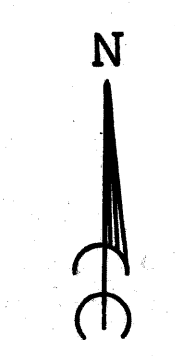


# CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS

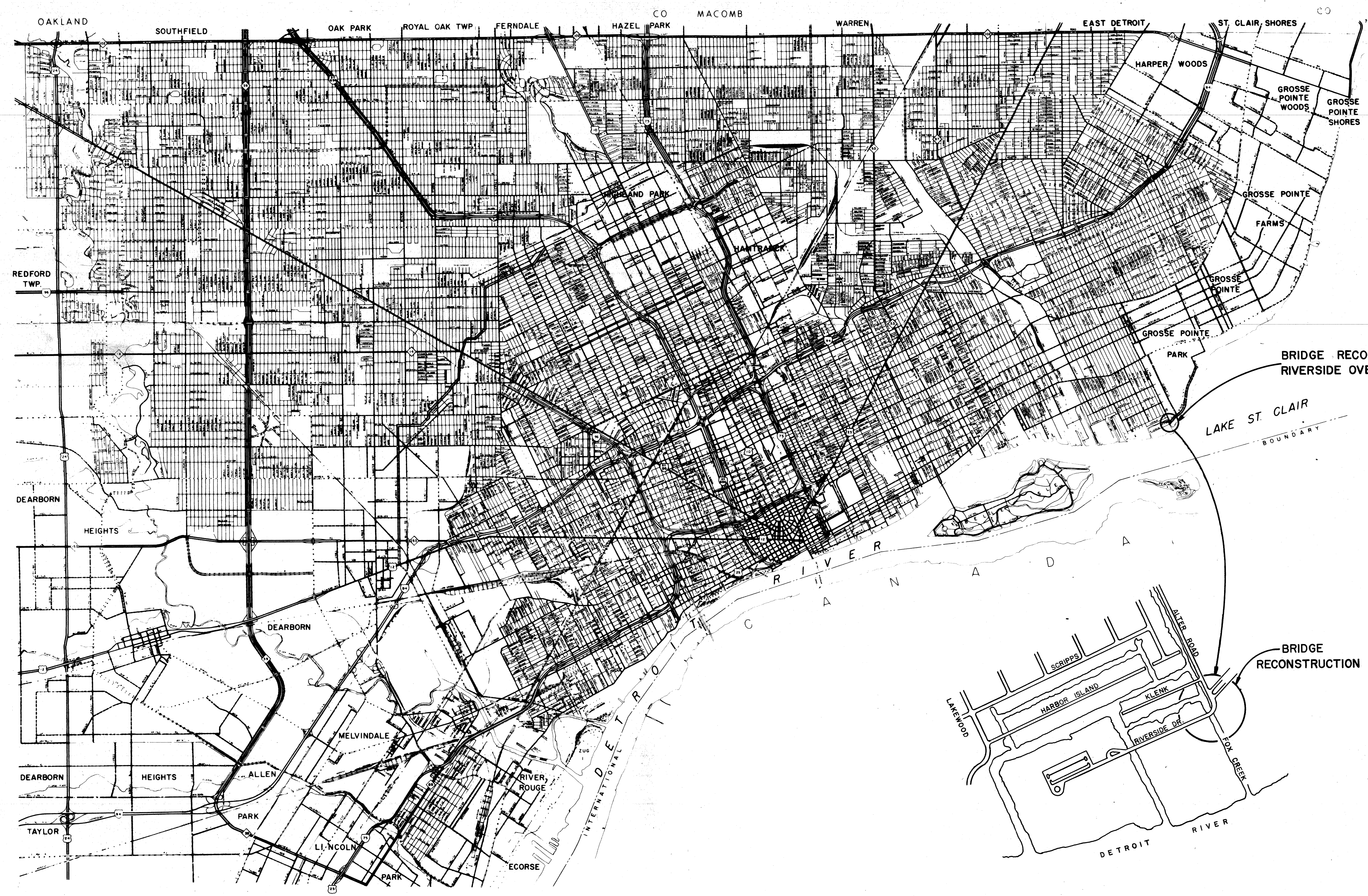
THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION CURRENT STANDARD SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS.

IN CO-OPERATION WITH  
MICHIGAN DEPARTMENT OF TRANSPORTATION  
AND  
FEDERAL HIGHWAY ADMINISTRATION  
FEDERAL AID URBAN PROJECT NO. MICHIGAN M 2000 ( )  
CONTROL SECTION JOB NO.

FHWA REGION	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MICH.				
STREET	CITY	COUNTY	TWP	SHEET NO.	TOTAL SHEETS



CITY OF DETROIT  
BRIDGE NO. BW-246  
  
MDOT STRUCTURE  
NO. 0108300 B02



INDEX OF SHEETS

STANDARD PLANS

ITEM NO. \_\_\_\_\_

CONTRACT FOR BRIDGE RECONSTRUCTION

LOCAL AUTHORITY APPROVAL  
CITY OF DETROIT  
CITY ENGINEERING DEPARTMENT

APPROVED BY \_\_\_\_\_ DEPUTY DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

PREPARED UNDER SUPERVISION OF \_\_\_\_\_

REGISTERED PROFESSIONAL ENGINEER REGISTRATION NO. \_\_\_\_\_

CITY OF DETROIT  
ORGANIZATION

DETROIT, MICHIGAN  
ADDRESS

(SEAL)

PRELIMINARY PLAN A  
JULY 8, 1987

FILE NO.	SCALE	DATE	SHEET NO.	TOTAL SHEETS



**CURVE DATA**

CURVE #1	CURVE #2	CURVE #3
Δ = 91°-59'-24"	Δ = 30°-13'-39"	Δ = 61°-45'-53"
D = 38°-11'-50"	D = 58°-45'-10"	D = 42°-57'-30"
R = 150.00'	R = 97.52'	R = 133.38'
T = 155.30'	T = 26.34'	T = 79.77'
L = 240.83'	L = 51.45'	L = 143.78'
E = 65.91'	E = 3.49'	E = 22.03'
PC = 9+24.42	PC = 9+45.35 (-20.84)	PCC = 10+03.55 (-16.63)
PT = 11+65.25	PCC = 10+03.55 (-16.63)	PT = 11+65.25 (-16.63)
CURVE #4	CURVE #5	
Δ = 48°-50'-06"	Δ = 15°-40'-48"	
D = 33°-17'-14"	D = 17°-21'-44"	
R = 172.13'	R = 330.0'	
T = 78.14'	T = 45.44'	
L = 146.71'	L = 90.31'	
E = 16.91'	E = 3.11'	
PC = 9+96.35 (22.13)	PCC = 11+24.20 (22.13)	
PCC = 11+24.20 (22.13)	PT = 12+07.91 (28.00)	

**BENCH MARKS**

- C.B.M. ARROW ON HYDRANT N.E. COR. WINDMILL POINTE & ALTER ROAD EL. 101.09
- C.B.M. ARROW ON HYDRANT AT TOMMY'S MARINA EL. 101.63
- P.B.M. MONUMENT AT LIGHTHOUSE EL. 100.24
- P.B.M. TOP OF CONC. BRIDGE RAILING N.E. COR. FRONT OF TOMMY'S MARINA D-2 EL. 104.187
- C.B.M. ARROW ON HYDRANT N. SIDE OF RIVERSIDE STR. B+12 E. EL. 101.46
- P.B.M. DENOTES PERMANENT BENCH MARK
- C.B.M. DENOTES CONSTRUCTION BENCH MARK

**GENERAL NOTES**

THE DESIGN OF THIS STRUCTURE IS BASED ON THE MICHIGAN DEPARTMENT OF STATE HIGHWAYS SPECIFICATIONS FOR THE DESIGN OF HIGHWAY BRIDGES, 1958 EDITION, AND CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES HS-20 AND ALTERNATE MILITARY LOADINGS. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH. THE WORKING STRESS METHOD OF DESIGN WAS USED FOR THIS STRUCTURE.

ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS SHALL BE BEVELED WITH 1/2" TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.

THE BASE ELEVATION FOR A 100 YEAR FLOOD IS 98.3 (578.0 NGVD) AS DEFINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) ON JULY 2, 1981. THE RECORDED HIGH WATER ELEVATION IS 98.55 ON OCTOBER 4, 1986.

THE DESIGN OF THE STRUCTURAL MEMBERS IS BASED ON MATERIAL OF THE FOLLOWING GRADES AND STRESSES:  
 CONCRETE: GRADES 355, 450 f<sub>c</sub> = 3,000 PSI  
 STEEL REINFORCEMENT: f<sub>y</sub> = 60,000 PSI  
 STRUCTURAL STEEL: A36 f<sub>y</sub> = 36,000 PSI

THE WORK COVERED BY THESE PLANS INCLUDES CLEARING, GRUBBING, TREE REMOVAL, CHANNEL EXCAVATION, EARTH EXCAVATION, MAINTAINING TRAFFIC, CONSTRUCTION AND REMOVAL OF THE TEMPORARY ROAD, CONSTRUCTION AND REMOVAL OF TEMPORARY BRIDGE, REMOVAL AND CONSTRUCTION OF APPROACH PAVEMENT, DRIVING OF STEEL SHEET PILING, CONSTRUCTION OF THE PROPOSED BRIDGE AND RETAINING WALLS AND PLACING GRANULAR MATERIAL, SODDING AND SLOPE RIPRAP TO THE LIMITS SHOWN AS WELL AS ALL OTHER ITEMS REQUIRED TO FULLY COMPLETE THE WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

UNSUITABLE MATERIAL UNDER RETAINING WALLS SHALL BE REMOVED AND BACKFILLED WITH STRUCTURE EMBANKMENT AS DIRECTED BY THE ENGINEER.

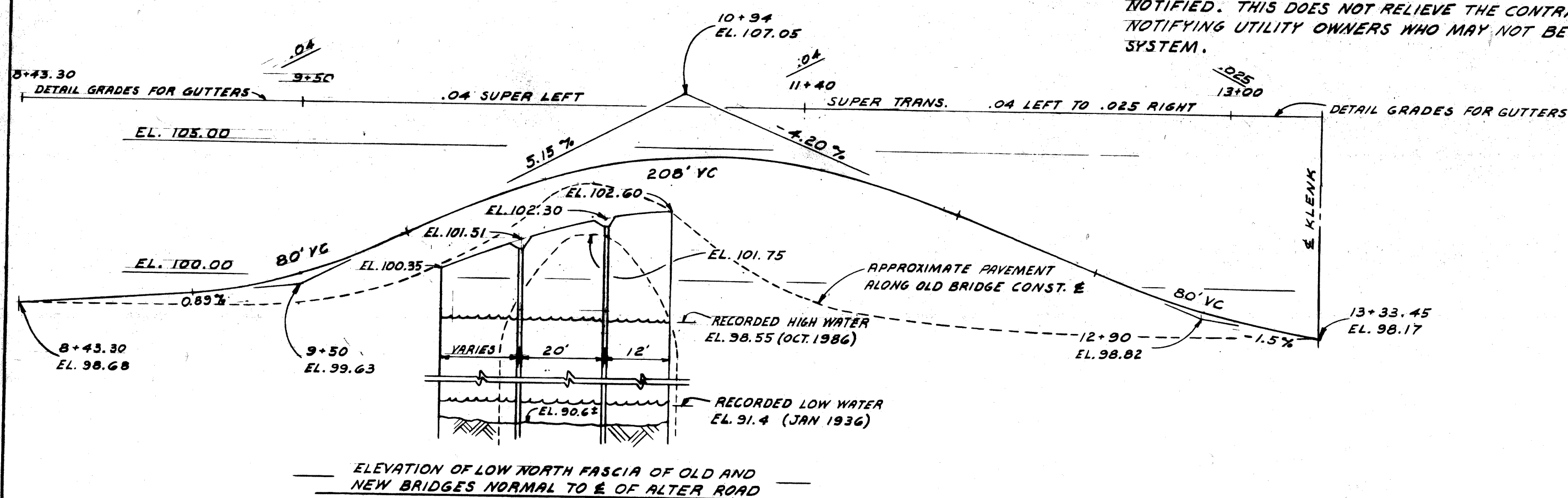
TRAFFIC IS TO BE MAINTAINED OVER THE TEMPORARY ROAD AND BRIDGE.

DATUM REFERS TO CITY DATUM. ADD 478.465 TO CONVERT TO I.G.L.D. DATUM AND 479.755 TO CONVERT TO N.G.V.D. DATUM.

TOPOGRAPHY SHOWN HEREON REPRESENTS CONDITIONS EXISTING AT THE TIME THE FIELD SURVEY WAS MADE. HOWEVER, THESE CONDITIONS MAY HAVE BEEN MATERIALLY ALTERED BY THE OPERATIONS OF OTHERS PRIOR TO THIS CONTRACT.

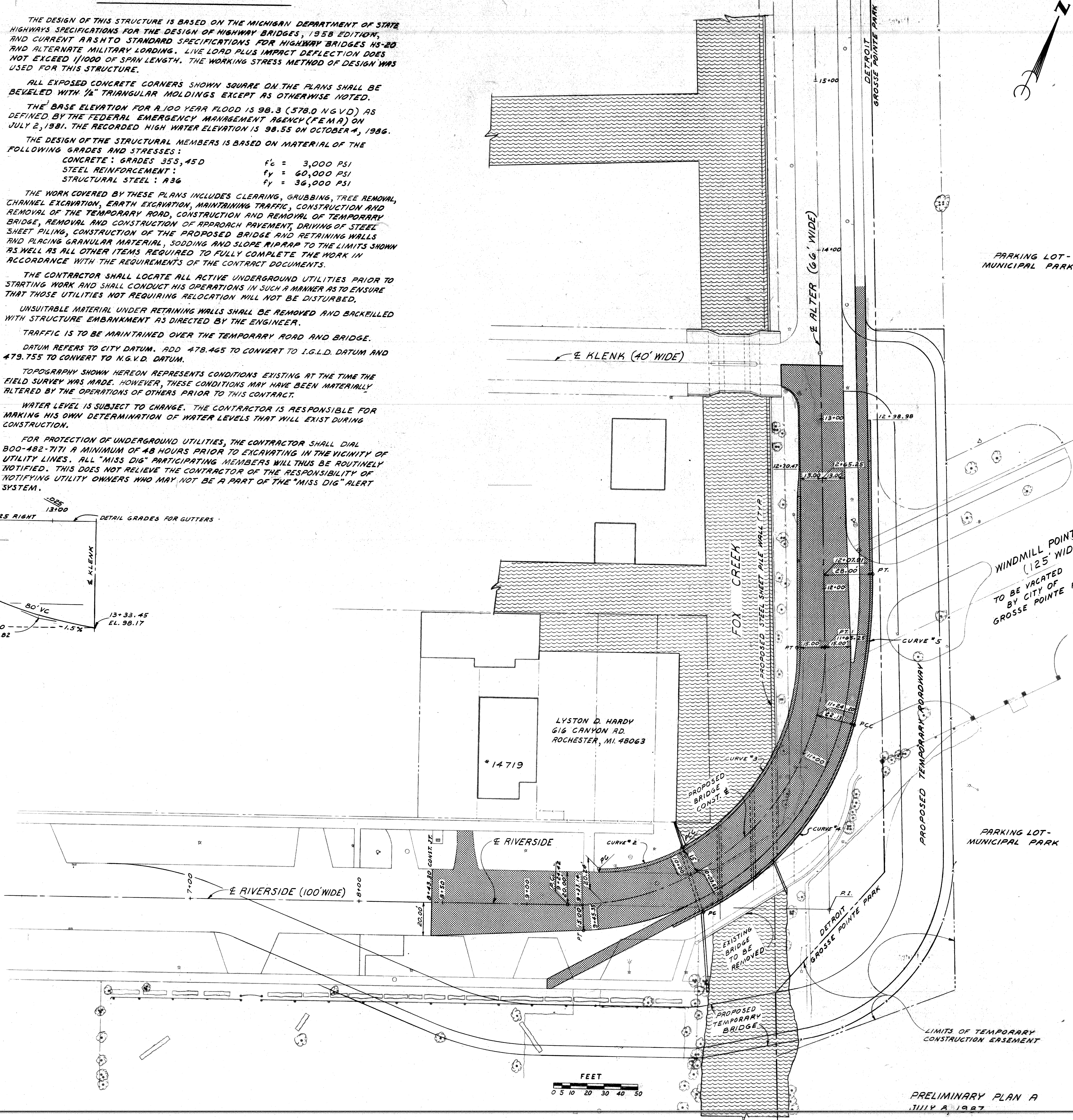
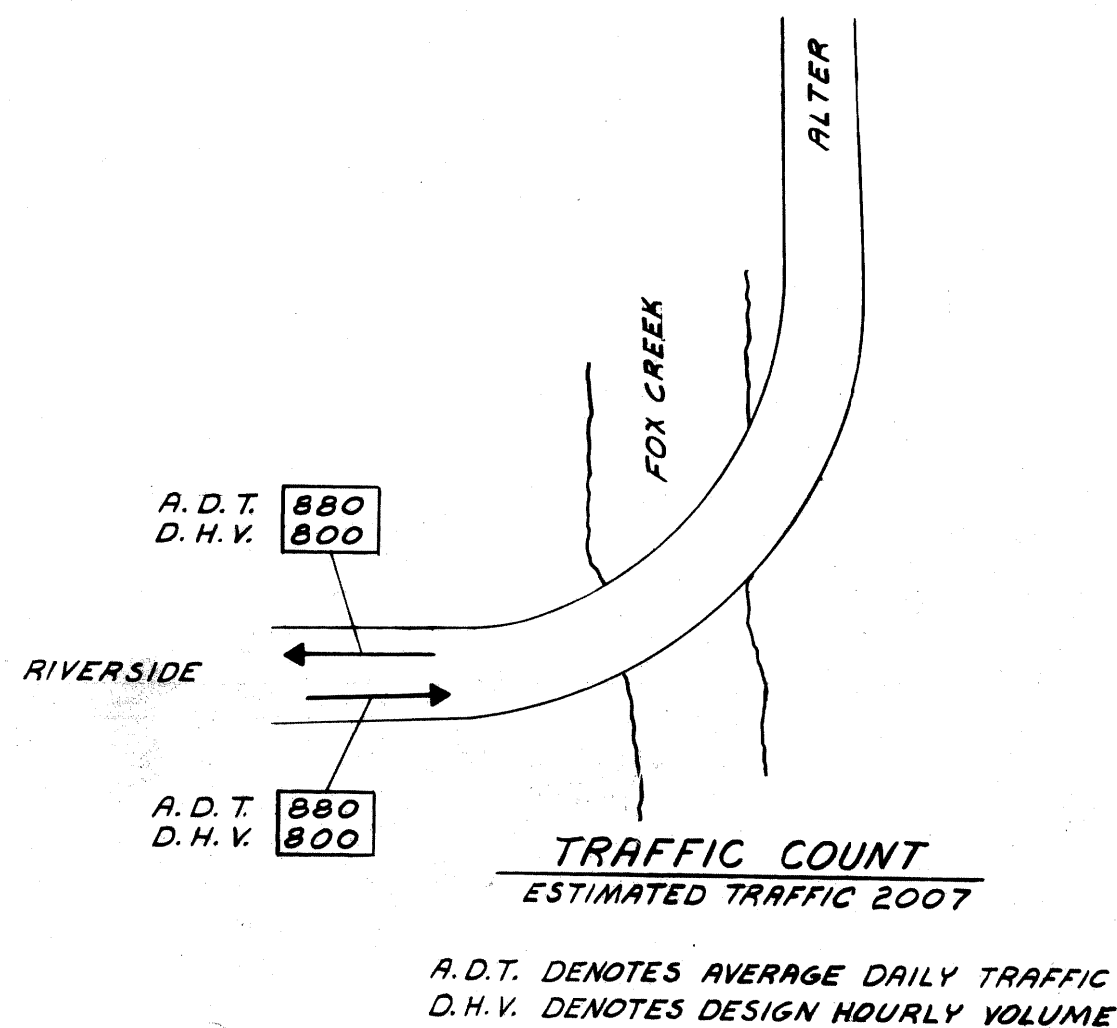
WATER LEVEL IS SUBJECT TO CHANGE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION OF WATER LEVELS THAT WILL EXIST DURING CONSTRUCTION.

FOR PROTECTION OF UNDERGROUND UTILITIES, THE CONTRACTOR SHALL DIAL 800-482-7171 A MINIMUM OF 48 HOURS PRIOR TO EXCAVATING IN THE VICINITY OF UTILITY LINES. ALL "MISS DIG" PARTICIPATING MEMBERS WILL BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.



PROFILE ALONG BRIDGE CONSTR. &

SCALE: HORIZ. 1" = 40' VERT. 1" = 4'



FEET 0 5 10 20 30 40 50

PRELIMINARY PLAN A JULY 4, 1987

SCALE 1" = 30'

designed by M.C.	drawn by D.L.N.	checked by J.K.	approved:
STRUCTURAL ENGINEER			
<b>CITY OF DETROIT</b> city engineering department for DEPARTMENT OF PUBLIC WORKS			
BRIDGE RECONSTRUCTION.			
RIVERSIDE AVENUE OVER FOX CREEK BW-246			
GENERAL PLAN OF SITE			
a.o. 87-22-12 contract no.			
sheet of drawing no. S-1			
date			



LOG OF SOIL BORINGS

TEST HOLE NO. 1

TEST HOLE NO. 2

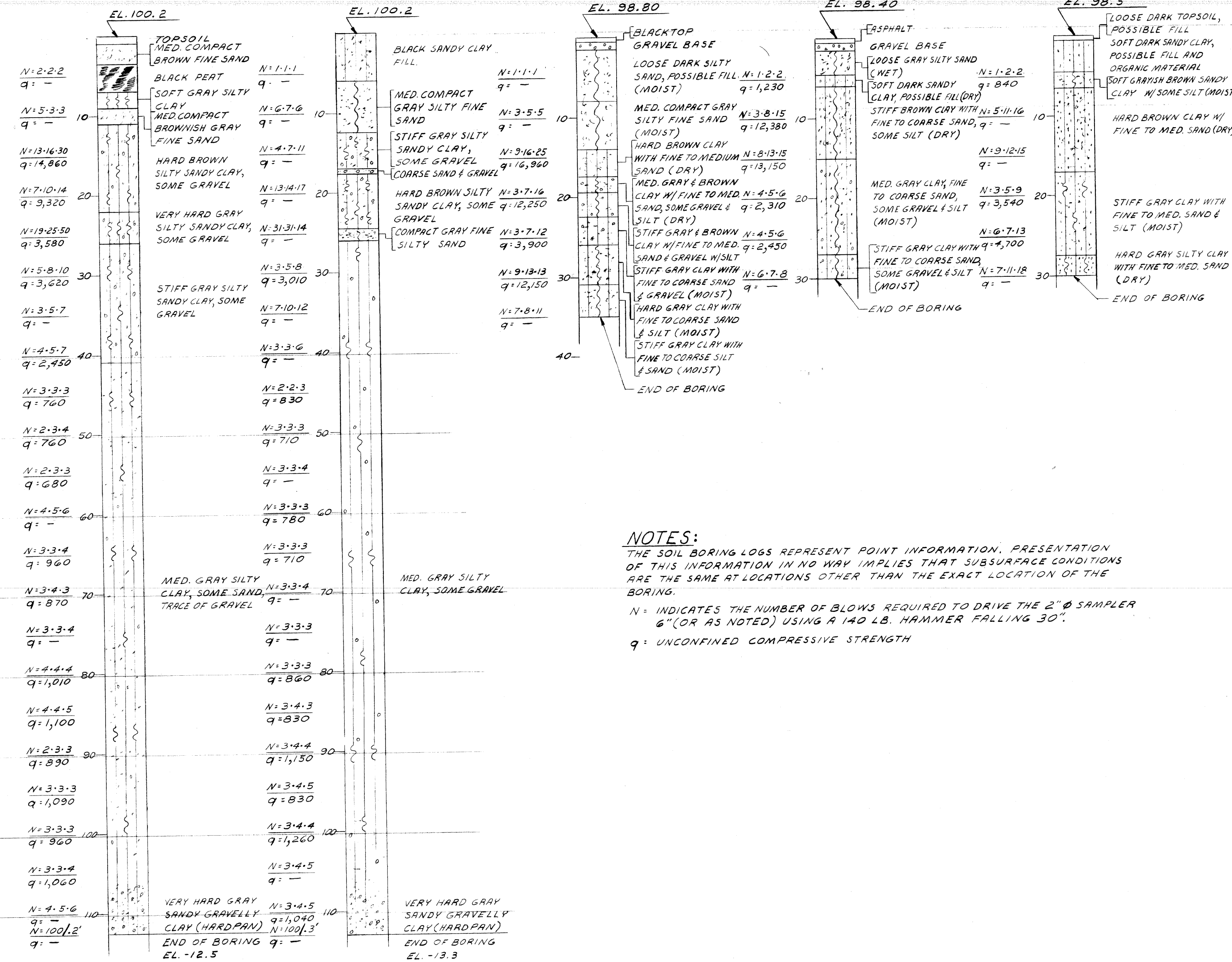
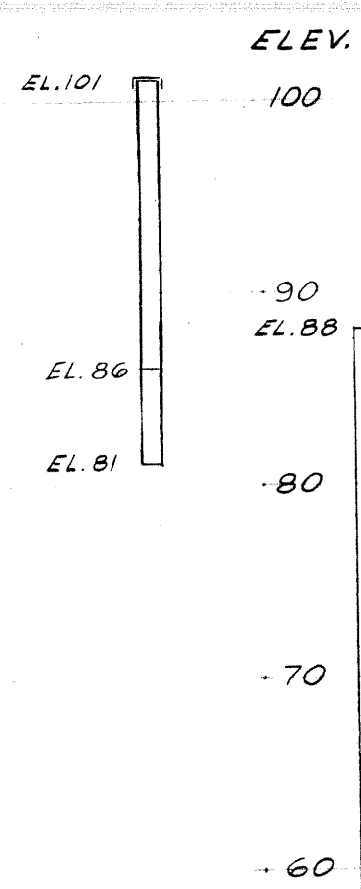
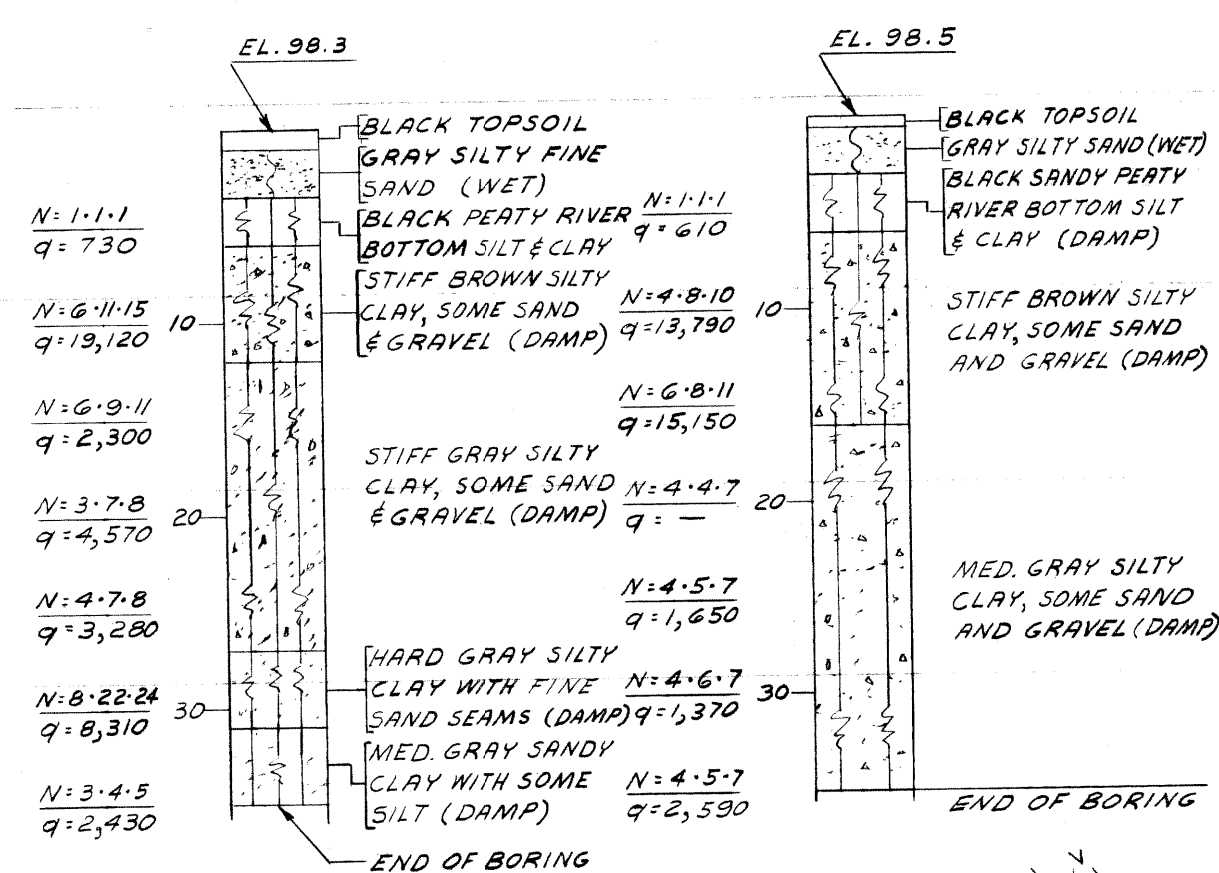
TEST HOLE NO. 3

TEST HOLE NO. 4

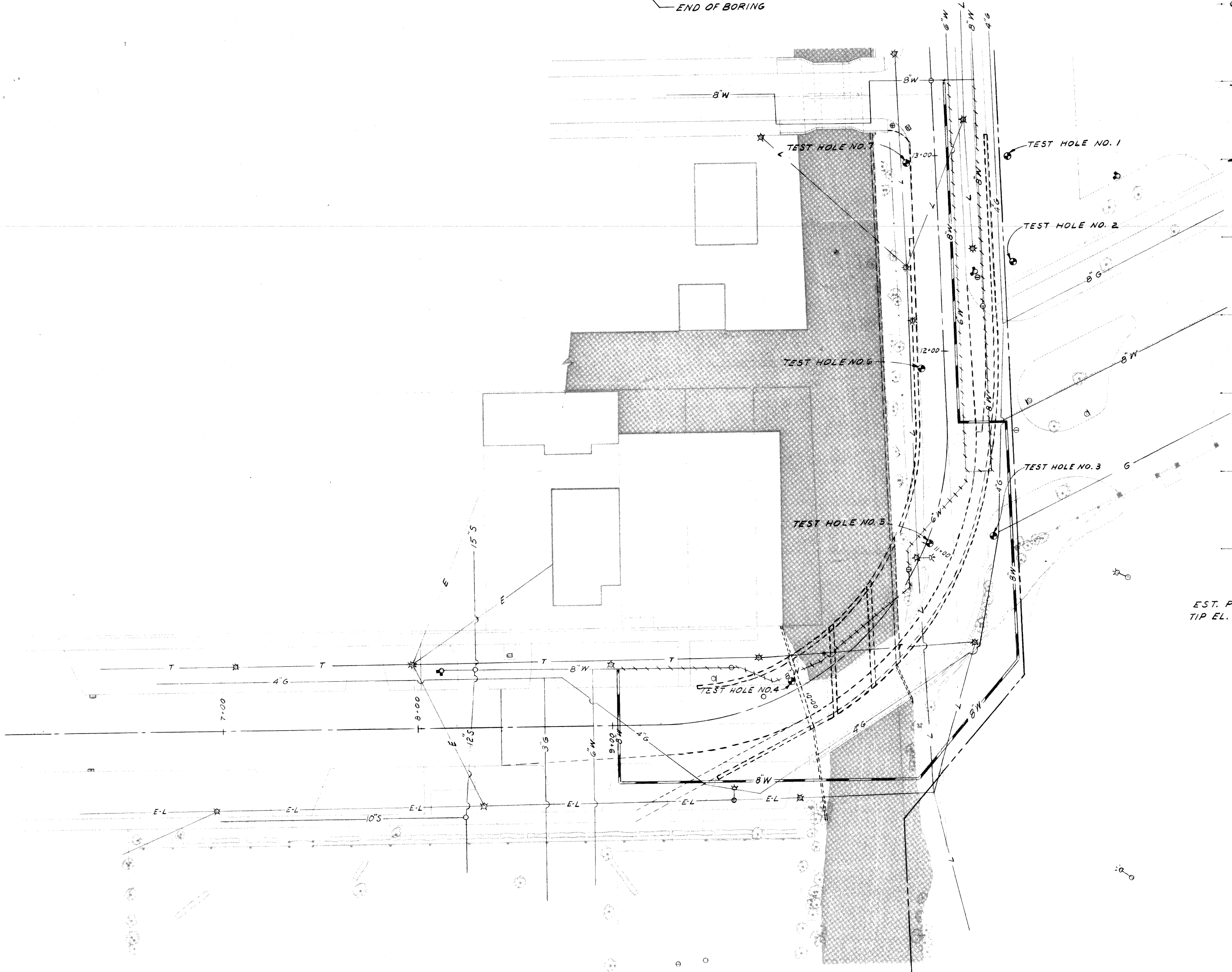
TEST HOLE NO. 5

TEST HOLE NO. 6

TEST HOLE NO. 7



**NOTES:**  
 THE SOIL BORING LOGS REPRESENT POINT INFORMATION. PRESENTATION OF THIS INFORMATION IN NO WAY IMPLIES THAT SUBSURFACE CONDITIONS ARE THE SAME AT LOCATIONS OTHER THAN THE EXACT LOCATION OF THE BORING.  
 N: INDICATES THE NUMBER OF BLOWS REQUIRED TO DRIVE THE 2" Ø SAMPLER 6" (OR AS NOTED) USING A 140 LB. HAMMER FALLING 30".  
 q: UNCONFINED COMPRESSIVE STRENGTH



