

# STATE OF MICHIGAN DEPARTMENT OF STATE HIGHWAYS

## PLANS OF PROPOSED BRIDGES

### MICHIGAN PROJECT I-96-4 (6I) 233 STATE PROJECT BI 82124-001 JEFFRIES FREEWAY

WAYNE COUNTY  
CITY OF DETROIT

#### GENERAL NOTES

Except where otherwise indicated on these Plans or in the Proposal and Supplemental Specifications contained therein, all materials and workmanship shall be in accordance with the Michigan Department of State Highways' Standard Specifications for Road and Bridge Construction, 1967 Edition.

The design of these structures 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, HS20 loading.

Live load plus impact deflection =  $1/1000$  of span length and  $1/350$  of cantilever arm.

See Railroad Bridge drawings for additional design specifications.

The character of all materials and the extent thereof as shown by borings has been obtained by methods and from sources believed to be reliable. The exactness of this information is, however, in no case guaranteed. Boring samples are on file in the Design Office at Lansing and are available for inspection.

All exposed concrete corners shown square on the Plans shall be beveled with  $1/2''$  triangular moldings except as otherwise noted.

The stationing as shown on these Plans for the intersection of the centerline of bridge and roadway centerline is believed to be correct. It shall, however, be checked at the time of starting construction and if the stationing shown on the plans is incorrect it shall be reported to the Design Office at Lansing and the structure shall be staked out using the actual intersection of the centerline of bridge and roadway centerline as the control point.

The contractor shall contact all Utility Companies regarding their facilities prior to starting work.

The following items shown in these plans are to be constructed with the road work: Bridge approach curb and gutter, catch basins, inlets, culverts, sewers, C.M.P. Temporary detours, Earth excavation and any other items not listed in the bill of materials.

The existing structures shall be checked at the time of starting construction to see that its relationship to the proposed work is as shown on these plans and any differences requiring changes in the new work shall be reported to the Design Office.

The grades and stresses of the structural materials used in these structures are as follows:

- Concrete: Grade A  $f'_c = 3,000$  psi.
  - Steel Reinforcement; Intermediate or Hard Grade  $f_s = 20,000$  psi.
  - Structural Steel: A36  $f_s = 20,000$  psi.
  - Structural Steel: A242 and A441  $f_s = 27,000$  psi, max\*
- \*and as modified by design specifications

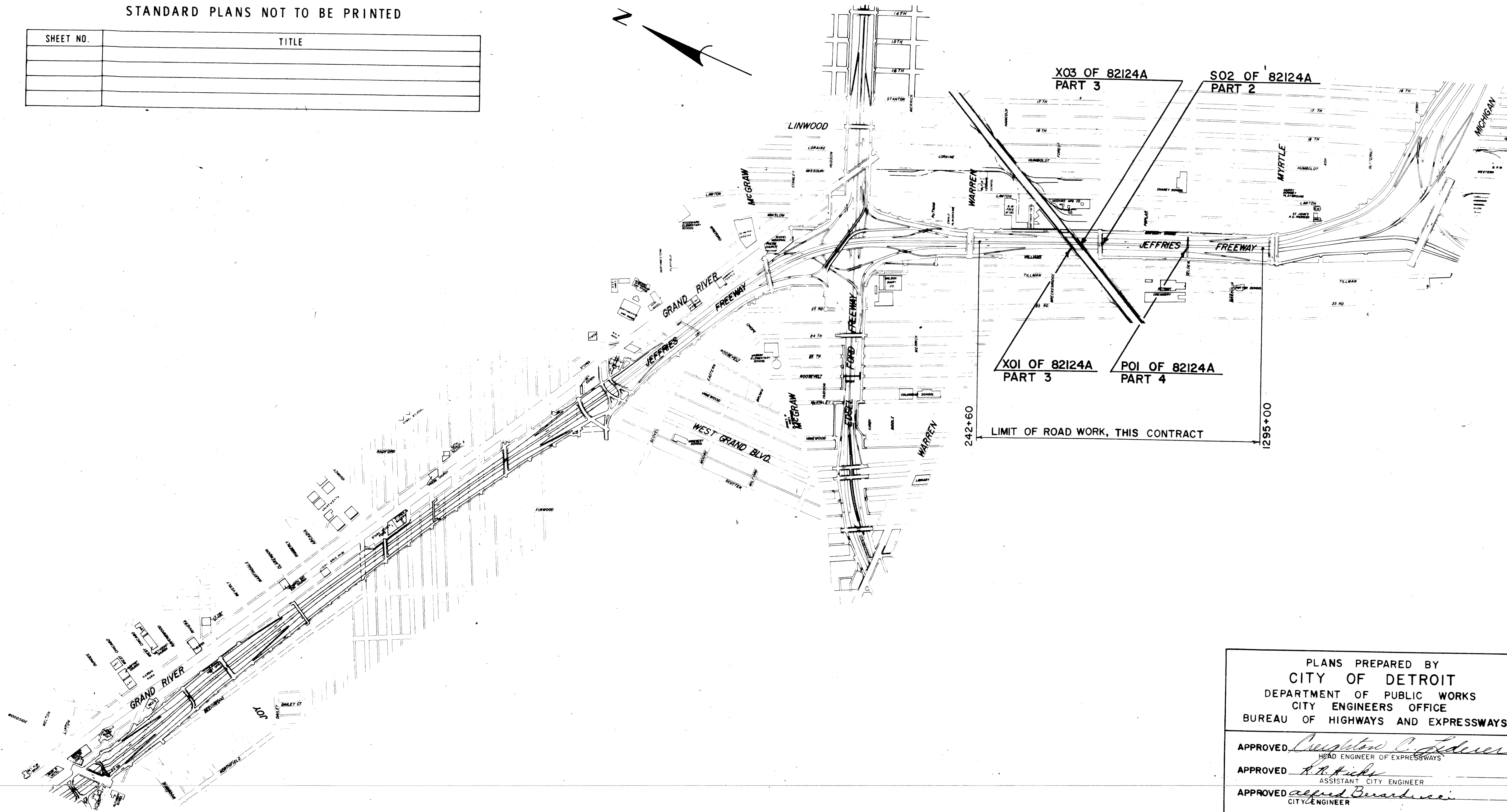
NOTE:  
Where the following items are called for on the Plans, they are to be constructed according to the Standard Plan given below opposite each item, unless otherwise indicated.

#### STANDARD PLANS TO BE PRINTED

SHEET NO.	TITLE
DR II & DR I2	Bridge Railing, Drain Casting, Bar Chair, Molding and Bevel Details
SP2	Standard Slope Paving Details

#### STANDARD PLANS NOT TO BE PRINTED

SHEET NO.	TITLE



#### CONTROL SECTION

CONTRACT FOR:	
SELDEN AVE. PEDESTRIAN BRIDGE	POI
BUCHANAN ST. VEHICULAR BRIDGE	SO2
G.T.W.R.R. RAILROAD BRIDGE	XO1
N.Y.C.R.R. RAILROAD BRIDGE	XO3

#### DIVISION APPROVAL

CHECKED	ENGINEER OF DESIGN	DATE
RECOMMENDED FOR APPROVAL	TRAFFIC ENGINEER	DATE
RECOMMENDED FOR APPROVAL	ENGINEER OF BRIDGE AND ROAD DESIGN	DATE

#### OFFICES OF DESIGN & CONSTRUCTION

APPROVED	CONSTRUCTION ENGINEER	DATE
APPROVED	CHIEF OF DESIGN AND TRAFFIC	DATE

#### DEPARTMENT OF STATE HIGHWAYS

HENDRIK E. STAFSETH - ACTING STATE HIGHWAY DIRECTOR

APPROVED BY	DEPUTY DIRECTOR OF ENGINEERING	DATE
-------------	--------------------------------	------

PLANS PREPARED BY  
CITY OF DETROIT  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS' OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED *[Signature]*  
HEAD ENGINEER OF EXPRESSWAYS

APPROVED *[Signature]*  
ASSISTANT CITY ENGINEER

APPROVED *[Signature]*  
CITY ENGINEER

PLANS PREPARED BY  
CITY OF DETROIT

DEPARTMENT OF PUBLIC WORKS

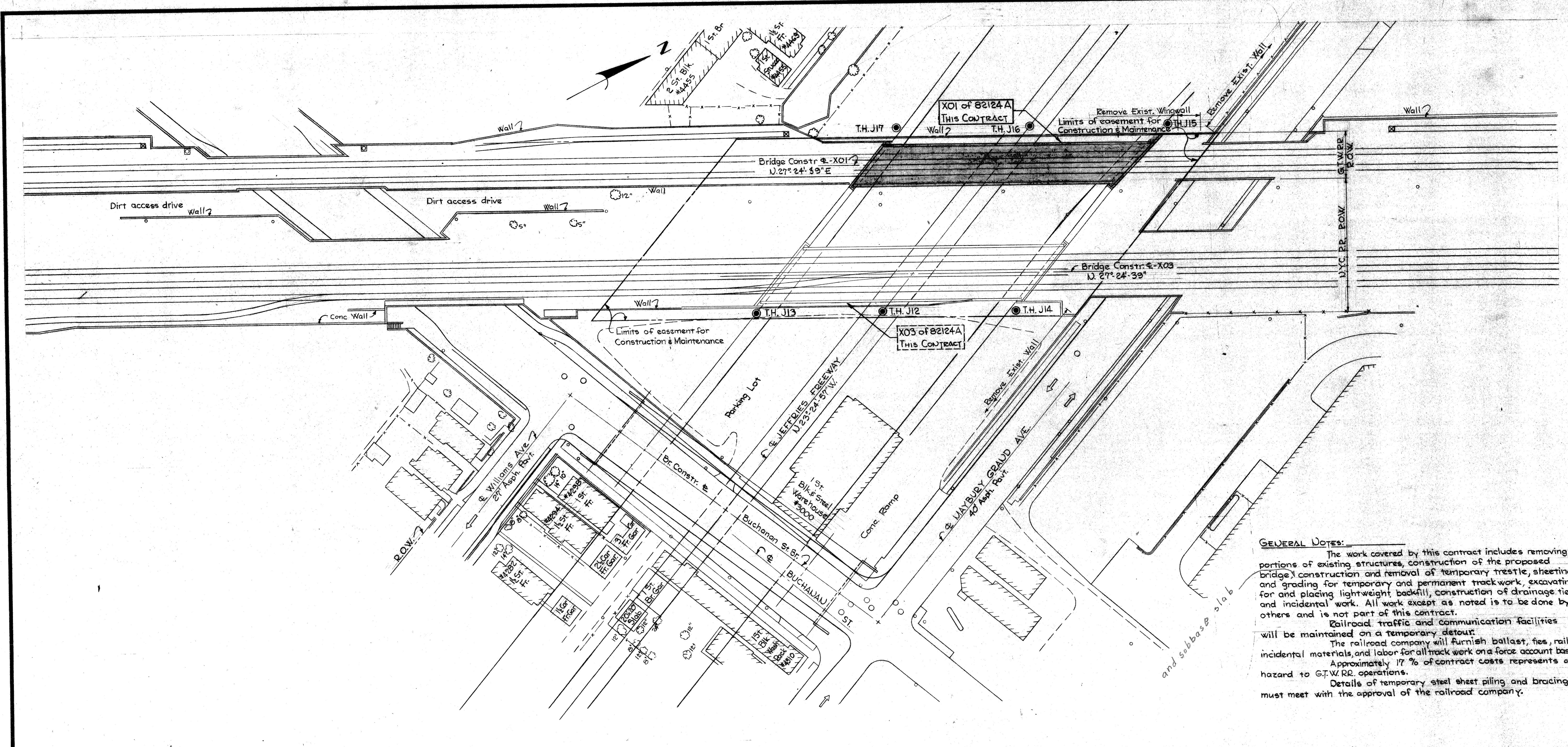
DEPARTMENT OF COMMERCE  
BUREAU OF PUBLIC ROADS

APPROVED  
FOR THE DIVISION ENGINEER

STATE PROJECT NO.	FEDERAL PROJECT NO.	SHEET NO.
BI 82124-001	I-96-4 ( )	1

STATE PROJECT NO. 82124-001





**GENERAL NOTES:**

The work covered by this contract includes removing portions of existing structures, construction of the proposed bridge, construction and removal of temporary trestle, sheeting and grading for temporary and permanent trackwork, excavating for and placing lightweight backfill, construction of drainage ties and incidental work. All work except as noted is to be done by others and is not part of this contract.

Railroad traffic and communication facilities will be maintained on a temporary detour. The railroad company will furnish ballast, ties, rails, incidental materials, and labor for all track work on a force account basis. Approximately 17% of contract costs represents a hazard to G.T.W. RR. operations. Details of temporary steel sheet piling and bracing must meet with the approval of the railroad company.

LETTING DATE - OCT. 67

PRELIMINARY PLAN A - DATED JULY 14, 1966

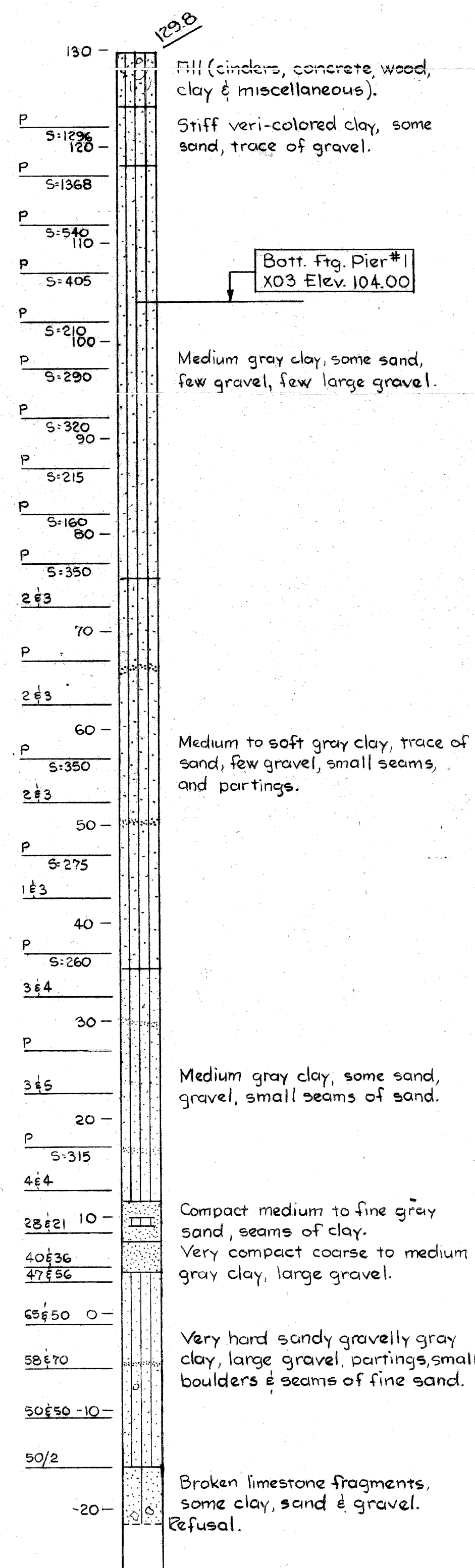
SURVEY PLAN  
Scale: 1"=40'-0"

PLANS PREPARED BY <b>CITY OF DETROIT</b> DEPARTMENT OF PUBLIC WORKS CITY ENGINEERS OFFICE BUREAU OF HIGHWAYS AND EXPRESSWAYS		<b>MICHIGAN STATE HIGHWAY DEPARTMENT</b> GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION CROSSING THE JEFFRIES FREEWAY IN DETROIT	
APPROVED _____ STRUCTURAL ENGINEER	JOB No. PW 990(1)	<b>GENERAL PLAN OF SITE</b>	
REVISIONS NO. DESCRIPTION DATE BY		APPROVED _____ DESIGN SUPERVISING ENGINEER	APPROVED _____ ENGINEER OF DESIGN - CONSULTANTS
		CITY OF DETROIT DRAWN BY: <i>SYREN</i> 6-66 CHECKED BY: <i>W.A.L.</i> Jun '66 SHEET 1 OF 7 <b>X01 of 82124A</b>	

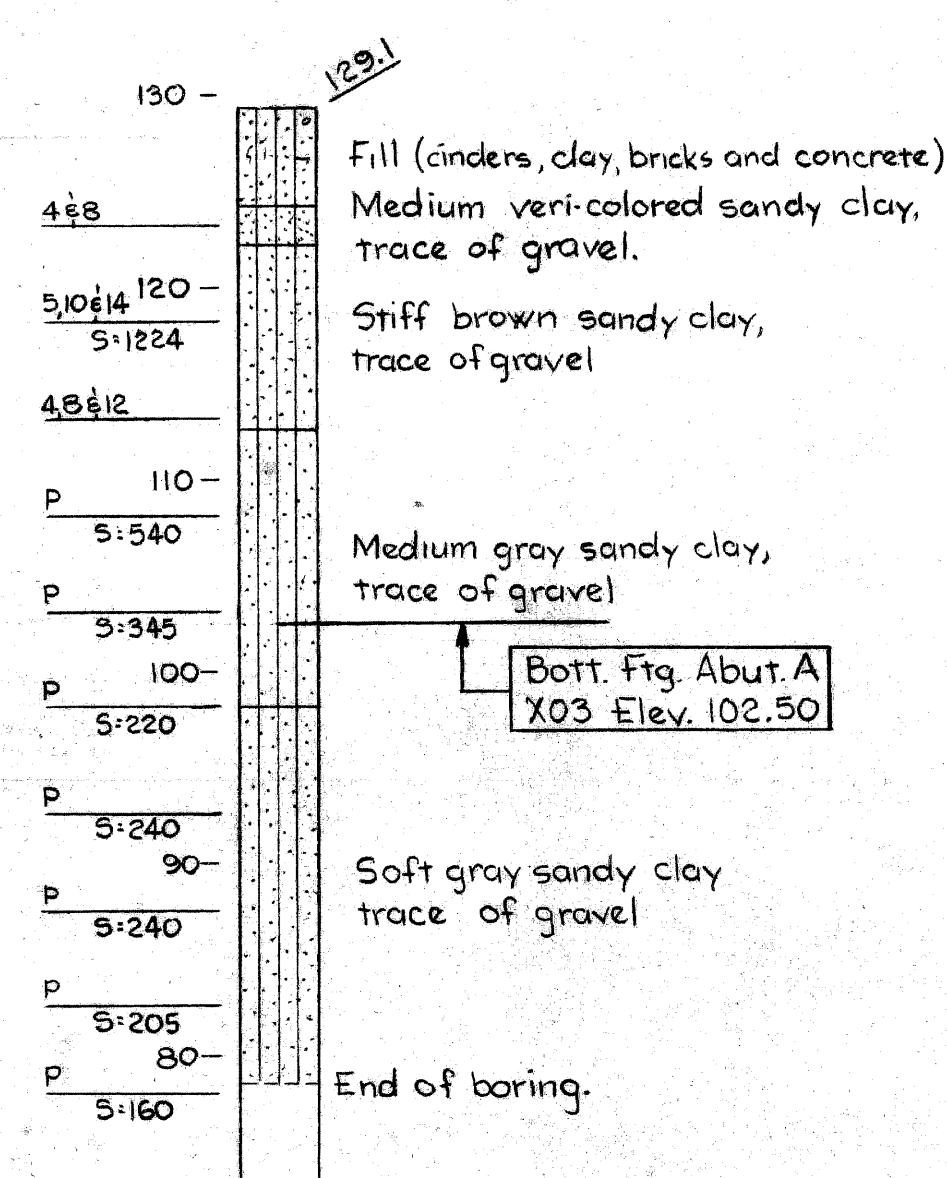


**LOG OF SOIL BORINGS**

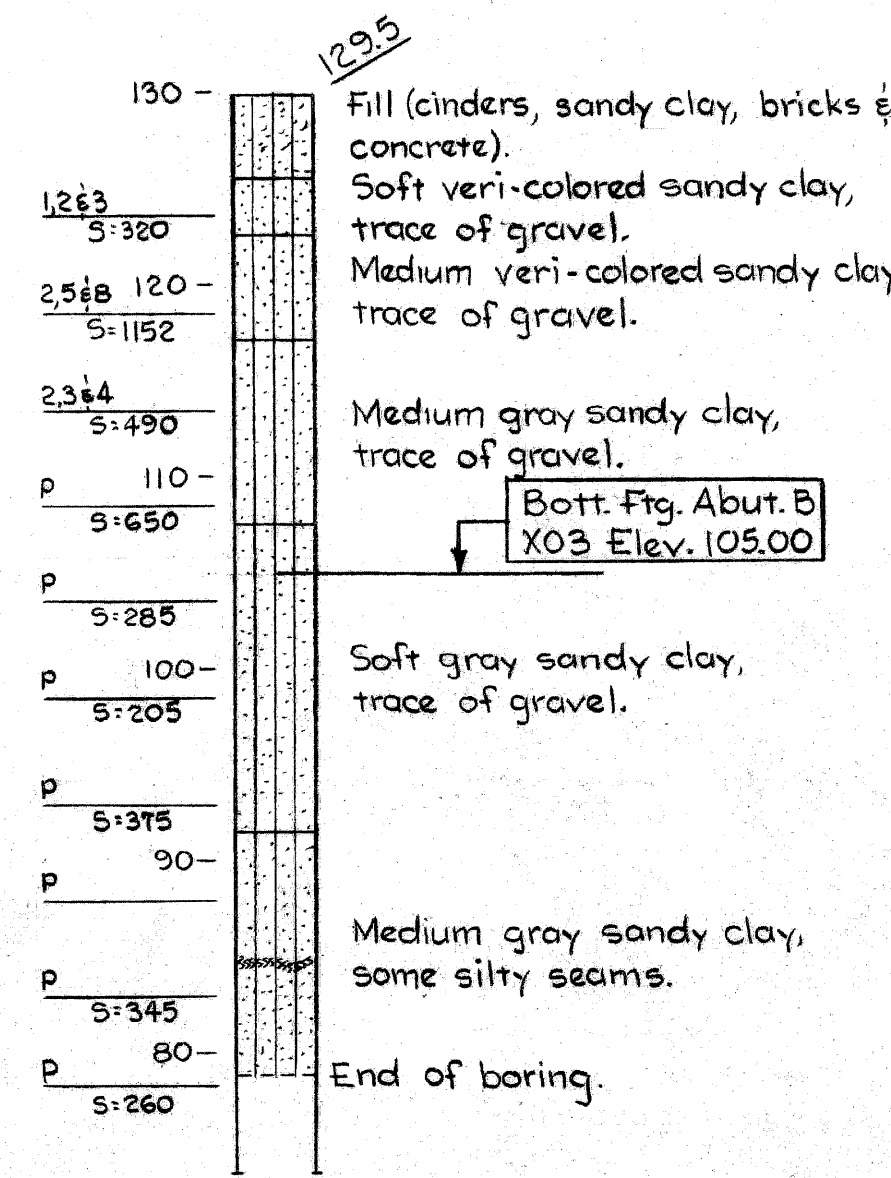
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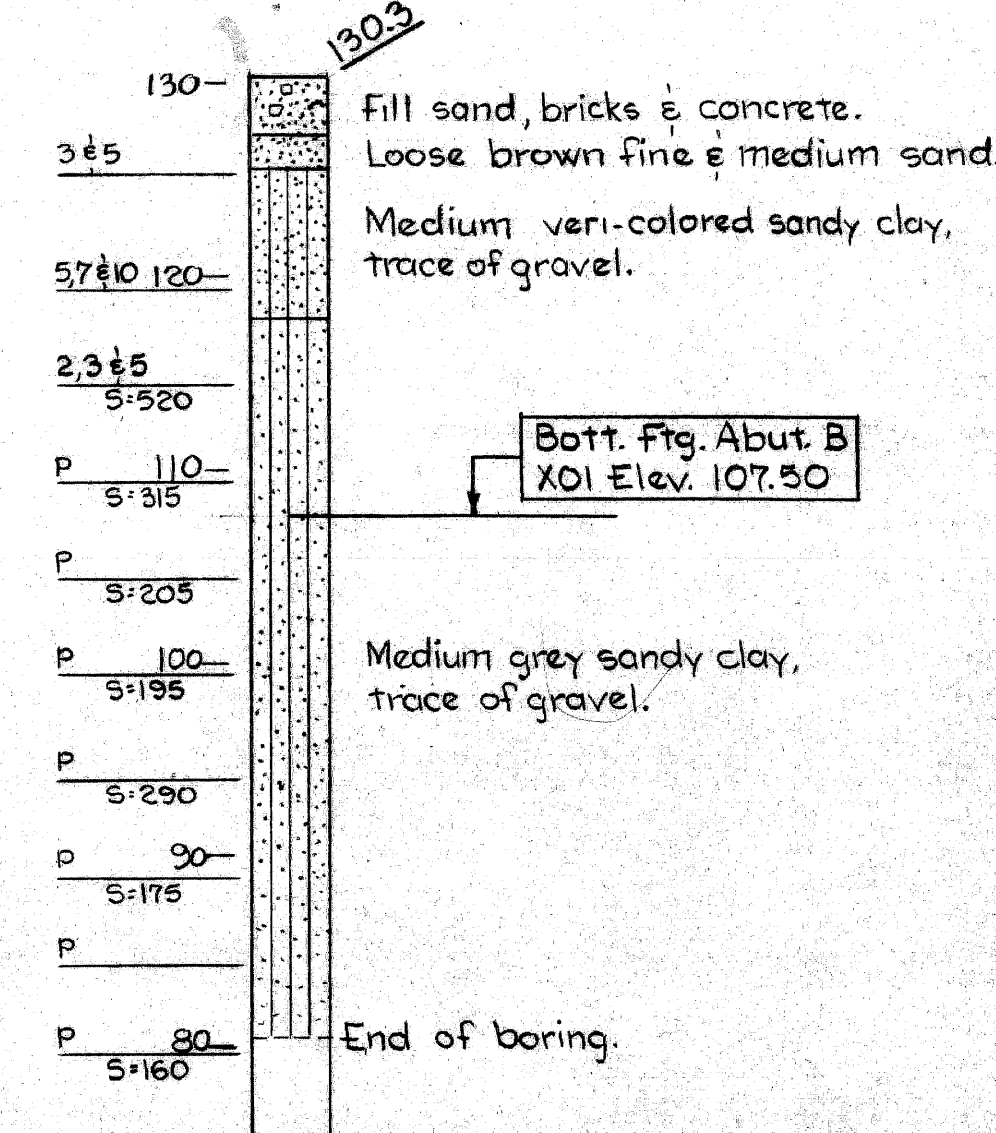
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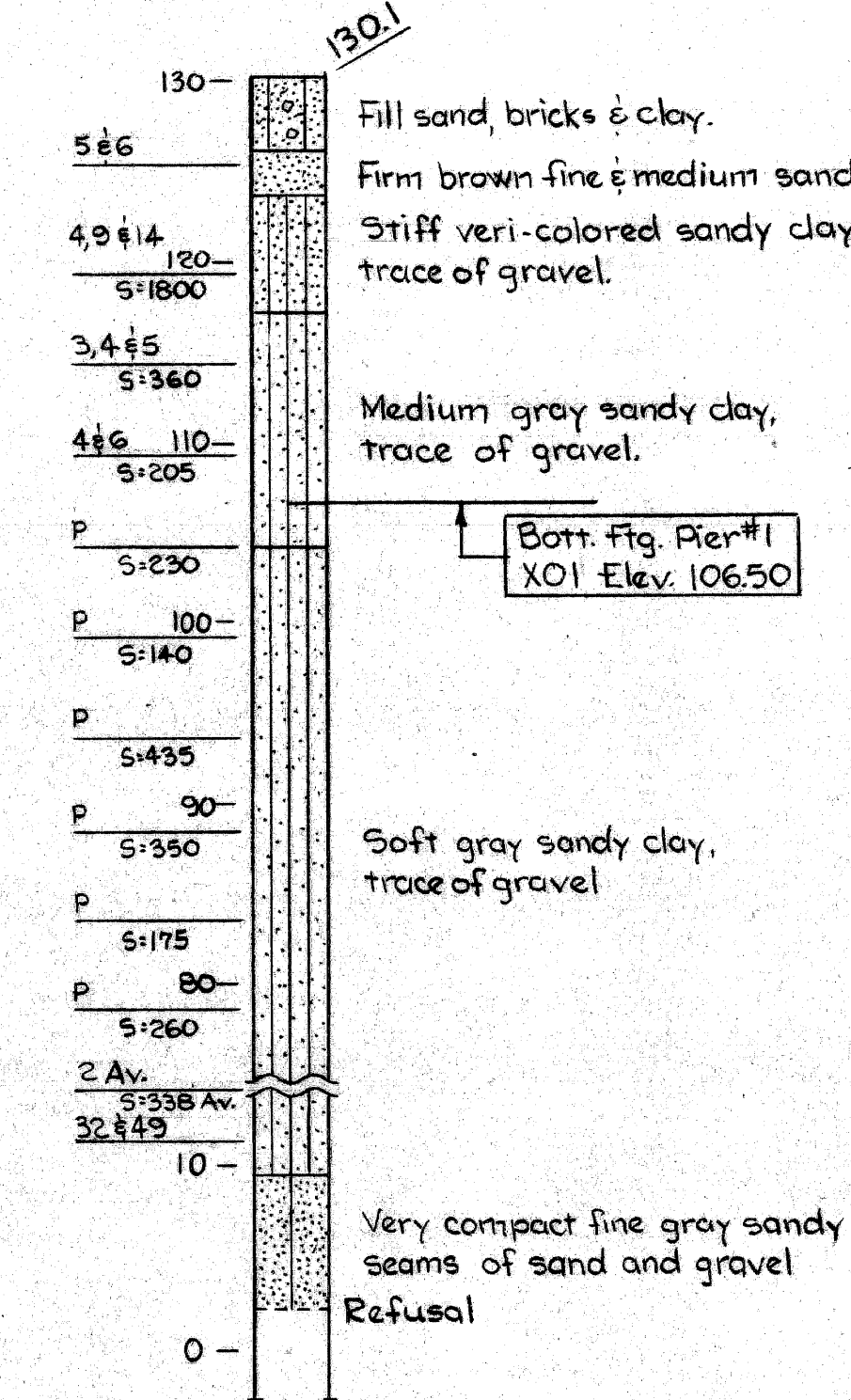
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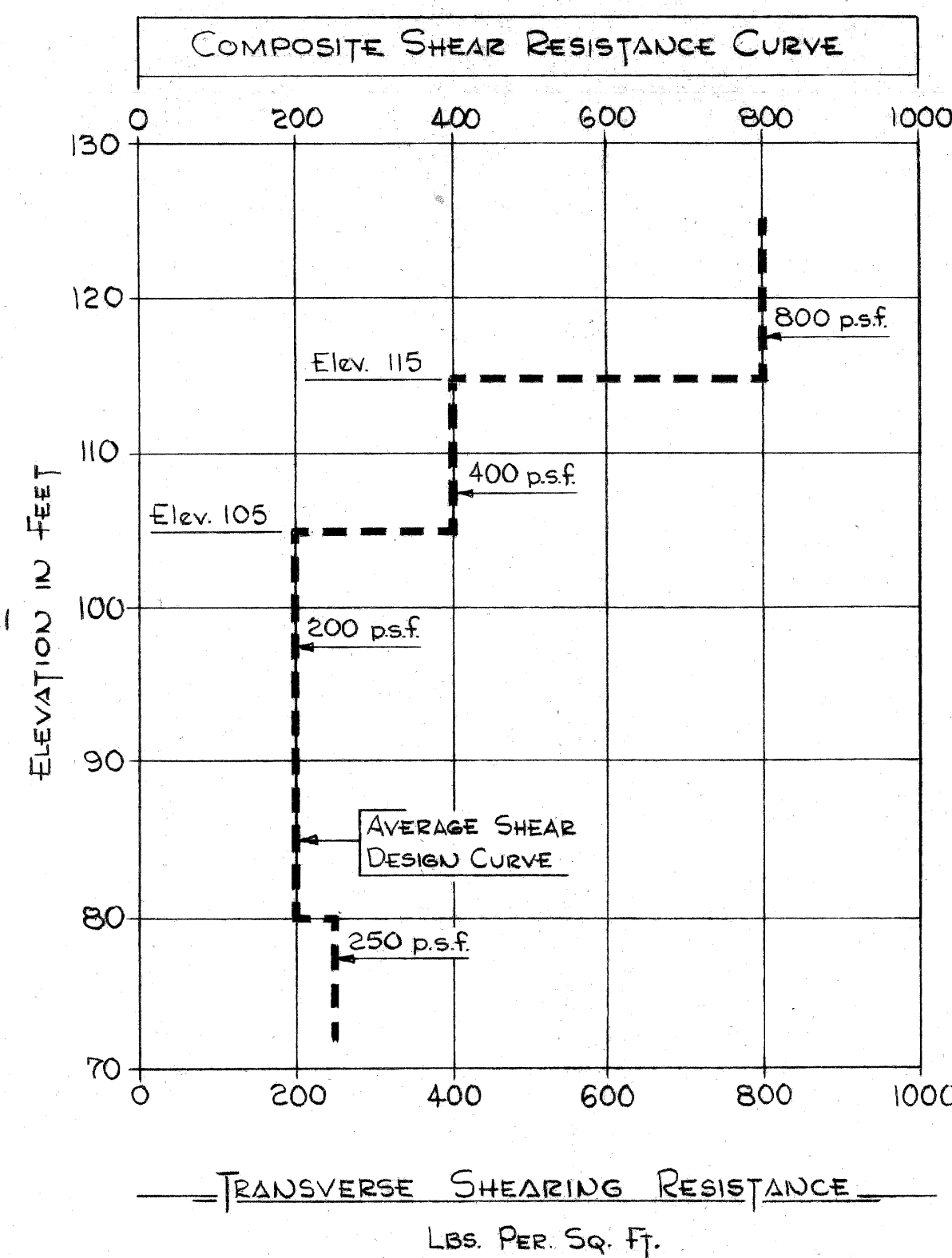
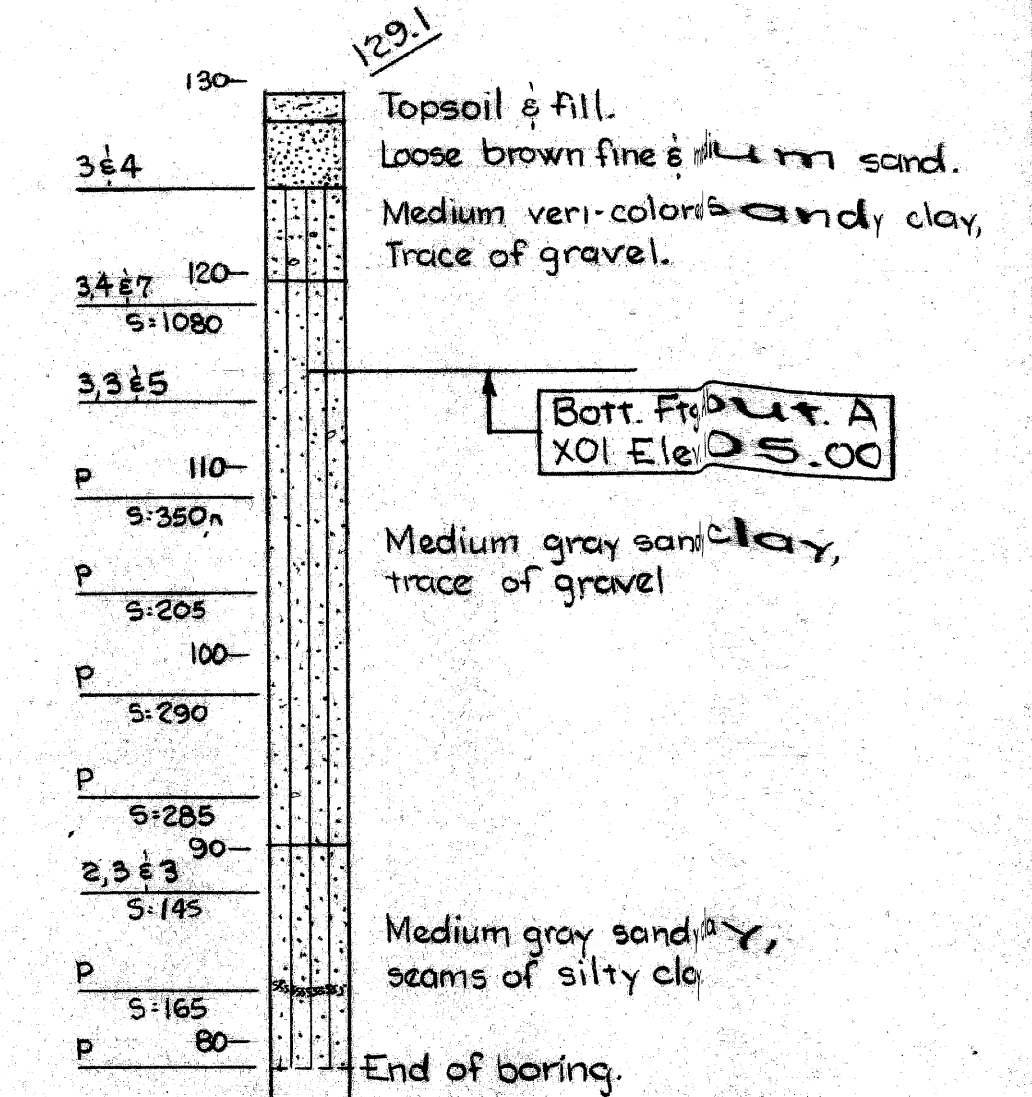
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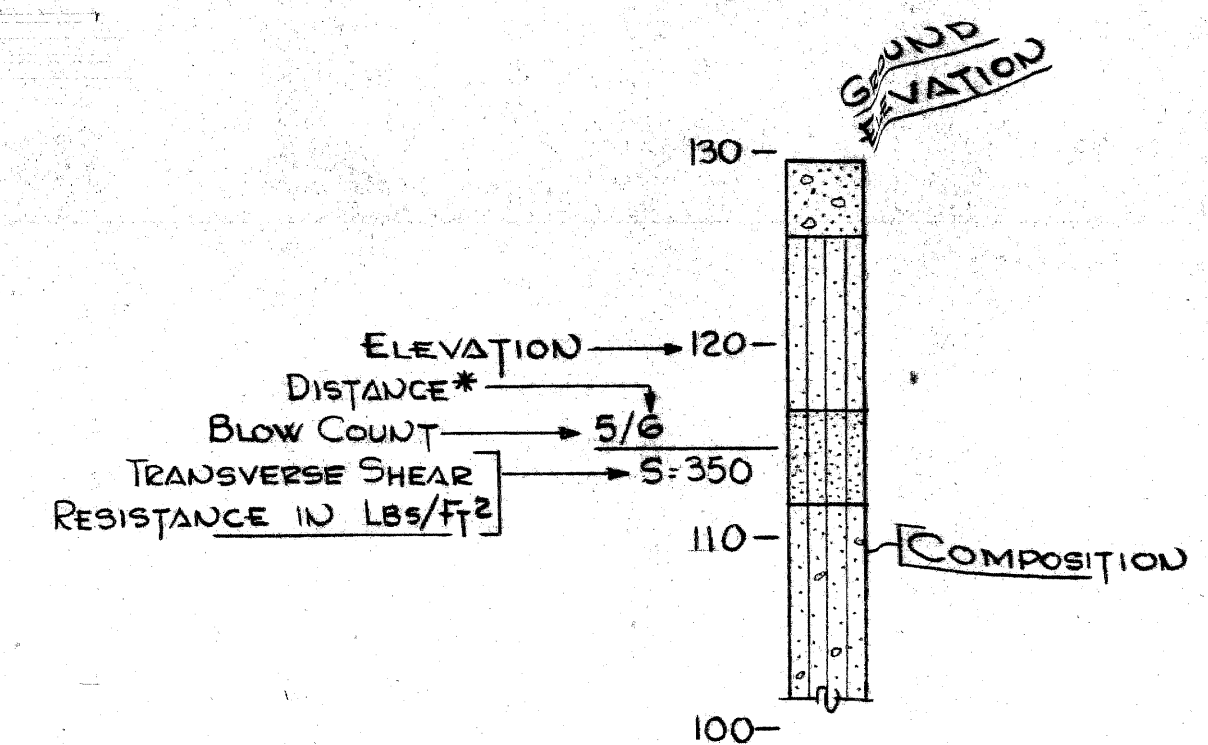
**T.H. J-16**



**T.H. J-17**



**LEGEND**

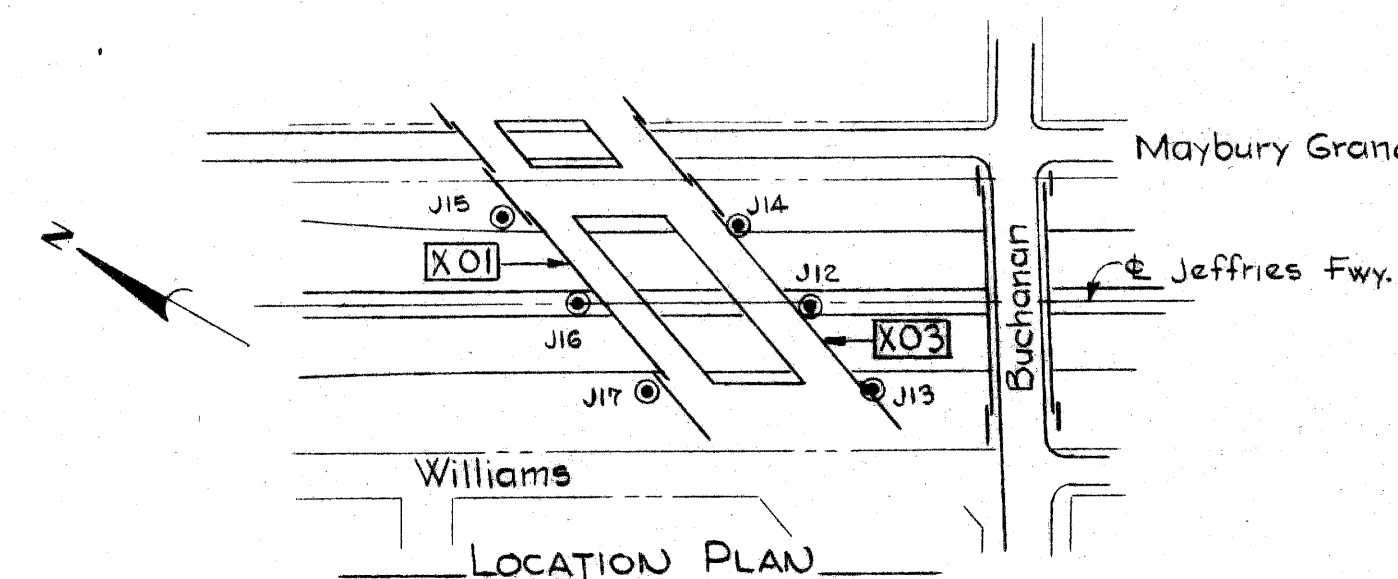


**NOTES:**

- Blow Count - Indicates number of blows required to drive a sampler 6" using a 140# hammer falling 30".
- P - Indicates sampler was pushed.
- S - Indicates Transverse Shearing Resistance in Lbs/sq.ft. as determined by M.S.H.D. Standard Test.

PRELIMINARY PLAN A - DATED JULY 14, 1966

\* 6" If omitted, otherwise as noted.



PLANS PREPARED BY  
**CITY OF DETROIT**  
 DEPARTMENT OF PUBLIC WORKS  
 CITY ENGINEERS OFFICE  
 BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED \_\_\_\_\_  
 STRUCTURAL ENGINEER

JOB No.  
 PW 990(1)

NO.	DESCRIPTION	DATE	BY

**MICHIGAN DEPARTMENT OF STATE HIGHWAYS**  
 GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
 CROSSING THE JEFFRIES FREEWAY IN DETROIT

**LOG OF SOIL BORINGS**

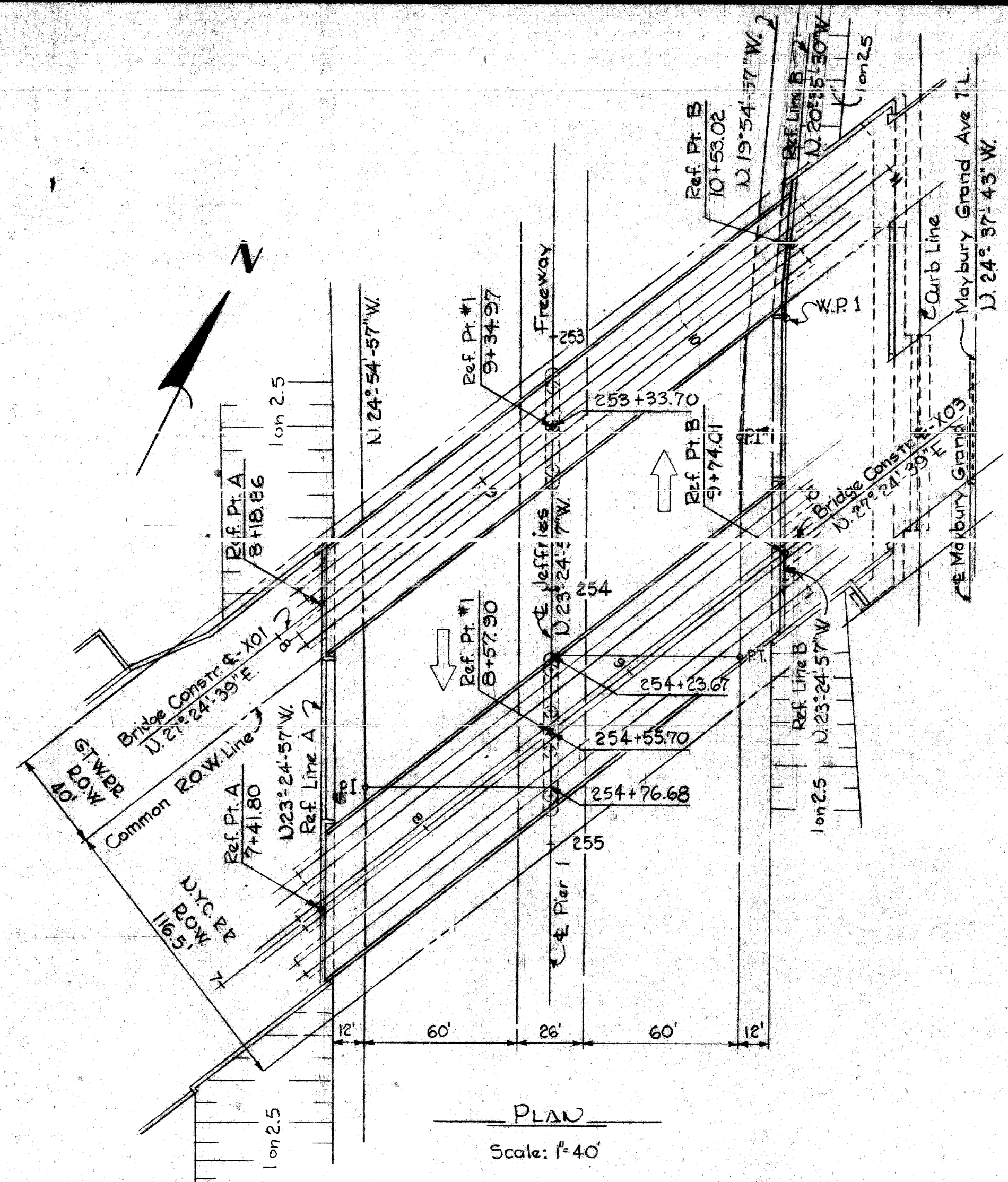
APPROVED \_\_\_\_\_  
 DESIGN SUPERVISING ENGINEER

APPROVED \_\_\_\_\_  
 ENGINEER OF DESIGN-CONSULTANTS

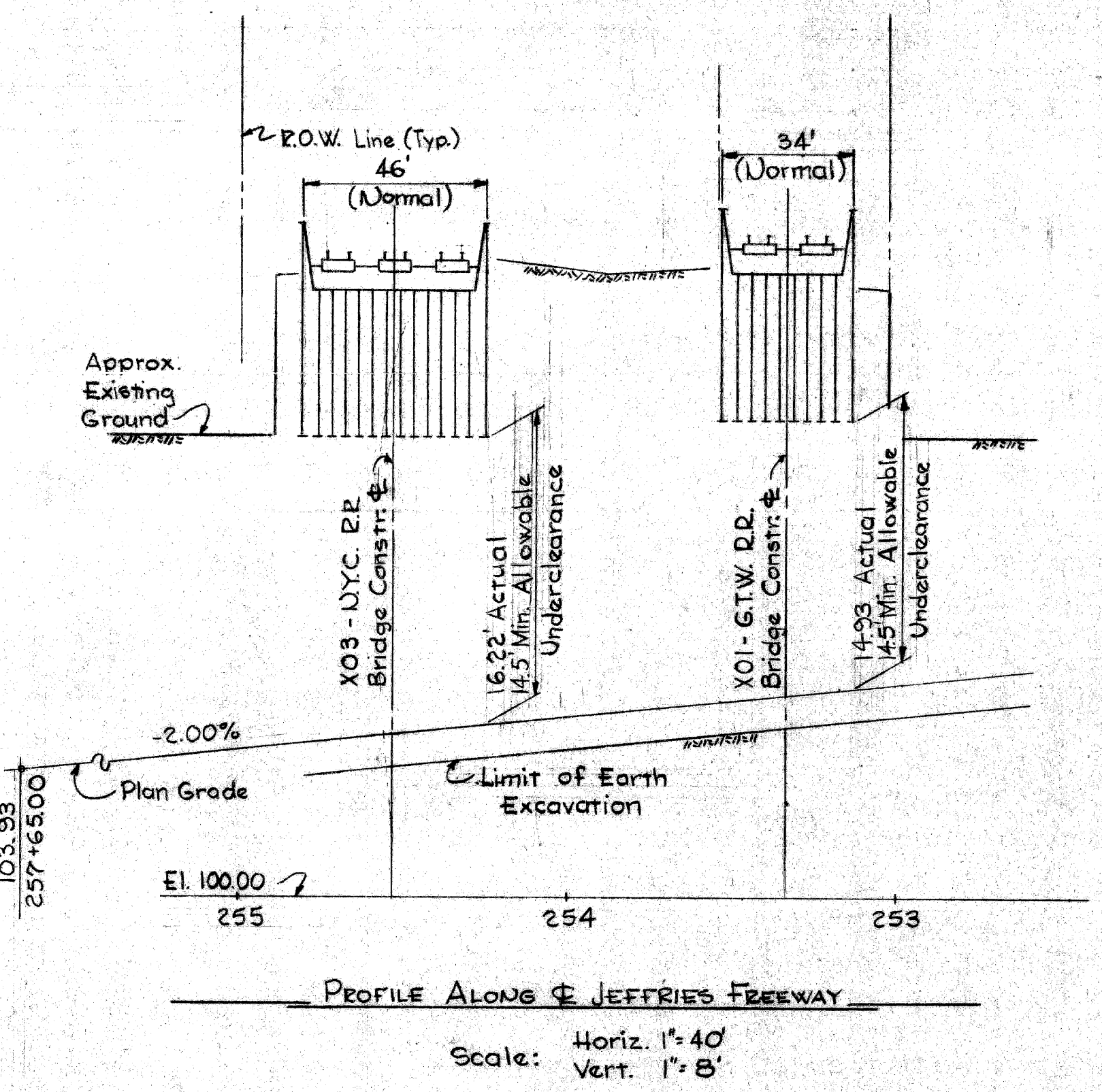
CITY OF DETROIT		
SQUAD RESPONSIBLE	STEVEN	6/66
DRAWN BY	ALLEN GREEN	4/66
TRACED BY		
CHECKED BY	W.A.L.	Jun. 1966
DATE	2	7

X01 of 82124A





**Curve #1 Data**  
 $\Delta = 03^{\circ}30'00''$   
 $D = 02^{\circ}00'00''$   
 $R = 2864.79'$   
 $T = 87.53'$   
 $L = 175.00'$   
 $E = 1.34'$   
 $P.C. = 252+48.67$   
 $P.T. = 253+36.20$   
 $P.T. = 254+23.67$



**GENERAL NOTES:**

The stationing as shown on these plans for the intersection of the Bridge Construction & the & of the Jeffries Freeway is believed to be correct. It shall however, be checked at the time of starting construction and if the stationing shown on the plans is incorrect, it shall be reported to the Design Office at Lansing and the structure shall be staked out using the actual intersection of the Bridge Construction & the & the Jeffries Freeway as the control.

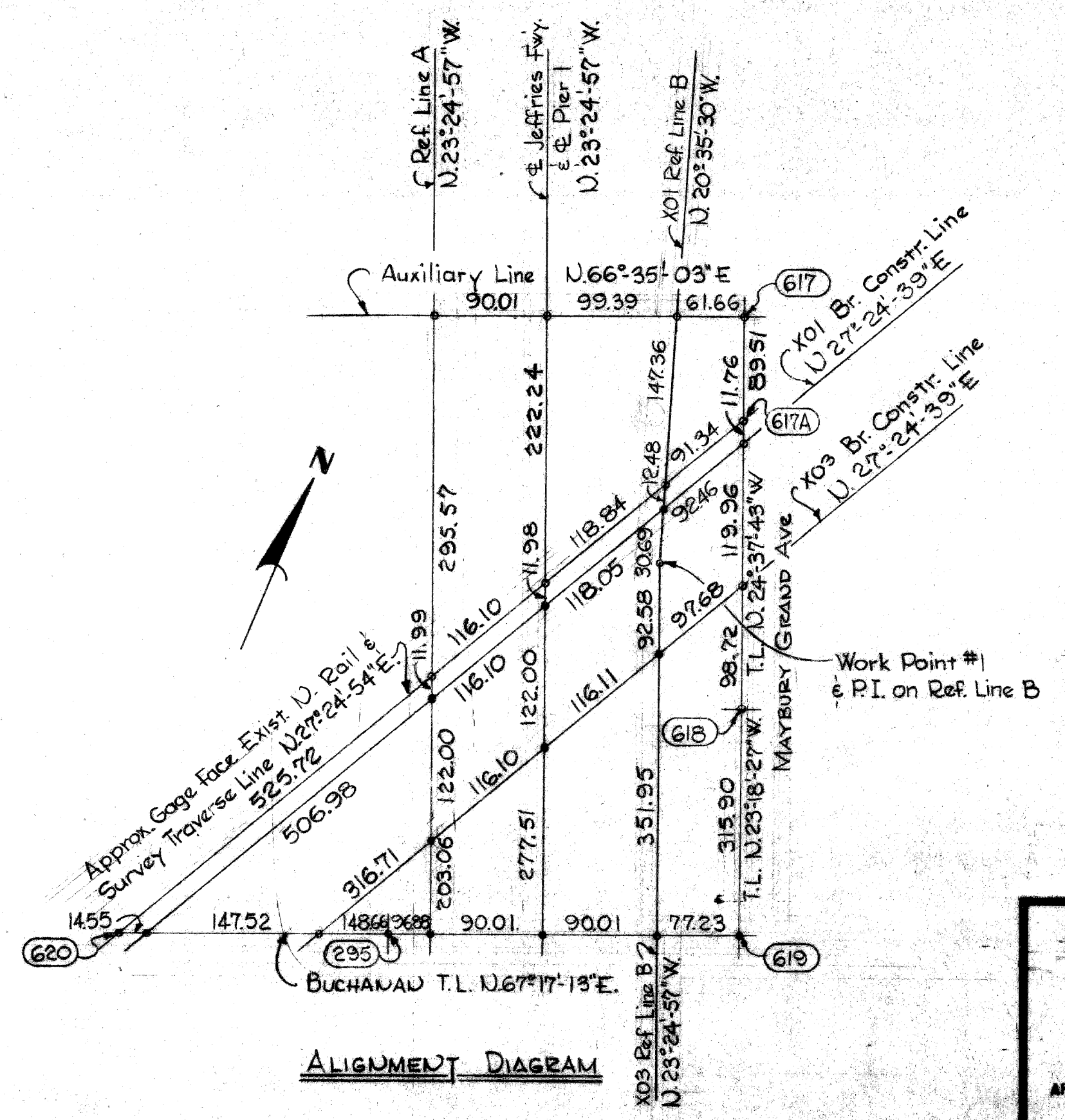
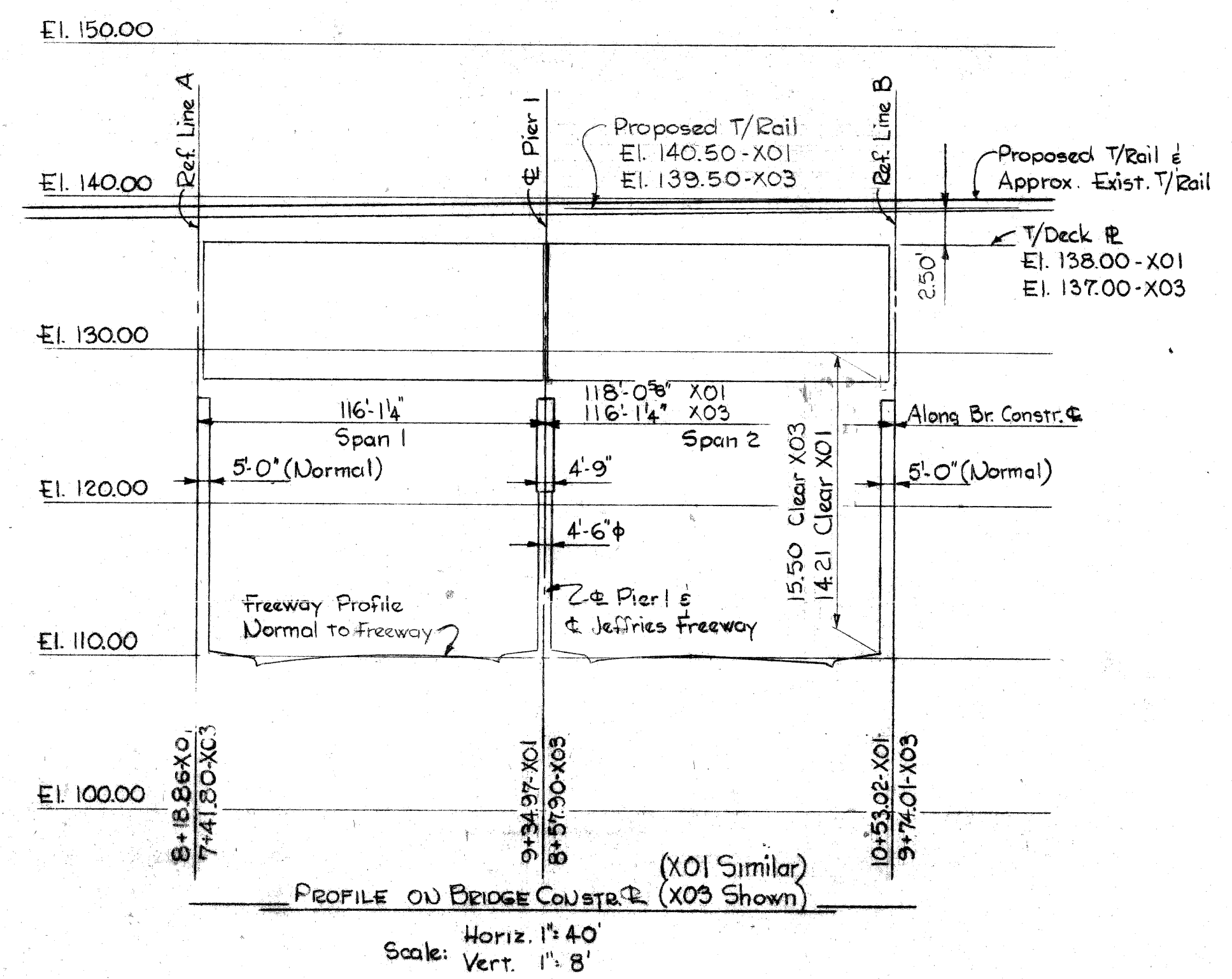
Elevations are referred to City of Detroit datum, which is 479.755 Ft. above sea level.

**RAILROAD TRAFFIC DATA**

G.T.W.R.R. - 20 Freight movements per day at a maximum speed of 30 m.p.h.

N.Y.C.R.R. - 48 Freight movements per day at a maximum speed of 40 m.p.h.

The information concerning the movements of trains and speeds thereof does not represent any commitment on the part of the railroad to continue them unchanged, inasmuch as they are subject to change without notice.



**CONSTRUCTION BENCH MARKS**

- P.B.M. 20-252A Elev. 129.12 C of D Monument N.E. corner of Hancock and Tillman.
- P.B.M. 20-253A Elev. 121.78 C of D Monument N.E. corner of Selden and Tillman.
- C.B.M. 15 Elev. 127.68 Arrow on hydrant N.E. corner Poplar and Maybury Grand.
- C.B.M. 16 Elev. 124.71 Arrow on hydrant S.W. corner Buchanan and Williams.
- C.B.M. 17 Elev. 130.29 Arrow on hydrant S.E. corner Breckenridge and Williams.
- C.B.M. 18 Elev. 129.26 Arrow on hydrant E. side of Maybury Grand 430' S. of Hancock.

PRELIMINARY PLAN A - DATED JULY 14, 1966

PLANS PREPARED BY  
**CITY OF DETROIT**  
 DEPARTMENT OF PUBLIC WORKS  
 CITY ENGINEERS OFFICE  
 BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: \_\_\_\_\_  
 STRUCTURAL ENGINEER

JOB No.  
 PW 990(1)

NO.	DESCRIPTION	DATE	BY

**MICHIGAN STATE HIGHWAY DEPARTMENT**  
 GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
 CROSSING THE JEFFRIES FREEWAY IN DETROIT

**GENERAL DRAWING**

CITY OF DETROIT  
 SQUAD ROOM: Steven EGG  
 DRAWN BY: ALLEN BERN  
 TRACED BY: W.A.L.  
 CHECKED BY: W.A.L. Jun 66  
 SHEET 3 OF 7

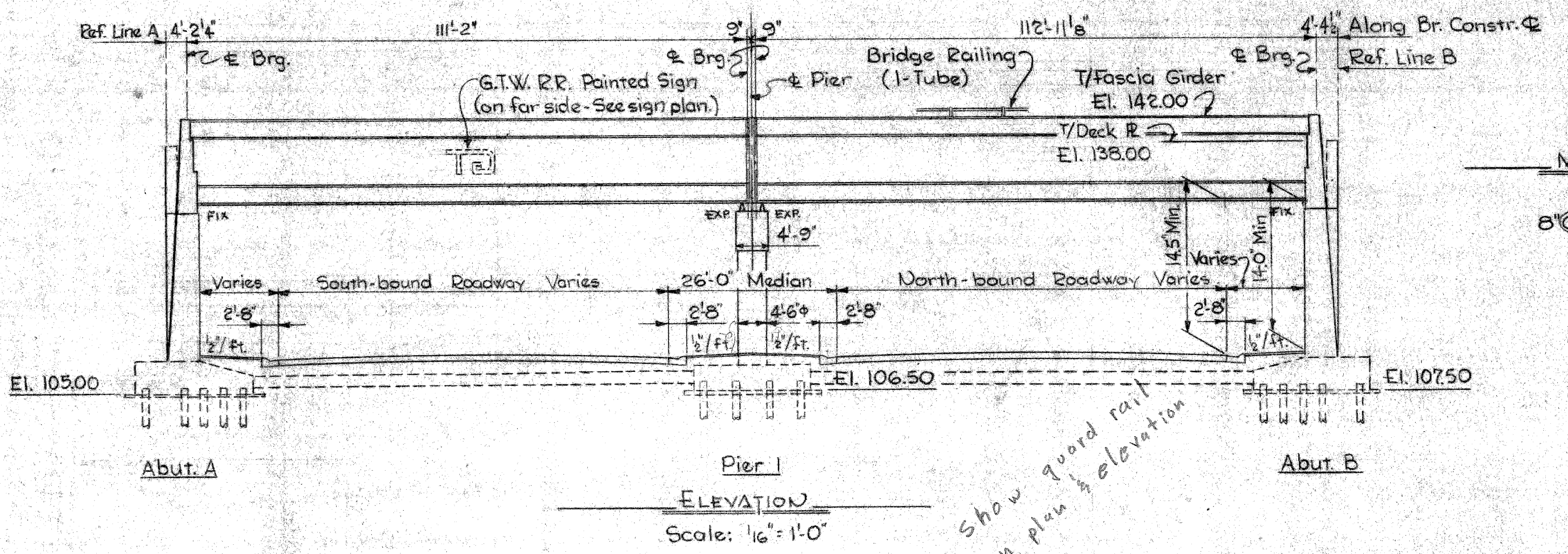
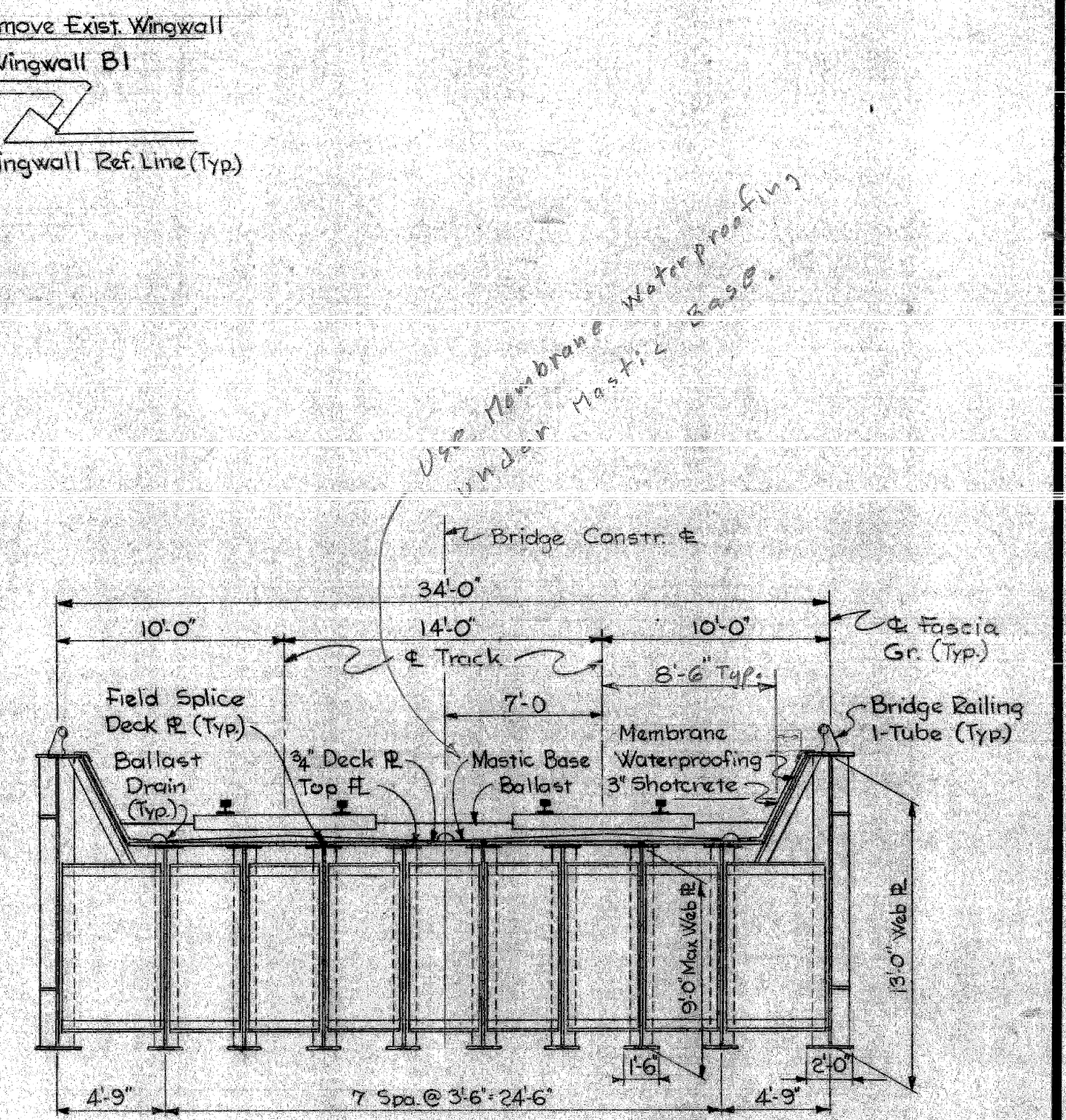
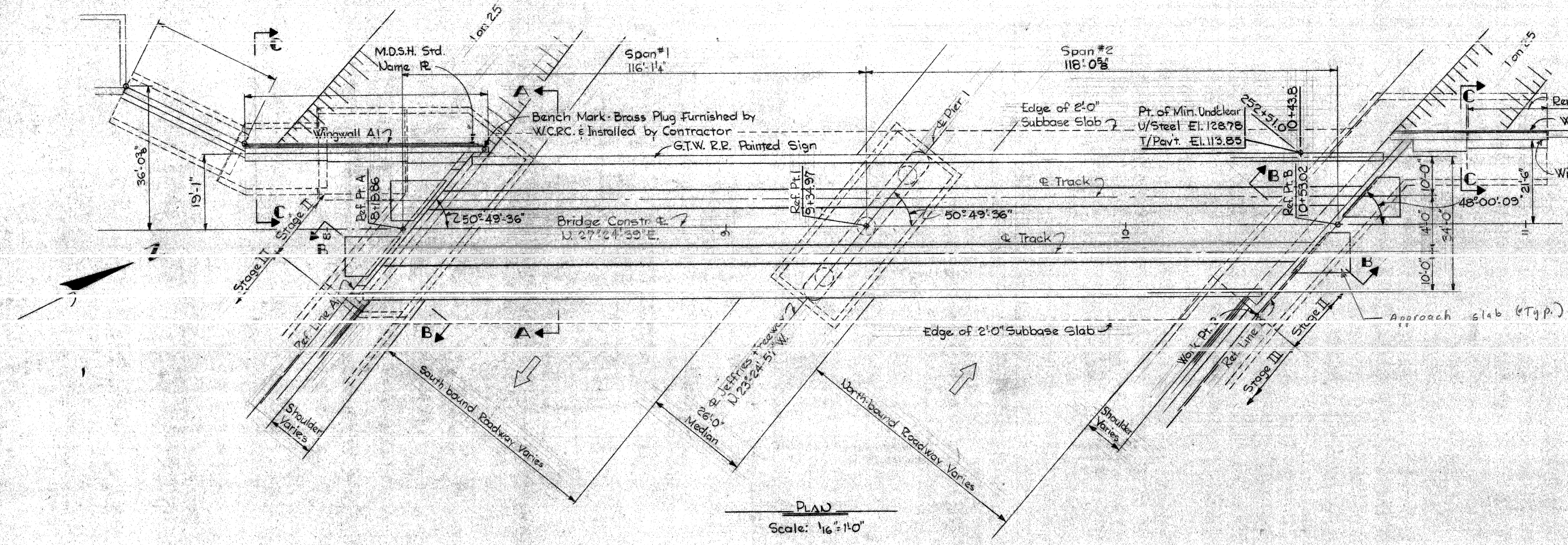
APPROVED: \_\_\_\_\_  
 DESIGN SUPERVISING ENGINEER

APPROVED: \_\_\_\_\_  
 ENGINEER OF DESIGN - CONSULTANTS

X01 of 82124A

- + = Denotes point of intersection
- = Denotes Bridge Reference Point
- (619) = Denotes survey traverse point
- T.L. = Denotes traverse line





MISCELLANEOUS QUANTITIES

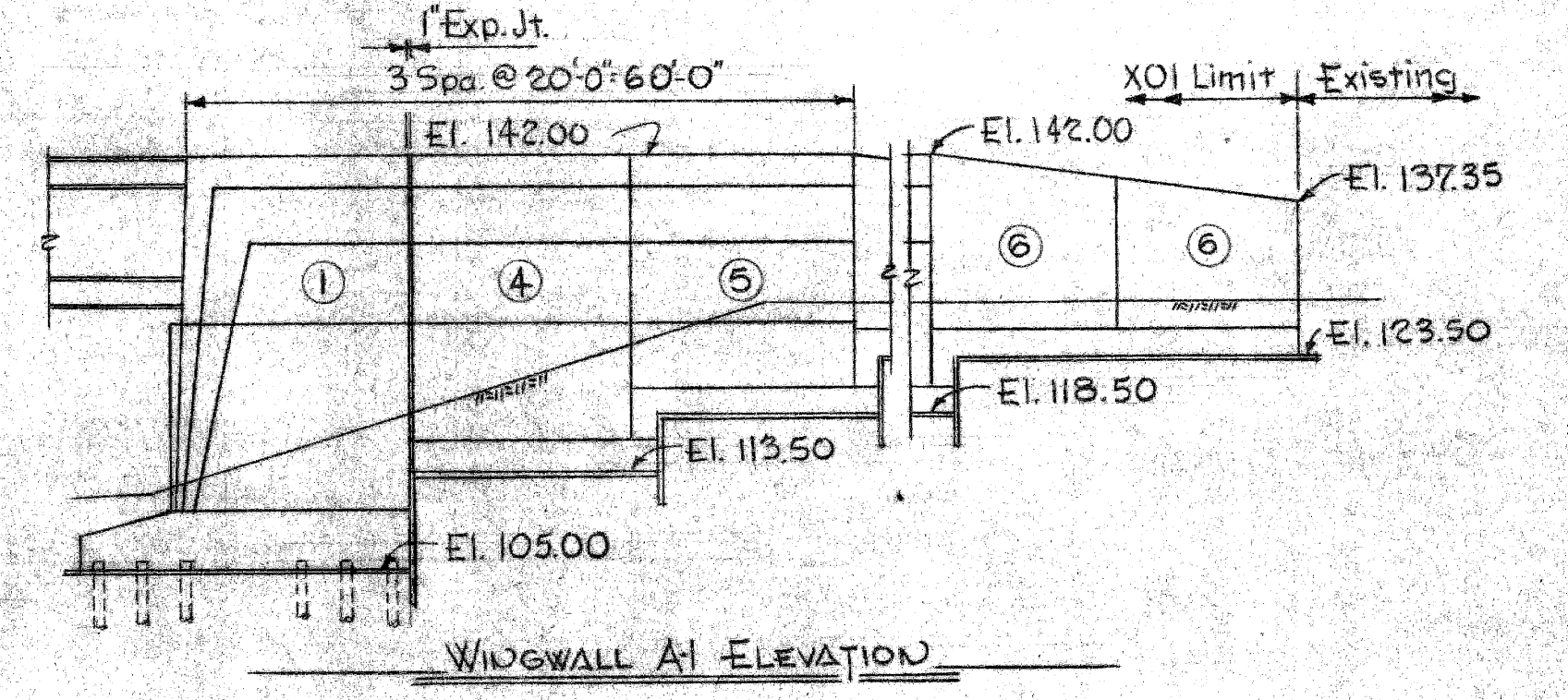
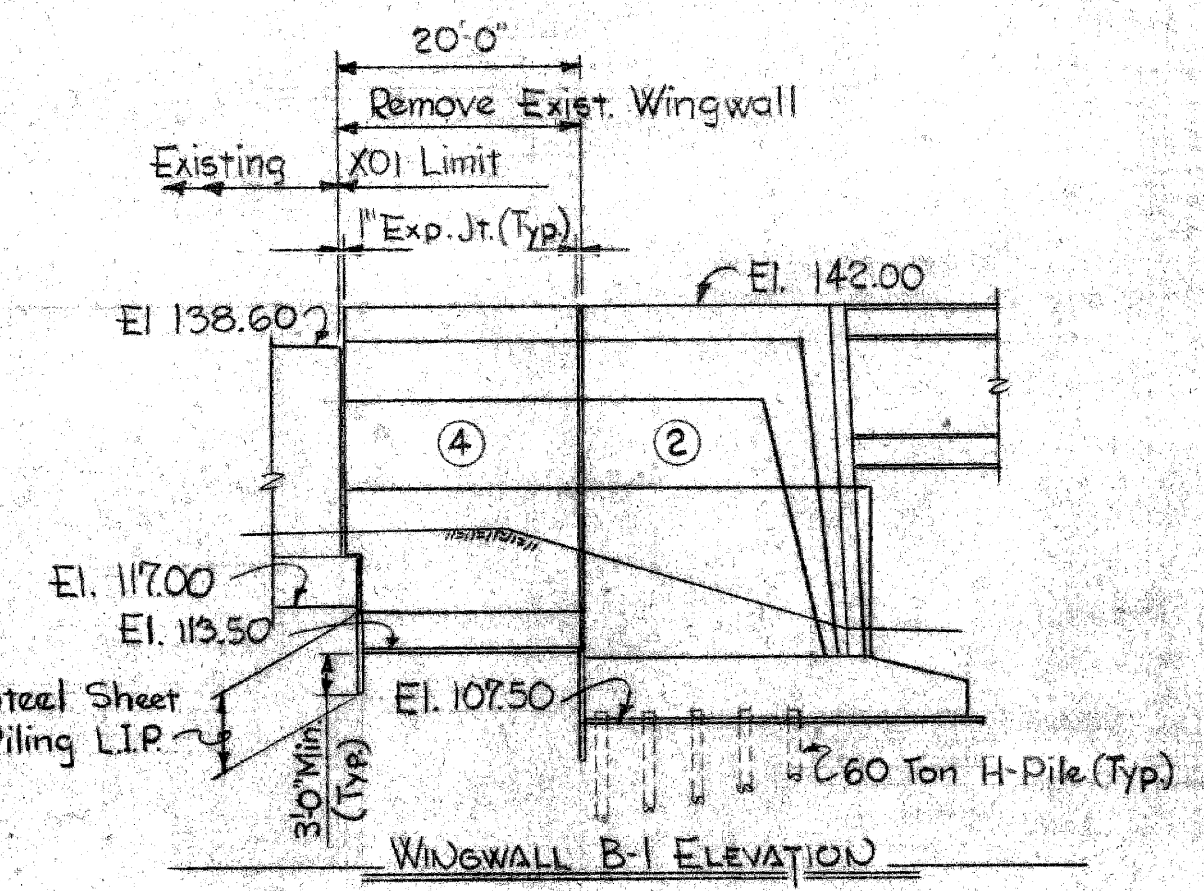
8" Class A Sewer Lin. Ft.  
Foundation Drain?

