, 30.
APPROVED BY
CUYAHOGA COUNTY
BOARD OF COMMISSIONERS
J. R. ZMUNT
J. H. HARRIS
W. E. COOK
COUNTY SURVEYOR
F. R. WILLIAMS
COUNTY BRIDGE ENGINEER
A. M. FELGATE
LORAIN CENTRAL BRIDGE
CLEVELAND
TYPICAL SECTIONS OF DECK CONSTRUCTION
SCALE ½"=1'-0 and 1"=1'-0"
FILE NO. 4366
WILBUR WATSON AND F.R. WALKER
CONSULTING ENGINEERS AND ARCHITECTS
CLEVELAND
DRAWING NO. 3.1
DRAWING MADE 11-11-30
DRAWN BY W.R.B.
TRACED BY A.G.L.
CHECKED BY
APPROVED BY
DATE
REMARKS
REV. NO.
REV. BY
REV. DATE







APPROVED BY

CITY ENG.

CO. COMM. Chas. E. Cook

CO. AUDITOR

CO. ENG.

BRIDGE ENG.

CUYAHOGA COUNTY

BOARD OF COMMISSIONERS
J. R. ZMUNT.
J. H. HARRIS
W. E. COOK

COUNTY SURVEYOR
F. R. WILLIAMS

COUNTY BRIDGE ENGINEER
A. McFELGATE

LORAIN CENTRAL BRIDGE CLEVELAND.

CROSS SECTIONS WEST APPROACH

SCALE 1/4" = 1'-0"