UTILITY PLAN  
SCALE 1" = 40'

**UTILITY LEGEND**

UTILITY	EXISTING	ABANDONED	PROPOSED
MICHIGAN CONSOLIDATED GAS CO.	— G —	/// G ///	— G —
MICHIGAN BELL TELEPHONE CO.	— T —	/// T ///	— T —
DETROIT EDISON CO.	— E —	/// E ///	— E —
PUBLIC LIGHTING DEPARTMENT	— L —	/// L ///	— L —
WATER DEPARTMENT	— W —	/// W ///	— W —
SEWERS	— S —	/// S ///	— S —

**SYMBOL LEGEND**

SYMBOL	DESCRIPTION
○	SEWER MANHOLE
⊕	WATER MANHOLE
☆	UTILITY POLE
⊕	GAS - SHUT OFF OR MANHOLE
⊕	FIRE DEPT. HYDRANT
⊕	CATCH BASIN
⊕	SIGN ON POLE
⊕	R.L.D. LIGHT ON POLE
⊕	TREE
⊕	TEST BORING
—	FENCE

no.	date	revisions

designed by M.C.  
 drawn by D.L.N.  
 checked by J.K.  
 approved: [Signature]  
 STRUCTURAL ENGINEER

**CITY OF DETROIT**  
 city engineering department  
 for DEPARTMENT OF PUBLIC WORKS

BRIDGE RECONSTRUCTION  
 RIVERSIDE AVENUE OVER FOX CREEK BW-246

UTILITY DRAWING AND SOIL BORINGS

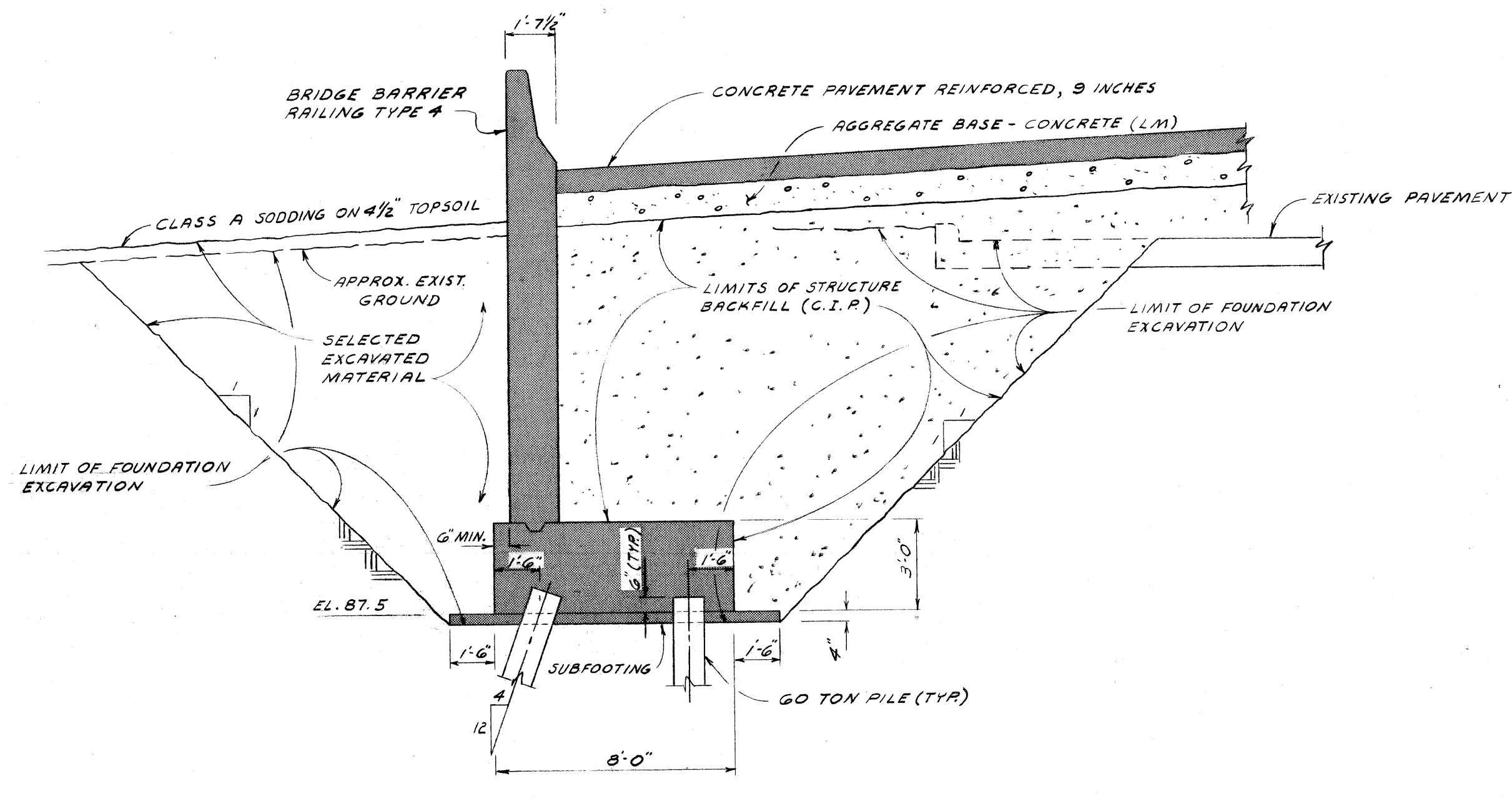
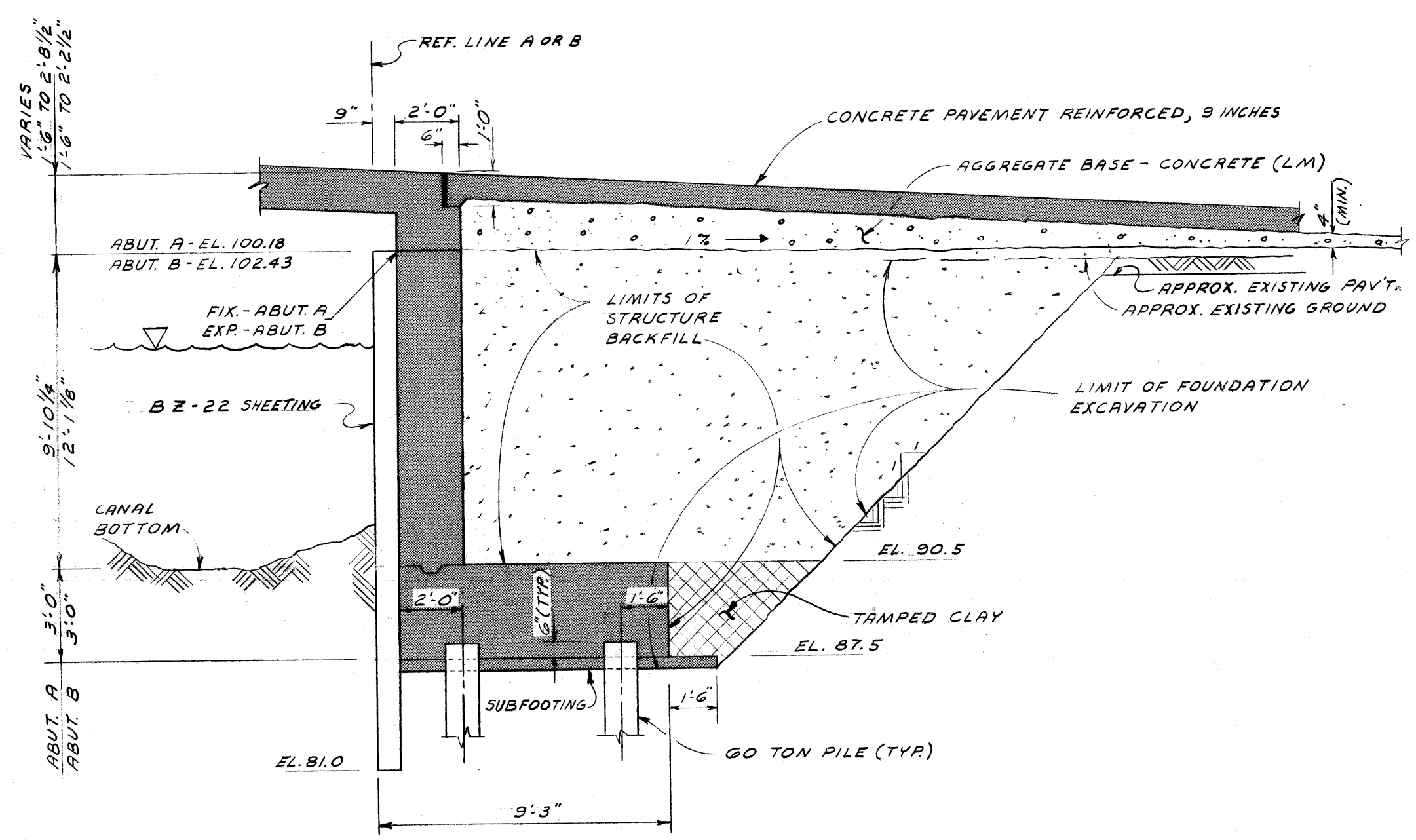
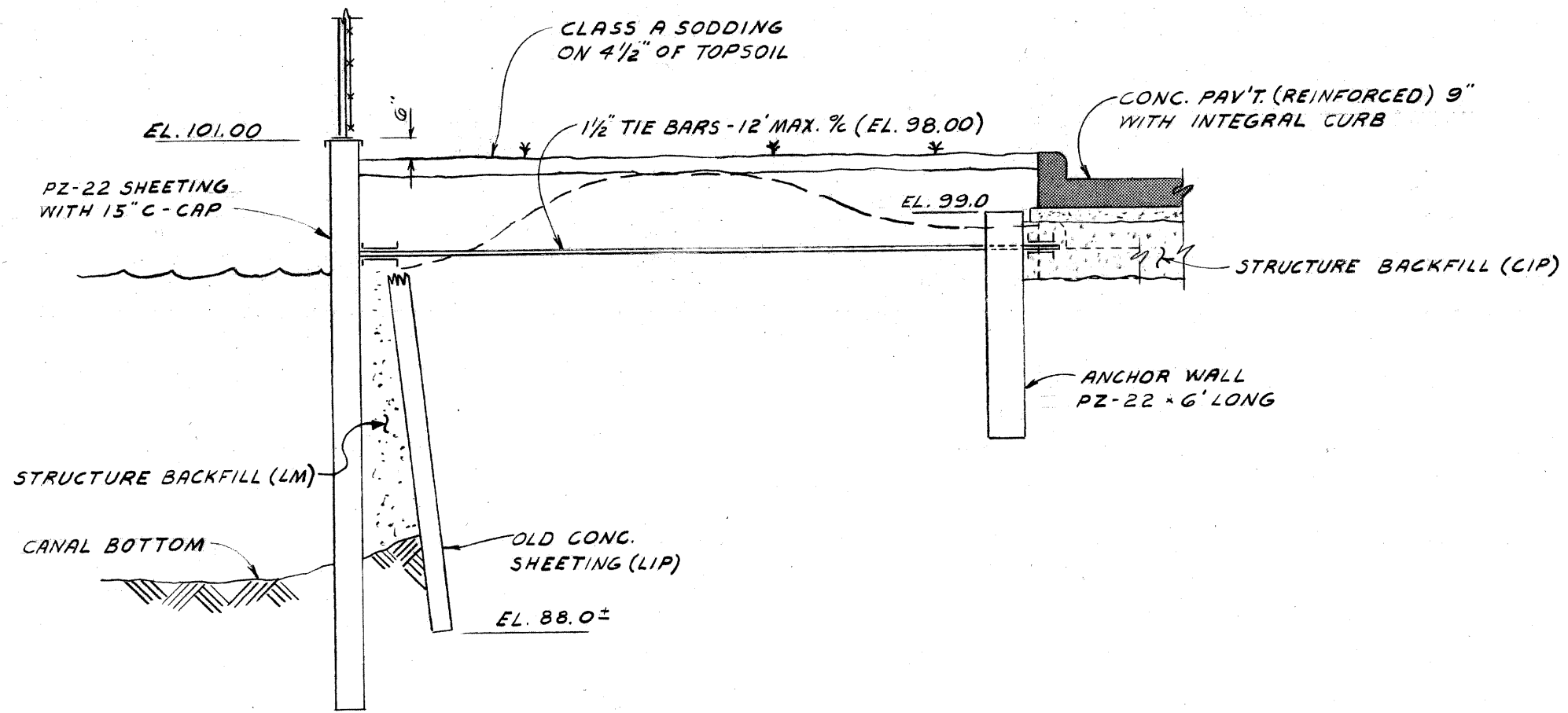
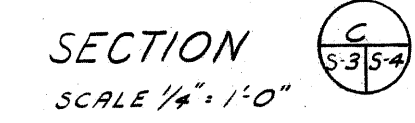
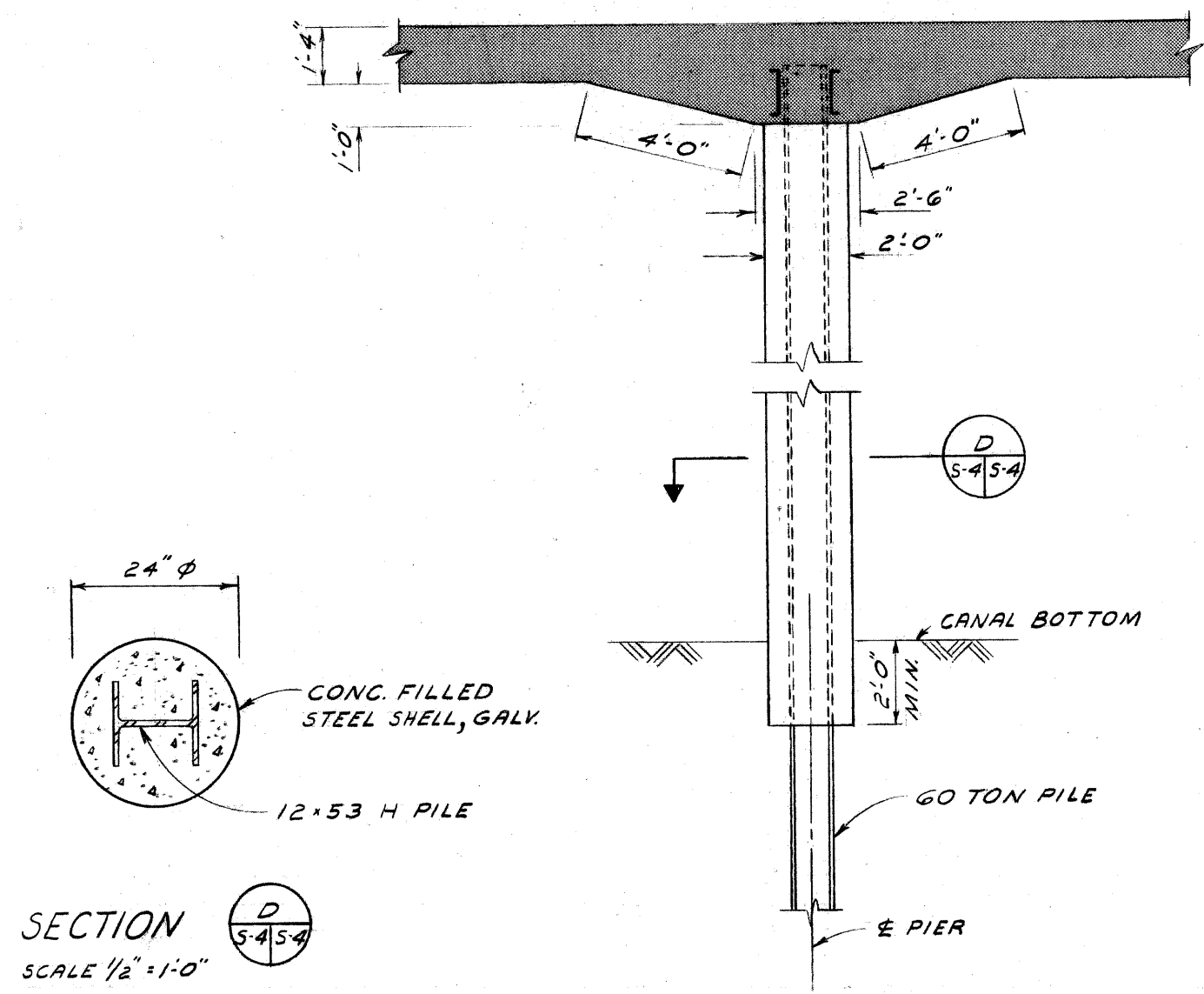
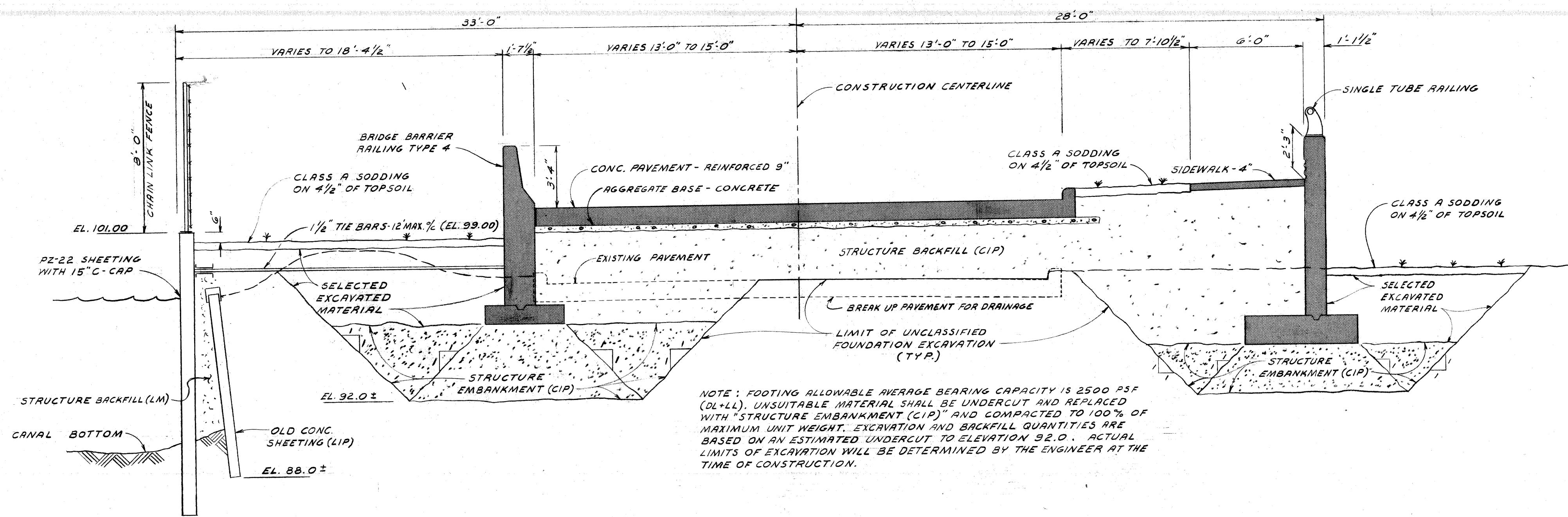
a.o. 87-22-12 contract no.  
 sheet of drawing no. 3-2  
 date

PRELIMINARY PLAN A  
 JULY 8, 1987









NO.	DATE	BY	REVISIONS

designed by M.C.  
 drawn by D.L.N.  
 checked by J.K.  
 approved: [Signature]  
 STRUCTURAL ENGINEER

**CITY OF DETROIT**

city engineering department  
 for DEPARTMENT OF PUBLIC WORKS

BRIDGE RECONSTRUCTION

RIVERSIDE AVENUE OVER FOX CREEK BW-246

GENERAL PLAN OF STRUCTURE DETAILS

a.o. 87-22-12 contract no.

sheet of drawing no. S-4

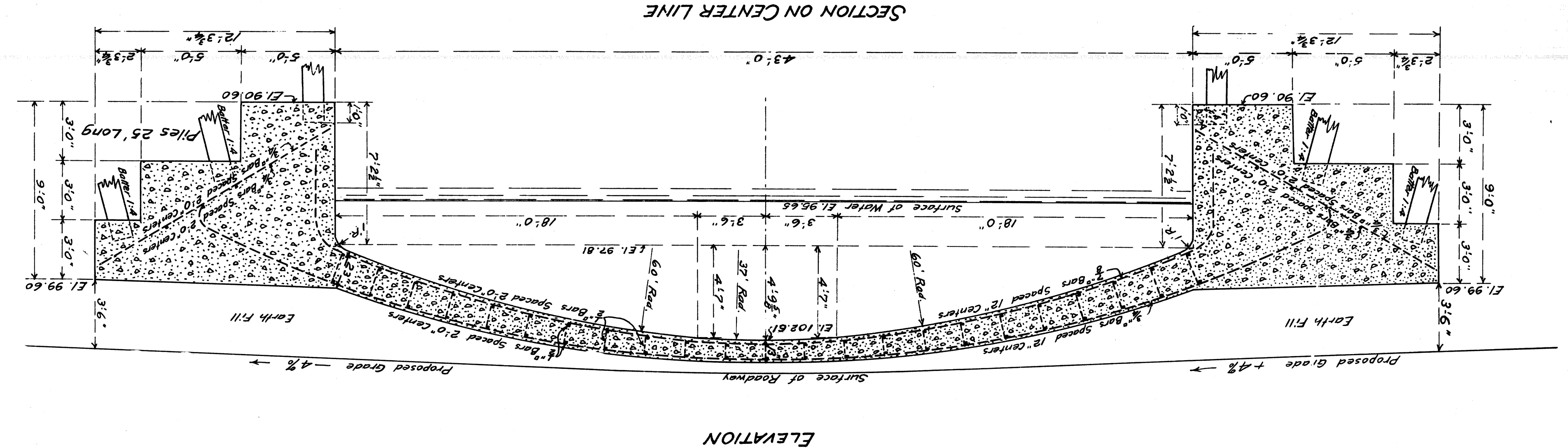
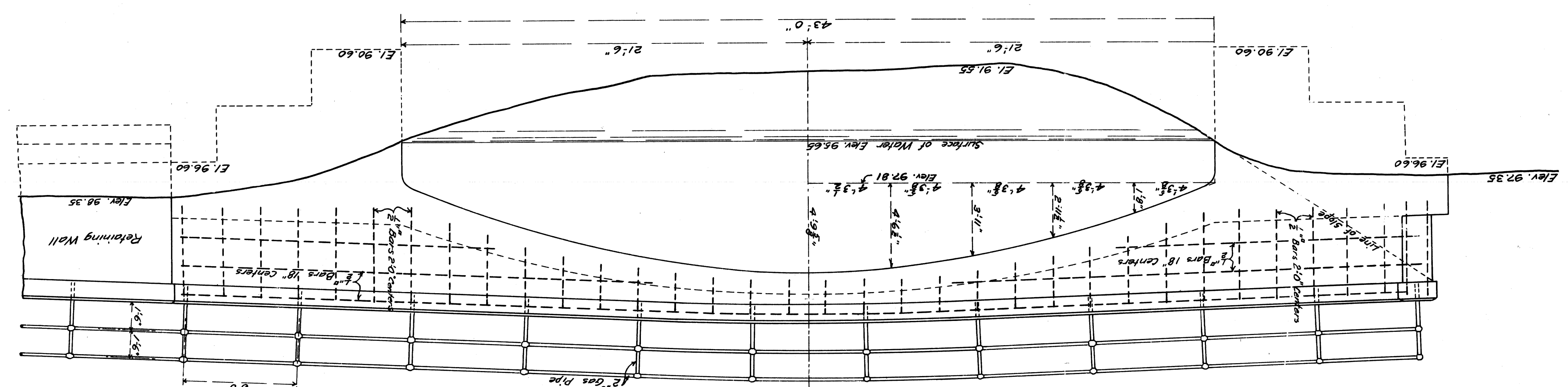
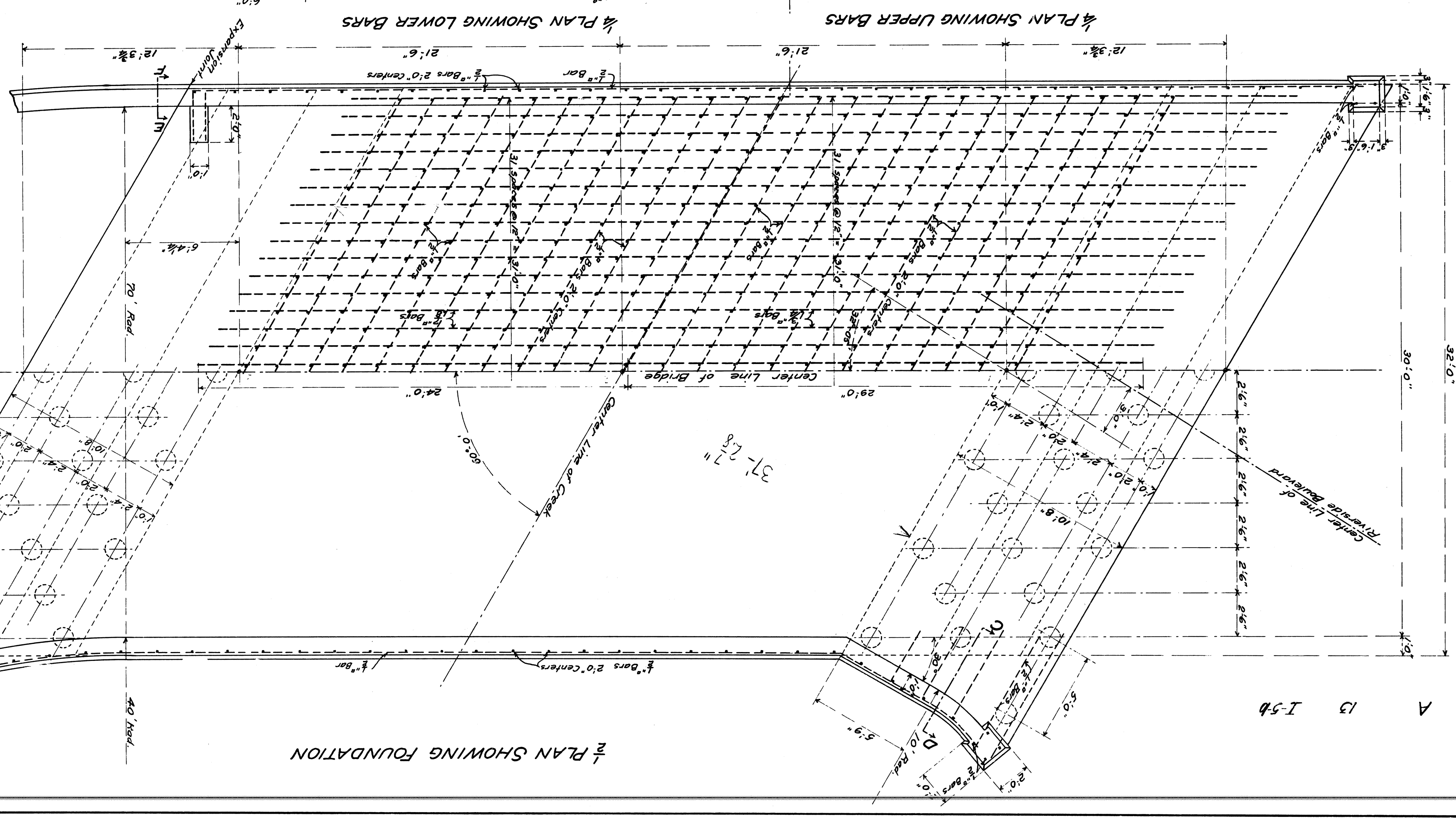
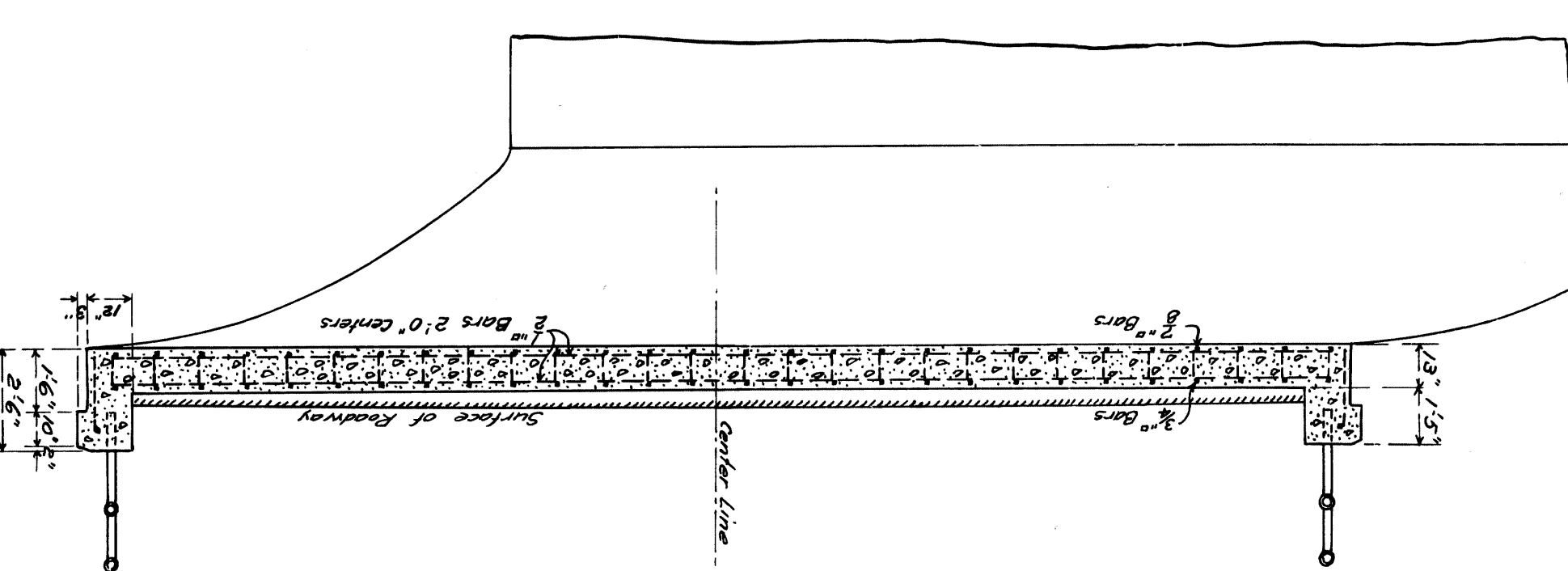
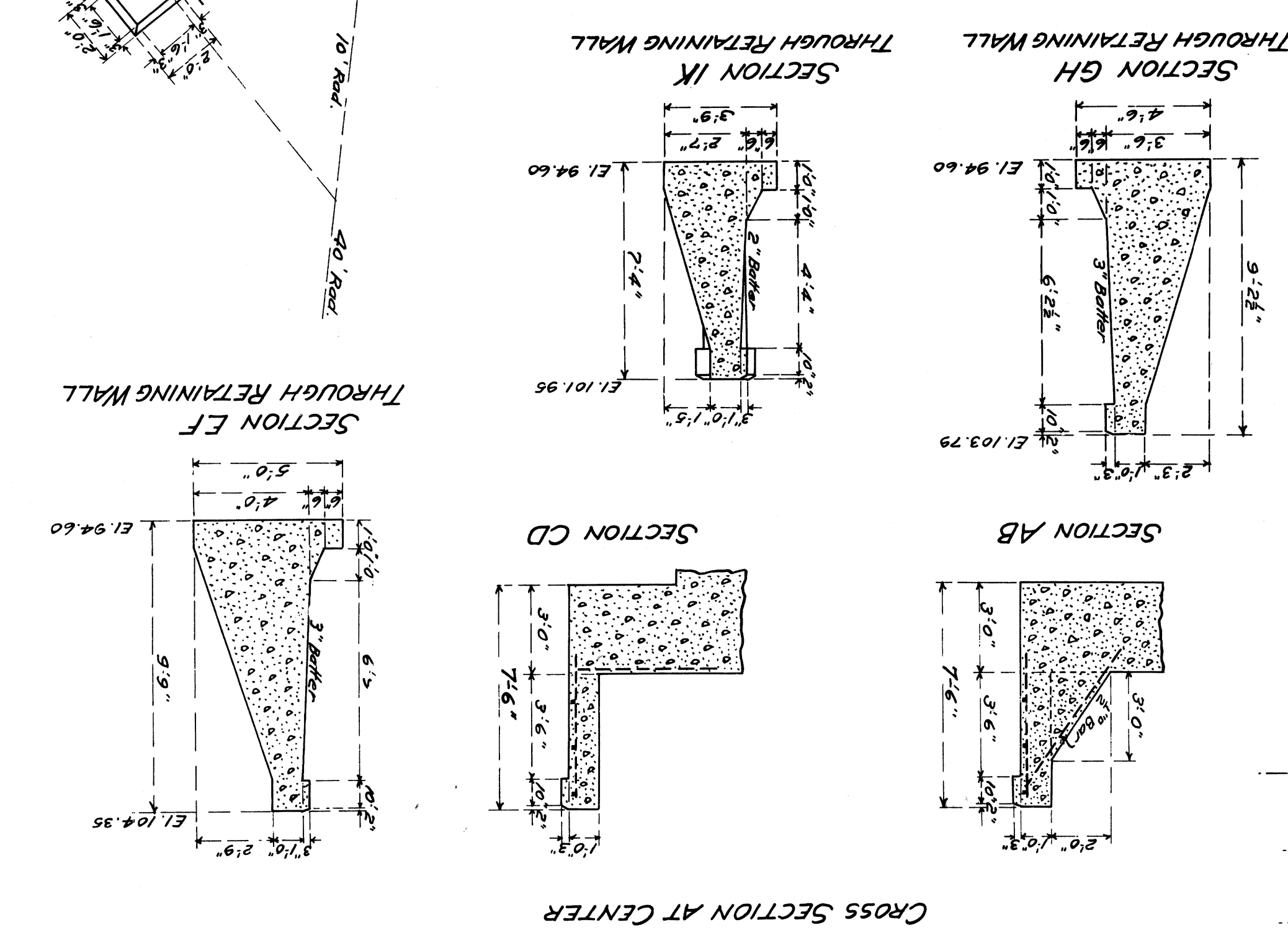
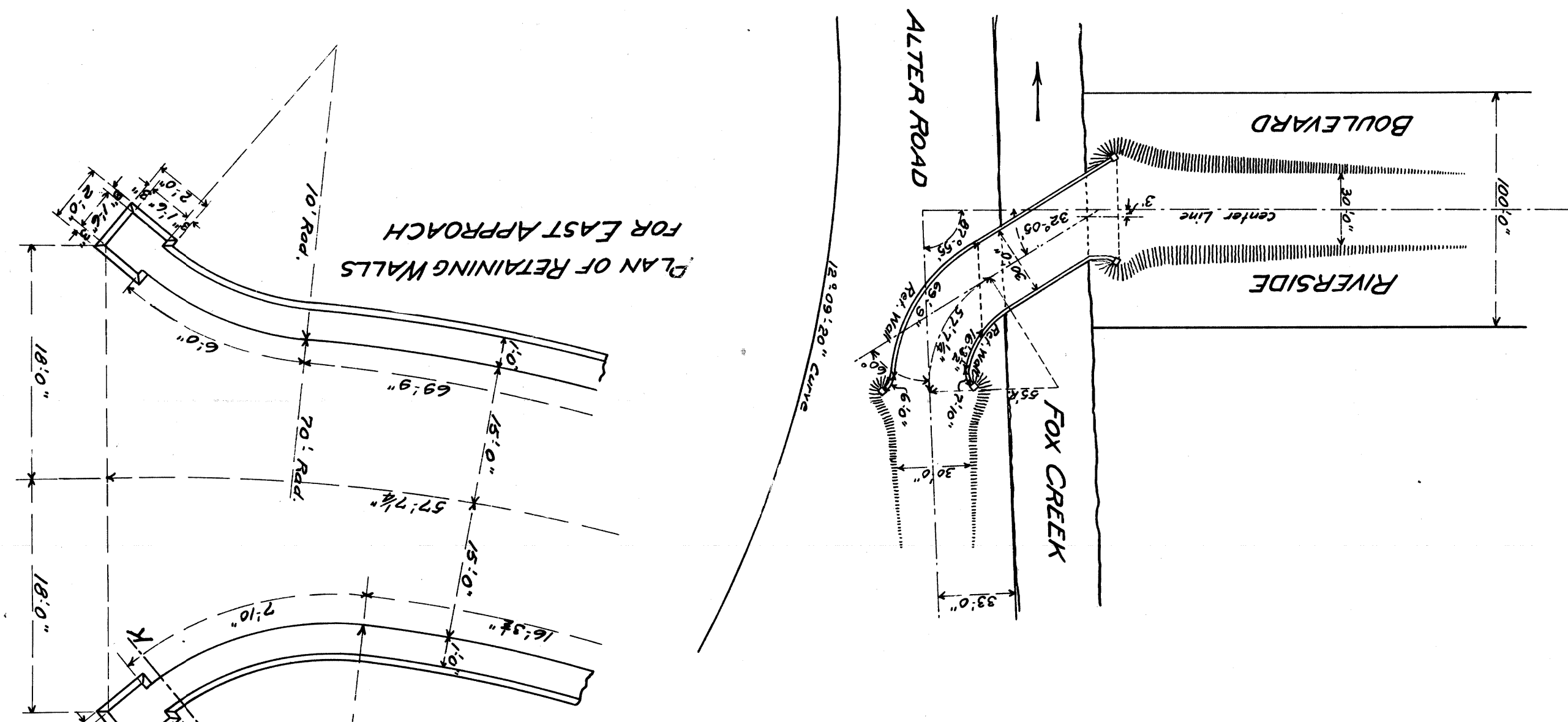
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PRELIMINARY PLAN A  
 JULY 8, 1987