GENERAL NOTES:

The design of the superstructure is based on the A.R.E.A. Specifications for Steel Railway Bridge, 1963 edition, using Cooper's E-72 loading with diesel impact plus 20% impact.  
The design of the substructure is based on the M.S.H.D. Specifications for the Design of Highway Bridges, 1958 edition.  
The wingwall design is based on a maximum foundation pressure of 3400 p.s.f. based on DL + L.L. and a maximum average foundation pressure of 2200 p.s.f. based on DL only.

Note: All steel to be A441, except deck Rs to be A242

Plan on using A242 throughout but do not show on Prelim. Plan.



PRELIMINARY PLAN A - DATED JULY 14, 1966

PLANS PREPARED BY  
CITY OF DETROIT  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: STRUCTURAL ENGINEER

JOB No.  
PW 990(1)

REVISIONS			
NO.	DESCRIPTION	DATE	BY

**MICHIGAN STATE HIGHWAY DEPARTMENT**  
GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
CROSSING THE JEFFRIES FREEWAY IN DETROIT

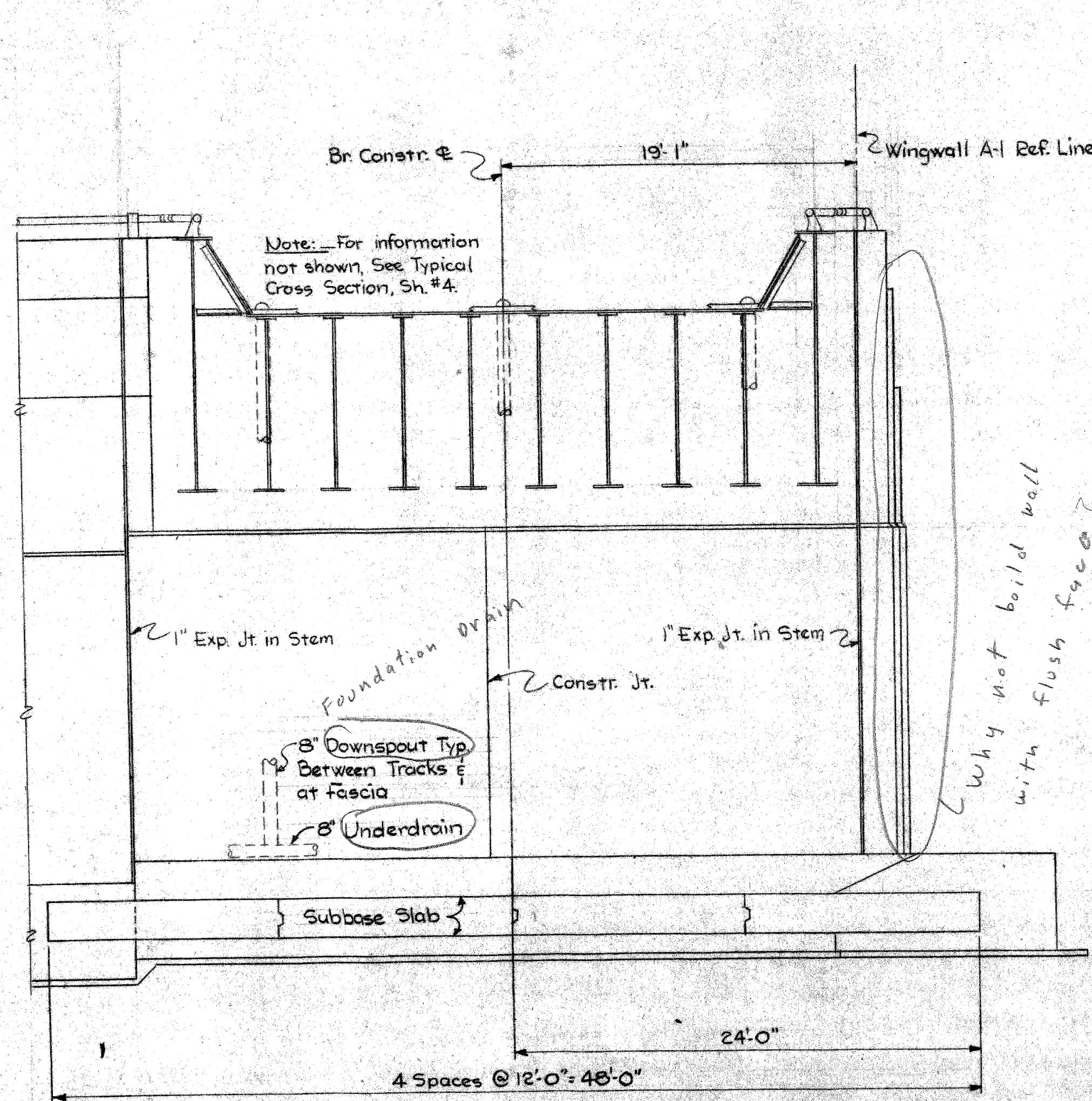
**GENERAL PLAN OF STRUCTURE**

APPROVED: \_\_\_\_\_ DESIGN SUPERVISING ENGINEER  
APPROVED: \_\_\_\_\_ ENGINEER OF DESIGN - CONSULTANTS

CITY OF DETROIT			
SQUAD BOSS	DATE	BY	
DRAWN BY	Allen Gessell	June 66	
TRACED BY			
CHECKED BY	Sturman	7/66	
SHEET 4 OF 7			

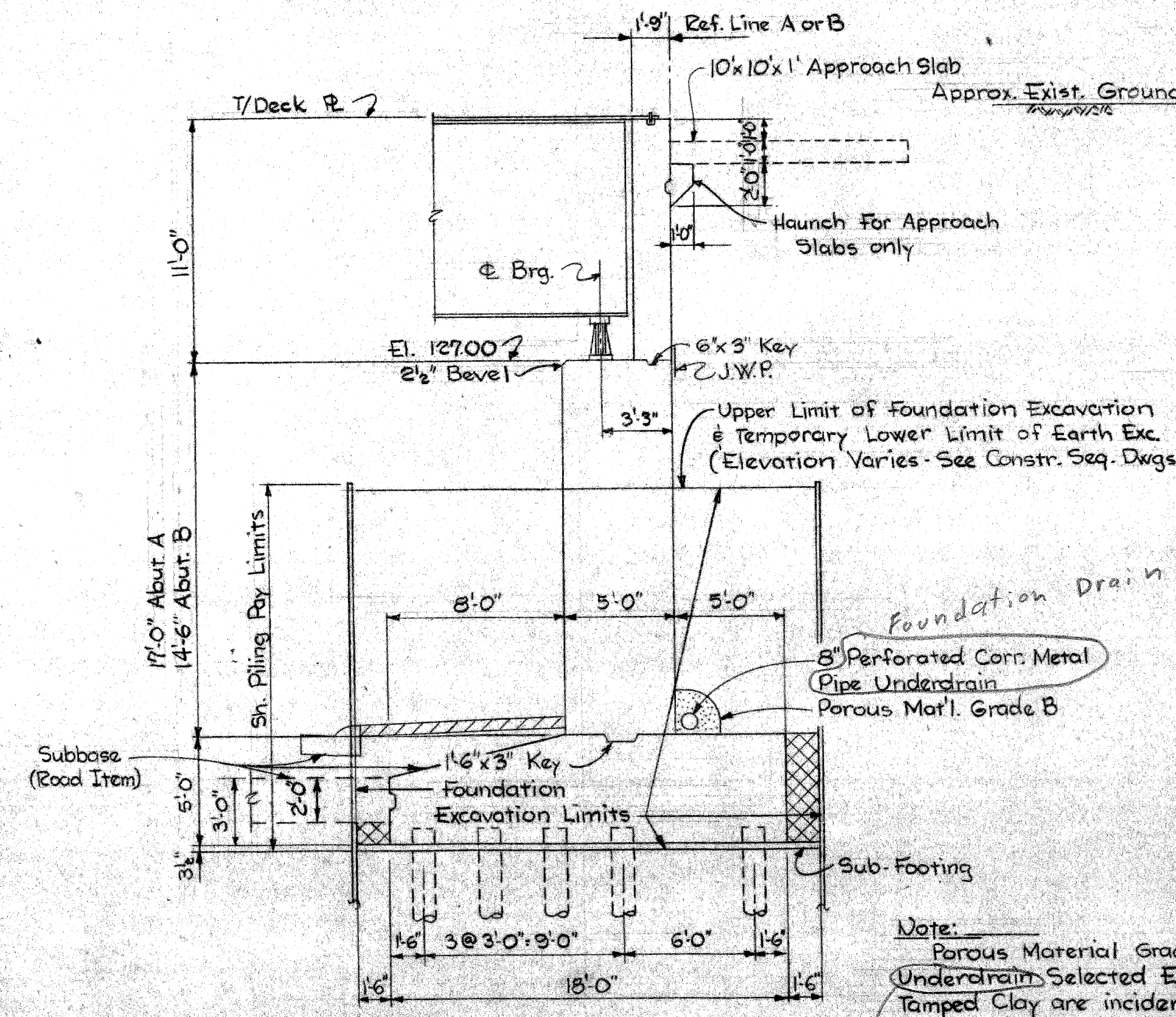
XOI of 82124A



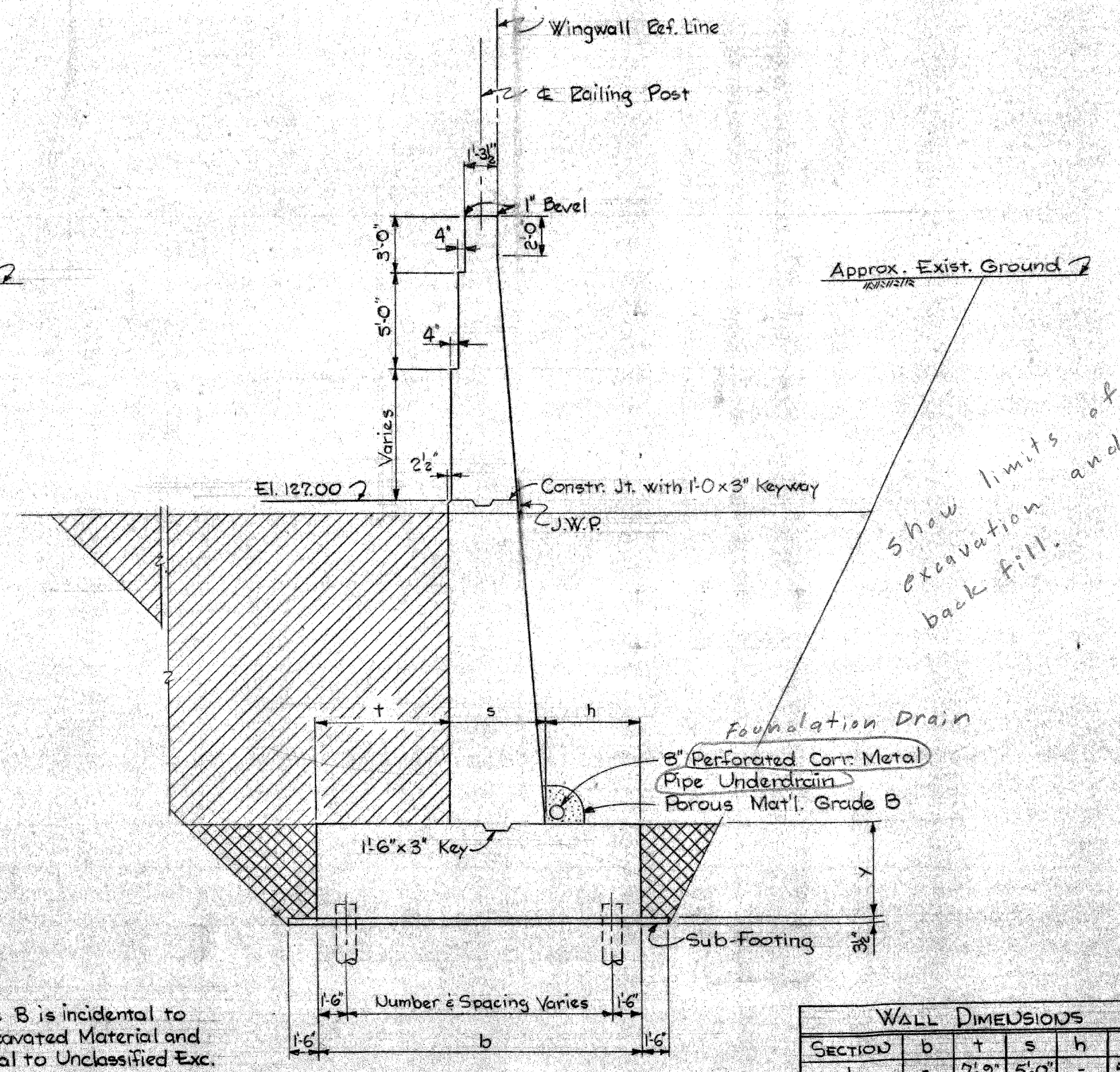


SECTION A-A  
Scale: 3/16"=1'-0"

*Why not build wall with flush face?*

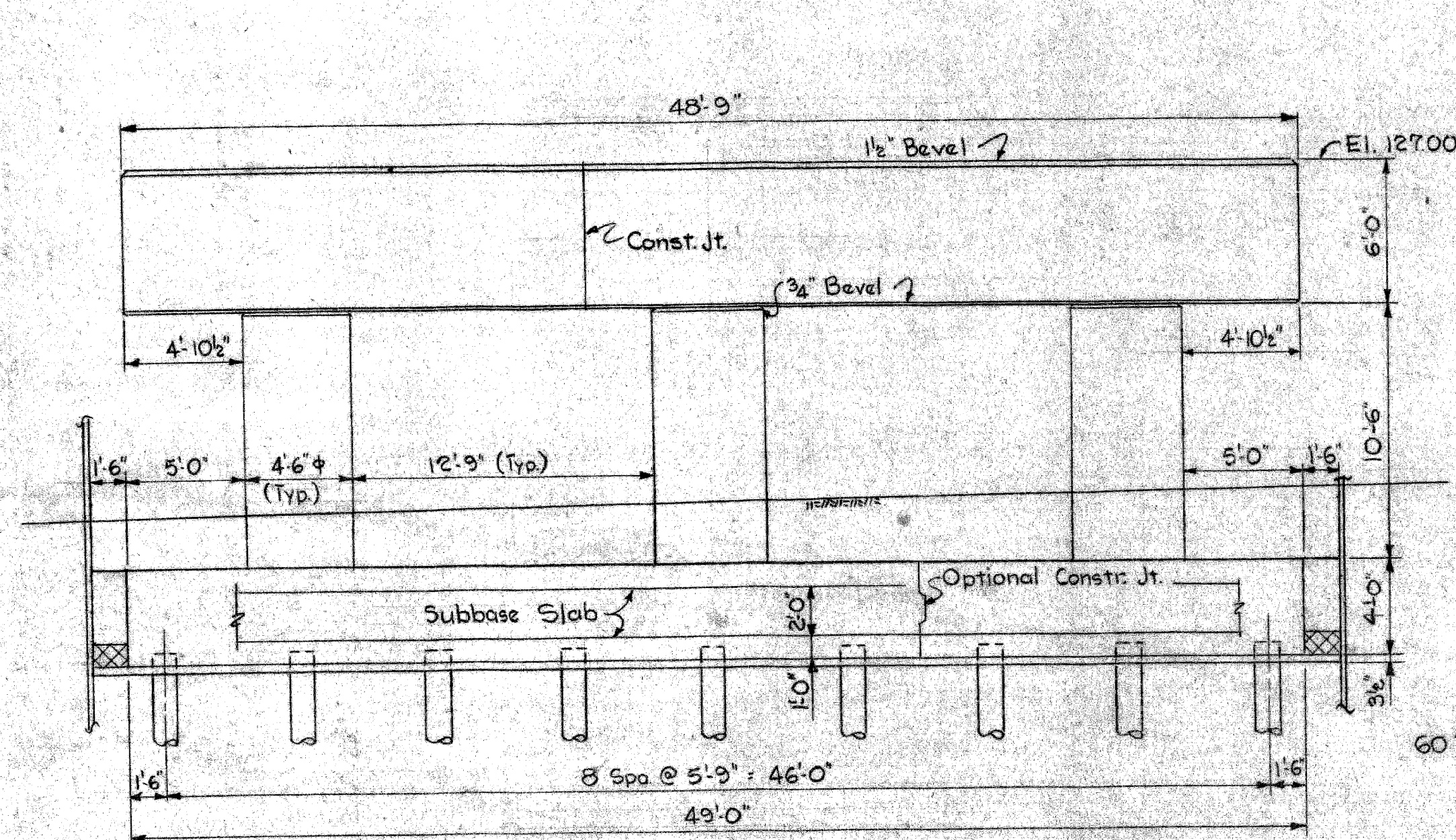


SECTION B-B  
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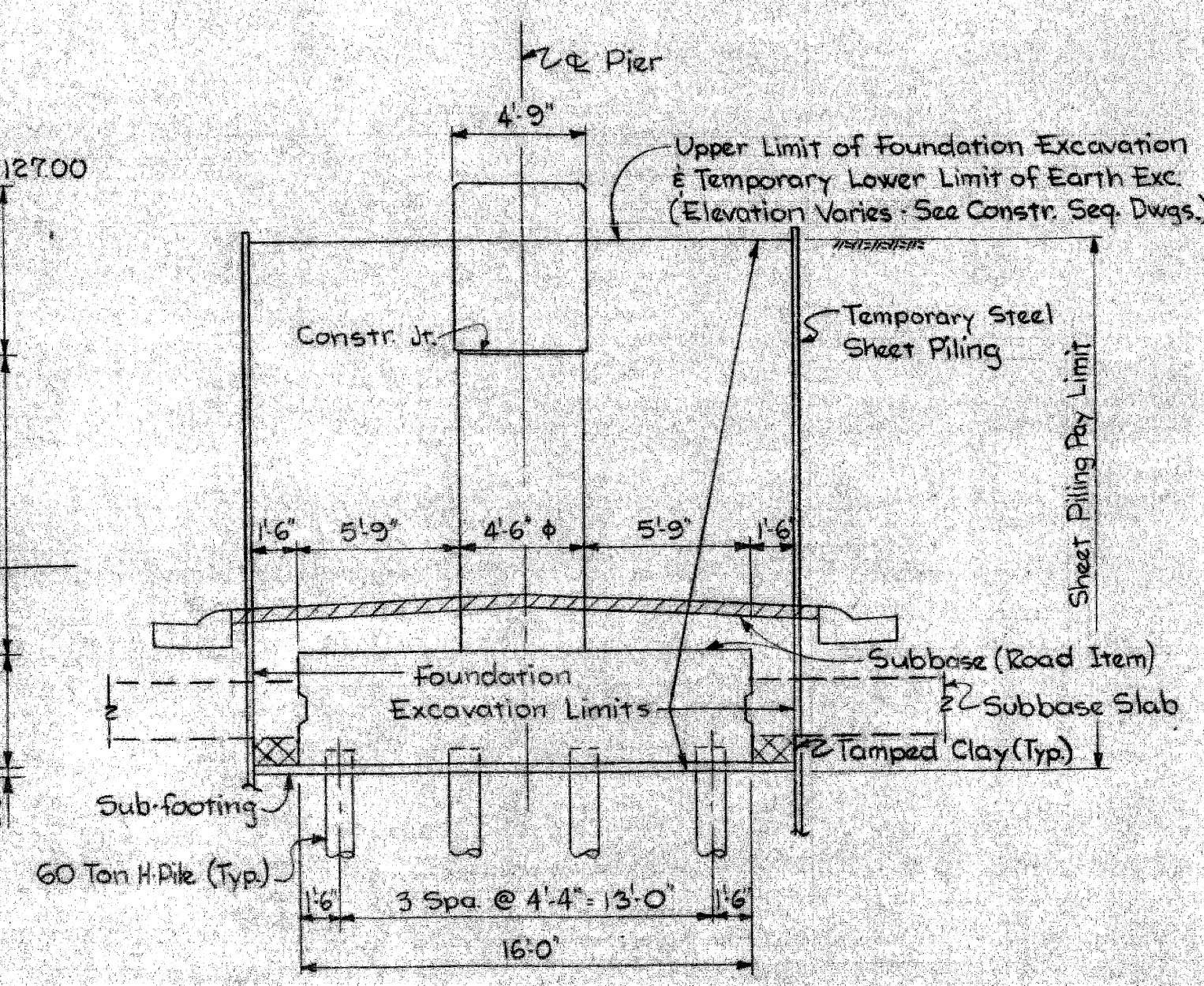


SECTION C-C  
Scale: 3/16"=1'-0"

WALL DIMENSIONS					
SECTION	b	t	s	h	y
1	-	7'-9"	5'-0"	-	5'-0"
2	20'-0"	7'-9"	5'-0"	7'-8"	5'-0"
3	-	-	-	-	-
4	20'-0"	7'-9"	4'-3"	8'-0"	3'-0"
5	15'-0"	4'-0"	4'-0"	7'-0"	2'-6"
6	11'-0"	2'-6"	3'-0"	5'-6"	2'-6"



PIER ELEVATION  
Scale: 3/16"=1'-0"



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

*Show limits of lightweight fill behind each abutment.*

PRELIMINARY PLAN A - DATED JULY 14, 1966

PLANS PREPARED BY  
CITY OF DETROIT  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: \_\_\_\_\_  
STRUCTURAL ENGINEER

JOB No.  
PW 990(1)

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT  
GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
CROSSING THE JEFFRIES FREEWAY IN DETROIT

GENERAL PLAN OF STRUCTURE

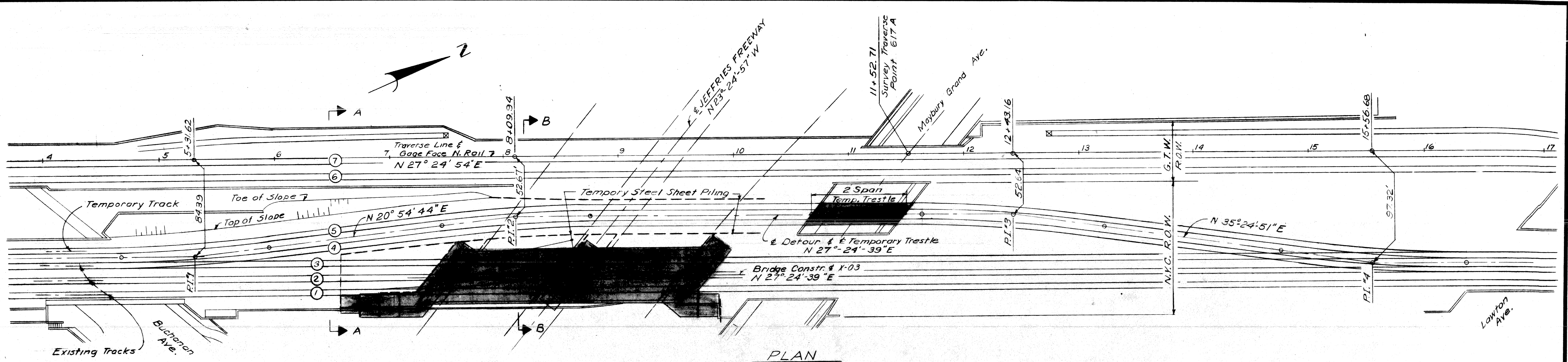
APPROVED: \_\_\_\_\_  
DESIGN SUPERVISING ENGINEER

APPROVED: \_\_\_\_\_  
ENGINEER OF DESIGN - CONSULTANTS

CITY OF DETROIT  
DRAWN BY: STYEM T/EE  
TRACED BY: AUBERND 6-66  
CHECKED BY: STYEM T/EE  
SHEET 5 OF 7

X01 of 82124A



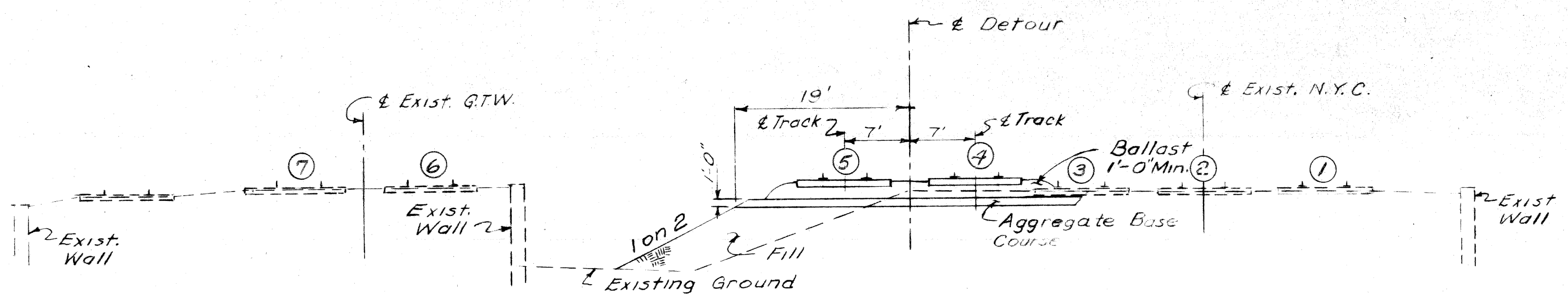


PLAN  
Scale: 1" = 40'

Curve Data

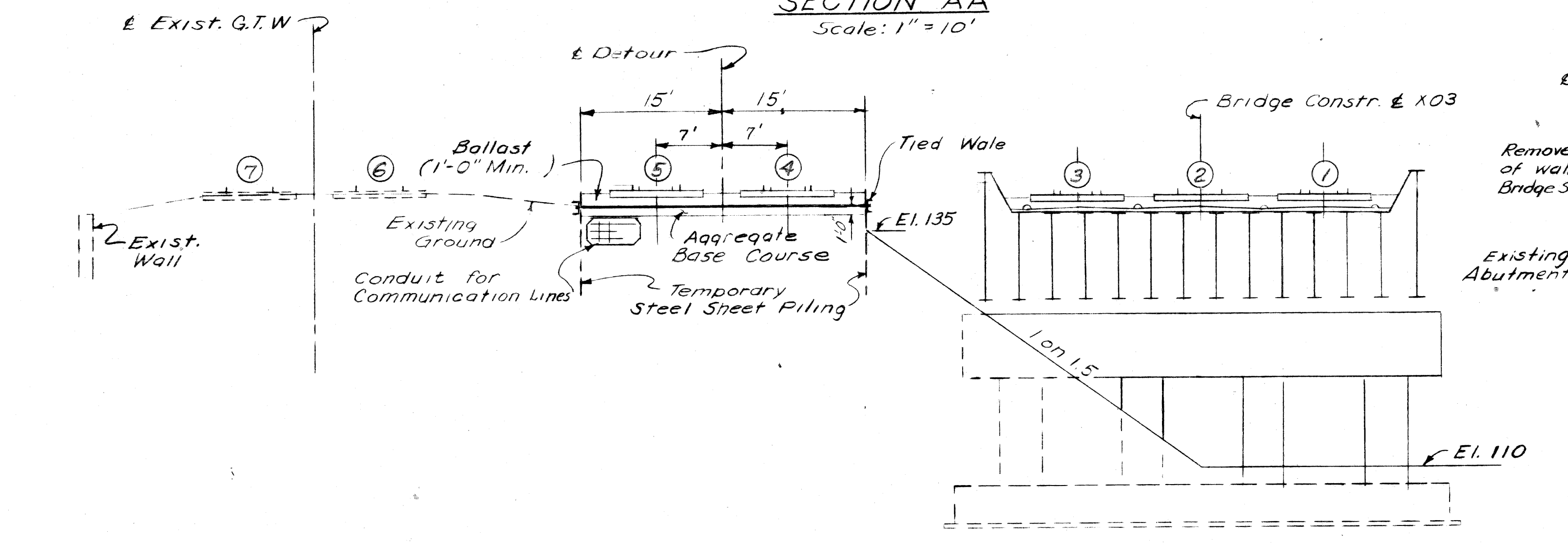
	Curve 1	Curve 2	Curve 3	Curve 4
Δ	6°-29'-55"	6°-29'-55"	8°-00'-12"	8°-00'-12"
D	5°-00'-00"	5°-00'-00"	5°-00'-00"	5°-00'-00"
R	1145.916'	1145.916'	1145.916'	1145.916'
T	65.056'	65.056'	80.164'	80.164'
L	129.971'	129.975'	160.067'	160.067'
E	1.845'	1.845'	2.801'	2.801'
RC.	4+65.06	7+45.03	11+63.00	14+73.07
PI.	5+30.11*	8+10.09*	12+43.16*	15+53.23*
PT.	5+95.03	8+75.00	13+23.07	16+33.13

\* Forward Station

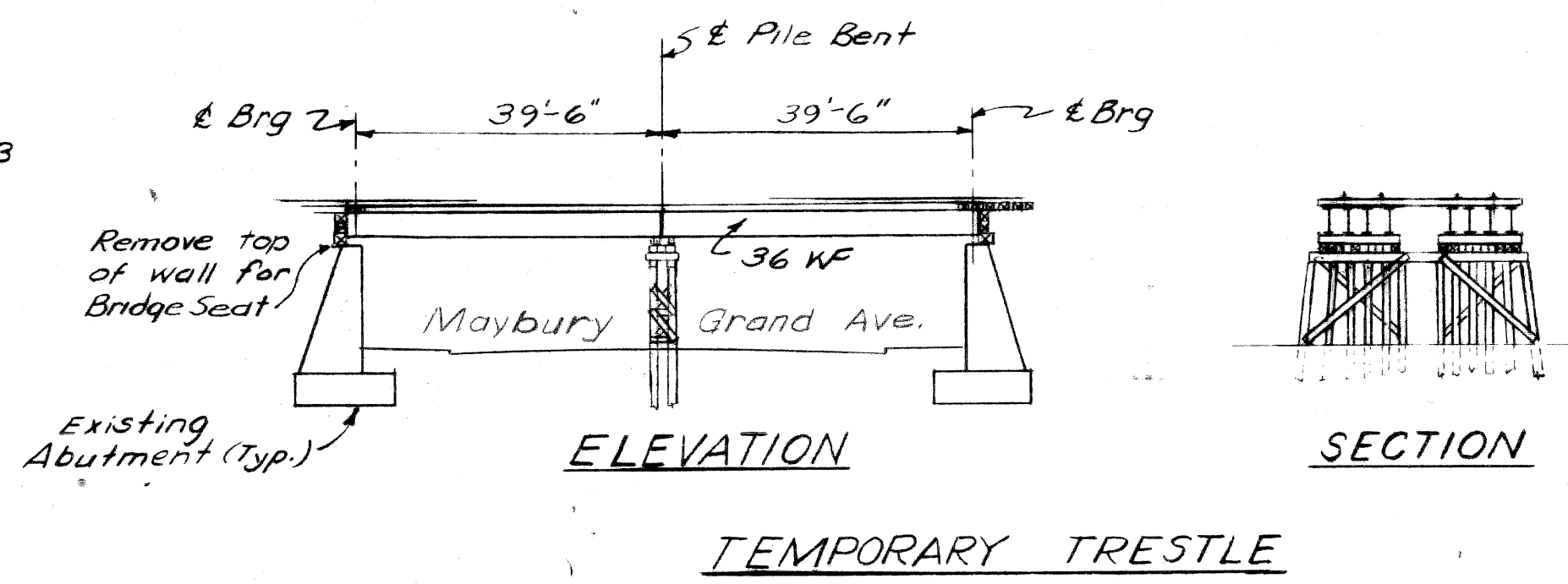


SECTION AA  
Scale: 1" = 10'

*Work done by R.R. specify which R.R. is doing it*



SECTION BB  
Scale: 1" = 10'



ELEVATION  
SECTION  
TEMPORARY TRESTLE

**STAGE I**

- To be done by Contractor:  
Place temporary sheet piling and embankment. Grade for detour tracks ④ & ⑤. Construct Temporary Trestle over Maybury Grand.
- To be done by Railroad Company:  
Place detour tracks ④ & ⑤ and crossovers as required outside of construction area.
- To be done by Contractor:  
Construct Bridge X03 (Railroad traffic on detour tracks ④ & ⑤).
- To be done by Railroad Company:  
Remove tracks ② & ③ except parts required for Stage II (Railroad traffic in normal operation on tracks 1 2 & 3 over new Bridge X03).

PRELIMINARY PLAN A - DATED JULY 14, 1966

PLANS PREPARED BY  
CITY OF DETROIT  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: \_\_\_\_\_  
STRUCTURAL ENGINEER

JOB No.  
PW 990(1)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
CROSSING THE JEFFRIES FREEWAY IN DETROIT

**CONSTRUCTION SEQUENCE  
STAGE I**

REVISIONS

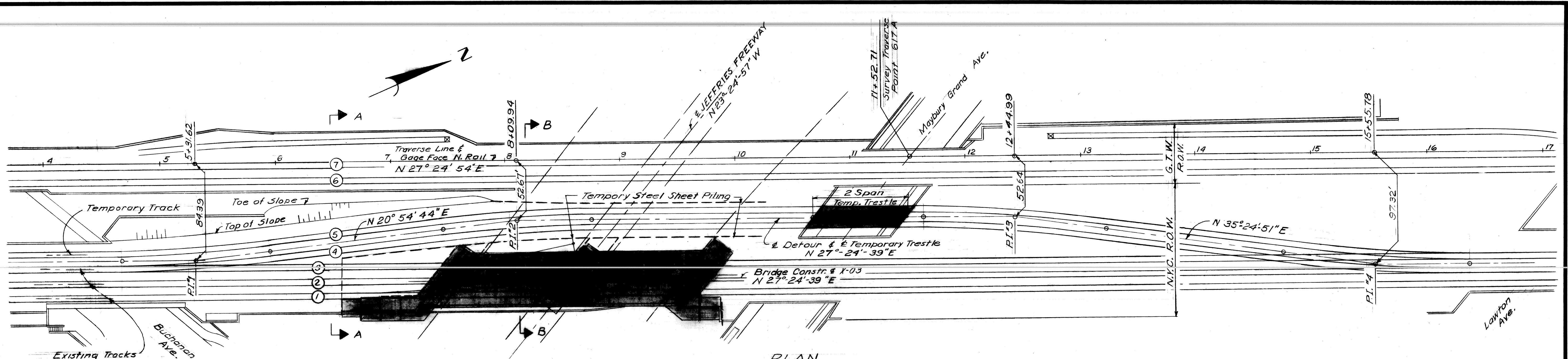
NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT

SQUAD BOSS	STURN	7/66
DRAWN BY	WAL	7/66
TRACED BY		
CHECKED BY	STURN	7/66
SHEET	6	OF 7

X01 of 82124A





PLAN  
Scale: 1" = 40'

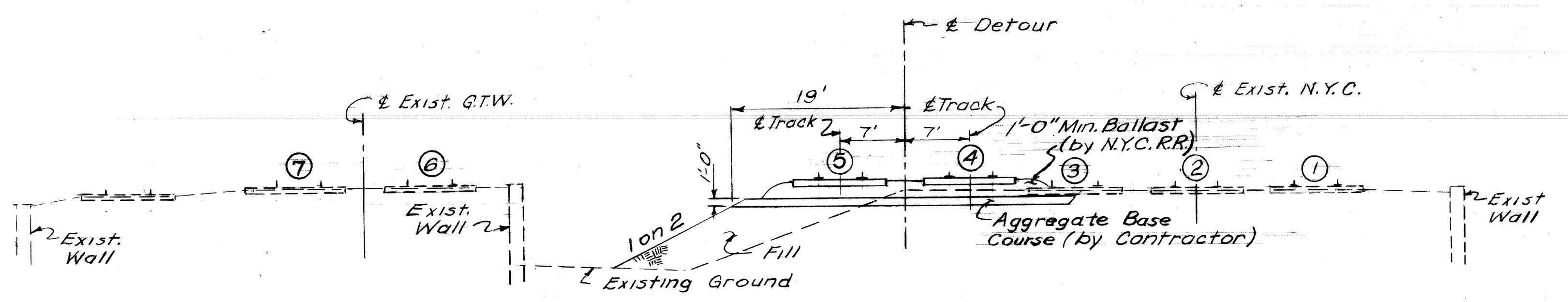
Curve Data

	Curve 1	Curve 2	Curve 3	Curve 4
Δ	6°-29'-56"	6°-29'-56"	8°-11'-07.5"	8°-11'-07.5"
D	5°-00'-00"	5°-00'-00"	5°-00'-00"	5°-00'-00"
R	1145.916'	1145.916'	1145.916'	1145.916'
T	65.058'	65.058'	81.994'	81.994'
L	129.977'	129.977'	163.708'	163.708'
E	1.845'	1.845'	2.930'	2.930'
RC.	4+65.05	7+45.02	11+63.00	14+76.71
PT.	5+30.10*	8+10.08*	12+44.99*	15+58.70*
RT.	5+95.02	8+75.00	13+26.71	16+40.42

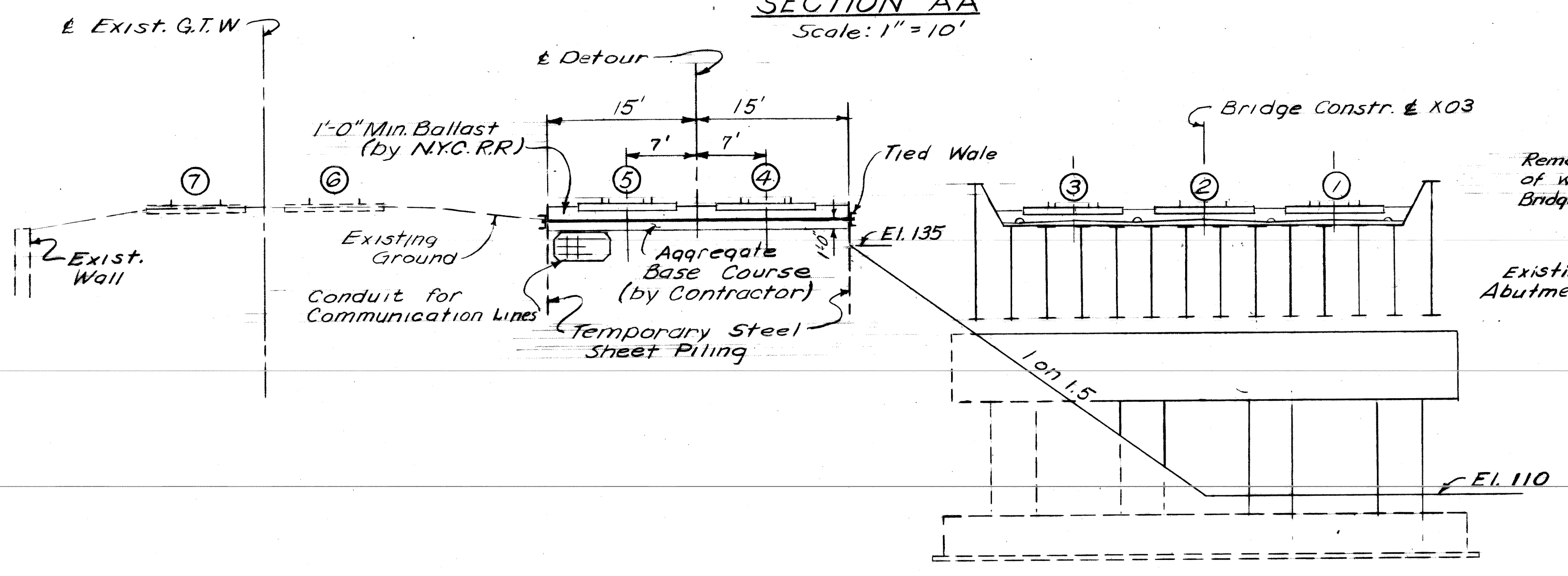
\* Forward Station

STAGE I

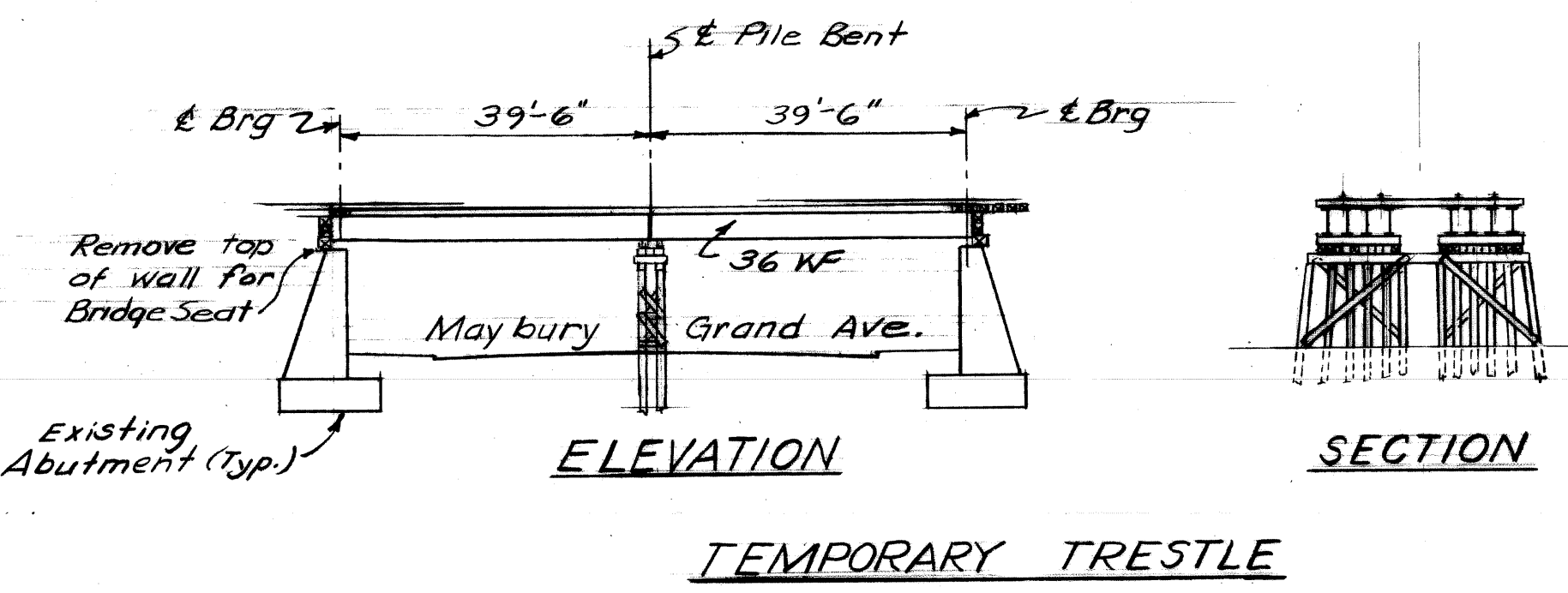
- To be done by Contractor:  
Place temporary sheet piling and embankment. Grade for detour tracks ④ & ⑤. Construct Temporary Trestle over Maybury Grand.
- To be done by N.Y.C.R.R. Company:  
Place ballast & detour tracks ④ & ⑤, crossovers as required outside of construction area, & rails on trestle.
- To be done by Contractor:  
Construct Bridge X03 (Railroad traffic on tracks ④ & ⑤).
- To be done by N.Y.C.R.R. Company:  
Place ballast and tracks ①, ② & ③ on new Bridge X03. Remove tracks ④ & ⑤ except parts required for Stage II (Railroad traffic in normal operation on tracks ①, ② & ③ over new Bridge X03.)



SECTION AA  
Scale: 1" = 10'



SECTION BB  
Scale: 1" = 10'



TEMPORARY TRESTLE

PLANS PREPARED BY  
CITY OF DETROIT  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED \_\_\_\_\_  
STRUCTURAL ENGINEER

JOB No.  
PW 990(1)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS  
GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
CROSSING THE JEFFRIES FREEWAY IN DETROIT

CONSTRUCTION SEQUENCE  
STAGE I

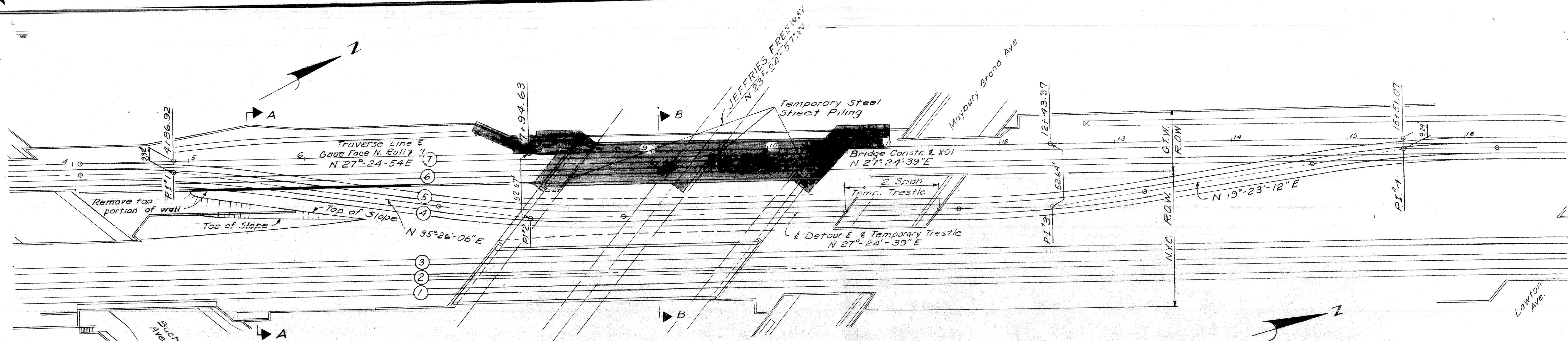
NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT

SQUAD BOSS	STJEM	7/66
DRAWN BY	WAL	7/66
CHECKED BY	STJEM	7/66
SHEET 6 OF 7		

X01 of 82124A

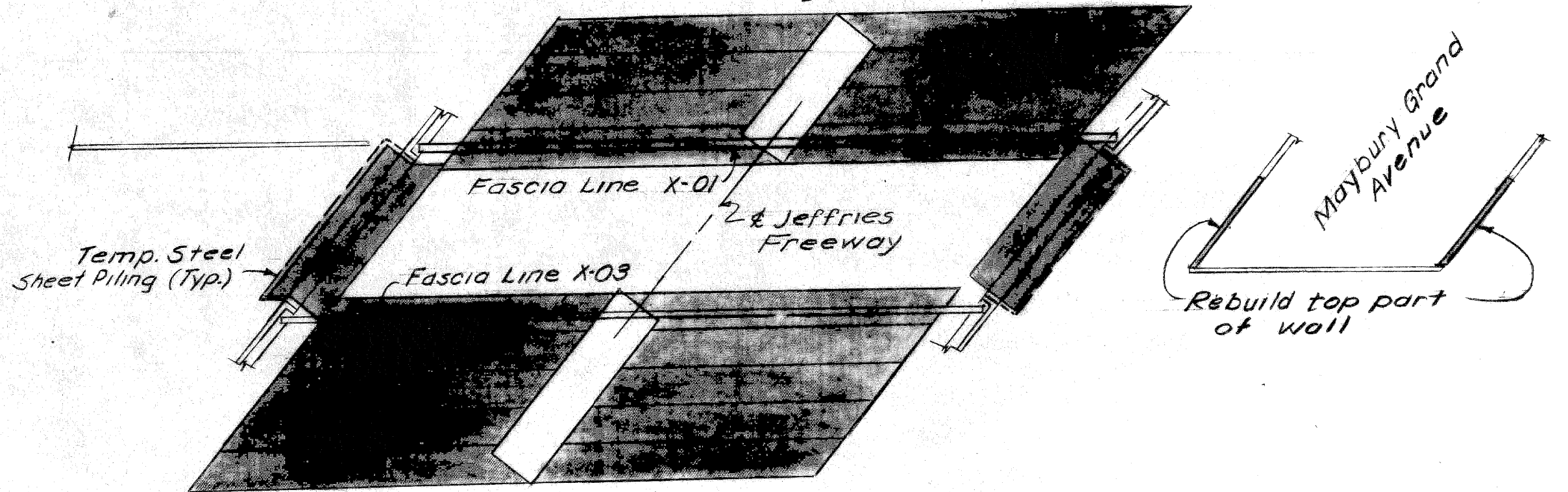




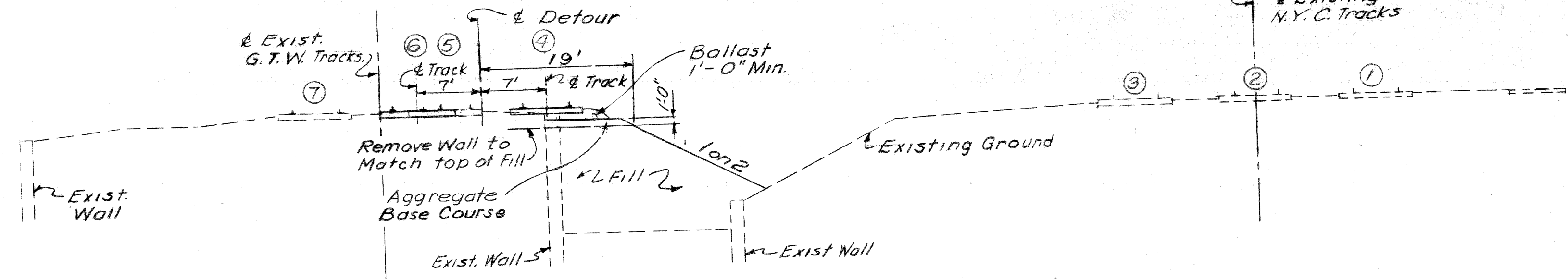
PLAN-STAGE II  
Scale: 1" = 40'

	Curve 1	Curve 2	Curve 3	Curve 4
Δ	8°-01'-27"	8°-01'-27"	8°-01'-27"	8°-01'-27"
D	5°-00'-00"	5°-00'-00"	5°-00'-00"	5°-00'-00"
R	1145.916'	1145.916'	1145.916'	1145.916'
T	80.372'	80.372'	80.372'	80.372'
L	160.483'	160.483'	160.483'	160.483'
E	2.815'	2.815'	2.815'	2.815'
P.C.	4+04.03'	7+14.52'	11+63.00'	14+73.48'
P.I.	4+84.41*	7+94.89*	12+43.37*	15+53.85*
P.T.	5+64.52'	8+75.00'	13+23.48'	16+33.97'

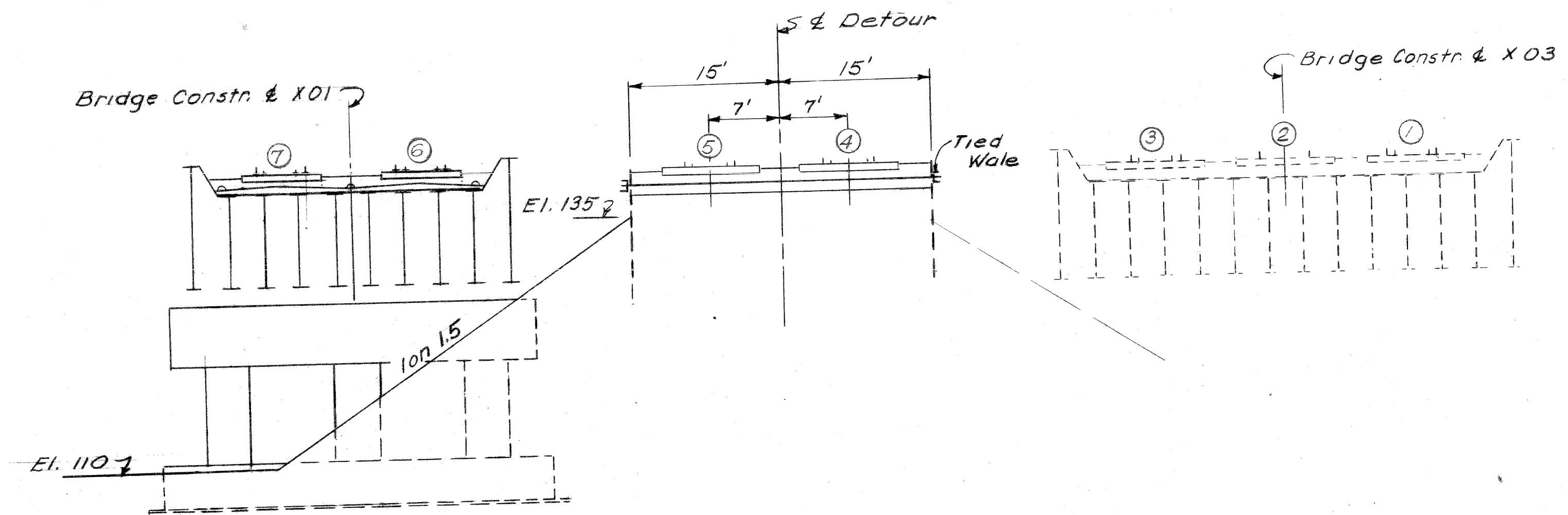
\* Forward Station



PLAN-STAGE III  
Scale: 1" = 40'



SECTION AA  
Scale: 1" = 10'



SECTION BB  
Scale 1" = 10'

- Stage II**
- To be done by Contractor: Remove top portion of wall where tracks 4 & 5 cross, and place embankment for tracks 4 & 5.
  - To be done by Railroad Co.: Place detour tracks 4 & 5. Use Temporary Trestle & that part of temporary detour remaining from Stage I.
  - To be done by Contractor: Build Bridge X01. (Railroad traffic on detour tracks 4 & 5)
  - To be done by Railroad Co.: Remove tracks 4 & 5 (Railroad traffic in normal operation on tracks 6 & 7 over new bridge X01)
  - To be done by Contractor: Rebuild portion of wall that was removed in Item 1.
- Stage III**
- Remove temporary trestle and rebuild top portion of walls removed for trestle.
  - Build walls to connect Abuts. between Bridges X01 & X03.
  - Complete excavation and build Subbase slab.
- Note:**  
All operations in stage III to be done by Contractor.  
30' increments, see comments of MASH soils division

PRELIMINARY PLAN A - DATED JULY 14, 1966

PLANS PREPARED BY  
CITY OF DETROIT  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED \_\_\_\_\_  
STRUCTURAL ENGINEER

JOB No.  
PW 990(1)

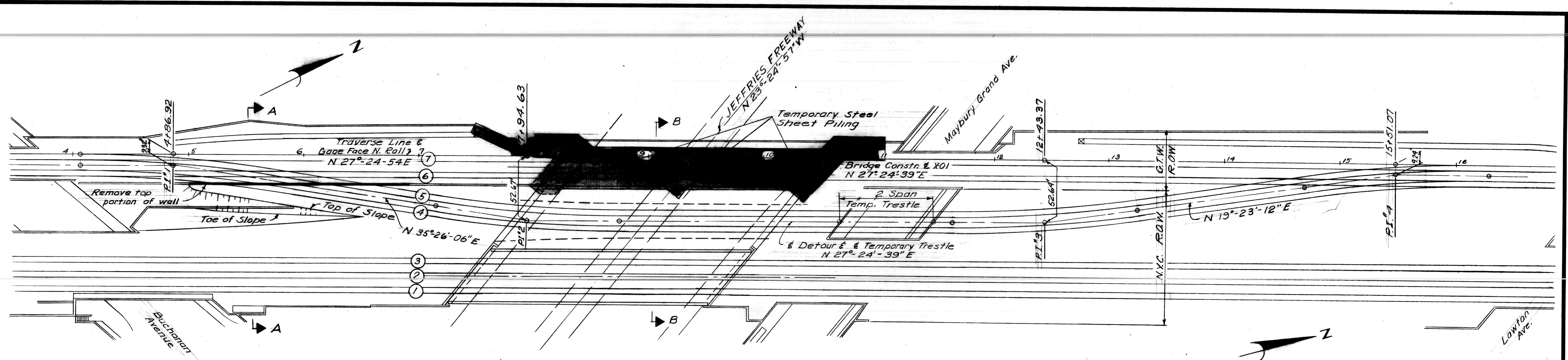
MICHIGAN DEPARTMENT OF STATE HIGHWAYS  
GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
CROSSING THE JEFFRIES FREEWAY IN DETROIT

CONSTRUCTION SEQUENCE  
STAGES 2 & 3  
REVISIONS

NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT		
SQUAD BOSS	WAL	7/66
DRAWN BY	WAL	7/66
TRACED BY	STW	7/66
CHECKED BY	STW	7/66
SHEET	7	OF 7
X01 of 82124A		



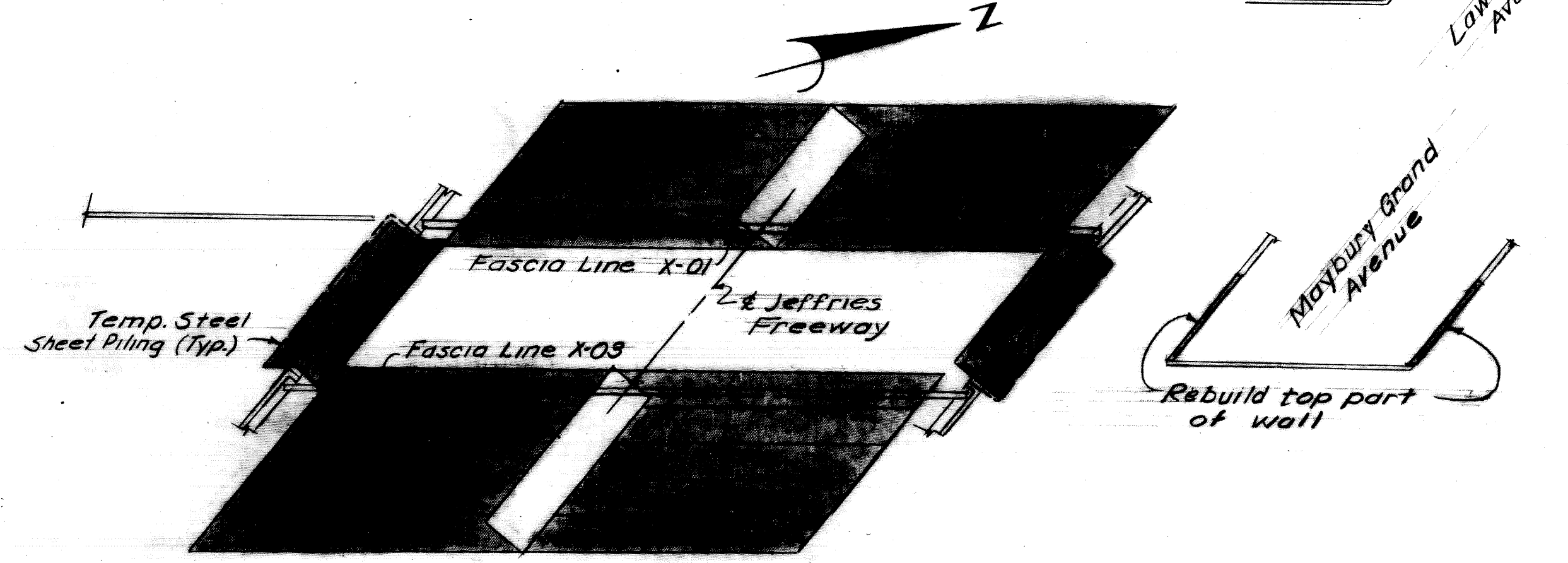


**Curve Data**

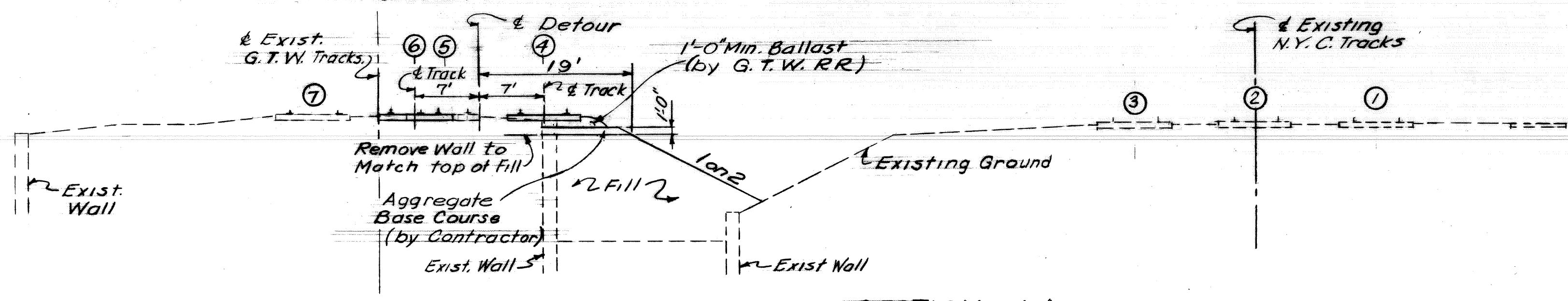
	Curve 1	Curve 2	Curve 3	Curve 4
Δ	8°-01'-27"	8°-01'-27"	8°-01'-27"	8°-01'-27"
D	5°-00'-00"	5°-00'-00"	5°-00'-00"	5°-00'-00"
R	1145.916'	1145.916'	1145.916'	1145.916'
L	80.372'	80.372'	80.372'	80.372'
E	160.483'	160.483'	160.483'	160.483'
P.C.	2.815'	2.815'	2.815'	2.815'
P.T.	4+04.03'	7+94.89*	11+63.00	14+73.48
R.T.	4+84.41*	7+94.89*	12+43.37*	15+53.85*
	5+64.52	8+75.00	13+23.48	16+33.97

\* Forward Station

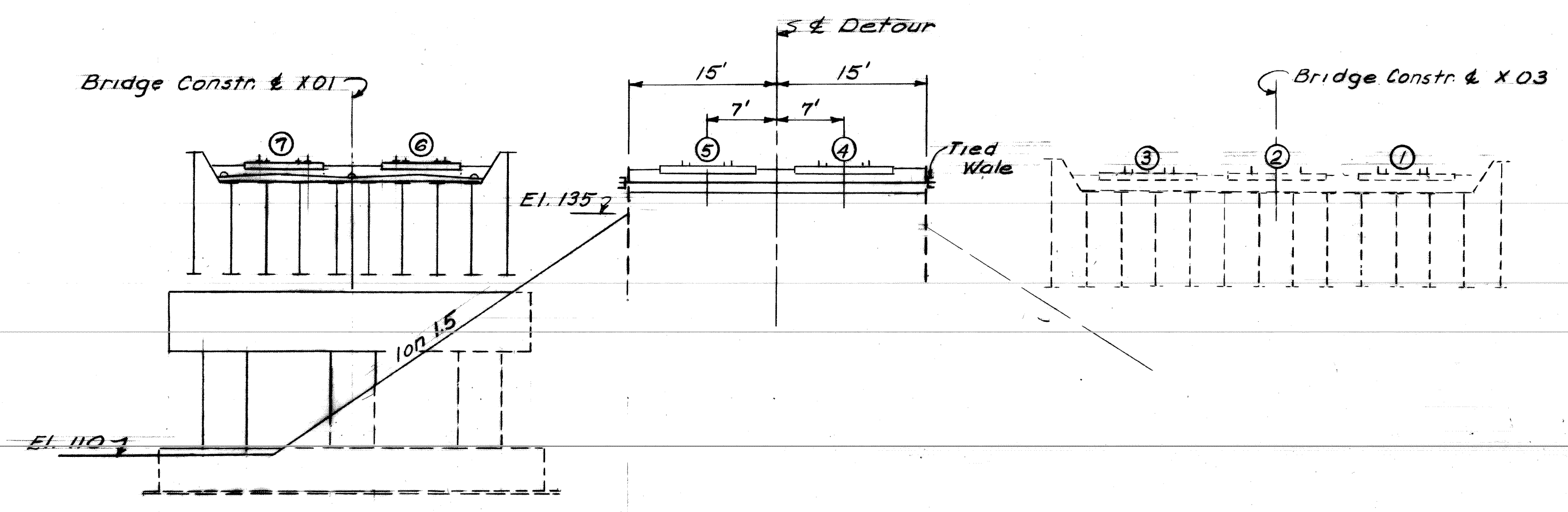
**PLAN-STAGE II**  
Scale: 1" = 40'



**PLAN-STAGE III**  
Scale: 1" = 40'



**SECTION AA**  
Scale: 1" = 10'



**SECTION BB**  
Scale 1" = 10'

**Stage II**

- To be done by Contractor: Remove top portion of wall where tracks ④ & ⑤ cross, and place embankment for tracks ④ & ⑤.
- To be done by G.T.W.R.R. Co.: Place ballast & detour tracks ④ & ⑤. Use Temporary Trestle & that part of temporary detour remaining from Stage I.
- To be done by Contractor: Build Bridge X01. (Railroad traffic on detour tracks ④ & ⑤)
- To be done by G.T.W.R.R. Co.: Place ballast and tracks ⑥ & ⑦ on new bridge X01. Remove tracks ④ & ⑤ except parts left by N.Y.C.R.R. in Stage I. (Railroad traffic in normal operation on tracks ⑥ & ⑦ over new Bridge X01).
- To be done by N.Y.C.R.R. Company: Remove portion of tracks ④ & ⑤ left in Stage I.
- To be done by Contractor: Rebuild portion of wall that was removed. (See Item 1. Stage II)

**Stage III**

- Remove temporary trestle and rebuild top portion of walls removed for trestle.
  - Build walls to connect Abuts. between Bridges X01 & X03.
  - Complete excavation and build Subbase slab. Excavate and build in a manner that allows no more than 30' of footing unrestrained at any time.
- Note:** All operations in Stage III to be done by Contractor.