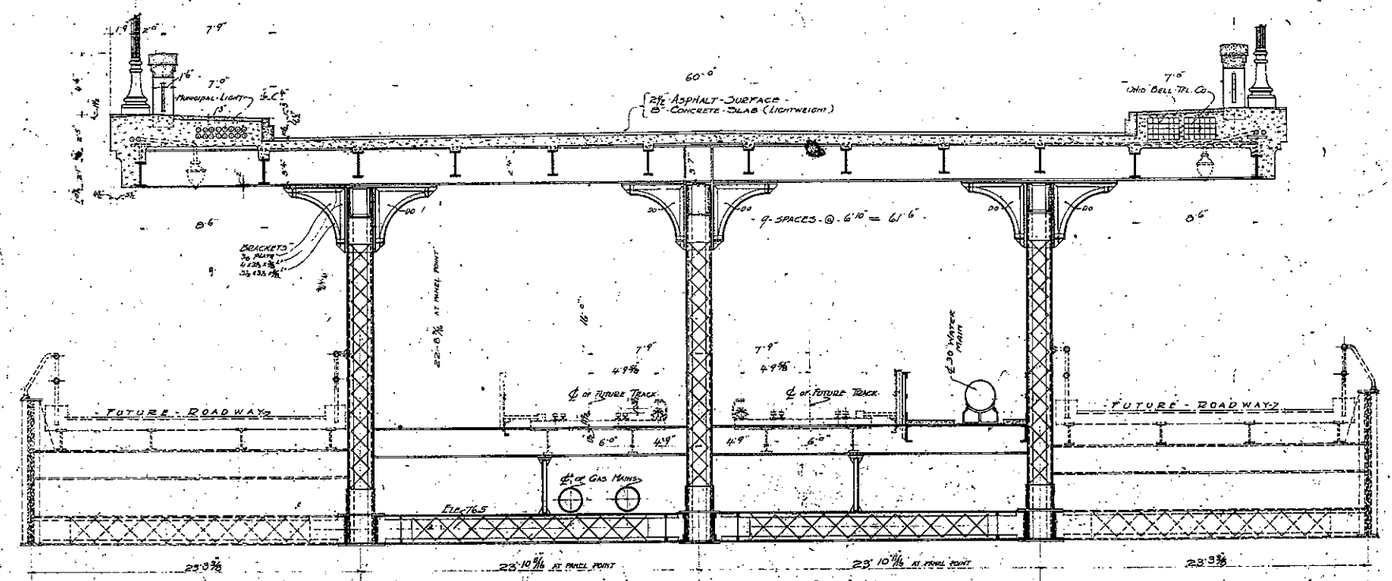
FILE No. 4365

WILBUR WATSON AND F. R. WALKER
CONSULTING ENGINEERS AND ARCHITECTS
CLEVELAND

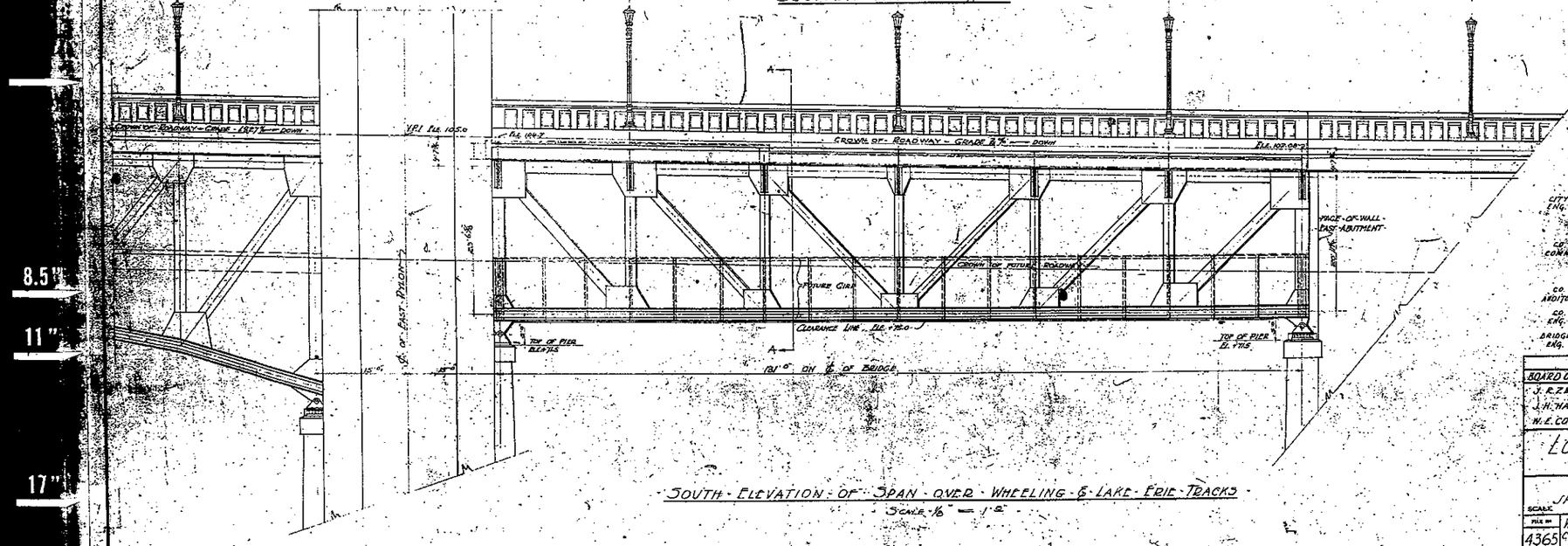
DRAWING No. 37

REV. BY	DATE	REMARKS	REV. BY	DATE

SFN 180503



SECTION · A-A — Scale ⅛"=1'-0"



SOUTH · ELEVATION · OF · SPAN · OVER · WHEELING · & · LAKE · ERIE · TRACKS

Scale ⅛" = 1'-0"

APPROVED BY

City Eng. Philip E. Cook

Co. Comm.

Co. Auditor

Co. Eng.

Bridge Eng.

CUYAHOGA COUNTY	
BOARD OF COMMISSIONERS	COUNTY SURVEYOR
J. R. ZMUNT	F. E. WILLIAMS
J. H. HARRIS	COUNTY BRIDGE ENGINEER
W. E. COOK	A. M. FELGATE

LORAIN CENTRAL BRIDGE
CLEVELAND

SECTION & ELEVATION
SPAN OVER W. & L. E. TRACKS

SCALE:

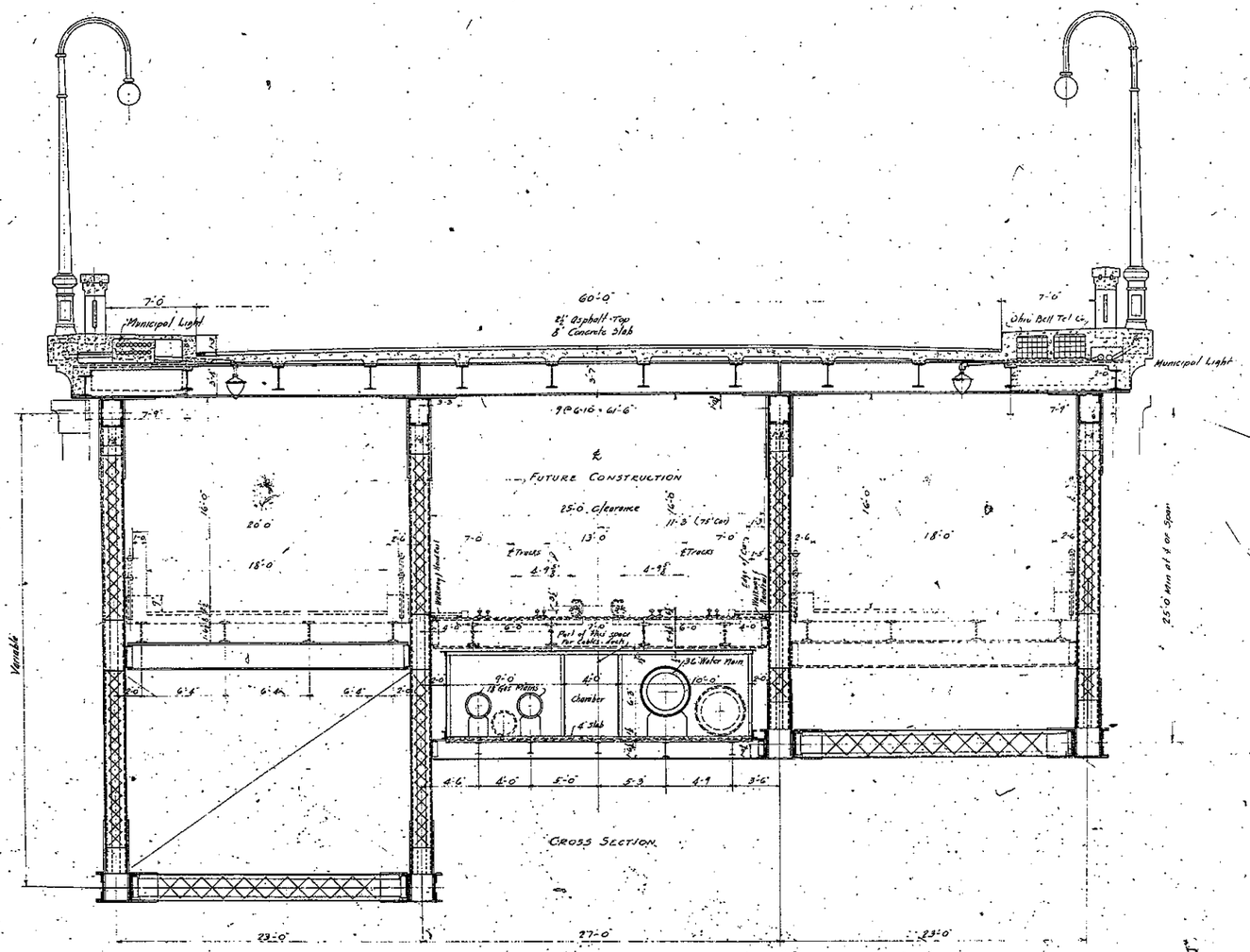
FILE NO.	WILBUR WATSON AND F. R. WALKER CONSULTING ENGINEERS AND ARCHITECTS CLEVELAND	DRAWING NO.
4365		39

DRAWING MADE	DRAWN BY	TRACED BY	CHECKED BY	DATE	APPROVED BY	DATE
6-1-23	S.E.H.	C.C.B.	W.P.R.	6-26-23		

REV. BY	DATE	REMARKS
SECT.	7-6	Added Sub-Surface Plan Below
ELEV.	7-6	Lowered all Girders 6" on Account of Clearance

REV. BY	DATE	REMARKS

SFN 801503



APPROVED BY -

CUYAHOGA COUNTY	
BOARD OF COMMISSIONERS J. R. ZMUNT J. H. HARRIS W. E. LOCK	COUNTY SURVEYOR F. R. WILLIAMS COUNTY BRIDGE ENGINEER A. M. FELGATE

LORAIN CENTRAL BRIDGE
CLEVELAND

TYPICAL CROSS SECTION

SCALE 1"=1'-0"

JOB NO.	WILBUR WATSON AND F.R. WALKER CONSULTING ENGINEERS AND ARCHITECTS CLEVELAND	DRAWING NO.
4237		

ORIGINAL MADE	DRAWN BY	TRACED BY	CHECKED BY	DATE	APPROVED BY	DATE
6-18-29	B.S.J.	B.S.J.				

REV. BY	DATE	REMARKS	REV. BY	DATE	REMARKS
B.S.J.	7-6-29				

SFN 1801503

LORAIN-CENTRAL BRIDGE

July 12, 1929

LOADS AND STRESSES FOR FINAL DESIGN

The following loads and unit stresses will be used in final designs for the proposed Lorain-Central Bridge:

L O A D S

ROADWAY:

The roadway slab shall be designed to carry 20 ton trucks with 50% impact distributed according to the Ohio State Specifications for Highway Bridges. The highway stringers shall be designed for 20 ton trucks with 35% impact. The floor beams and their immediate supports for the roadway shall be designed for 20 ton trucks with 25% impact. Use Haydite concrete or equivalent for weight.