**PLAN OF 43'-0" REINFORCED CONCRETE SKEW ARCH OVER FOX CREEK ON RIVERSIDE BOULEVARD**  
 CITY ENGINEER'S OFFICE DETROIT, MICHIGAN  
 May, 26th, 1909  
 U.S.A.  
 PRELIMINARY PLAN A  
 JULY 8, 1907

All Copings to be 1:1:2 Concrete  
 Arch Ring and Walls-1:2:4 Concrete  
 Foundations and Retaining Walls-1:3:6 Concrete  
 Reinforcing to be Curtailed or Twisted Steel Bars  
 All material from excavations to be so placed that the fill for approaches, which are to be made by the contractor.





# CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION CURRENT STANDARD SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS.

IN CO-OPERATION WITH  
MICHIGAN DEPARTMENT OF TRANSPORTATION  
AND

## FEDERAL HIGHWAY ADMINISTRATION

FEDERAL AID URBAN PROJECT NO. MICHIGAN BRO 82 (155)

CONTROL SECTION MCS 82025      JOB NO. 30288 A

F.H.W.A. REGION	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MICH.				
STREET	CITY	COUNTY	TWP.	SHEET NO.	TOTAL SHEETS



CITY OF DETROIT  
BRIDGE NO. BW-246

MDOT STRUCTURE  
NO. 0108300 B02

BRIDGE RECONSTRUCTION  
RIVERSIDE OVER FOX CREEK

BRIDGE  
RECONSTRUCTION

ITEM NO. PB 0681

CONTRACT FOR BRIDGE RECONSTRUCTION

LOCAL AUTHORITY APPROVAL  
CITY OF DETROIT  
CITY ENGINEERING DEPARTMENT

APPROVED BY *E.M. Kurylow* 11-1-89  
DEPUTY DIRECTOR DATE

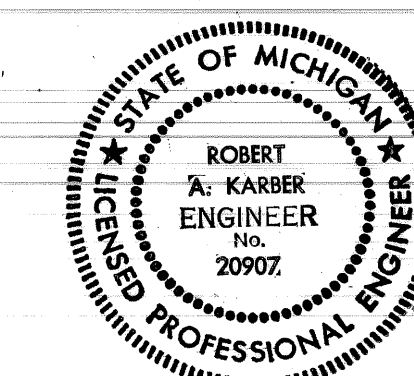
APPROVED BY *Clyde R. Hopkins* 10-31-89  
DIRECTOR DATE

PREPARED UNDER SUPERVISION OF

*Robert A. Karber* 20907  
REGISTERED PROFESSIONAL ENGINEER REGISTRATION NO.

CITY OF DETROIT  
ORGANIZATION

DETROIT, MICHIGAN  
ADDRESS



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- S-2 UTILITY DRAWING AND SOIL BORINGS
- S-3 GENERAL PLAN OF STRUCTURE
- S-4 GENERAL PLAN OF STRUCTURE DETAILS
- S-5 PILING PLAN AND DETAILS
- S-6 SHEET PILING, FENCING AND TIEBACK DETAILS
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- S-8 ABUTMENT B; WINGWALL B-1; QUANTITIES
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- W-4 MISC. DETAILS

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- Q-2

**STANDARD PLANS**

- II 41 E
- II 45 E1
- II 17 E1
- II 18 C
- II 103 C



ITEM NO. PB 0681  
MCS 82025  
JOB NO. 30288 A

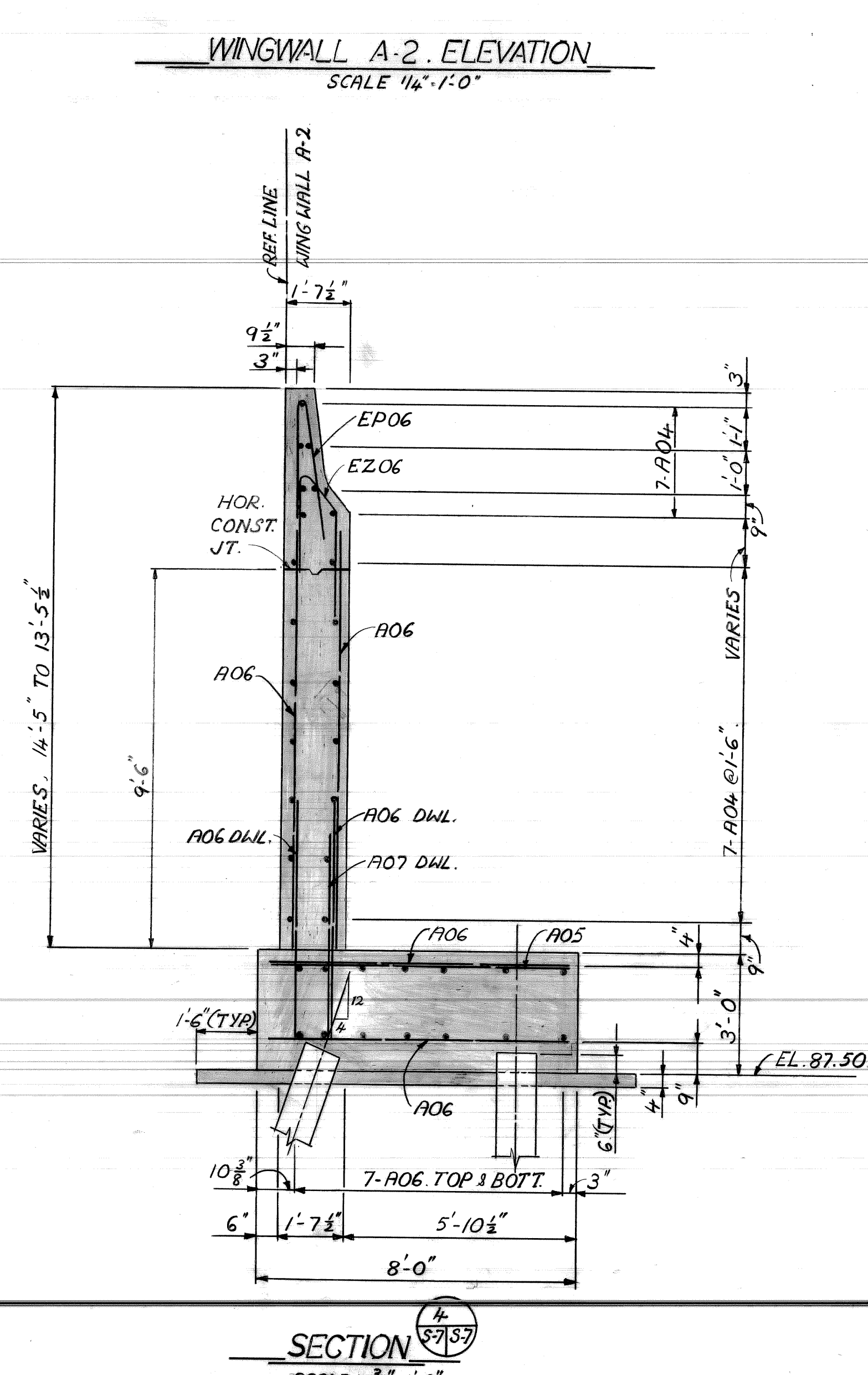
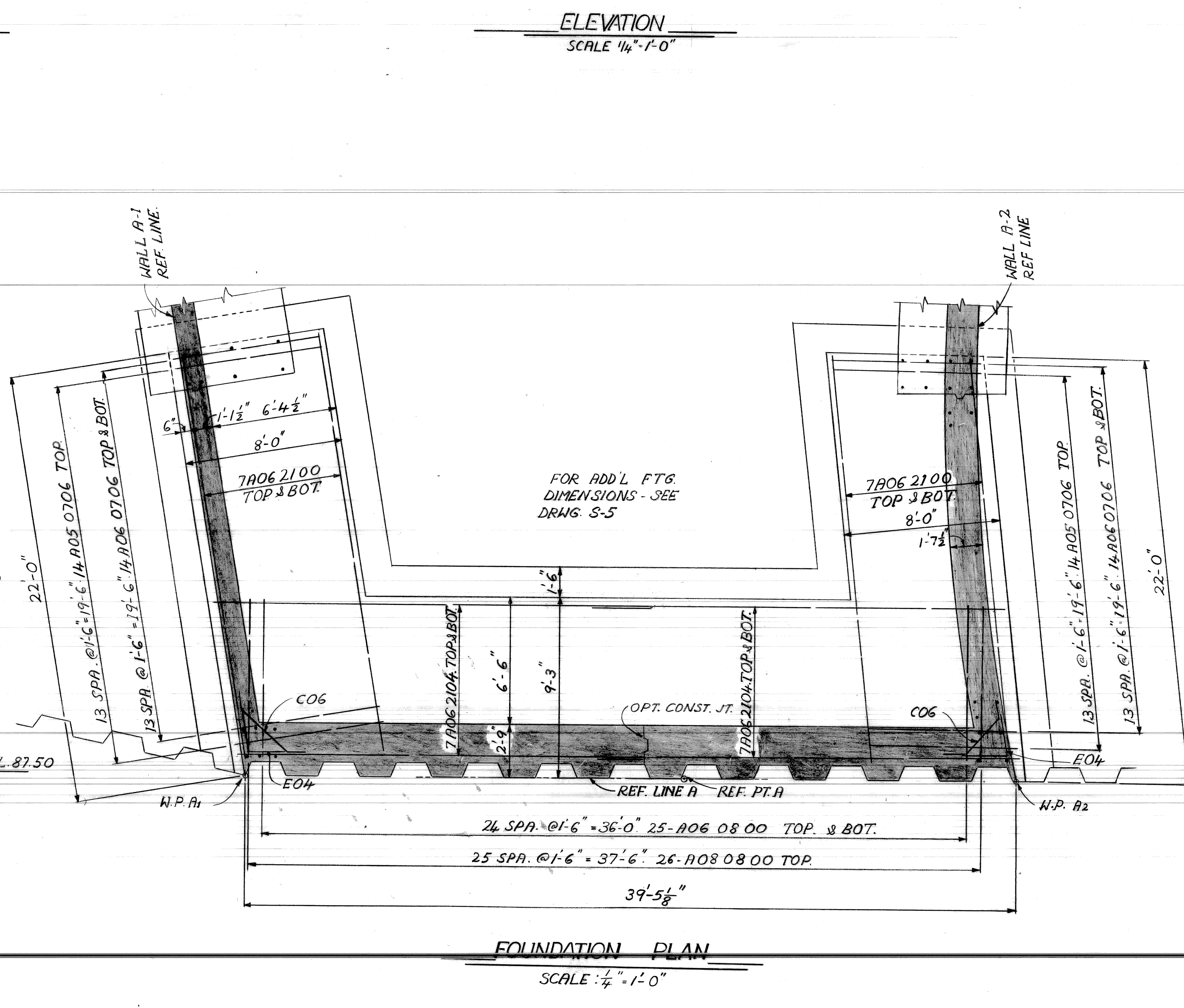
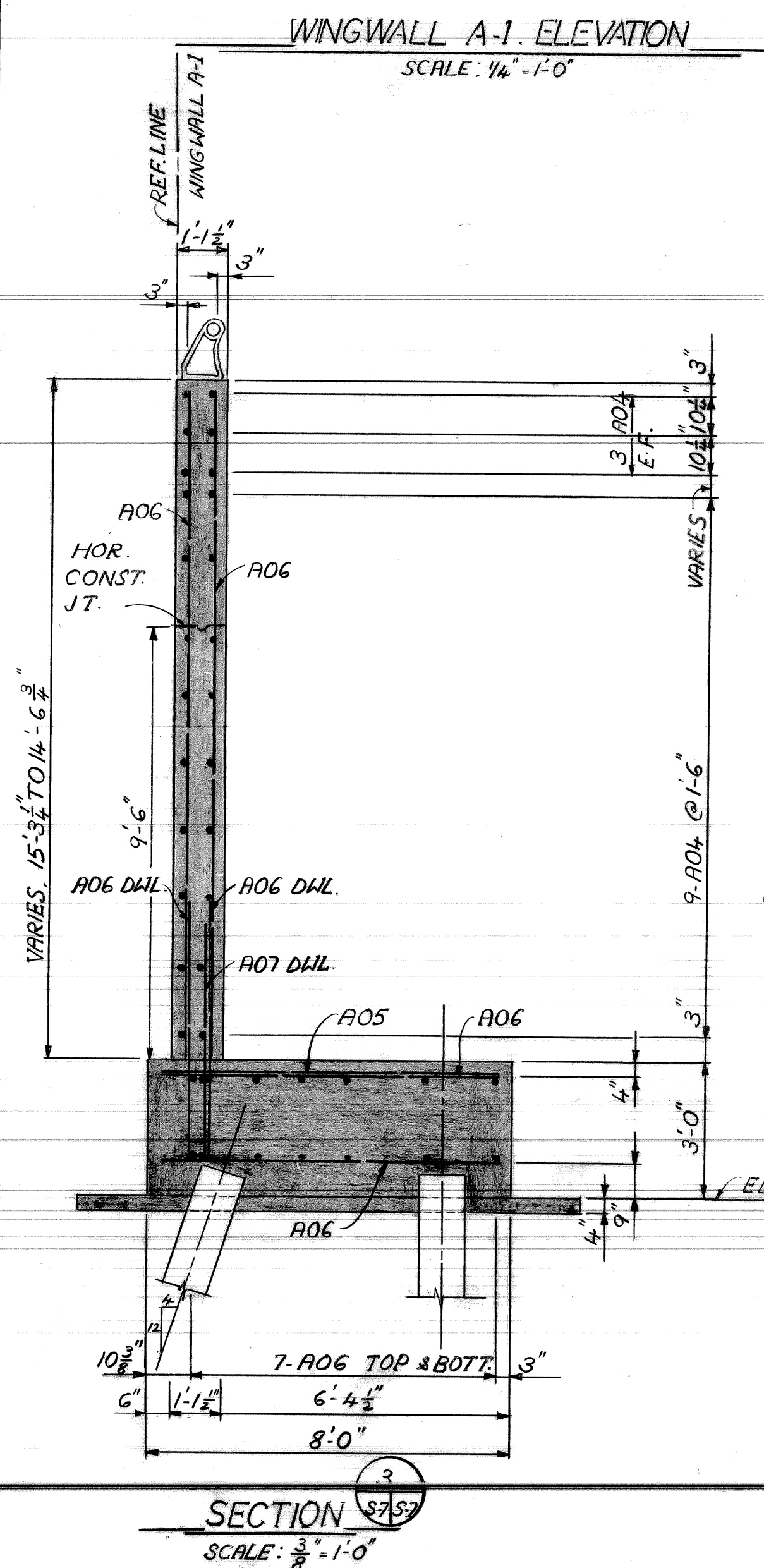
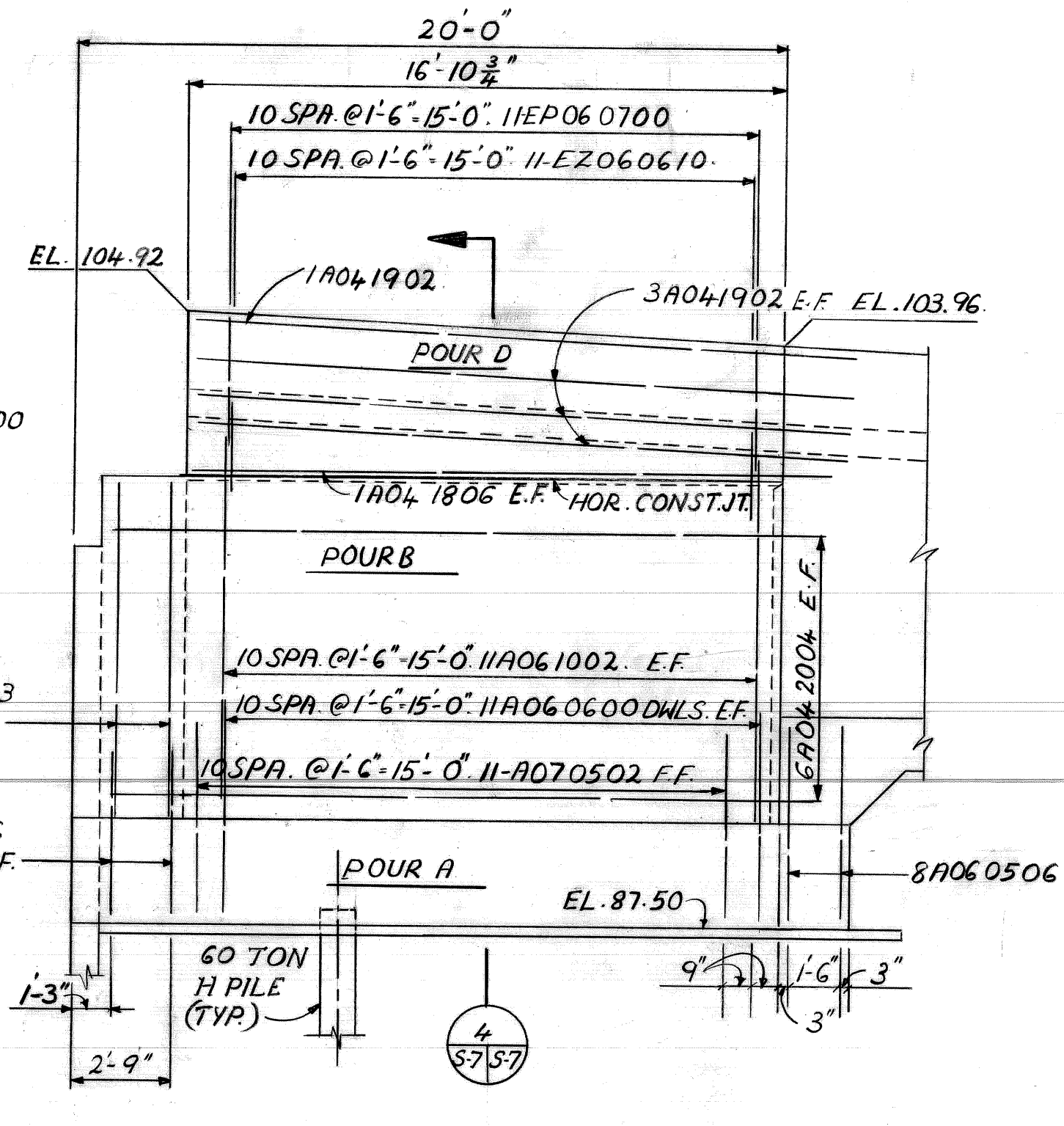
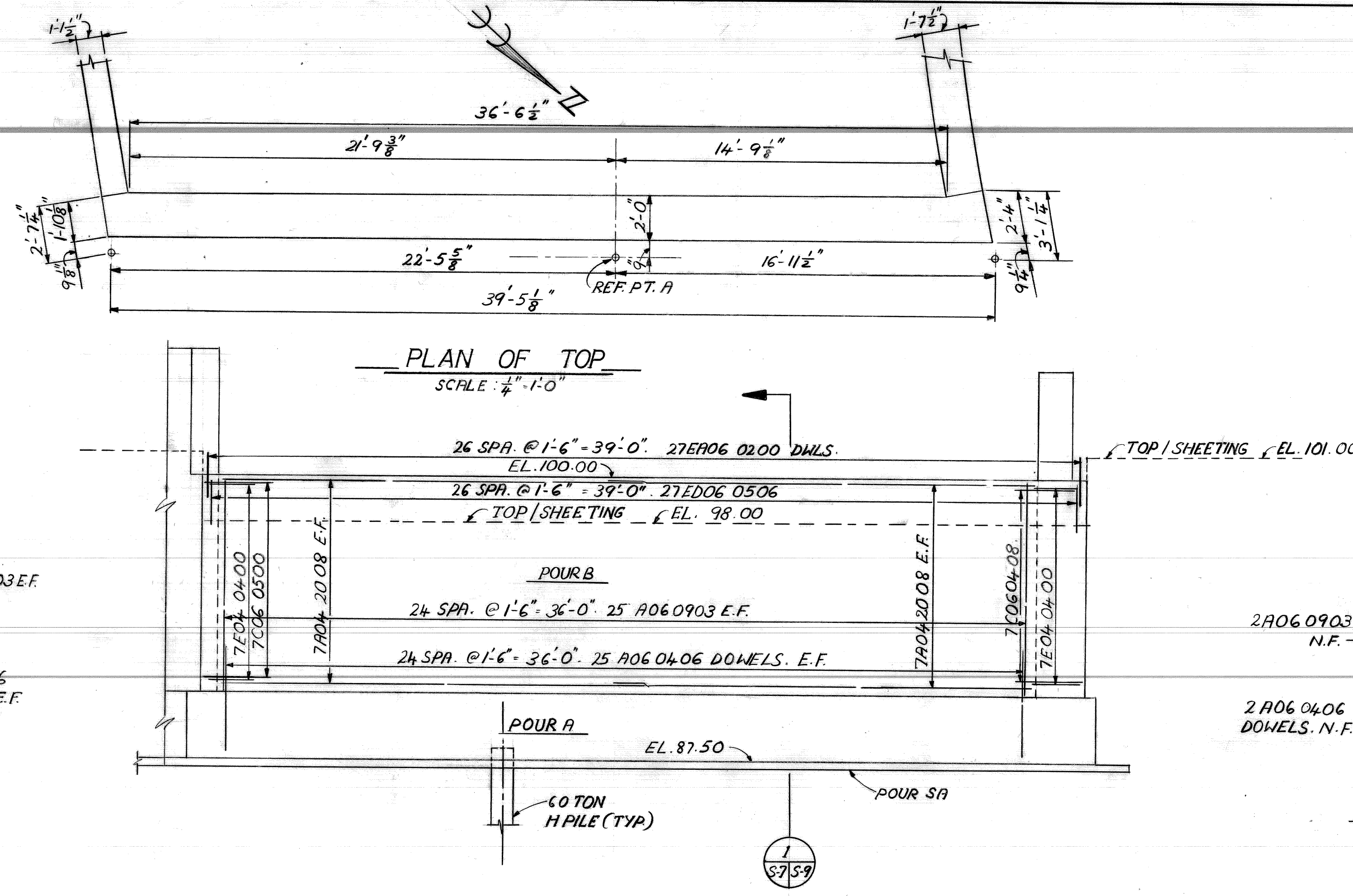
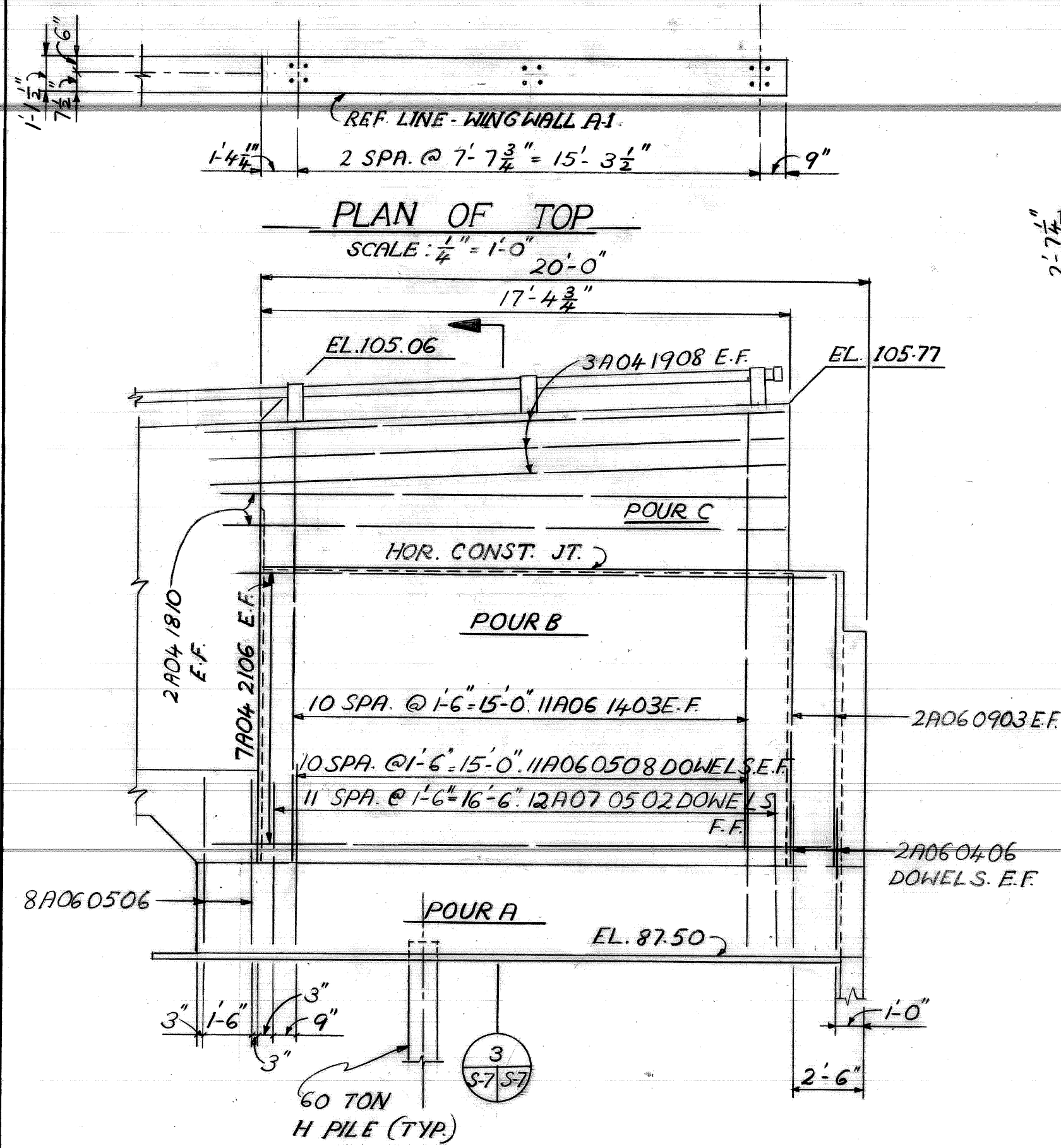












no.	description	dr'n	chk'd	ap'vd	date

designed by  
 drawn by J.K.  
 checked by  
 approved:

**CITY OF DETROIT**  
 city engineering department  
 for DEPARTMENT OF PUBLIC WORKS

BRIDGE RECONSTRUCTION  
 RIVERSIDE AVENUE OVER FOX CREEK BW-246

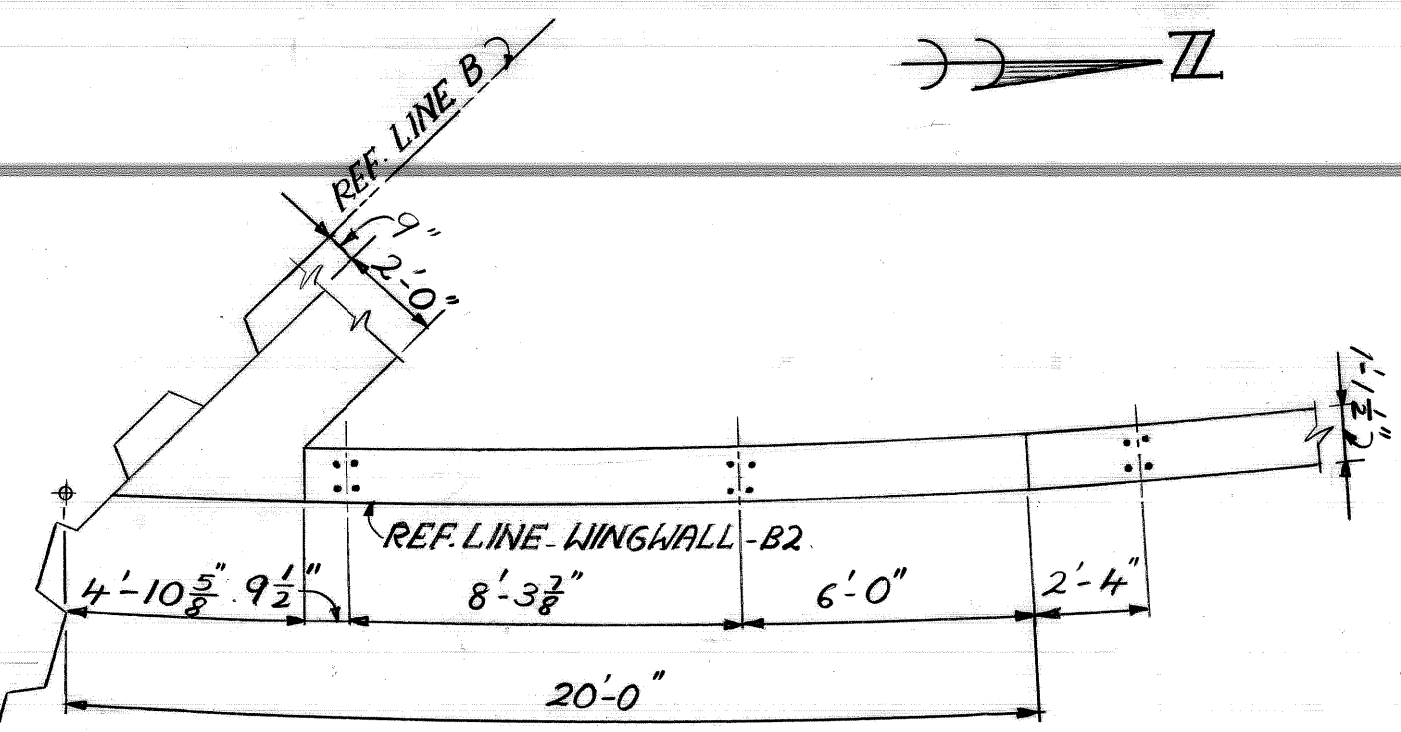
ABUTMENT A;  
 WINGWALLS A-1 & A-2

a.o.  
 contract no.  
 sheet of drawing no.  
 S-7  
 date NOV. 89

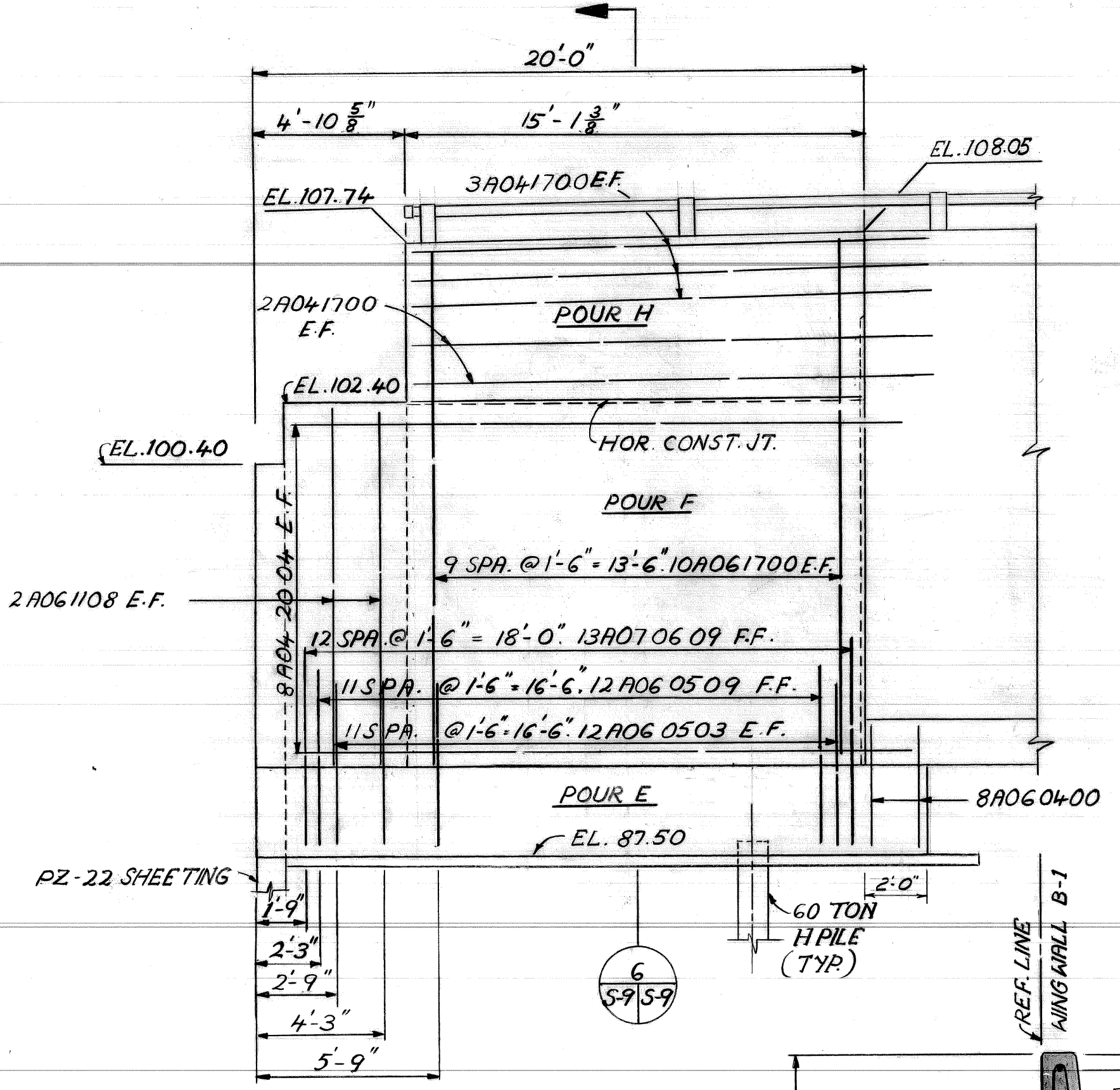




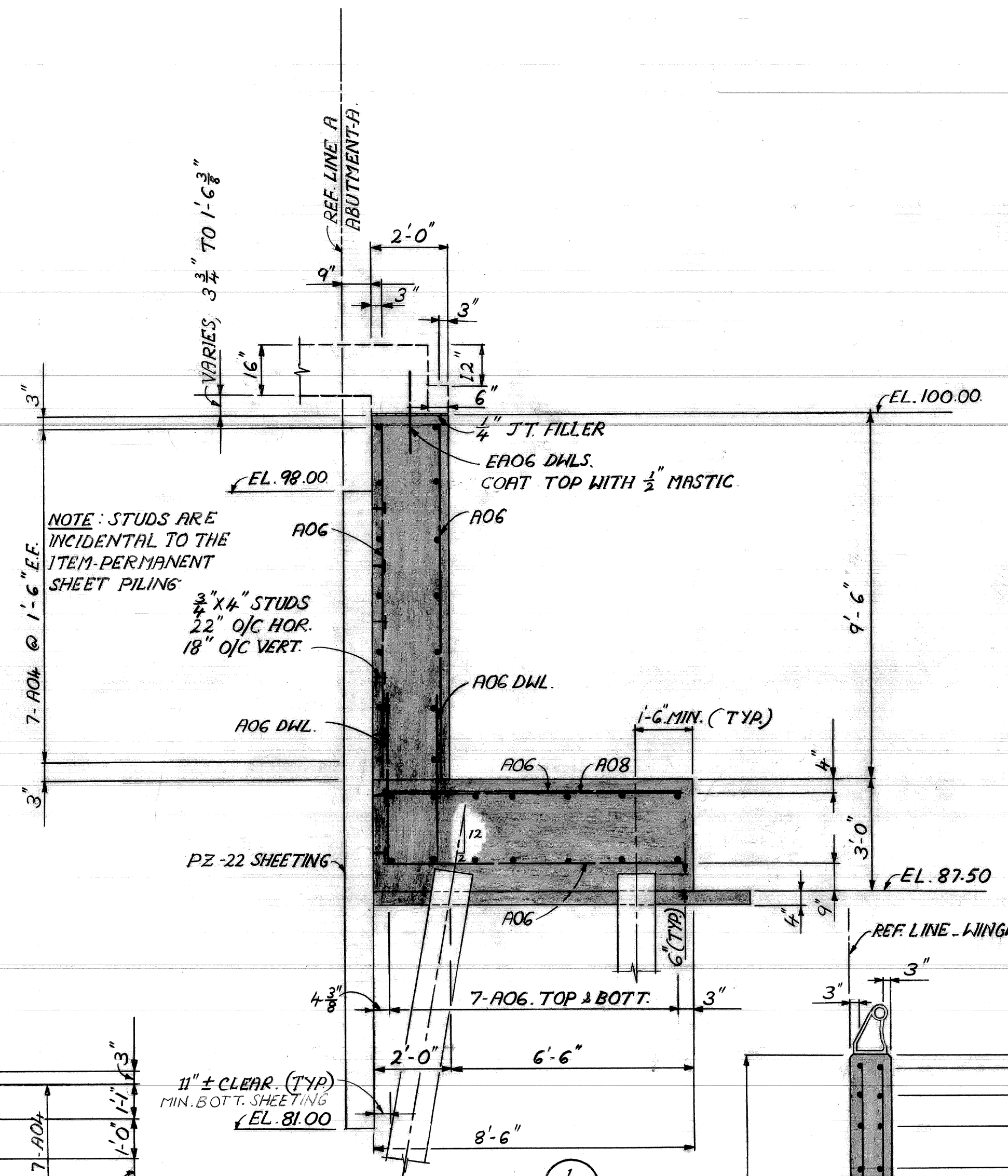




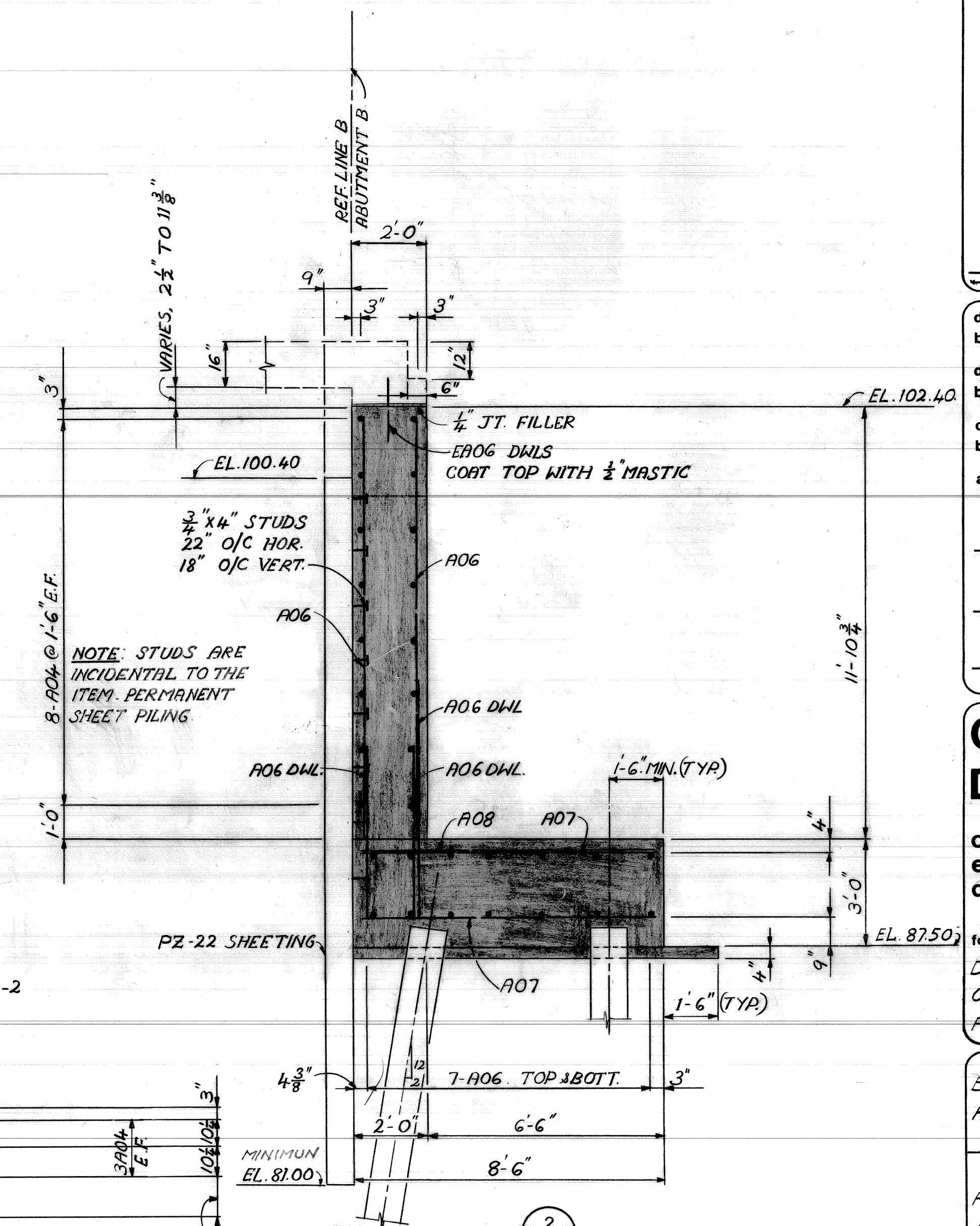
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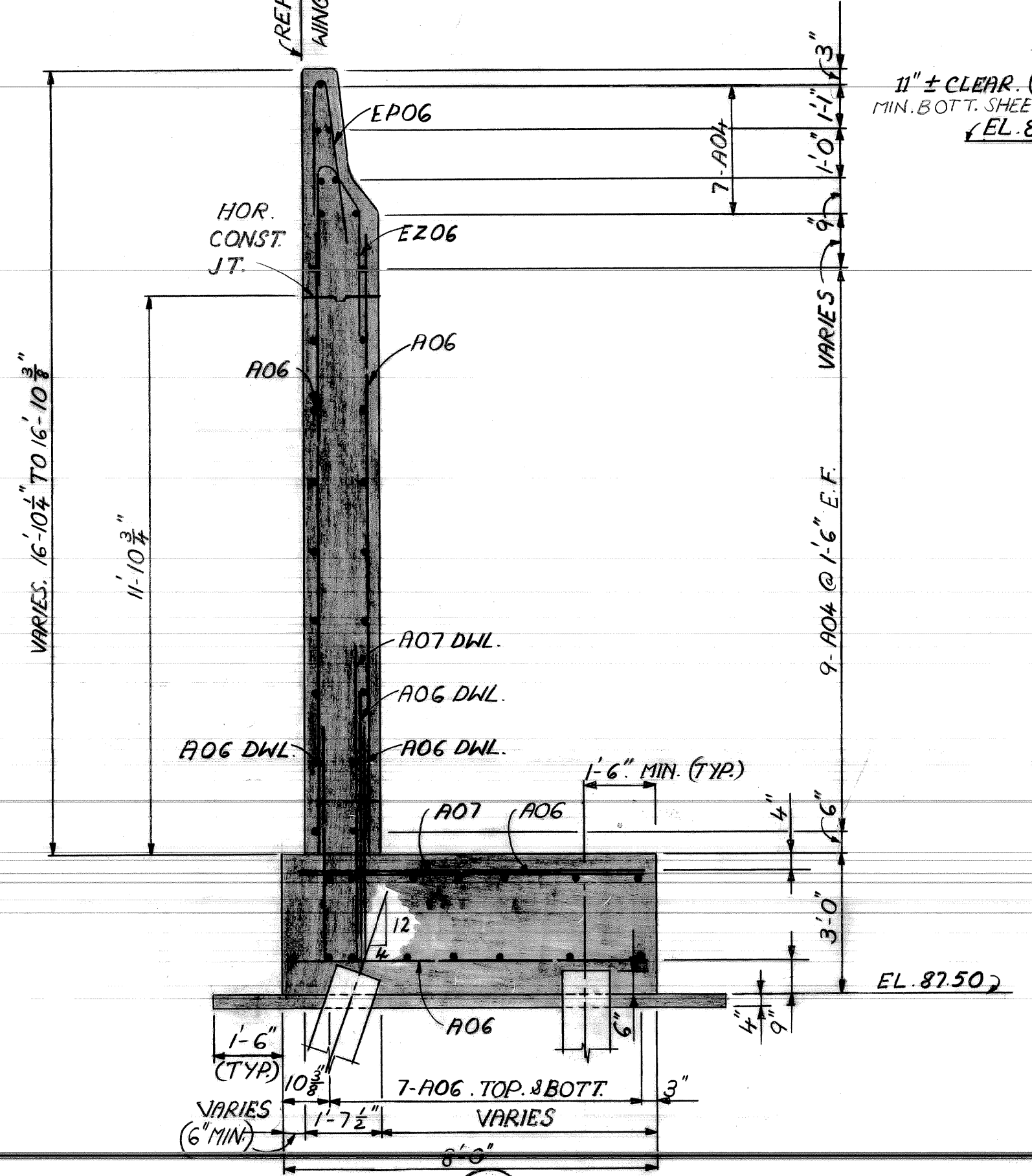
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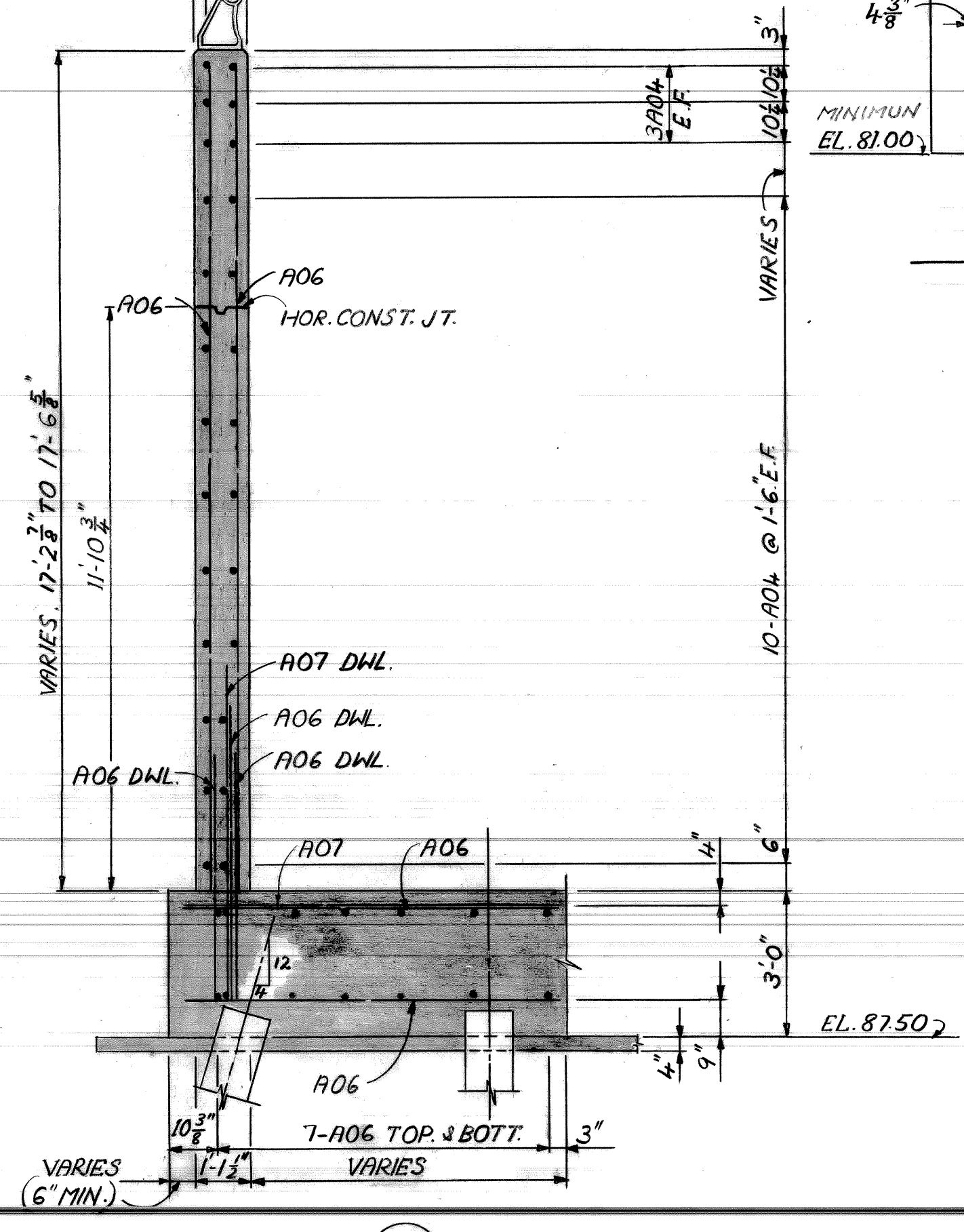
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SECTION 2  
SCALE: 3/8" = 1'-0"



SECTION 5  
SCALE: 3/8" = 1'-0"



SECTION 6  
SCALE: 3/8" = 1'-0"

no.	description	date

designed by  
drawn by J.K.  
checked by  
approved:

CITY OF DETROIT

city engineering department  
for DEPARTMENT OF PUBLIC WORKS

BRIDGE RECONSTRUCTION

RIVERSIDE AVENUE OVER FOX CREEK BW-246

WINGWALL B-2; ABUTMENT AND WINGWALL SECTIONS

a.o. contract no. sheet of drawing no.