PLANS PREPARED BY  
CITY OF DETROIT  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED \_\_\_\_\_  
STRUCTURAL ENGINEER

JOB No.  
PW 990(1)

**MICHIGAN DEPARTMENT OF STATE HIGHWAYS**  
GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
CROSSING THE JEFFRIES FREEWAY IN DETROIT

**CONSTRUCTION SEQUENCE**  
STAGES 2 & 3

NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT  
DRAWN BY: SWAN 7/66  
CHECKED BY: WAL 7/66  
SHEET 7 OF 7

X01 of 82124A



- 1 TITLE SHEET
- 1a INDEX SHEET
- 1b,c,d QUANTITY SHEET

S E L D E N P E D E S T R I A N B R I D G E  
( P O I O F 8 2 1 2 4 A )

- 2 GENERAL PLAN OF SITE
- 3 GENERAL DRAWING
- 4 GENERAL PLAN OF STRUCTURE
- 5 EXISTING UTILITIES AND PROPOSED ALTERATIONS
- 6 ABUTMENT A DETAILS
- 7 ABUTMENT B DETAILS
- 8 RAMP DETAILS
- 9 PIER DETAILS
- 10 - 11 STRUCTURAL STEEL DETAILS
- 12 SUPERSTRUCTURE DETAILS
- 13 RAILING DETAILS
- 14 STEEL REINFORCEMENT DETAILS

B U C H A N A N S T R E E T B R I D G E  
( S O 2 O F 8 2 1 2 4 A )

- 2 GENERAL PLAN OF SITE
- 3 GENERAL DRAWING
- 4 - 5 GENERAL PLAN OF STRUCTURE
- 6 EXISTING UTILITIES AND PROPOSED ALTERATIONS
- 7 - 9 ABUTMENT DETAILS
- 10 PILING PLAN
- 11 - 13 PIER DETAILS
- 14 - 16 STRUCTURAL STEEL DETAILS
- 17 METAL EXPANSION JOINT
- 18 - 23 SUPERSTRUCTURE DETAILS
- 24 STEEL REINFORCEMENT DETAILS

G T W R R R A I L R O A D B R I D G E  
( X O 1 O F 8 2 1 2 4 A )

- 2 GENERAL PLAN OF SITE
- 3 LOG OF SOIL BORINGS
- 4 GENERAL DRAWING
- 5 - 6 GENERAL PLAN OF STRUCTURE
- 7 - 8 CONSTRUCTION SEQUENCE
- 9 - 10 DIGGING PLAN
- 11 GRADING AND UTILITY PLAN
- 12 FOUNDATION PILING DETAILS
- 13 SUB-BASE SLAB DETAILS
- 14 - 20 ABUTMENT DETAILS
- 21 - 22 PIER DETAILS
- 23 - 27 STRUCTURAL STEEL DETAILS
- 28 DECK AND DRAINAGE DETAILS
- 29 RAILING AND SIGN DETAILS
- 30 STEEL REINFORCEMENT DETAILS
- 31 - 34 EXISTING BRIDGE DETAILS

N Y C R R R A I L R O A D B R I D G E  
( X O 3 O F 8 2 1 2 4 A )

- 2 GENERAL PLAN OF SITE
- 3 LOG OF SOIL BORINGS
- 4 GENERAL DRAWING
- 5 - 6 GENERAL PLAN OF STRUCTURE
- 7 - 8 CONSTRUCTION SEQUENCE
- 9 - 10 DIGGING PLAN
- 11 GRADING AND UTILITY PLAN
- 12 - 13 TEMPORARY TRESTLE
- 14 FOUNDATION PILING DETAILS
- 15 SUB-BASE SLAB DETAILS
- 16 - 19 ABUTMENT A DETAILS
- 20 ABUTMENT DETAILS WALL A
- 21 - 23 ABUTMENT B DETAILS
- 24 ABUTMENT DETAILS WALL B
- 25 - 26 PIER DETAILS
- 27 - 31 STRUCTURAL STEEL DETAILS
- 32 DECK AND DRAINAGE DETAILS
- 33 RAILING AND SIGN DETAILS
- 34 STEEL REINFORCEMENT DETAILS
- 35 - 41 EXISTING BRIDGE DETAILS

24  
2024/13

- DR11 & DR12 BRIDGE RAILING, DRAIN CASTING, BAR CHAIR, MOLDING AND BEVEL DETAILS
- SP2 STANDARD SLOPE PAVING DETAILS

**MICHIGAN STATE HIGHWAY DEPARTMENT**

THE JEFFRIES FREEWAY IN DETROIT

PLANS PREPARED BY  
**CITY OF DETROIT**  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS  
*[Signature]*  
STRUCTURAL ENGINEER

JOB No.  
PW 990(1)

**INDEX SHEET**

NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT		
SQUAD BOSS	STUEM	6-67
DRAWN BY	MH DN	6-67
TRACED BY	-	-
CHECKED BY	STUEM	6-67
SHEET 12 OF		
POI, SO2, X01 & X03		
OF 82124 A		





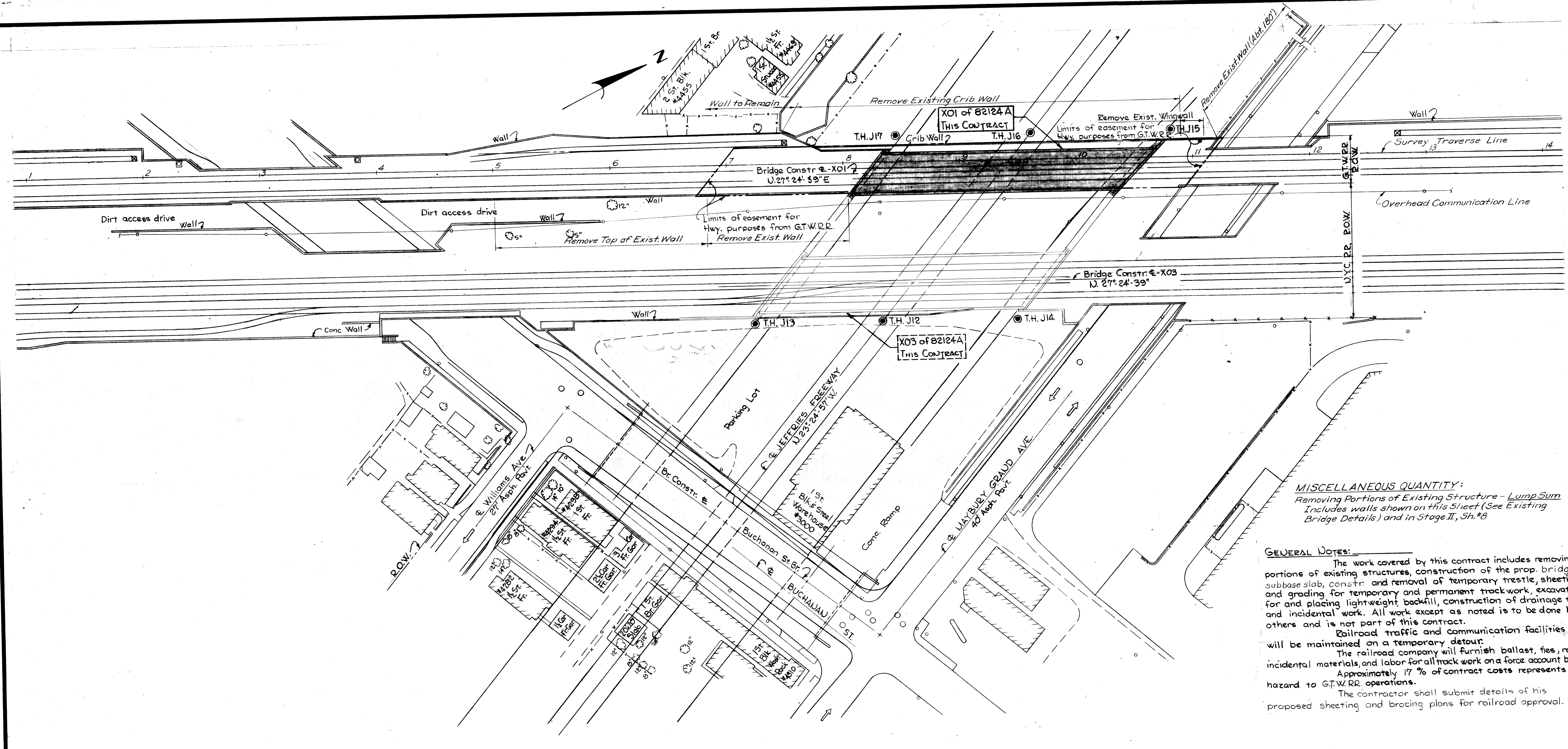












**MISCELLANEOUS QUANTITY:**  
 Removing Portions of Existing Structure - Lump Sum  
 Includes walls shown on this Sheet (See Existing Bridge Details) and in Stage II, Sh.#8

**GENERAL NOTES:**  
 The work covered by this contract includes removing portions of existing structures, construction of the prop. bridge & subbase slab, constr. and removal of temporary trestle, sheeting and grading for temporary and permanent trackwork, excavating and placing lightweight backfill, construction of drainage ties and incidental work. All work except as noted is to be done by others and is not part of this contract.  
 Railroad traffic and communication facilities will be maintained on a temporary detour.  
 The railroad company will furnish ballast, ties, rails, incidental materials, and labor for all track work on a force account basis.  
 Approximately 17% of contract costs represents a hazard to G.T.W.R.R. operations.  
 The contractor shall submit details of his proposed sheeting and bracing plans for railroad approval.

LETTING DATE - OCT. 4, 67

SURVEY PLAN

Scale: 1"=40'-0"

PLANS PREPARED BY  
**CITY OF DETROIT**  
 DEPARTMENT OF PUBLIC WORKS  
 CITY ENGINEERS OFFICE  
 BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED *[Signature]*  
 STRUCTURAL ENGINEER

JOB No.  
 PW 990(1)

NO.	DESCRIPTION	DATE	BY

**MICHIGAN STATE HIGHWAY DEPARTMENT**  
 GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
 CROSSING THE JEFFRIES FREEWAY IN DETROIT

**GENERAL PLAN OF SITE**

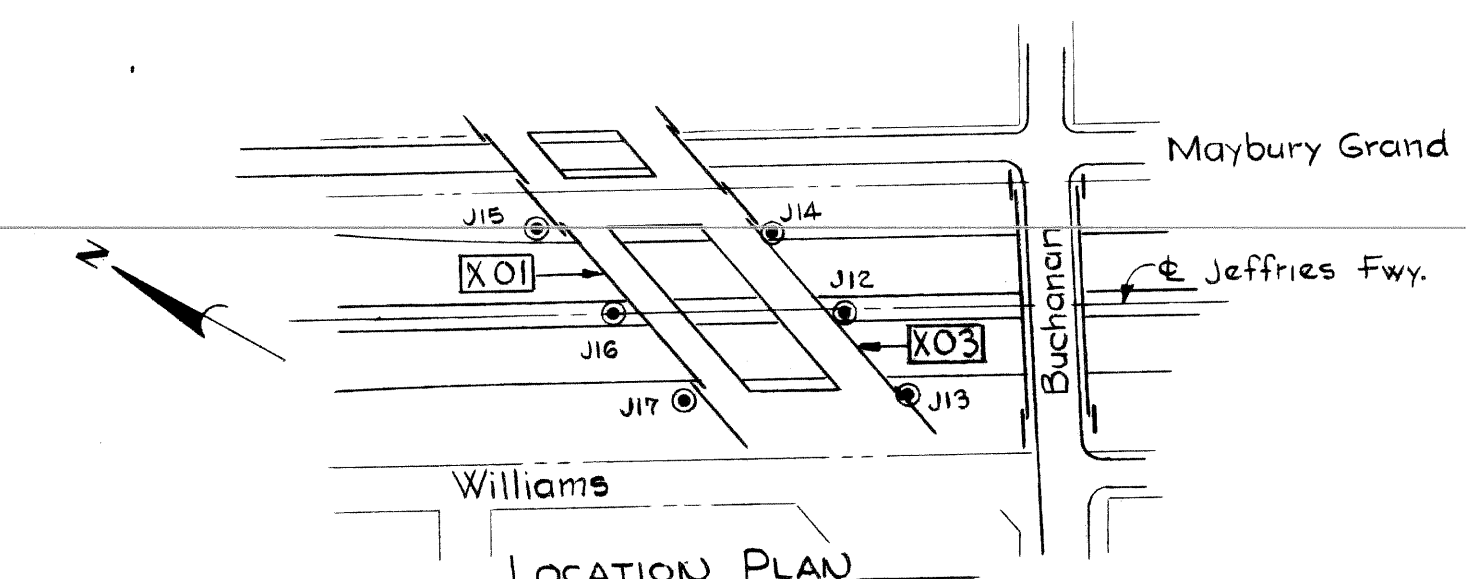
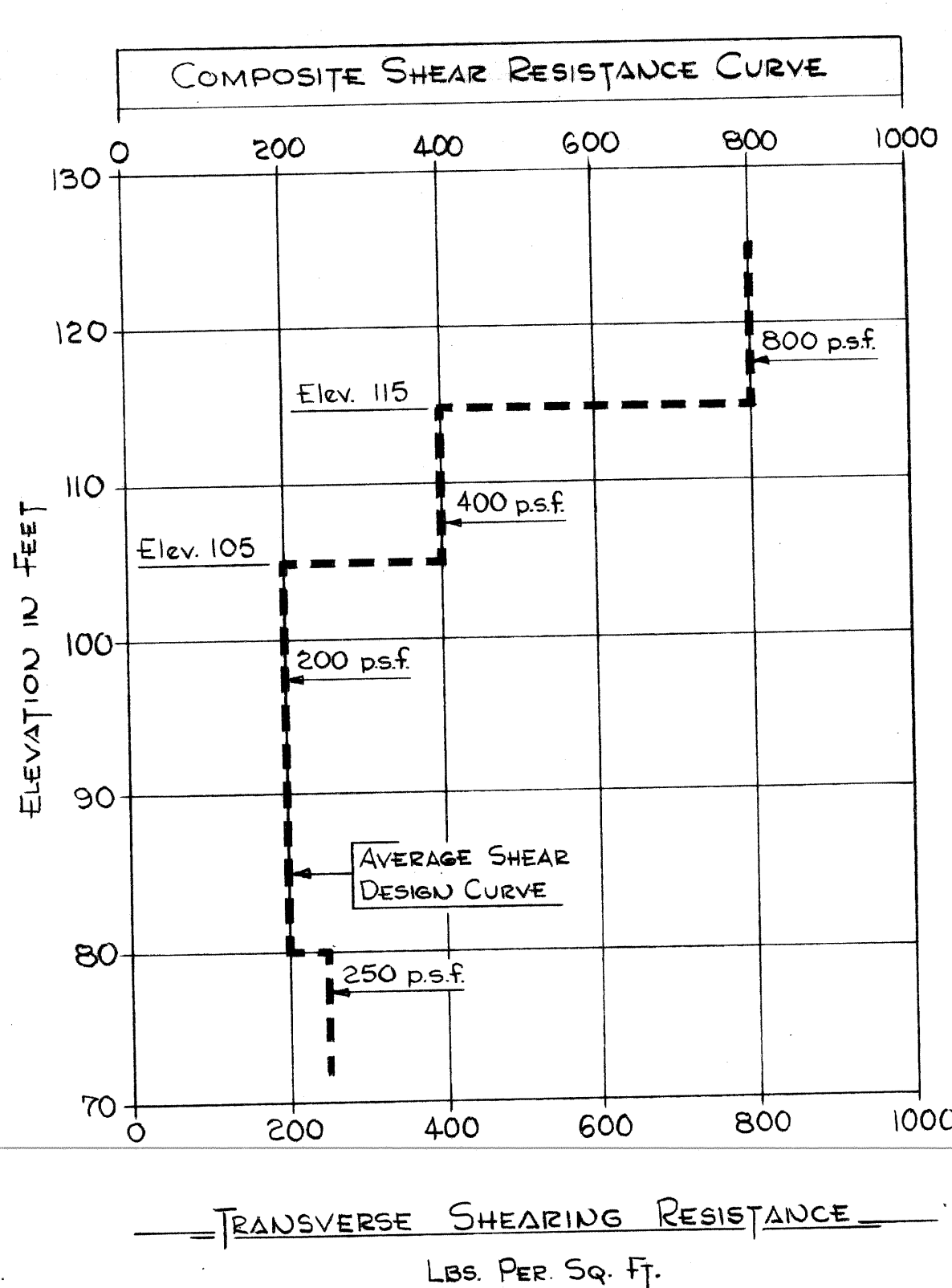
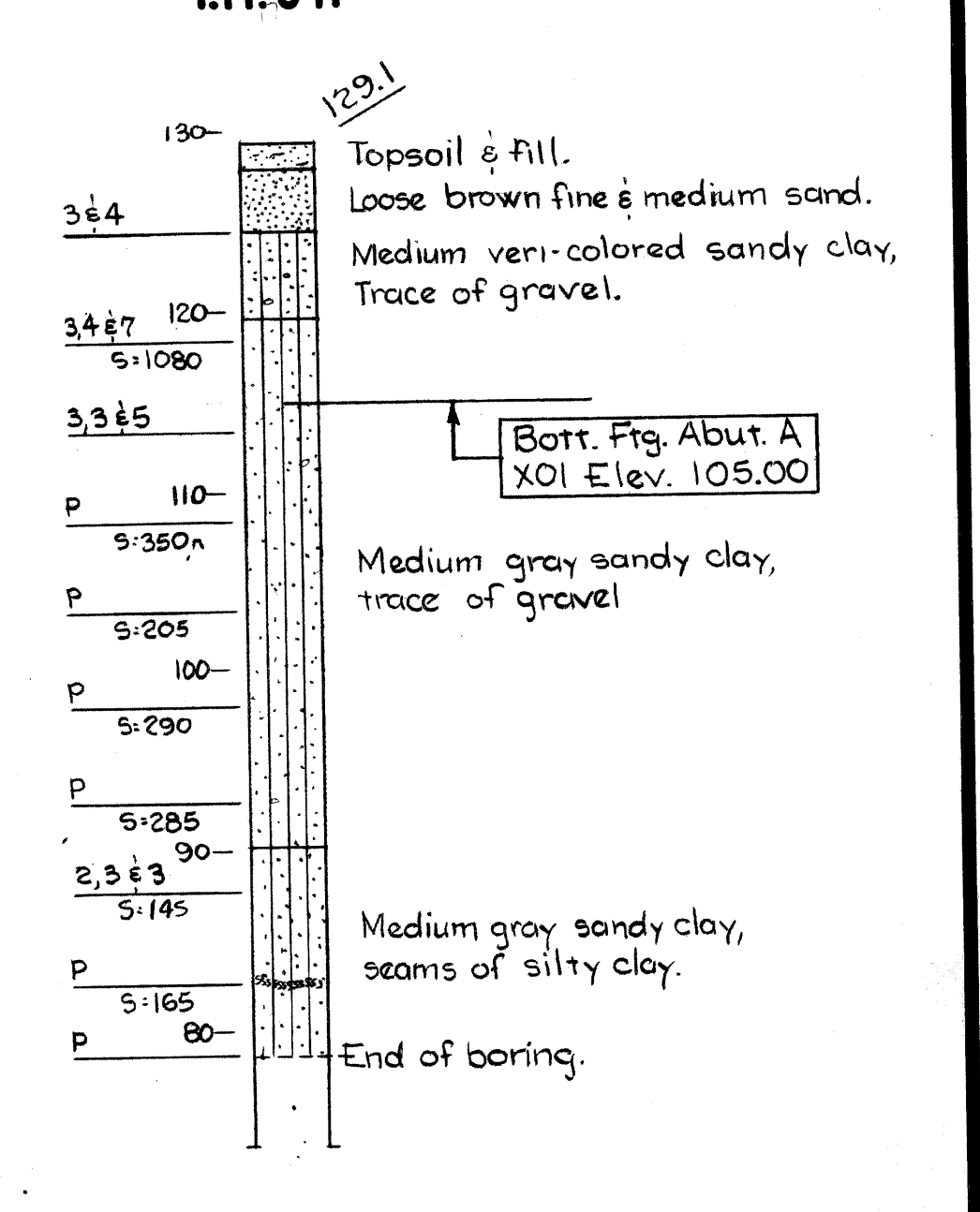
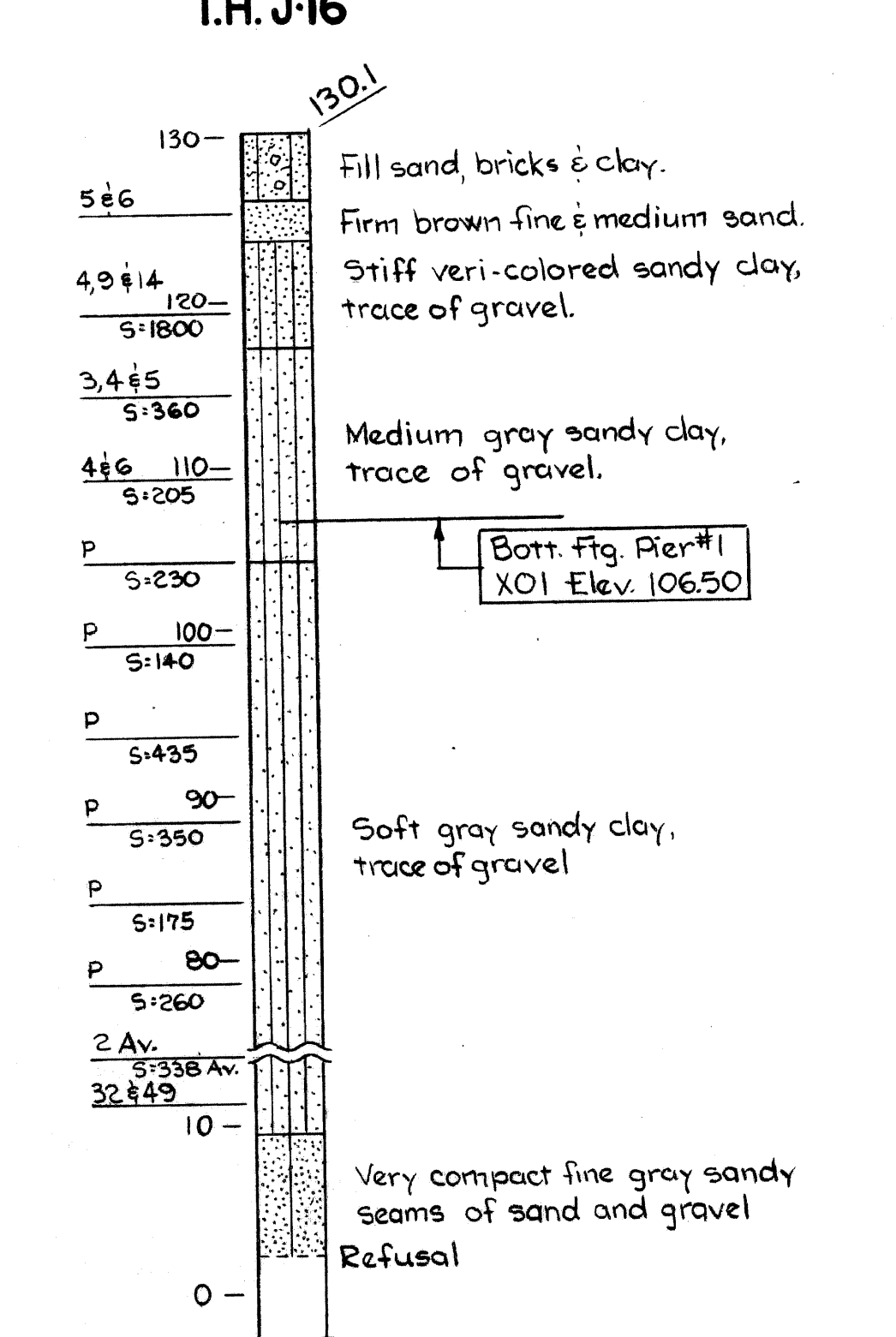
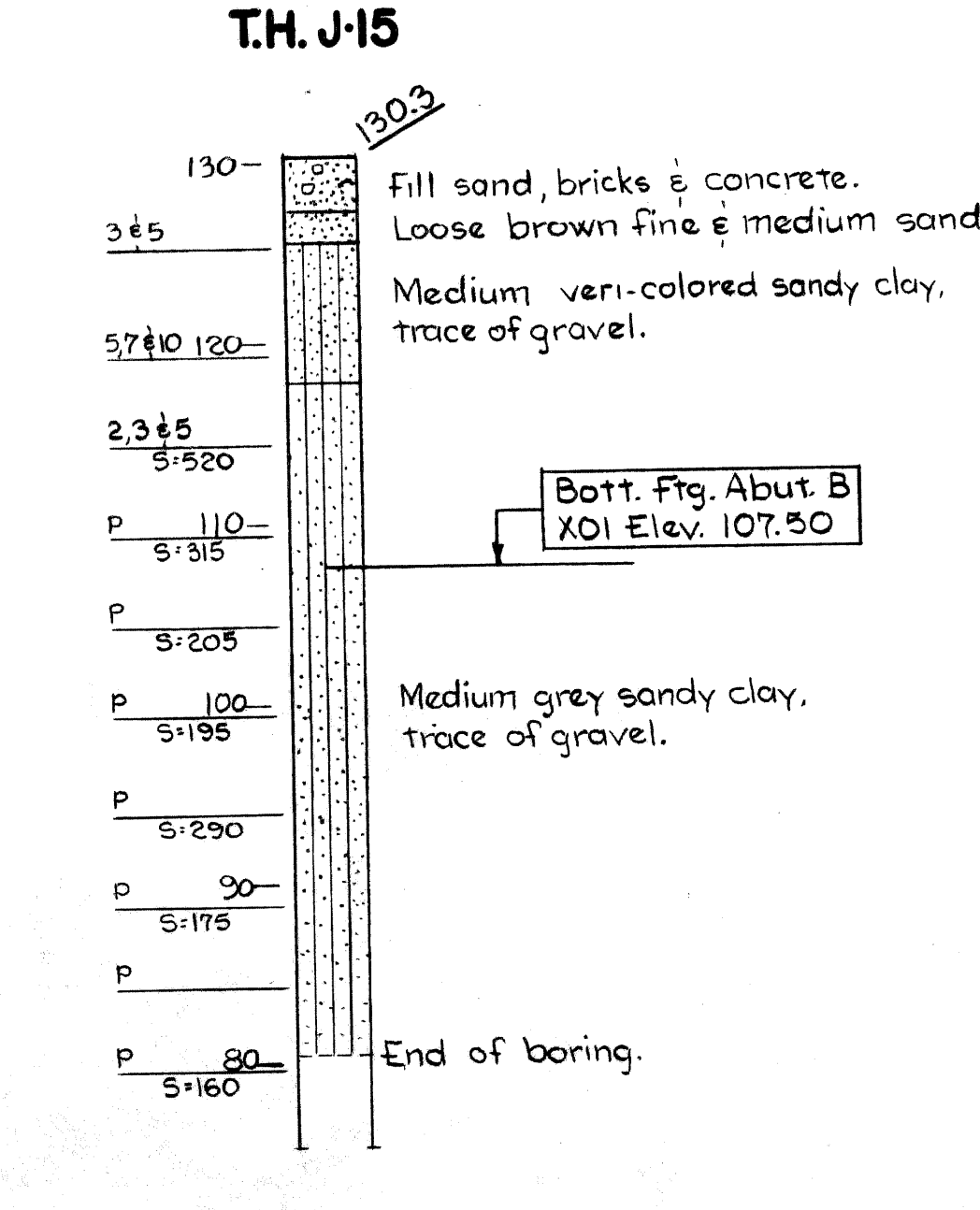
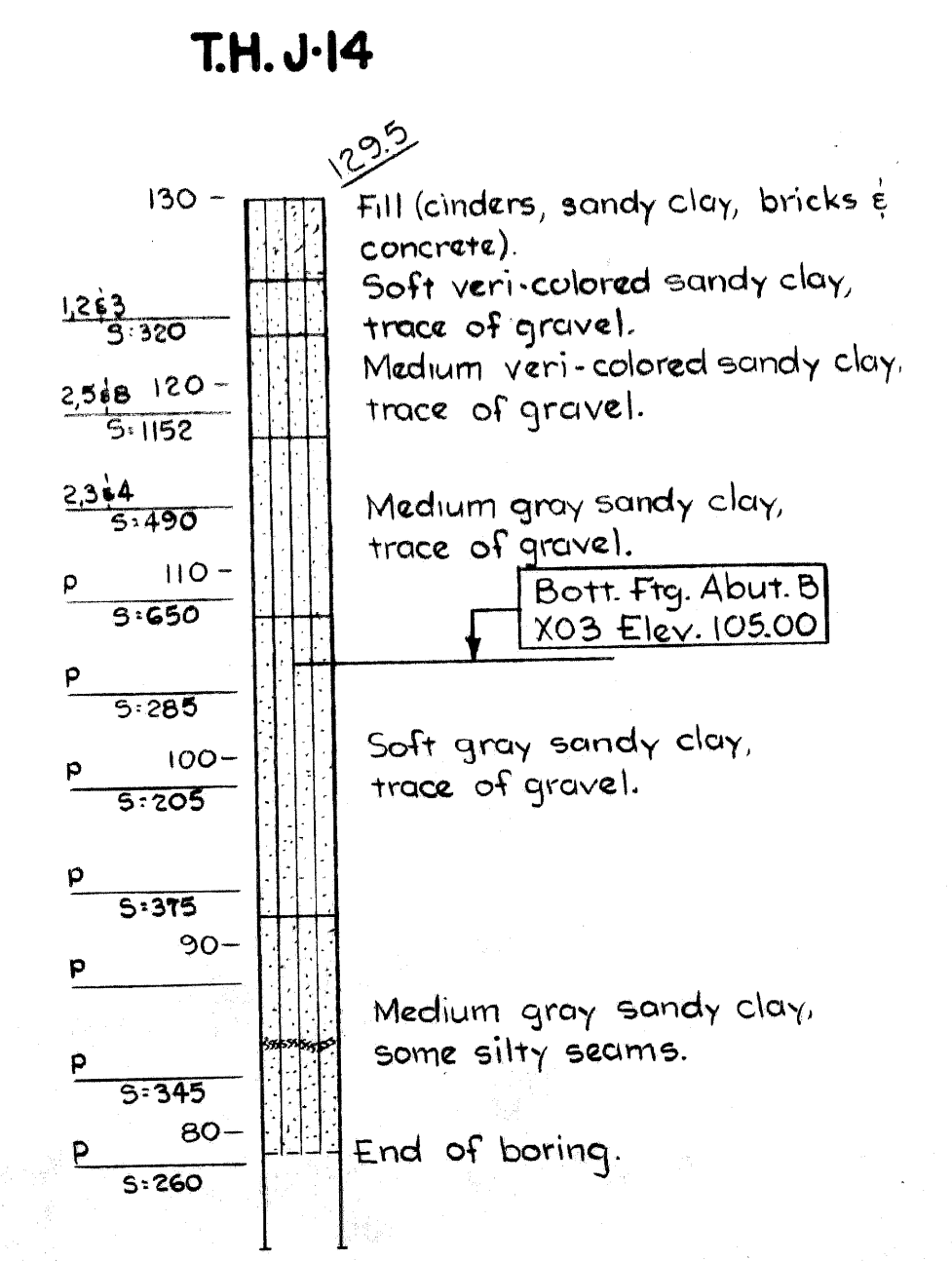
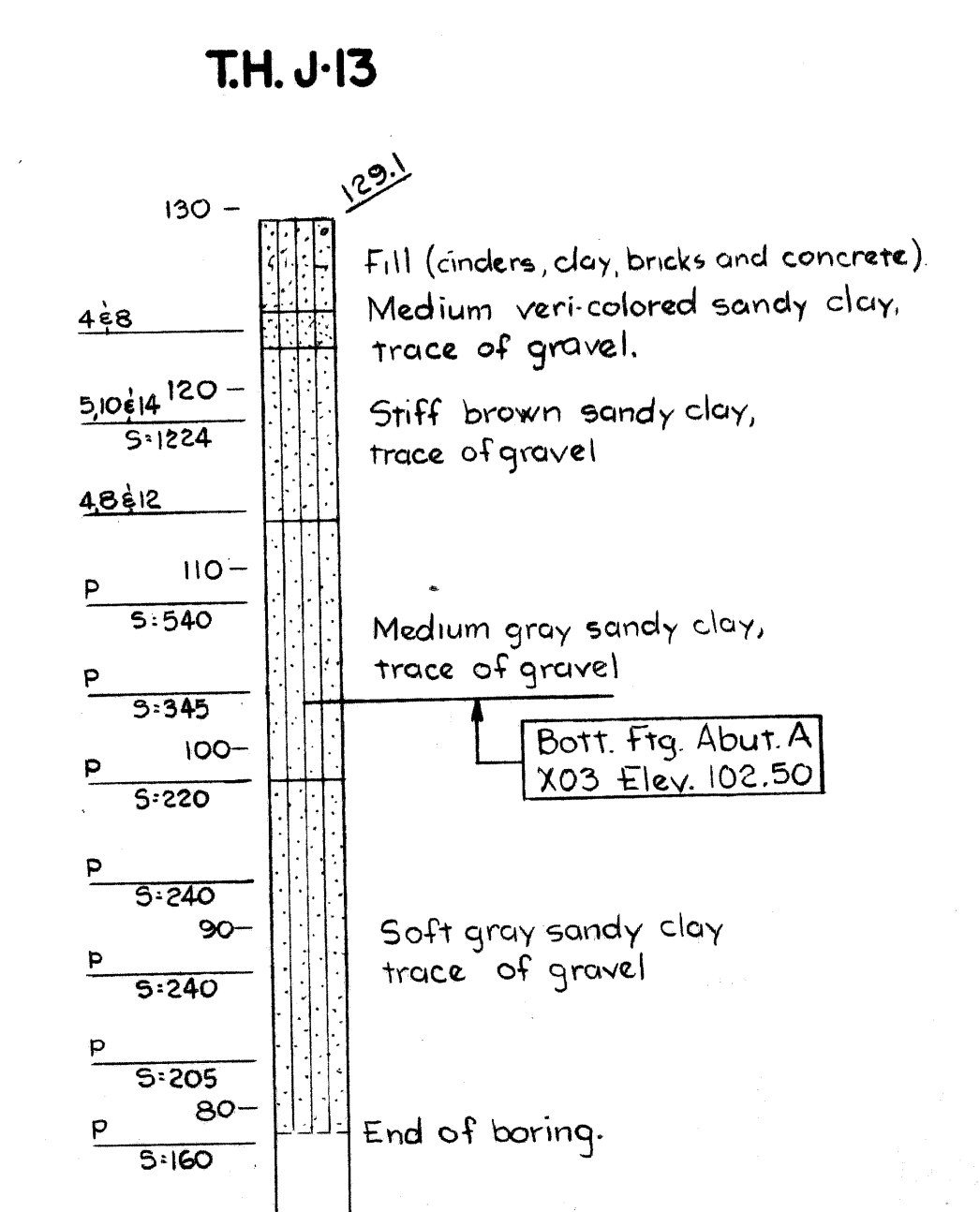
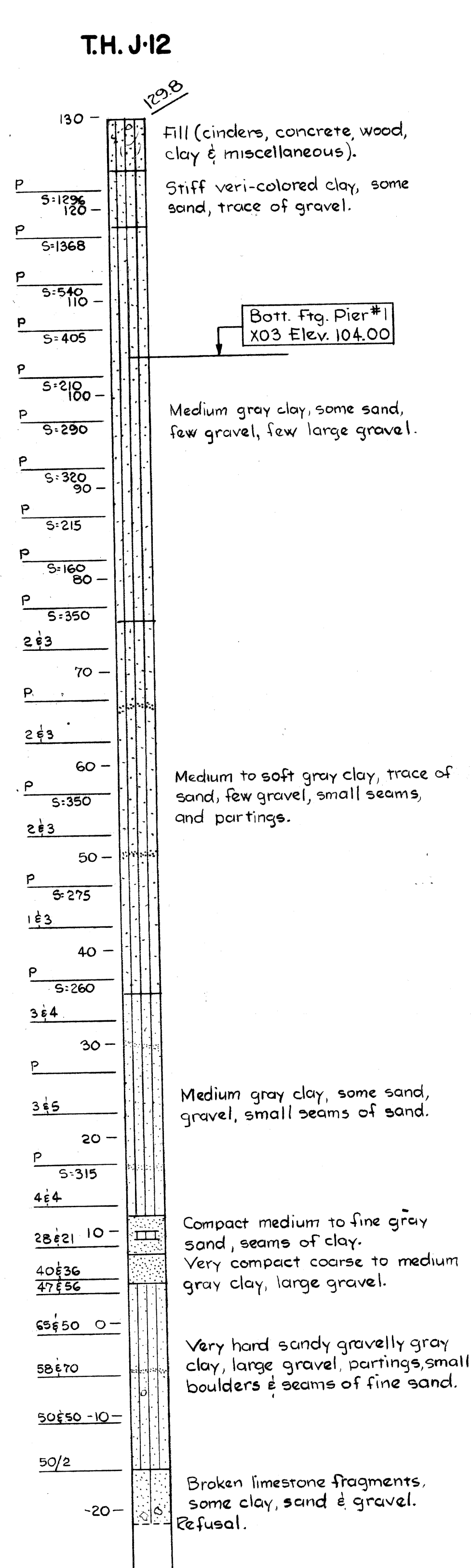
APPROVED \_\_\_\_\_ DESIGN SUPERVISING ENGINEER  
 APPROVED \_\_\_\_\_ ENGINEER OF DESIGN - CONSULTANTS

DATE	BY
6-66	SPURM
FEB 66	ALLEN
JUN 66	W.A.L.

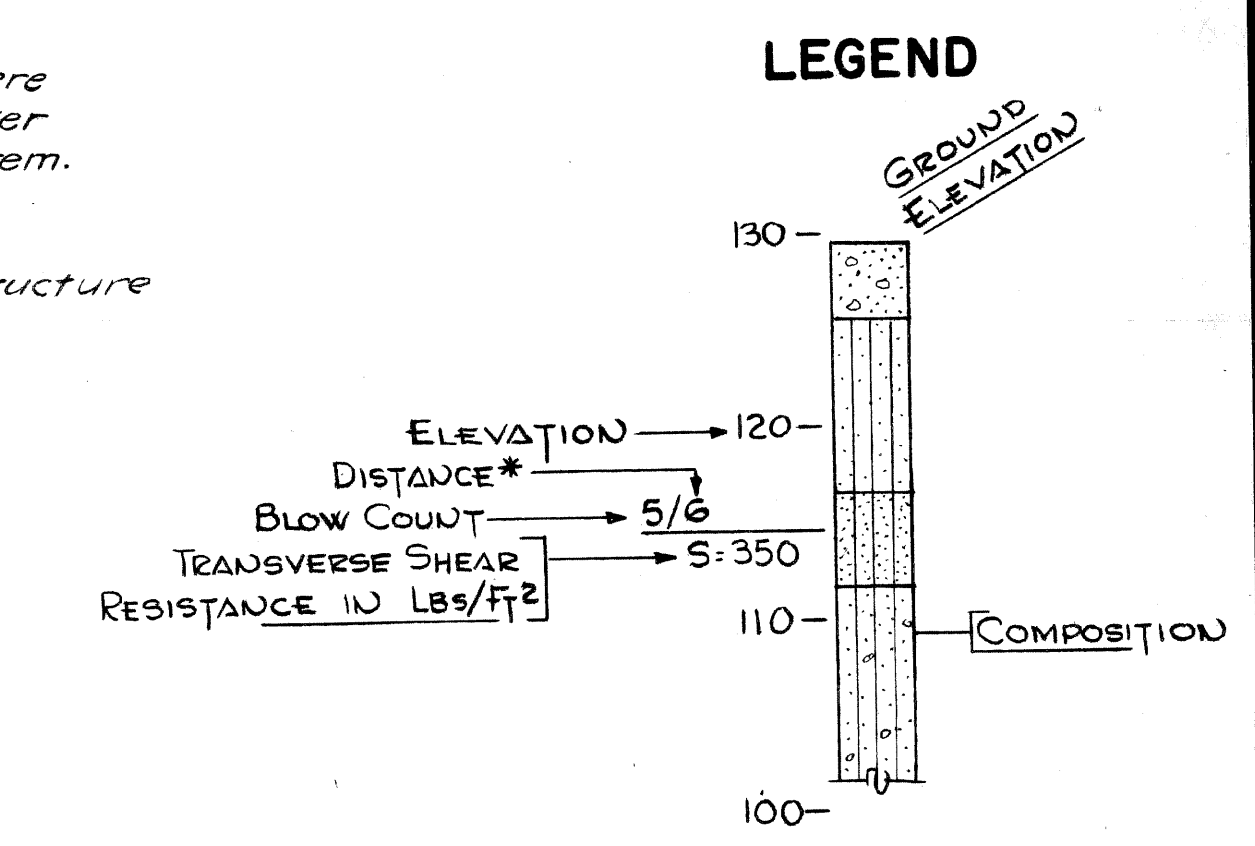
CITY OF DETROIT  
 SHEET 2 OF 32  
**X01 of 82124A**



**LOG OF SOIL BORINGS**



**Note:**  
The terms "soft and medium" shown here correspond to the soft, plastic and lower firm classifications of the M.D.S.H. system.  
All piles are to be driven to or below elevation +10.  
Estimated bottom of piles, all substructure units, elevation -5.

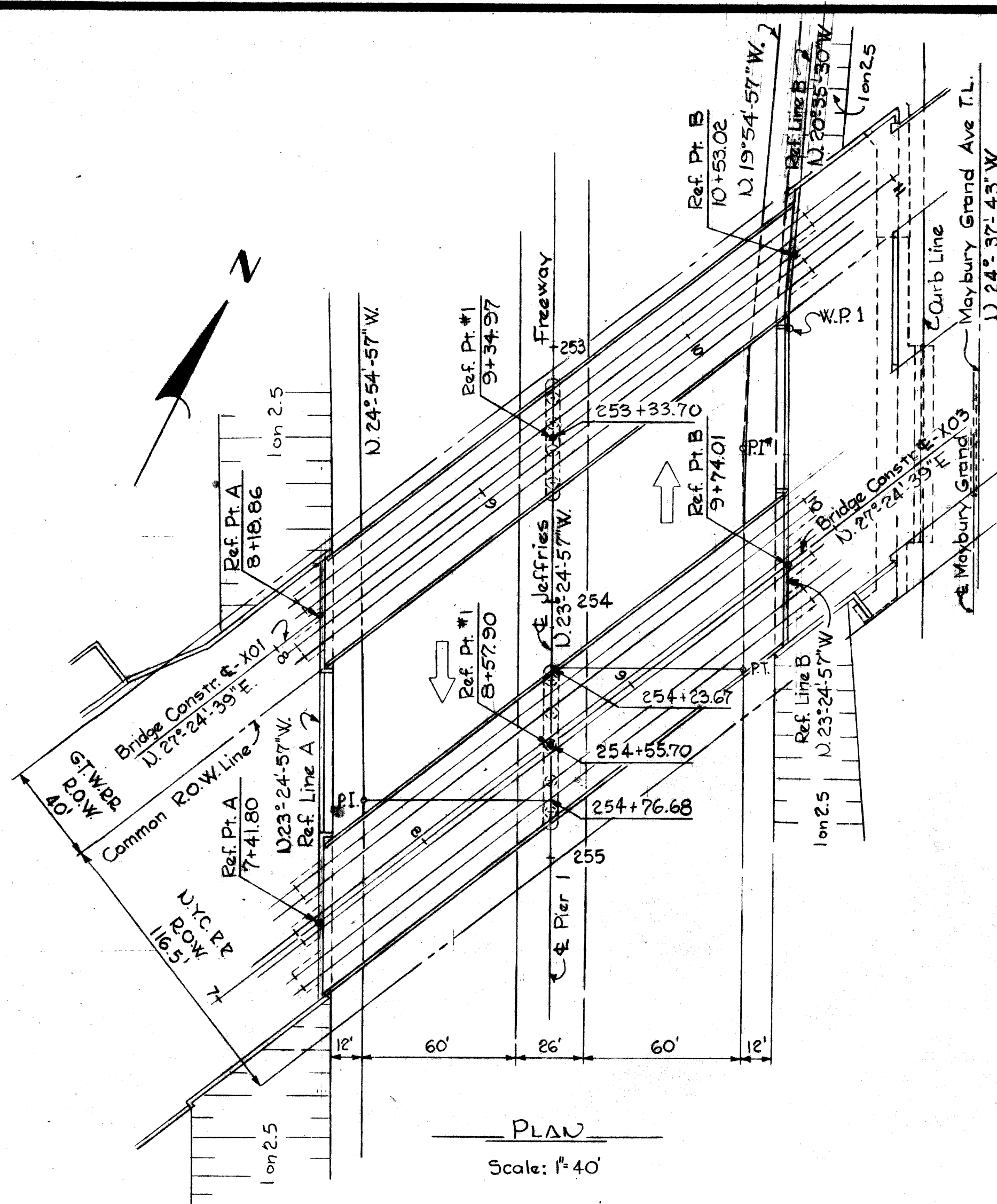


**NOTES:**  
Blow Count - Indicates number of blows required to drive a sampler 6" using a 140# hammer falling 30".  
P - Indicates sampler was pushed.  
S - Indicates Transverse Shearing Resistance in lbs/sq.ft. as determined by M.S.H.D. Standard Test.

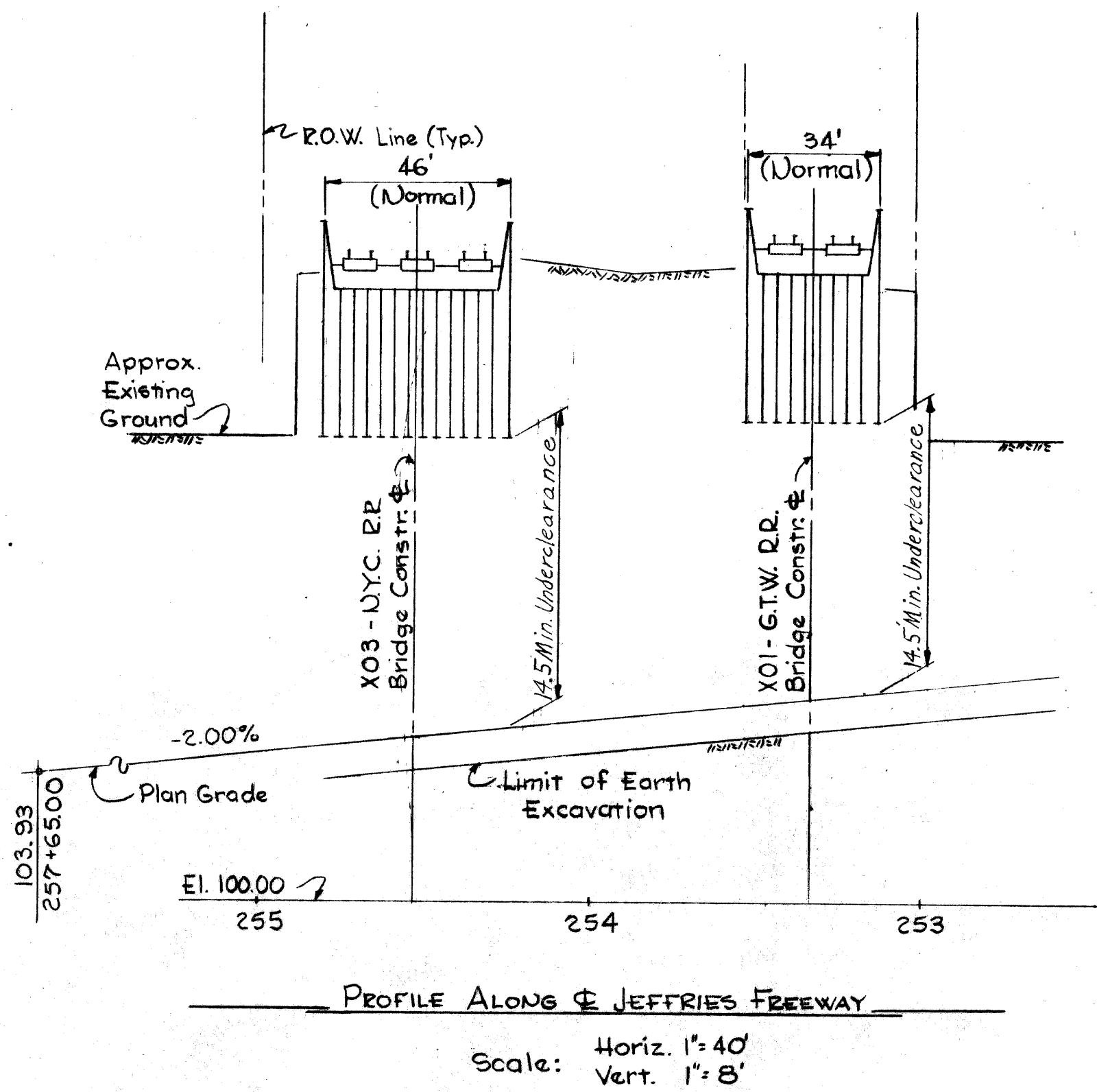
\* 6" if omitted, otherwise as noted.

PLANS PREPARED BY <b>CITY OF DETROIT</b> DEPARTMENT OF PUBLIC WORKS CITY ENGINEERS OFFICE BUREAU OF HIGHWAYS AND EXPRESSWAYS		<b>MICHIGAN DEPARTMENT OF STATE HIGHWAYS</b> GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION CROSSING THE JEFFRIES FREEWAY IN DETROIT	
APPROVED: <i>[Signature]</i> STRUCTURAL ENGINEER		JOB No. PW 990(1)	
REVISIONS NO. DESCRIPTION DATE BY			
APPROVED: _____ DESIGN SUPERVISING ENGINEER		CITY OF DETROIT SQUAD BOSS: <i>[Signature]</i> 6/66 DRAWN BY: ALLEN GEESH 4/66 CHECKED BY: W. A. L. Jun. 66 SHEET 3 OF 37	
APPROVED: _____ ENGINEER OF DESIGN - CONSULTANTS		LOG OF SOIL BORINGS X01 of 82124A	





Curve #1 Data  
 $\Delta = 03^{\circ}30'00''$   
 $D = 02^{\circ}00'00''$   
 $R = 2864.79'$   
 $T = 87.53'$   
 $L = 175.00'$   
 $E = 1.34'$   
 P.C. 252+48.67  
 P.T. 253+36.20  
 P.T. 254+23.67

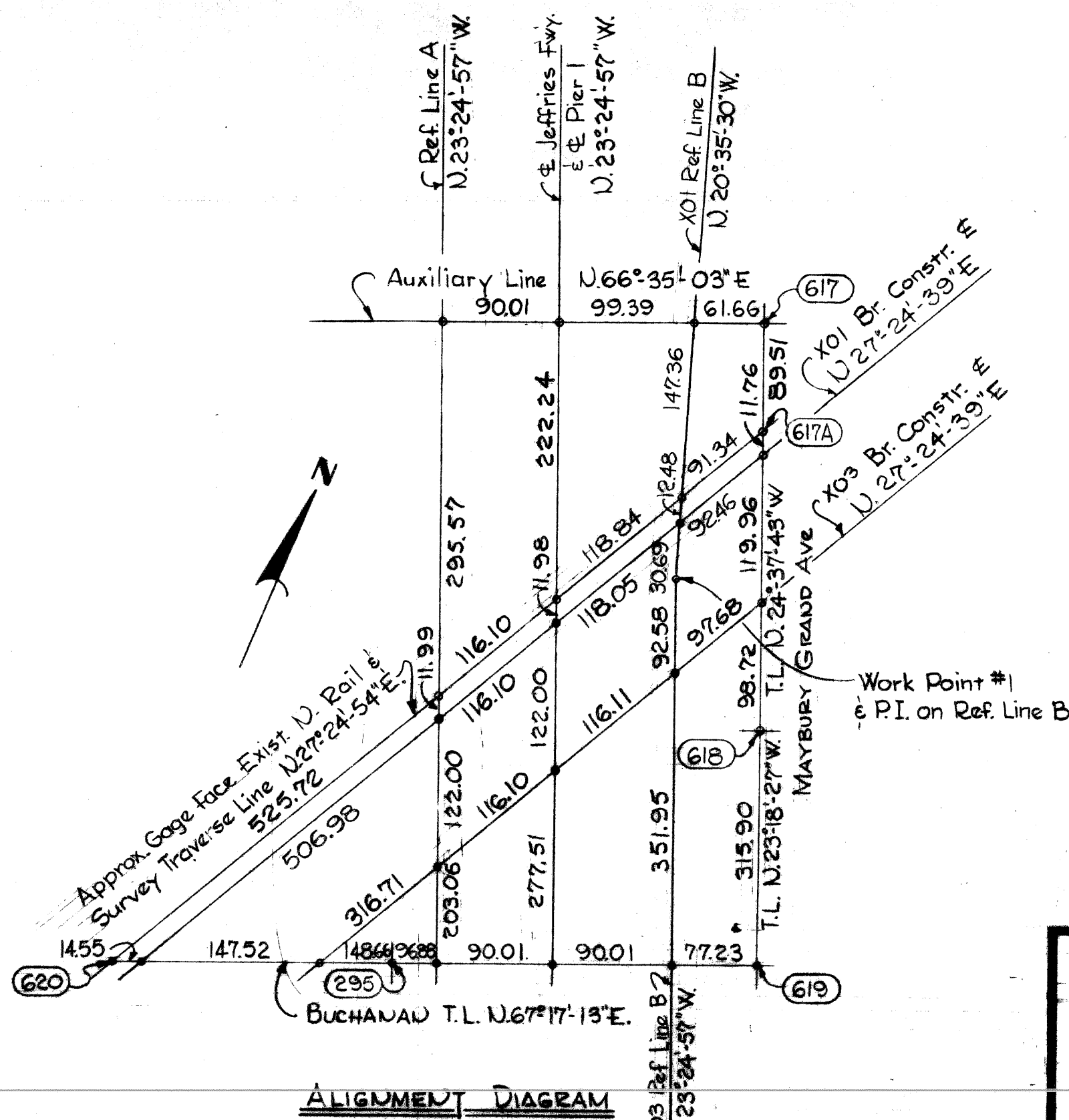
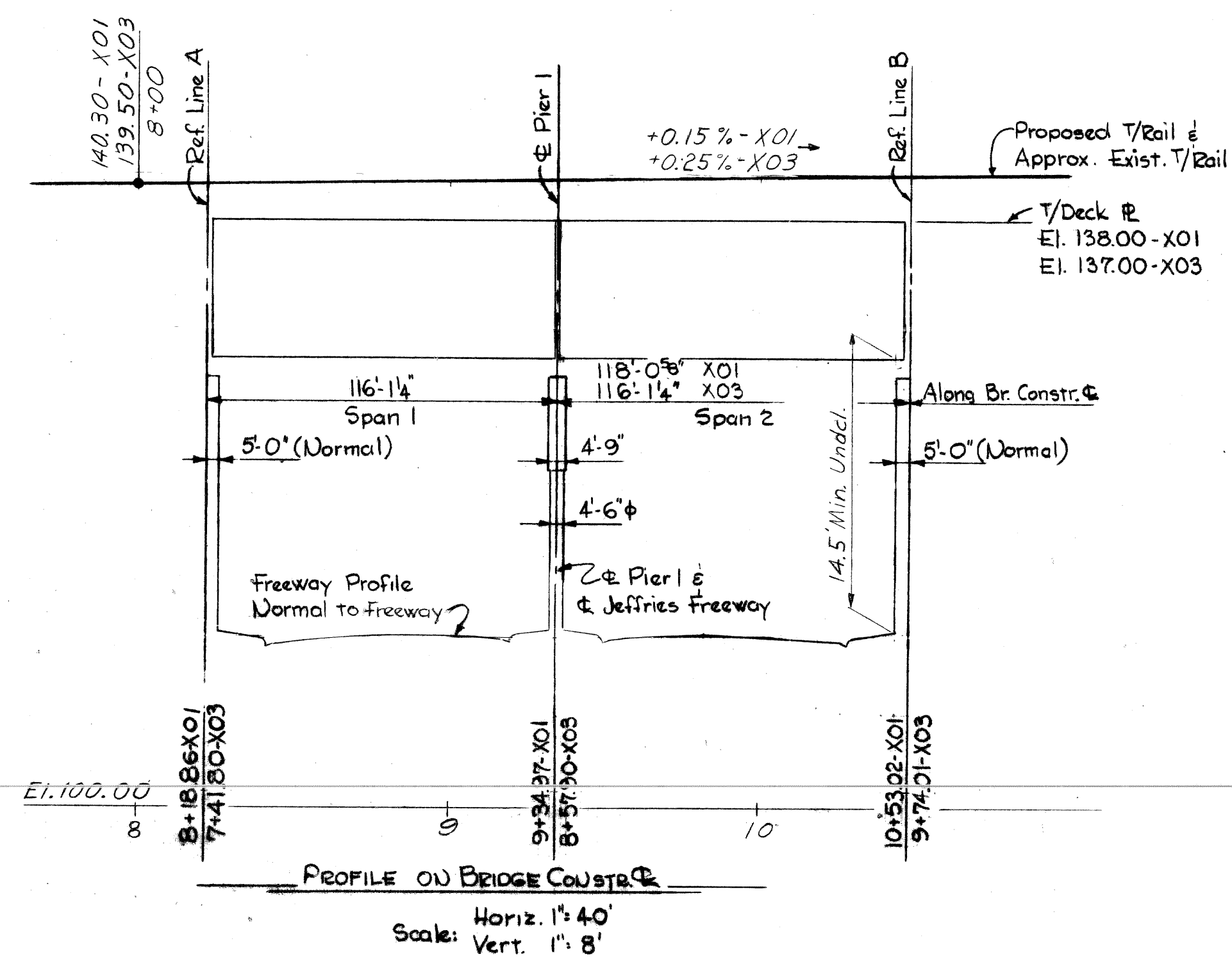


RAILROAD TRAFFIC DATA

G.T.W.R.R. - 20 Freight movements per day at a maximum speed of 30 m.p.h.

N.Y.C.R.R. - 48 Freight movements per day at a maximum speed of 40 m.p.h.

The information concerning the movements of trains and speeds thereof does not represent any commitment on the part of the railroad to continue them unchanged, inasmuch as they are subject to change without notice.



CONSTRUCTION BENCH MARKS

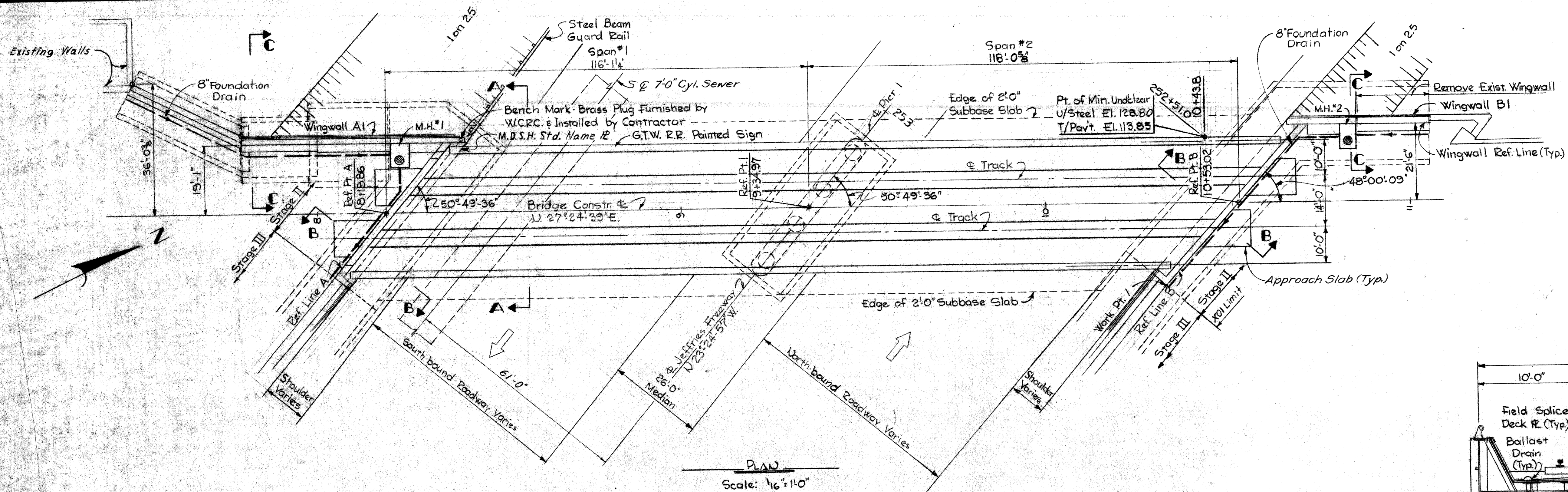
- P.B.M. 20-252A Elev. 129.12 C of D. Monument N.E. corner of Hancock and Tillman.
- P.B.M. 20-253A Elev. 121.78 C of D. Monument N.E. corner of Selden and Tillman.
- C.B.M. 15 Elev. 127.68 Arrow on hydrant N.E. corner Poplar and Maybury Grand.
- C.B.M. 16 Elev. 124.71 DET. on E. of hydrant S.W. corner Buchanan and Williams.
- C.B.M. 17 Elev. 130.29 DET. on E. of hydrant S.E. corner Breckenridge and Williams.
- C.B.M. 18 Elev. 129.26 DET. on E. of hydrant E. side of Maybury Grand 430' S. of Hancock.

Elevations are referred to City of Detroit datum, which is 479.755 Ft. above sea level.

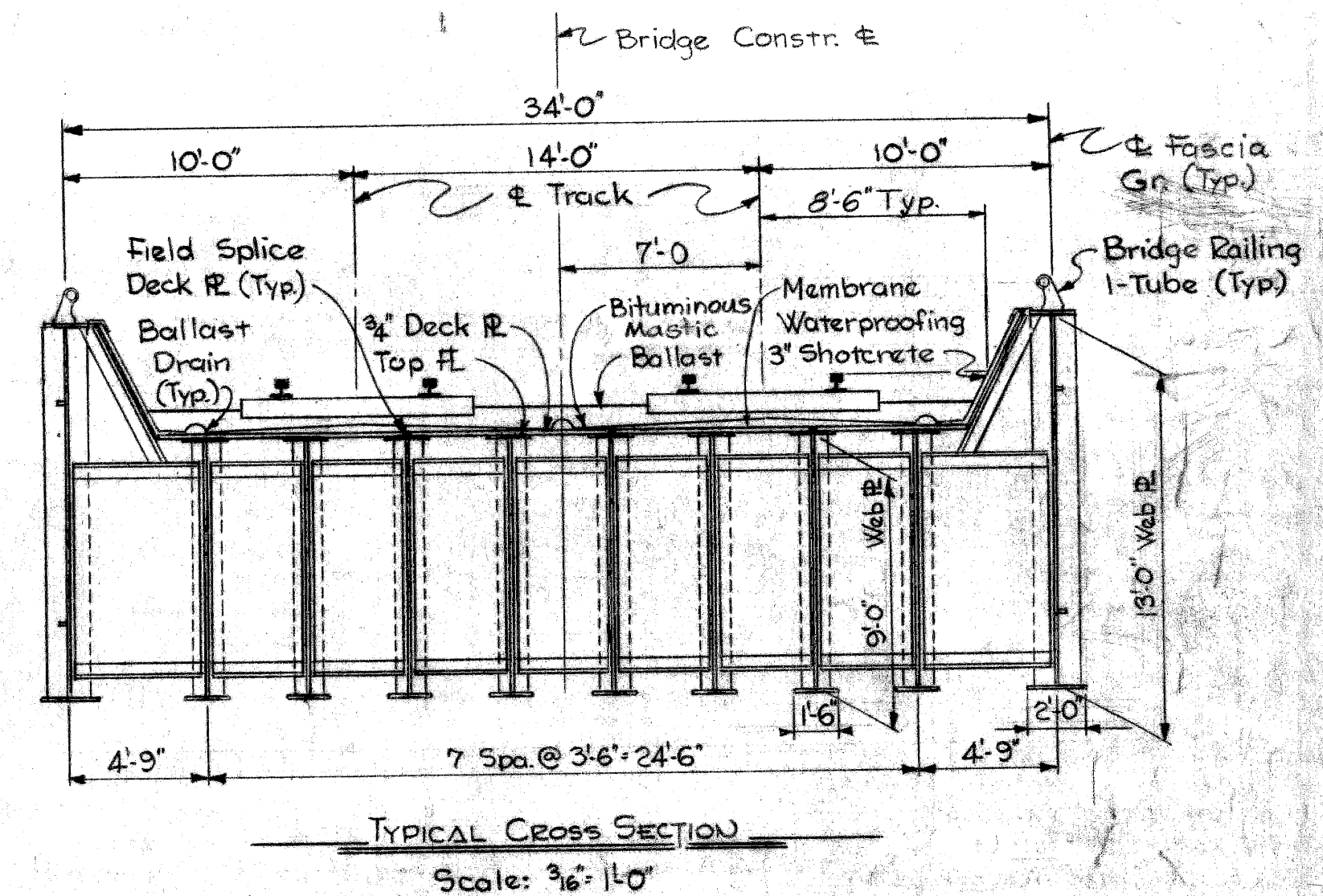
PLANS PREPARED BY <b>CITY OF DETROIT</b> DEPARTMENT OF PUBLIC WORKS CITY ENGINEERS OFFICE BUREAU OF HIGHWAYS AND EXPRESSWAYS		<b>MICHIGAN STATE HIGHWAY DEPARTMENT</b> GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION CROSSING THE JEFFRIES FREEWAY IN DETROIT	
APPROVED: <i>[Signature]</i> STRUCTURAL ENGINEER		JOB No. PW 990(1)	
REVISIONS NO. DESCRIPTION DATE BY			
APPROVED: _____ DESIGN SUPERVISING ENGINEER		APPROVED: _____ ENGINEER OF DESIGN - CONSULTANTS	
CITY OF DETROIT SQUAD ROOM <i>[Signature]</i> <i>[Signature]</i> DRAWN BY <i>[Signature]</i> CHECKED BY <i>[Signature]</i> Jun '66 SHEET 1 OF 37		<b>GENERAL DRAWING</b> X01 of 82124A	

- + Denotes point of intersection
- ⊕ Denotes Bridge Reference Point
- ⊙ Denotes survey traverse point
- T.L. Denotes traverse line

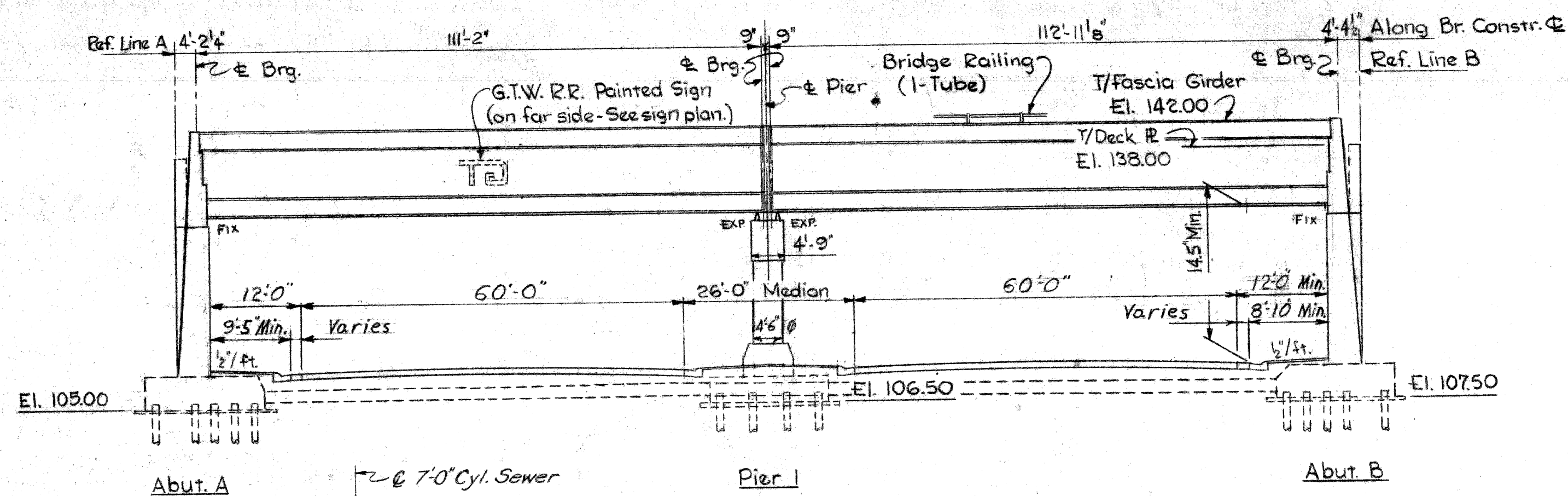




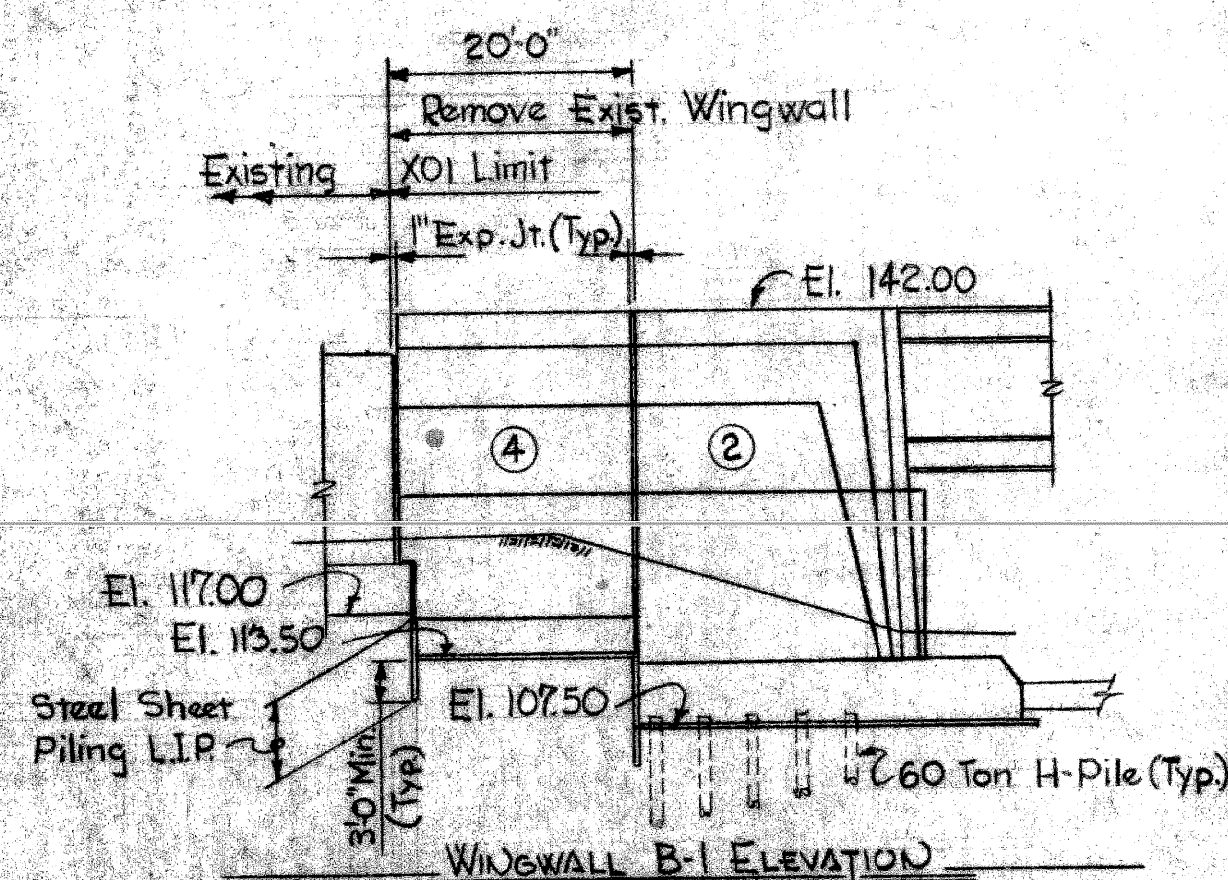
PLAN  
Scale: 1/16" = 1'-0"



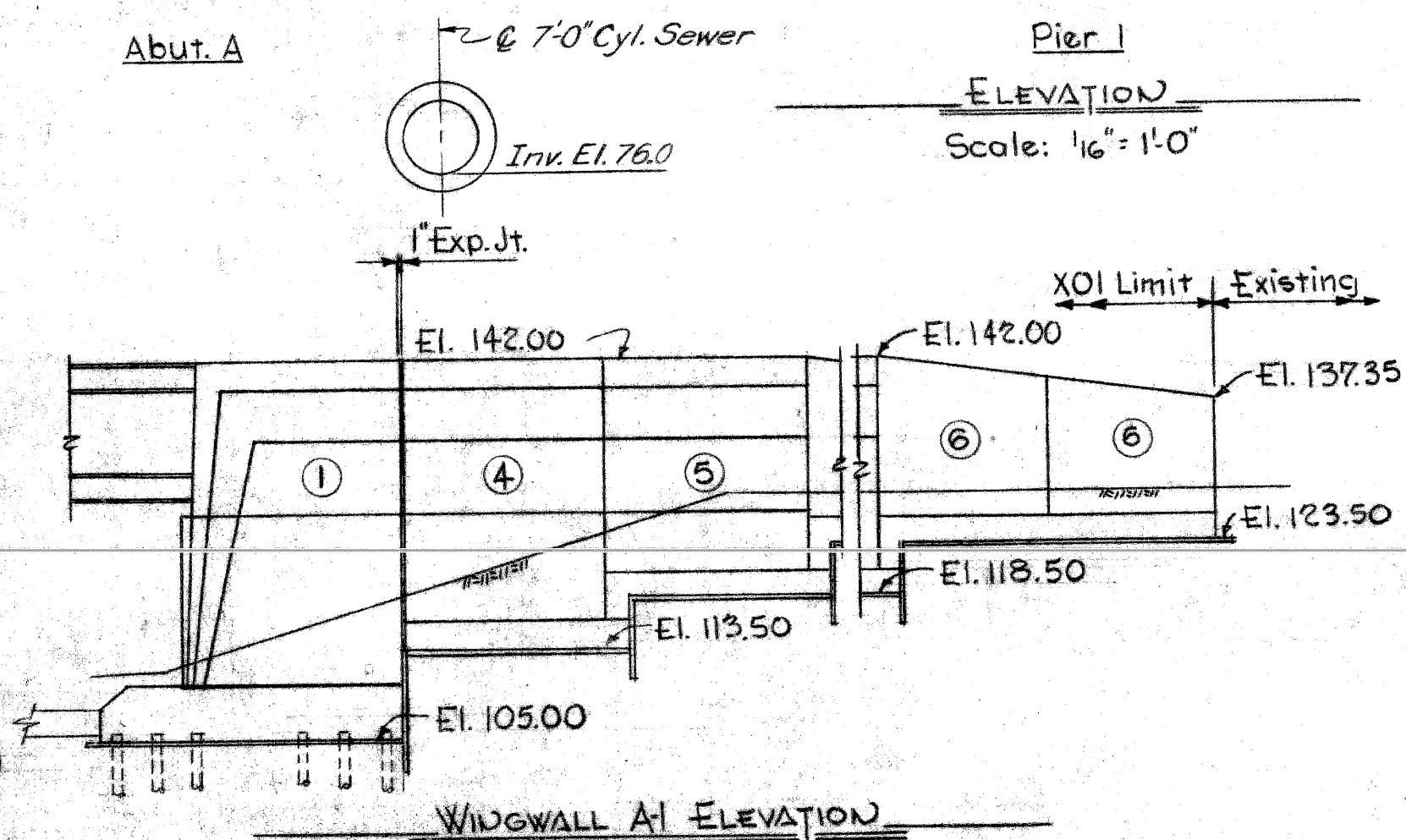
TYPICAL CROSS SECTION  
Scale: 3/16" = 1'-0"



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



WINGWALL B-1 ELEVATION



WINGWALL A1 ELEVATION

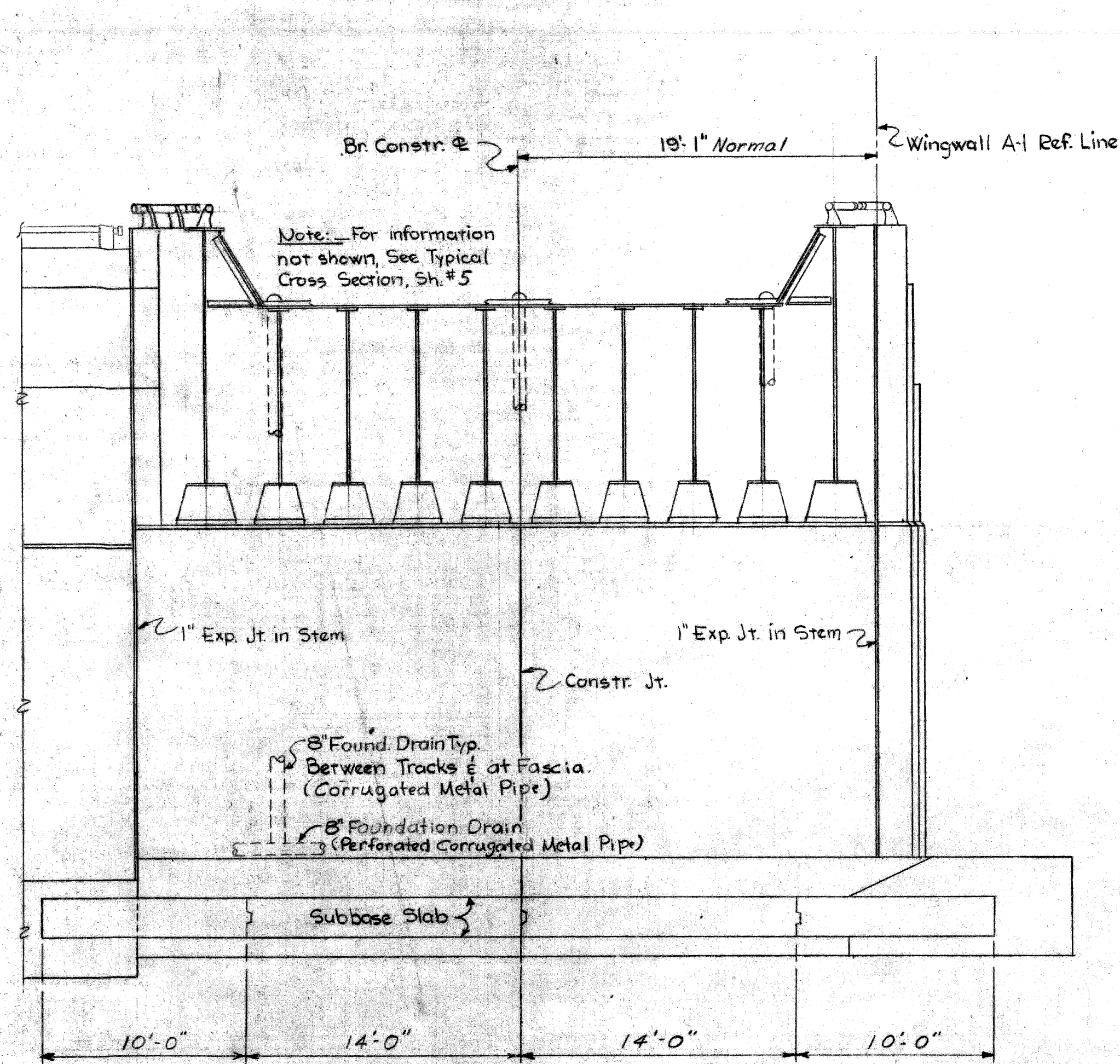
**GENERAL NOTES:**

The design of the superstructure is based on the A.R.E.A. Specifications for Steel Railway Bridge, 1966 edition, using Cooper's E-72 loading with diesel impact plus 20% impact.  
The design of the substructure is based on the M.S.H.D. Specifications for the Design of Highway Bridges, 1958 edition.