The Ohio State Specifications shall also be followed for the distribution of loads to stringers and floor beams. Use Silicon Steel.

RAILWAY:

The stringers carrying the railway tracks shall be designed to carry 60 ton electric cars with 60% impact and with the wheels spaced as specified in the Ohio State specifications for E-60 loading.

The floor beams and their immediate supports shall be designed for the same load with 60% impact.

SIDEWALKS:

The sidewalk slab and stringers shall be designed to carry a load of 100# per square foot without impact.

RAILING:

All railing shall be designed to carry a vertical load of 100# per lineal foot and a horizontal load of 150# per lineal foot.

TRUSSES & SUB-STRUCTURE:

The trusses and sub-structure shall be designed to carry the following loads without impact:

80# per square foot on sidewalks.
80# per square foot on roadways, which corresponds approximately to a congested loading of 15 ton trucks.
15000# per lineal foot on electric railway tracks.

July 18, 1928

WIND LOADS:

All trusses shall be designed to resist a lateral force of 40# per sq. ft. on 1½ times the vertical projection of one truss including the floor system and railing, and on one-half the vertical projection of each truss in excess of one. Also 200# per lineal foot on Lt Upper deck and 300# per lineal foot on the lower deck.

LONGITUDINAL FORCE:

The structure shall be proportioned to resist a longitudinal force of 10% of the live load on the bridge, acting 4' above the floor level.

APPROACH GIRDERS:

The plate girders in the east approach shall be designed for special loads specified elsewhere.

REVERSALS:

Where members are subject to reversal of stresses the member shall be designed for the larger stress and the connections for the larger plus 50% of the smaller stress.

MILLED ENDS:

In compression members 40% of the stress shall be assumed as taken by the milled ends.

July 15, 1929

See Copy of Letter Attached

STRUCTURAL STEEL AND RIVET STEEL STRESSES

	Carbon	Silicon
TENSION.		
Axial tension, structural members, net section	18,000	27,000
Rivets in tension, where permitted 50% of single shear values.		
AXIAL COMPRESSION:		
Axial compression, gross section	$\frac{18{,}000}{1 + \frac{1}{18000}\frac{(l)^2}{(r)}}$	$\frac{27{,}000}{1 + \frac{1}{18000}\frac{(l)^2}{(r)^2}}$
but not to exceed	15,000	22,500

l = unsupported length of member, in inches
r = least radius of gyration, in inches.

BENDING ON EXTREME FIBER:		
Rolled shapes, built-up sections, and girders, net section	18,000	27,000
Pins	27,000	40,500
SHEAR:		
Girder webs, gross section	12,000	18,000
Pins and shop driven rivets	13,500	
Power driven field rivets and turned bolts in reamed holes	12,000	
BEARING:		
Pins (except for rockers), steel parts in contact, and shop driven rivets	27,000	40,500
Rocker Pins	18,000	27,000
Power driven field rivets and turned bolts	24,000	
Expansion rollers, pounds per linear inch (where d = diameter of roller in inches)	600d	
DIAGONAL TENSION: In webs of girders and rolled beams, at sections where maximum shear and bending occur simultaneously	18,000	27,000

NOTE: Stresses for Concrete shall follow the Specifications of the Joint Committee.

NOTE: For special steel forgings - Class F Annealed ASTM, A18-27 - use stresses 33-1/3% greater than those for carbon steels.

C. A. WATSON and R. L. HARDING, Engineers — C. A. HALL, Architect

WILBUR WATSON AND ASSOCIATES
ARCHITECTS AND ENGINEERS
4614 PROSPECT AVENUE
CLEVELAND

August 24, 1929.

W. H. Rabe, Chief Designing Engineer of Bridges,
Department of Highways,
Columbus, Ohio.

Dear Sir:-

As requested in your letter of August 22nd, I am mailing you today, under separate cover, two additional copies of general plan and typical section of the proposed Lorain-Central High Level Bridge. One of the plans we have had photostated and am sending same for your files.

Please note also in regard to the specification for loads and stresses that the base stress for Silicon Steel has been reduced from 27,000# to 25,000#. Other stresses and loads to remain the same.

I shall be pleased at a later date to take up with you the question of approval of the detail plans.

Very truly yours,

Fred L. Flammer

FLF/LK