date NOV. 89





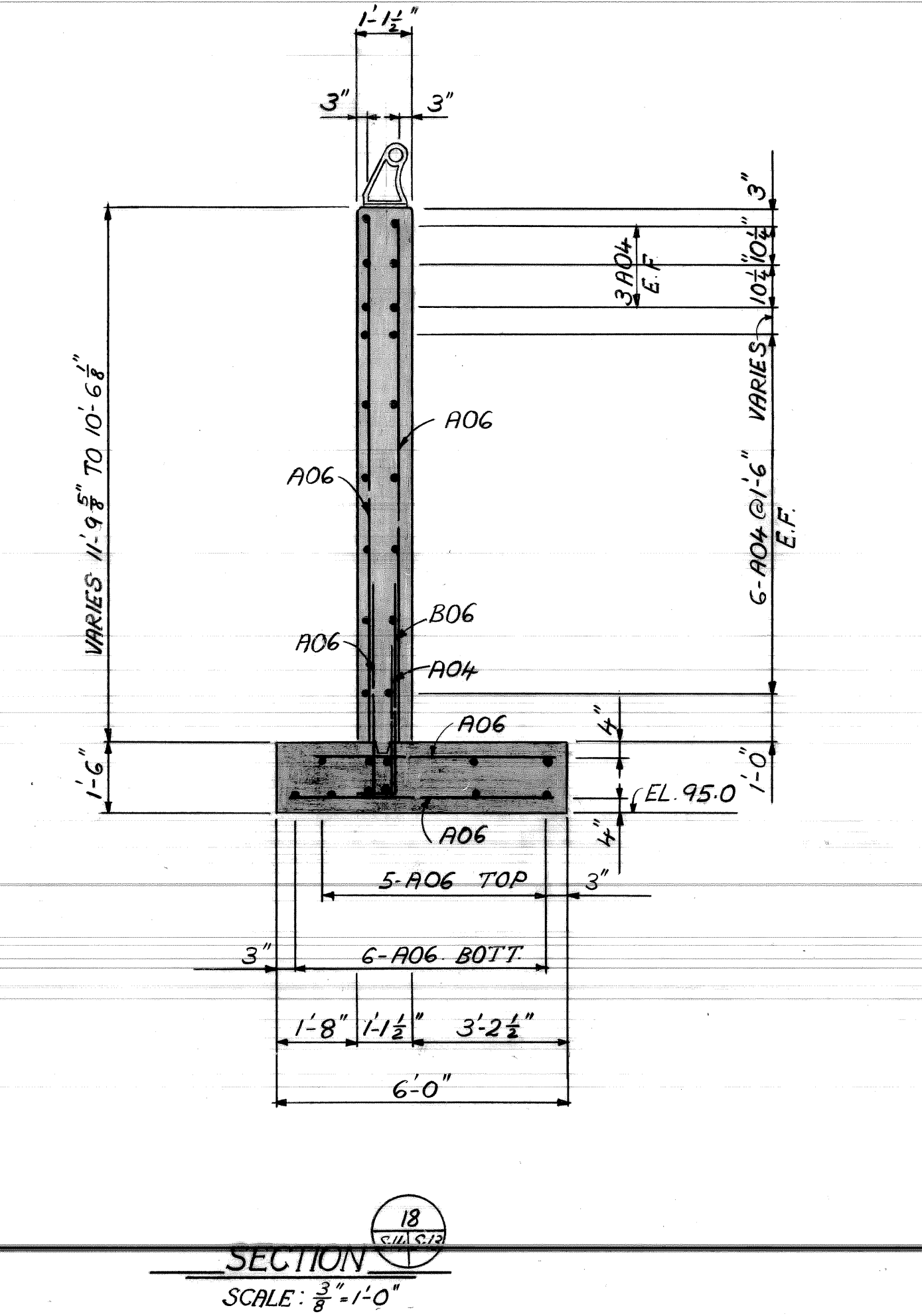
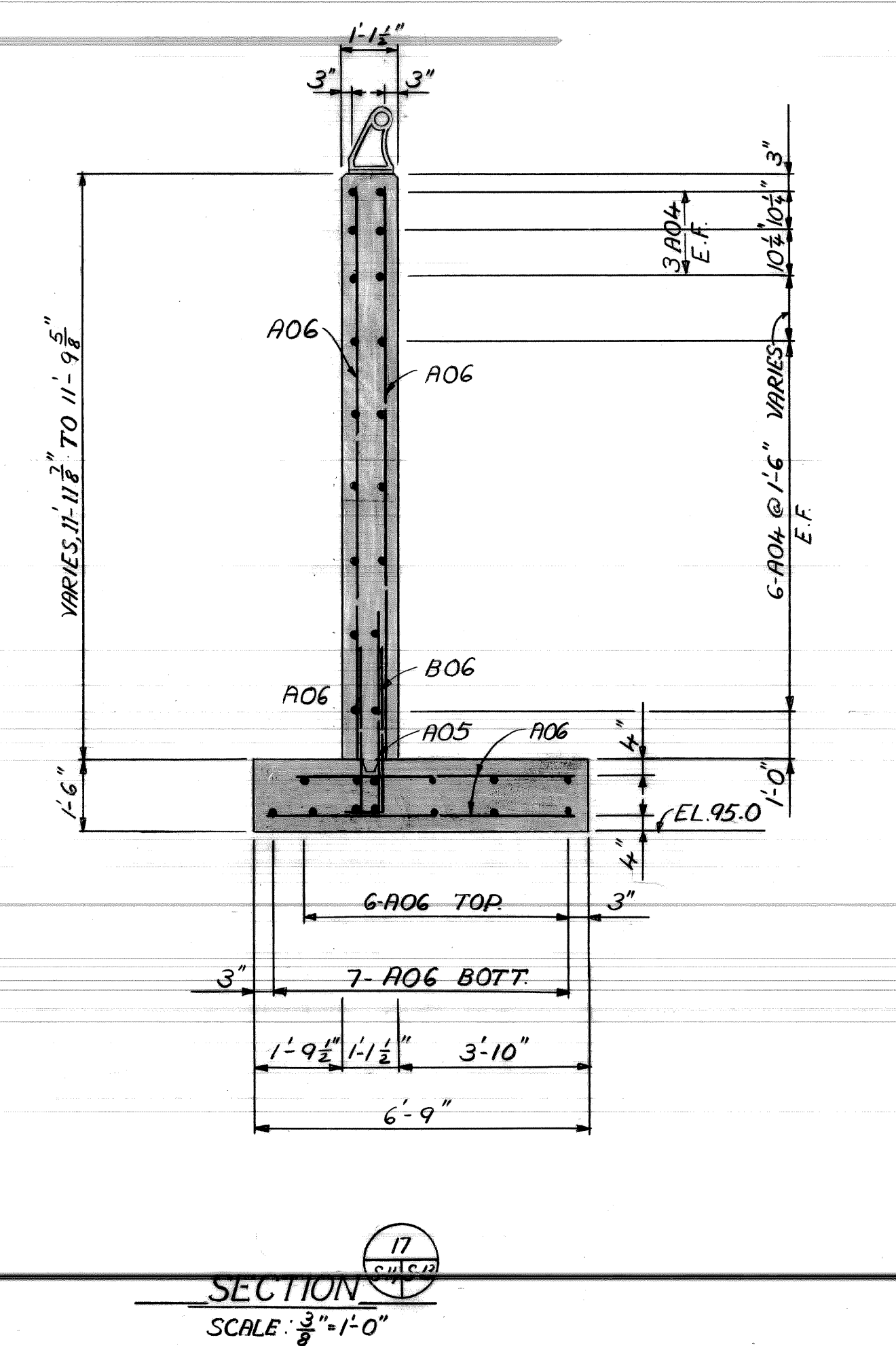
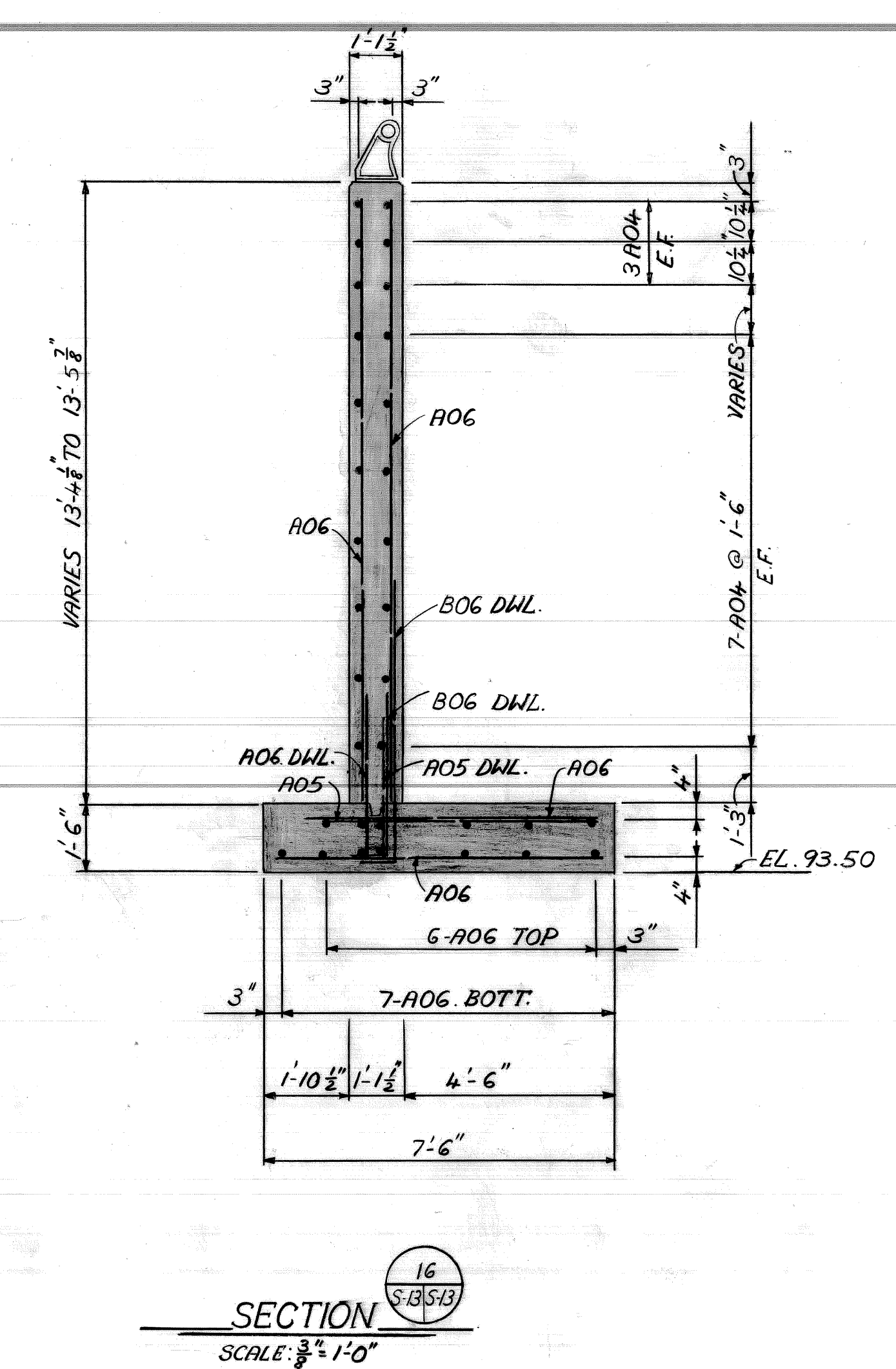
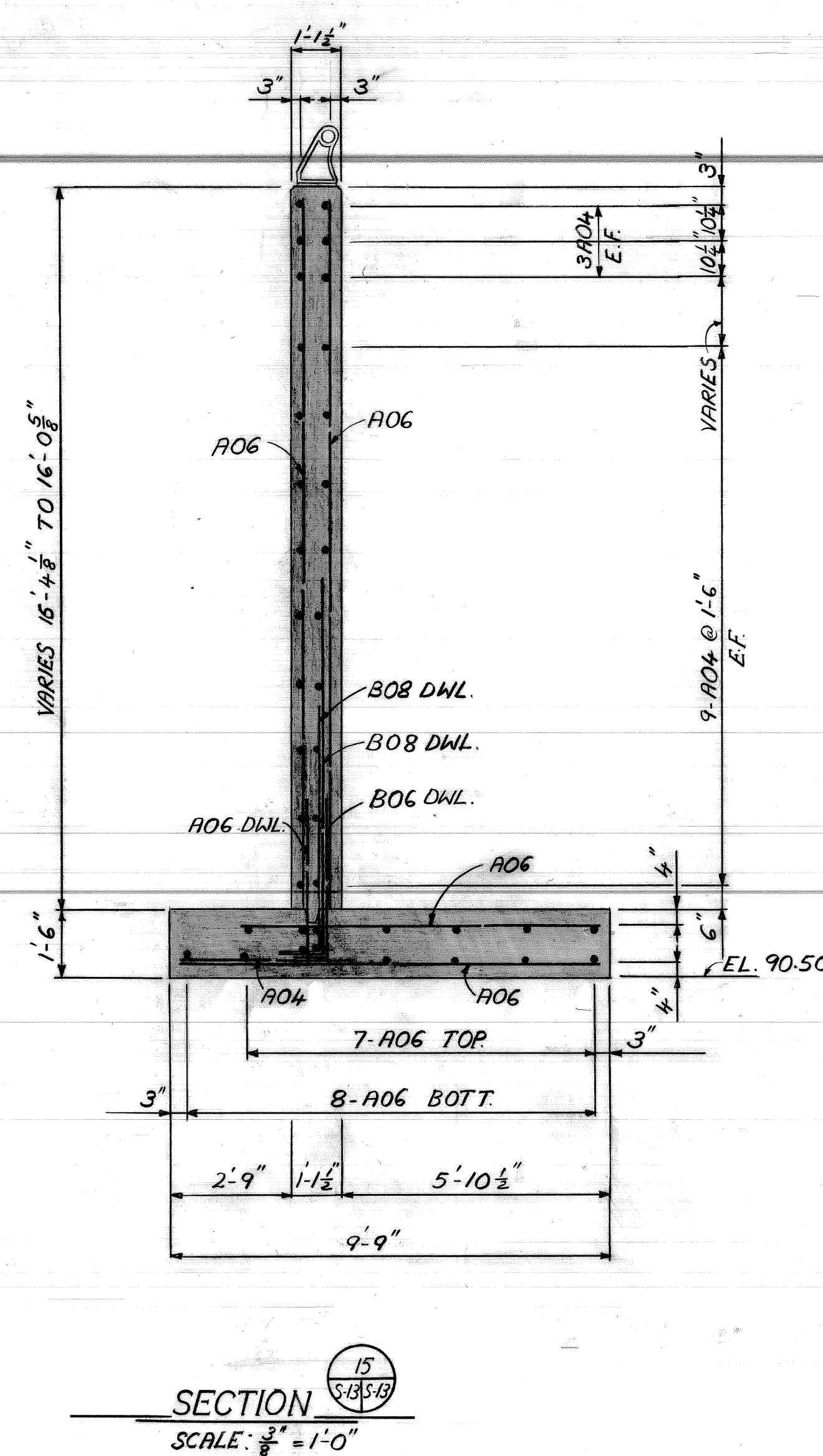
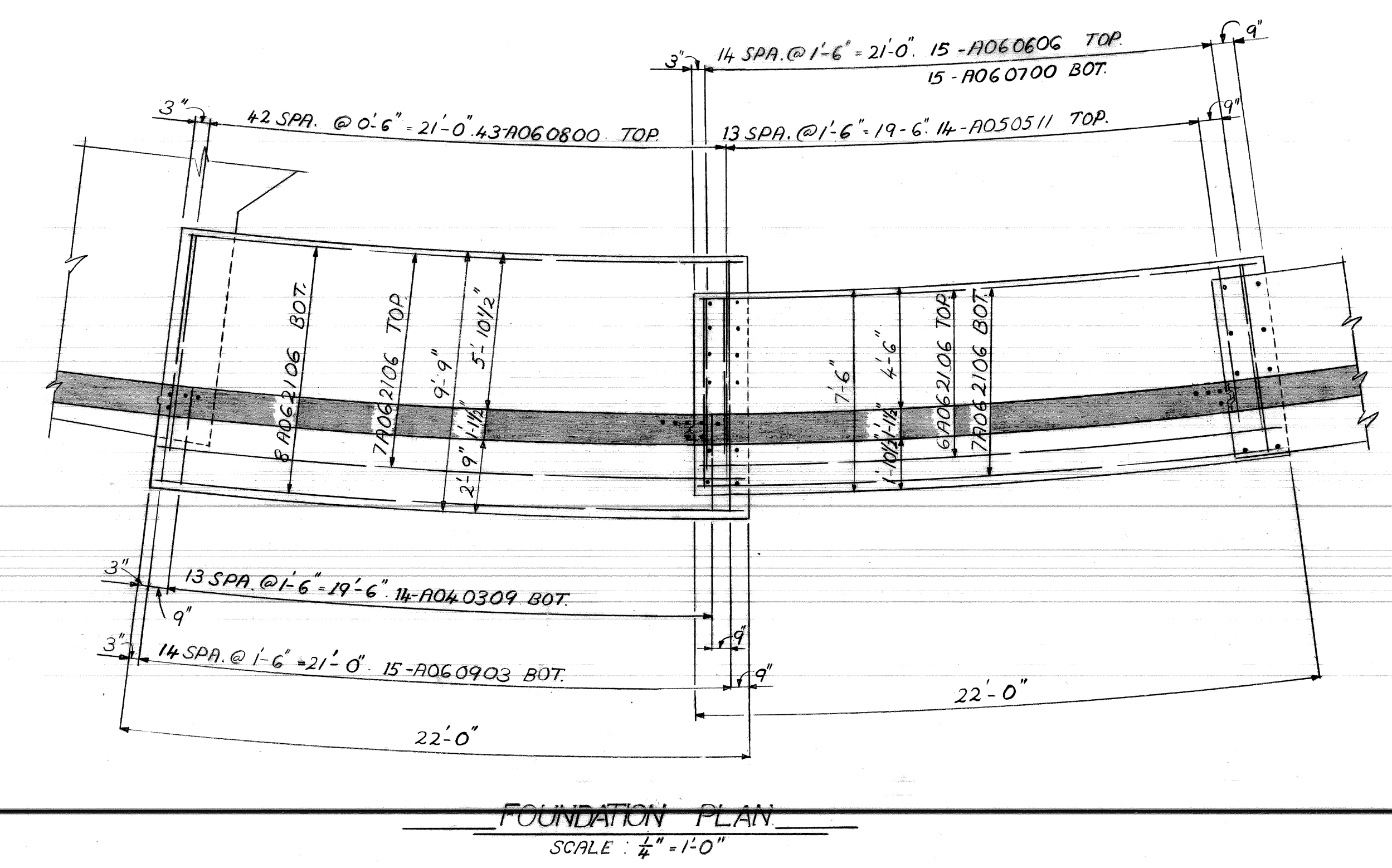
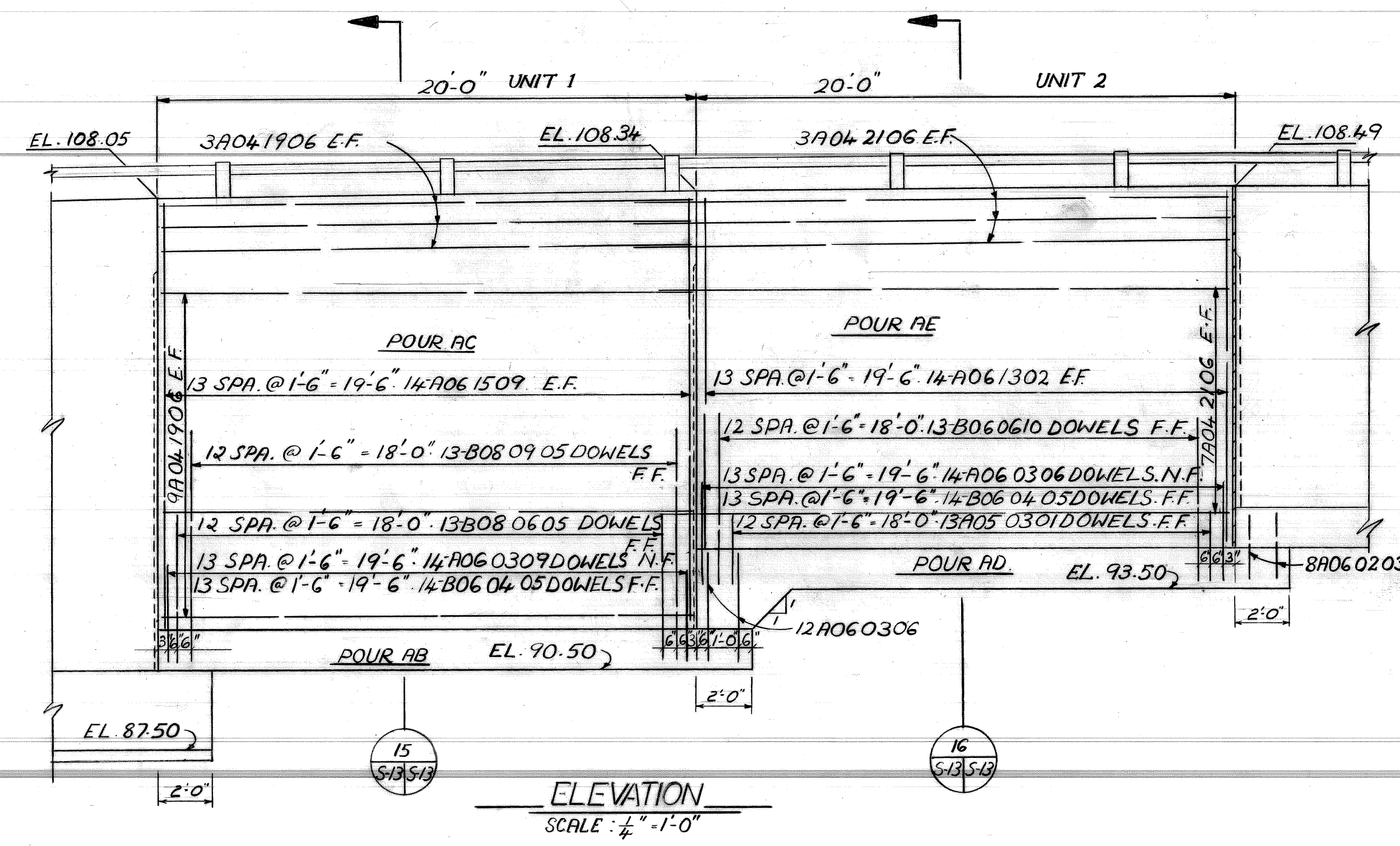
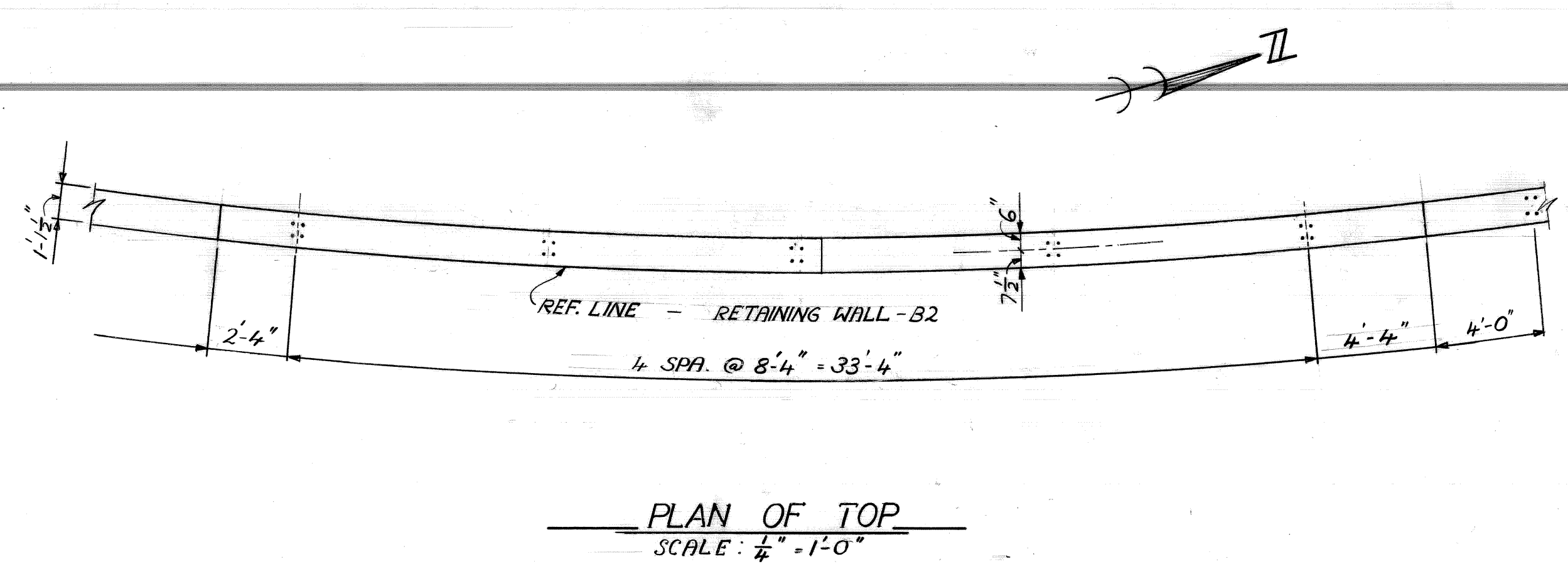












designed by	
drawn by	J.K.
checked by	
approved	

revisions

CITY OF DETROIT

city engineering department

for DEPARTMENT OF PUBLIC WORKS

BRIDGE RECONSTRUCTION

RIVERSIDE AVENUE OVER FOX CREEK BI-246

RETAINING WALL B-2 UNITS 1-2; SECTIONS

a.o. contract no.

sheet of drawing no.

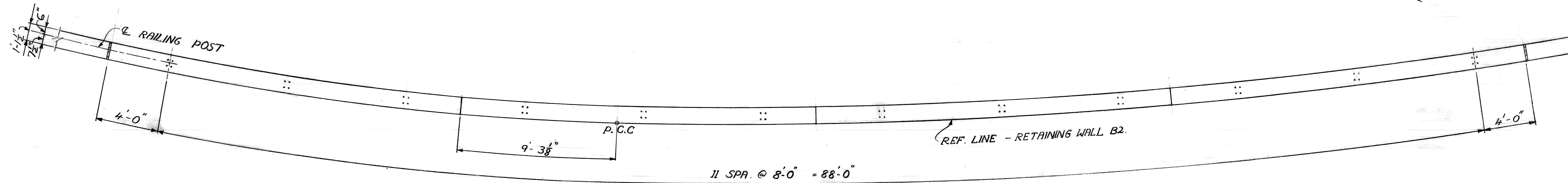
3-73 date NOV. 89

JOB NO. 30288A

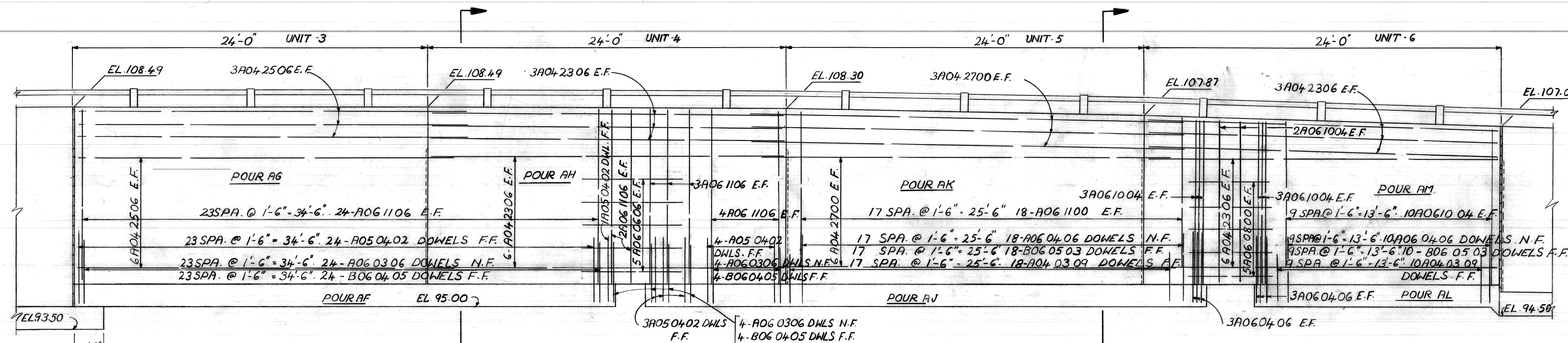




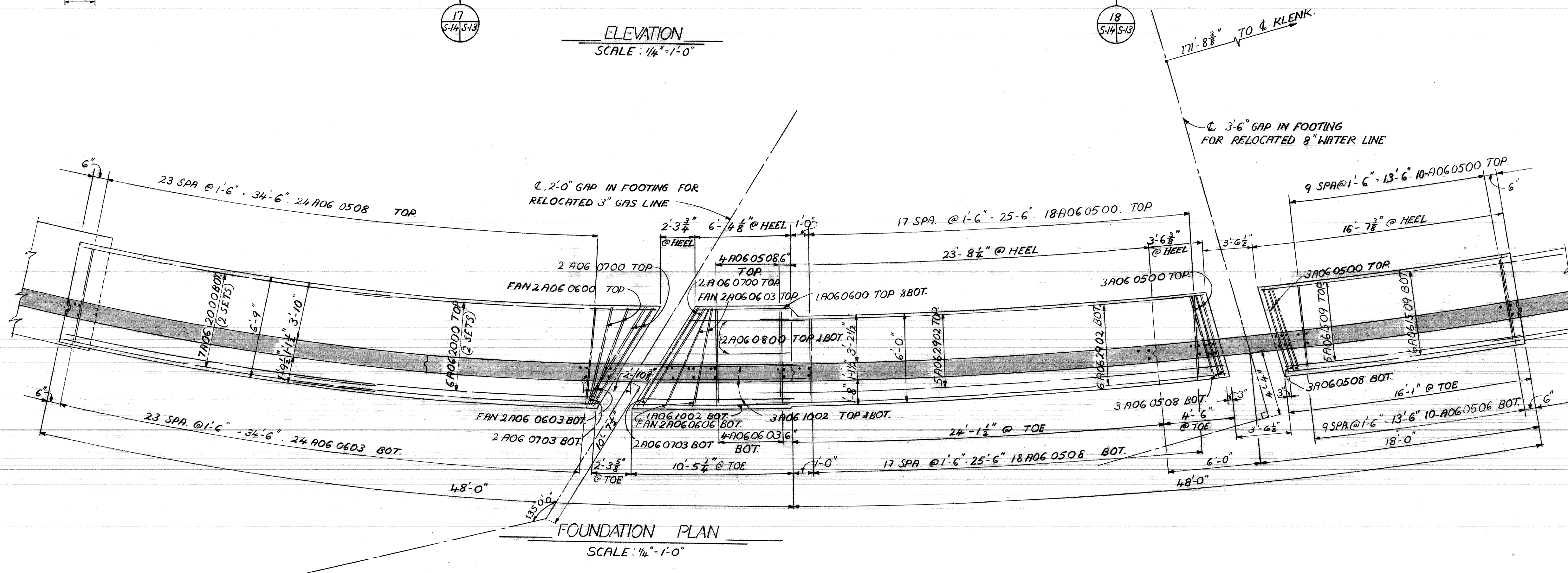




PLAN OF TOP  
SCALE: 1/4" = 1'-0"



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



FOUNDATION PLAN  
SCALE: 1/4" = 1'-0"

NO.	DATE	BY	CHK'D	APP'D	VD

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drawn by J.K.  
checked by  
approved:

**CITY OF DETROIT**

city engineering department  
for DEPARTMENT OF PUBLIC WORKS

BRIDGE RECONSTRUCTION

RIVERSIDE AVENUE OVER FOX CREEK BR-246

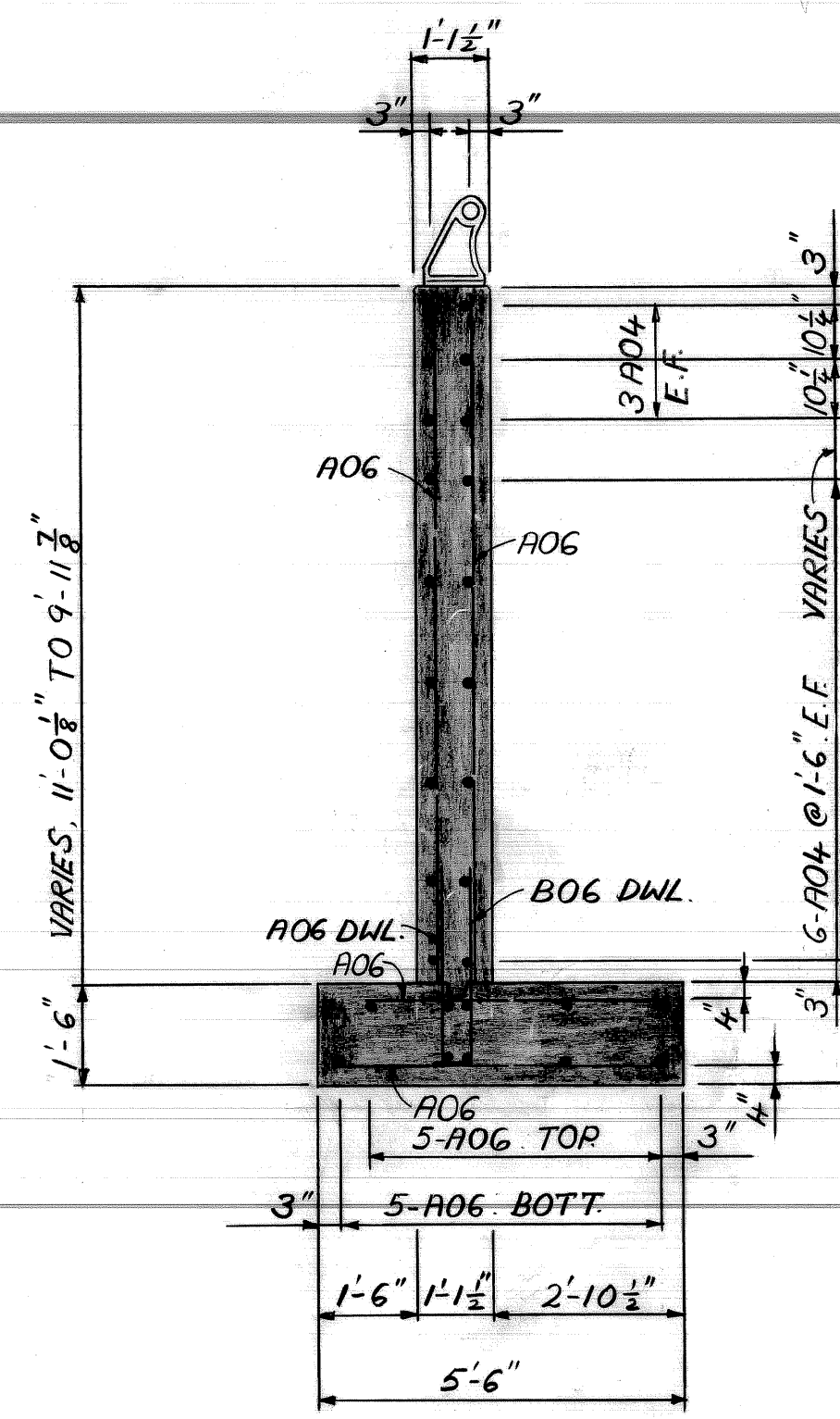
RETAINING WALL B-2 UNITS 3-6

a.o. contract no.

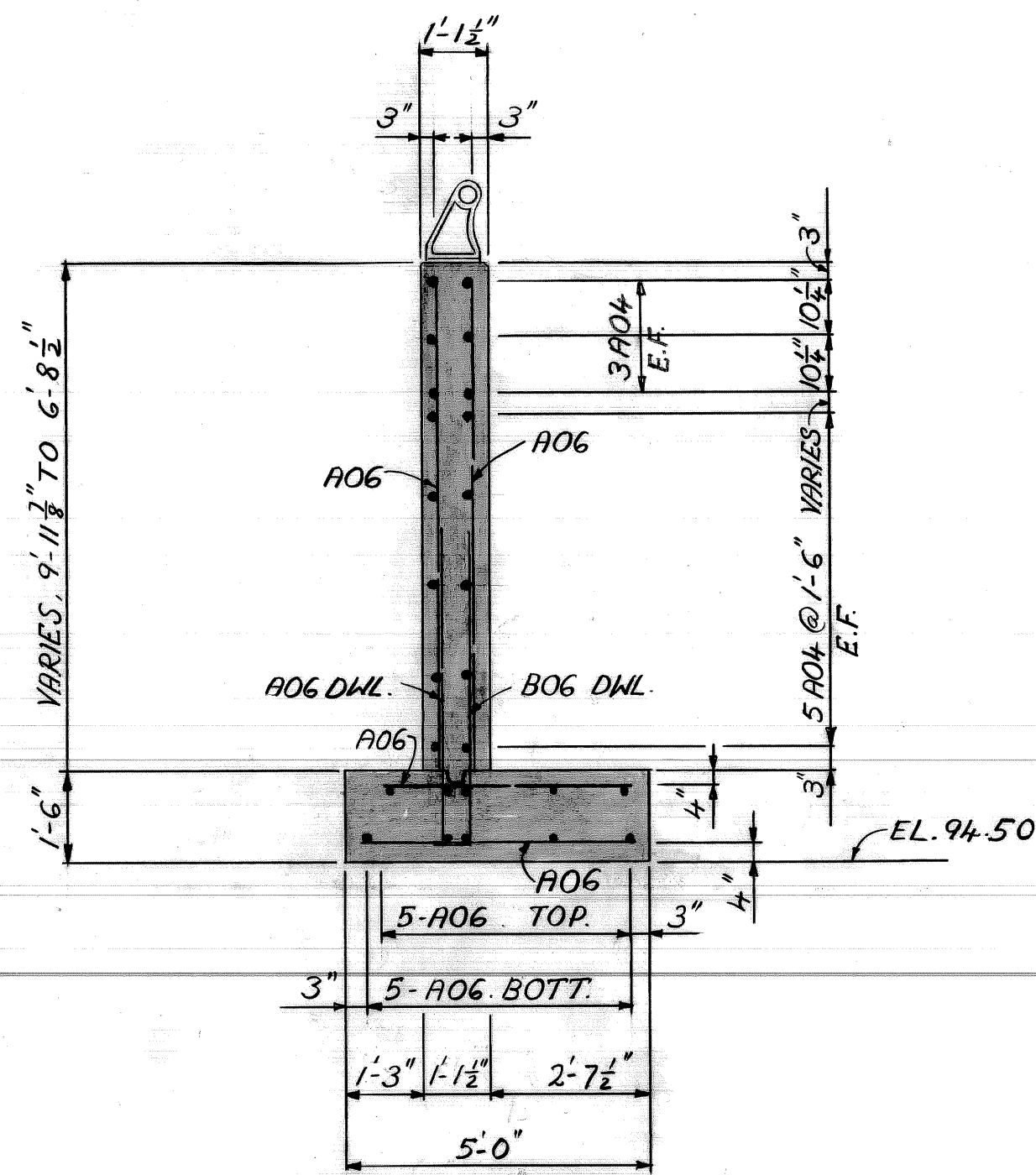
sheet of drawing no.