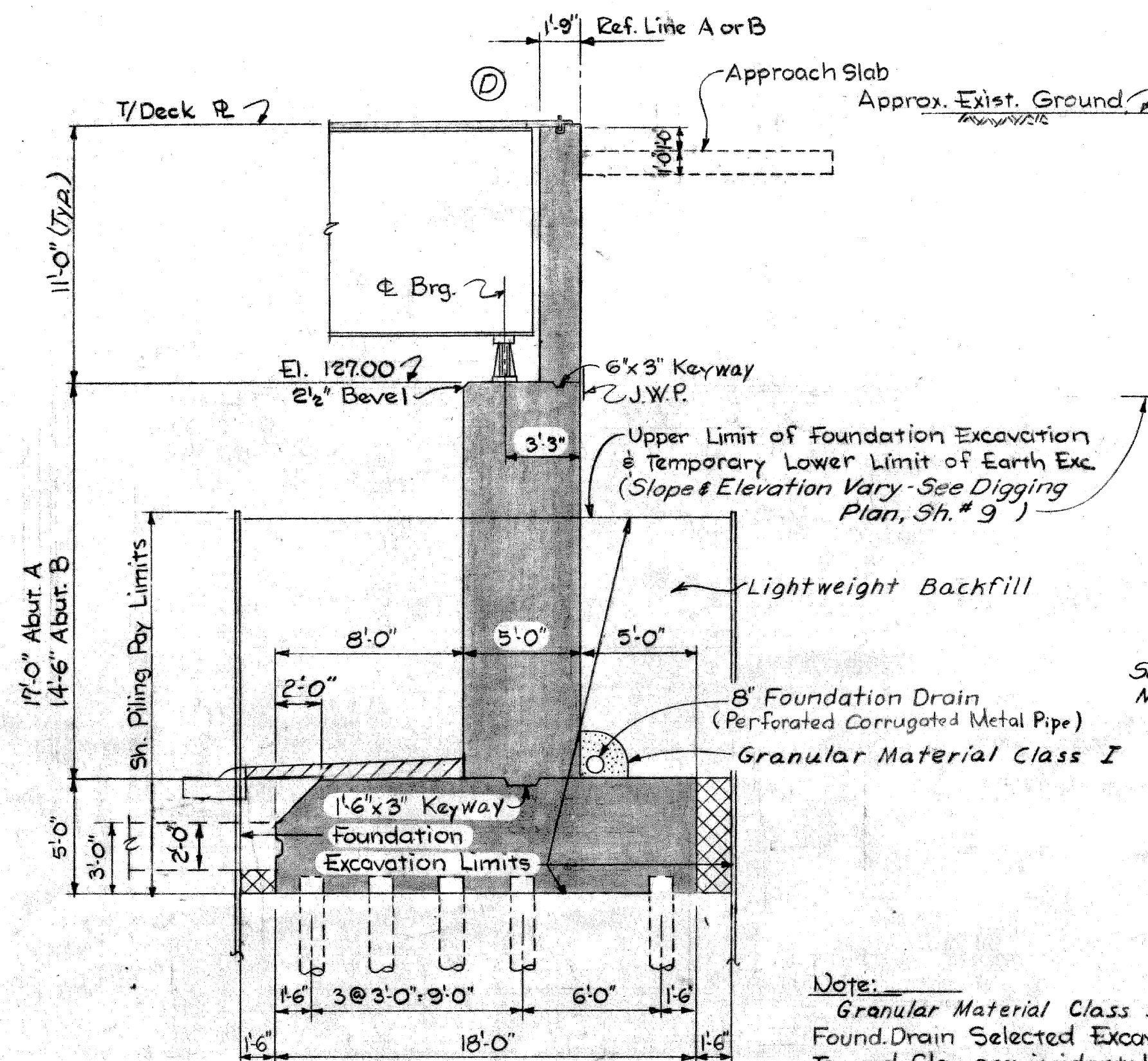
PLANS PREPARED BY <b>CITY OF DETROIT</b> DEPARTMENT OF PUBLIC WORKS CITY ENGINEERS OFFICE BUREAU OF HIGHWAYS AND EXPRESSWAYS		JOB No. PW 990(1)								
APPROVED <i>[Signature]</i> STRUCTURAL ENGINEER	REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DESCRIPTION</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		NO.	DESCRIPTION	DATE	BY				
NO.	DESCRIPTION	DATE	BY							

<b>MICHIGAN STATE HIGHWAY DEPARTMENT</b> GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION CROSSING THE JEFFRIES FREEWAY IN DETROIT	
<b>GENERAL PLAN OF STRUCTURE</b>	
APPROVED _____ DESIGN SUPERVISING ENGINEER	CITY OF DETROIT SQUAD BOSS <i>[Signature]</i> 7/66 DRAWN BY <i>[Signature]</i> June 66 TRACED BY _____ CHECKED BY <i>[Signature]</i> 7/66 SHEET 5 OF 34
APPROVED _____ ENGINEER OF DESIGN - CONSULTANTS	X01 of 82124A

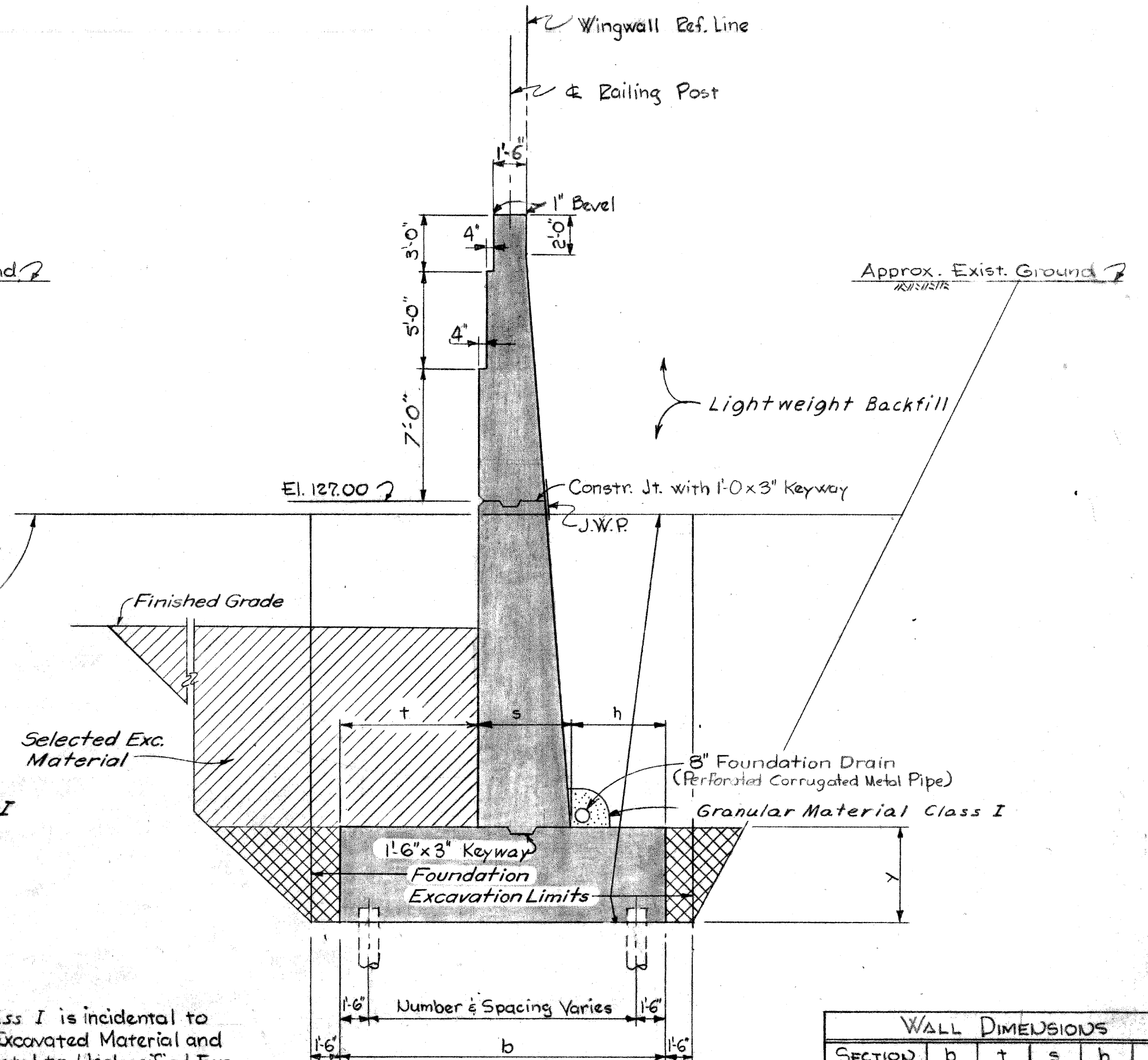




**SECTION A-A**  
Scale: 3/16"=1'-0"



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

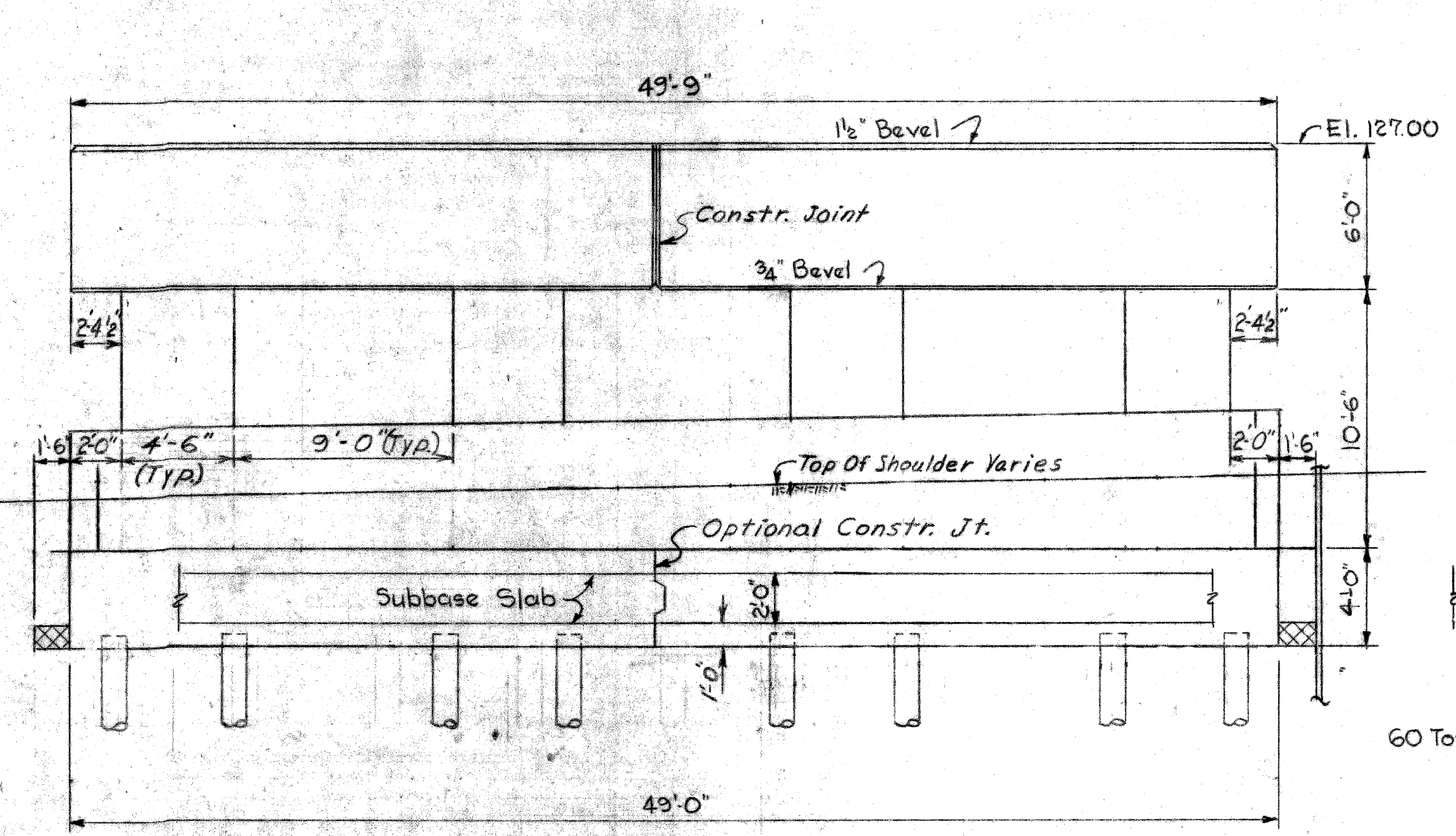


**SECTION C-C**  
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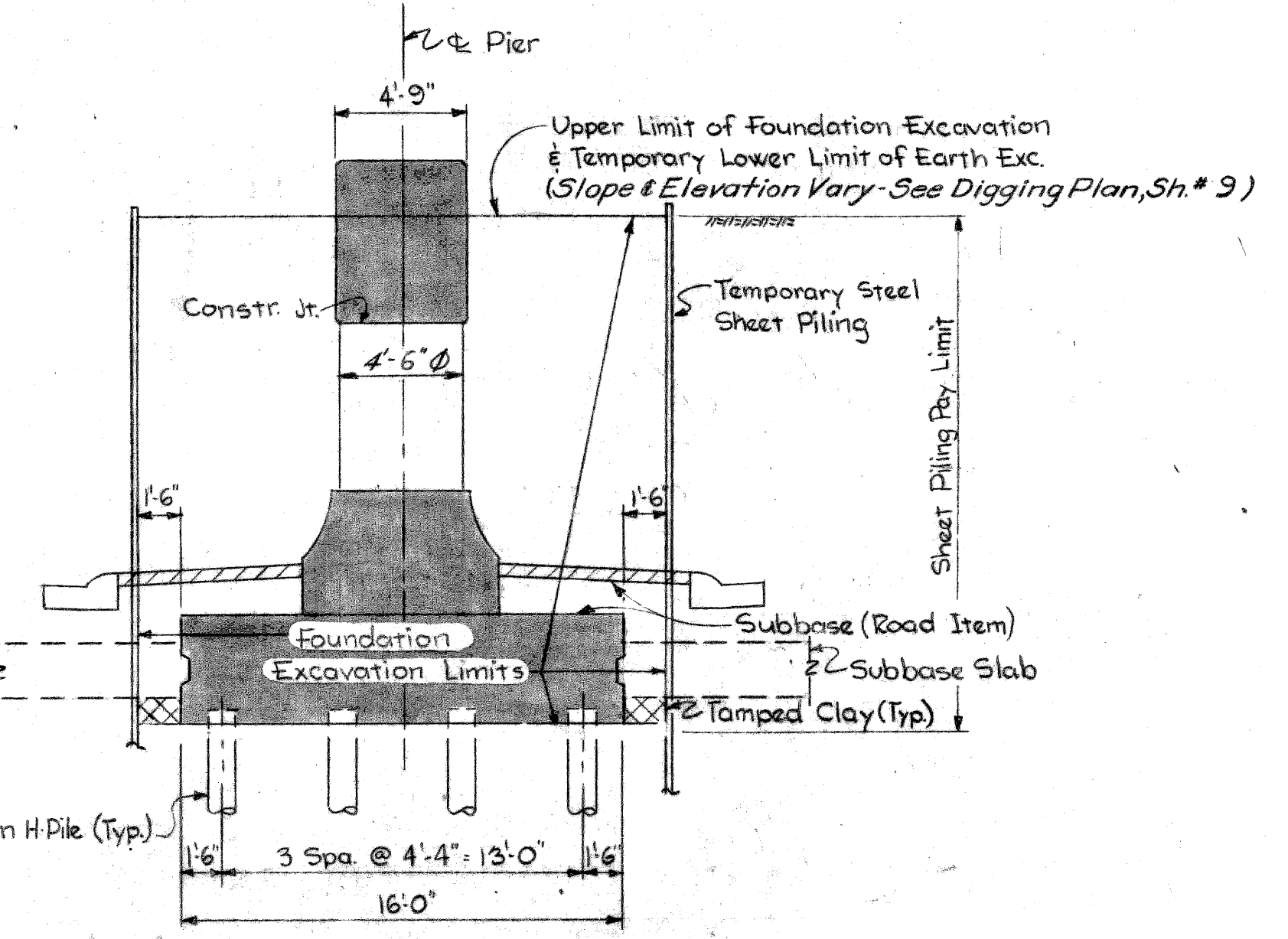
WALL DIMENSIONS					
SECTION	b	t	s	h	y
1	-	7'-9"	5'-0"	-	5'-0"
2	20'-0"	7'-9"	5'-0"	7'-3"	5'-0"
3	-	-	-	-	-
4	20'-0"	7'-9"	4'-3"	8'-0"	3'-0"
5	15'-0"	4'-0"	4'-0"	7'-0"	3'-0"
6	11'-0"	2'-6"	3'-0"	5'-6"	2'-6"

Note: Granular Material Class I is incidental to Found. Drain Selected Excavated Material and Tamped Clay are incidental to Unclassified Exc.

Note: For Limits of Lightweight Backfill see Digging Plan, Sh. # 9



**PIER ELEVATION**  
Scale: 3/16"=1'-0"



**TYPICAL PIER SECTION**  
Scale: 3/16"=1'-0"

PLANS PREPARED BY  
CITY OF DETROIT  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: *[Signature]* STRUCTURAL ENGINEER  
JOB NO. PW 990(1)

NO.	DESCRIPTION	DATE	BY
D	Sect. B-B	6/68	H.E.

MICHIGAN STATE HIGHWAY DEPARTMENT  
GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
CROSSING THE JEFFRIES FREEWAY IN DETROIT

**GENERAL PLAN OF STRUCTURE**

APPROVED: *[Signature]* DESIGN SUPERVISING ENGINEER  
APPROVED: *[Signature]* ENGINEER OF DESIGN - CONSULTANTS

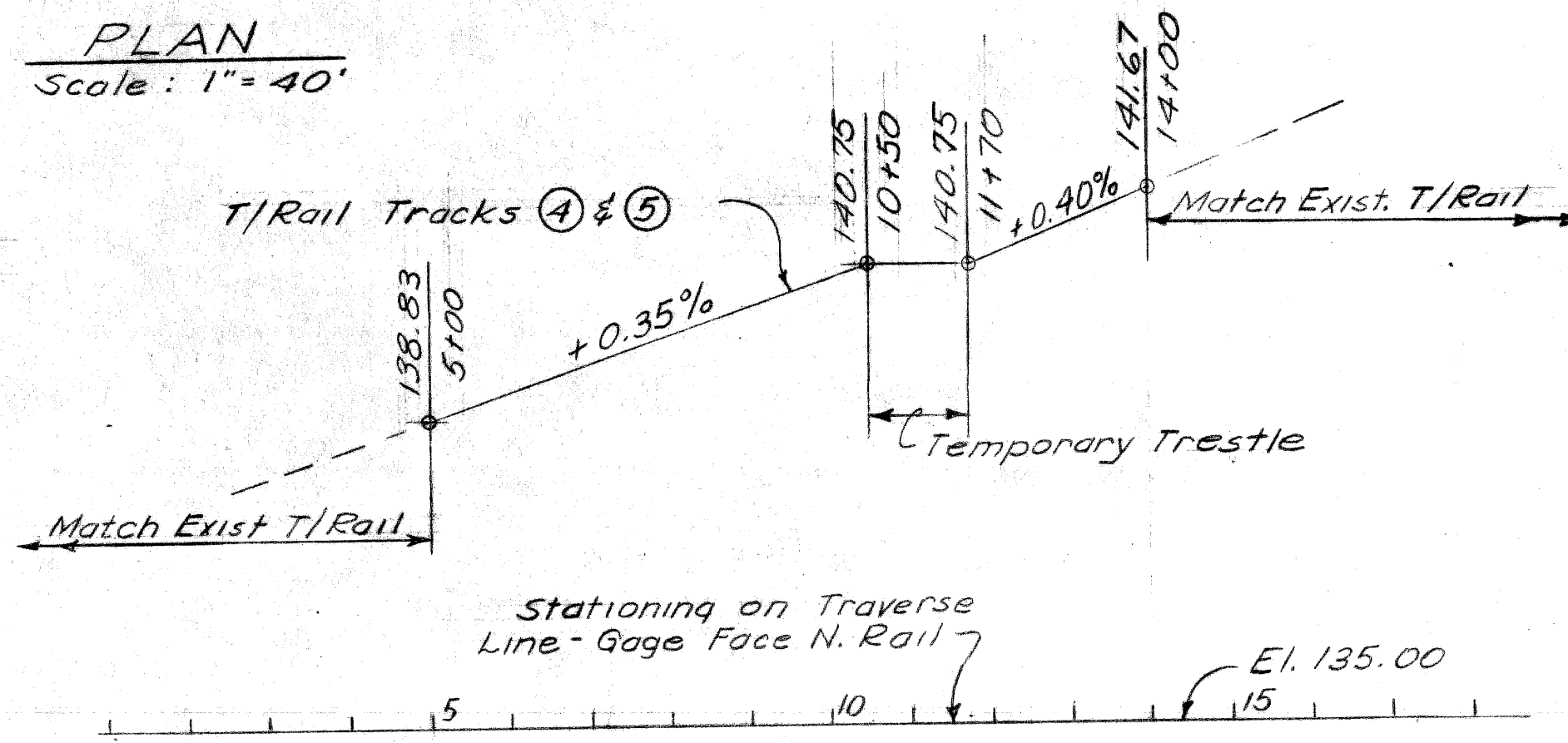
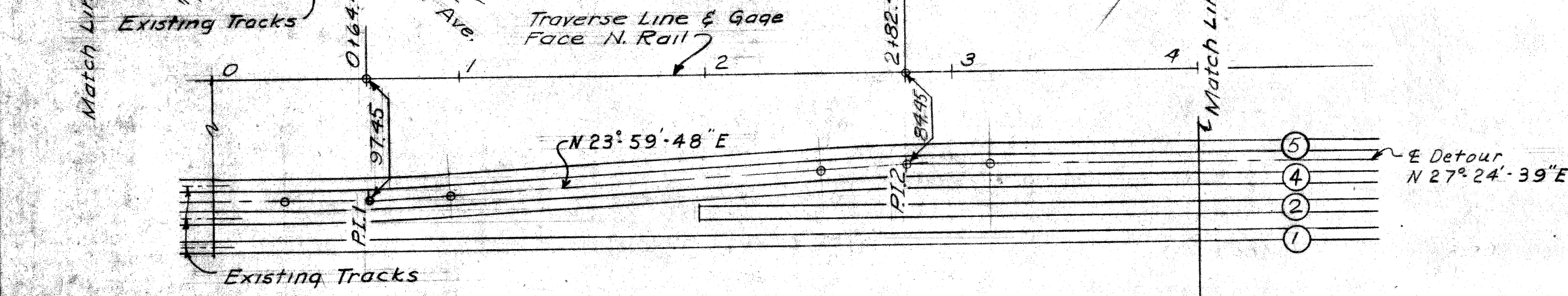
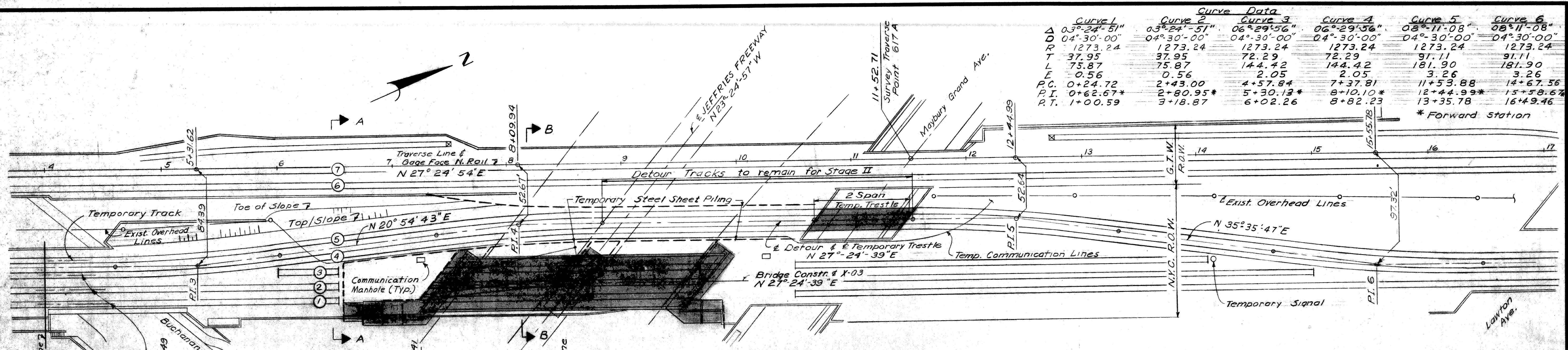
SQUAD BOSS	DATE
Stuen	7/66
Allen	6-66
Traced by	
Checked by	Stuen 7/66
SHEET 6 OF 32	

X01 of 82124A

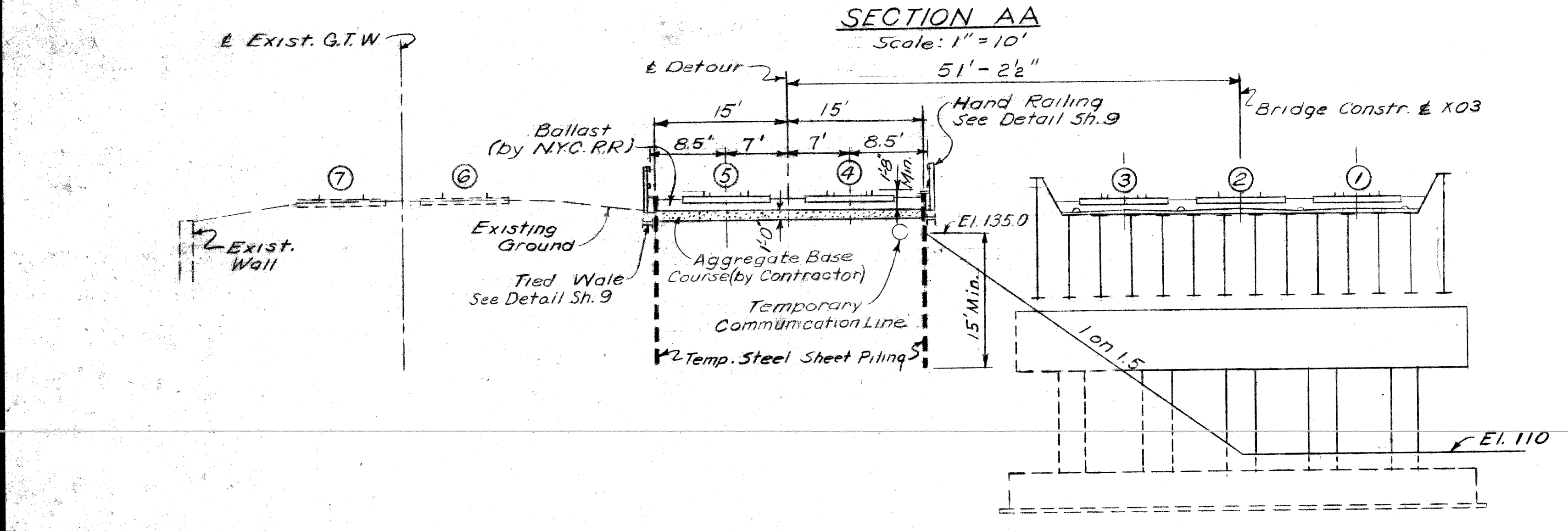
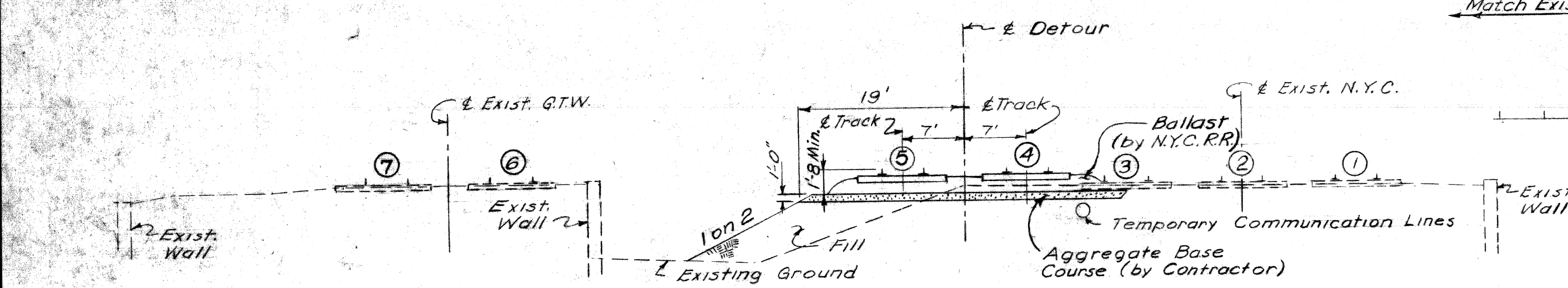


Curve Data						
	Curve 1	Curve 2	Curve 3	Curve 4	Curve 5	Curve 6
Δ	03°24'51"	03°24'51"	06°29'56"	06°29'56"	08°11'08"	08°11'08"
DD	04°30'00"	04°30'00"	04°30'00"	04°30'00"	04°30'00"	04°30'00"
R	1273.24	1273.24	1273.24	1273.24	1273.24	1273.24
T	37.95	37.95	72.29	72.29	91.11	91.11
L	75.87	75.87	144.42	144.42	181.90	181.90
E	0.56	0.56	2.05	2.05	3.26	3.26
P.C.	0+24.72	2+43.00	4+57.84	7+37.81	11+53.88	14+67.56
P.T.	0+62.67*	2+80.95*	5+30.13*	8+10.10*	12+44.99*	15+58.57*
P.T.	1+00.59	3+18.87	6+02.26	8+82.23	13+35.78	16+49.46

\* Forward Station



- STAGE I**
- To be done by Contractor:  
Place temporary sheet piling and embankment. Grade for detour tracks ④ & ⑤. Construct Temporary Trestle over Maybury Grand.
  - To be done by N.Y.C.R.R. Company:  
Place temporary communication line & temporary signal. Place ballast & detour tracks ④ & ⑤, make track connection as required outside of construction area, & place rails on trestle. Route Railroad traffic to tracks ④ & ⑤.
  - To be done by Contractor:  
Construct Bridge X03
  - To be done by N.Y.C.R.R. Company:  
Place permanent communication line, ballast & tracks ①, ②, & ③ on new Bridge X03 and approaches. Remove tracks ④ & ⑤ except parts required for Stage II. Remove temporary signal. Route Railroad traffic to normal operation on tracks ① ② & ③ over new Bridge X03



Note:  
Selected yellow clayfill required for detour and final grading (Section A-A, Sheets 7, 8, 11) is 1250 cu. yds., detour Stage 1  
475 cu. yds., detour Stage 2  
575 cu. yds., final grading  
2300 cu. yds., total, and is shown as loss in road quantities.

MISCELLANEOUS QUANTITY - STAGES I & 2			
ITEM	UNIT	AMOUNT X01	AMOUNT X03
Aggregate Base Course 22A	Cu. Yds.(C.I.P.)	736	736

Work Sheets 7 Thru 11 Together

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
CROSSING THE JEFFRIES FREEWAY IN DETROIT

**CONSTRUCTION SEQUENCE**  
STAGE I

NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT

SQUAD BOSS	SWAN	7/66
DRAWN BY	WAL	7/66
TRACED BY		
CHECKED BY	SWAN	7/66
SHEET 7 OF 31		

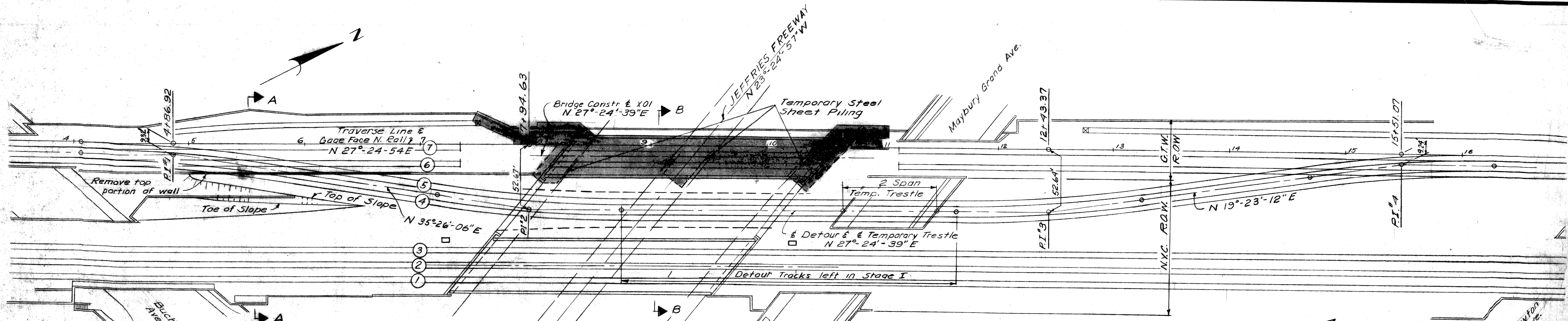
**X01 of 82124A**

PLANS PREPARED BY  
CITY OF DETROIT  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: *[Signature]*  
STRUCTURAL ENGINEER

JOB No.  
PW 990(1)

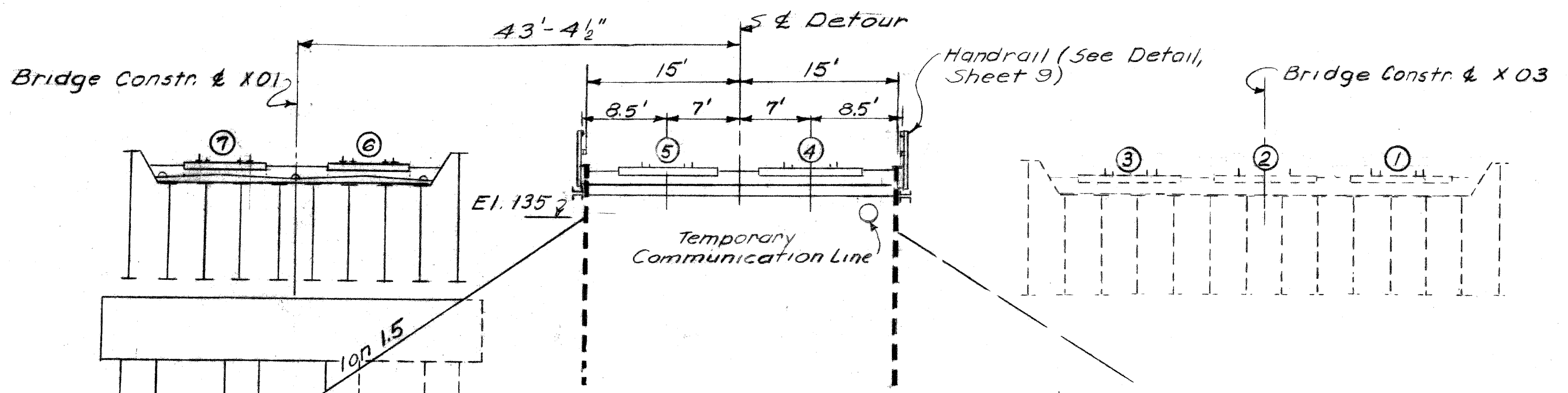
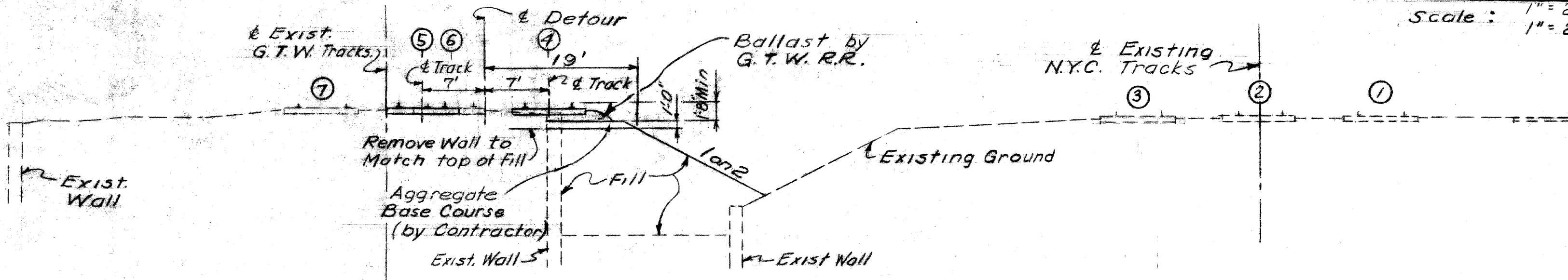
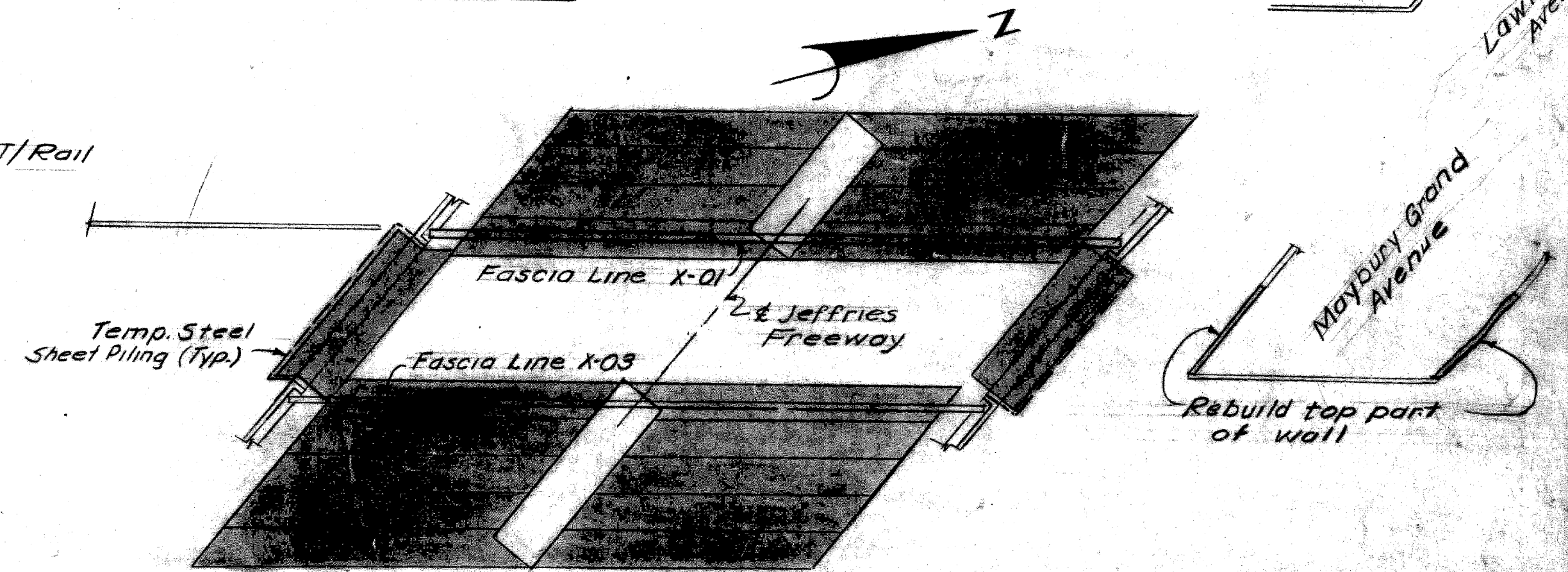
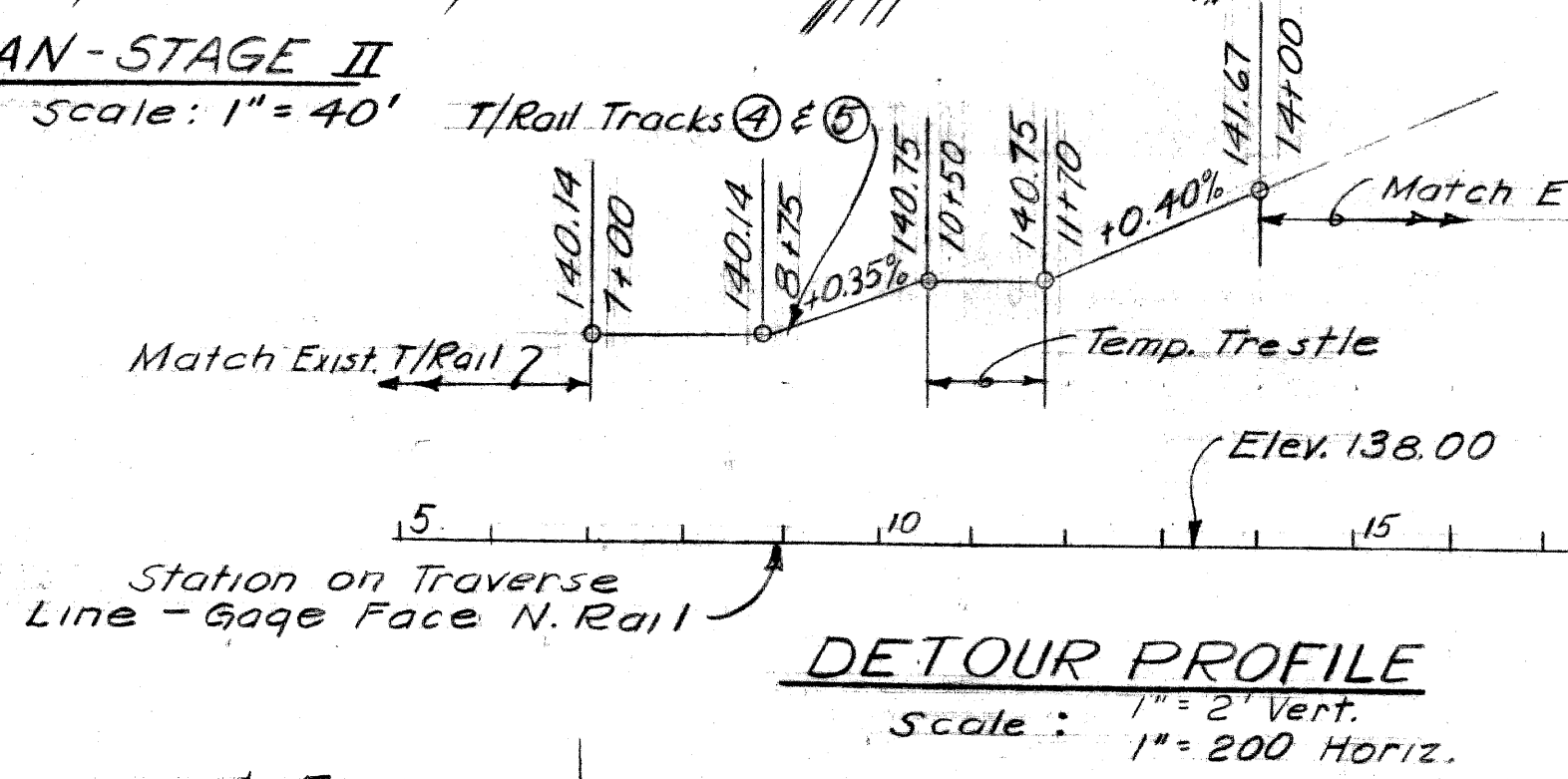




**Curve Data**

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Δ	08°-01'-27"	08°-01'-27"	08°-01'-27"	08°-01'-27"
D	05°-00'-00"	05°-00'-00"	05°-00'-00"	05°-00'-00"
R	1145.92'	1145.92'	1145.92'	1145.92'
L	80.37'	80.37'	80.37'	80.37'
E	160.48'	160.48'	160.48'	160.48'
P.C.	4+04.03'	7+14.52'	11+63.00'	14+73.48'
P.T.	4+84.41'	7+94.89'	12+43.37'	15+53.85'
P.T.	5+64.52'	8+75.00'	13+23.48'	16+33.97'

\* Forward Station



- Stage II**
- To be done by Contractor: Remove top portion of wall where tracks 4 & 5 cross, and place embankment for tracks 4 & 5.
  - To be done by G.T.W.R.R. Co.: Place ballast & detour tracks 4 & 5. Use Temporary Trestle & that part of temporary detour remaining from Stage I. Route Railroad traffic to tracks 4 & 5.
  - To be done by Contractor: Build Bridge X01.
  - To be done by G.T.W.R.R. Co.: Place ballast and tracks 6 & 7 on new bridge X01 and approaches. Remove tracks 4 & 5 except parts left by N.Y.C.R.R. in Stage I. Route Railroad traffic to normal operation on tracks 6 & 7 over new Bridge X01.
  - To be done by N.Y.C.R.R. Company: Remove portion of tracks 4 & 5 left in Stage I. Remove temporary Communication Line.
- Stage III**
- Remove temporary trestle and rebuild top portion of walls removed for trestle.
  - Complete excavation and build Subbase Slab. (Excavate in a manner that allows no more than 30' of footing unrestrained at any time.)
  - Build retaining walls to connect abutments between Bridges X01 & X03.
  - Grade As Shown On The Grading & Utility Plan.
- Note: All operations in Stage III to be done by the Contractor.

Work Sheets 7 Thru 11 Together

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
CROSSING THE JEFFRIES FREEWAY IN DETROIT

CONSTRUCTION SEQUENCE  
STAGES 2 & 3

REVISIONS

NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT

SQUAD BOSS	STUMM	7/66
DRAWN BY	WAL	7/66
CHECKED BY	STUMM	7/66

SHEET 8 OF 34

X01 of 82124A

PLANS PREPARED BY  
CITY OF DETROIT  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

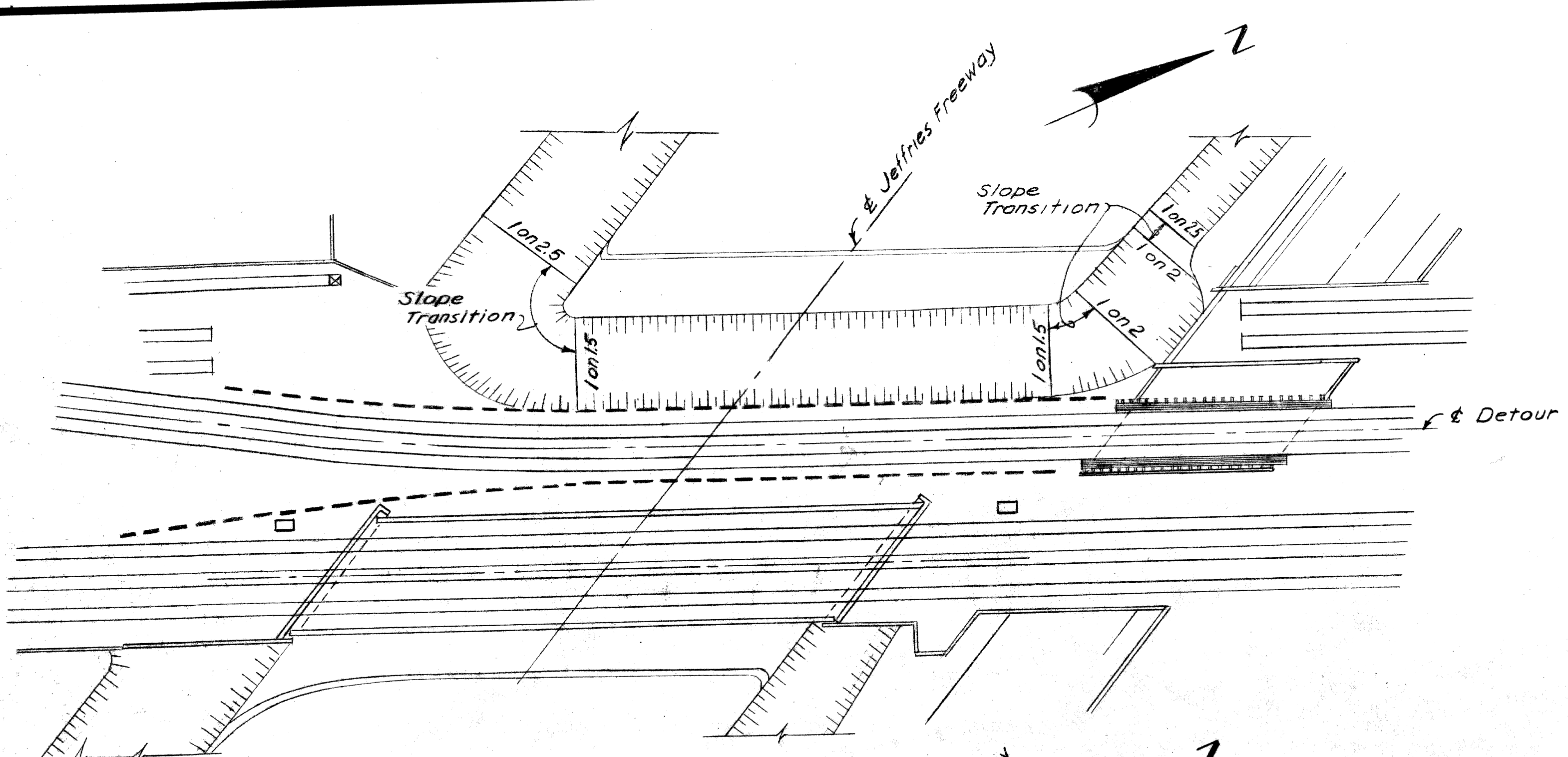
APPROVED: *[Signature]*  
STRUCTURAL ENGINEER

JOB No.  
PW 990(1)

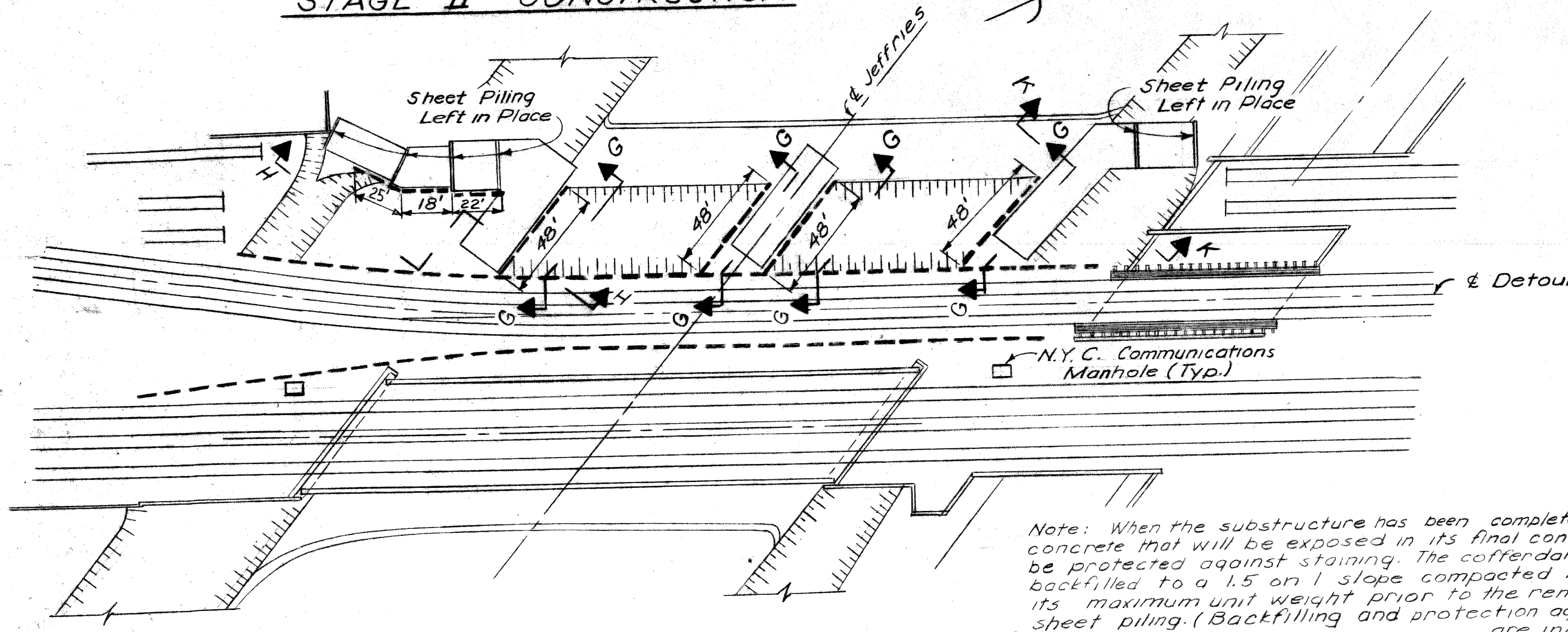






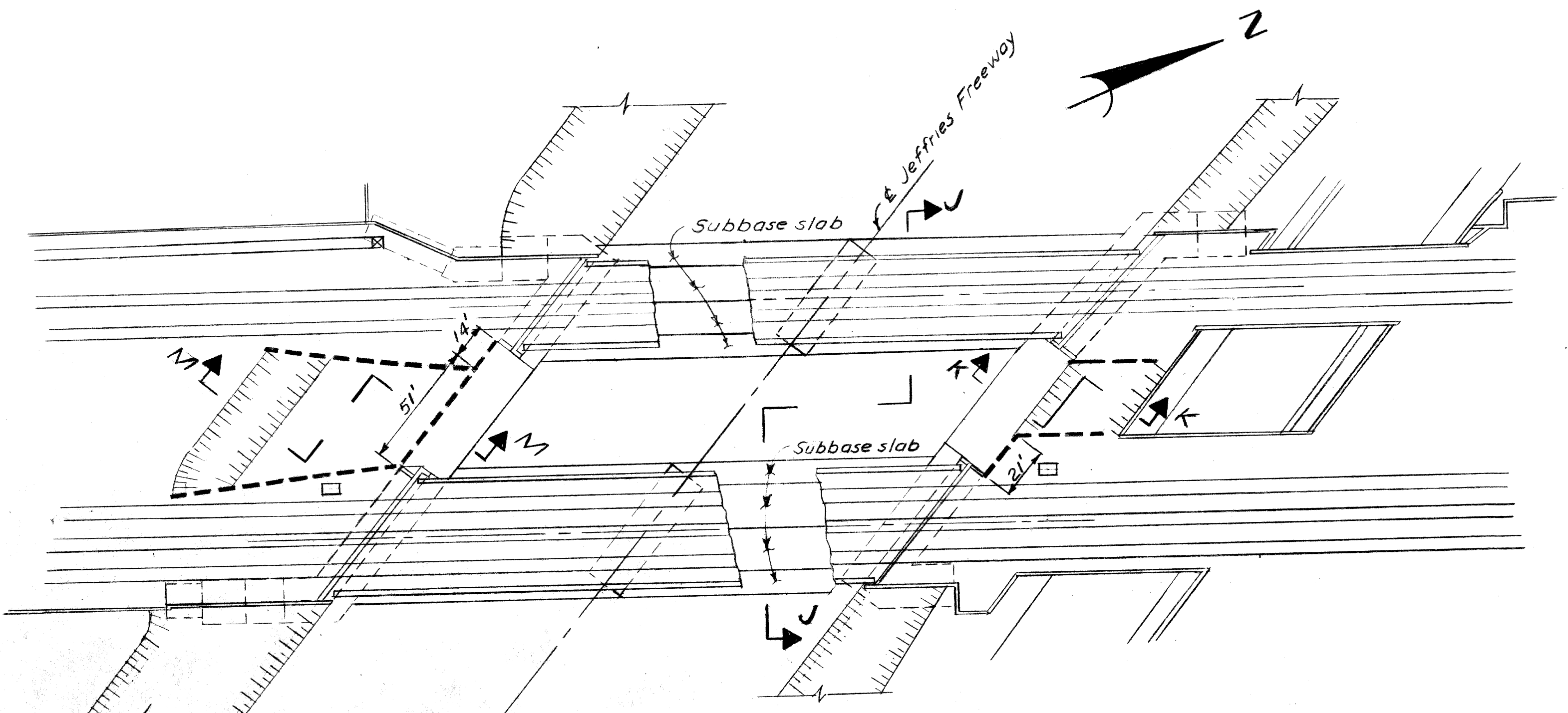


**GENERAL EXCAVATION  
STAGE II CONSTRUCTION**

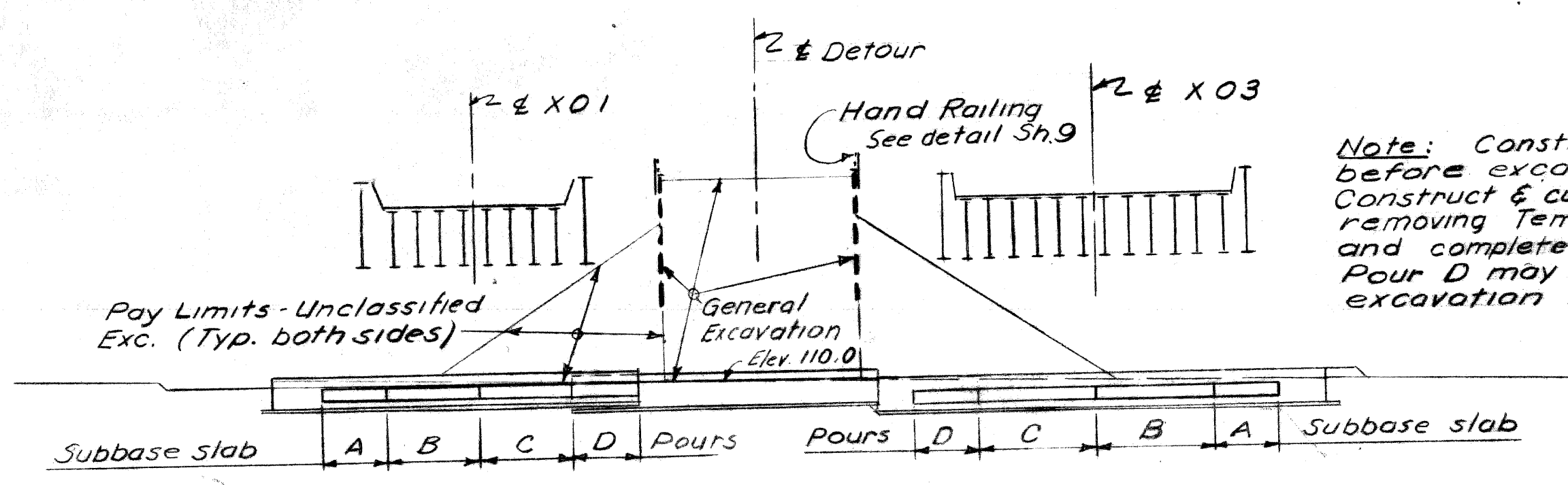


**STEEL SHEET PILING & FOUNDATION EXCAVATION  
STAGE II CONSTRUCTION**

Note: When the substructure has been completed, the concrete that will be exposed in its final condition shall be protected against staining. The cofferdam shall be backfilled to a 1.5 on 1 slope compacted to 90% of its maximum unit weight prior to the removal of the sheet piling. (Backfilling and protection against staining are incidental).



**STEEL SHEET PILING, FOUNDATION & GENERAL EXCAVATION  
STAGE III CONSTRUCTION**



Note: Construct & cure Pours A & B before excavating for Pour C. Construct & cure Pour C before removing Temp. Steel Sheet Piling and completing remaining excavation. Pour D may be constructed after excavation is completed.

**SECTION J-J**

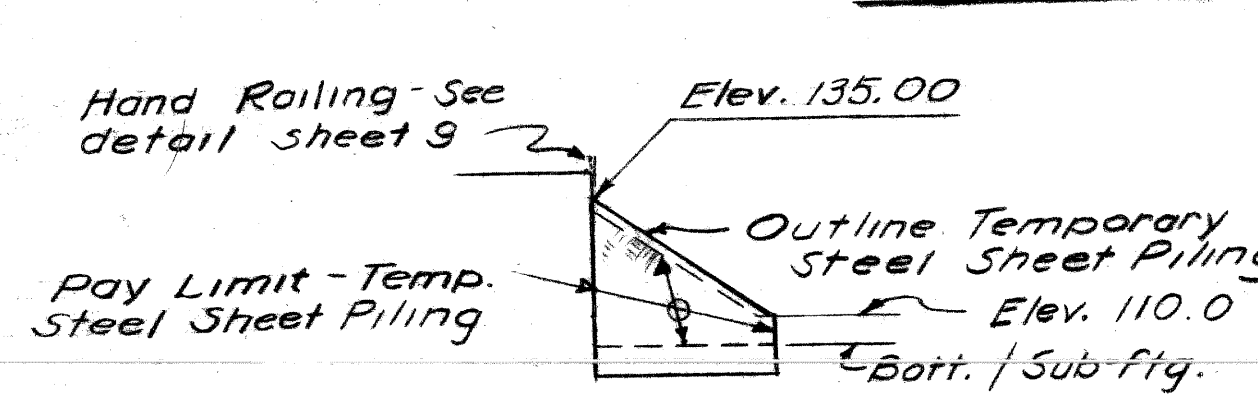
**GENERAL NOTES:**  
Temporary Steel Sheet Piling shall be of the continuous interlock type, either new or used in good condition, weighing not less than 27 pounds per Sq. Ft. of wall, and shall be furnished with suitable connecting and corner pieces. Ladle analysis and mill reports are not required for steel used in Sheet Piling.  
Temporary Steel Sheet Piling is to be adequately supported to prevent bowing & tipping. Method and adequacy of support are subject to the approval of the Engineer. The Contractor shall submit details of his proposed temporary sheeting and bracing plan for the railroad's approval. Steel for piling which meets the requirements of A.S.T.M. A36 - G2 T will be allowed.  
The driving line for temporary steel sheet piling is to the neat outline of the subfooting.  
Work sheets 7 thru 11 together

**QUANTITIES - X03**

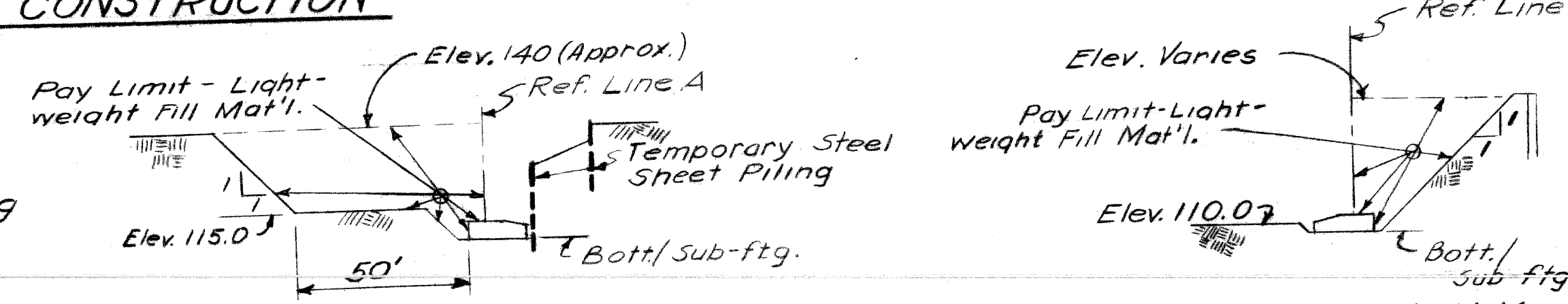
	Abut. A	Pier	Abut. B	Ret. Wall A	Ret. Wall B	Subbase & Detour	Total
Unclassified Excavation (Cu.Yds.)	3732	547	2903	3714	610	5934	17,440
Temporary Steel Sheet Piling (Sq.Ft.)	2013	1502	767	1085	689	8900	14,953
Lightweight Fill Material (Cu.Yds. C.I.P.)	3740	—	2141	3375	931	—	10,187

**QUANTITIES X01**

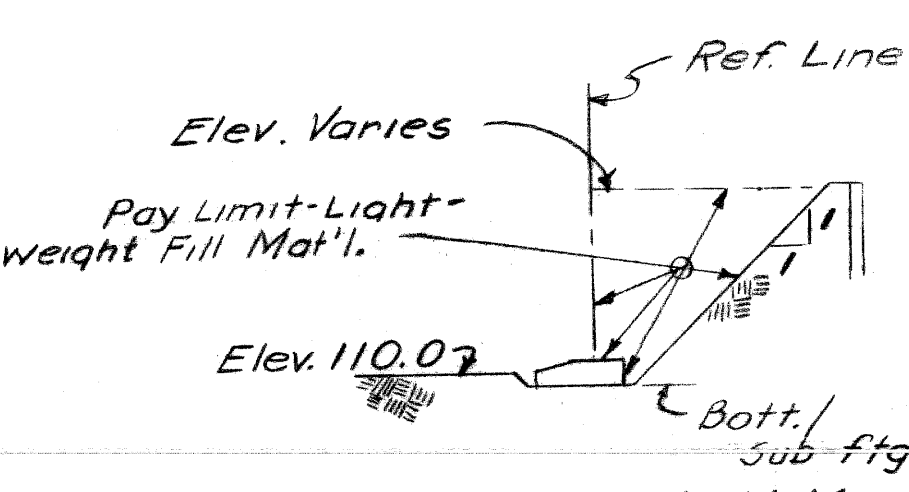
	Abut. A	Pier	Abut. B	Subbase & Detour	Total
Unclassified Excavation (Cu.Yds.)	4435	433	953	4862	10,683
Temporary Steel Sheet Piling (Sq.Ft.)	1021	1382	667	8900	11,970
Lightweight Fill Material (Cu.Yds. C.I.P.)	3201	—	1686	—	4887



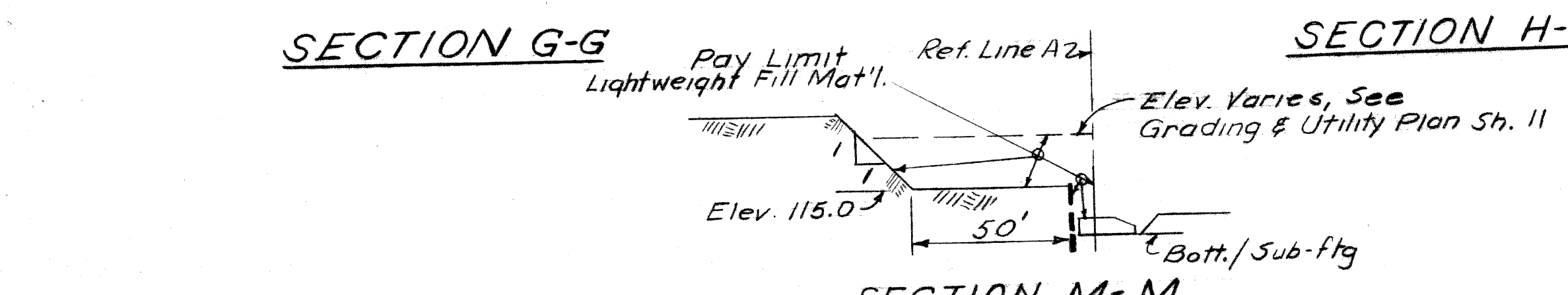
**SECTION G-G**



**SECTION H-H**



**SECTION K-K**



**SECTION M-M**

PLANS PREPARED BY  
**CITY OF DETROIT**  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: *[Signature]*  
STRUCTURAL ENGINEER

JOB No. PW 990(1)

**MICHIGAN DEPARTMENT OF STATE HIGHWAYS**

GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
CROSSING THE JEFFRIES FREEWAY IN DETROIT

**DIGGING PLAN**

REVISIONS

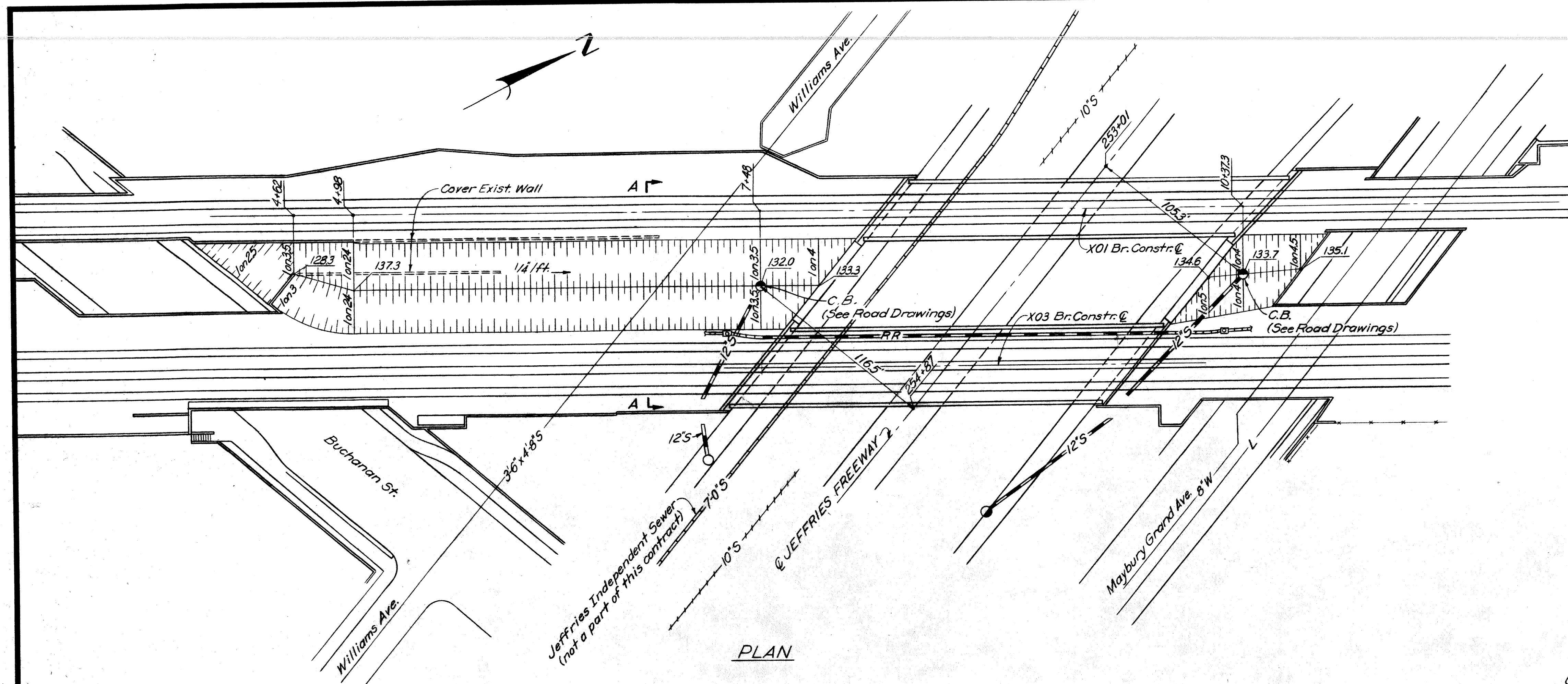
NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT

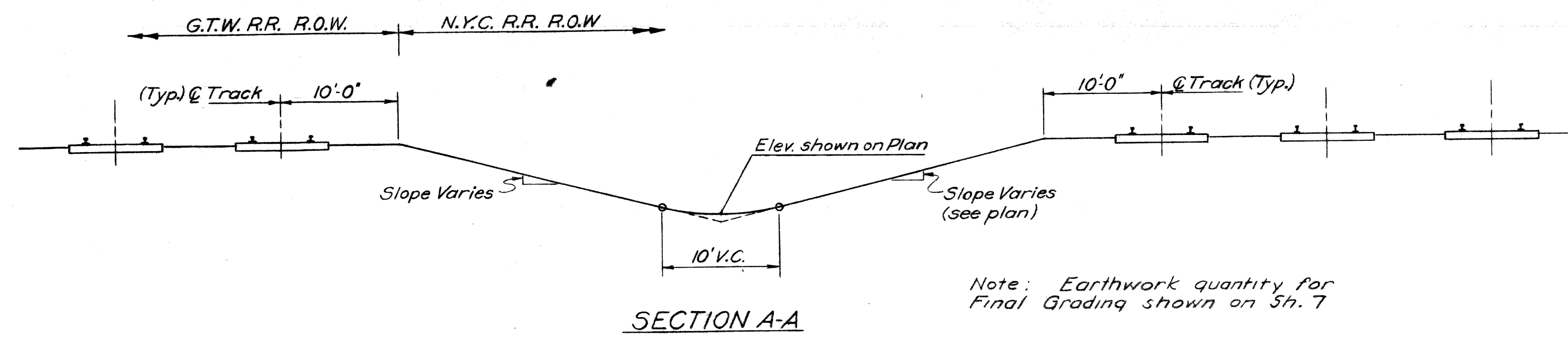
SQUAD BOSS	SYDEM	3-67
DRAWN BY	W.A.L.	Jan. 1967
TRACED BY		
CHECKED BY	K.V.H.	2-67
SHEET	10	OF 34

X01 of 82124A





PLAN



SECTION A-A

Note: Earthwork quantity for Final Grading shown on Sh. 7

UTILITY

- Public Lighting Commission
- Detroit Water Department
- Freeway & City of Detroit Sewers
- Railroad Utility

LEGEND

DESIGNATION	Existing	Deleted or Abandoned	New Work by Others	New Work by Contractor
Public Lighting Commission	— L —			
Detroit Water Department	— W —			
Freeway & City of Detroit Sewers	— S —	+++S+++	— S —	— S —
Railroad Utility			— RR —	— RR —

Note: Catch Basin and 12" Sewer are detailed and paid on road drawings

Work Sheets 7 thru 11 together

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
CROSSING THE JEFFRIES FREEWAY IN DETROIT

GRADING & UTILITY PLAN

PLANS PREPARED BY  
CITY OF DETROIT  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

JOB No.  
PW 990(1)

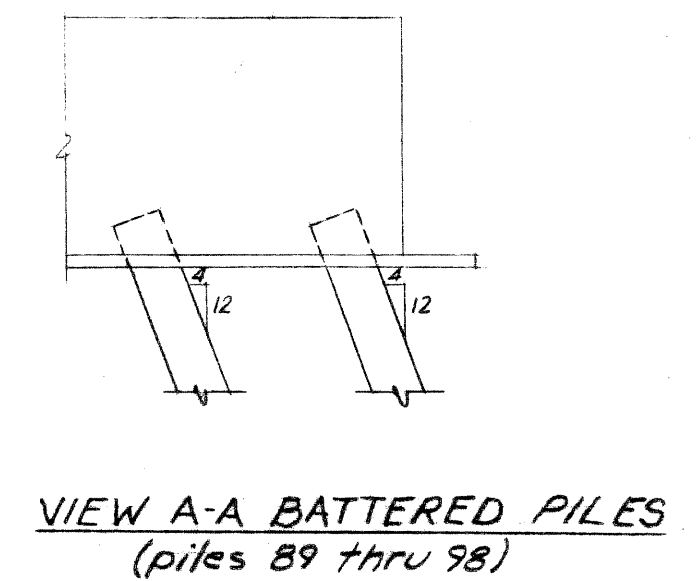
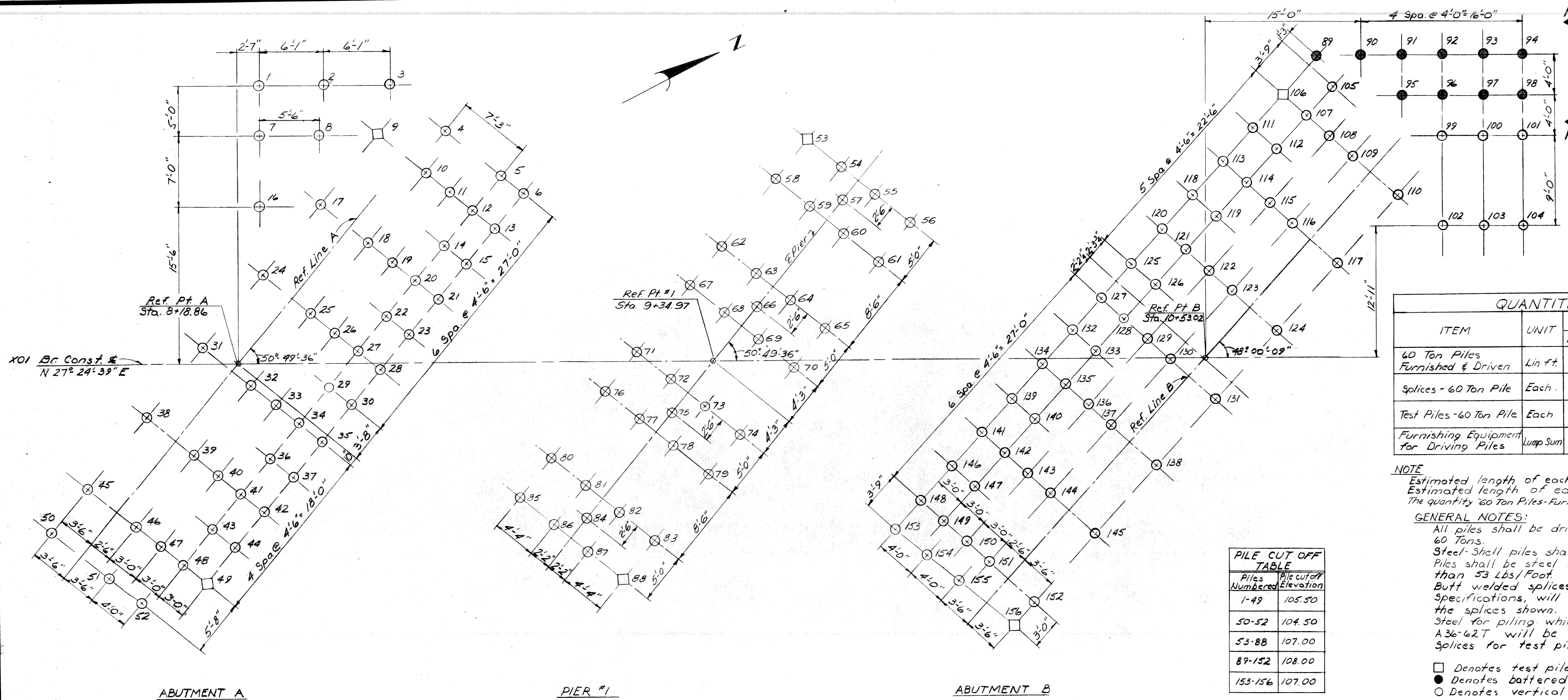
APPROVED  
STRUCTURAL ENGINEER

NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT		
DRAWN BY	STJEM	3-67
TRACED BY	K.V.H.	1-67
CHECKED BY	WAL	6-67
SHEET 11 OF 34		

X01 of 82124A'





ITEM	UNIT	QUANTITIES			
		Abut. A	Pier #1	Abut. B	Total
60 Ton Piles Furnished & Driven	Lin. ft.	5740	3980	7500	17220
Splices - 60 Ton Pile	Each	143	100	188	431
Test Piles - 60 Ton Pile	Each	2	2	2	6
Furnishing Equipment for Driving Piles	Lump Sum	—	—	—	—

**NOTE**  
 Estimated length of each pile other than Test Pile is 110 Ft.  
 Estimated length of each Test Pile is 120 Ft.  
 The quantity "60 Ton Piles-Furnished & Driven" includes length of Test Piles.

**GENERAL NOTES:**  
 All piles shall be driven to a minimum bearing capacity of 60 Tons.  
 Steel-Shell piles shall not be used on this project.  
 Piles shall be steel 12" H sections weighing not less than 53 Lbs/foot.  
 Butt welded splices, as described in the Supplemental Specifications, will be permitted as an alternate to the splices shown.  
 Steel for piling which meets the requirements of ASTM A36-62T will be allowed.  
 Splices for test piles are incidental to test piles.

Piles Numbered	Pile cut off Elevation
1-49	105.50
50-52	104.50
53-88	107.00
89-152	108.00
153-156	107.00

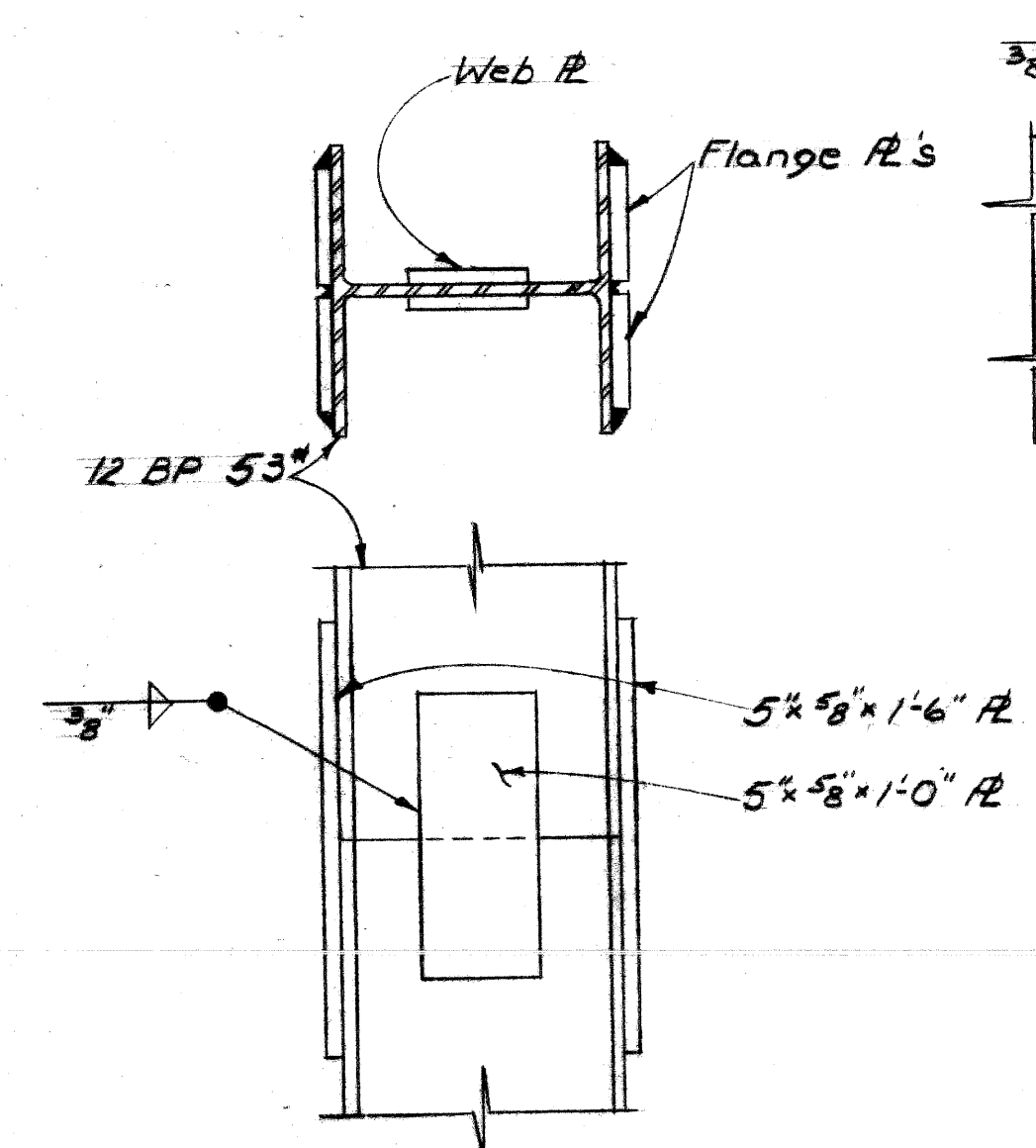
Denotes test pile.  
 Denotes battered pile. } All denote H piles  
 Denotes vertical pile. }  
 All piles shown on this sheet are to be driven during Stage II construction.  
 Piles 1 thru 52 shall be prebored 8" @ above Elev. 45

ABUTMENT A

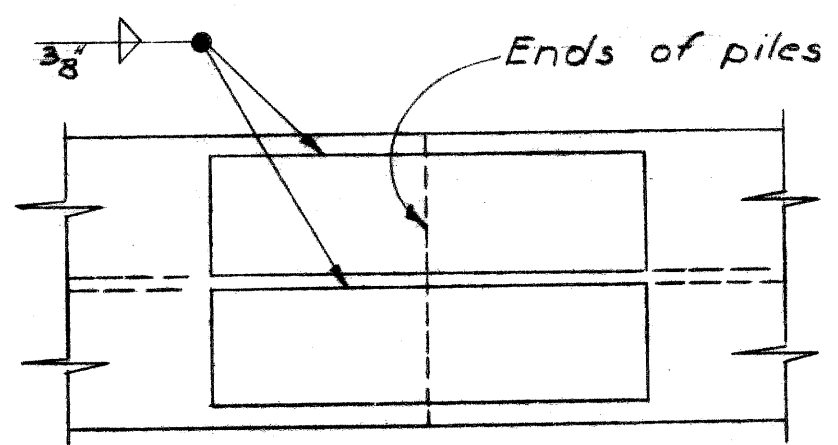
PIER #1

ABUTMENT B

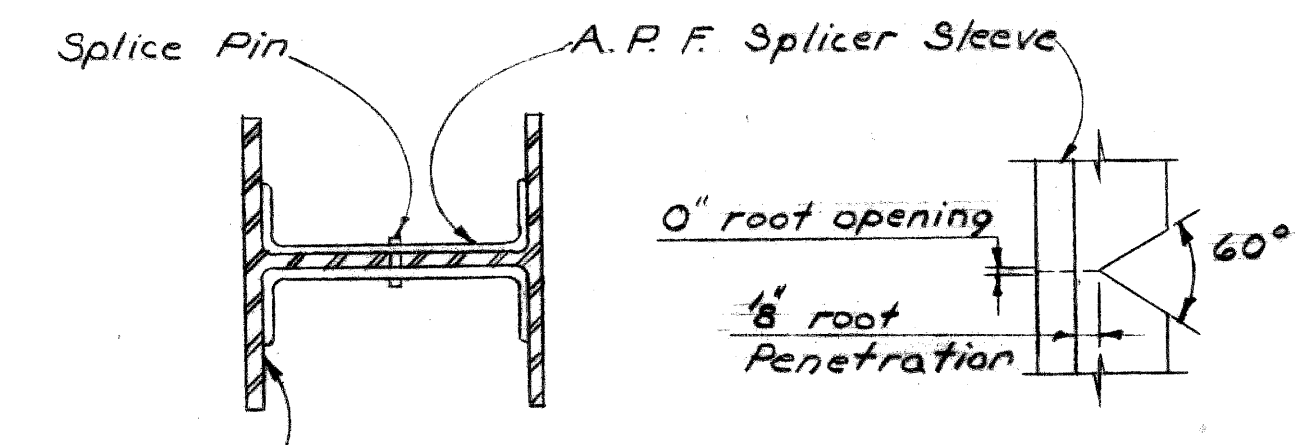
PLAN OF PILE LOCATIONS - X01



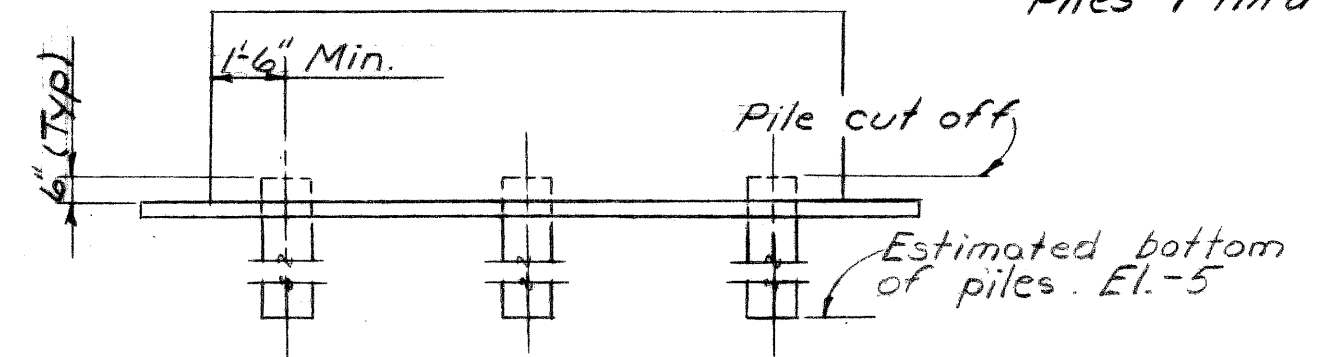
SPLICE DETAILS



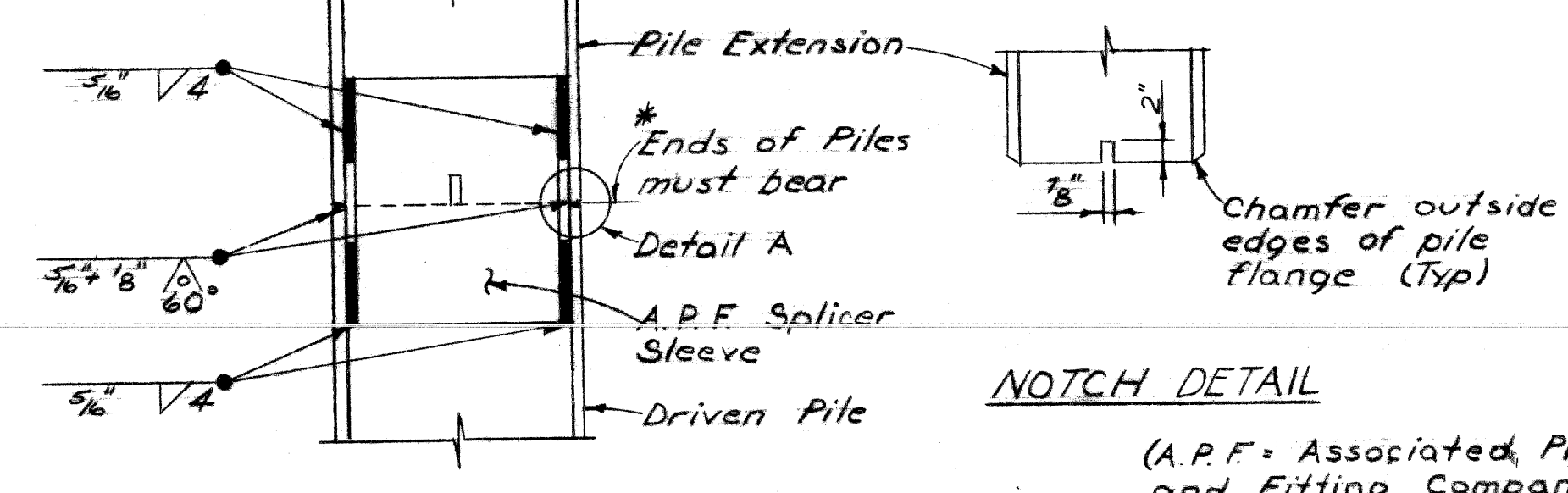
**\*NOTE**  
 Set upper splice section in place with splice R's attached, tap several times with the hammer to improve bearing contact then complete welding of R's to the lower section.



DETAIL A



PILE CUT-OFF DETAIL



ALTERNATE SPLICE DETAILS

PLANS PREPARED BY  
 CITY OF DETROIT  
 DEPARTMENT OF PUBLIC WORKS  
 CITY ENGINEERS OFFICE  
 BUREAU OF HIGHWAYS AND EXPRESSWAYS  
 APPROVED: *[Signature]*  
 STRUCTURAL ENGINEER  
 JOB No. PW 990(1)

**MICHIGAN DEPARTMENT OF STATE HIGHWAYS**  
 GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
 CROSSING THE JEFFRIES FREEWAY IN DETROIT

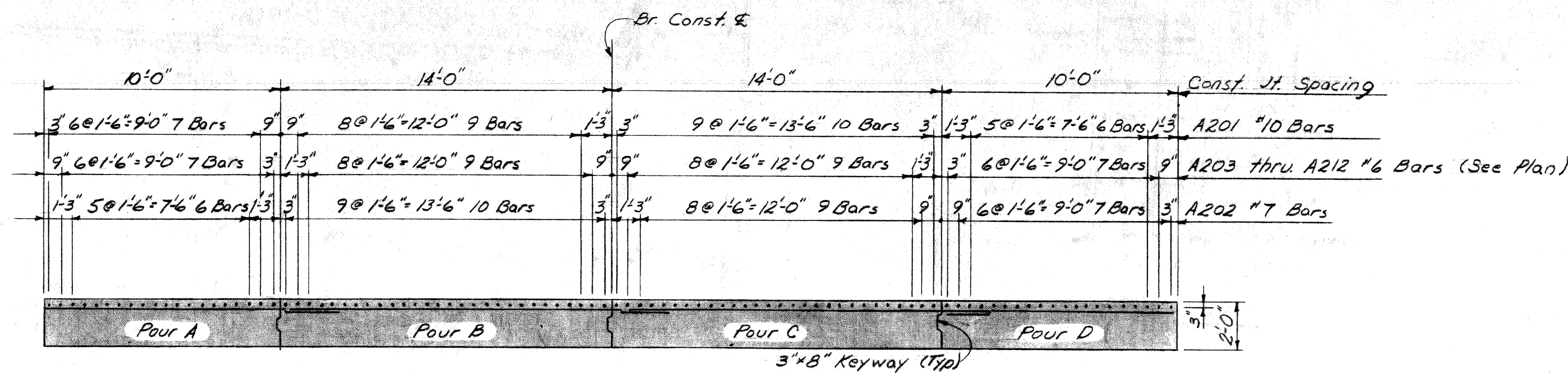
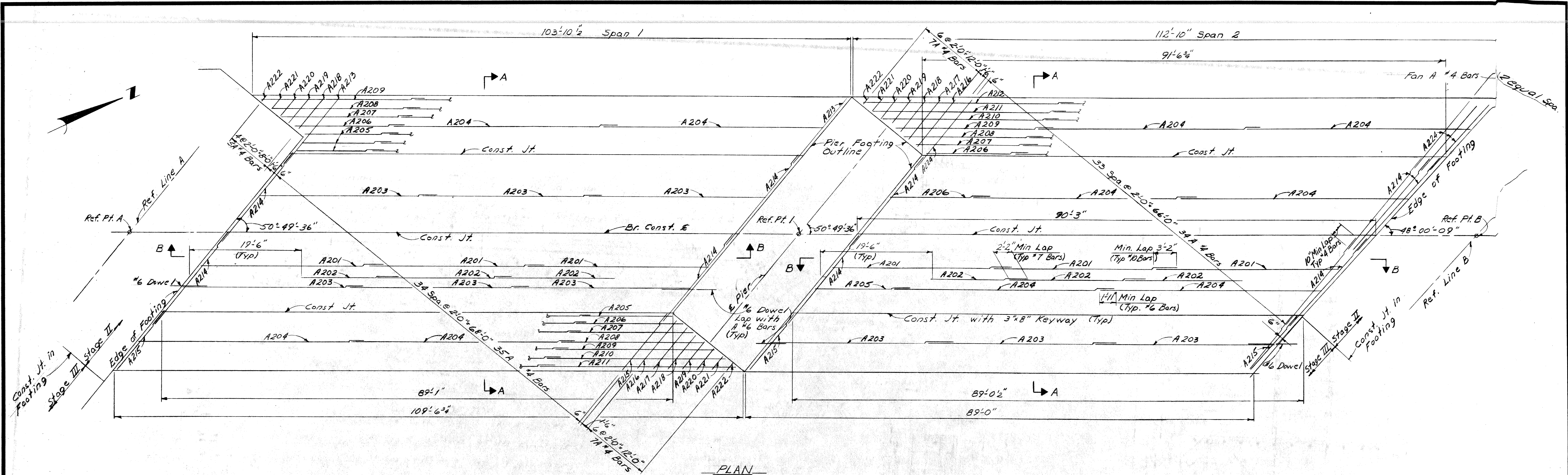
**FOUNDATION PILING DETAILS**

REVISIONS			
NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT  
 SQUAD BOSS: *[Signature]* 9-67  
 DRAWN BY: A.J.G. 10-66  
 CHECKED BY: K.V.H. 11-66  
 SHEET 12 OF 34

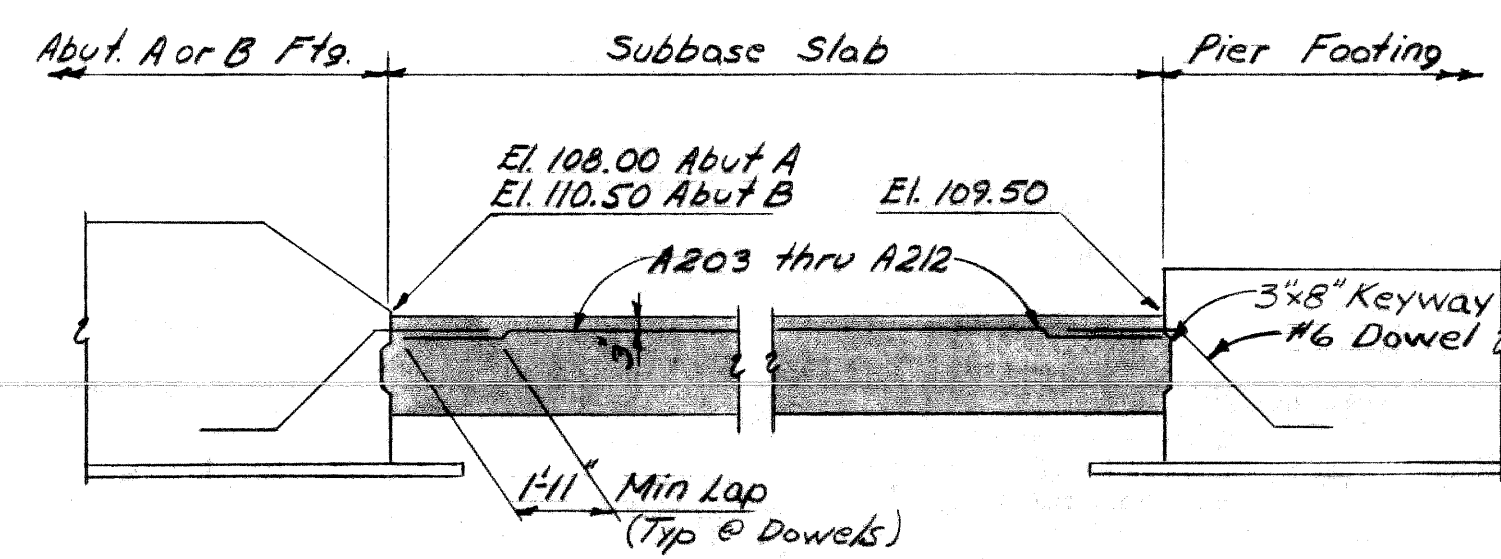
X01 of 82124A





SECTION A-A

CONCRETE QUANTITIES (CU YDS)	
POUR	SPAN 1 SPAN 2
A	69.9 75.7
B	92.3 94.2
C	92.3 93.0
D	73.6 65.9
Total Grade A (6A) concrete subbase 656.9 Cu Yds.	



SECTION B-B

**NOTE:**  
 All Subbase Slab pours are part of Stage III construction.  
 See Digging Plan Sh. # 10 for pour sequence & curing limitations.

Work this sheet with sheets 15, 19 & 21

**MICHIGAN DEPARTMENT OF STATE HIGHWAYS**  
 GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
 CROSSING THE JEFFRIES FREEWAY IN DETROIT

**SUB-BASE SLAB DETAILS**

REVISIONS			
NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT  
 SQUAD ROSS: STRAIN 2-67  
 DRAWN BY: A.J.G. 1-67  
 TRACED BY: T. Baker 1-67  
 CHECKED BY: T. Baker 1-67  
 SHEET 13 OF 34

X01 of 82124A

PLANS PREPARED BY  
 CITY OF DETROIT  
 DEPARTMENT OF PUBLIC WORKS  
 CITY ENGINEERS OFFICE  
 BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: *[Signature]* STRUCTURAL ENGINEER  
 JOB No. PW 990(1)

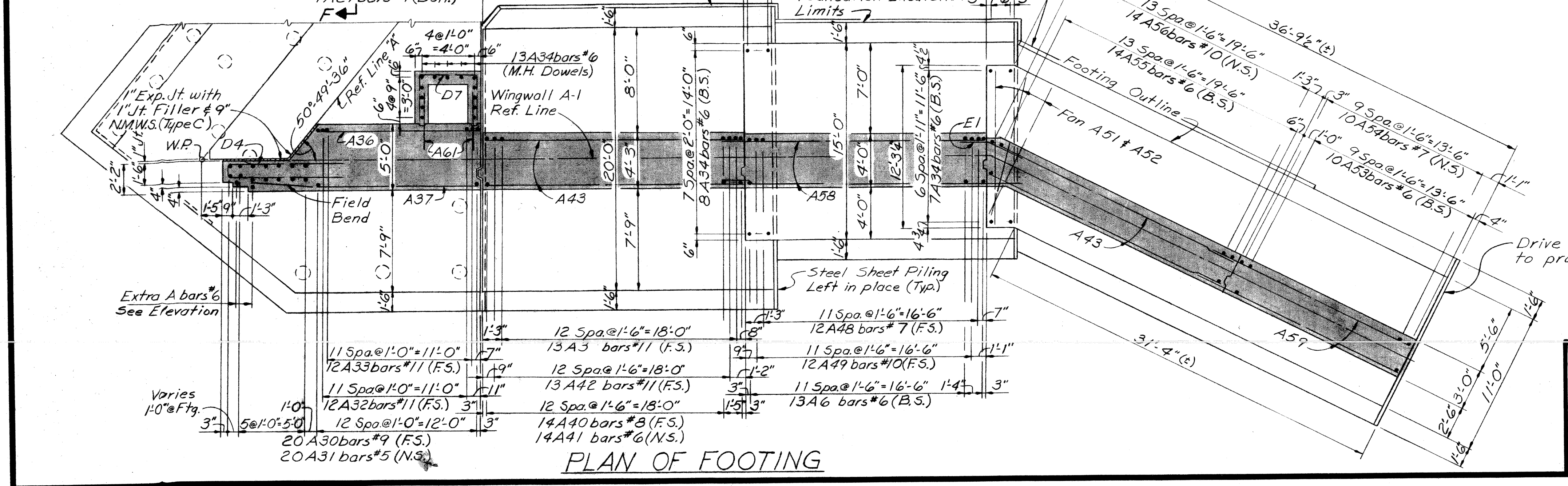
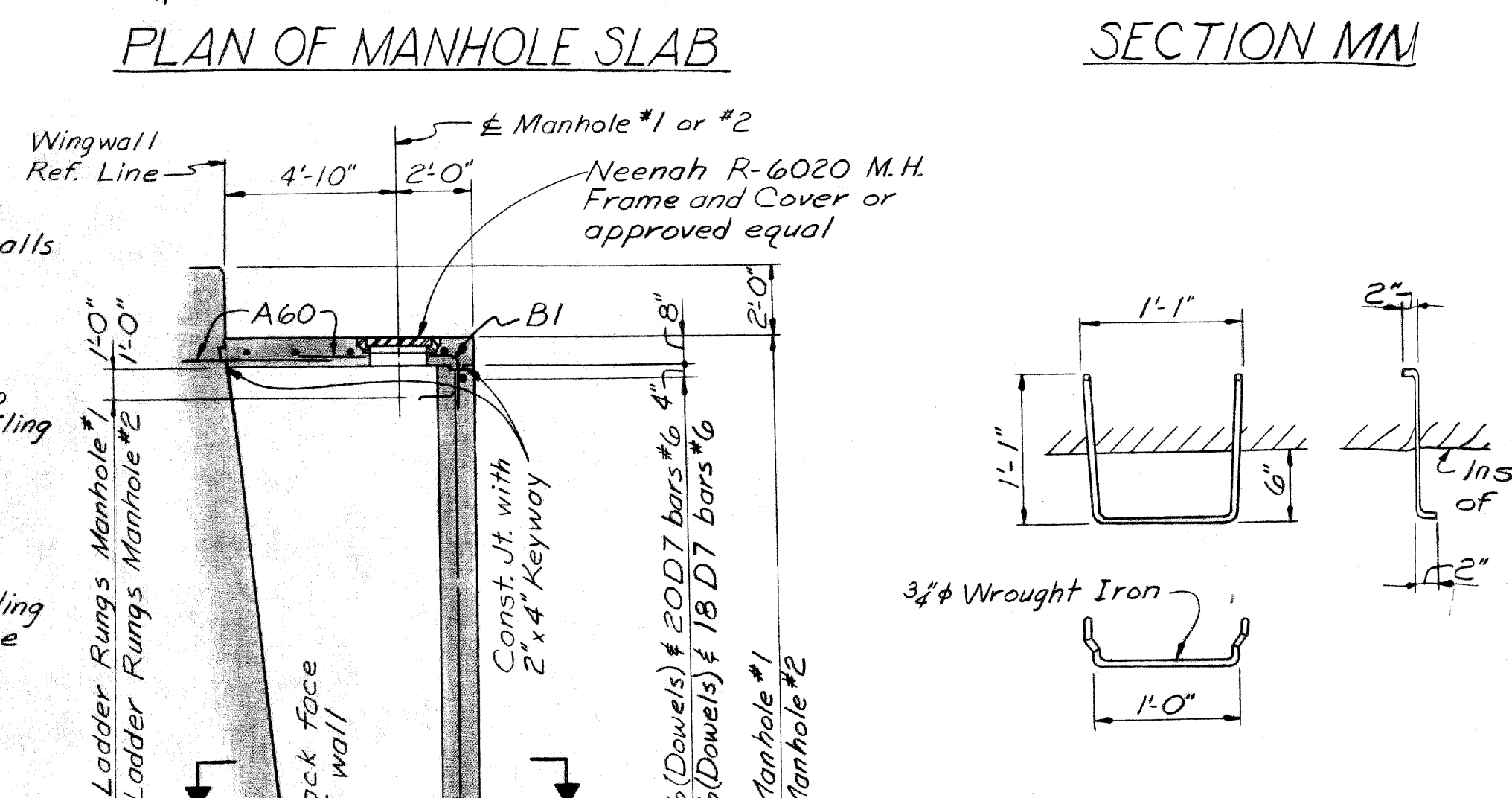
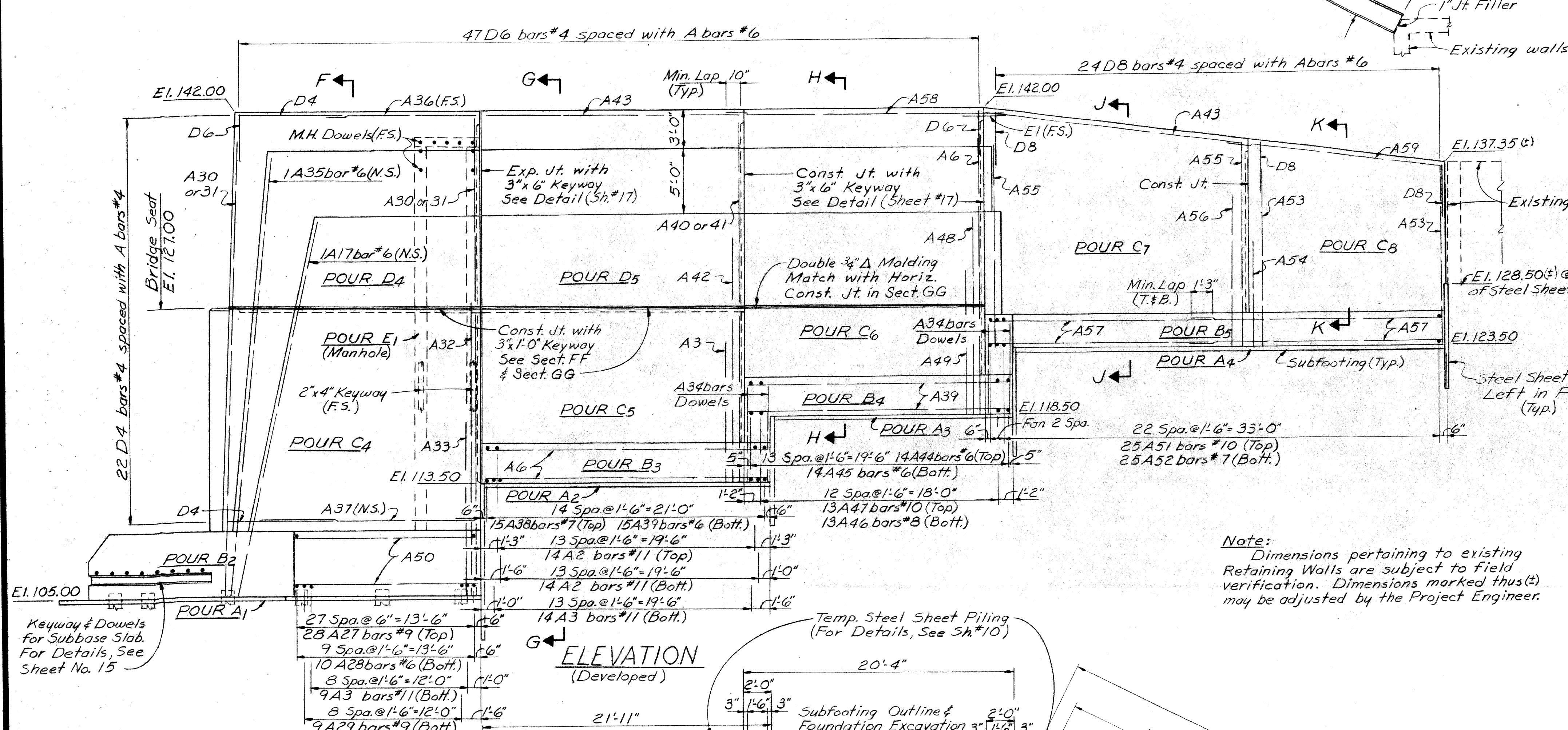
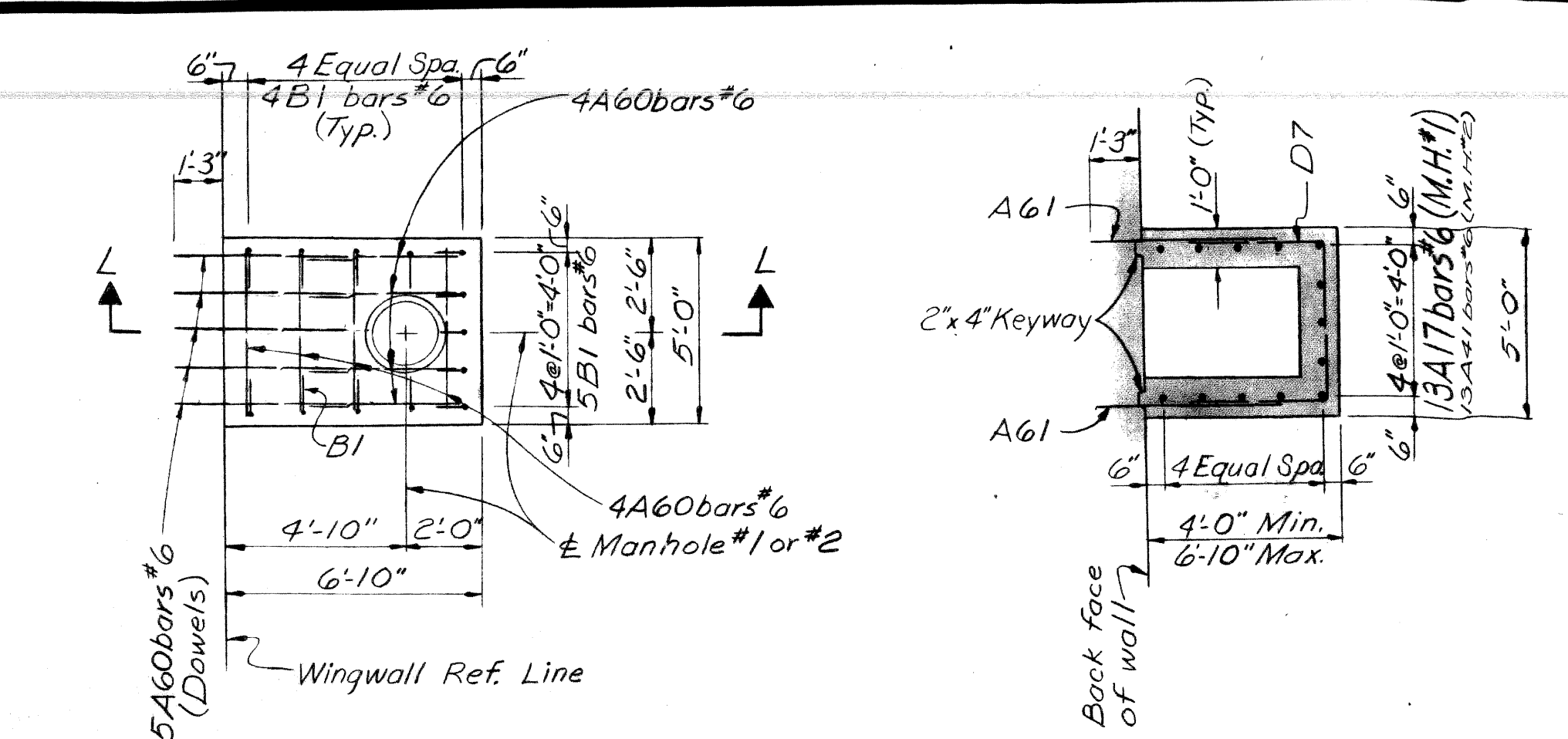
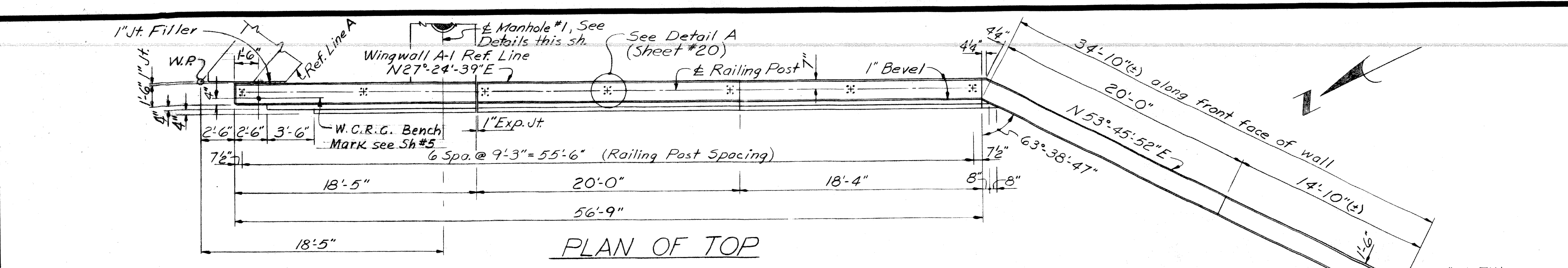




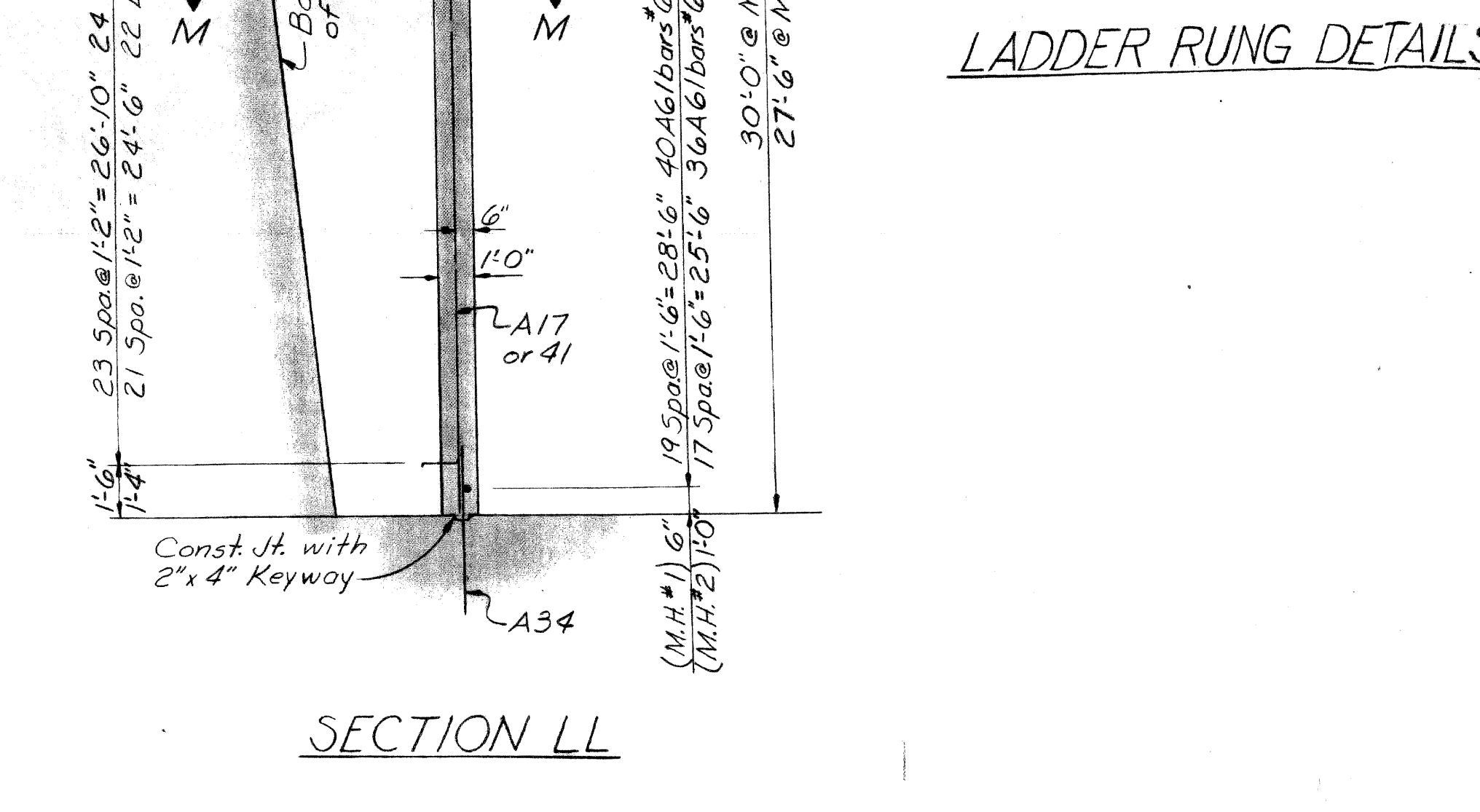








**Note:**  
Dimensions pertaining to existing Retaining Walls are subject to field verification. Dimensions marked thus (±) may be adjusted by the Project Engineer.



Work this sheet with sheet nos. 14 thru 20.

**MICHIGAN DEPARTMENT OF STATE HIGHWAYS**  
GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
CROSSING THE JEFFRIES FREEWAY IN DETROIT

**ABUTMENT A DETAILS**

PLANS PREPARED BY  
CITY OF DETROIT  
DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: *[Signature]* STRUCTURAL ENGINEER

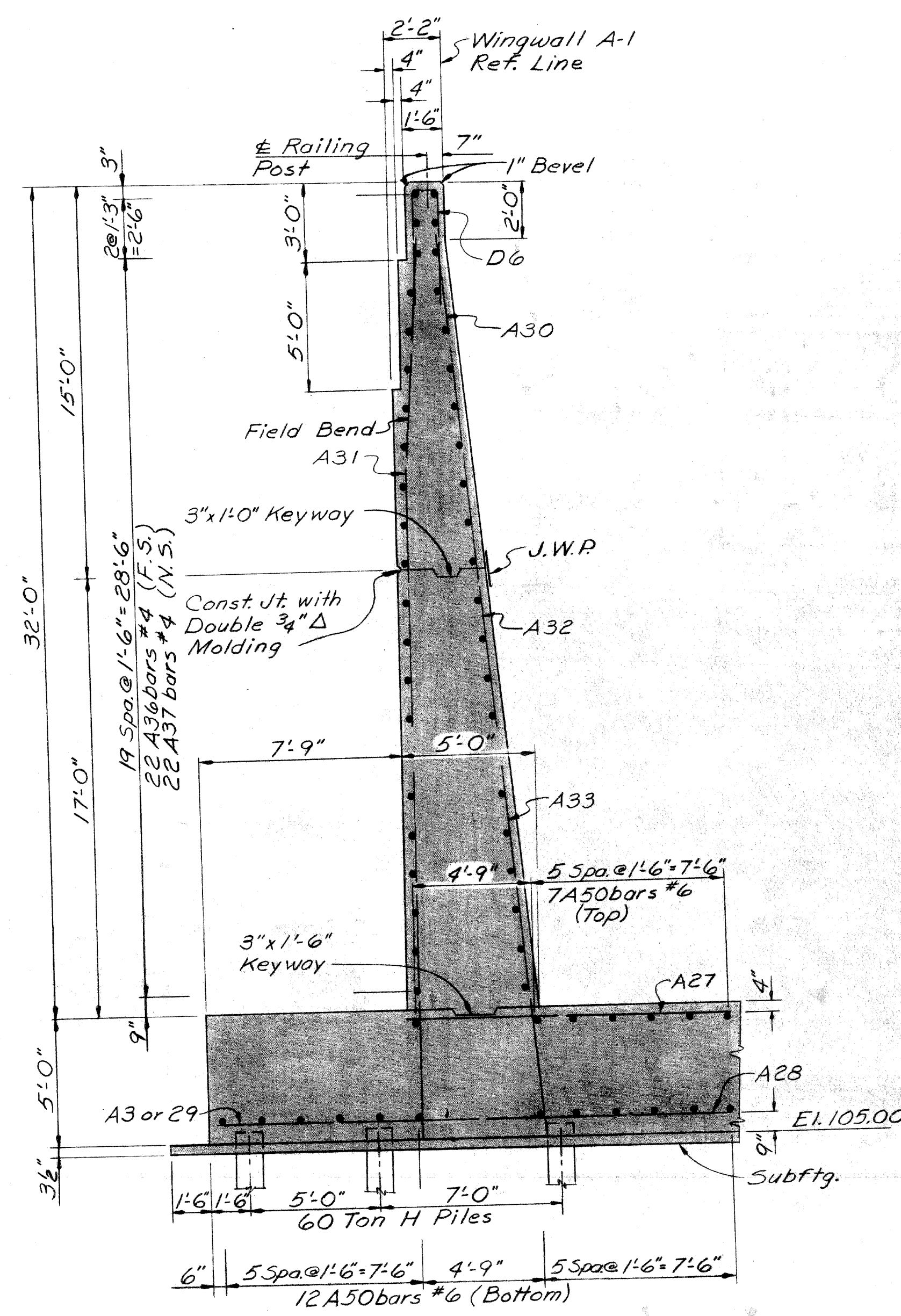
JOB No. PW 990(1)

NO.	DESCRIPTION	DATE	BY

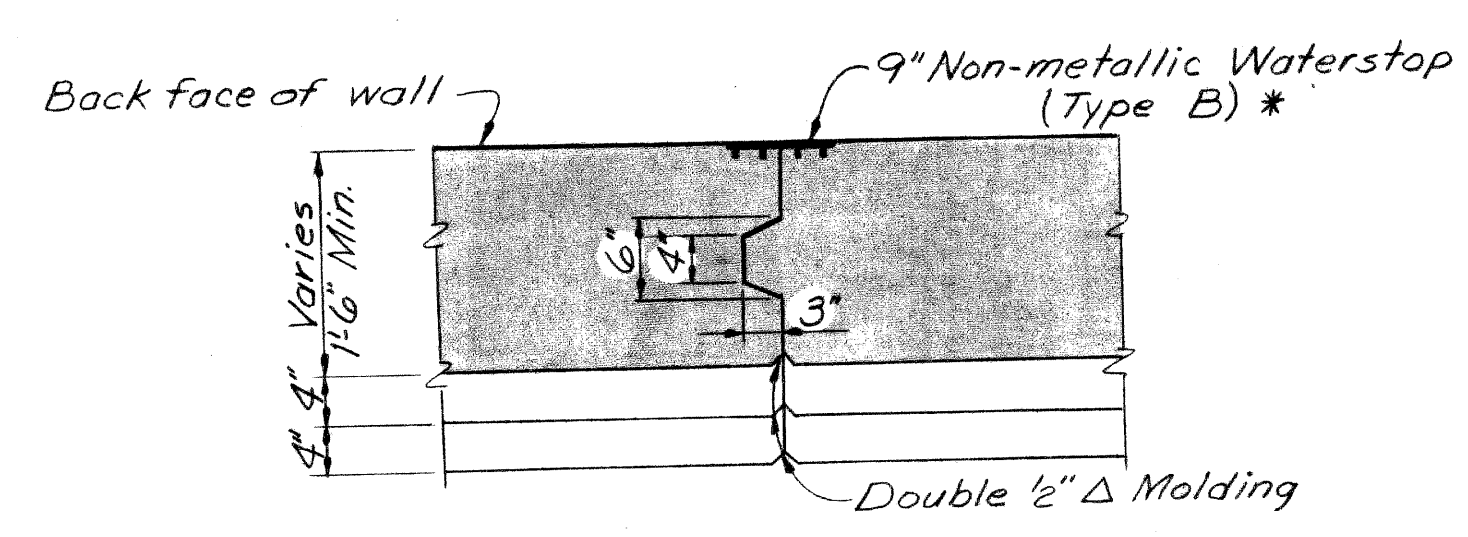
CITY OF DETROIT  
SQUAD BOSS: A. Felber 9-67  
DRAWN BY: D. Romes 11-66  
TRACED BY: D. Romes 11-66  
CHECKED BY: G. Molnar 8-67  
SHEET 16 OF 31

X01 of 82124A

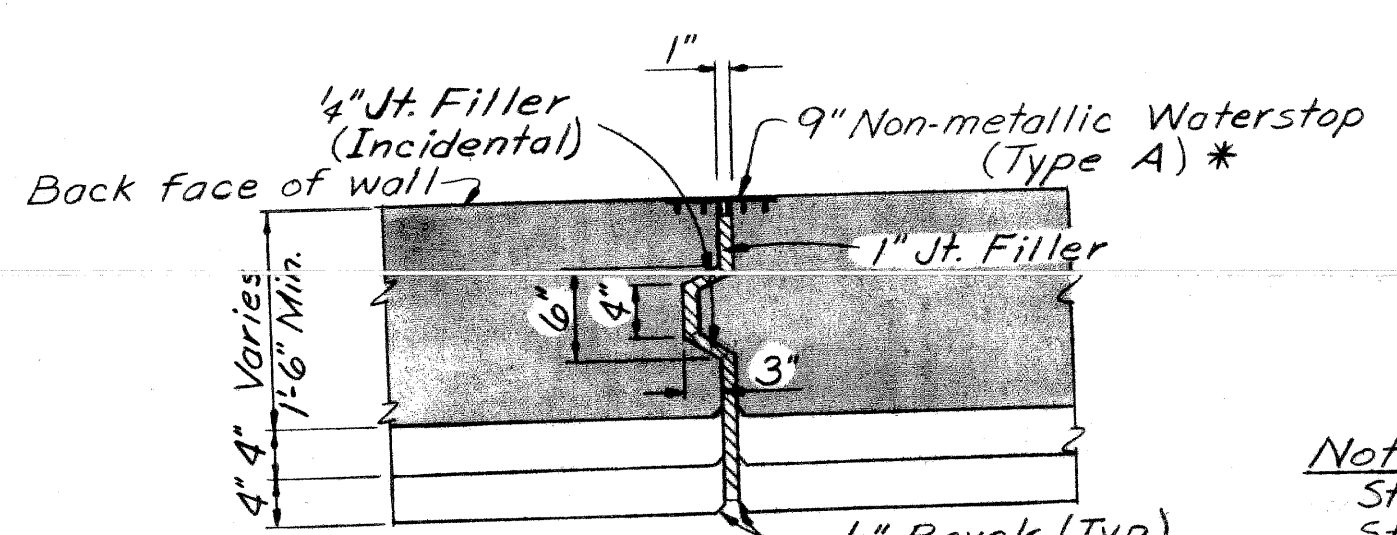




SECTION FF



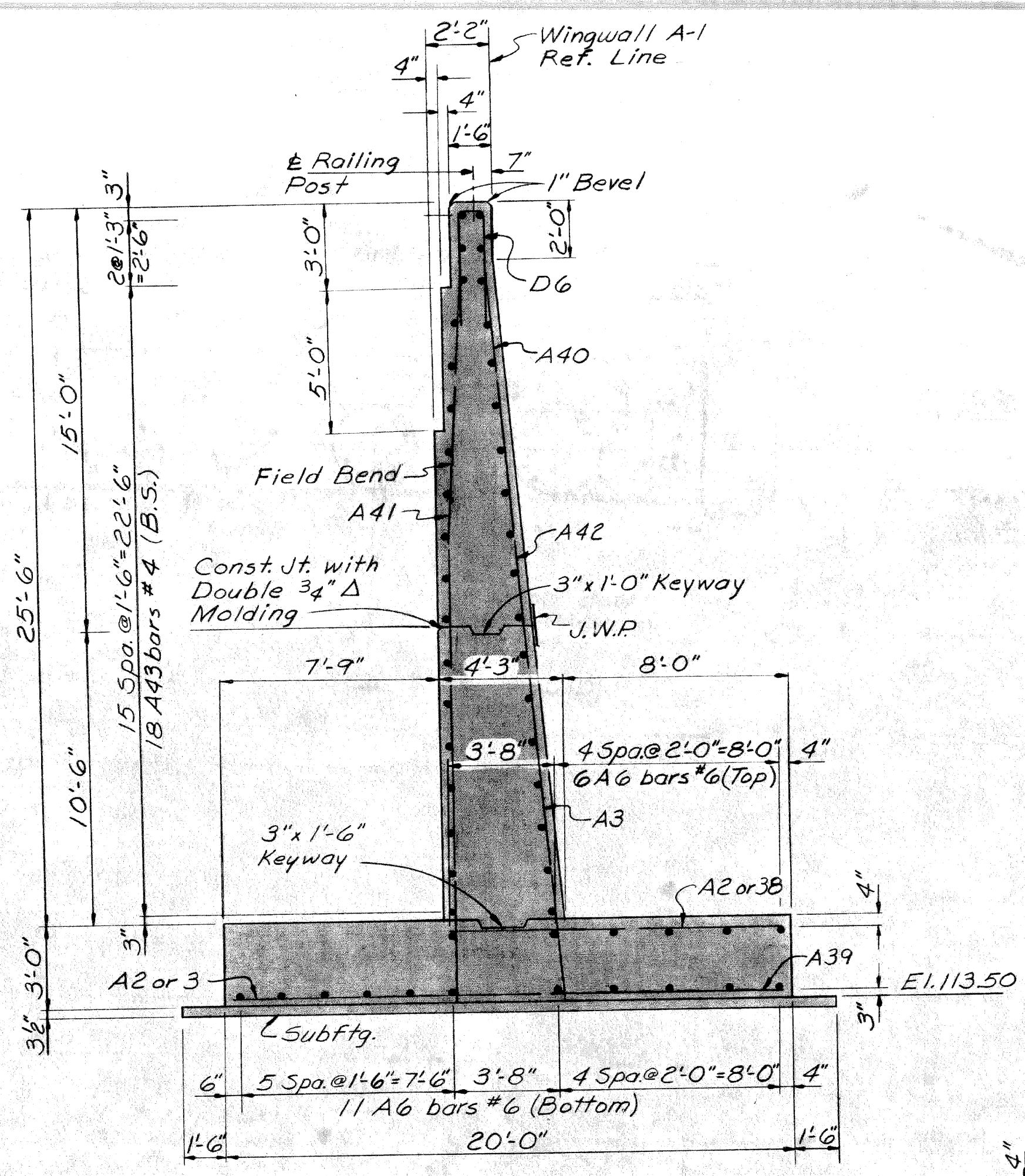
CONST. JT. DETAIL



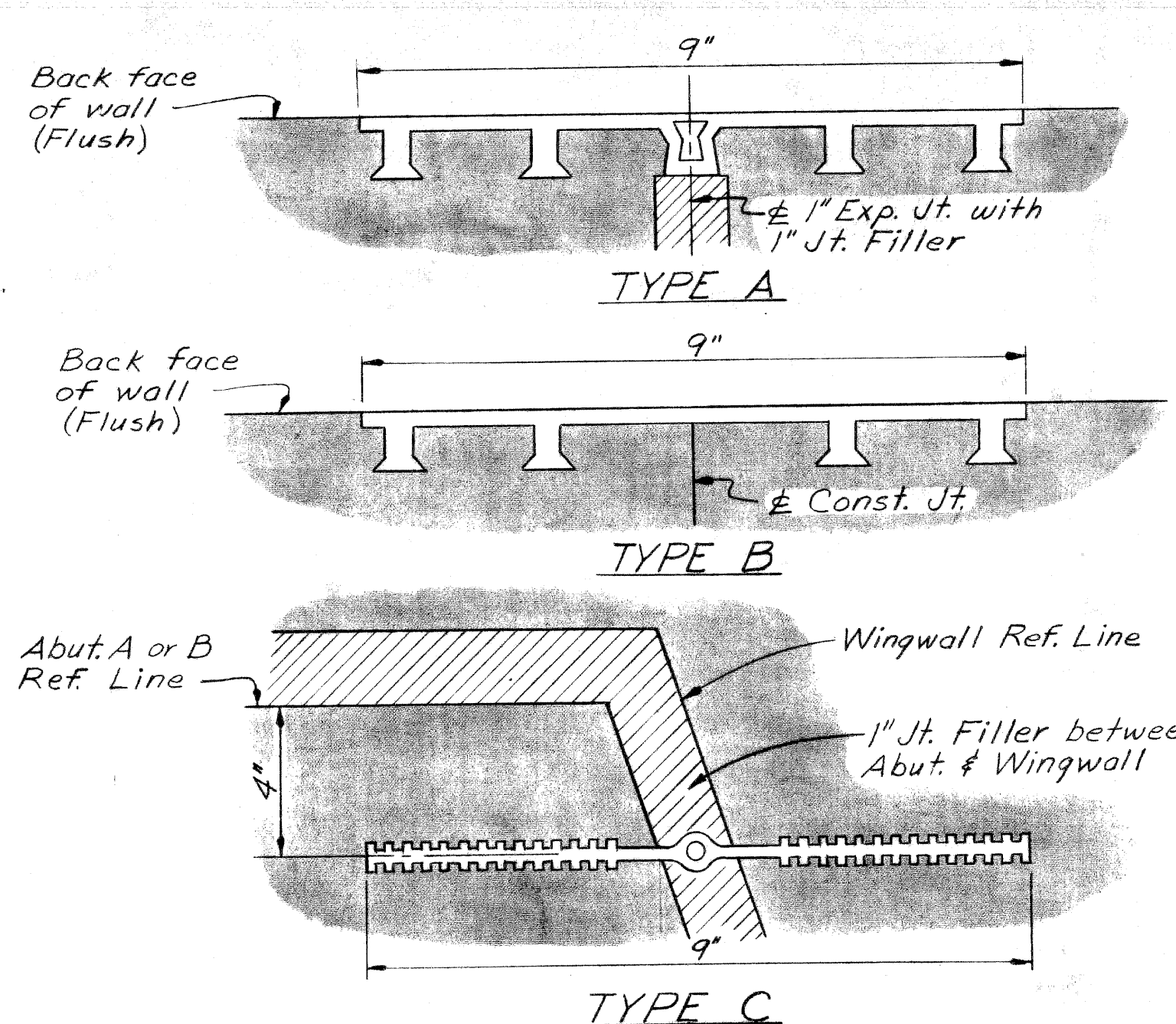
EXP. JT. DETAIL

\* Note: Use Type C N.M.W.S. at Joints adjacent to Bridge Manholes.

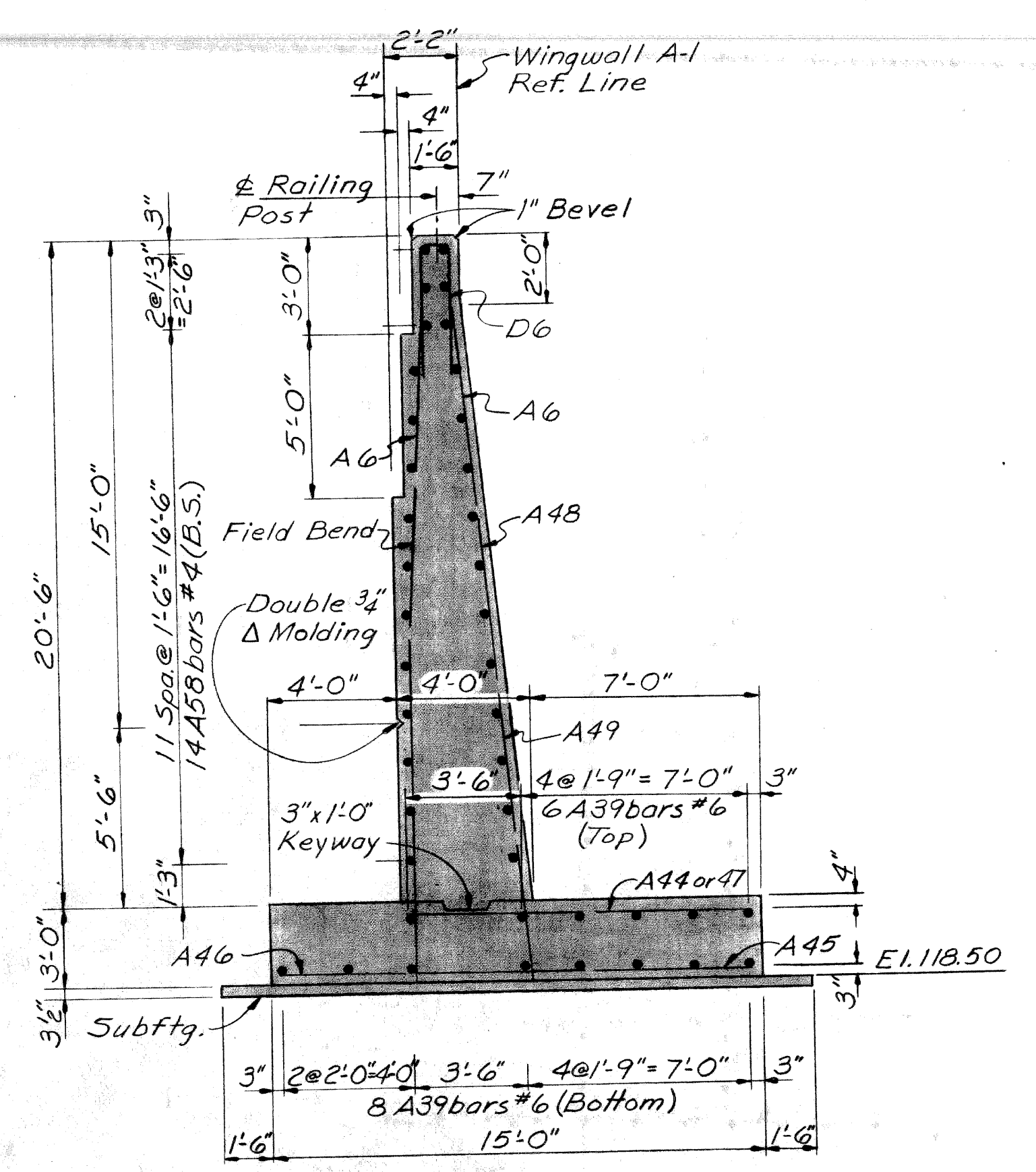
Notes:  
 Stop all keyways 1'-0" below top of walls.  
 Stop all N.M.W.S. 3'-0" below top of walls.  
 Adjust rear face of wall to match adjacent section.  
 For Alternate Metal Bulkhead Details at Construction Joint see sheet no. 15.