5-14 date NOV. 89

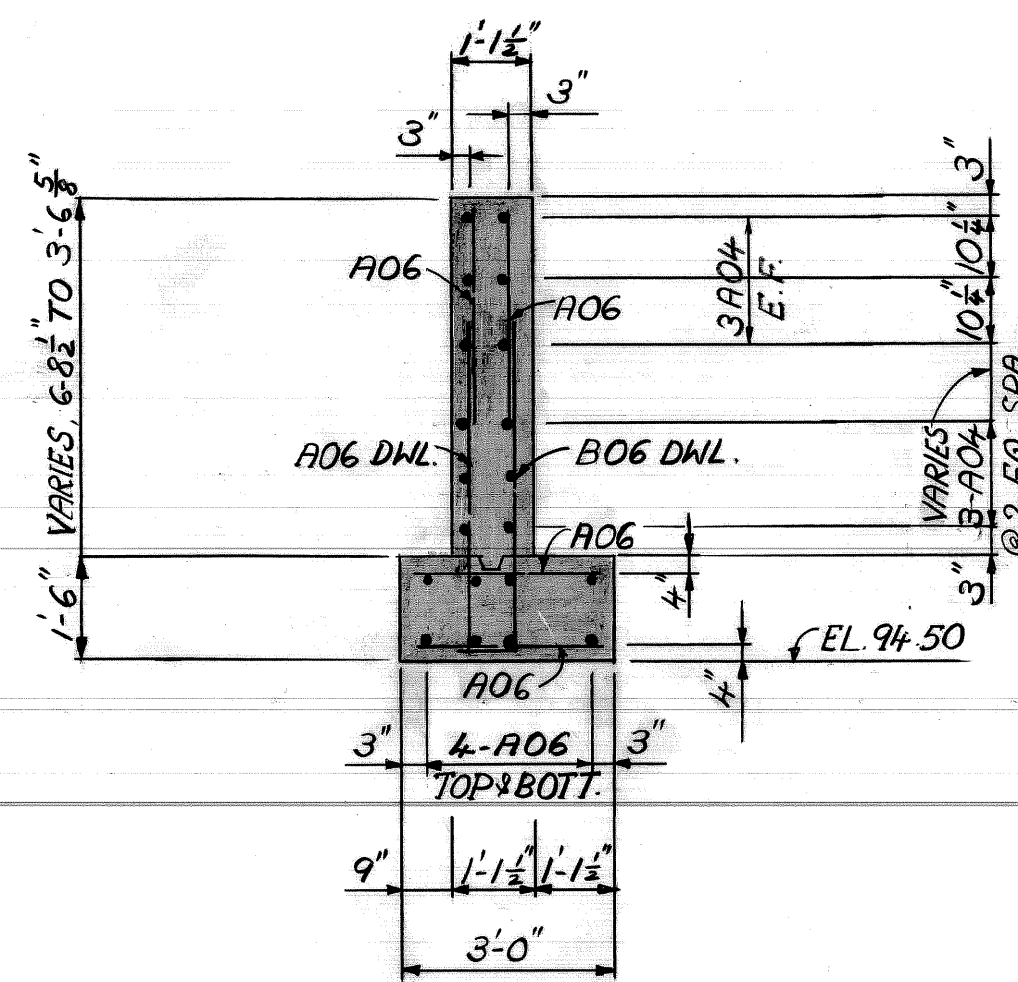




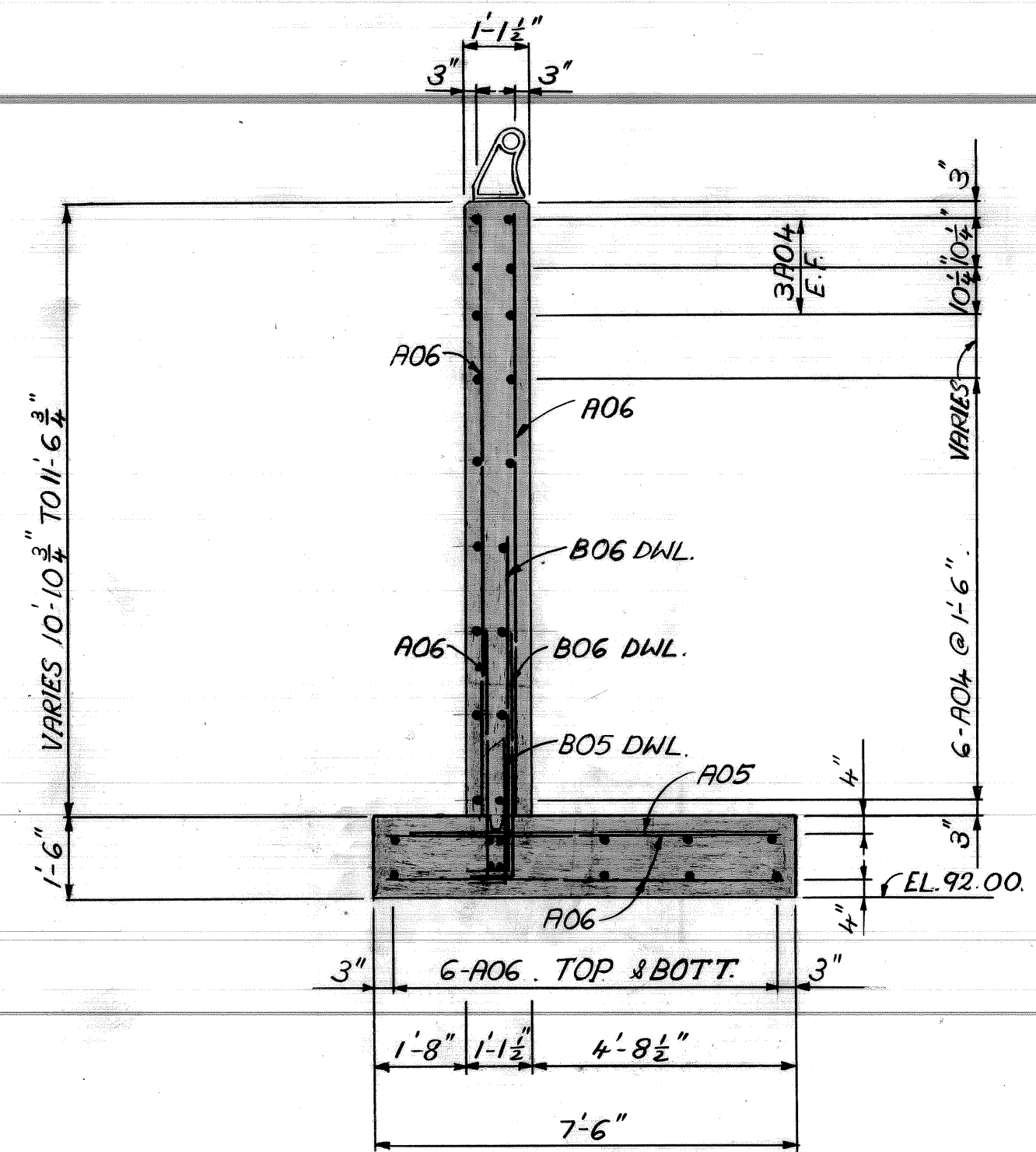
SECTION 19  
SCALE: 3/8" = 1'-0"



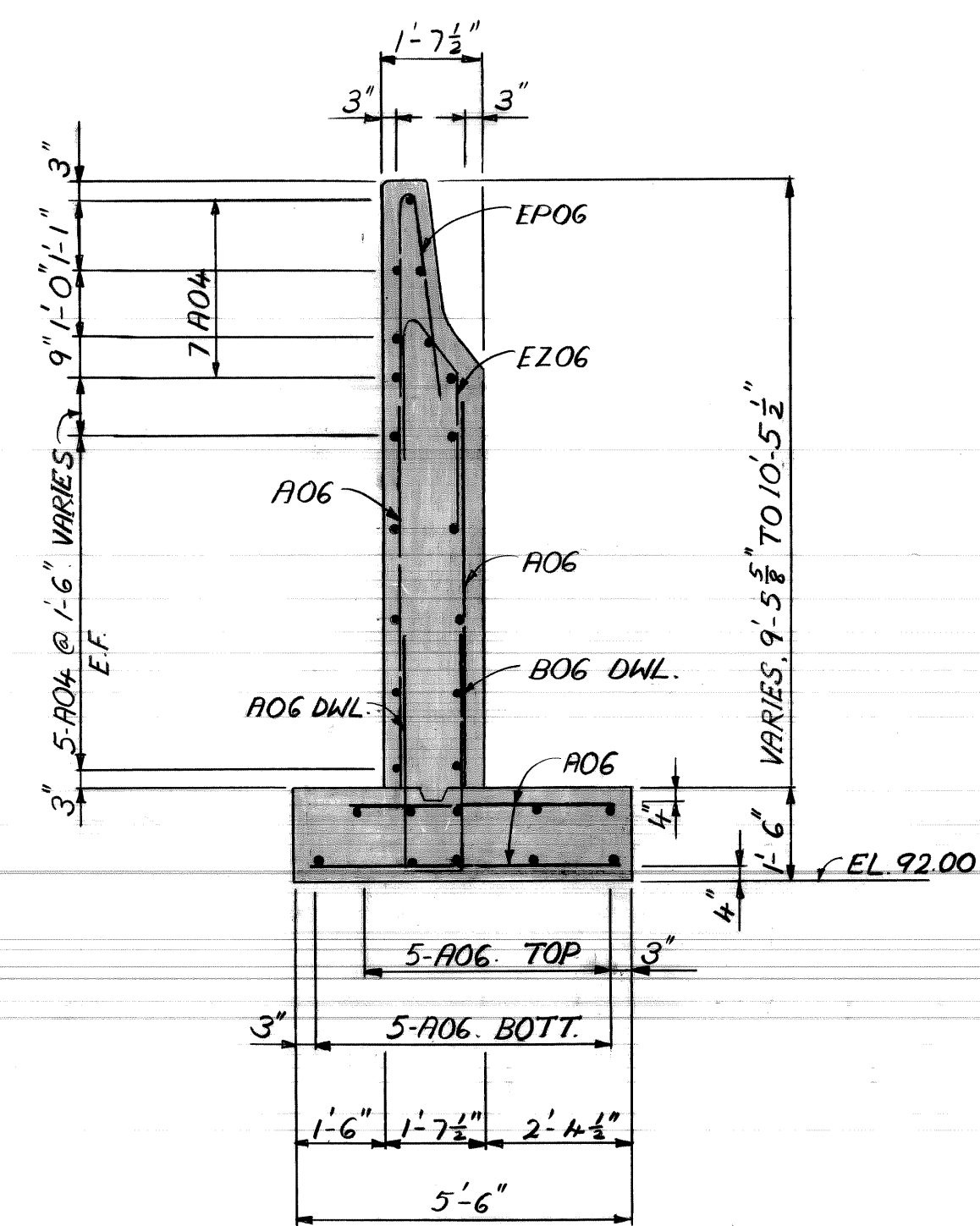
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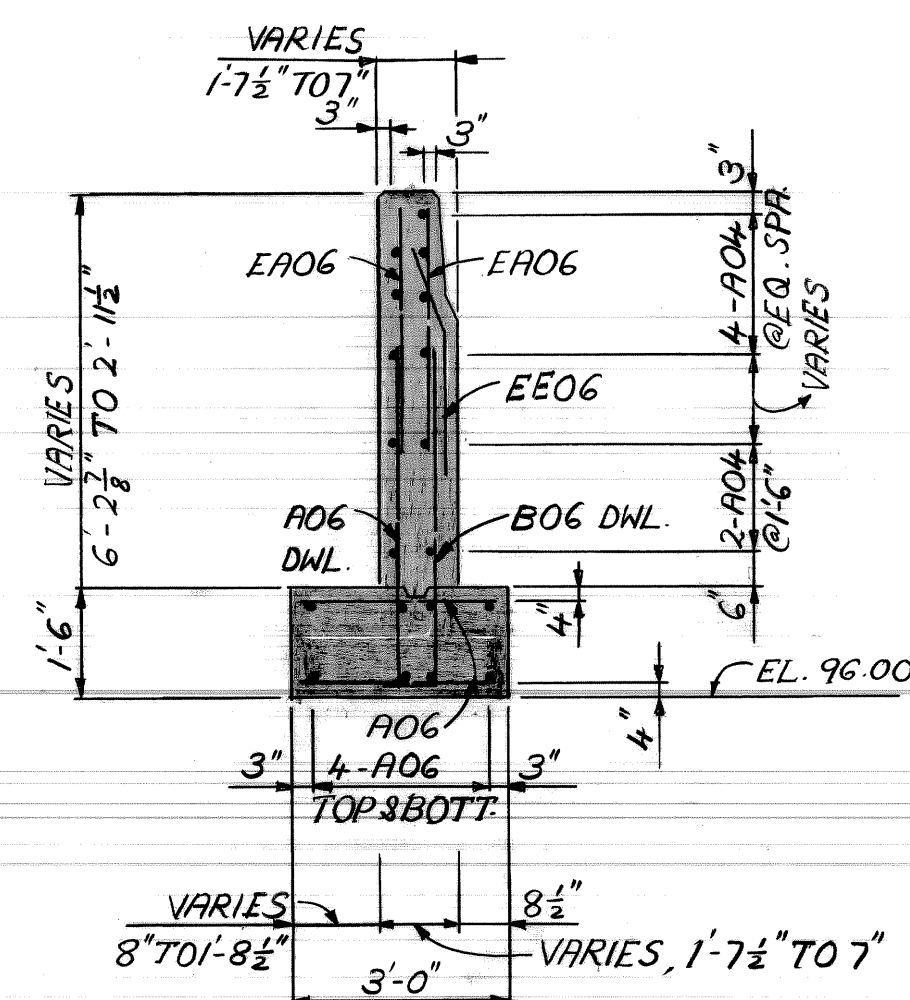
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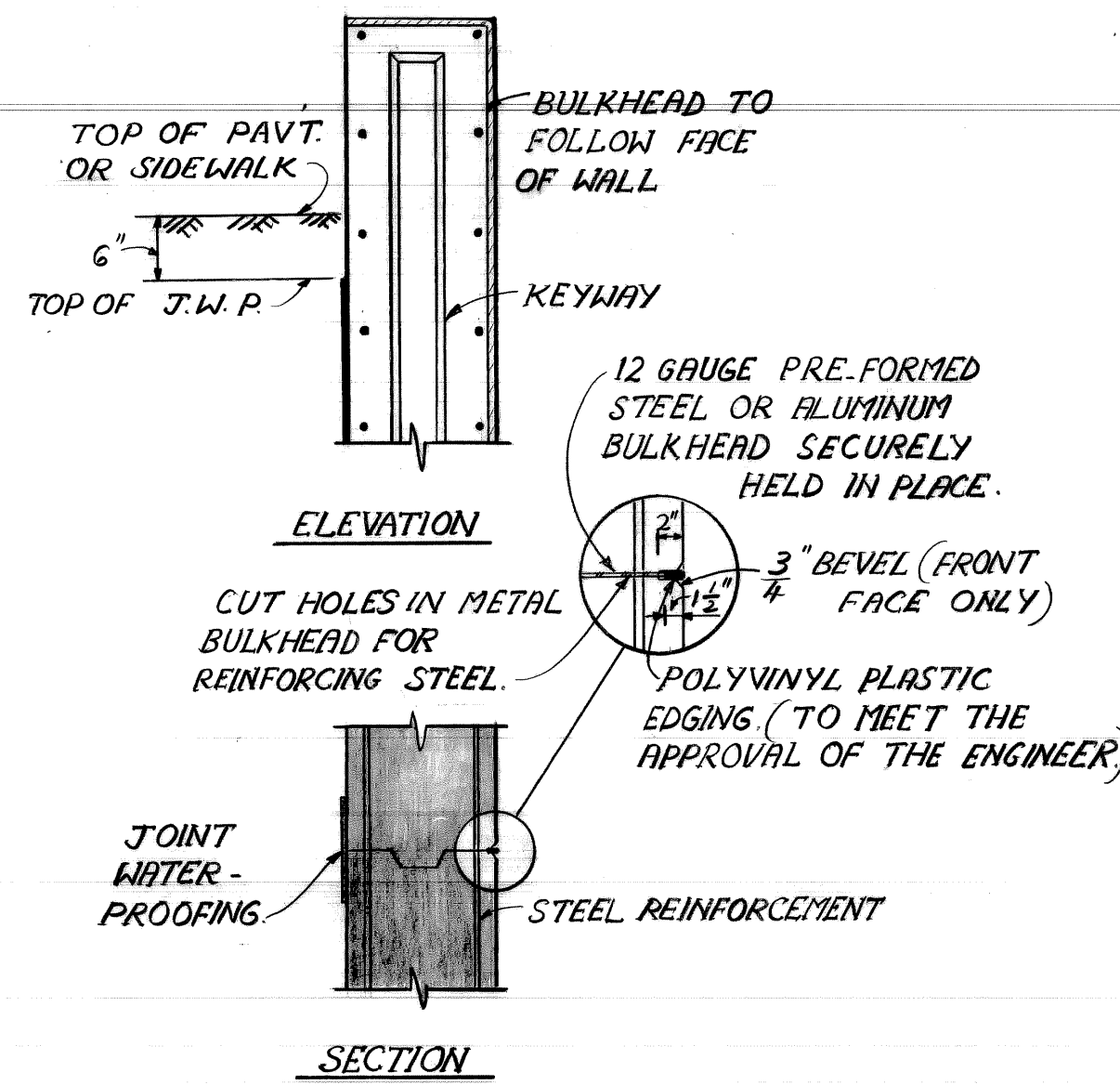
SECTION 7  
SCALE: 3/8" = 1'-0"



SECTION 9  
SCALE: 3/8" = 1'-0"

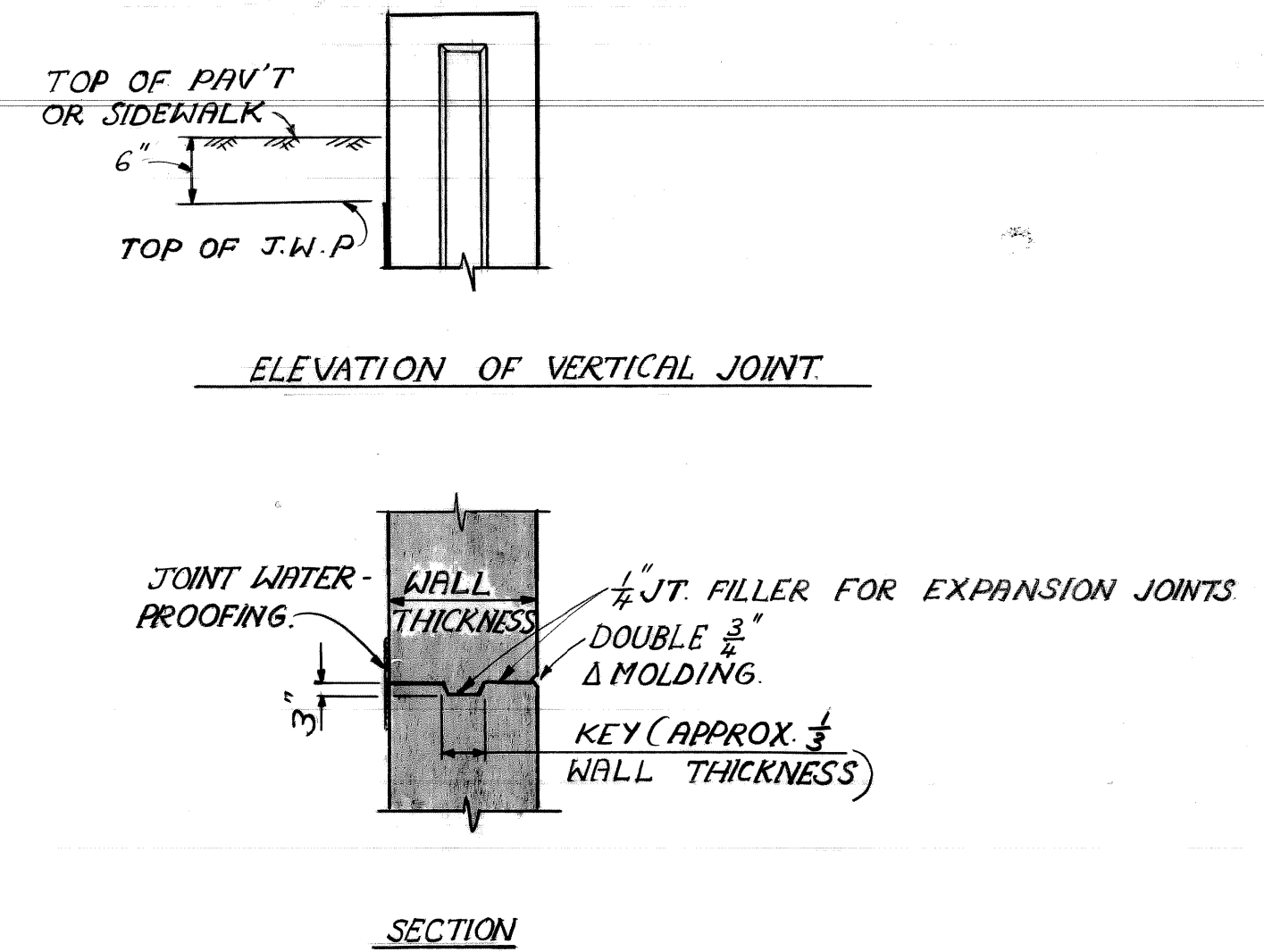


SECTION 14  
SCALE: 3/8" = 1'-0"



METAL BULKHEAD DETAILS  
NOTES: METAL BULKHEAD MAY BE USED AS ALTERNATE CONSTRUCTION JOINT AT CONTRACTOR'S EXPENSE.

CARE IS TO BE USED IN CASTING CONCRETE AROUND BULKHEAD TO PREVENT DISLOCATION OR MISALIGNMENT OF THE BULKHEAD.



EXPANSION & CONSTRUCTION JOINT DETAILS

NOTES: WHERE OPTIONAL CONSTRUCTION JOINTS ARE USED, THERE WILL BE NO PAYMENT FOR THE REQUIRED JOINT WATERPROOFING.

NO.	DATE	BY	REVISIONS

designed by  
drawn by J.K.  
checked by  
approved:

CITY OF DETROIT

city engineering department  
for DEPARTMENT OF PUBLIC WORKS

BRIDGE RECONSTRUCTION

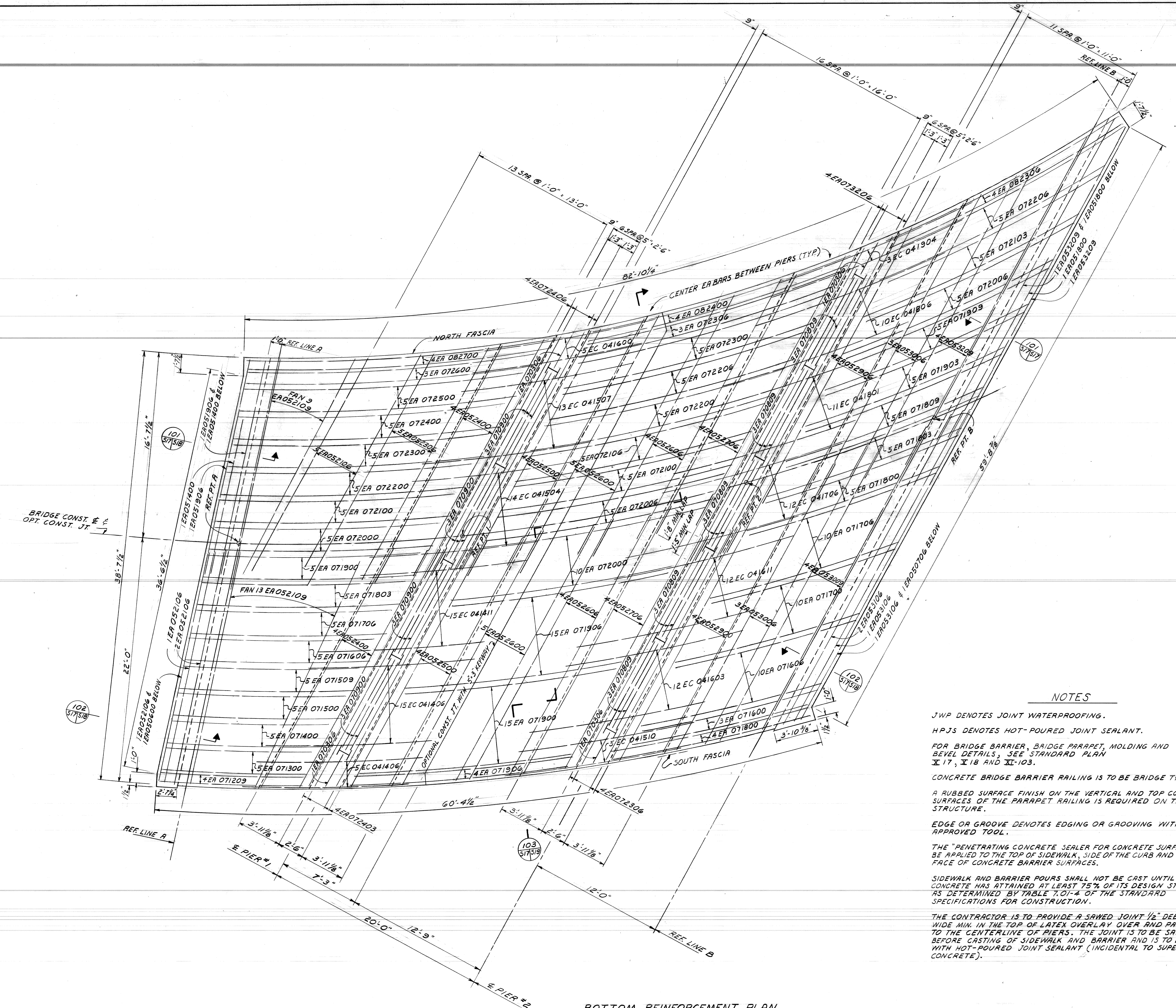
RIVERSIDE AVENUE OVER FOX CREEK BW-246

WALL SECTIONS AND DETAILS

a.o.  
contract no.  
sheet of  
drawing no.

date NOV. 89





**NOTES**

JWP DENOTES JOINT WATERPROOFING.

HPJS DENOTES HOT-POURED JOINT SEALANT.

FOR BRIDGE BARRIER, BRIDGE PARAPET, MOLDING AND BEVEL DETAILS, SEE STANDARD PLAN X 17, X 18 AND XI-103.

CONCRETE BRIDGE BARRIER RAILING IS TO BE BRIDGE TYPE 4.

A RUBBED SURFACE FINISH ON THE VERTICAL AND TOP CONCRETE SURFACES OF THE PARAPET RAILING IS REQUIRED ON THIS STRUCTURE.

EDGE OR GROOVE DENOTES EDGING OR GROOVING WITH AN APPROVED TOOL.

THE "PENETRATING CONCRETE SEALER FOR CONCRETE SURFACE" SHALL BE APPLIED TO THE TOP OF SIDEWALK, SIDE OF THE CURB AND INSIDE FACE OF CONCRETE BARRIER SURFACES.

SIDEWALK AND BARRIER POURS SHALL NOT BE CAST UNTIL SLAB CONCRETE HAS ATTAINED AT LEAST 75% OF ITS DESIGN STRENGTH AS DETERMINED BY TABLE 7.01-4 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

THE CONTRACTOR IS TO PROVIDE A SAWED JOINT 1/2" DEEP BY 1/8" WIDE MIN. IN THE TOP OF LATEX OVERLAY OVER AND PARALLEL TO THE CENTERLINE OF PIERS. THE JOINT IS TO BE SAWED BEFORE CASTING OF SIDEWALK AND BARRIER AND IS TO BE FILLED WITH HOT-POURED JOINT SEALANT (INCIDENTAL TO SUPERSTRUCTURE CONCRETE).

**BOTTOM REINFORCEMENT PLAN**

no.	description	date

designed by \_\_\_\_\_  
 drawn by D.L.N.  
 checked by \_\_\_\_\_  
 approved: \_\_\_\_\_

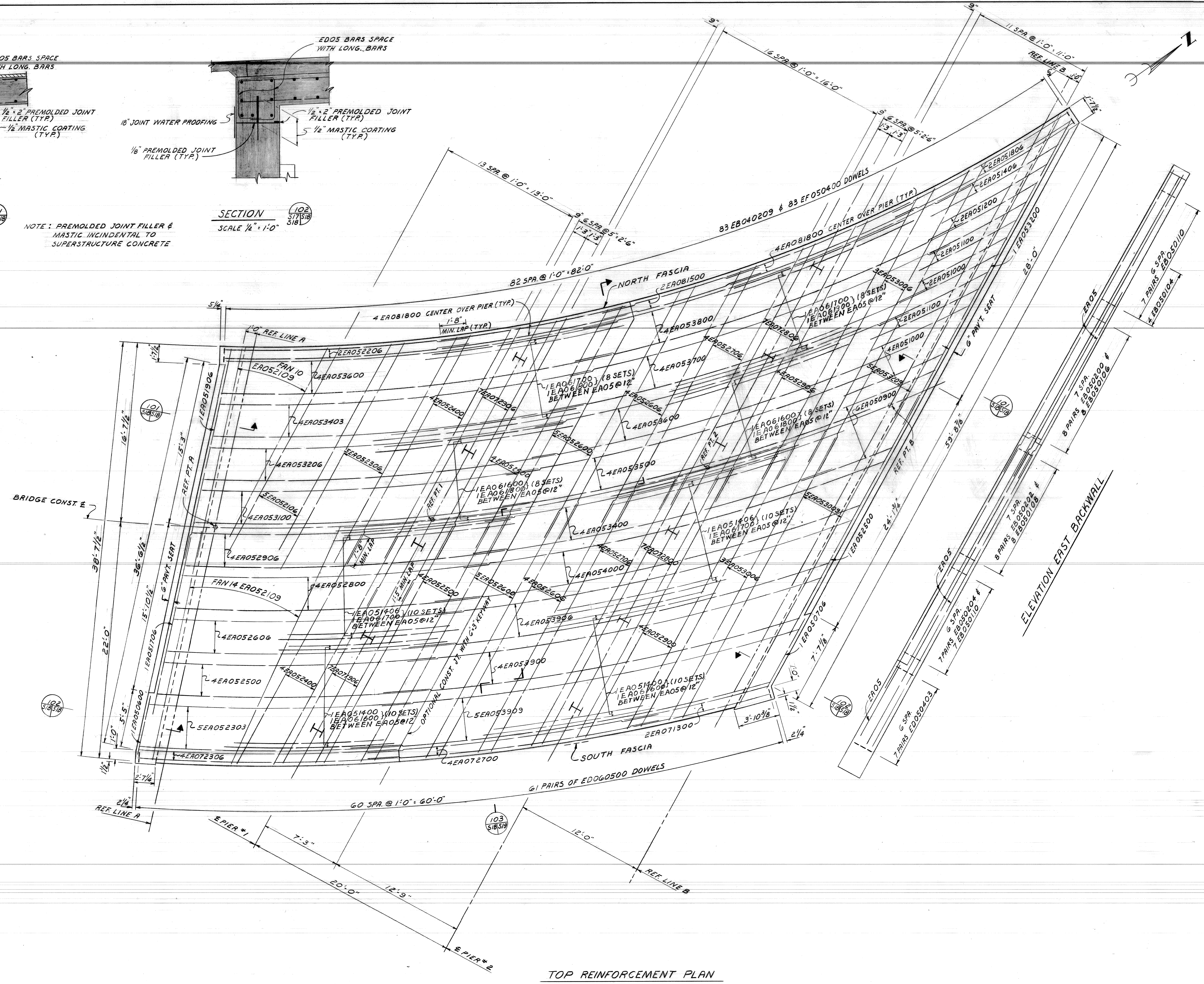
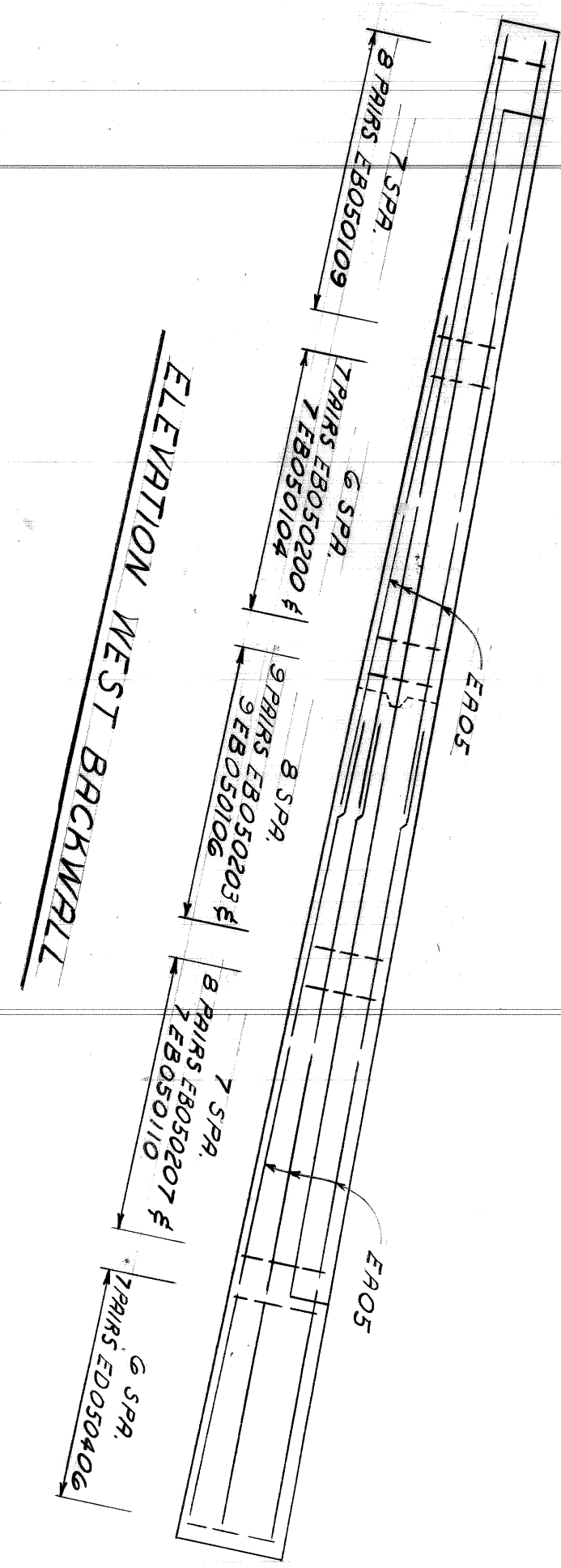
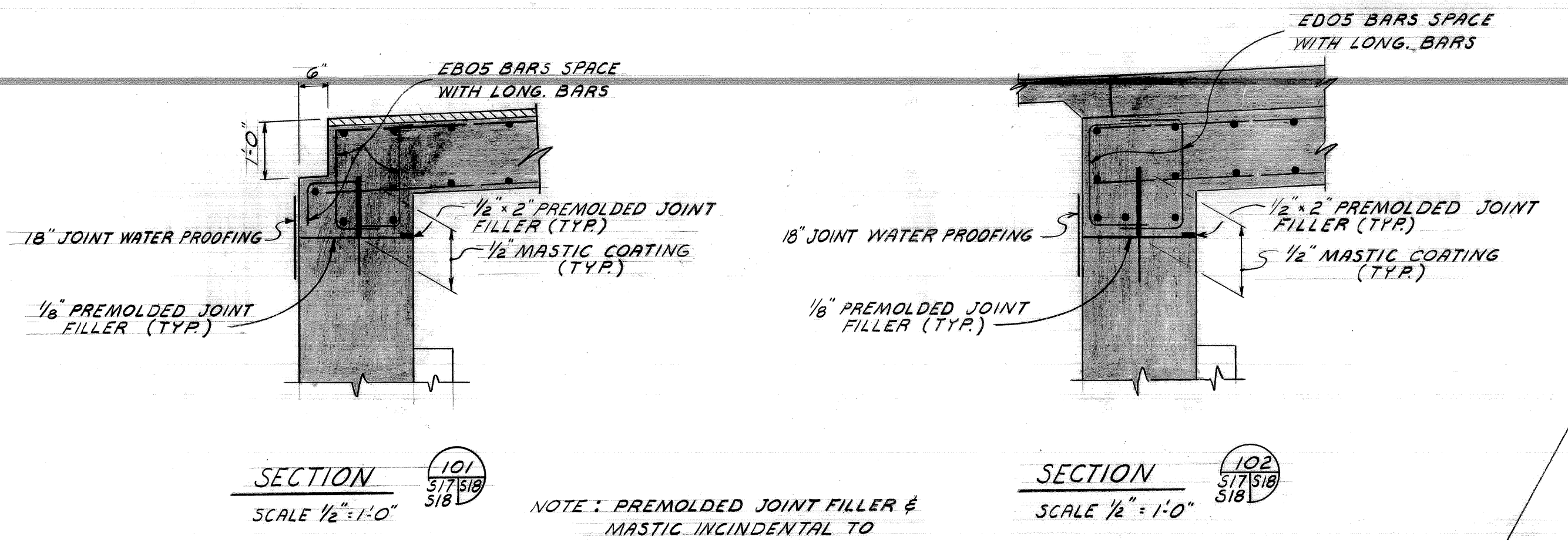
**CITY OF DETROIT**  
 city engineering department  
 for DEPARTMENT OF PUBLIC WORKS