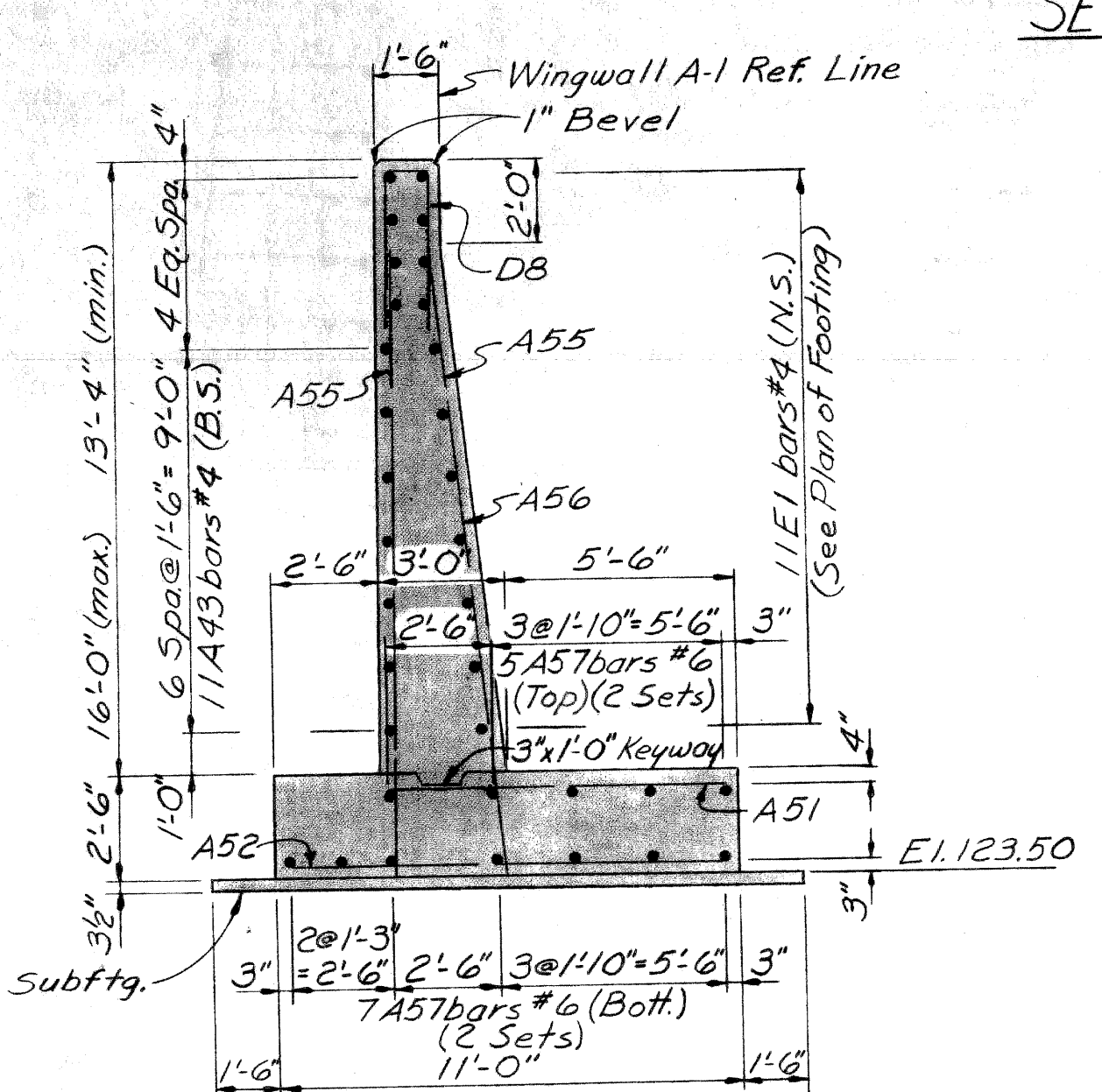
SECTION GG



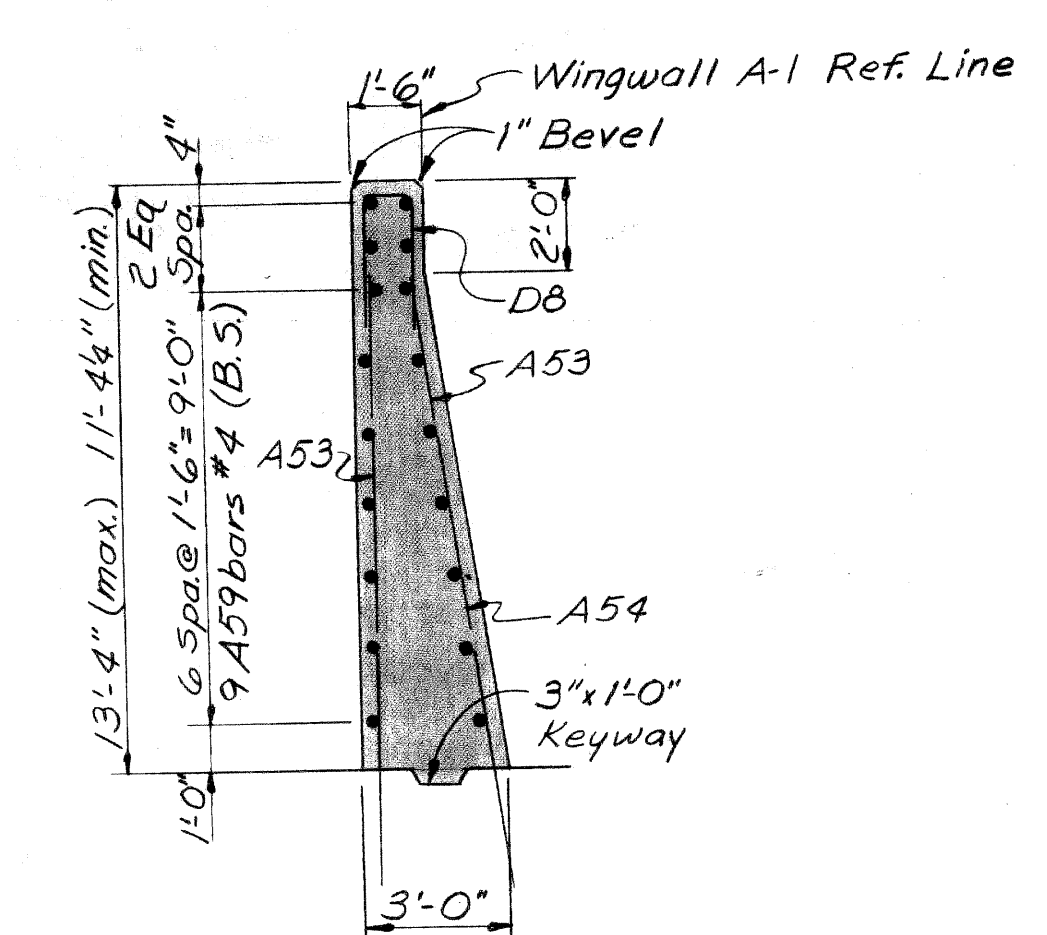
NON-METALLIC WATERSTOP DETAILS



SECTION HH



SECTION JJ



SECTION KK

Work this sheet with sh. nos. 14 thru 20.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS  
 GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
 CROSSING THE JEFFRIES FREEWAY IN DETROIT

ABUTMENT A DETAILS

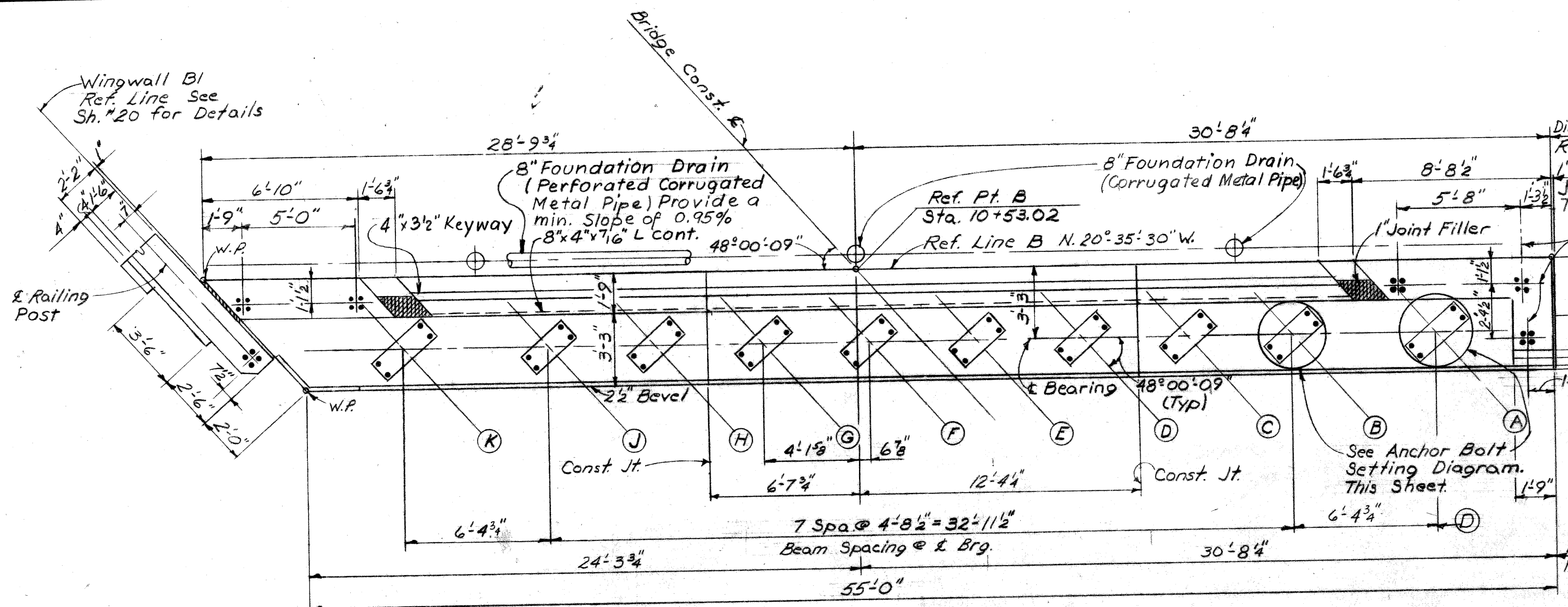
PLANS PREPARED BY  
 CITY OF DETROIT  
 DEPARTMENT OF PUBLIC WORKS  
 CITY ENGINEERS OFFICE  
 BUREAU OF HIGHWAYS AND EXPRESSWAYS  
 APPROVED: [Signature] STRUCTURAL ENGINEER  
 JOB No. PW 090(1)

NO.	DESCRIPTION	DATE	BY

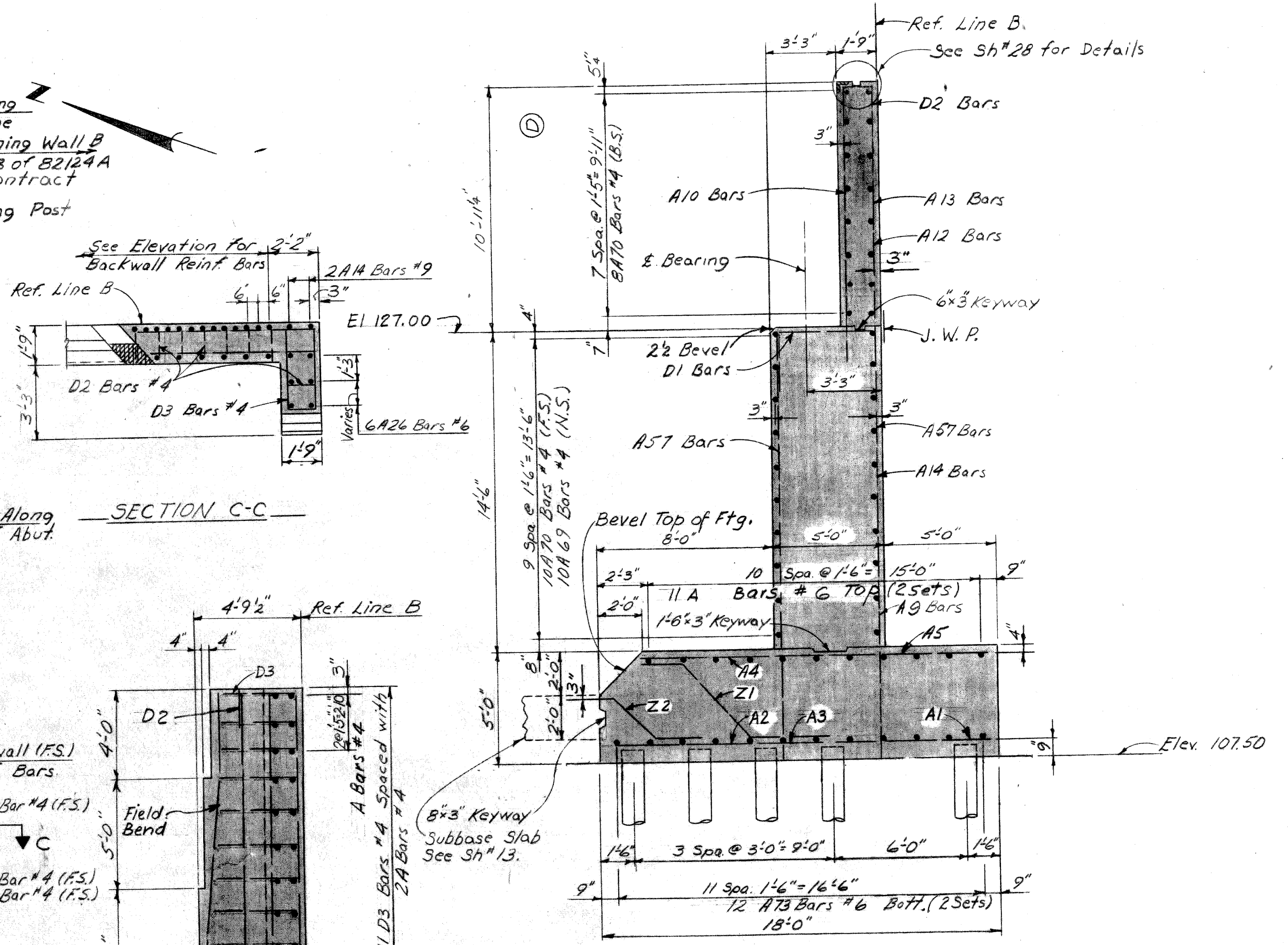
SQUAD BOSS	DATE
A. Freiberg	8-67
D. Roman	11-66
D. Roman	11-66
G. Molnar	8-67

SHEET 17 OF 34  
 X01 of 82124A

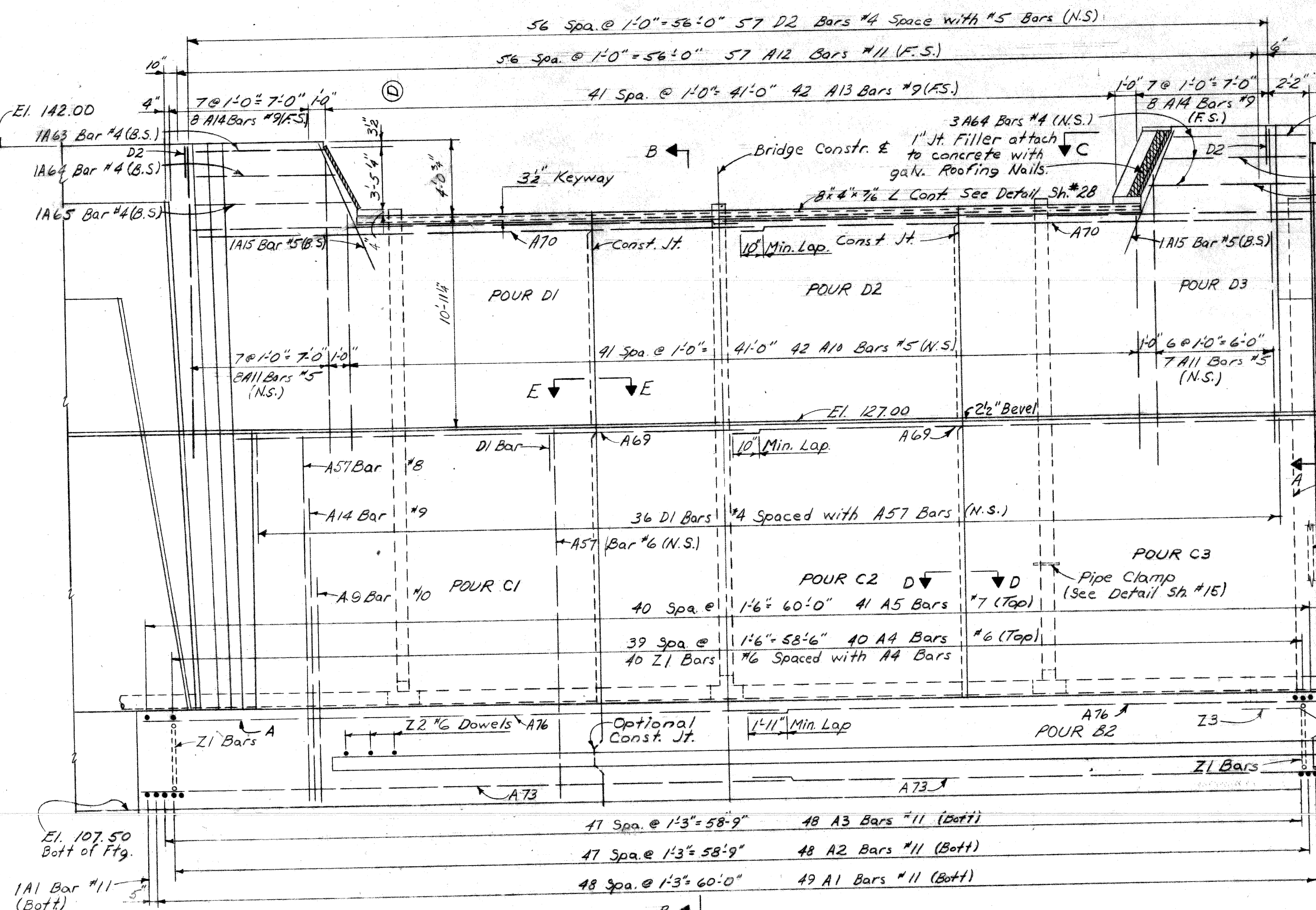




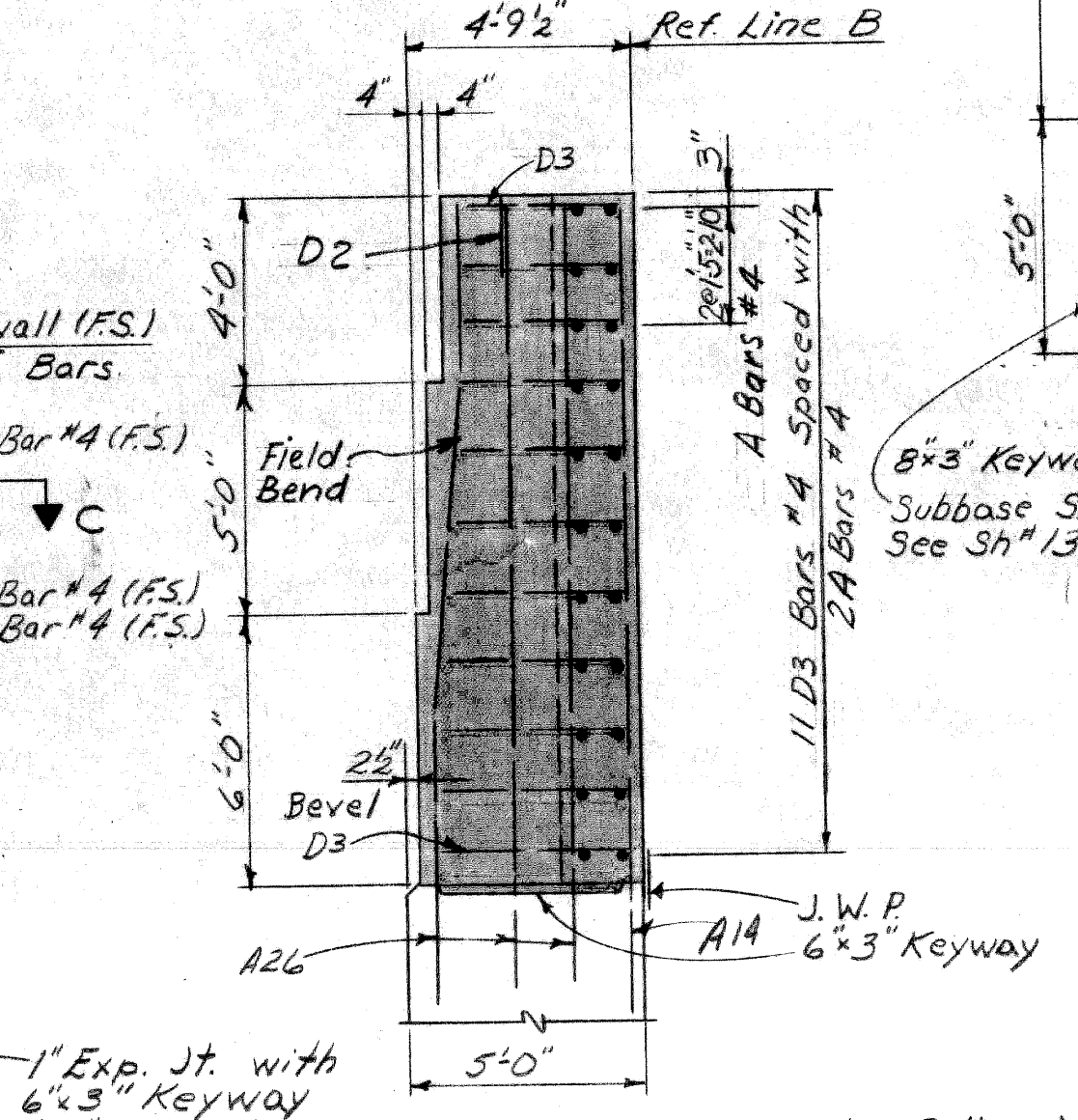
PLAN OF TOP



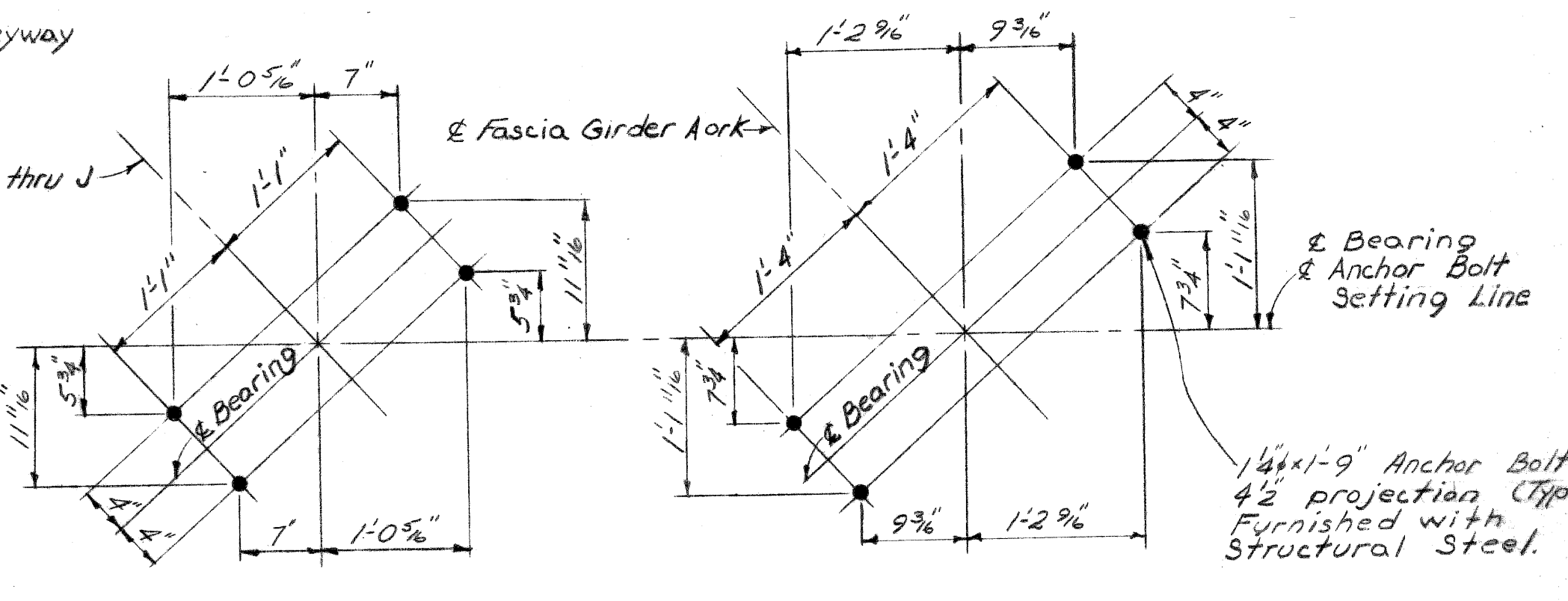
SECTION C-C



ELEVATION



SECTION A-A



ANCHOR BOLT SETTING DIAGRAM

Work this sheet with sheets Nos. 12 thru 20

MICHIGAN DEPARTMENT OF STATE HIGHWAYS  
 GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
 CROSSING THE JEFFRIES FREEWAY IN DETROIT

REVISIONS			
NO.	DESCRIPTION	DATE	BY
D	B'Wall Hgt. & Bm. Spa.	6/68	H.E.V.

PLANS PREPARED BY  
 CITY OF DETROIT  
 DEPARTMENT OF PUBLIC WORKS  
 CITY ENGINEERS OFFICE  
 BUREAU OF HIGHWAYS AND EXPRESSWAYS

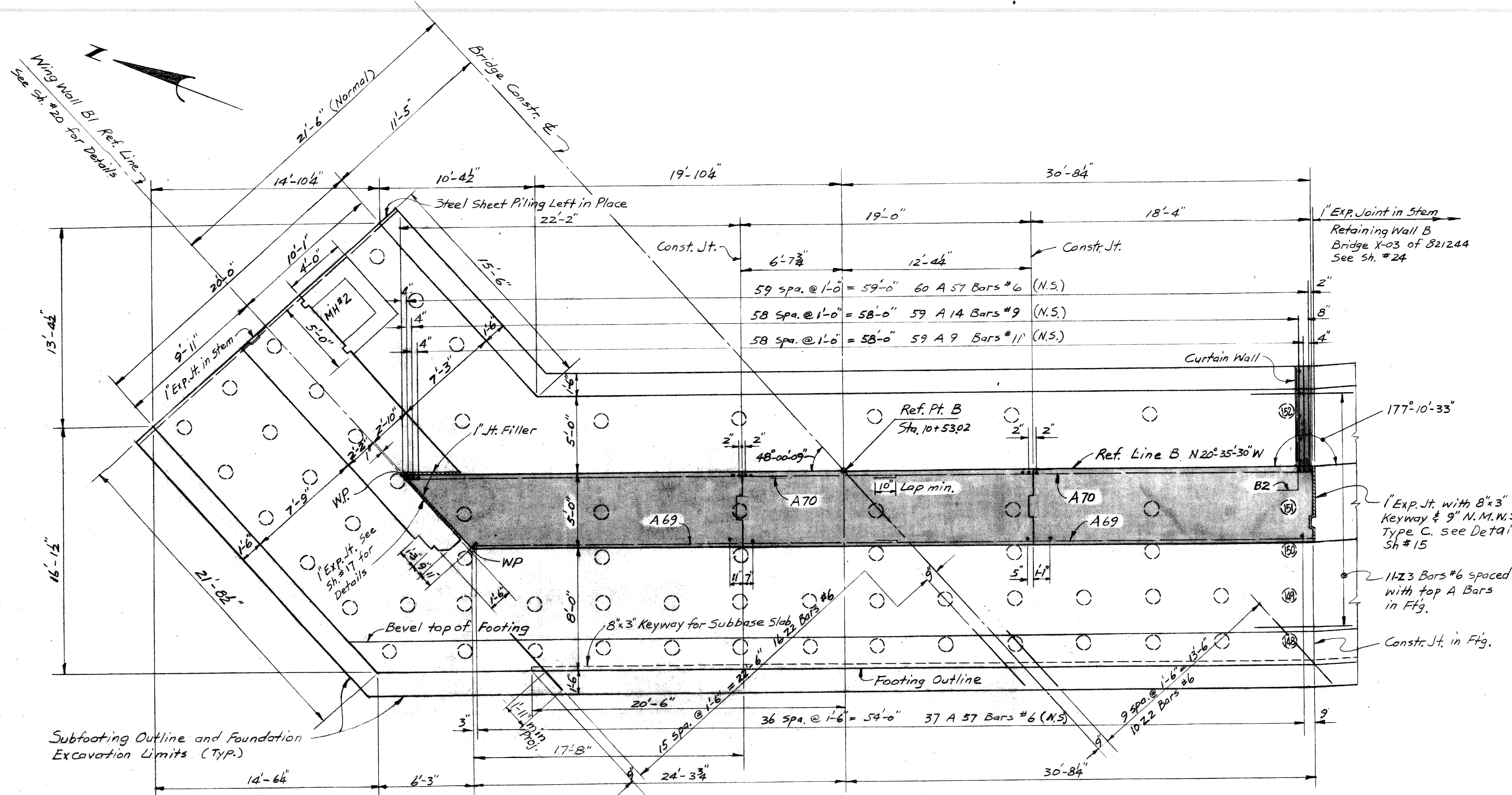
**ABUTMENT B DETAILS**

CITY OF DETROIT  
 SQUAD BOSS: A. Fricker 9-67  
 DRAWN BY: A.J.G. 11-66  
 CHECKED BY: A.J.G. 11-66  
 SHEET 18 OF 32

APPROVED: [Signature] JOB No. PW 990(1)  
 STRUCTURAL ENGINEER

X01 of 82124A





POUR	LOCATION	Abutment A		Abutment B	
		A(6A)	A(6AA)	A(6A)	A(6AA)
A1	Abutment Subfooting	144	—	173	—
B1	— do — Footing	826	—	1300	—
B2	— do — Footing	1272	—	1217	—
C1	— do — Wall	—	797	—	535
C2	— do — do —	—	756	—	510
C3	— do — Wall	—	—	—	492
D1	— do — Backwall	—	221	—	178
D2	— do — do —	—	173	—	135
D3	Abutment Backwall	—	—	—	185
A2	Wing Wall Subfooting	55	—	46	—
A3	— do — do —	36	—	41.7	—
A4	— do — Subfooting	52	—	—	—
B3	— do — Footing	495	—	—	—
B4	— do — do —	366	—	—	—
B5	— do — Footing	365	—	—	—
C4	— do — Stem	—	421	—	372
C5	— do — do —	—	294	—	283
C6	— do — do —	—	392	—	—
C7	— do — do —	—	233	—	—
C8	— do — Stem	—	144	—	—
D4	— do — Upper Stem	—	231	—	234
D5	Wing Wall Upper Stem	—	270	—	269
E1	Manhole	—	159	—	146
F1	Curtain Wall	—	70	—	64
	Total	361.1	416.1	315.3	340.3

Item	unit	Abut.A	Abut.B	Total
Special Manhole Frame & Cover	Each	1	1	2
Steel Sheet Piling Left in Place	Sq. Ft.	745	505	1250
Protective Sealant Coating for Str. Conc.	Sq. Ft.	157	185	342
Low Temperature Protection Substr.	Cu. Yd.	748	634	1382
1" Joint Filler	Sq. Ft.	411	441	852
Joint Waterproofing	Sq. Ft.	113	131	244
Non-Metallic Waterstop	Sq. Ft.	130	100	230
8" Foundation Drain	Lin. Ft.	220	165	385
Ladder Rungs	Each	24	22	46

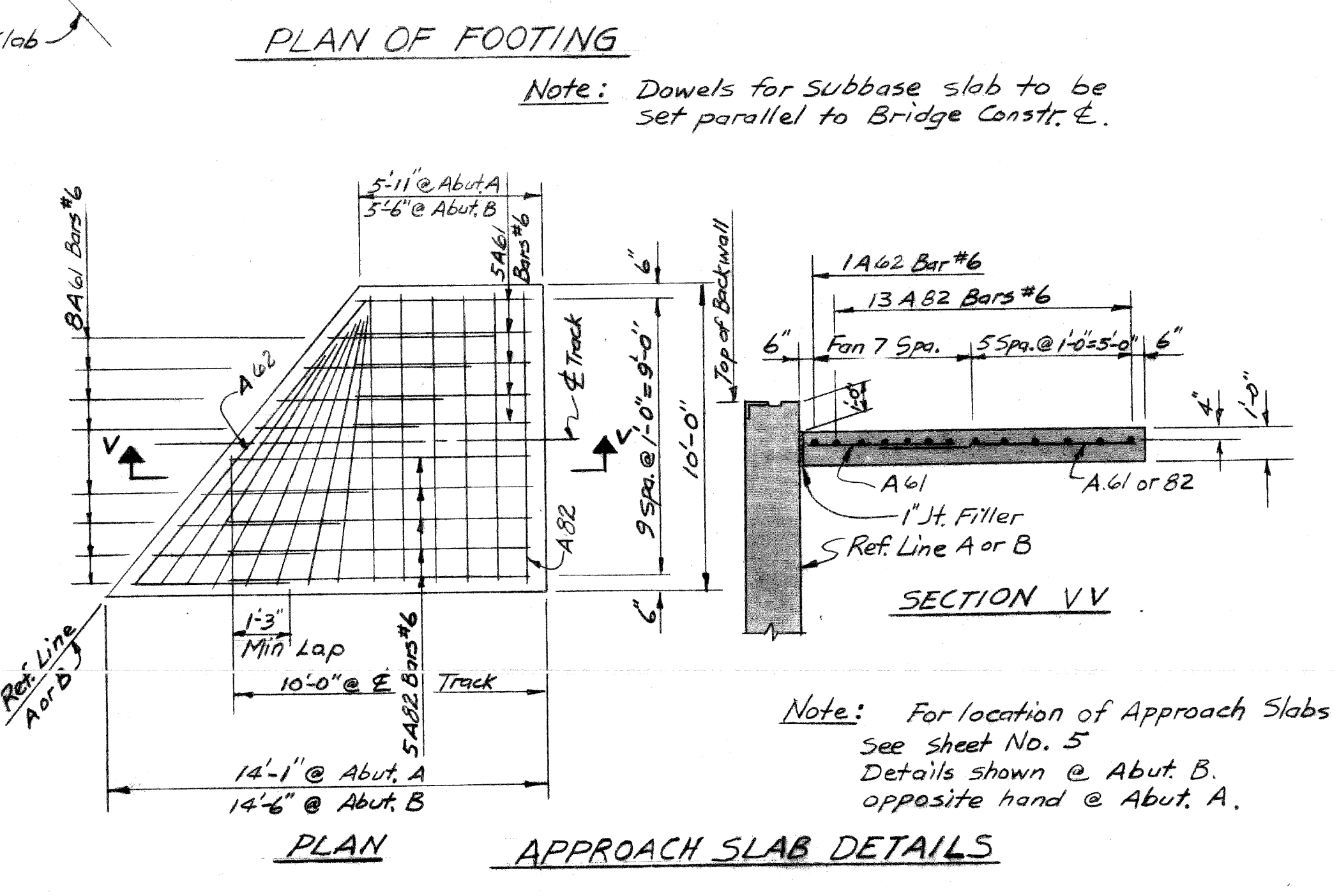
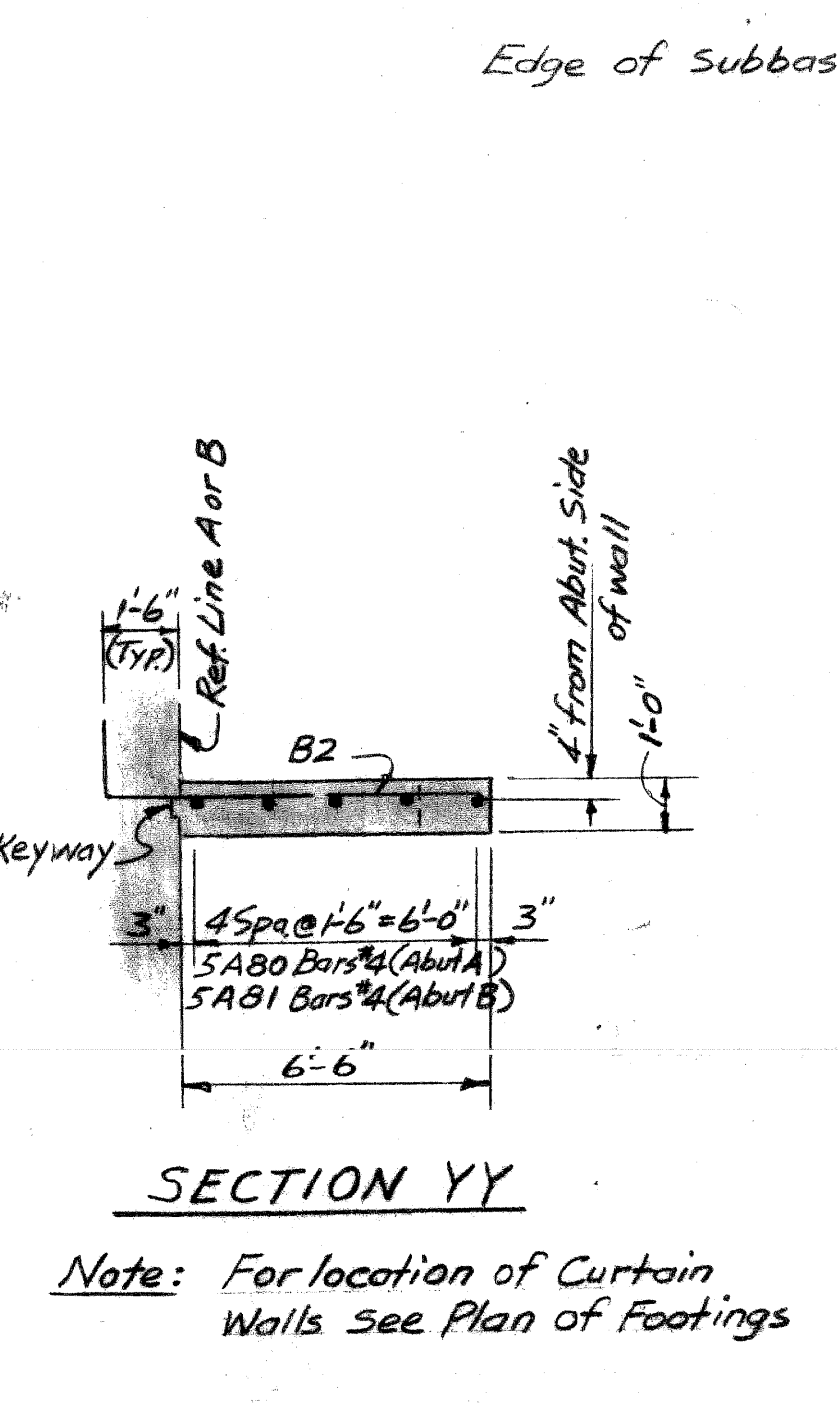
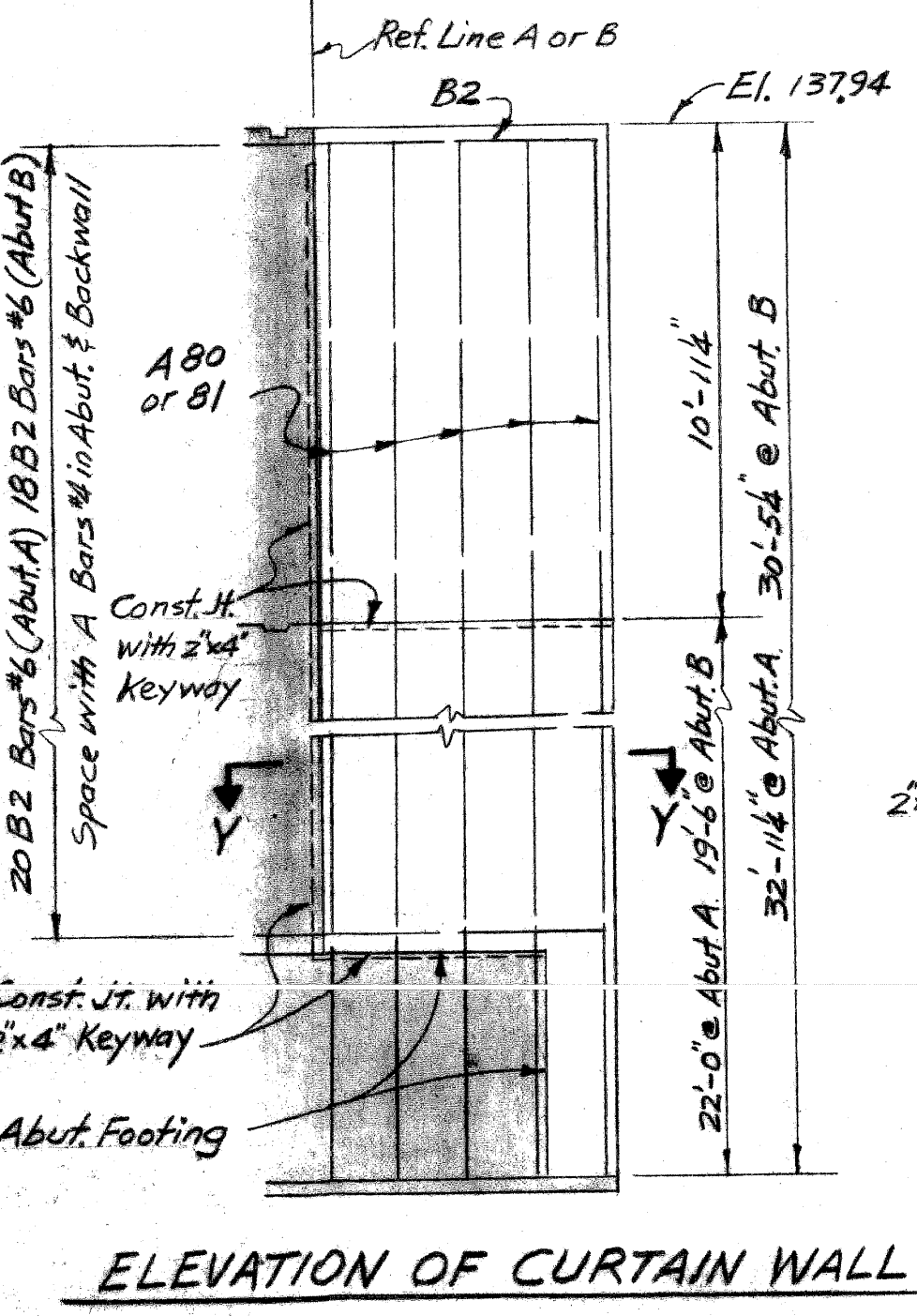
For Bridge Railing Quantities & Details See Sh. #29

Work this sheet with Sheets No. 12 thru 20

MICHIGAN DEPARTMENT OF STATE HIGHWAYS  
 GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
 CROSSING THE JEFFRIES FREEWAY IN DETROIT

REVISIONS		DATE	BY

NO.	DESCRIPTION	DATE	BY



PLANS PREPARED BY  
 CITY OF DETROIT  
 DEPARTMENT OF PUBLIC WORKS  
 CITY ENGINEERS OFFICE  
 BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED: *[Signature]*  
 STRUCTURAL ENGINEER

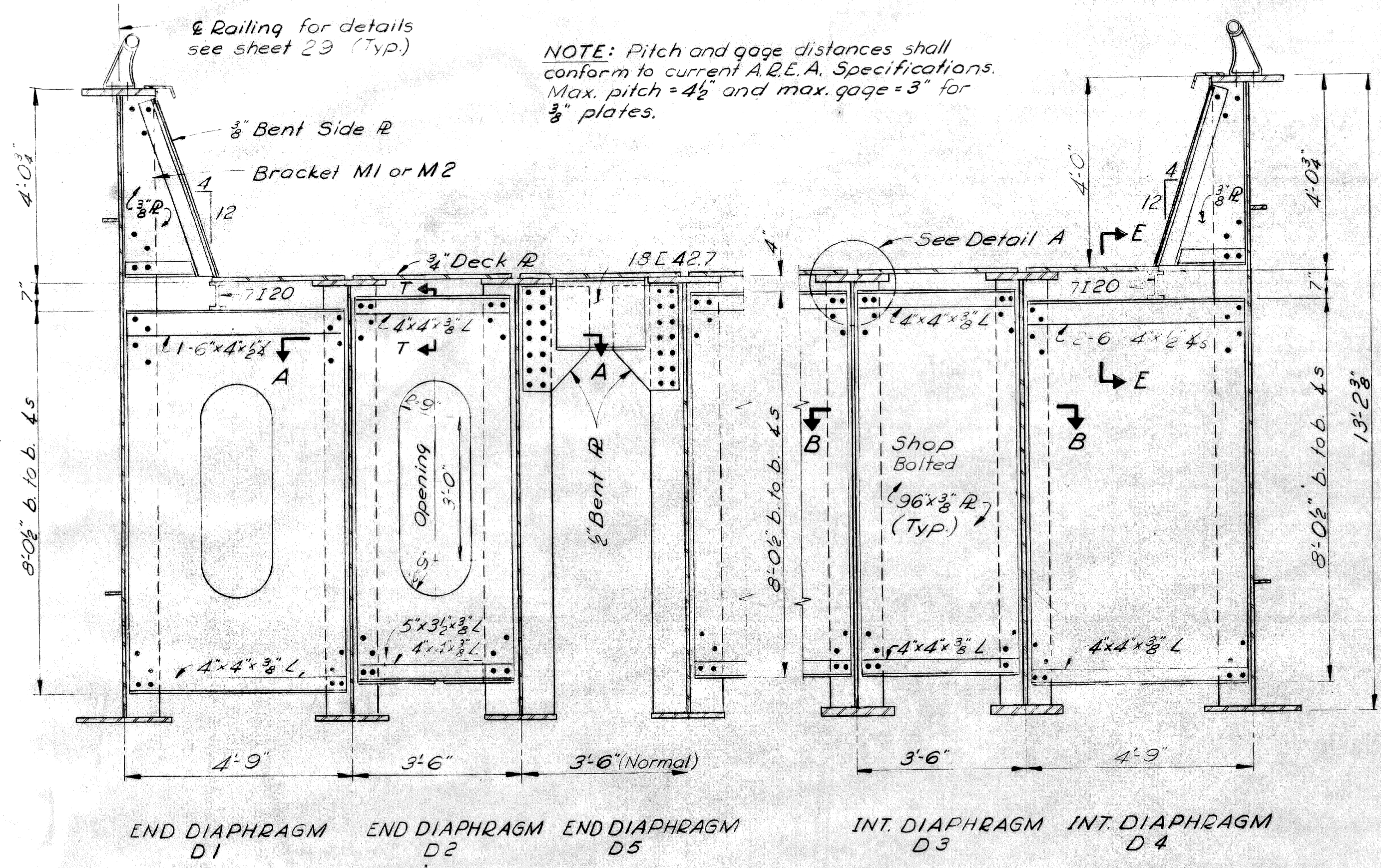
JOB No. PW 930(1)

CITY OF DETROIT  
 SQUAD BOSS: A. Frickos 9-67  
 DRAWN BY: J. H. KU 12-66  
 TRACED BY: J. H. KU 12-66  
 CHECKED BY: A. Frickos 9-67  
 SHEET 19 OF 34  
 X01 of 82124A

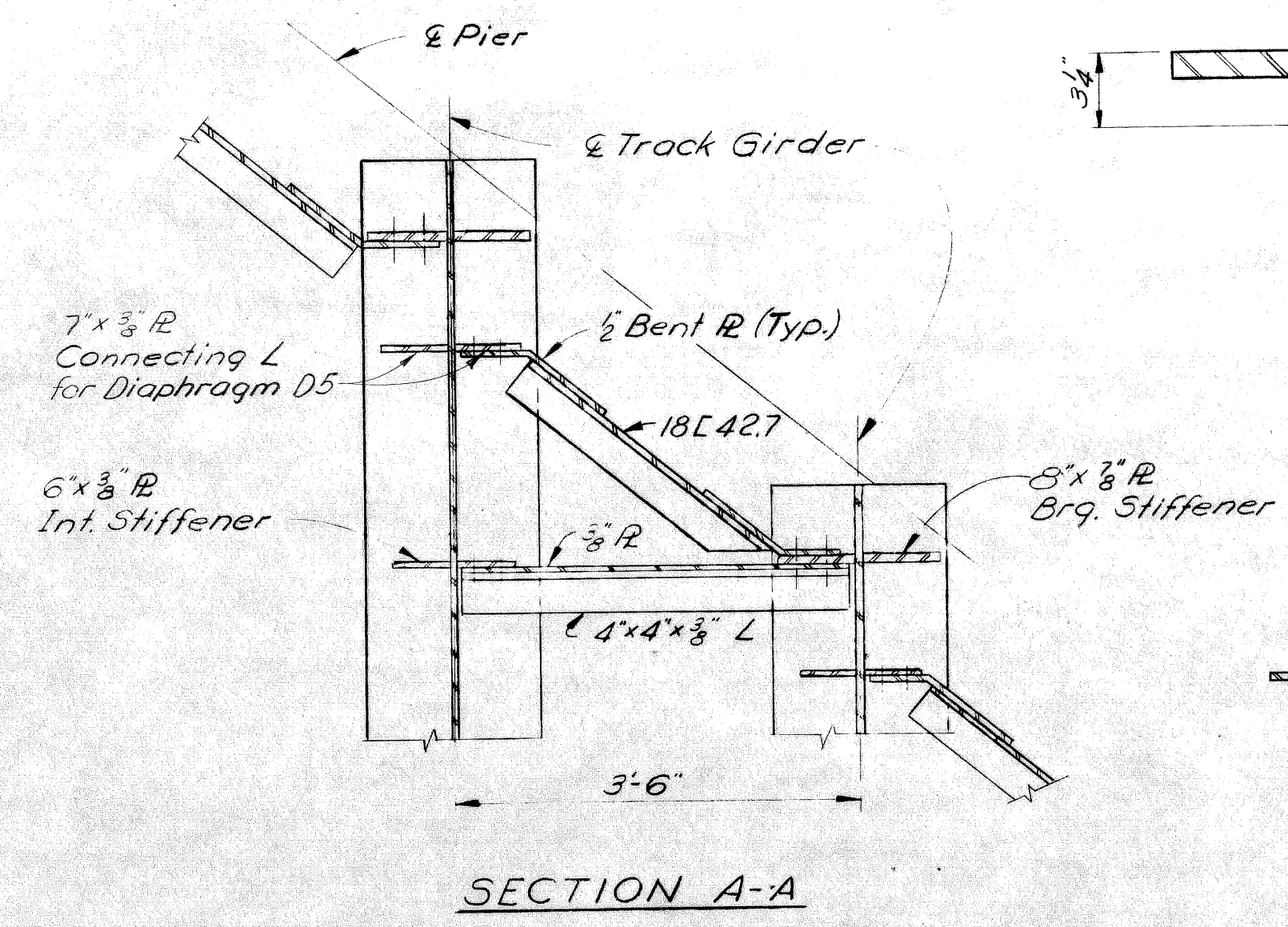




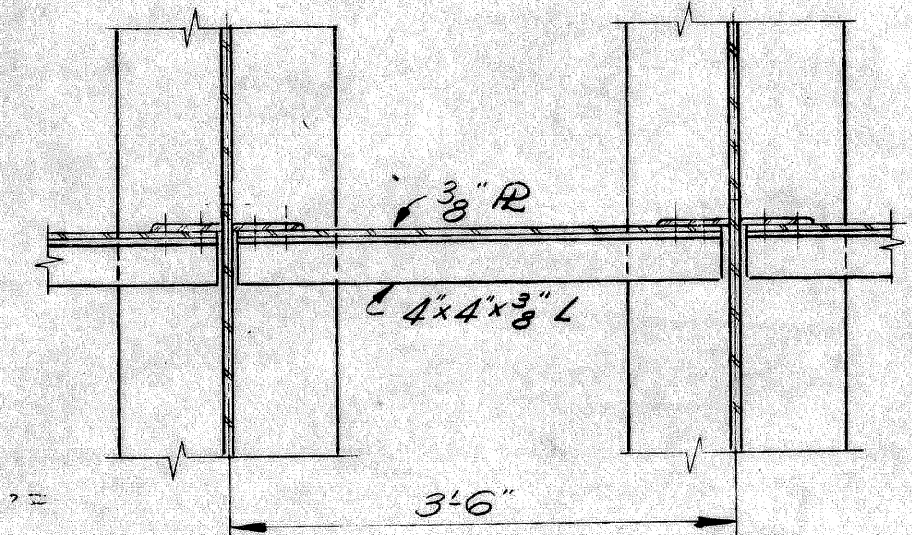




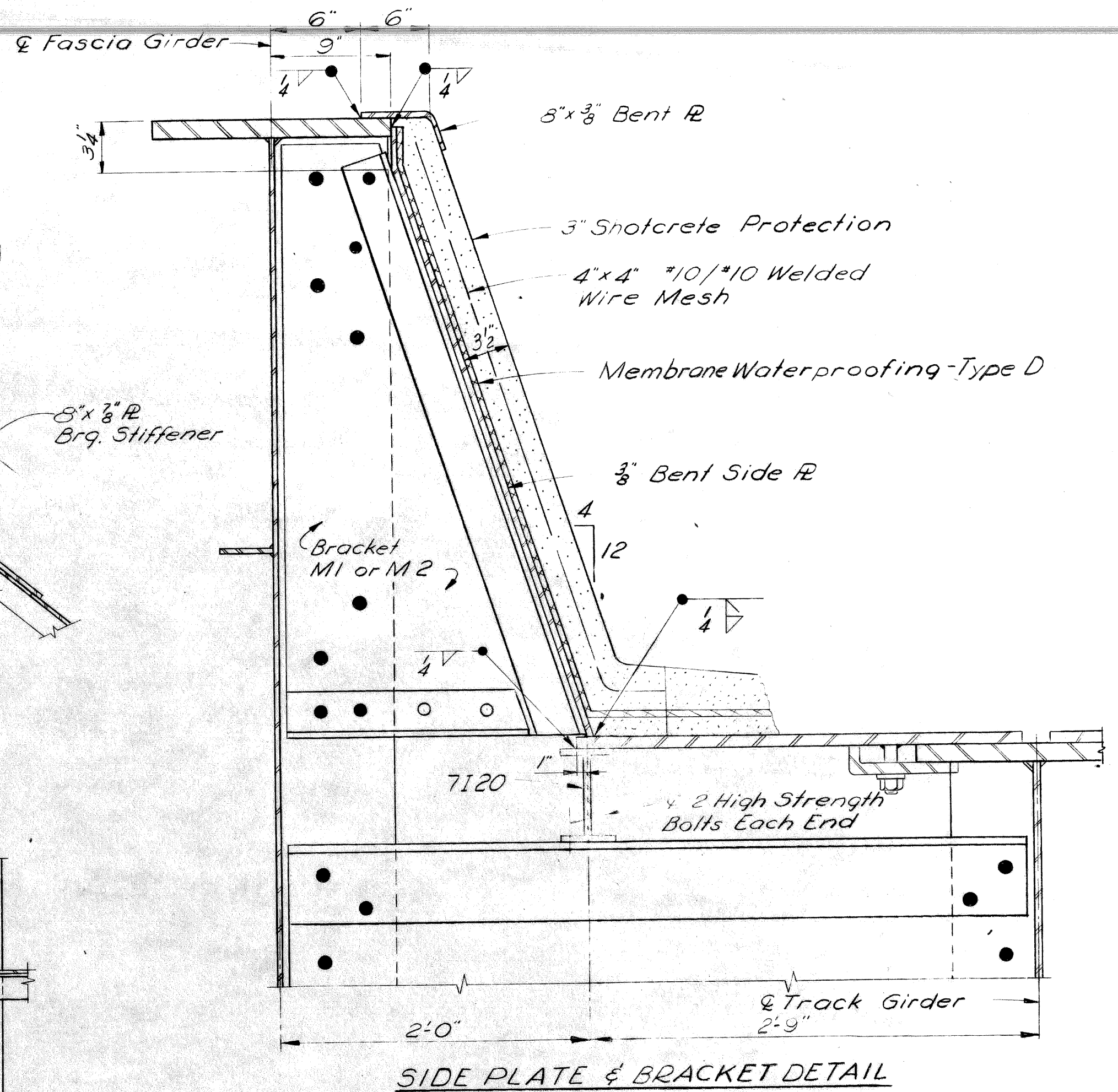
DIAPHRAGM DETAILS



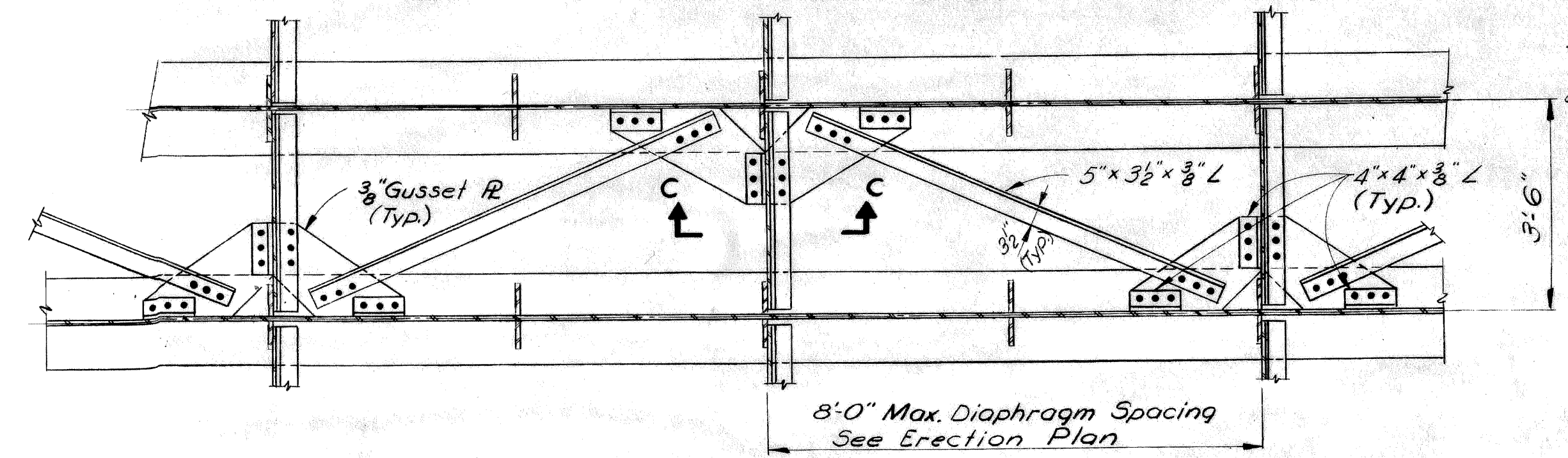
SECTION A-A



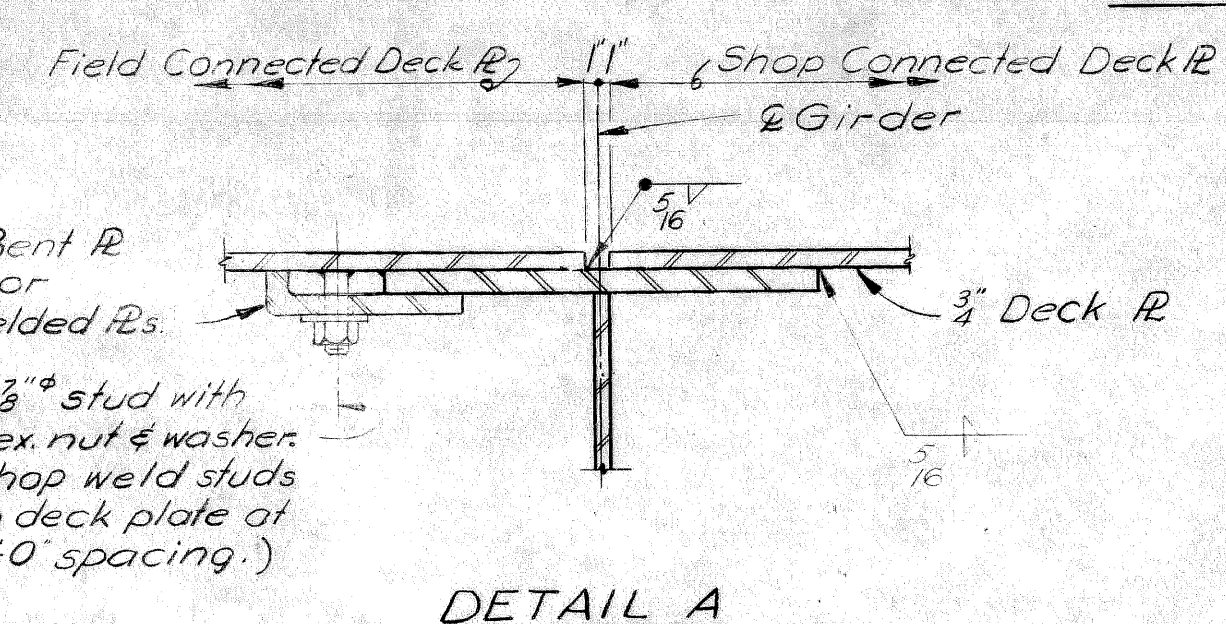
SECTION B-B



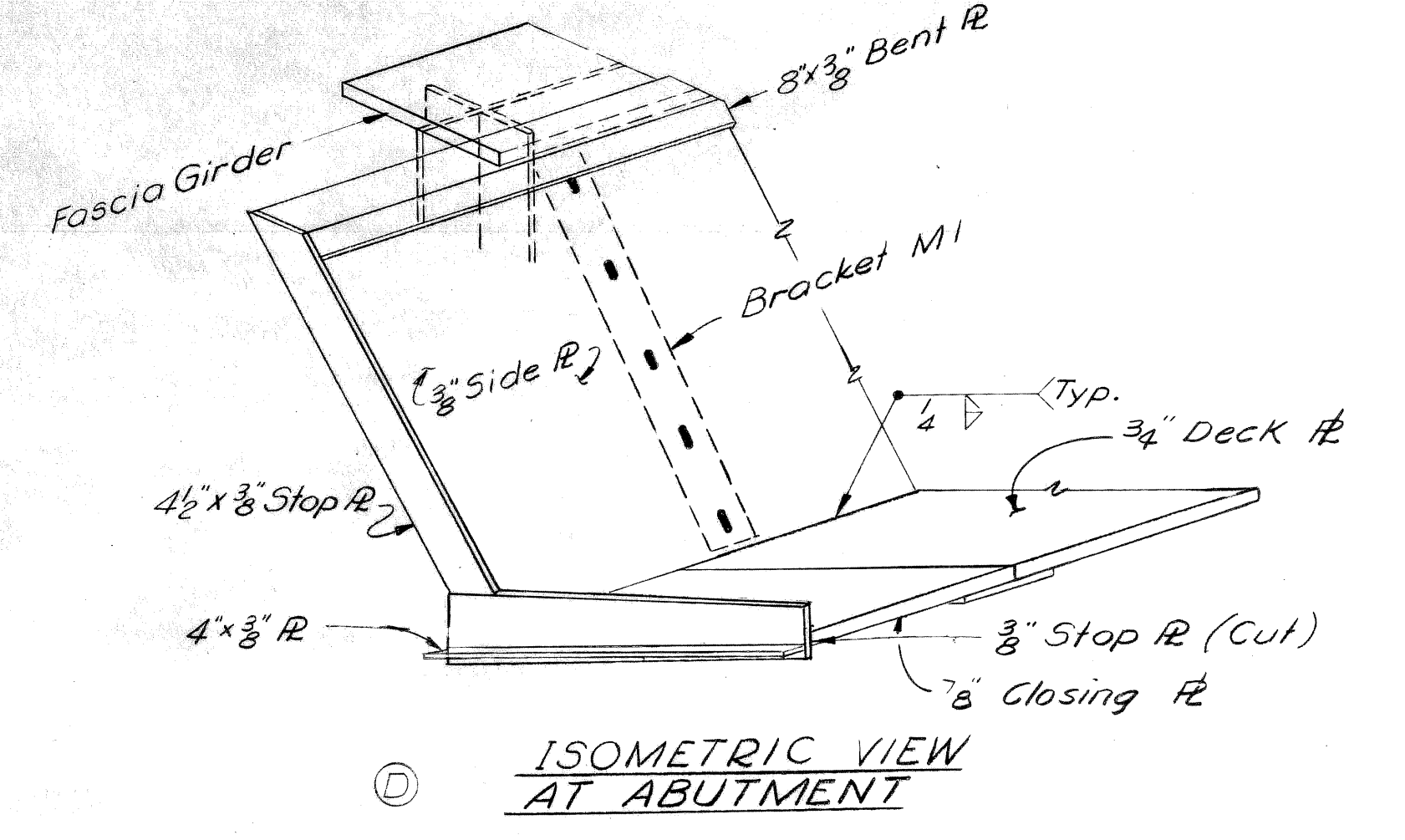
SIDE PLATE & BRACKET DETAIL



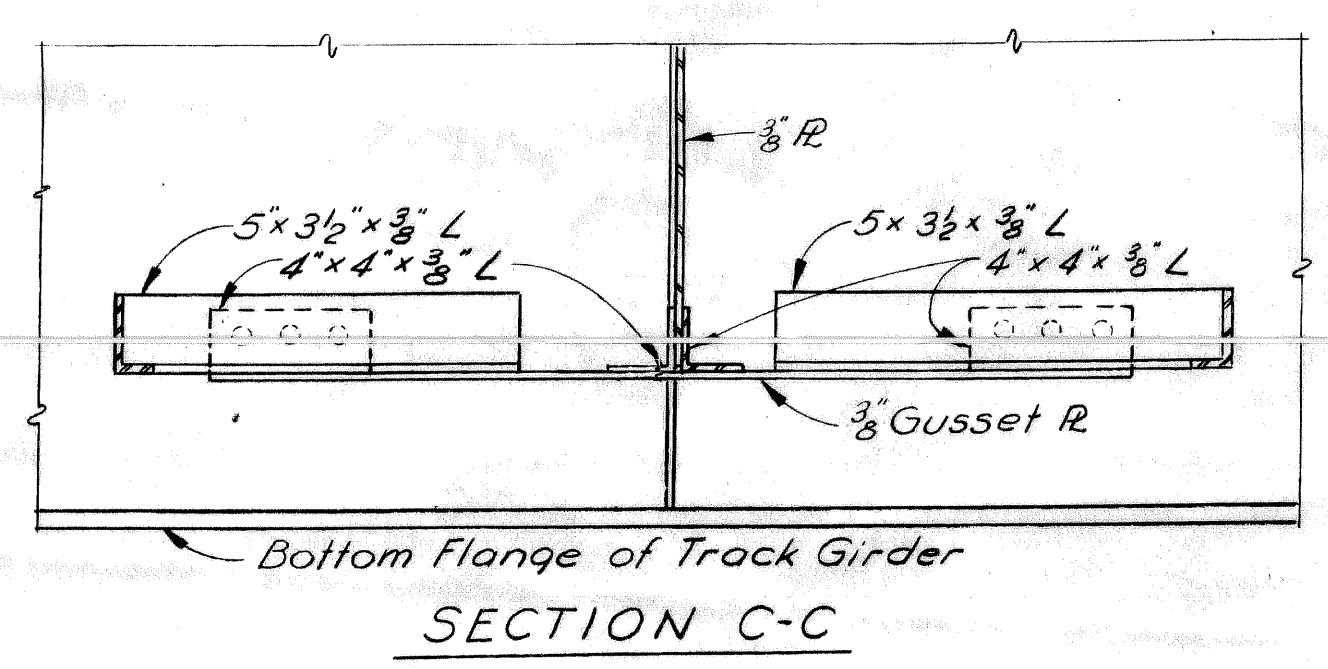
LATERAL BRACING DETAILS



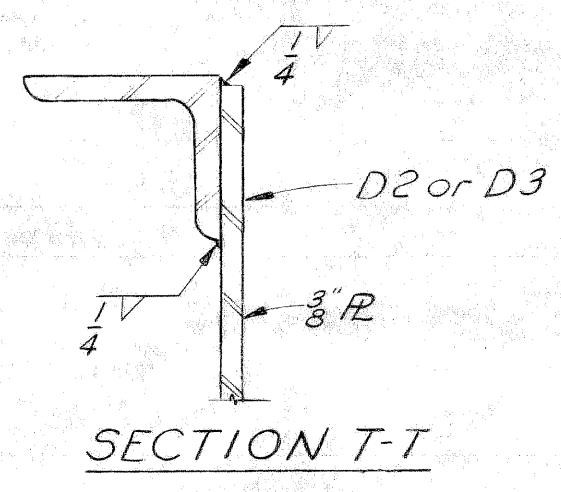
DETAIL A



ISOMETRIC VIEW AT ABUTMENT



SECTION C-C



SECTION T-T

Work this Sheet with Sheets 23, 24, 26 & 27

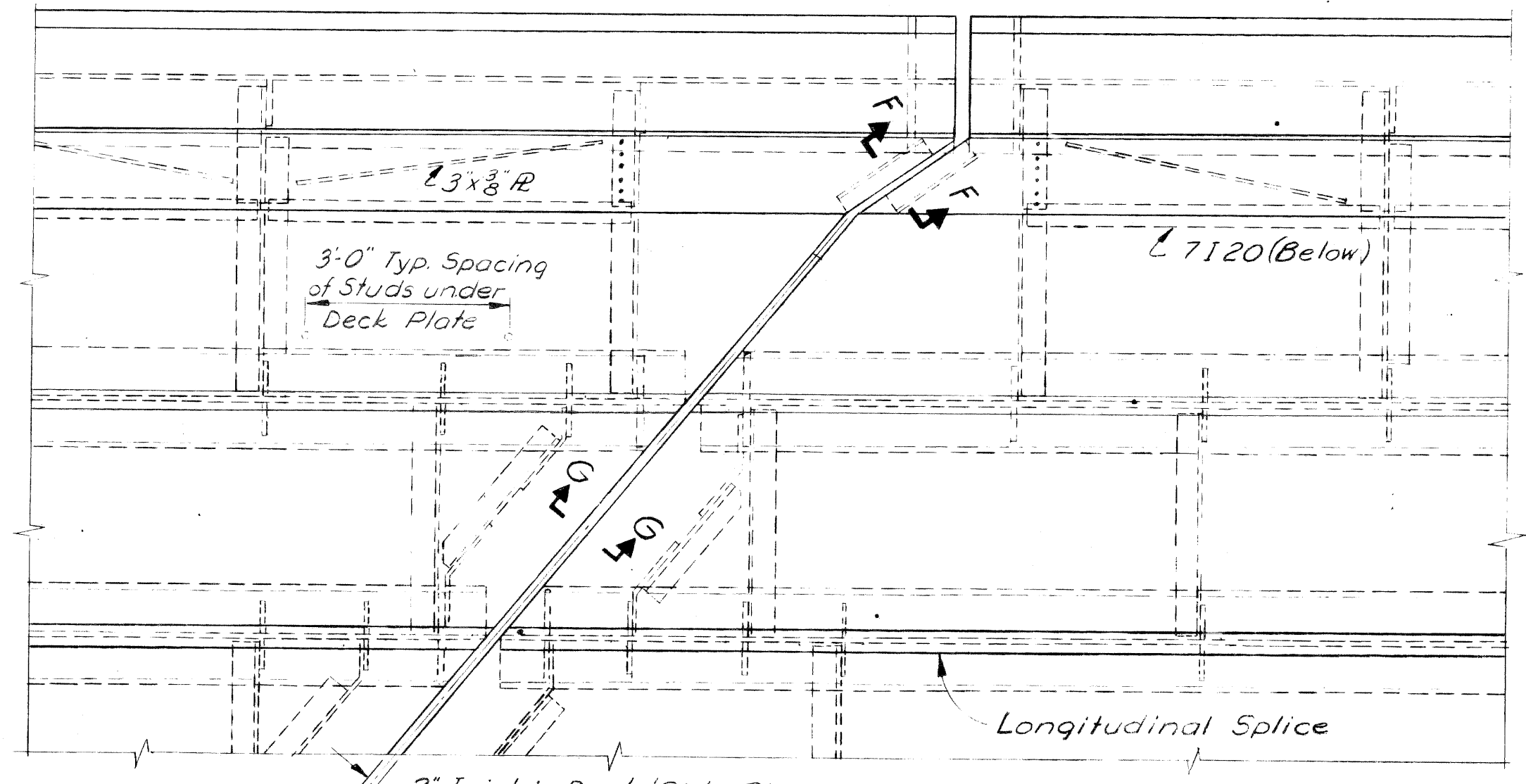
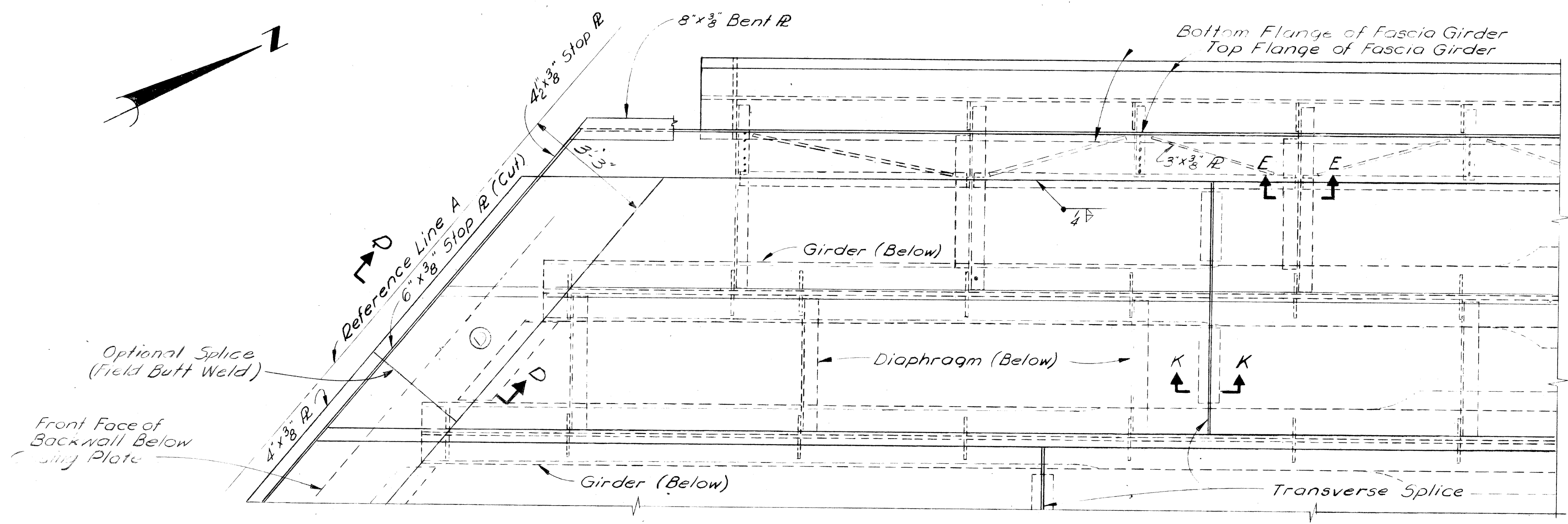
MICHIGAN DEPARTMENT OF STATE HIGHWAYS  
 GRAND TRUNK WESTERN RAILROAD - MC CLENNEN SUBDIVISION  
 CROSSING THE JEFFRIES FREEWAY IN DETROIT

STRUCTURAL STEEL DETAILS			
REVISIONS			
NO.	DESCRIPTION	DATE	BY
D	Deck R in Iso View	6/68	HE

SQUAD BOSS	Suren	9-67
DRAWN BY	T.Baker	11-66
CHECKED BY	Suren	9-67
SHEET	25	OF 34

APPROVED: *[Signature]*  
 ENGINEER





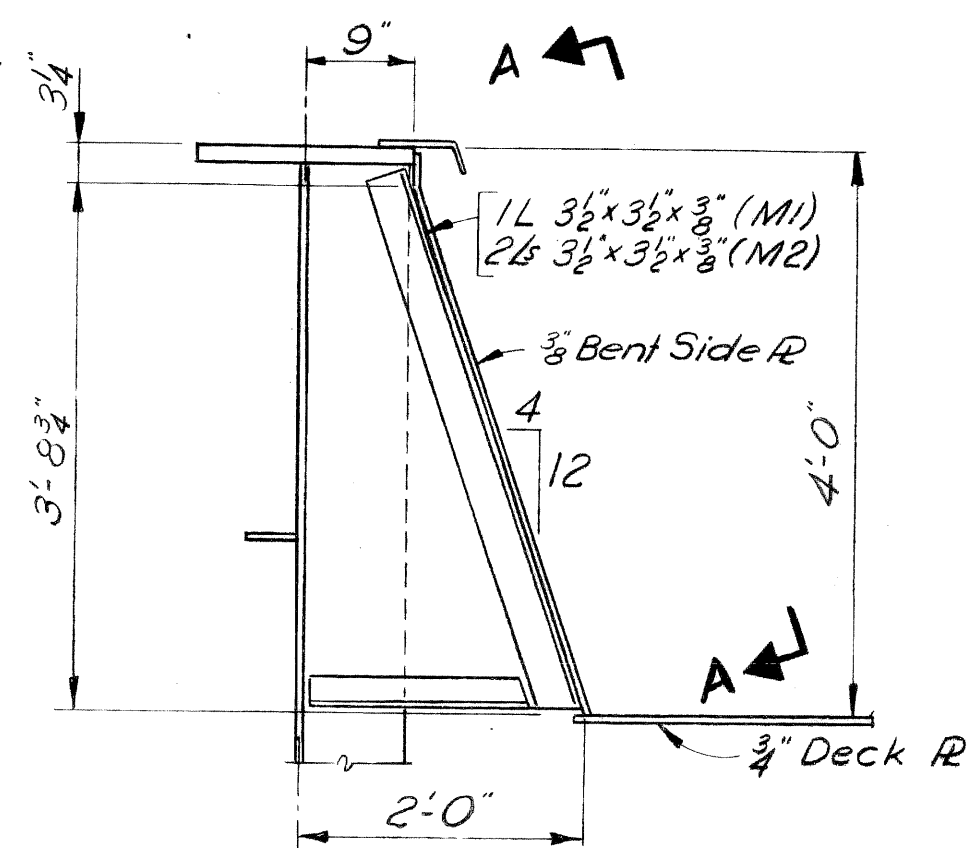
**NOTE - Field Erected Deck Plates**  
Deck plates shall be provided in lengths not to exceed 30'-0". Plates are to be securely tack welded in place prior to making longitudinal welds. Transverse splices shall not be made until all longitudinal welding has been completed.