BRIDGE RECONSTRUCTION  
 RIVERSIDE AVENUE OVER FOX CREEK BW-246

SLAB - BOTTOM REINFORCING BARS

a.o.  
 contract no. \_\_\_\_\_  
 sheet of \_\_\_\_\_  
 drawing no. 6-17  
 date NOV.89





NO.	DESCRIPTION	DATE

revisions

designed by M.C.  
 drawn by D.L.N.  
 checked by  
 approved:

**CITY OF DETROIT**  
 city engineering department  
 for DEPARTMENT OF PUBLIC WORKS

BRIDGE RECONSTRUCTION  
 RIVERSIDE AVENUE OVER FOX CREEK BW - 246

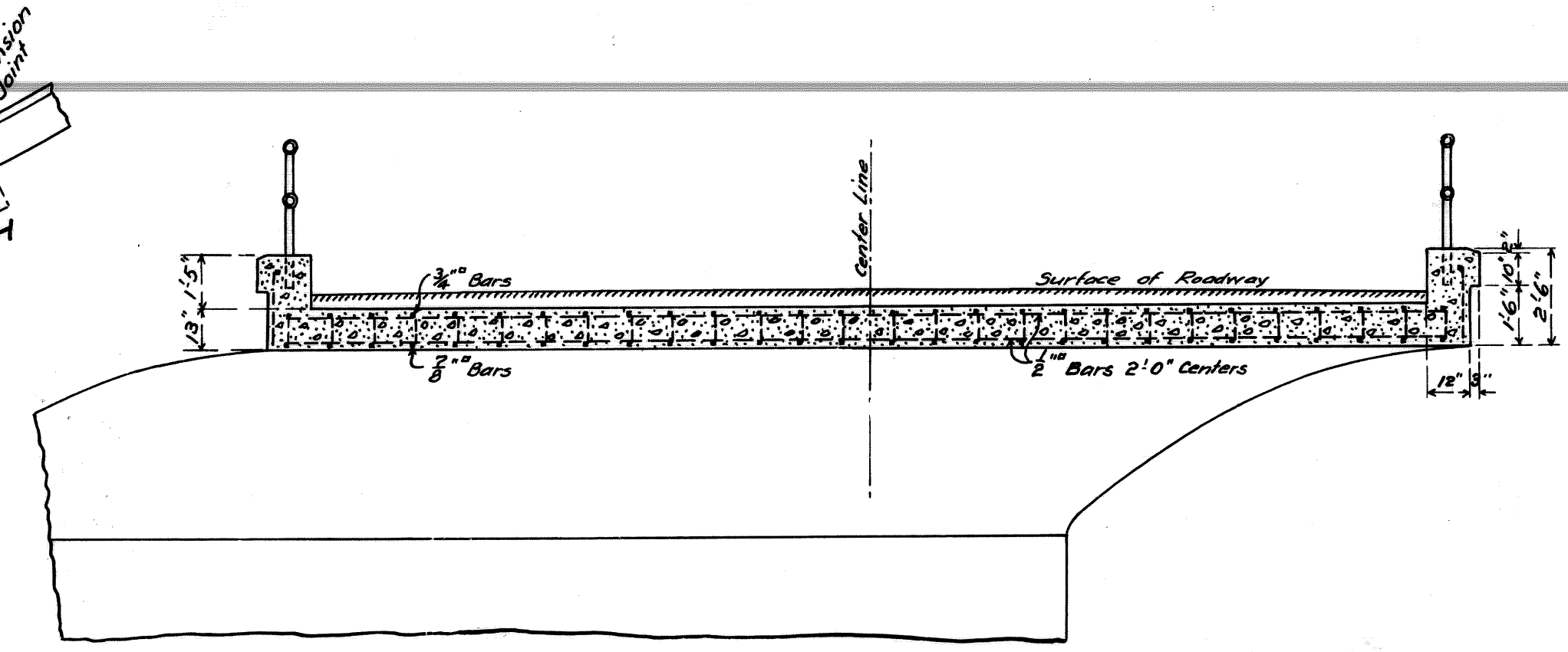
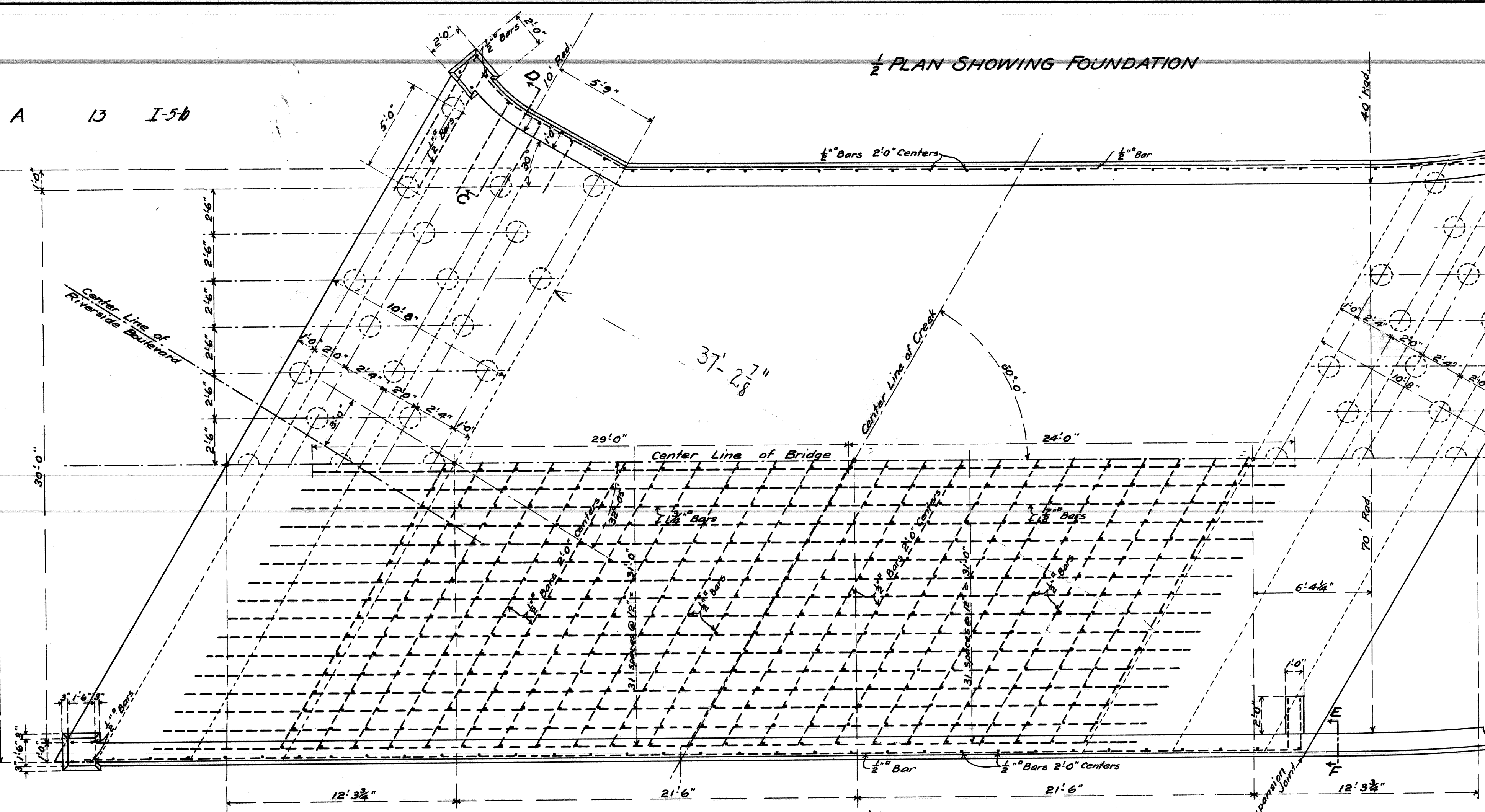
SLAB - TOP REINFORCING BARS

a.o.  
 contract no.  
 sheet of drawing no. 5-18  
 date NOV. 89





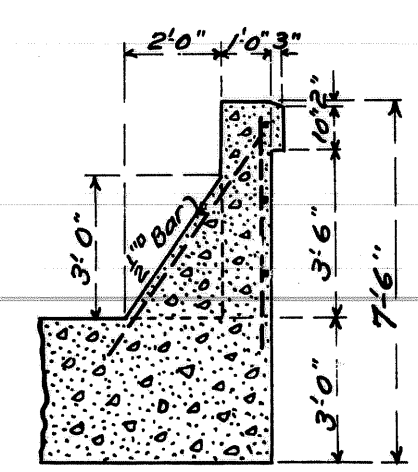




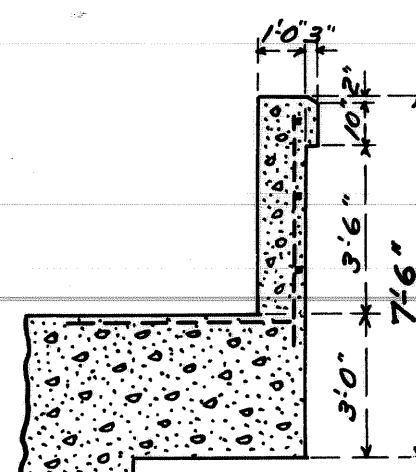
CROSS SECTION AT CENTER

1/4 PLAN SHOWING UPPER BARS

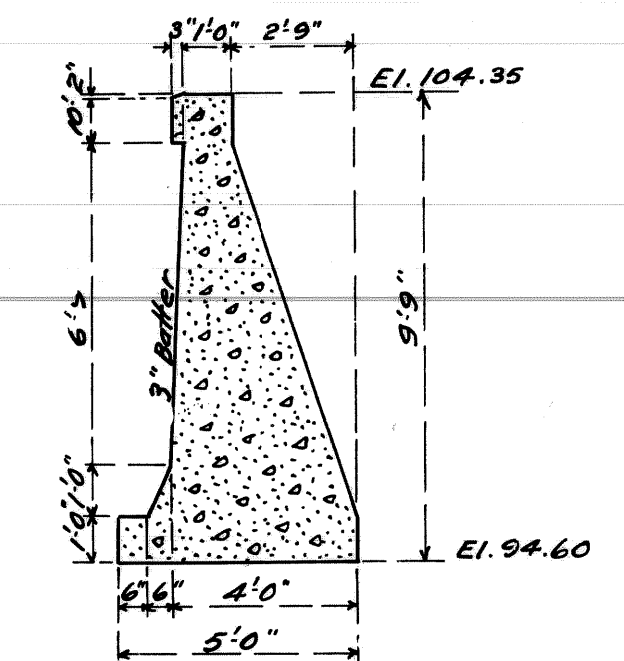
1/4 PLAN SHOWING LOWER BARS



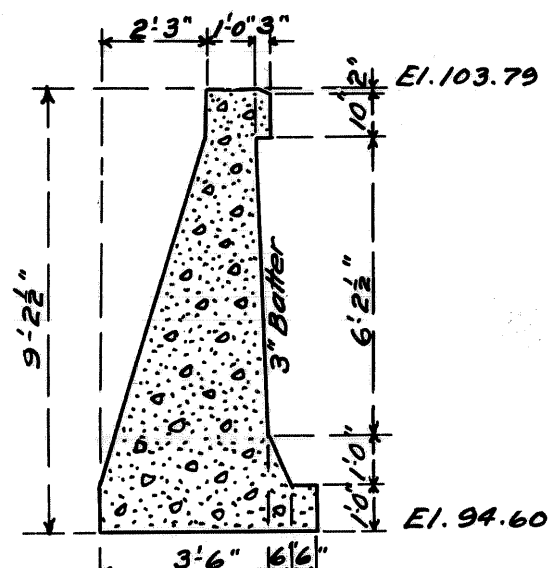
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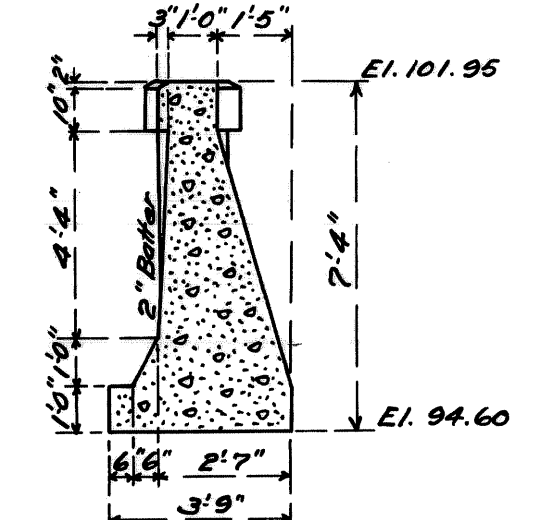
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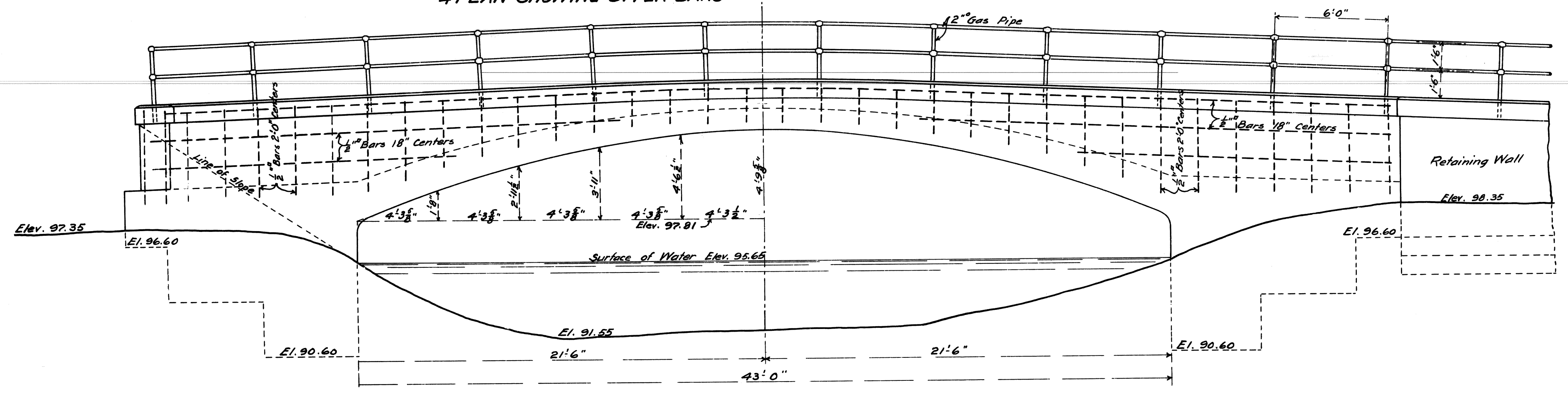
SECTION EF THROUGH RETAINING WALL



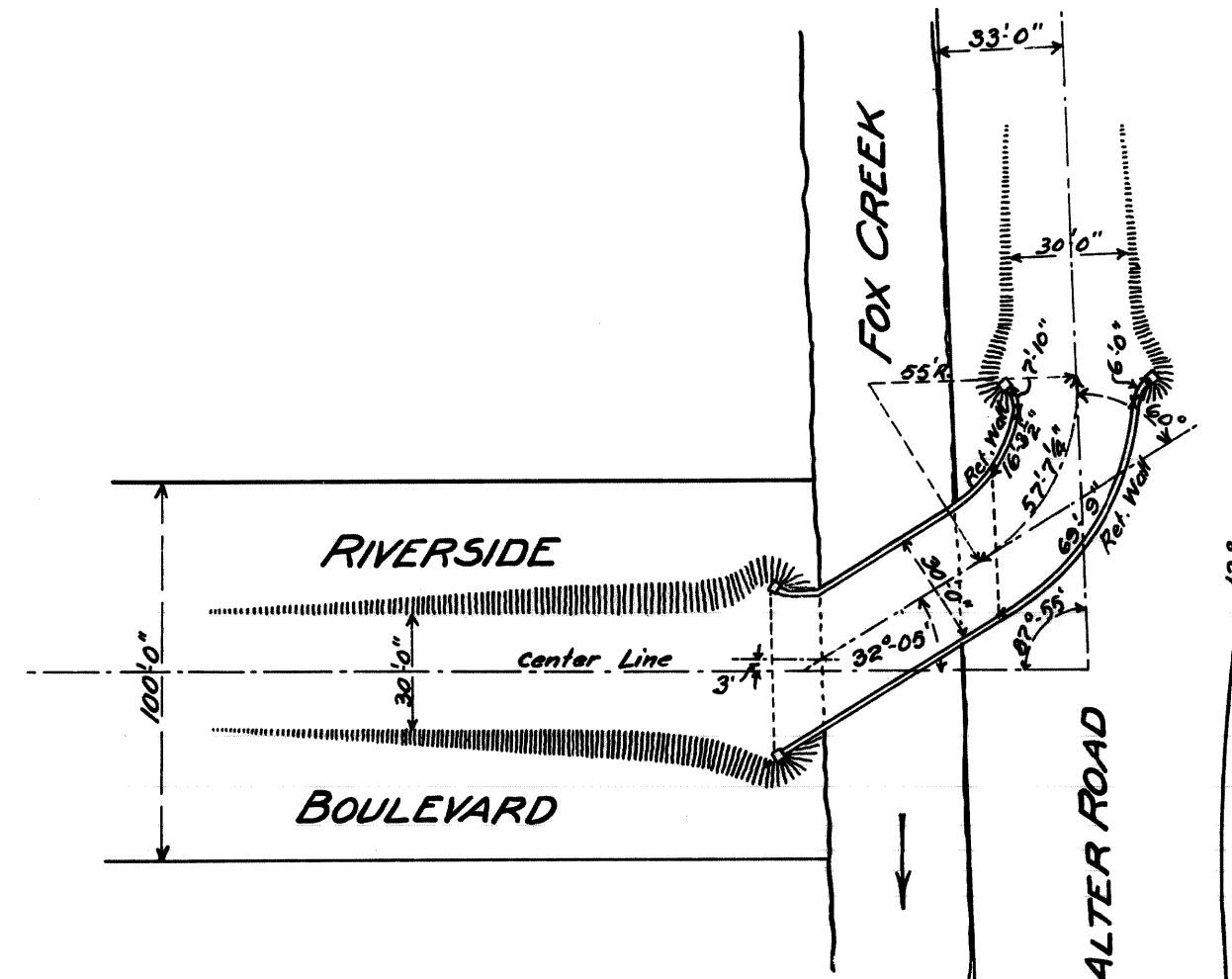
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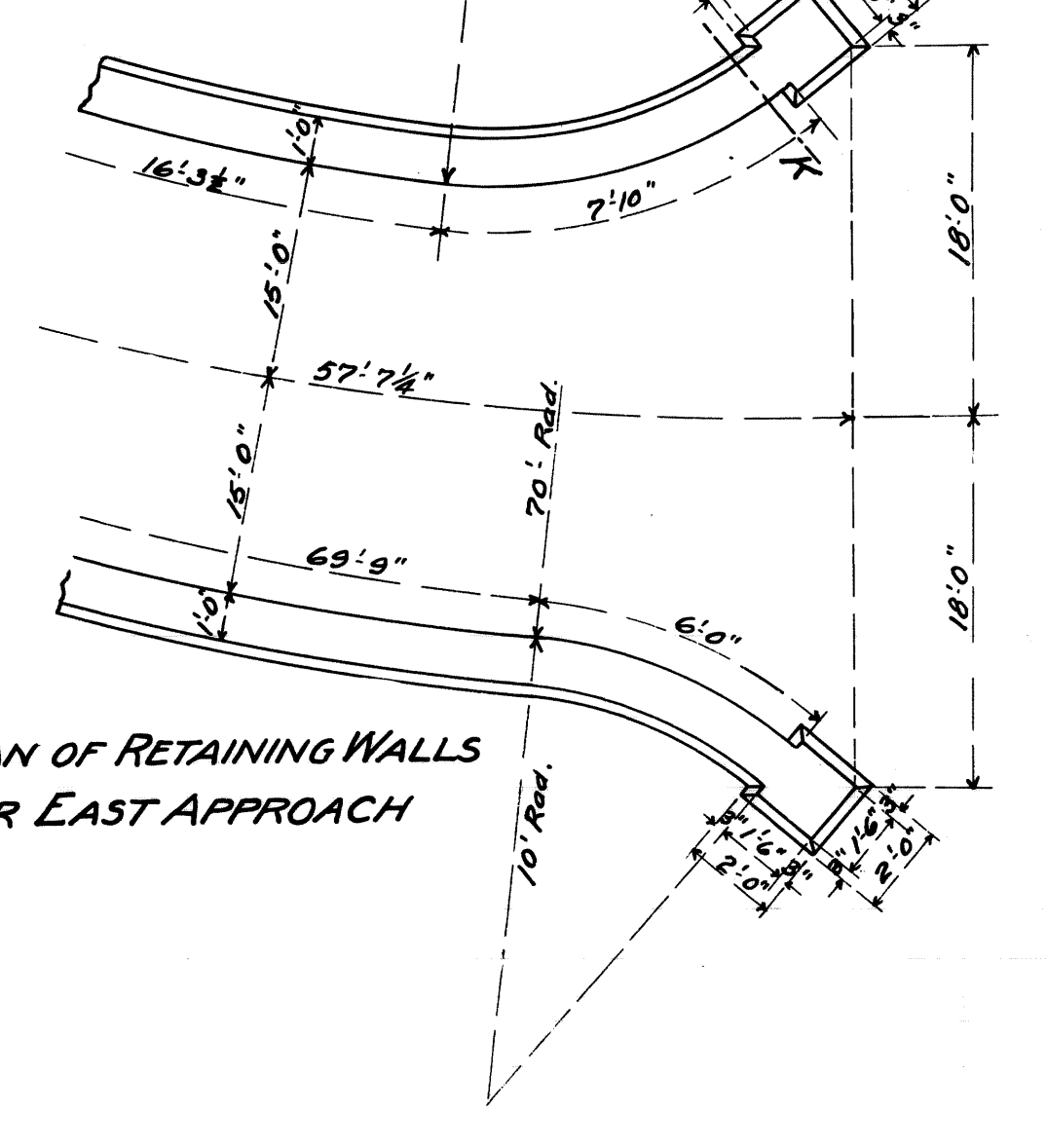
SECTION IK THROUGH RETAINING WALL



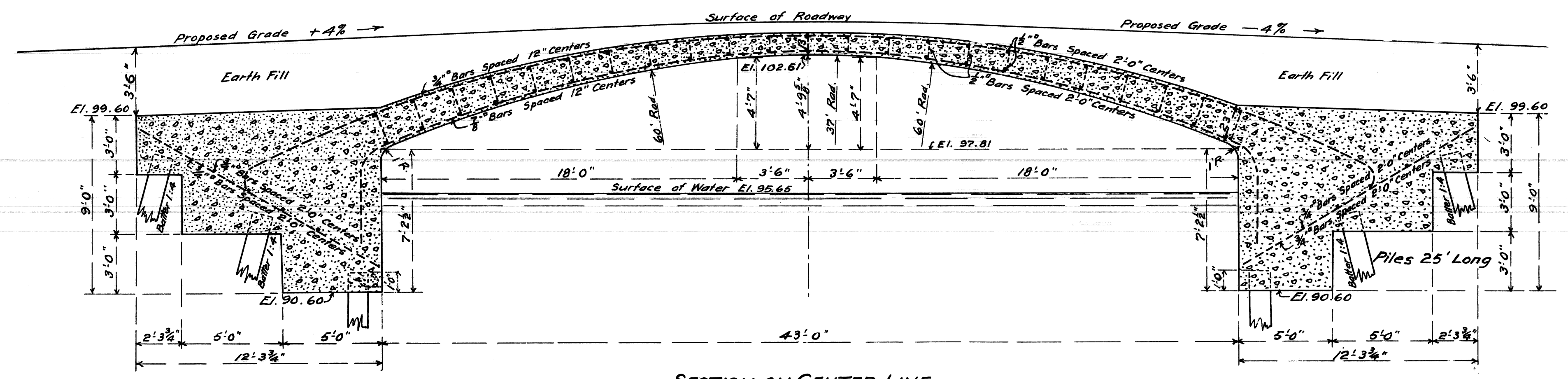
ELEVATION



PLAN SHOWING LOCATION OF BRIDGE  
Scale: 1 in. = 50 ft.



PLAN OF RETAINING WALLS FOR EAST APPROACH



SECTION ON CENTER LINE

All Copings to be 1:1:2 Concrete  
Arch Ring and Walls-1:2:4 Concrete  
Foundations and Retaining Walls-1:3:6 Concrete  
Reinforcing to be Corrugated or Twisted Steel Bars  
All material from excavations to be so placed that the surplus after back filling will be within the limits of fill for approaches, which are to be made by the contractor.

**PLAN OF 43'-0"**  
**REINFORCED CONCRETE SKEW ARCH**  
**OVER FOX CREEK**  
**ON RIVERSIDE BOULEVARD**  
Scale: 1/4 in. = 1 ft. Except Where Noted

CITY ENGINEER'S OFFICE DETROIT, MICHIGAN  
May, 26th, 1909  
J.A.S.