**DECK PLATE AT ABUTMENT**

**PARTIAL DECK PLAN**

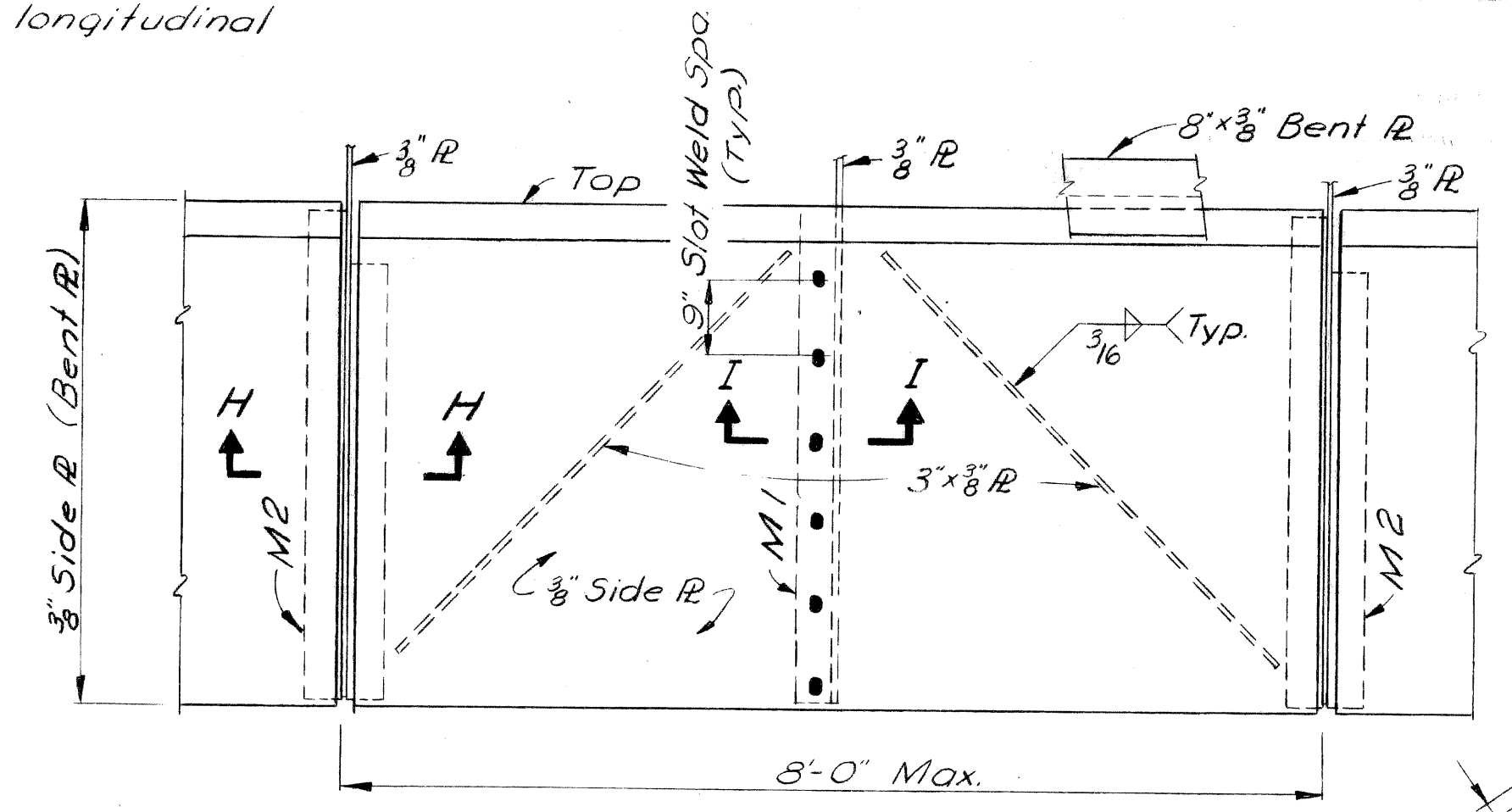
**DECK PLATE AT PIER**

Note: For Sections F-F & G-G See sheet 28

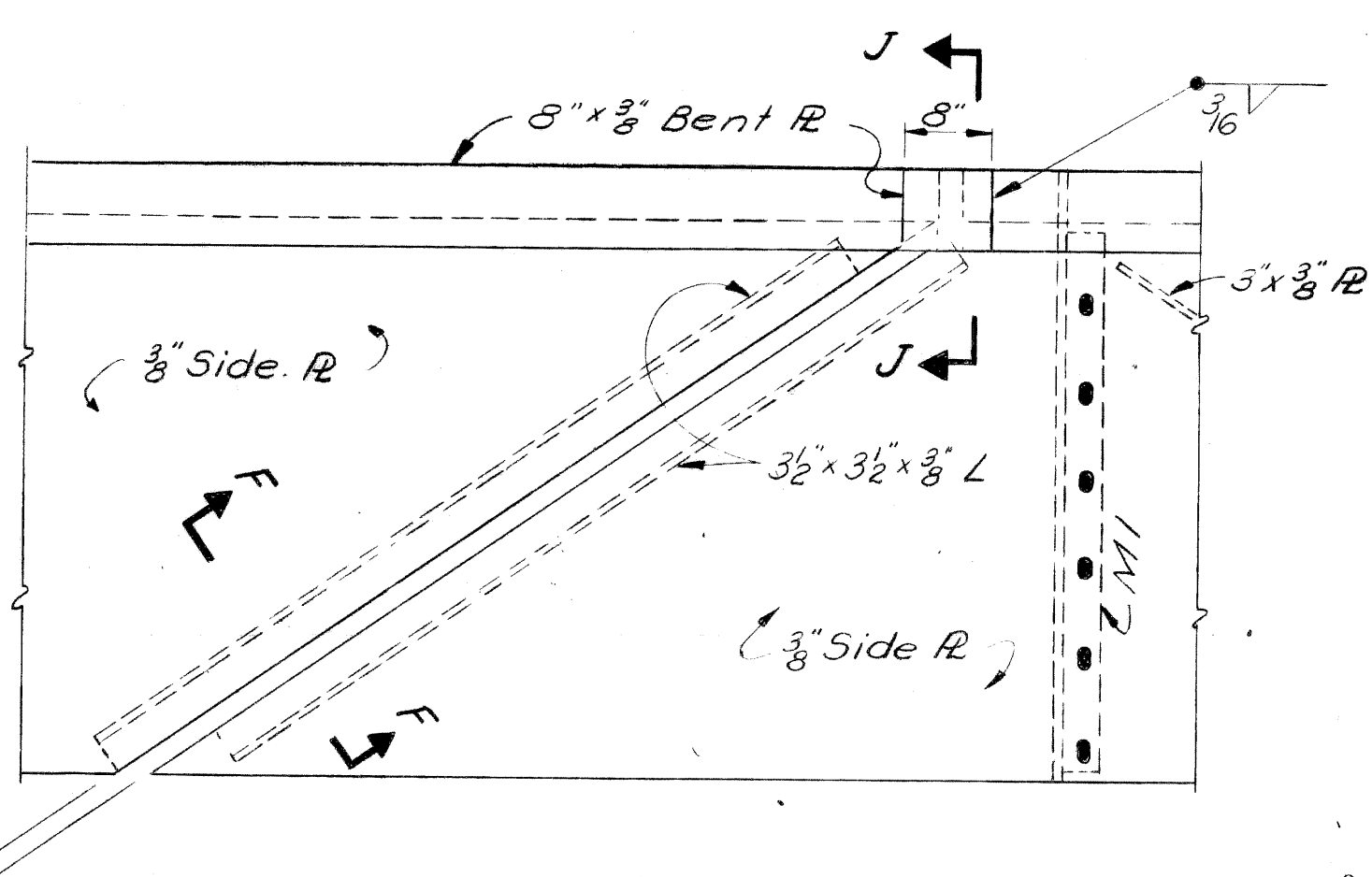


Note: For details not shown see Side Plate & Bracket Detail Sh. 25

**DETAIL OF SIDE PLATE & BRACKETS M1 & M2**

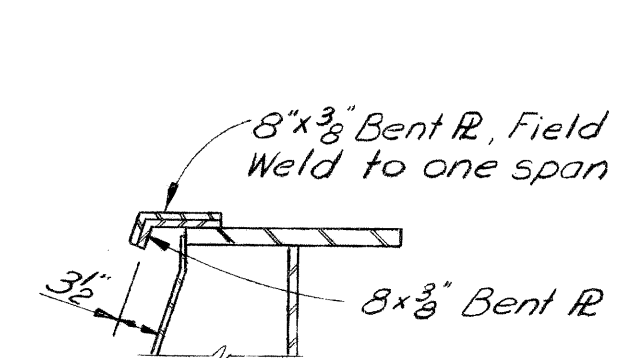


**SIDE PLATE INTERIOR PANEL**

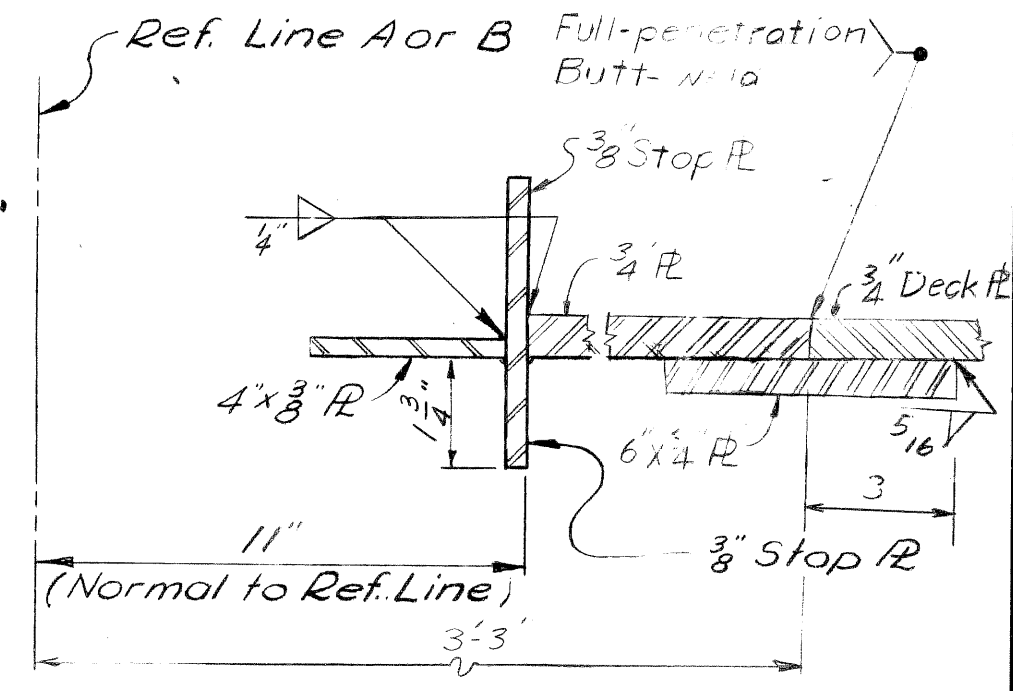


**SIDE PLATE PIER PANEL**

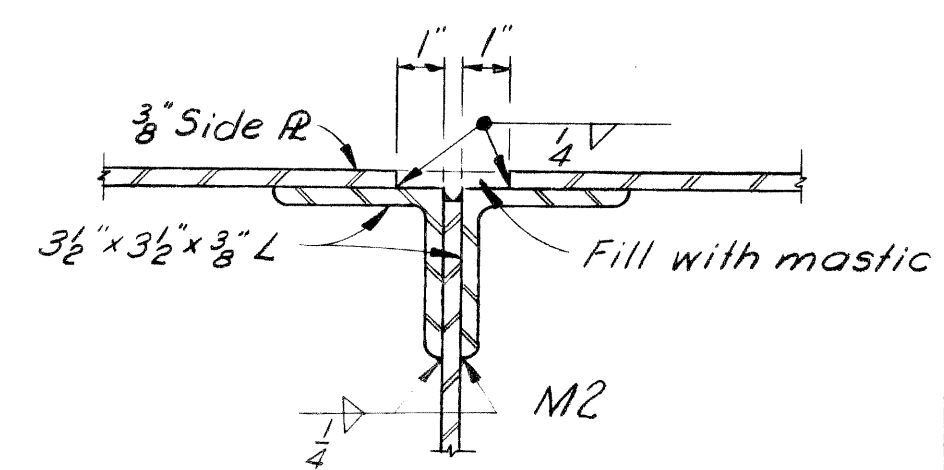
**VIEW A-A**



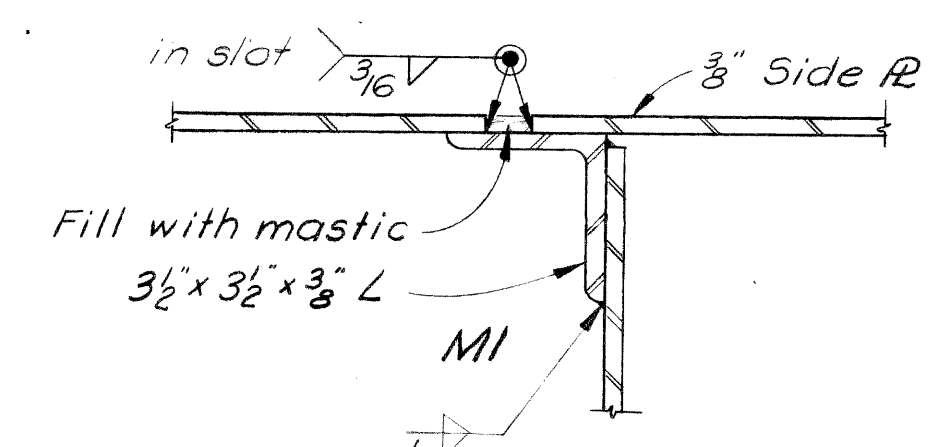
**SECTION J-J**



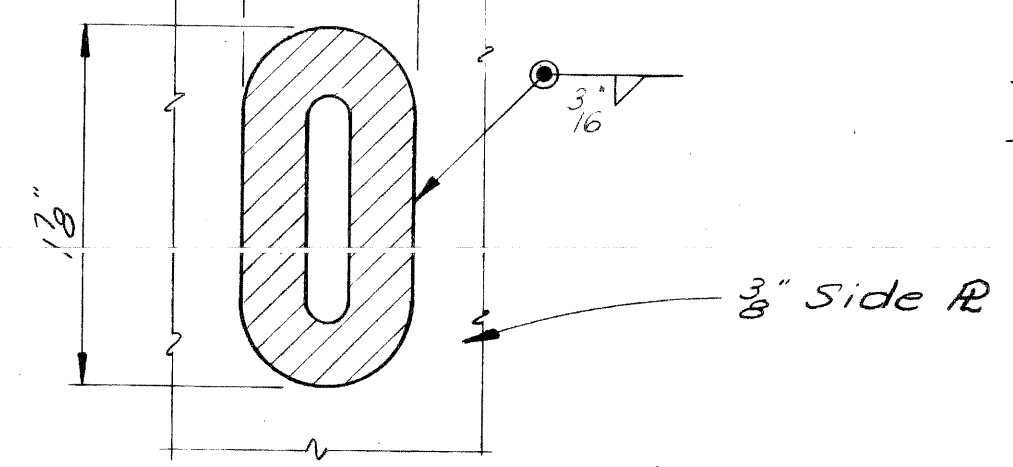
**SECTION D-D**



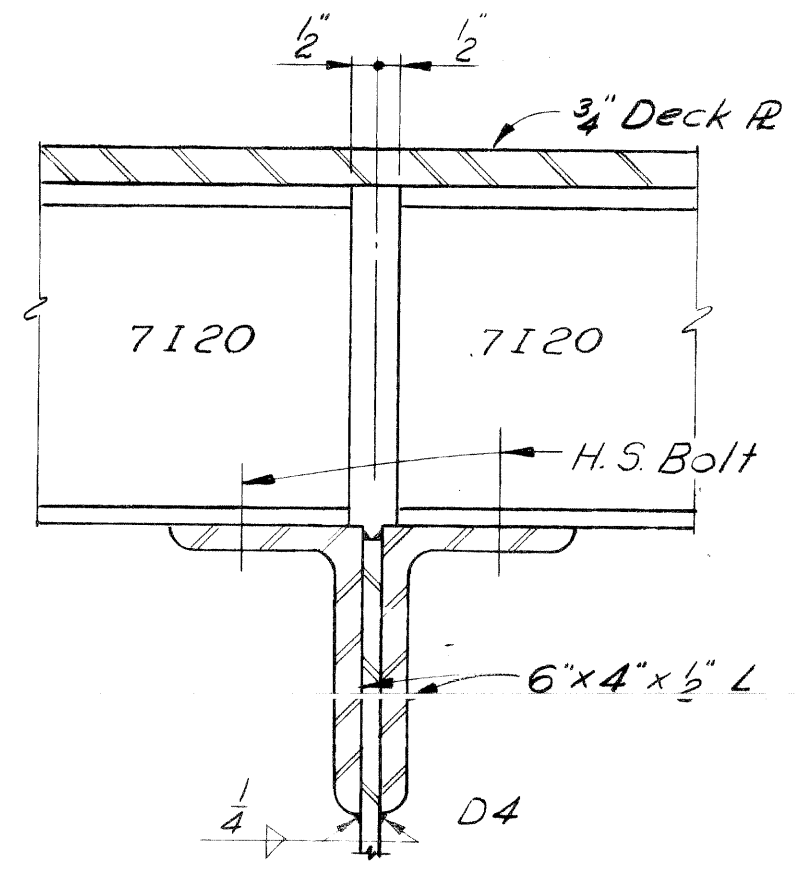
**SECTION H-H**



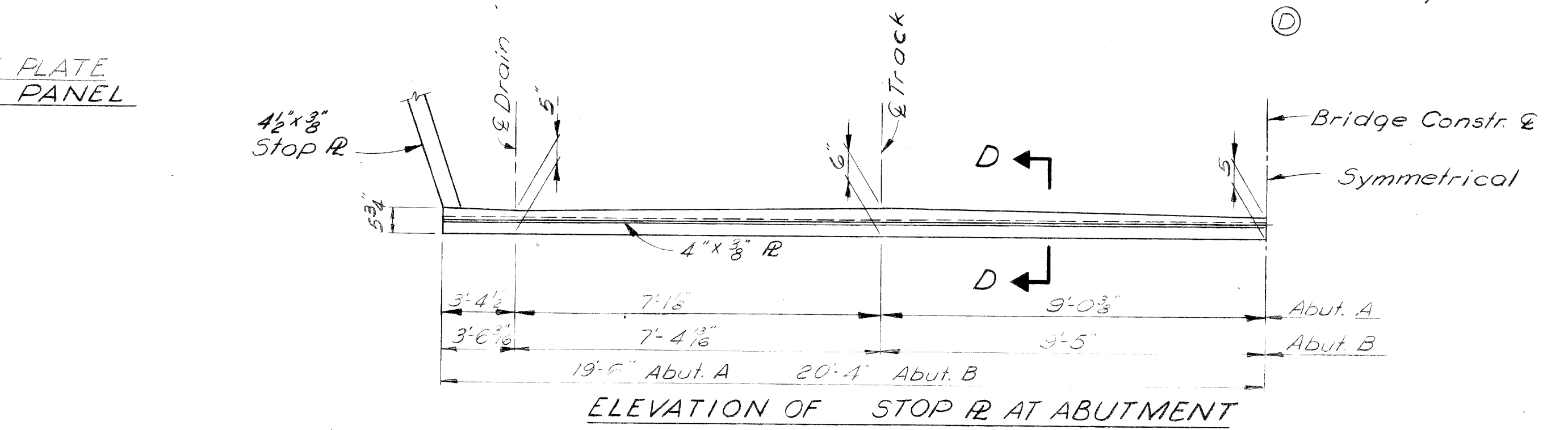
**SECTION I-I**



**SLOT WELD DETAIL**



**SECTION E-E**



**ELEVATION OF STOP R AT ABUTMENT**

Work this sheet with sheets 23, 24, 25 & 27

**MICHIGAN DEPARTMENT OF STATE HIGHWAYS**

GRAND TRUNK WEST RAILROAD CROSSING EAST MAIN ST. IN ANN ARBOR

**STRUCTURAL STEEL DETAILS**

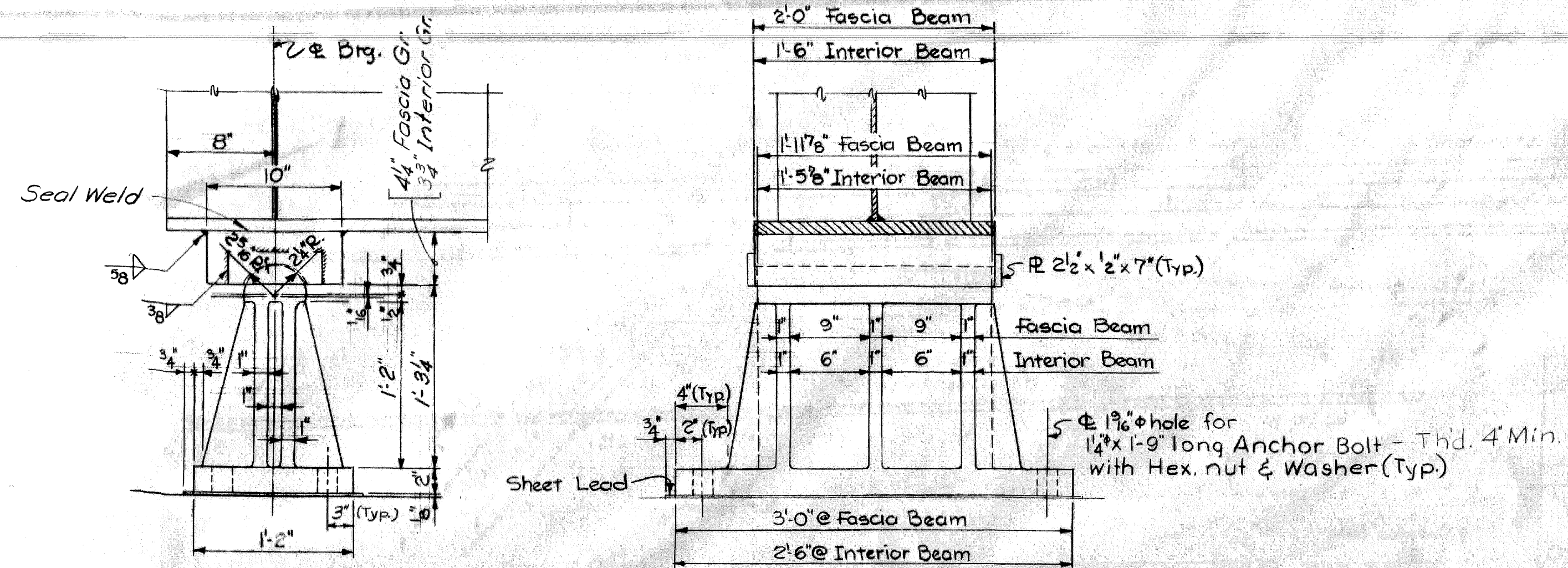
NO.	DESCRIPTION	DATE	BY
B	Revised deck plate conn.	5/10/68	AEB
D	Section D-D	6/68	HE

SQUAD BOSS	DATE
SP	9-67
T. Baker	11-66
SP	9-67

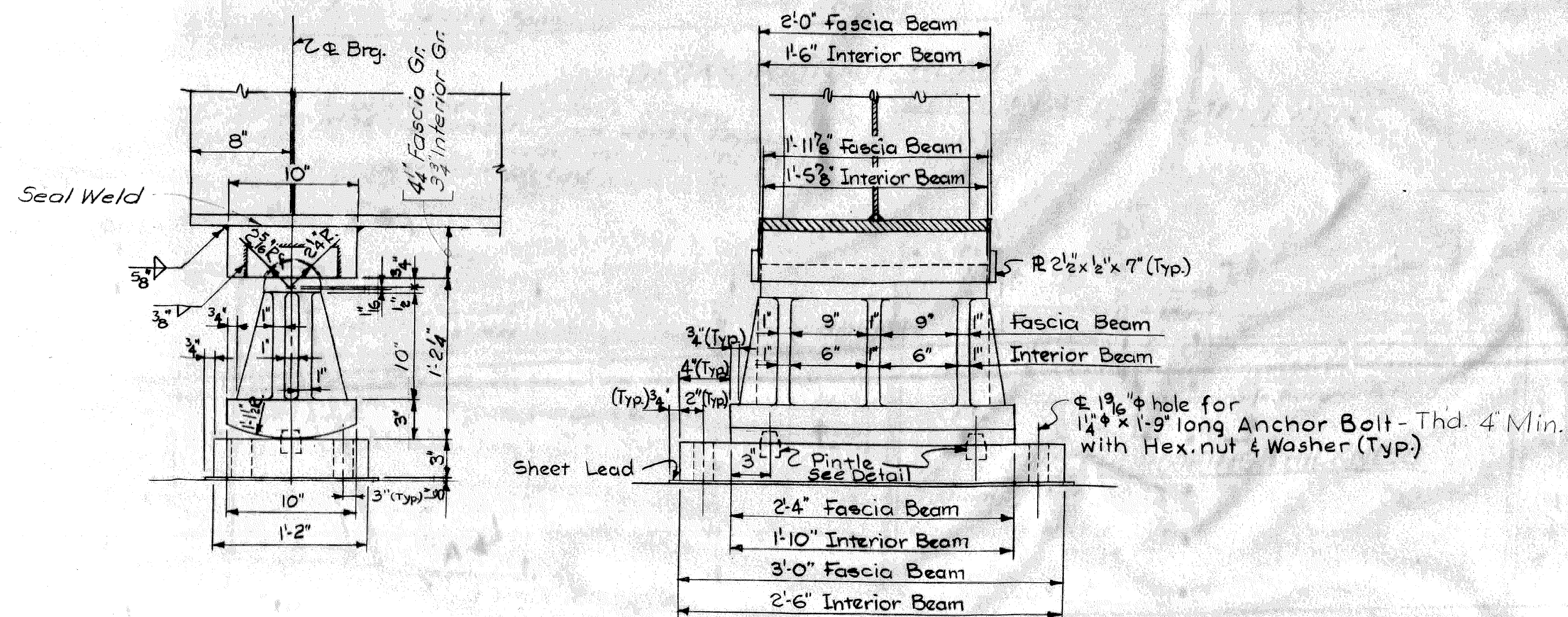
SHEET 26 OF 34

*C. J. L...*



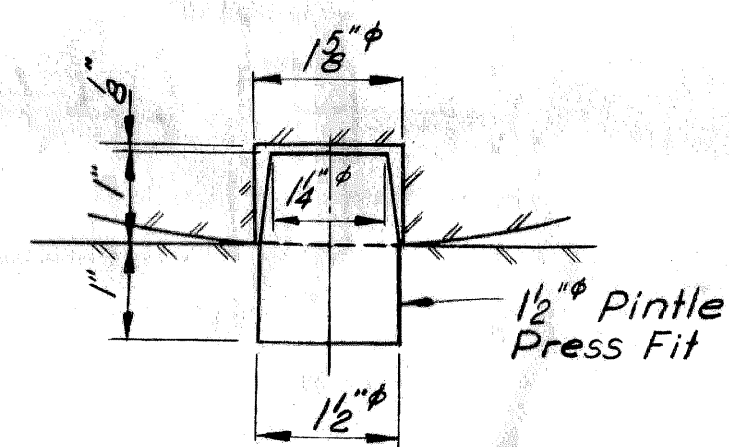


FIXED PEDESTAL



EXPANSION ROCKER

**NOTES:**  
 Rockers & Pedestals shall be cast steel.  
 All castings shall have inside corners filleted and outside corners rounded.  
 Steel castings shall conform to the current AREA Specifications.  
 Sheet lead is included in weight of Structural Steel.



PINTLE DETAIL

Work this sheet with sheets 23 thru 26

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
 CROSSING THE BELLEVUE FREEWAY IN DETROIT

**STRUCTURAL  
 STEEL DETAILS**

PLANS PREPARED BY  
 CITY OF DETROIT  
 DEPARTMENT OF PUBLIC WORKS  
 CITY ENGINEERS OFFICE  
 BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED *[Signature]*  
 STRUCTURAL ENGINEER

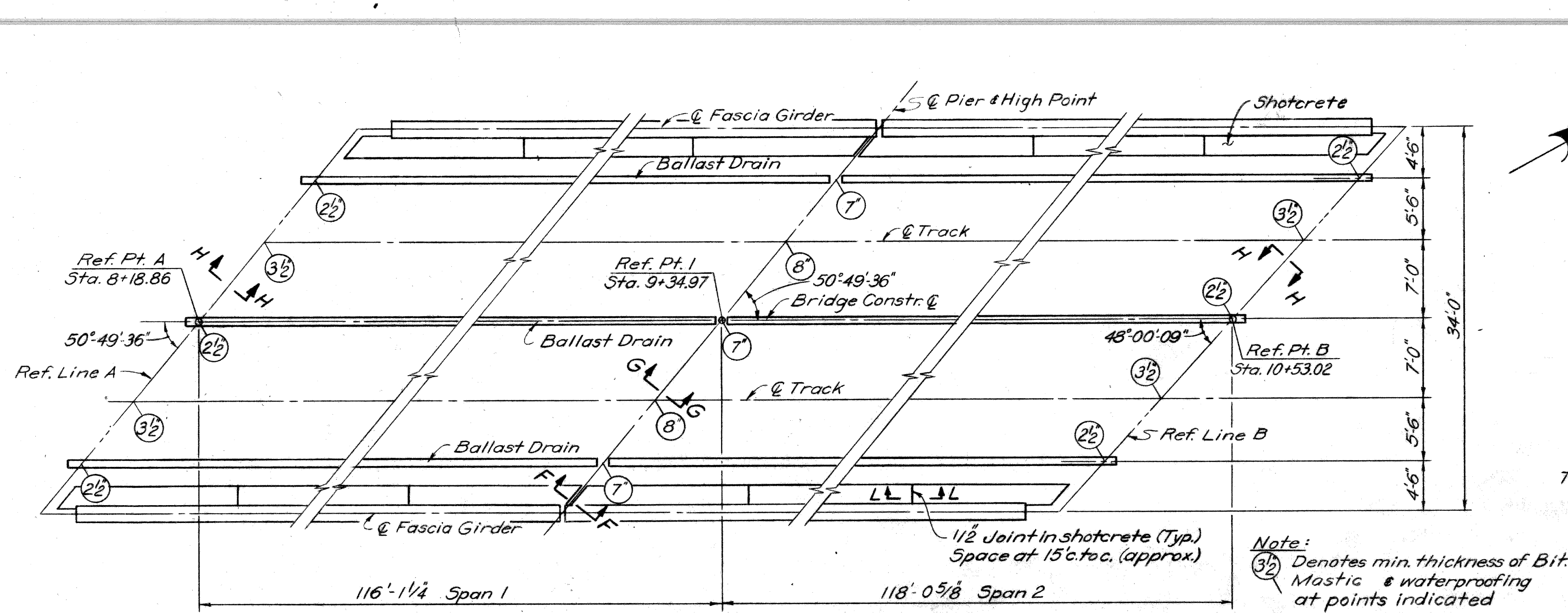
JOB No.  
 PW 990(1)

REVISIONS			
NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT			
SQUAD BOSS	<i>[Signature]</i>	9-67	
DRAWN BY	<i>[Signature]</i>	12-66	
TRACED BY	<i>[Signature]</i>		
CHECKED BY	<i>[Signature]</i>	9-67	
SHEET 27 OF 34			

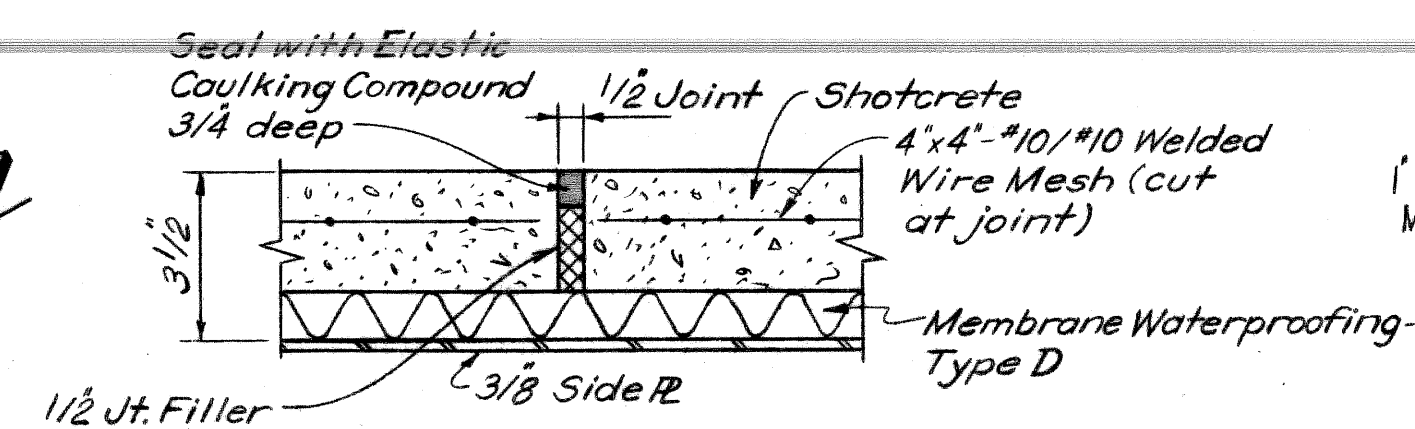
X01 of 32124A



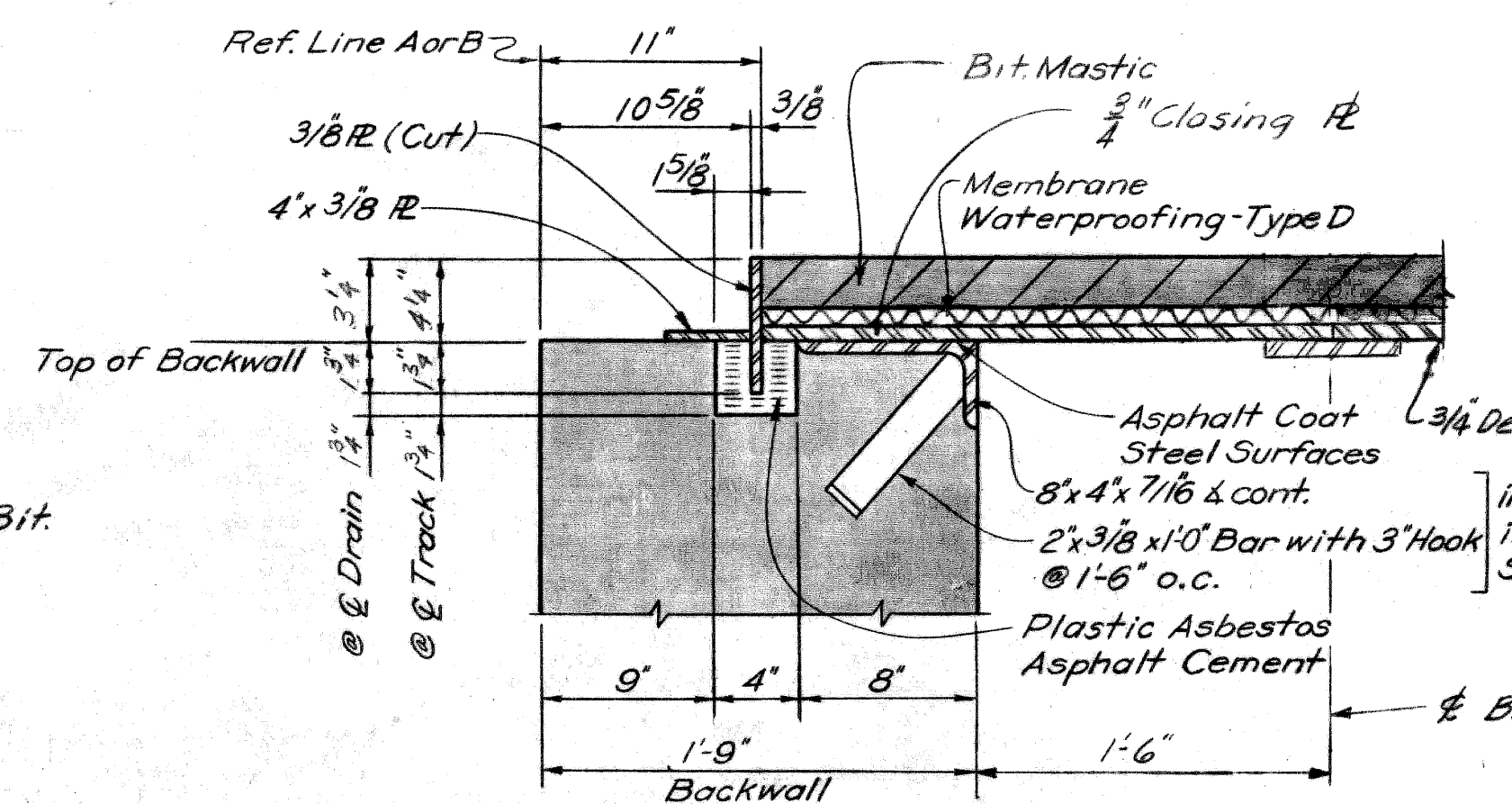


DECK DRAINAGE PLAN

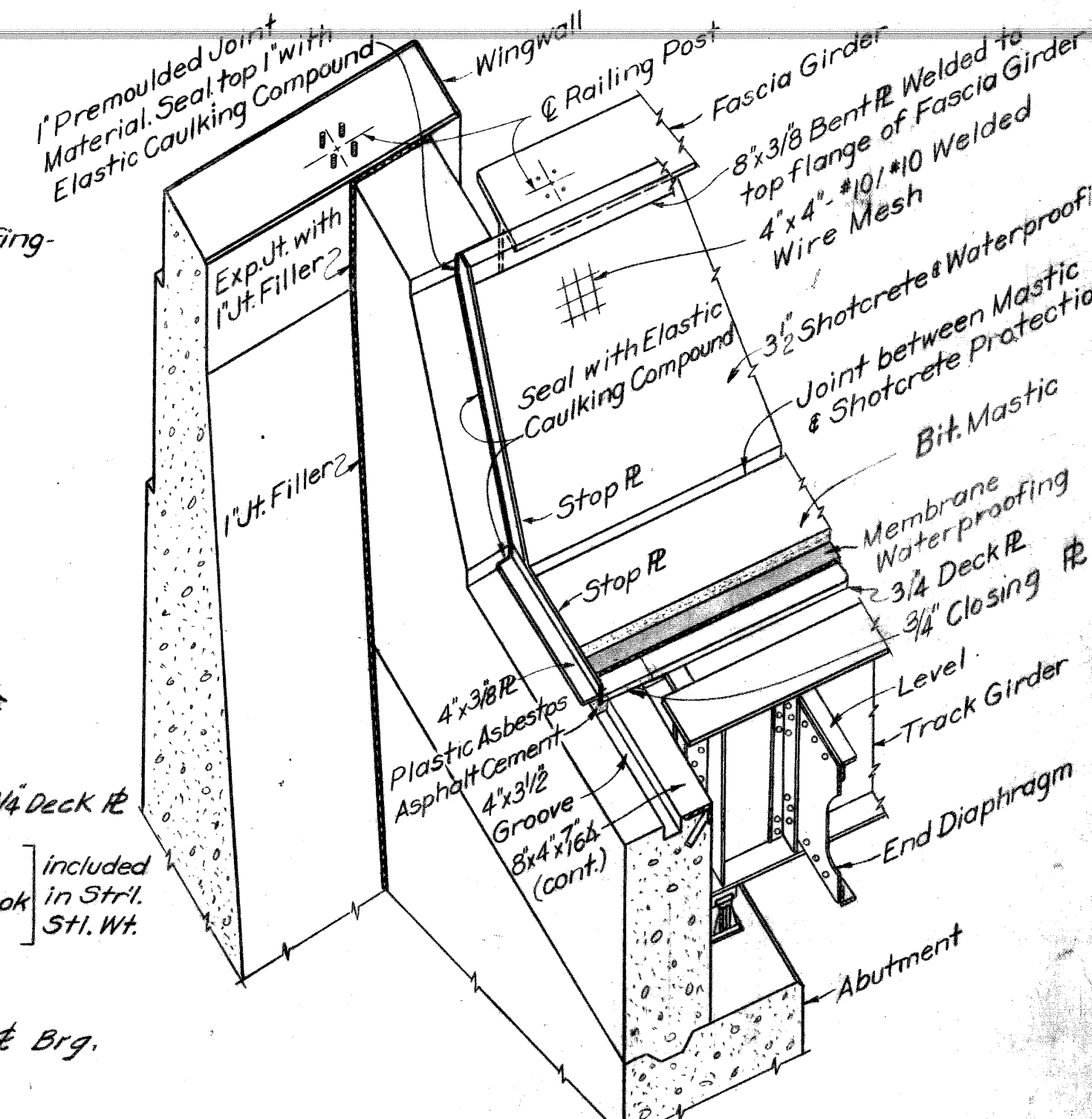
Note: (3/2) Denotes min. thickness of Bit. Mastic & waterproofing at points indicated



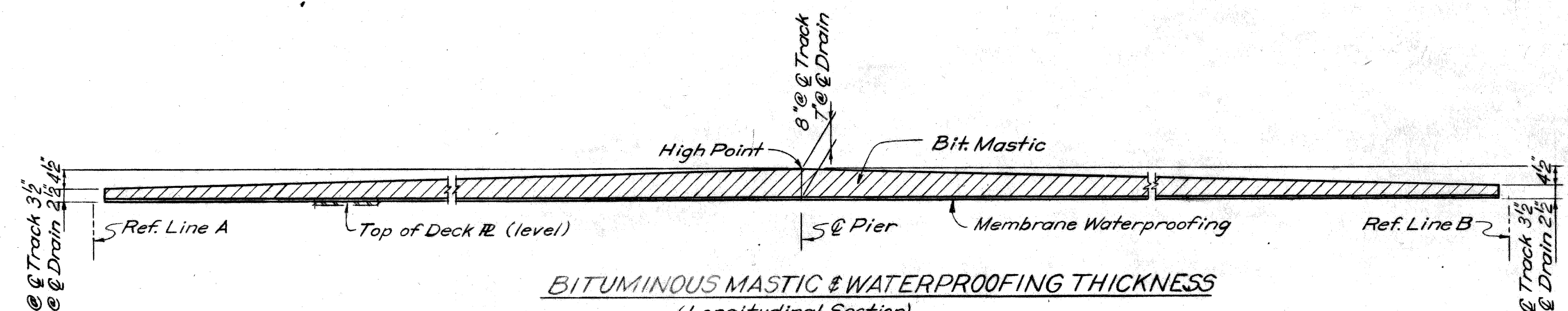
SECTION L-L JOINT IN SHOTCRETE



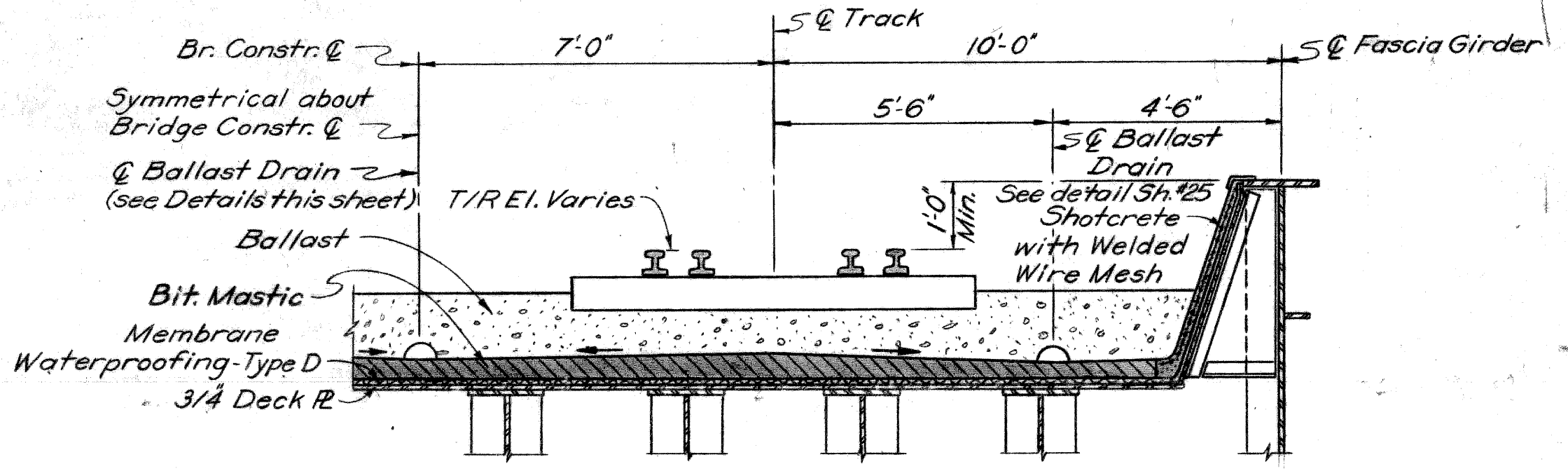
SECTION H-H



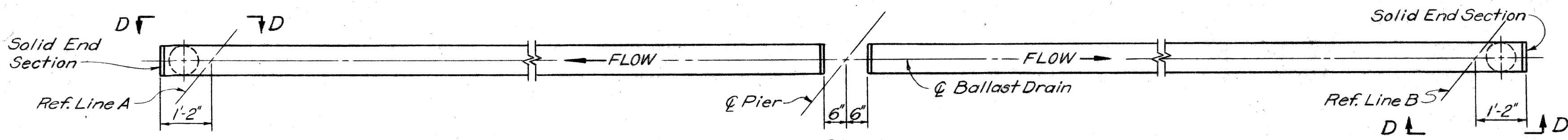
ISOMETRIC VIEW AT BACKWALL



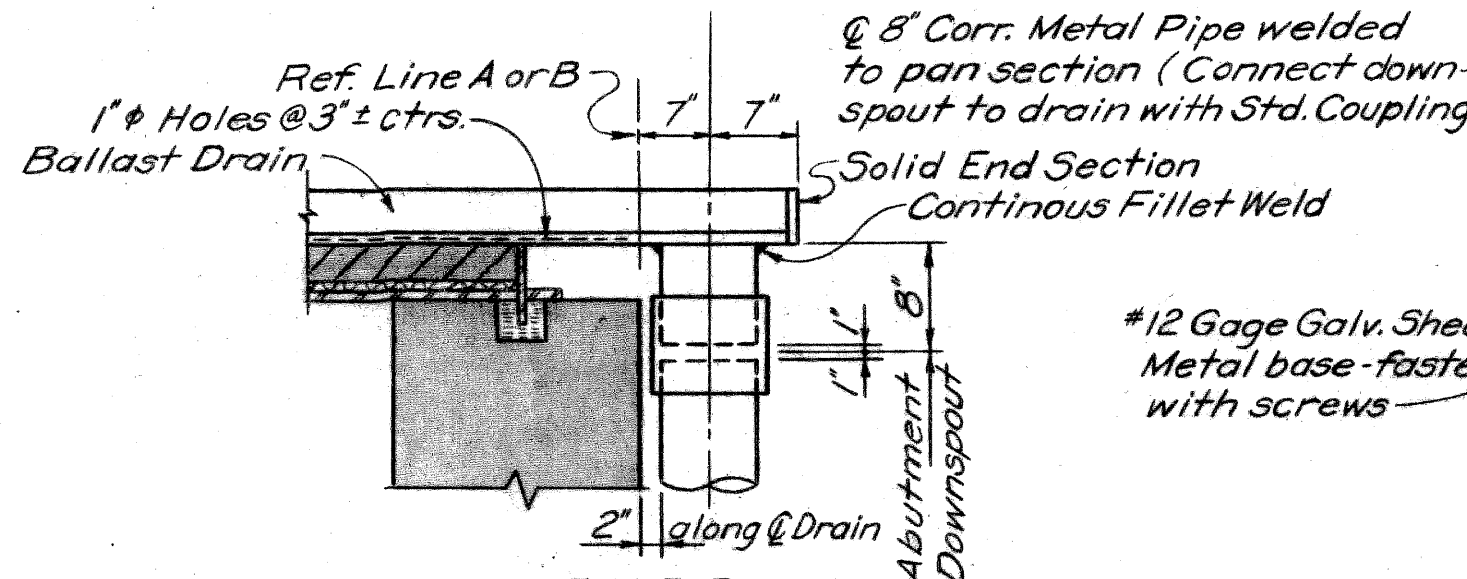
BITUMINOUS MASTIC & WATERPROOFING THICKNESS (Longitudinal Section)



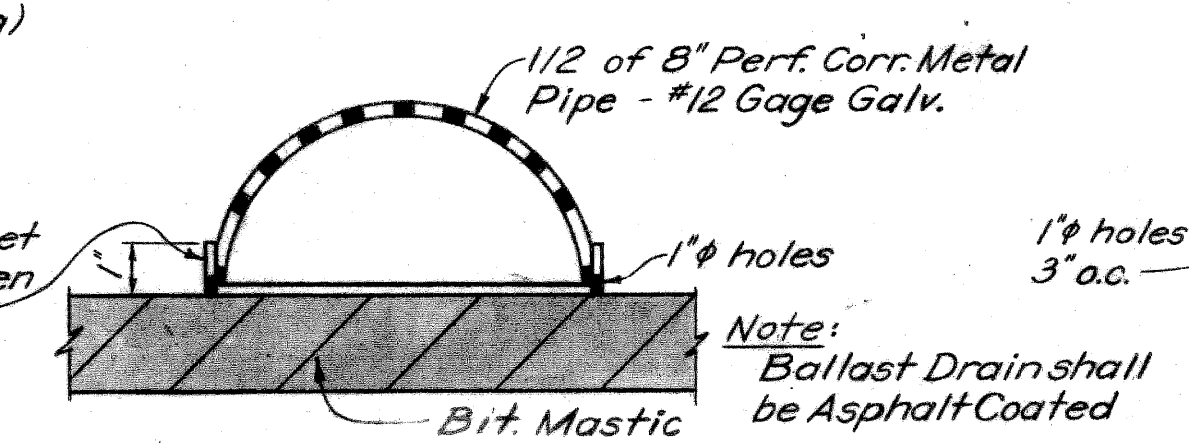
TYPICAL DECK SECTION



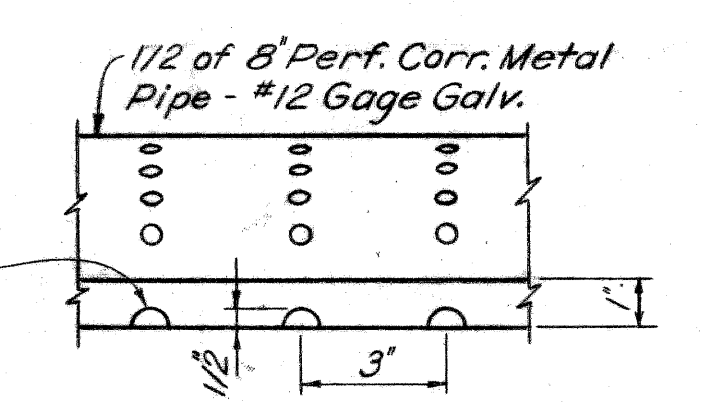
PLAN



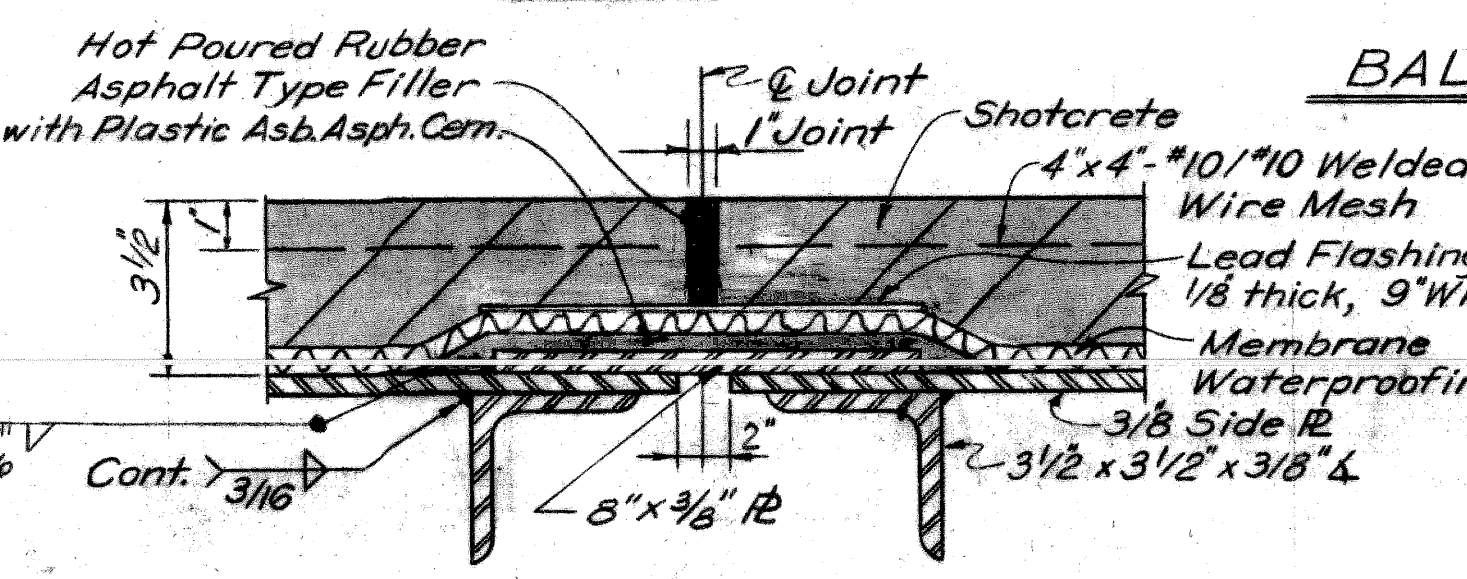
VIEW D-D



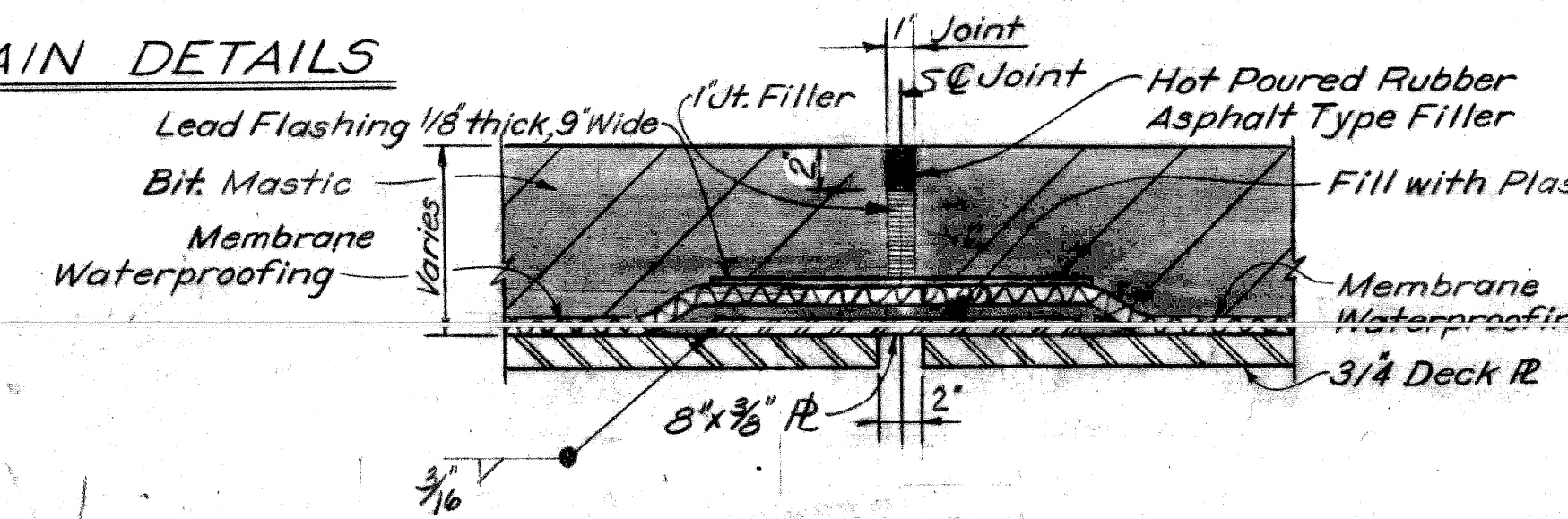
TYPICAL DRAIN SECTION



PART ELEVATION BALLAST DRAIN



SECTION F-F (Joint in Side R)



SECTION G-G (Joint in Deck R)

Note: The 2 1/2 x 1/2 Bar shall be the same length as that section of Deck R to which it is attached.

MISCELLANEOUS QUANTITIES		
Item	Amount	Unit
Bituminous Mastic Protective Cover	179	Tons
Shotcrete	163	Cu. Yds.
Welded Wire Mesh, 4"x4"-#10/#10	1848	Sq. Ft.
1/2" Joint Filler	18	Sq. Ft.
1" Joint Filler	7	Sq. Ft.
Hot Poured Rubber Asphalt Type Filler	49	Lin. Ft.
Membrane Waterproofing-Type D	8,828	Sq. Ft.
8" Ballast Drains	707	Lin. Ft.

Note: Lead Flashing is included in Structural Steel, Sh. 23

NOTES:  
 Membrane Waterproofing-Type D consists of four layers of asphalt treated felt, one layer of asphalt treated cotton fabric and six moppings of asphalt.  
 Welded Wire Mesh shall be lapped a minimum of 6".  
 Elastic caulking compound & plastic asbestos asphalt cement is incidental to Membrane Waterproofing-Type D.