BAR	DIMENSIONS								NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g	h		
RO80800	8'-0"								62	1324
RO80400	4'-0"								3	32
RO70800	8'-0"								74	1210
RO70706	7'-6"								21	322
RO70609	6'-9"								40	552
RO70506	5'-6"								2	23
RO70502	5'-2"								23	243
RO70400	4'-0"								6	49
RO64000	40'-0"								10	500
RO63610	36'-10"								10	553
RO63110	31'-10"								8	382
RO62902	29'-2"								11	481
RO62804	28'-4"								20	850
RO62706	27'-6"								8	330
RO62602	26'-2"								13	510
RO62410	24'-10"								28	1043
RO62306	23'-6"								17	599
RO62106	21'-6"								61	1967
RO62104	21'-4"								28	986
RO62100	21'-0"								28	882
RO62000	20'-0"								44	1320
RO61800	18'-0"								8	216
RO61700	17'-0"								20	510
RO61509	15'-9"								39	921
RO61506	15'-6"								8	186
RO61500	15'-0"								6	135
RO61403	14'-3"								22	470
RO61302	13'-2"								52	1027
RO61200	12'-0"								32	576
RO61108	11'-8"								87	1523
RO61106	11'-6"								66	1139
RO61100	11'-0"								36	594
RO61008	10'-8"								32	512
RO61007	10'-4"								36	558
RO61002	10'-2"								29	442
RO60909	9'-9"								32	468
RO60903	9'-3"								71	985
RO60900	9'-0"								26	351
RO60807	8'-7"								32	412
RO60800	8'-0"								107	1284
RO60706	7'-6"								147	1654
RO60703	7'-3"								4	44
RO60700	7'-0"								51	536
RO60606	6'-6"								98	956
RO60603	6'-3"								32	300
RO60600	6'-0"								52	468
RO60509	5'-9"								24	207
RO60508	5'-8"								74	629
RO60506	5'-6"								57	470
RO60503	5'-3"								24	189
RO60500	5'-0"								97	728
RO60410	4'-10"								160	1160
RO60406	4'-6"								177	1195
RO60403	4'-3"								63	402
RO60400	4'-0"								74	444
RO60309	3'-9"								83	467

BAR	DIMENSIONS								NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g	h		
RO60306	3'-6"								122	641
RO60303	3'-3"								31	151
RO60300	3'-0"								200	900
RO60206	2'-6"								140	525
RO60203	2'-3"								8	27
RO50706	7'-6"								28	219
RO50606	6'-6"								15	102
RO50511	5'-11"								14	86
RO50402	4'-2"								32	139
RO50301	3'-1"								13	42
RO43200	32'-0"								32	684
RO42700	27'-0"								47	848
RO42506	25'-6"								49	835
RO42306	23'-6"								126	1978
RO42106	21'-6"								70	1005
RO42008	20'-8"								28	387
RO42004	20'-4"								28	380
RO41908	19'-8"								6	79
RO41906	19'-6"								70	912
RO41902	19'-2"								7	90
RO41810	18'-10"								4	50
RO41806	18'-6"								4	49
RO41700	17'-0"								10	114
RO41506	15'-6"								4	41
RO41300	13'-0"								4	35
RO40309	3'-9"								42	105
BO80905	8'-8"	9"							13	327
BO80605	5'-5"	9"							13	223
BO60610	6'-1"	9"							35	359
BO60604	5'-7"	9"							13	123
BO60510	5'-1"	9"							64	560
BO60505	4'-8"	9"							64	520
BO60503	4'-6"	9"							131	1032
BO60500	4'-3"	9"							25	188
BO60409	4'-0"	9"							12	86
BO60405	3'-8"	9"							87	576
BO50301	2'-4"	9"							16	51
CO60710	11 3/4"	5'-10"	11 3/4"	2 1/2"	1'-0"	2 1/2"	1'-0"		8	94
CO60500	9"	3'-0"	9"	8"	1'-0"	8"	1'-0"		7	53
CO60408	8"	2'-8"	8"	9"	1'-0"	9"	1'-0"		7	49
CO60403	4 1/4"	2'-3"	4 1/4"	11 1/4"	1'-0"	11 1/4"	1'-0"		8	51
EO40600	3'-0"	3'-0"	2'-8"	1'-4"					8	32
EO40402	2'-1"	2'-1"	1'-6"	1'-5"					8	22
EO40400	2'-0"	2'-0"	3 7/8"	1'-11 1/8"					14	37

BAR	DIMENSIONS								NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g	h		
EO60406	4'-6"								6	41
EO60403	4'-3"								6	38
EO60400	4'-0"								6	36
EO60306	3'-6"								6	32
EO60300	3'-0"								6	27
EO60203	2'-3"								6	20
EO60200	2'-0"								68	204
EO41506	15'-6"								8	83
EO41300	13'-0"								7	61
EO60600	5'-3"	9"							1	9
EO60509	5'-0"	9"							1	9
EO60501	4'-4"	9"							1	8
EO60409	4'-0"	9"							1	7
EDO60506	2'-0"	1'-6"	2'-0"						68	561
EO60503	3'-9"	1'-6"	1'-3 1/2"	9"					3	24
EO60406	3'-6"	1'-0"	10"	7"					3	20
EO60404	2'-10"	1'-6"	1'-3 1/2"	9"					3	20
EO60403	3'-3"	1'-0"	11 1/4"	4"					3	19
EO60306	2'-6"	1'-0"	10"	7"					3	16
EO60300	2'-0"	1'-0"	11 1/4"	4"					3	14
EP060700	3'-3"	6"	3'-3"				1 5/8"		127	1334
EZ060610	2'-2"	6"	1'-6"	2'-8"	0"	0"	9/4"	1'-2 1/4"	127	1302

NOTES:  
ALL BENDS IN REINFORCING STEEL TO BE MADE ABOUT A PIN OF THE MINIMUM DIAMETER ALLOWED BY THE STANDARD SPECIFICATION.

TOLERANCES IN CUTTING AND BENDING BARS ARE AS ESTABLISHED IN MANUAL OF STANDARD PRACTICE OF THE REINFORCING STEEL INSTITUTE AND DETAILING MANUAL OF THE AMERICAN CONCRETE INSTITUTE.

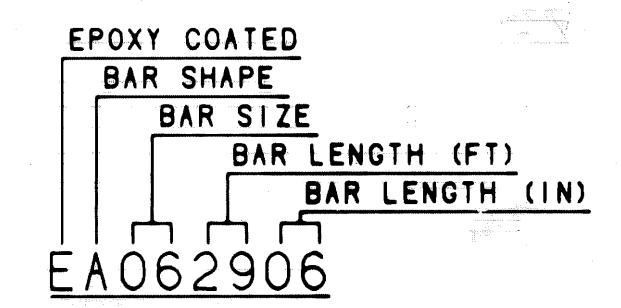
WHERE FIELD CUTTING OF EPOXY BARS IS REQUIRED, THE CONTRACTOR SHALL REPAIR THE EPOXY COATING AT THE CUT END AS PROVIDED FOR IN STANDARD SPECIFICATION 8.05.03 (INCIDENTAL TO STEEL REINFORCEMENT EPOXY COATED).

REINFORCEMENT SHALL BE BUNDLED AND TAGGED AS TO THE LOCATION AS SHOWN ON THIS SHEET.

WHERE A DIMENSION OF A BAR IS NOT SHOWN ON THE PLANS, OR CANNOT BE DETERMINED FROM THE DETAILED DIMENSIONS, THE DIMENSION SHALL BE THE STANDARD BEND LENGTH.

THE CONTRACTOR SHALL SUBMIT ORIGINAL SHOP DRAWINGS FOR FABRICATION, BENDING AND PLACEMENT OF CONCRETE REINFORCEMENT. THE SHOP DRAWINGS SHALL COMPLY WITH ACI 315-80 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" AND ACI 315R-80 "MANUAL OF ENGINEERING AND PLACING DRAWINGS FOR REINFORCED CONCRETE STRUCTURES" SHOWING BAR SCHEDULES, STIRRUP SPACING, DIAGRAMS OF BENT BARS, ARRANGEMENT, SPACING AND BAR MARKS OF CONCRETE REINFORCEMENT.

BAR NUMBERS:



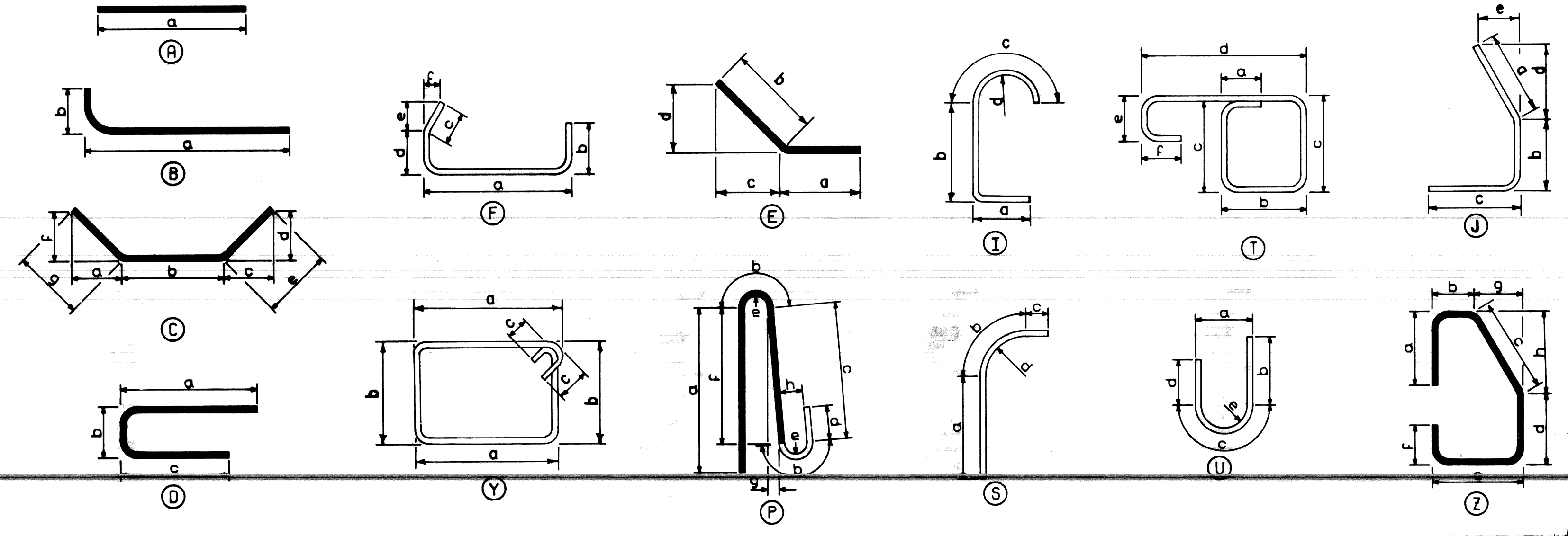
WORK THIS SHEET WITH SHEET NO. S-7 THRU S-16

**SUBSTRUCTURE  
STEEL REINFORCEMENT DETAILS**

REVISIONS		DATE	BY
NO.	DESCRIPTION		

SQUAD BOSS	
DRAWN BY	D.L.N.
TRACED BY	
CHECKED BY	

SHEET 27 OF 27



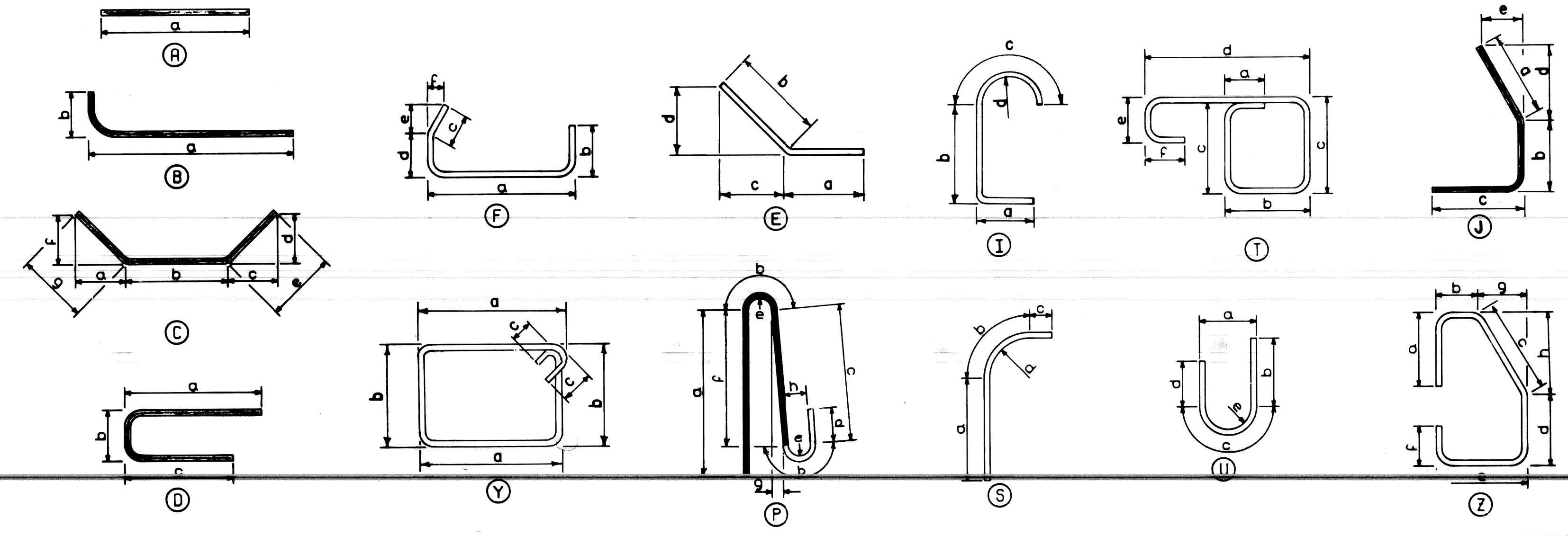


BAR	DIMENSIONS								NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g	h		
EA082700	27'-0"								4	282
EA082400	24'-0"								4	250
EA082306	23'-6"								4	245
EA081800	18'-0"								8	375
EA081500	15'-0"								2	78
EA073206	32'-6"								4	266
EA072906	29'-6"								7	422
EA072806	28'-6"								7	408
EA072800	28'-0"								7	401
EA072700	27'-0"								4	221
EA072600	26'-0"								3	159
EA072500	25'-0"								5	256
EA072406	24'-6"								4	200
EA072403	24'-3"								4	198
EA072400	24'-0"								5	245
EA072306	23'-6"								11	528
EA072300	23'-0"								10	470
EA072206	22'-6"								10	460
EA072200	22'-0"								10	450
EA072106	21'-6"								5	220
EA072103	21'-3"								5	217
EA072100	21'-0"								10	429
EA072006	20'-6"								10	419
EA072000	20'-0"								15	613
EA071909	19'-9"								5	202
EA071906	19'-6"								26	1036
EA071903	19'-3"								5	197
EA071900	19'-0"								20	777
EA071809	18'-9"								5	192
EA071803	18'-3"								10	373
EA071800	18'-0"								9	331
EA071706	17'-6"								15	537
EA071700	17'-0"								10	347
EA071606	16'-6"								15	506
EA071600	16'-0"								3	98
EA071509	15'-9"								5	161
EA071500	15'-0"								5	153
EA071400	14'-0"								5	143
EA071300	13'-0"								7	186
EA071209	12'-9"								4	104
EA070900	9'-0"								12	221
EA070809	8'-9"								15	268
EA070306	3'-6"								4	29
EA061900	19'-0"								16	457
EA061800	18'-0"								16	433
EA061700	17'-0"								36	919
EA061600	16'-0"								36	865
EA054000	40'-0"								4	167
EA053906	39'-6"								4	165
EA053900	39'-0"								9	366

BAR	DIMENSIONS								NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g	h		
EA053800	38'-0"								4	159
EA053700	37'-0"								4	154
EA053600	36'-0"								8	300
EA053500	35'-0"								4	146
EA053403	34'-3"								4	143
EA053400	34'-0"								4	142
EA053209	32'-9"								11	376
EA053206	32'-6"								4	136
EA053200	32'-0"								1	33
EA053106	31'-6"								4	131
EA053100	31'-0"								4	129
EA053009	30'-9"								9	289
EA053006	30'-6"								12	382
EA052906	29'-6"								12	369
EA052900	29'-0"								8	242
EA052800	28'-0"								4	117
EA052706	27'-6"								16	459
EA052606	26'-6"								20	553
EA052600	26'-0"								20	542
EA052500	25'-0"								21	548
EA052400	24'-0"								16	401
EA052306	23'-6"								10	245
EA052303	23'-3"								5	121
EA052206	22'-6"								2	47
EA052109	21'-9"								46	1044
EA052106	21'-6"								14	314
EA051906	19'-6"								3	61
EA051806	18'-6"								2	96
EA051800	18'-0"								2	38
EA051706	17'-6"								1	18
EA051406	14'-6"								22	333
EA051400	14'-0"								22	321
EA051200	12'-0"								2	25
EA051100	11'-0"								4	46
EA051000	10'-0"								6	63
EA050900	9'-0"								6	56
EA050706	7'-6"								2	16
EA050600	6'-0"								2	13
EA043103	31'-3"								8	167
EA043010	30'-10"								14	288
EA043003	30'-3"								4	81
EA042806	28'-6"								21	400
EA070307	2'-0"	1'-7"							28	205
EB050207	1'-10"	9"							16	43
EB050204	1'-7"	9"							14	34
EB050203	1'-6"	9"							18	42

BAR	DIMENSIONS								NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g	h		
EB050202	1'-5"	9"							16	36
EB050200	1'-3"	9"							30	63
EB050110	1'-0"	10"							28	53
EB050109	1'-0"	9"							16	29
EB050108	1'-0"	8"							8	14
EB050106	1'-0"	6"							17	26
EB050104	1'-0"	4"							11	15
EB040806	8'-1"	5"							1	6
EB040701	6'-8"	5"							40	189
EB040505	5'-0"	5"							1	4
EB040309	3'-4"	5"							1	3
EB040209	2'-3"	6"							83	152
EB040201	1'-8"	5"							1	1
ECO41904	7'-8"	3'-10"	7'-8"	11"	7'-9"	11"	7'-9"		3	39
ECO41806	7'-4"	3'-8"	7'-4"	11"	7'-5"	11"	7'-5"		10	124
ECO41801	7'-2"	3'-7"	7'-2"	11"	7'-3"	11"	7'-3"		11	133
ECO41706	6'-11"	3'-6"	6'-11"	11"	7'-0"	11"	7'-0"		12	140
ECO41611	6'-8"	3'-5"	6'-8"	11"	6'-9"	11"	6'-9"		12	136
ECO41603	6'-5"	3'-3"	6'-5"	11"	6'-6"	11"	6'-6"		12	130
ECO41600	6'-4"	3'-2"	6'-4"	11"	6'-5"	11"	6'-5"		5	53
ECO41510	6'-3"	3'-2"	6'-3"	11"	6'-4"	11"	6'-4"		5	53
ECO41507	6'-2"	3'-1"	6'-2"	11"	6'-3"	11"	6'-3"		13	135
ECO41504	6'-1"	3'-0"	6'-1"	11"	6'-2"	11"	6'-2"		14	143
ECO41411	5'-11"	2'-11"	5'-11"	11"	6'-0"	11"	6'-0"		15	149
ECO41406	5'-9"	2'-10"	5'-9"	11"	5'-10"	11"	5'-10"		20	194
EDO60600	2'-8 3/4"	6 1/2"	2'-8 3/4"						49	478
EDO60500	1'-3"	1'-6"	1'-3"						122	916
EDO50406	1'-3"	2'-0"	1'-3"						14	66
EDO50403	1'-3"	1'-9"	1'-3"						14	62
EJ050400	2'-0"	1'-5"	7"	1'-7 1/2"	1'-2"				83	346
EPO40605	2'-11 1/2"	6"	2'-11 1/2"	0	1 1/2"	0	3 3/4"	0	124	538
EA062906										

TOTAL STEEL REINFORCEMENT (GR. 60) = 51,133 LBS.  
TOTAL STEEL REINFORCEMENT, EPOXY COATED (GR. 60) = 35,315 LBS.



NOTES:  
ALL BENDS IN REINFORCING STEEL TO BE MADE ABOUT A PIN OF THE MINIMUM DIAMETER ALLOWED BY THE STANDARD SPECIFICATION.

TOLERANCES IN CUTTING AND BENDING BARS ARE AS ESTABLISHED IN MANUAL OF STANDARD PRACTICE OF THE REINFORCING STEEL INSTITUTE AND DETAILING MANUAL OF THE AMERICAN CONCRETE INSTITUTE.

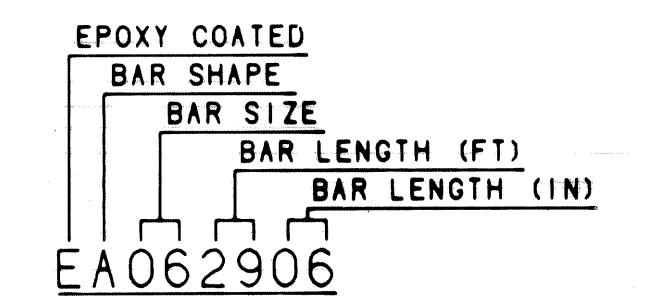
WHERE FIELD CUTTING OF EPOXY BARS IS REQUIRED, THE CONTRACTOR SHALL REPAIR THE EPOXY COATING AT THE CUT END AS PROVIDED FOR IN STANDARD SPECIFICATION 8.05.03 (INCIDENTAL TO STEEL REINFORCEMENT EPOXY COATED).

REINFORCEMENT SHALL BE BUNDLED AND TAGGED AS TO THE LOCATION AS SHOWN ON THIS SHEET.

WHERE A DIMENSION OF A BAR IS NOT SHOWN ON THE PLANS, OR CANNOT BE DETERMINED FROM THE DETAILED DIMENSIONS, THE DIMENSION SHALL BE THE STANDARD BEND LENGTH.

THE CONTRACTOR SHALL SUBMIT ORIGINAL SHOP DRAWINGS FOR FABRICATION, BENDING AND PLACEMENT OF CONCRETE REINFORCEMENT. THE SHOP DRAWINGS SHALL COMPLY WITH ACI 315-80 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" AND ACI 318R-80 "MANUAL OF ENGINEERING AND PLACING DRAWINGS FOR REINFORCED CONCRETE STRUCTURES" SHOWING BAR SCHEDULES, STIRRUP SPACING DIAGRAMS OF BENT BARS, ARRANGEMENT, SPACING AND BAR MARKS OF CONCRETE REINFORCEMENT.

BAR NUMBERS:



WORK THIS SHEET WITH SHEET NO. S-17 THRU S-19

**SUPERSTRUCTURE  
STEEL REINFORCEMENT DETAILS**

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SOVAD BOSS	
DRAWN BY	D.L.W.
CHECKED BY	
DATE	

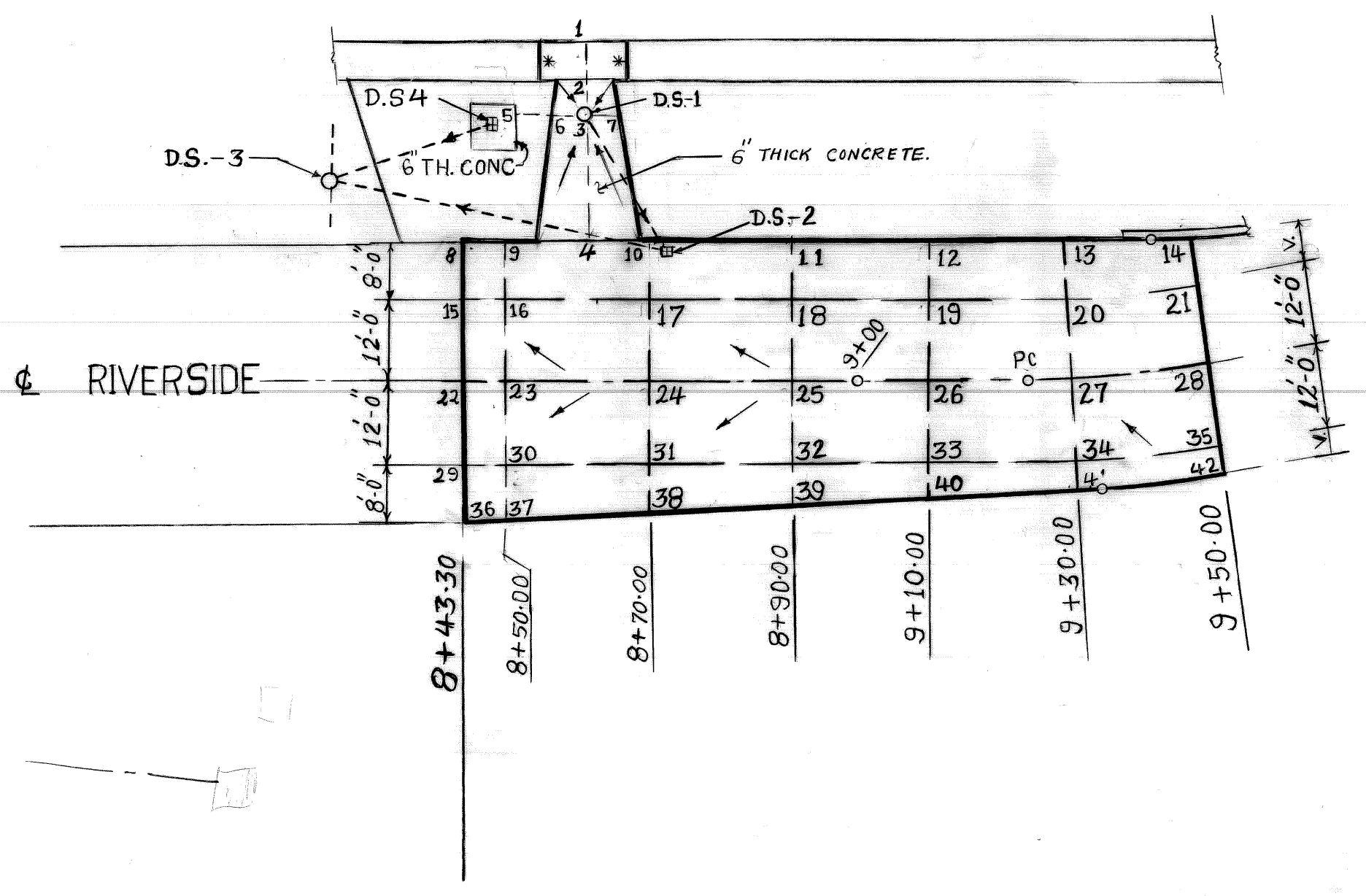
SHEET 5 OF 20



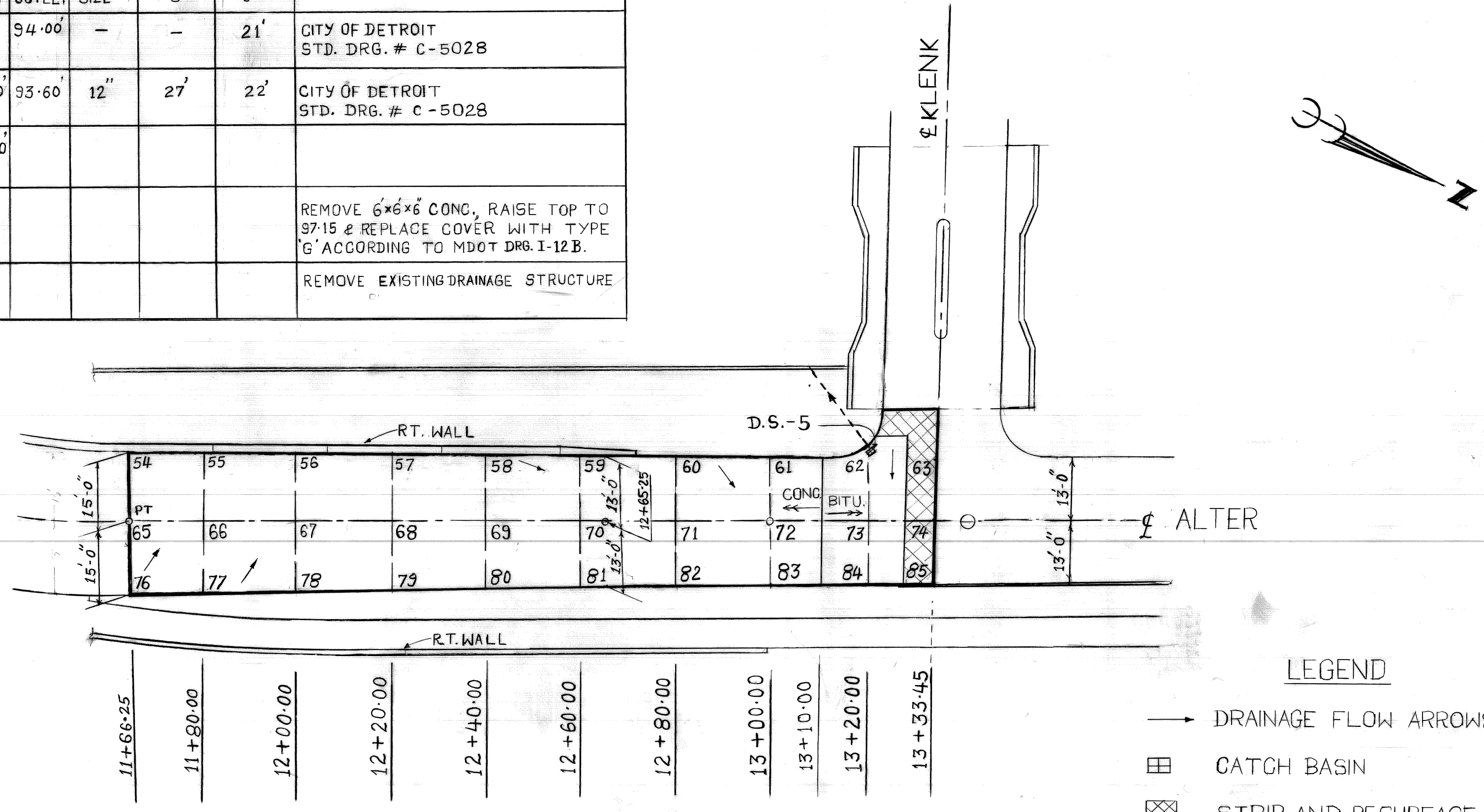




DRAINAGE STRUCTURE NO.	TYPE OF STRUCTURE	WITH TRAP	SEWER LENGTH AND TYPE LEAVING D.S.			SEWER INVERT LEVEL		TRENCH DETAIL		REMARK
			LENGTH	SIZE	CLASS	INLET	OUTLET	MDOT STD. IV-64D	8	
D.S.-1	C.B. "A"		21'	12"	C-76 III	-	94.00	-	21'	CITY OF DETROIT STD. DRG. # C-5028
D.S.-2	C.B. "B"	T	45'	12"	C-76 III	93.80	93.60	12"	27'	CITY OF DETROIT STD. DRG. # C-5028
D.S.-3	EXISTING M.H.					93.40				
D.S.-4	EXISTING C.B.									REMOVE 6'x6' CONG. RAISE TOP TO 97.15 & REPLACE COVER WITH TYPE 'G' ACCORDING TO MDOT DRG. I-12B.
D.S.-5	EXISTING C.B.									REMOVE EXISTING DRAINAGE STRUCTURE

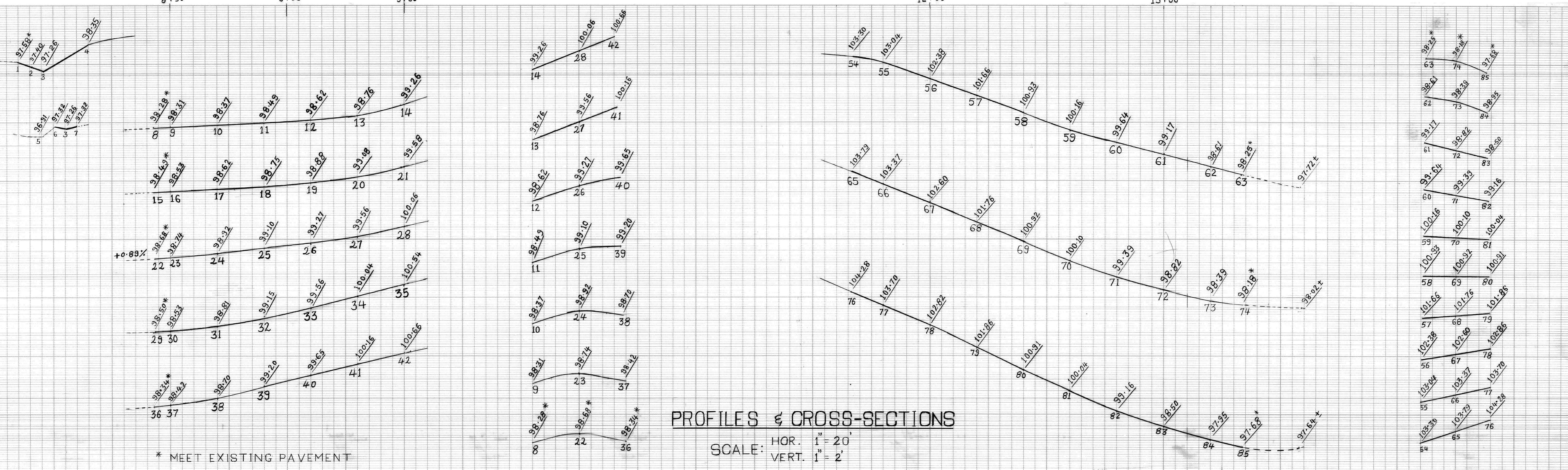


PLAN SCALE: 1" = 20'



**LEGEND**

- DRAINAGE FLOW ARROWS
- ▣ CATCH BASIN
- ▨ STRIP AND RESURFACE STRIPPING SHALL BE INCIDENTAL TO BIT. MIX. 1500 L



PROFILES & CROSS-SECTIONS SCALE: HOR. 1" = 20' VERT. 1" = 2'

PLAN GRADE ESTIMATE		BY S. PATEL	CHECKED BY  	APPROVED:  	CITY OF DETROIT CITY ENGINEERING DEPARTMENT BUREAUS OF STREETS AND HIGHWAYS	DETAILED GRADES RIVERSIDE AVENUE AT FOX CREEK RECONSTRUCTION	INDEX NO. SHEET ____ OF ____ SHEETS
DESCRIPTION REVISIONS		DRN CK D AP VJ DATE	FINAL CHECK REVIEW	ENGINEER OF STREETS HIGHWAY ENGINEER	JOB NO. 30288A	CONTRACT NO. ASSIGNMENT NO. C-2	DATE NOV. 89