Work this sheet with sh. #26

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MICHIGAN DEPARTMENT OF STATE HIGHWAYS  
 GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
 CROSSING THE JEFFRIES FREEWAY IN DETROIT

DECK & DRAINAGE DETAILS			
REVISIONS			
NO.	DESCRIPTION	DATE	BY
A	Corr. Dim @ Non Metallic Waterstop, Sect. F-F, G-G	8-20-68	AFB
B	Revised Sections F-F, G-G	5-7-68	AFB
C	Remove Mod. Desig. - Sect. H-H	5-11-68	AFB
D	Section H-H	6-68	HE

CITY OF DETROIT	
DESIGNED BY	SHAW
DRAWN BY	K.M.H.
CHECKED BY	SHAW
SHEET	28 OF 34

X01 of 82124A





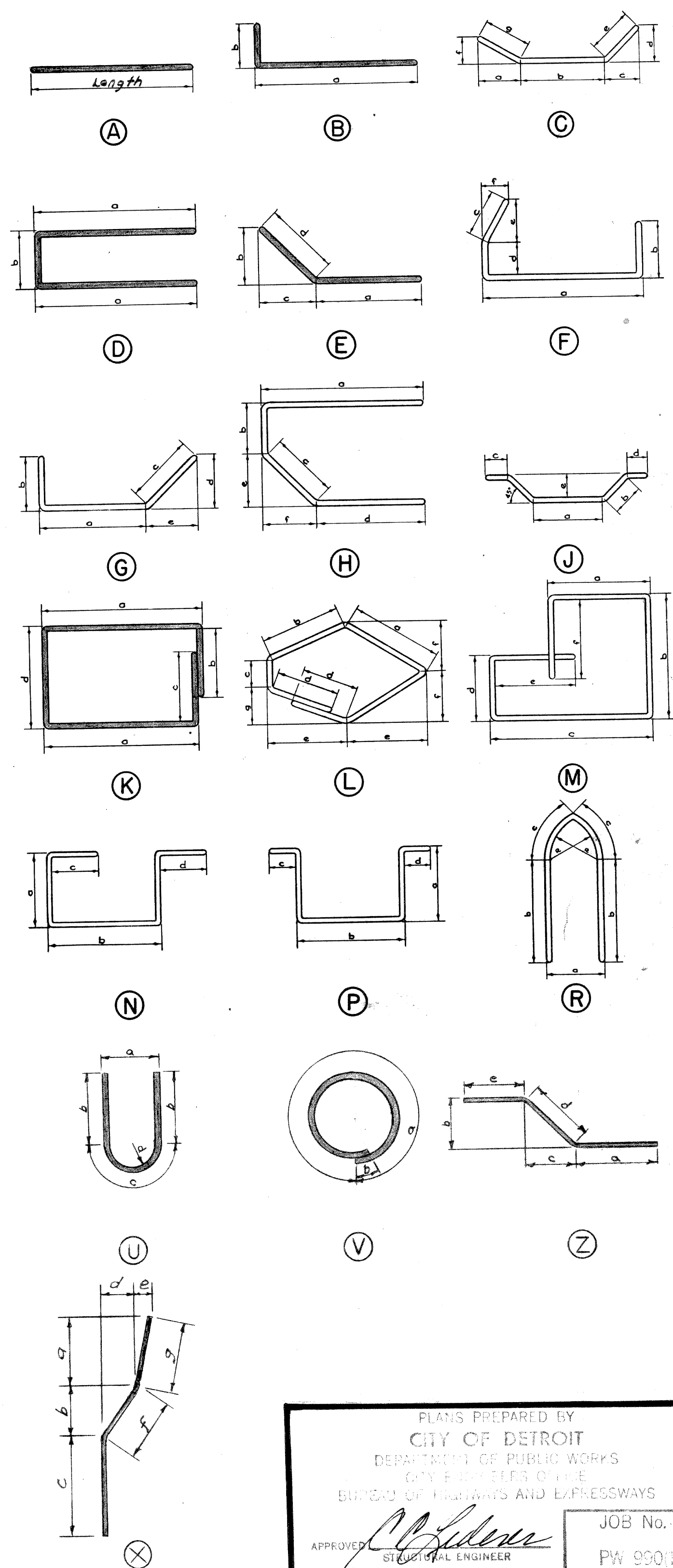


BAR	DIMENSIONS							SIZE	LENGTH	NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g				
A1								#11	17'-0"	95	8580
A2								#11	12'-0"	159	10137
A3								#11	11'-0"	168	9818
A4								#6	15'-3"	86	1970
A5								#7	7'-0"	78	1116
A6								#6	21'-9"	77	2515
A7								#8	21'-9"	48	2787
A8								#11	20'-3"	47	5057
A9								#11	11'-9"	106	6617
A10								#5	12'-4"	81	1042
A11								#5	16'-4"	23	392
A12								#11	9'-3"	102	5013
A13								#9	13'-9"	81	3787
A14								#9	17'-9"	86	5190
A15								#5	6'-0"	8	50
A16								#6	28'-0"	22	925
A17								#6	29'-0"	38	1655
A18								#4	26'-0"	24	417
A19								#4	24'-0"	40	641
A20								#4	3'-0"	2	4
A21								#4	3'-6"	2	5
A22								#4	4'-3"	2	6
A23								#4	1'-5"	2	2
A24								#4	2'-0"	2	3
A25								#4	2'-9"	2	4
A26								#6	16'-6"	12	297
A27								#9	12'-6"	28	1190
A28								#6	20'-0"	21	631
A29								#9	12'-0"	9	367
A30								#9	35'-0"	20	2380
A31								#5	35'-0"	20	730
A32								#11	22'-3"	12	1419
A33								#11	13'-3"	12	845
A34								#6	7'-0"	56	589
A35								#6	34'-0"	1	51
A36								#4	12'-0"	22	176
A37								#4	17'-0"	22	250
A38								#7	12'-0"	28	687
A39								#6	19'-6"	44	1289
A40								#8	26'-6"	28	1981
A41								#6	26'-6"	42	1672
A42								#11	18'-9"	26	2590
A43								#4	19'-6"	86	1120
A44								#6	10'-6"	14	221
A45								#6	14'-6"	14	305
A46								#8	6'-0"	13	208
A47								#10	10'-6"	13	587
A48								#7	15'-0"	12	368
A49								#10	11'-0"	12	568
A50								#6	13'-9"	19	392
A51								#10	8'-0"	25	861
A52								#7	10'-6"	25	537
A53								#6	13'-6"	20	406
A54								#7	8'-0"	10	164
A55								#6	15'-6"	28	652
A56								#10	11'-6"	14	693
A57								#6	19'-0"	121	3453
A58								#4	22'-0"	28	411
A59								#4	16'-0"	38	406
A60								#6	4'-6"	26	176
A61								#6	5'-4"	89	713
A62								#6	12'-6"	1	19
A63								#4	6'-6"	2	9
A64								#4	7'-0"	2	9
A65								#4	7'-9"	2	10
A66								#4	8'-4"	1	6
A67								#4	9'-0"	1	6
A68								#4	9'-9"	1	7
A69								#4	27'-9"	10	185
A70								#4	30'-0"	26	521
A71								#10	18'-0"	13	1007
A72								#10	14'-6"	17	1426
A73								#6	32'-6"	62	3027
A74								#10	24'-7"	13	1375
A75								#11	14'-9"	13	1019
A76								#6	31'-6"	23	1088
A77								#4	12'-9"	20	170
A78								#6	18'-0"	17	460

BAR	DIMENSIONS							SIZE	LENGTH	NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g				
A79								#4	18'-0"	6	72
A80								#4	32'-9"	5	109
A81								#4	30'-3"	5	101
A82								#6	9'-6"	18	257
B1	1'-6"		6'-4"					#6	2'-0"	26	78
B2	7'-9"		1'-6 3/4"					#6	9'-3"	38	528
D1	2'-0"		4'-8"					#4	8'-7"	84	481
D2	2'-0"		1'-5"					#4	5'-4"	102	363
D3	3'-9"		1'-5"					#4	8'-10"	22	130
D4	8'-0"		1'-2"					#4	17'-1"	22	251
D5	6'-9"		1'-2"					#4	14'-7"	20	195
D6	3'-6"		1'-2"					#4	8'-1"	81	437
D7	3'-7"		4'-2 1/2"					#6	11'-3"	38	642
D8	4'-0"		1'-2"					#4	9'-1"	24	146
E1	2'-6"		1'-9"	3'-7"	4'-0"			#4	6'-6"	11	48
Z1	6'-4"	3'-8"	3'-8"	5'-2"	1'-0"			#6	12'-6"	89	1671
Z2	1'-6"	1'-9 1/2"	1'-9 1/2"	2'-6"	2'-0"			#6	6'-0"	58	523
Z3	3'-0"	1'-0"	1'-0"	1'-5"	3'-0"			#6	7'-5"	22	245
A101								#9	25'-9"	32	2802
A102								#10	15'-6"	96	6403
A103								#6	15'-6"	33	768
A104								#11	19'-3"	16	1636
A105								#11	33'-0"	16	2806
A106								#11	7'-7"	64	2579
A107								#11	16'-0"	64	5441
A108								#11	23'-3"	14	1729
A109								#11	28'-9"	14	2138
A110								#10	24'-0"	10	1633
A111								#6	24'-0"	4	144
A112								#4	23'-6"	16	251
A113								#10	27'-6"	10	1113
A114								#8	21'-6"	4	153
D101	4'-0"		5'-2"					#6	13'-1"	20	393
K101	5'-7"	2'-0"	2'-0"	2'-11"				#5	18'-0"	96	1802
U101	4'-1 1/2"	2'-0"	6'-3"	2'-0"				#6	10'-3"	8	123
V101	12'-9"	1'-1"						#5	13'-10"	44	635
X101	1'-2 3/4"	1'-0 3/8"	5'-11"	8 1/2"	2 3/8"	1'-3"	1'-3"	#6	8'-5"	66	834
Z101	1'-6"	1'-9 1/2"	1'-9 1/2"	2'-6"	2'-0"			#6	6'-0"	60	541
Total Pier 33394 lbs											

BAR	DIMENSIONS							SIZE	LENGTH	NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g				
A201								#10	32'-6"	192	26851
A202								#7	18'-3"	192	7162
A203								#6	31'-0"	75	3492
A204								#6	39'-0"	78	4569
A205								#6	16'-0"	13	312
A206								#6	19'-0"	12	342
A207								#6	22'-0"	3	99
A208								#6	25'-0"	3	113
A209								#6	28'-0"	3	126
A210								#6	31'-0"	2	93
A211								#6	34'-0"	2	102
A212								#6	37'-0"	1	56
A213								#4	13'-9"	35	321
A214								#4	19'-0"	141	1790
A215								#4	12'-6"	70	585
A216								#4	11'-6"	2	15
A217								#4	9'-9"	2	13
A218								#4	8'-3"	3	17
A219								#4	6'-6"	3	13
A220								#4	4'-9"	3	10
A221								#4	3'-3"	3	7
A222								#4	1'-6"	3	3
A223											
A224								#4	14'-3"	36	343
Total Subbase Slab-46434 #											

BAR BENDING DIAGRAM



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 DIVISION OF THE  
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APPROVED: *[Signature]*  
 STRUCTURAL ENGINEER

JOB No. PW 95011

**MICHIGAN STATE HIGHWAY DEPARTMENT**

GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
 CROSSING THE JEFFRIES FREEWAY IN DETROIT

**STEEL REINFORCEMENT DETAILS**

CITY OF DETROIT  
 SQUAD BOSS: A. Freiberg 6-67  
 DRAWN BY: A.J.G. 2-67  
 TRACED BY: -  
 CHECKED BY: G. Mohr 5-67  
 SHEET 30 OF 34

REVISIONS

NO.	DESCRIPTION	DATE	BY

X01 of 82124A

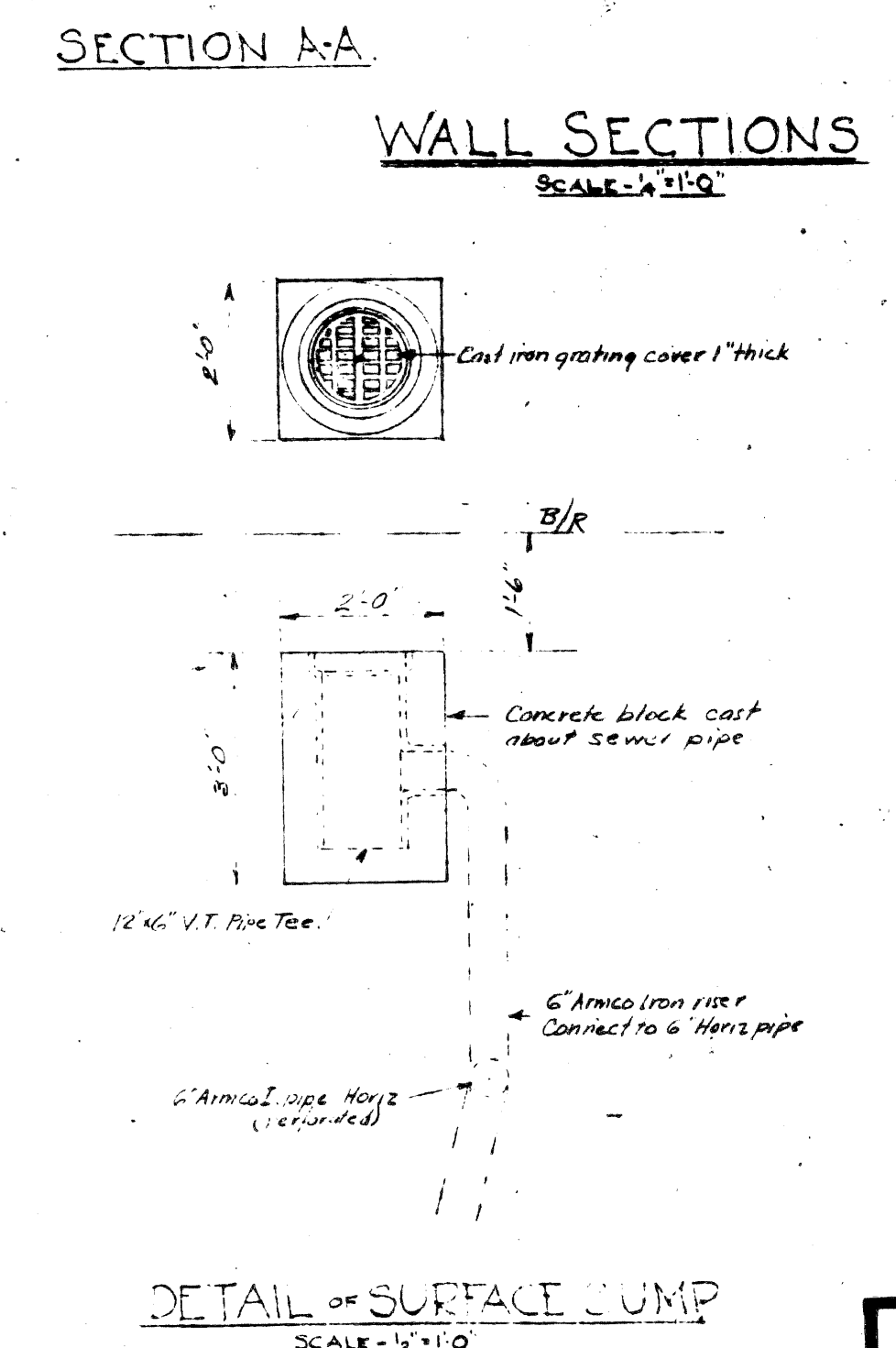
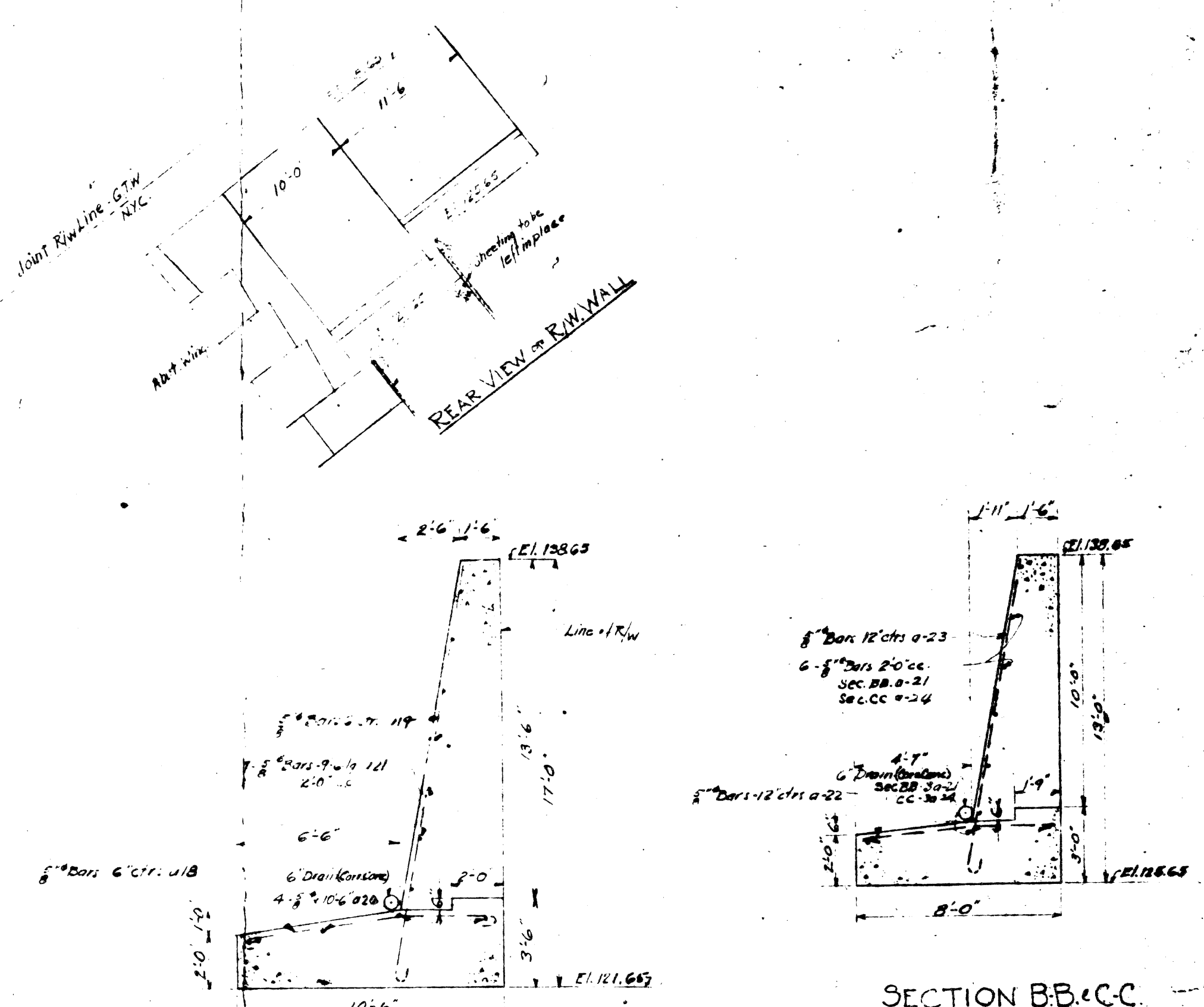
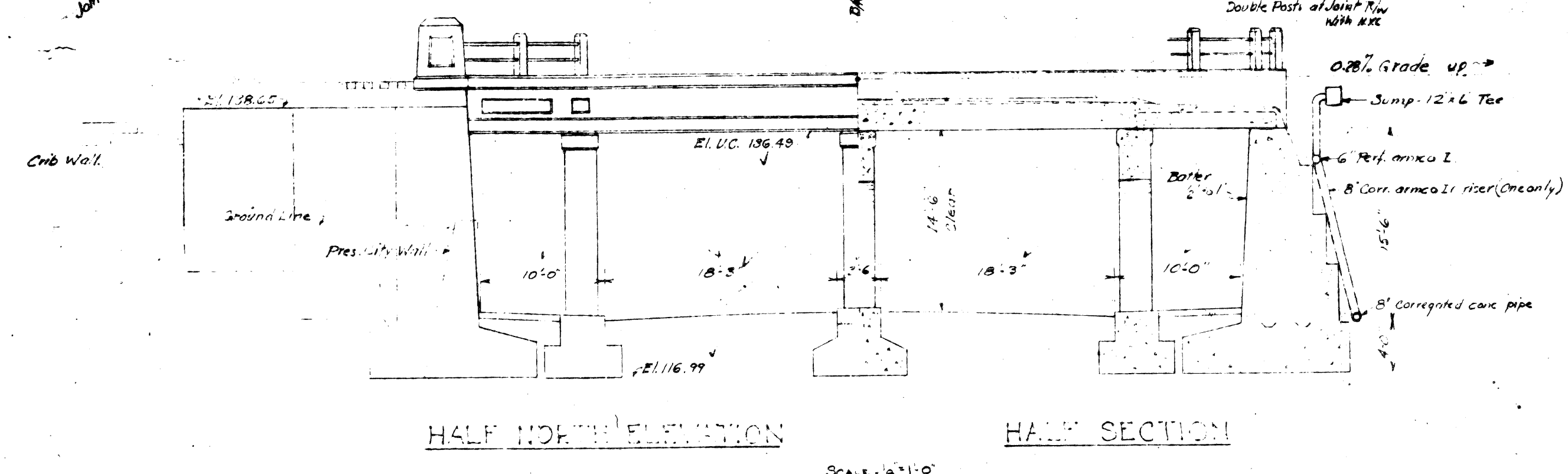
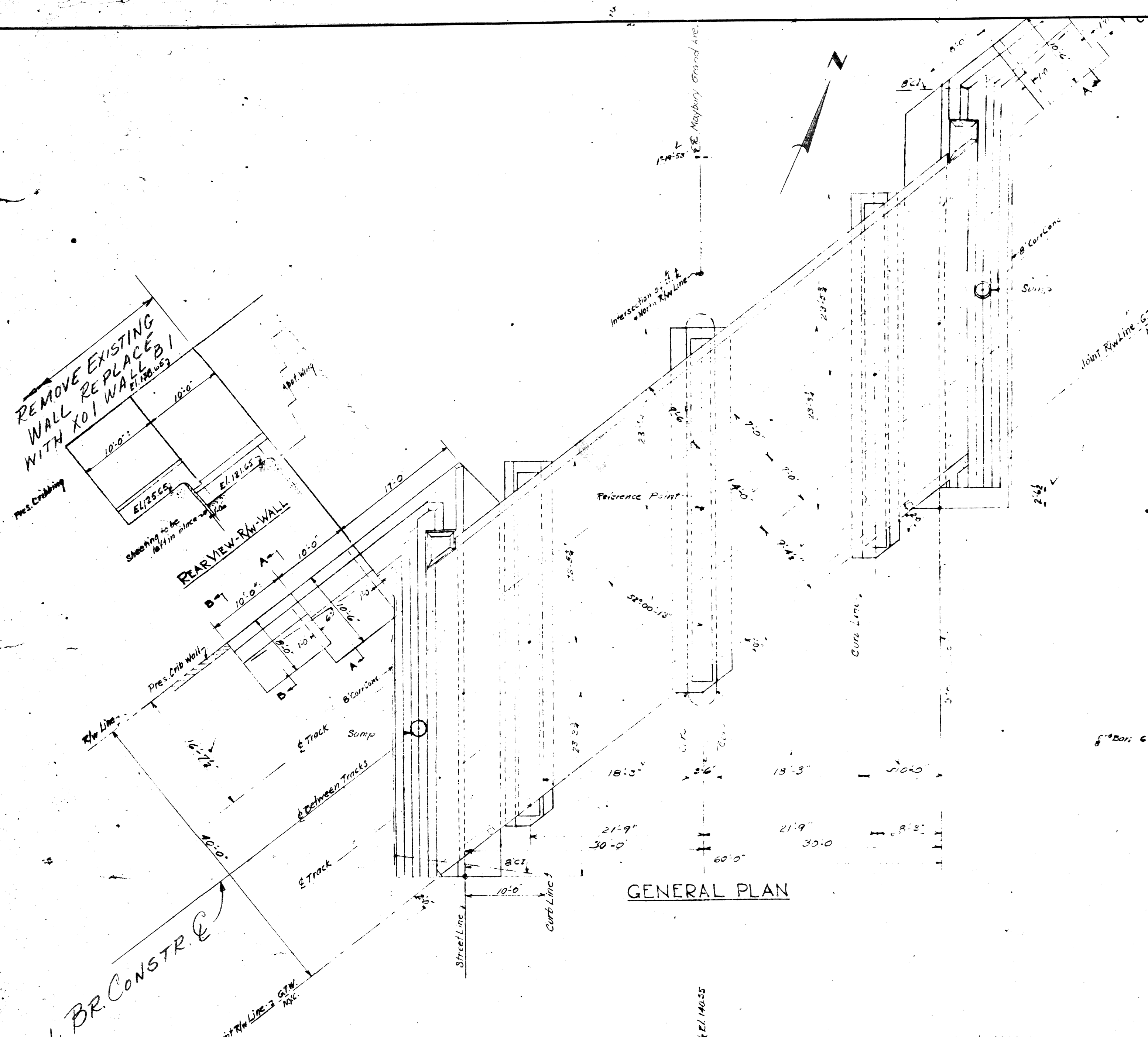
Note:—  
 All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.

Tolerances in cutting and bending bars are as established in Manual of Standard Practice of the Concrete Reinforcing Steel Institute and Detailing Manual of the American Concrete Institute.

Grand Total Steel Reinforcement 193567 #

All bar numbers shown on this sheet are to be prefixed X-01.  
 Steel for reinforcement shall be intermediate or hard grade only.





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APPROVED *[Signature]*  
STRUCTURAL ENGINEER

JOB No.  
PW 990(1)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

GRAND TRUNK WESTERN RAILROAD - MT CLEMENS SUBDIVISION  
CROSSING THE JEFFRIES FREEWAY IN DETROIT

EXISTING BRIDGE DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

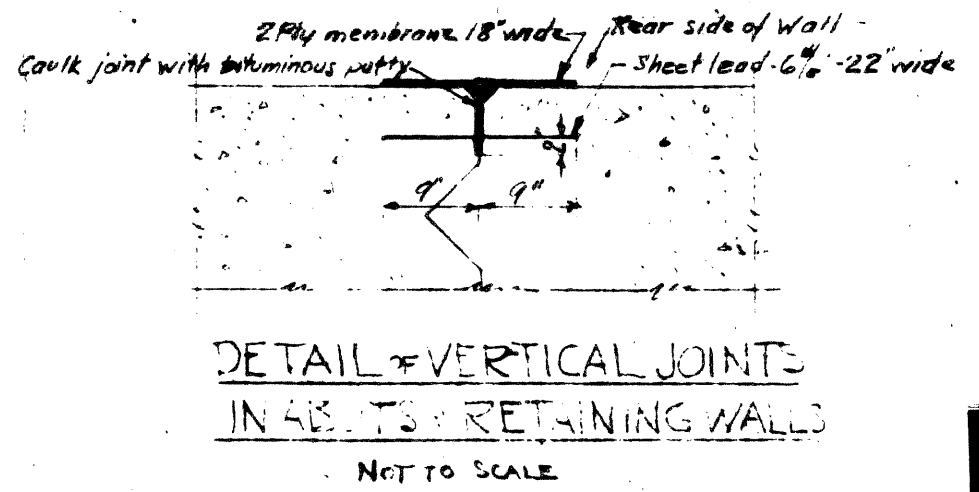
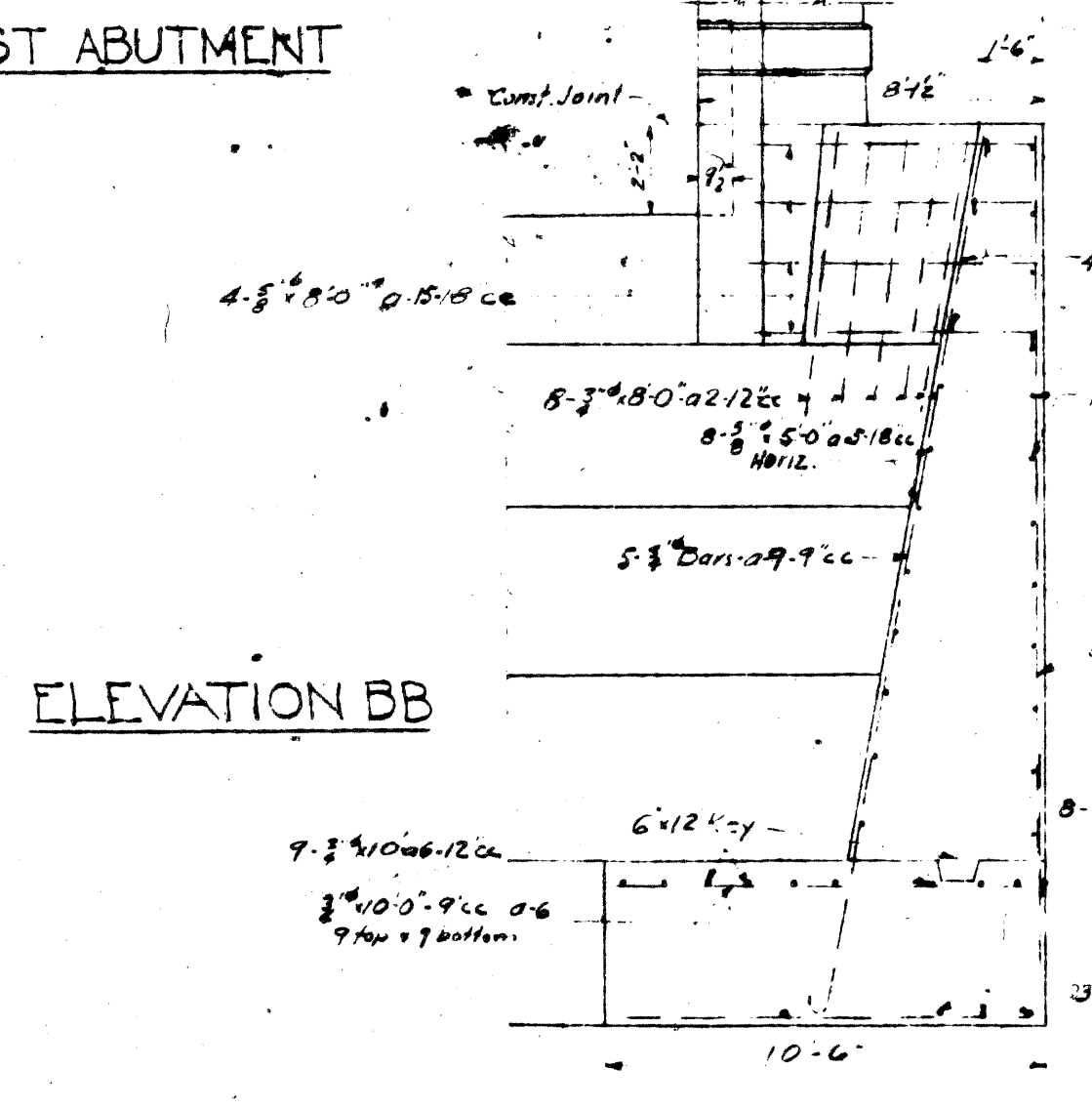
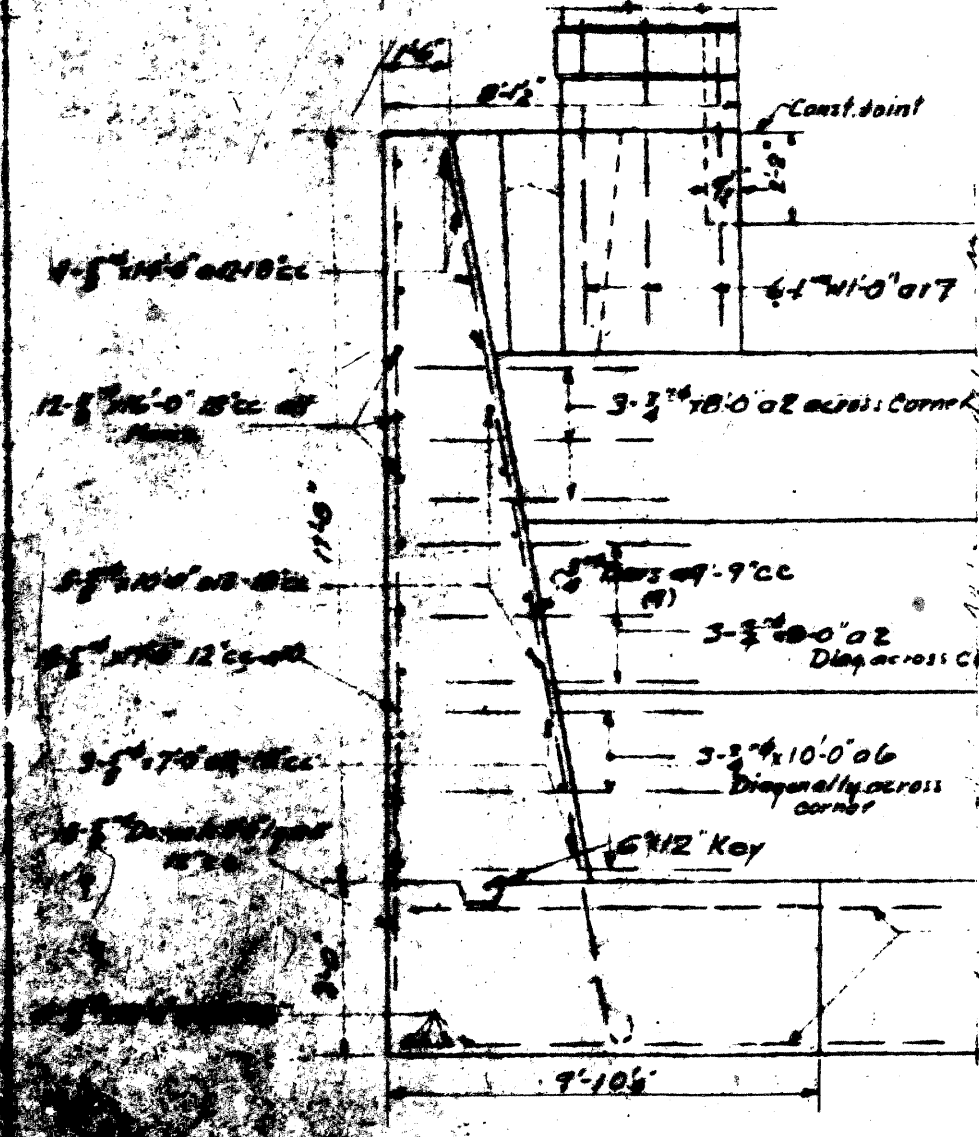
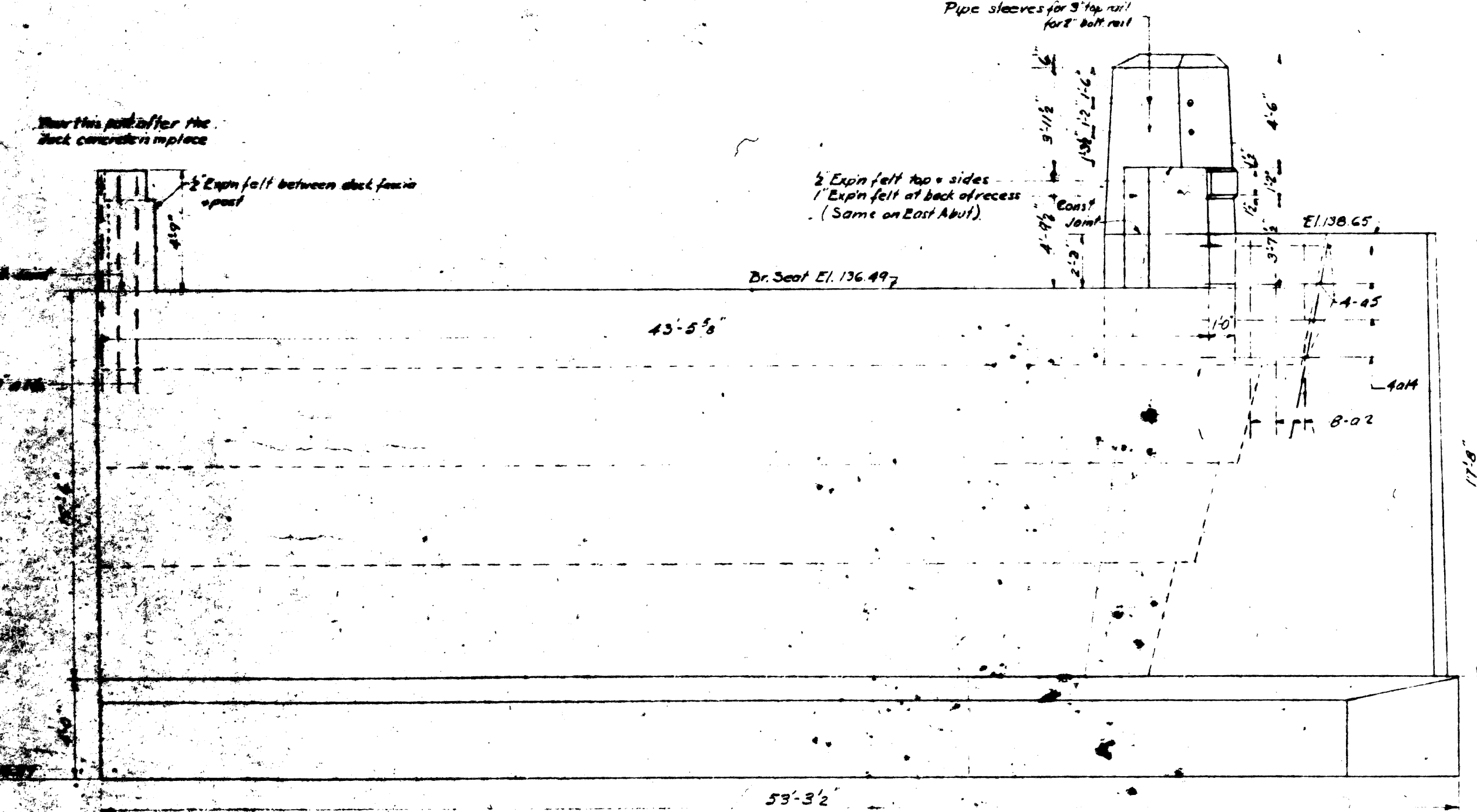
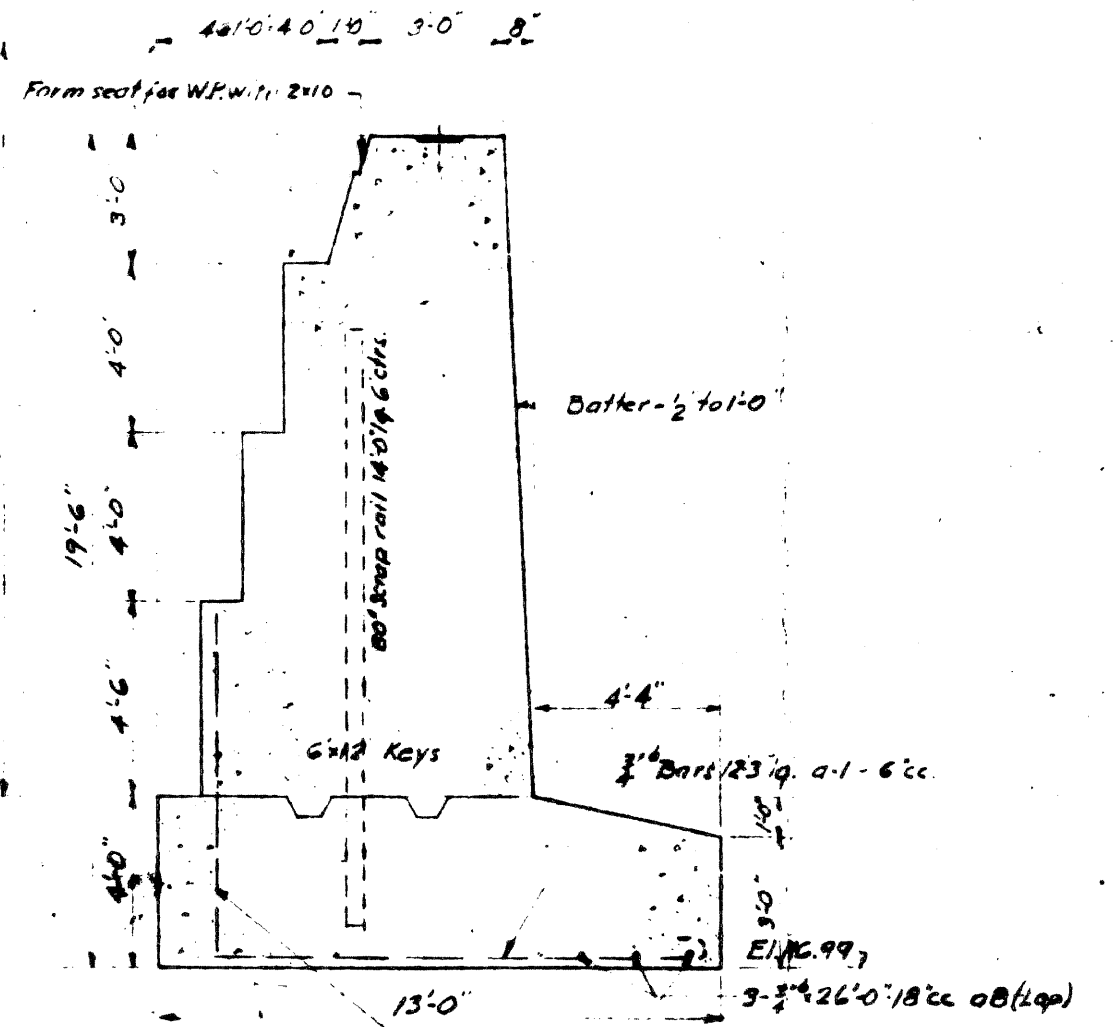
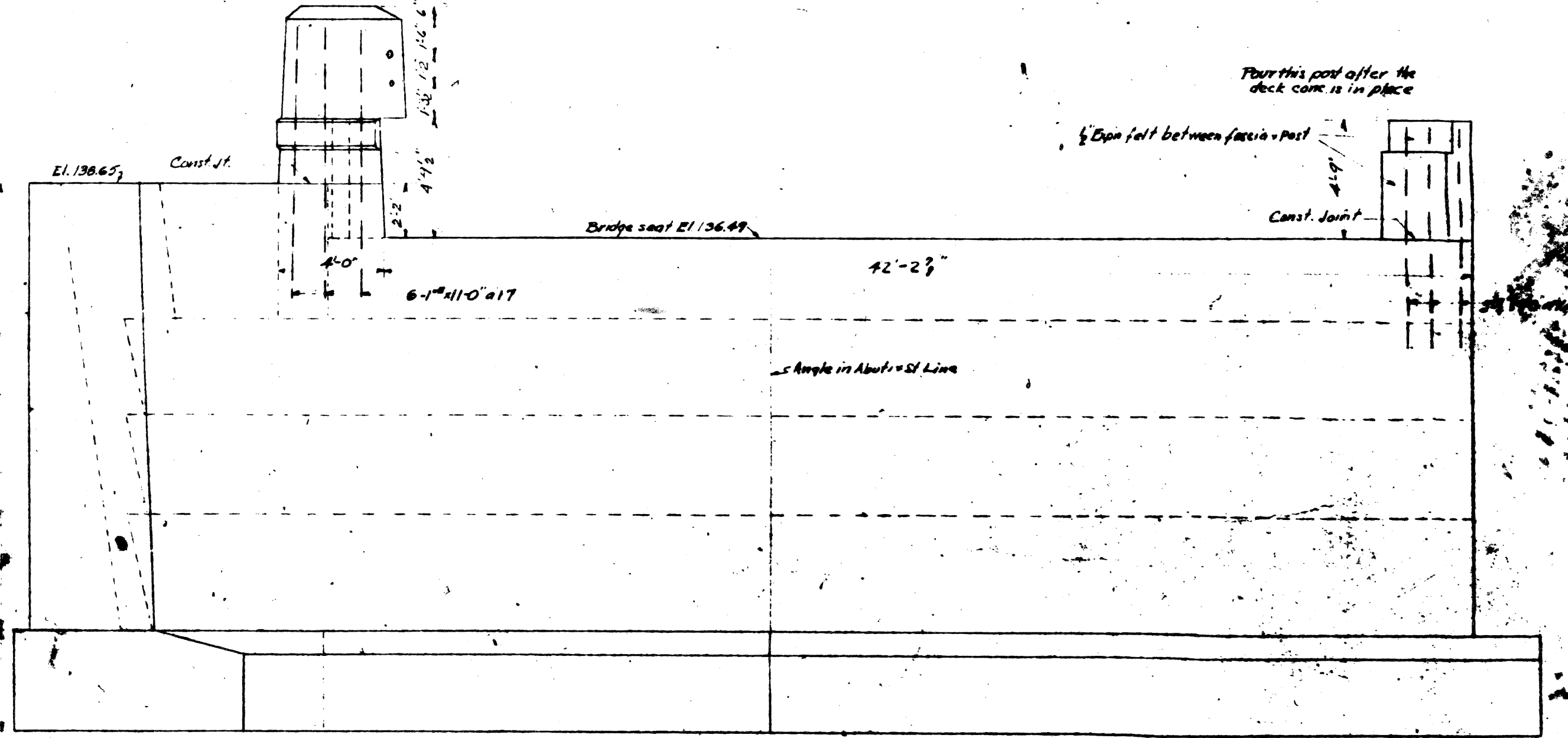
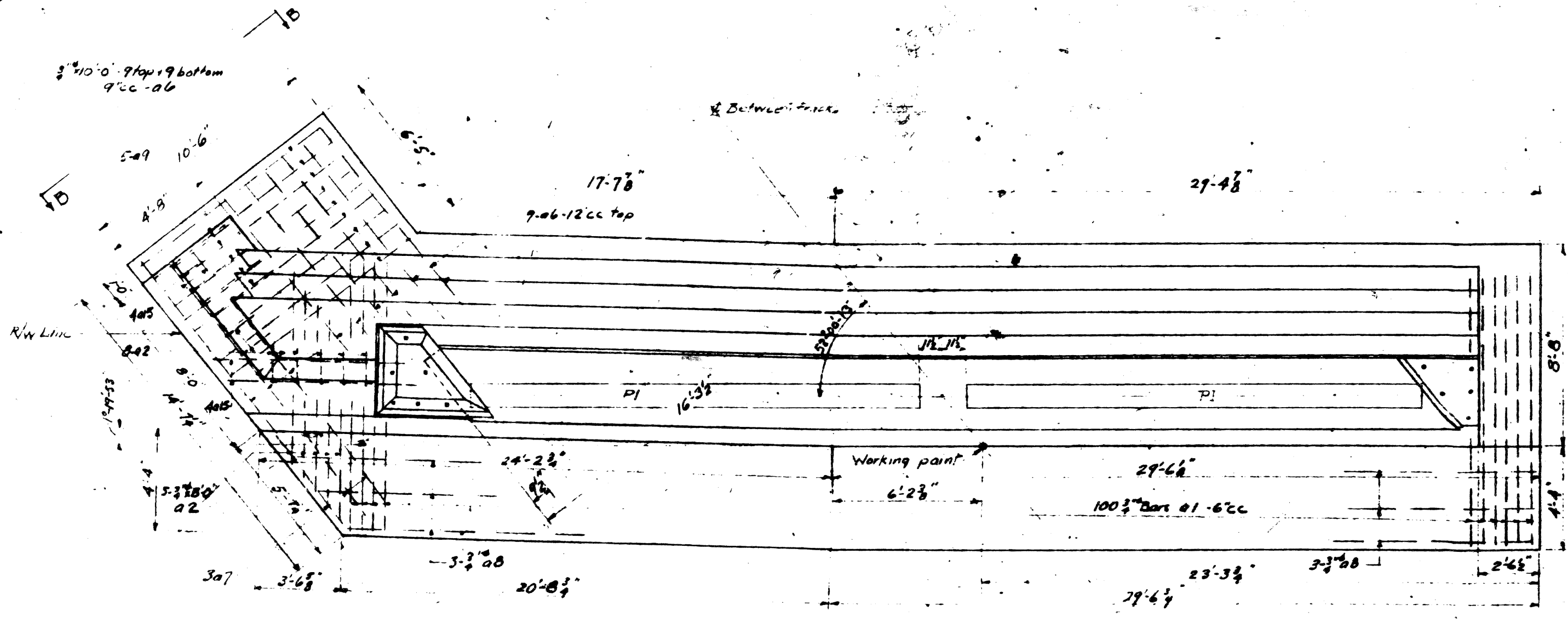
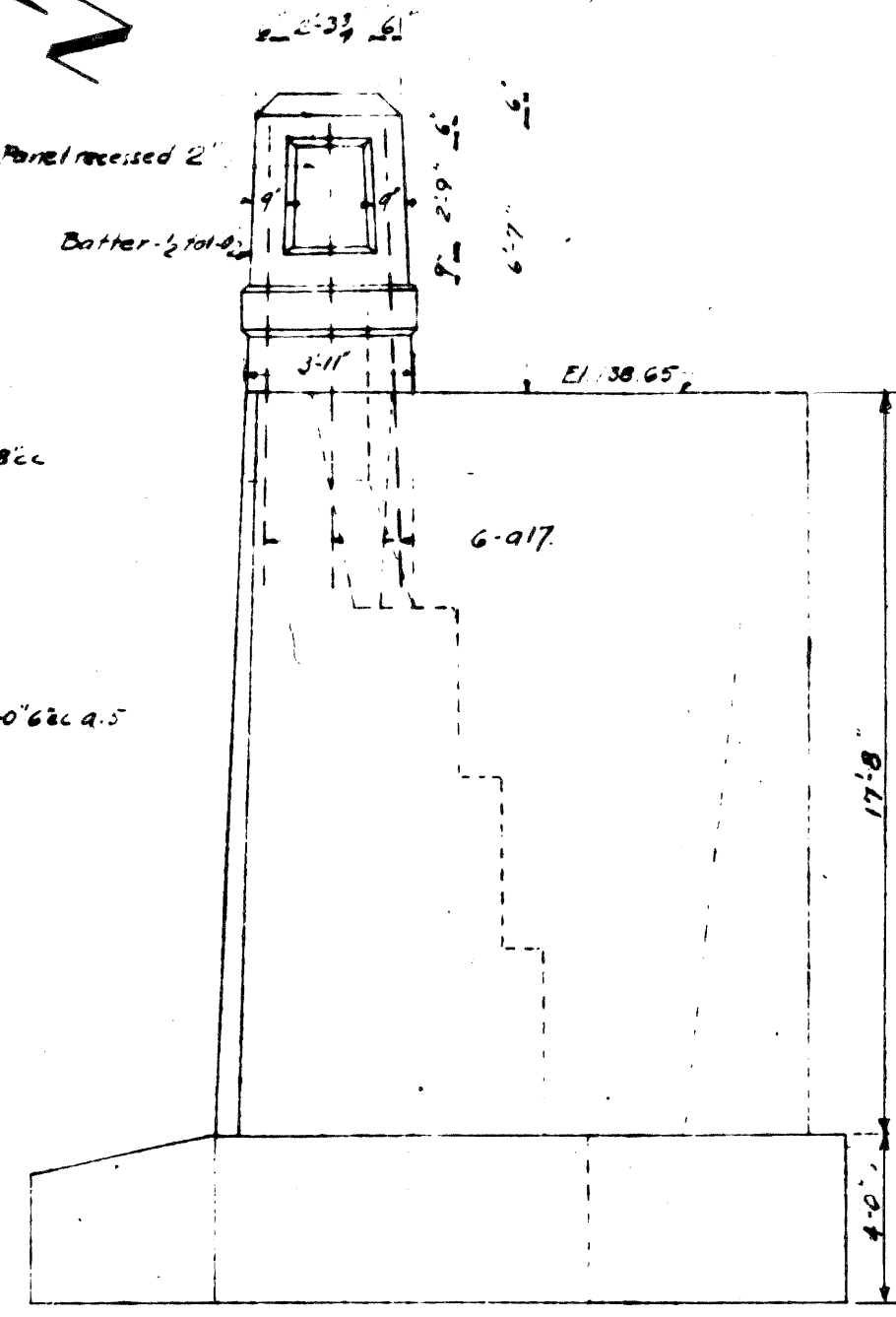
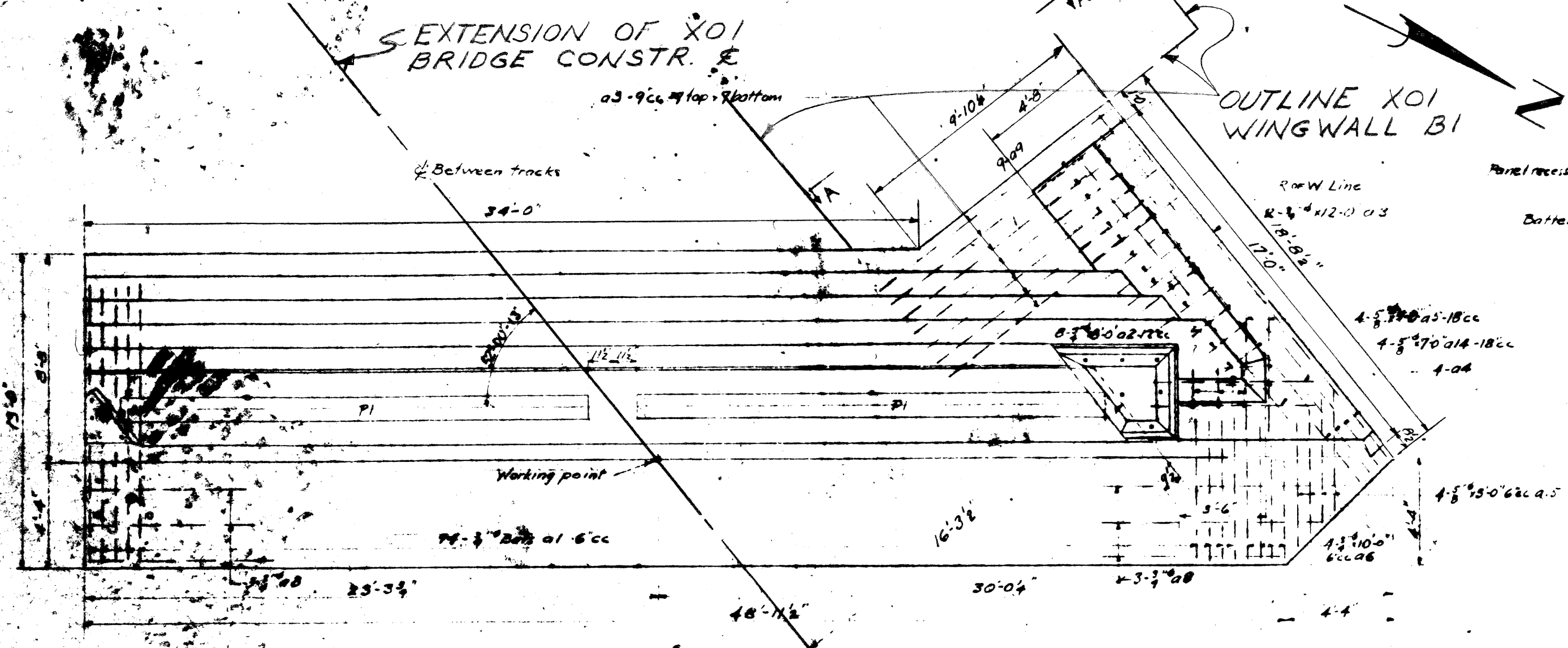
CITY OF DETROIT

SQUAD BOSS	<i>[Signature]</i>	9 67
DRAWN BY		
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CHECKED BY		

HEET 31 of 32

X01 of 82124A





NOTE  
SCRAP RAIL REQ. 20 Pcs 80" RAIL 14'-0" LG.

COPY  
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APPROVED: *[Signature]*  
STRUCTURAL ENGINEER

JOB No.  
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MICHIGAN DEPARTMENT OF STATE HIGHWAYS

GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
CROSSING THE JEFFRIES FREEWAY IN DETROIT

EXISTING BRIDGE DETAILS

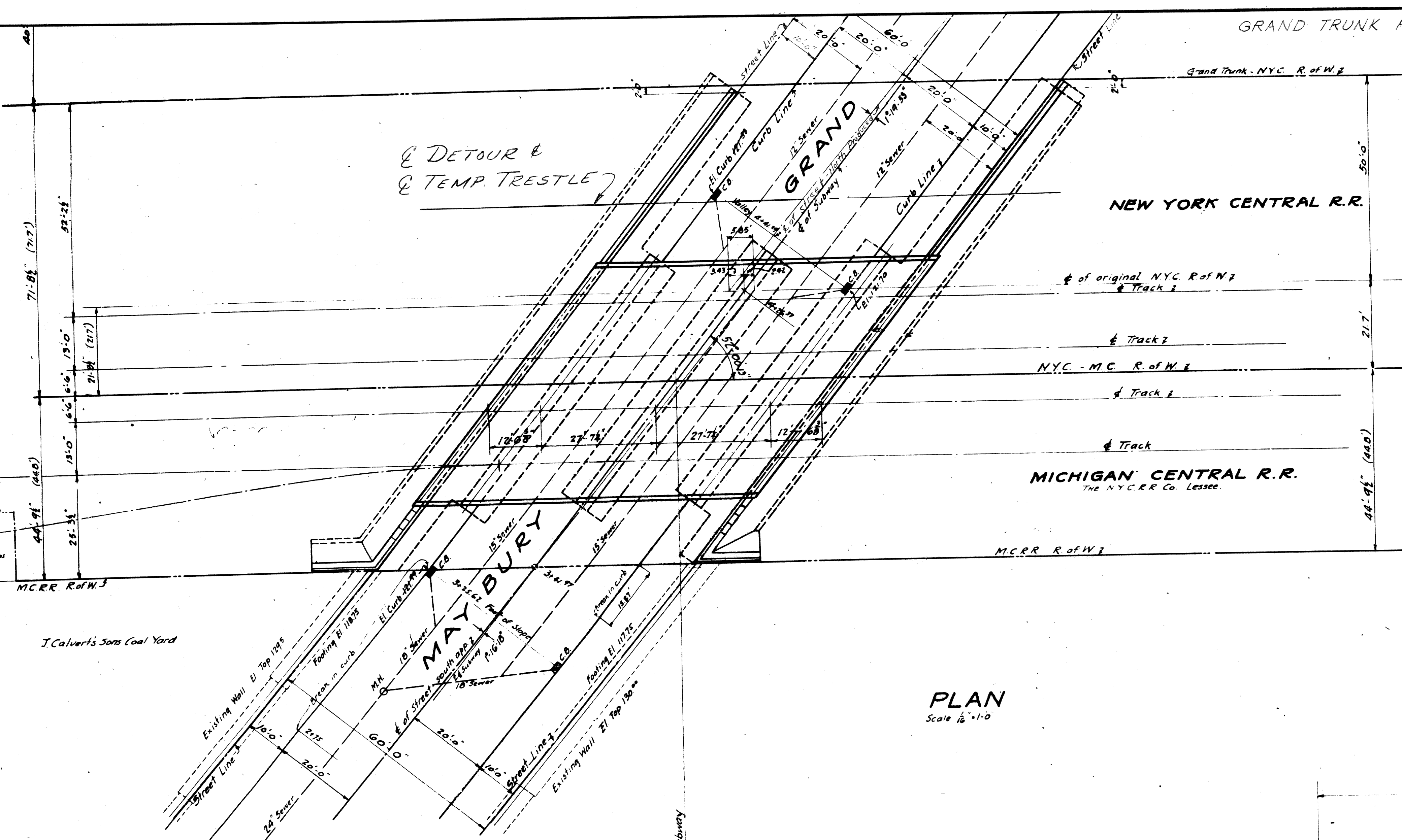
NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT

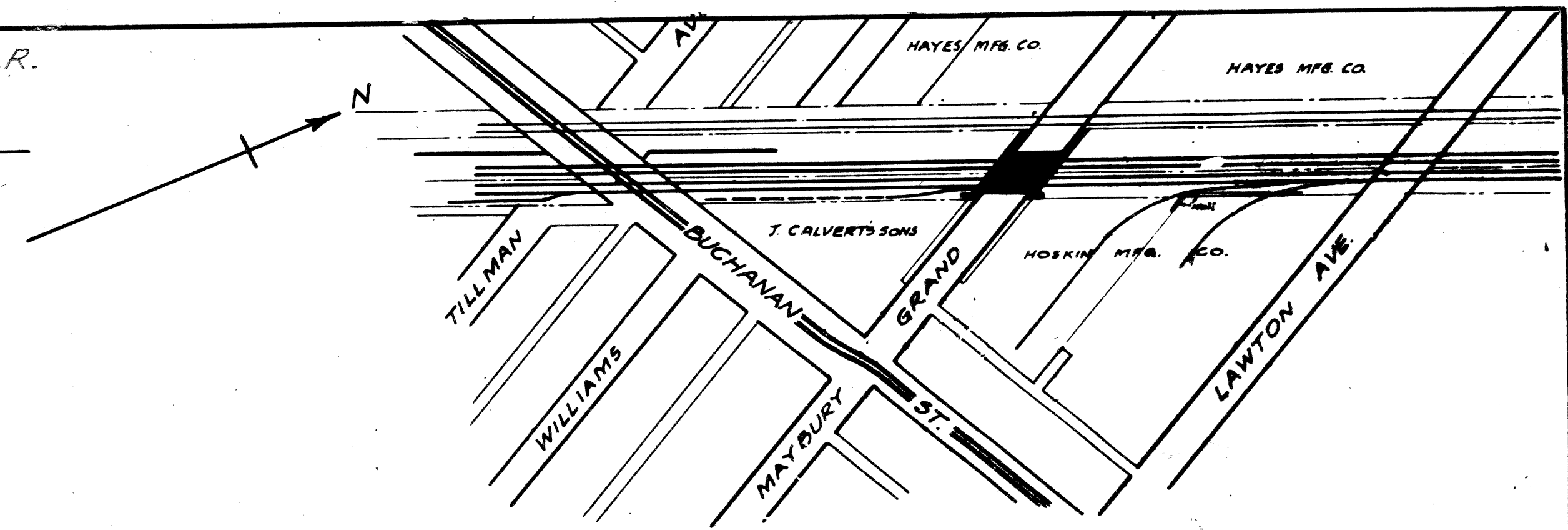
SQUAD BOSS	STERN	5-67
DRAWN BY		
TRACED BY		
CHECKED BY		
SHEET	32	OF 34

X01 of 82124A

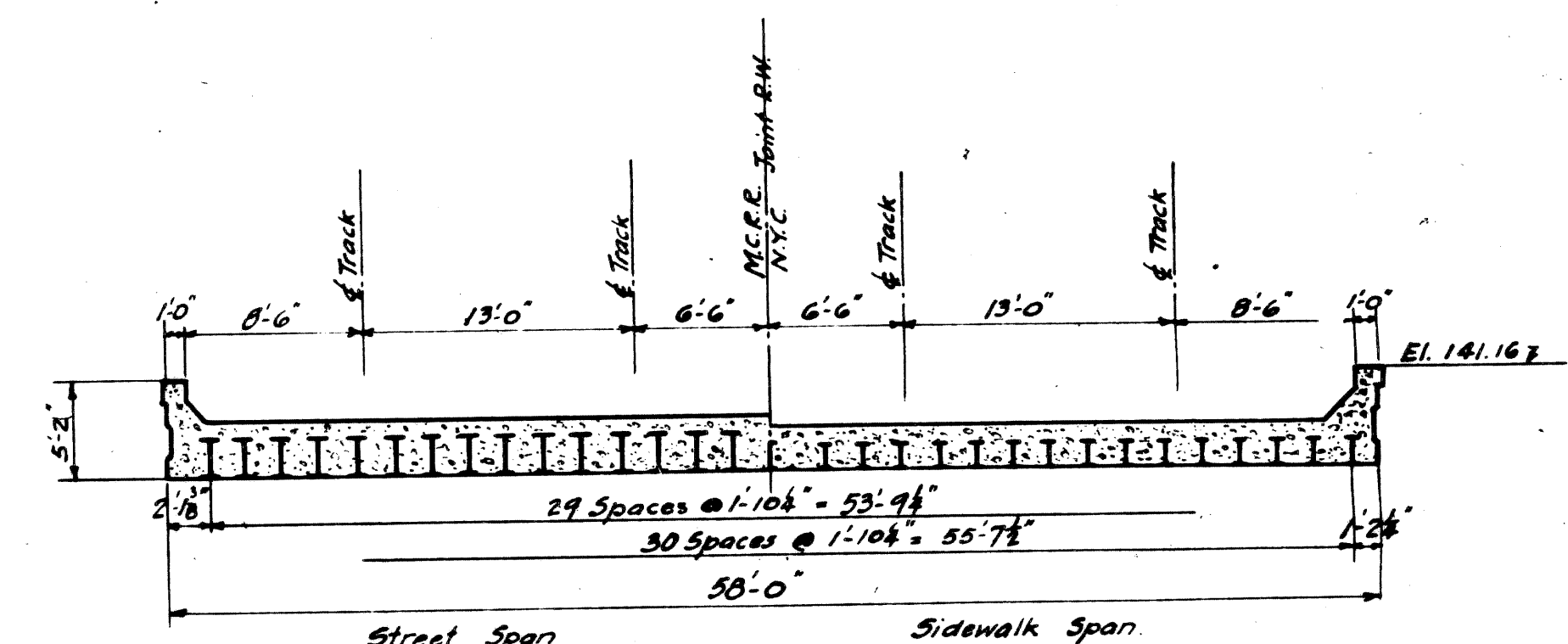




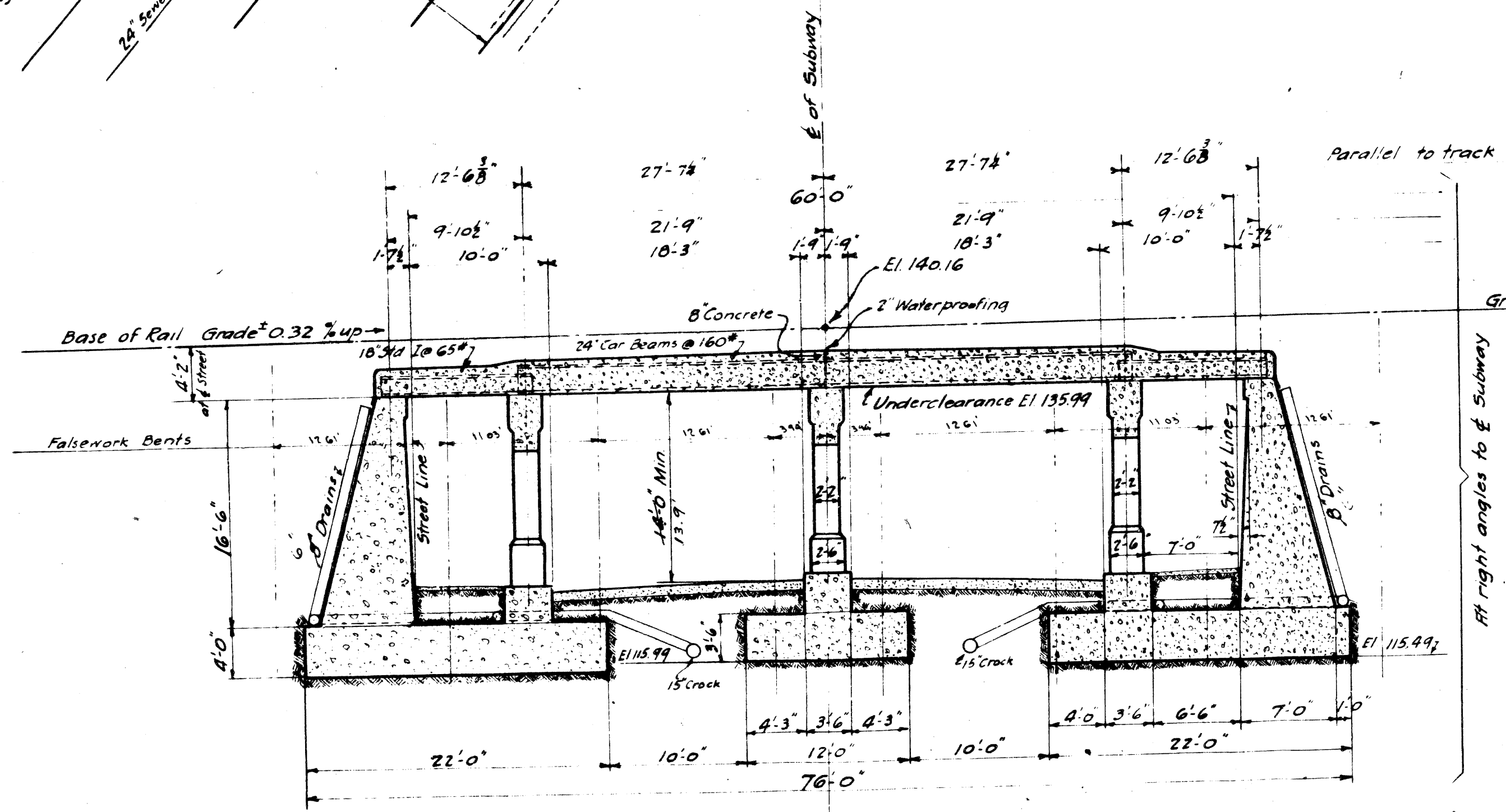
**PLAN**  
Scale 1/8" = 1'-0"



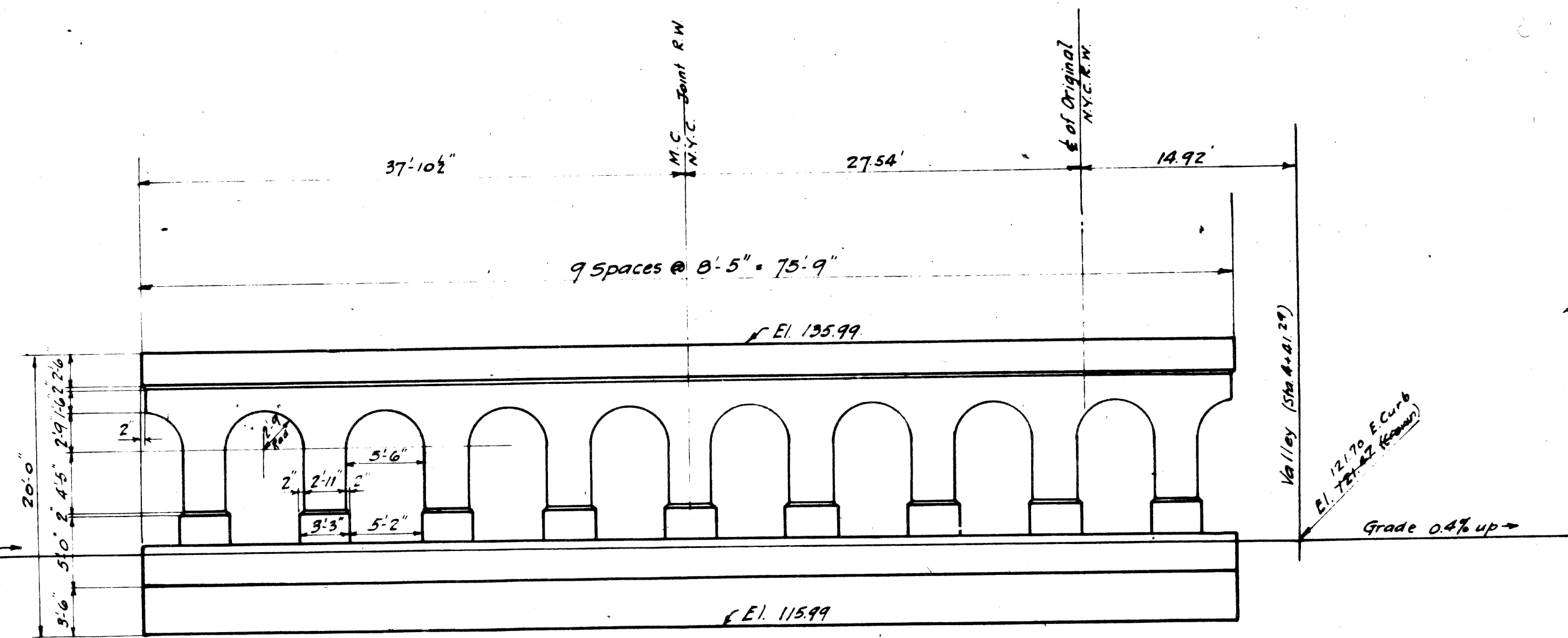
**LOCATION PLAN**  
Scale 1" = 200'



**CROSS SECTION OF FLOOR AT RIGHT ANGLES TO TRACKS**  
Scale 1/2" = 1'-0"



**LONGITUDINAL SECTION**  
Scale 1/4" = 1'-0"



**ELEVATION OF CENTER PIER**  
Scale 1/2" = 1'-0"

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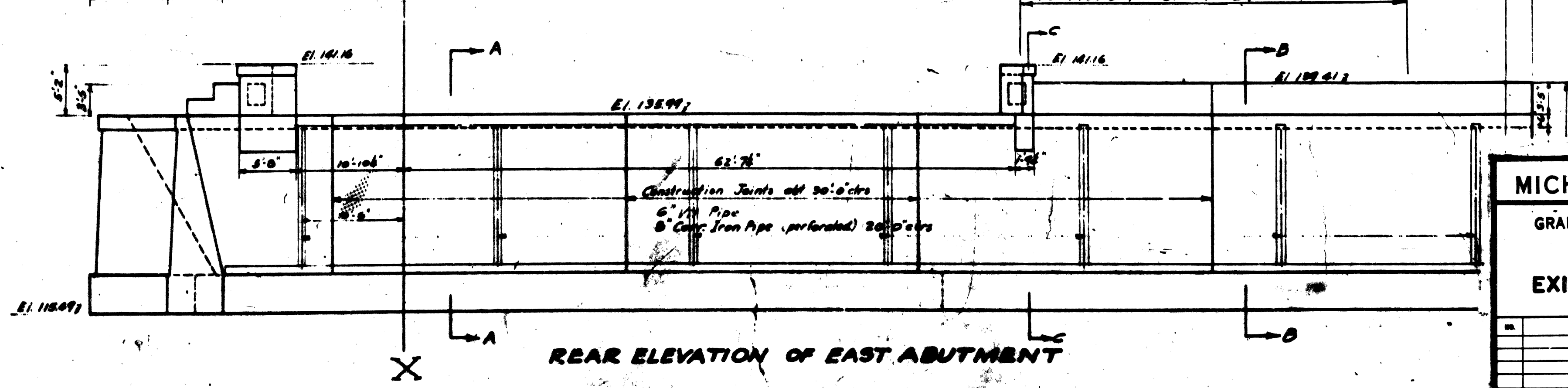
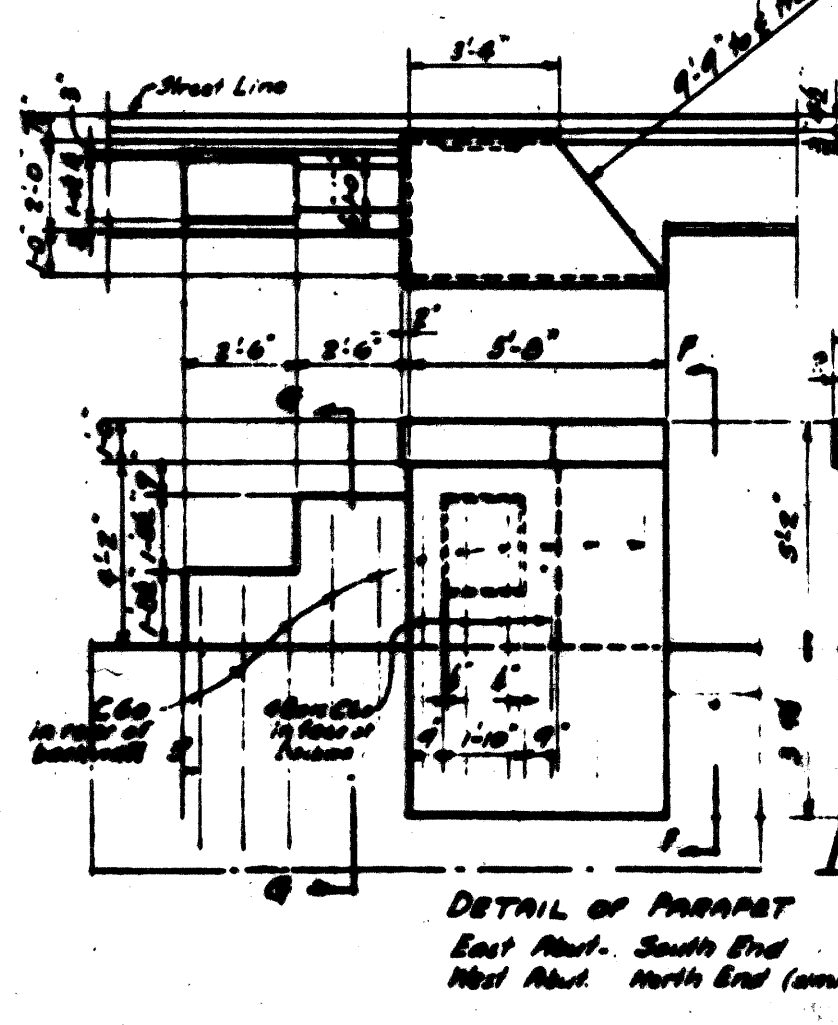
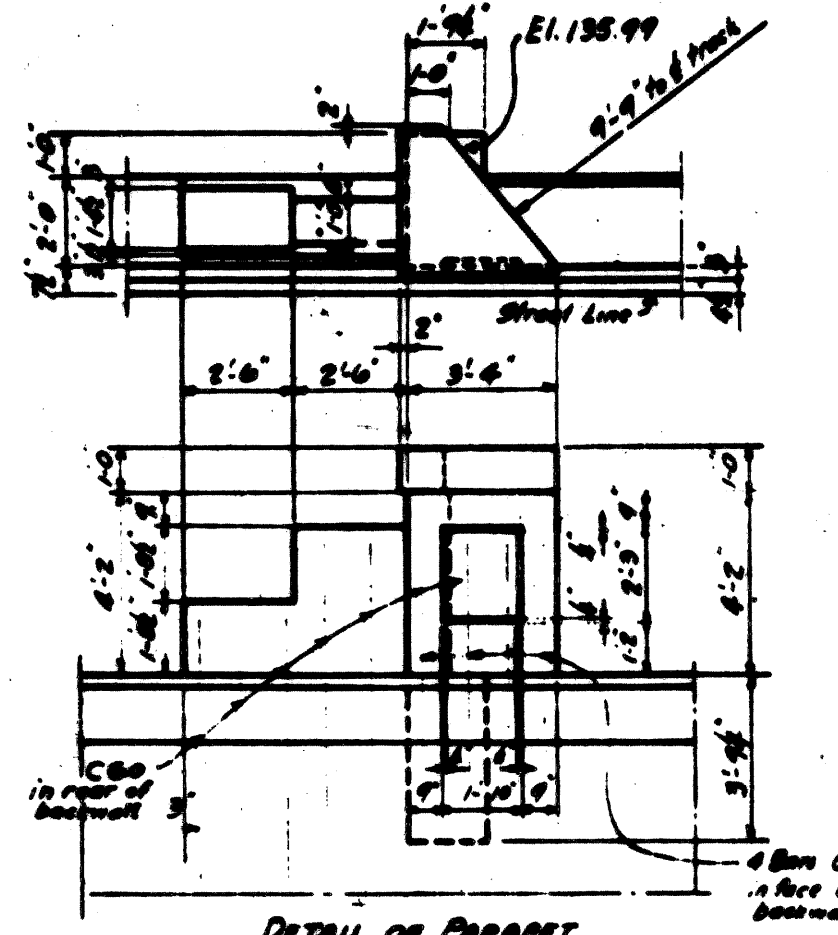
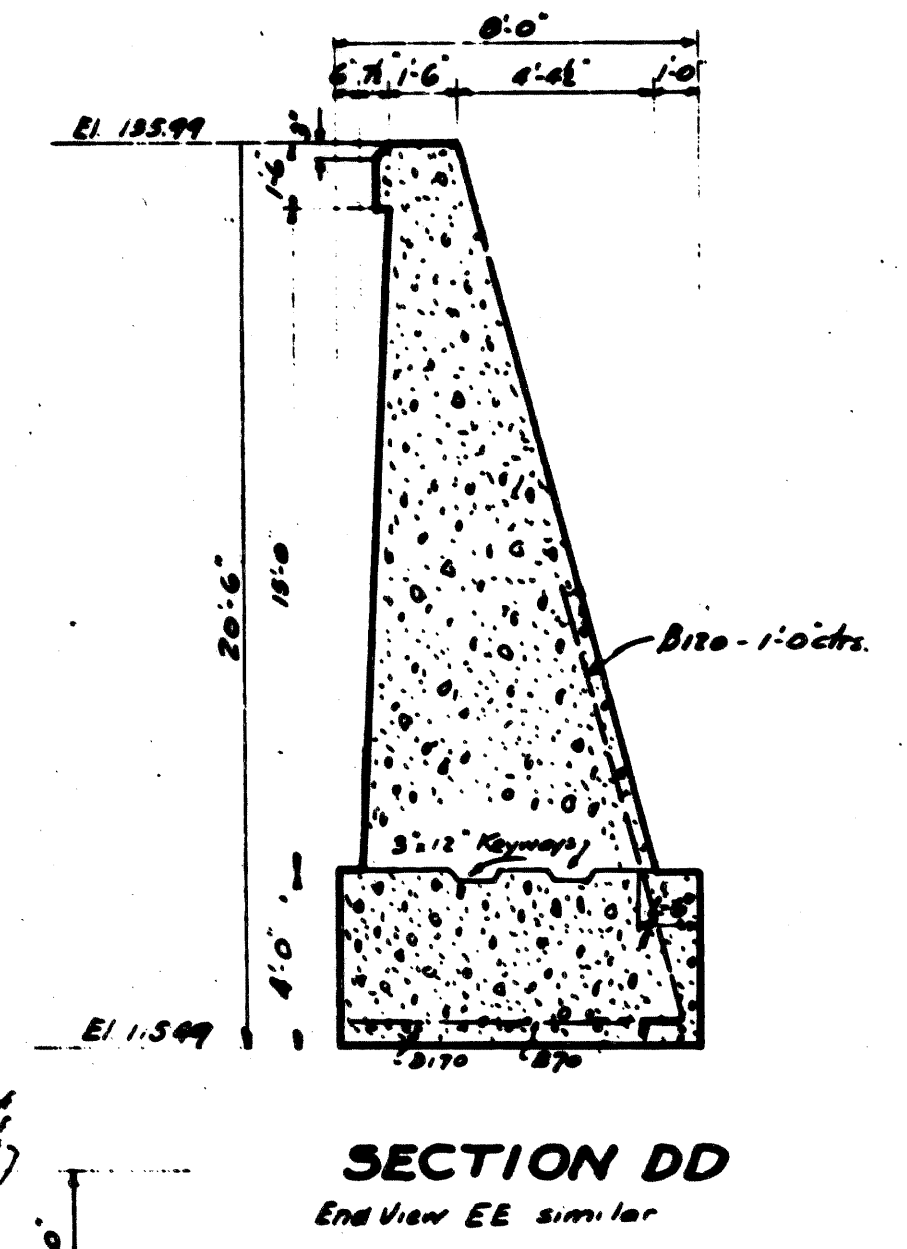
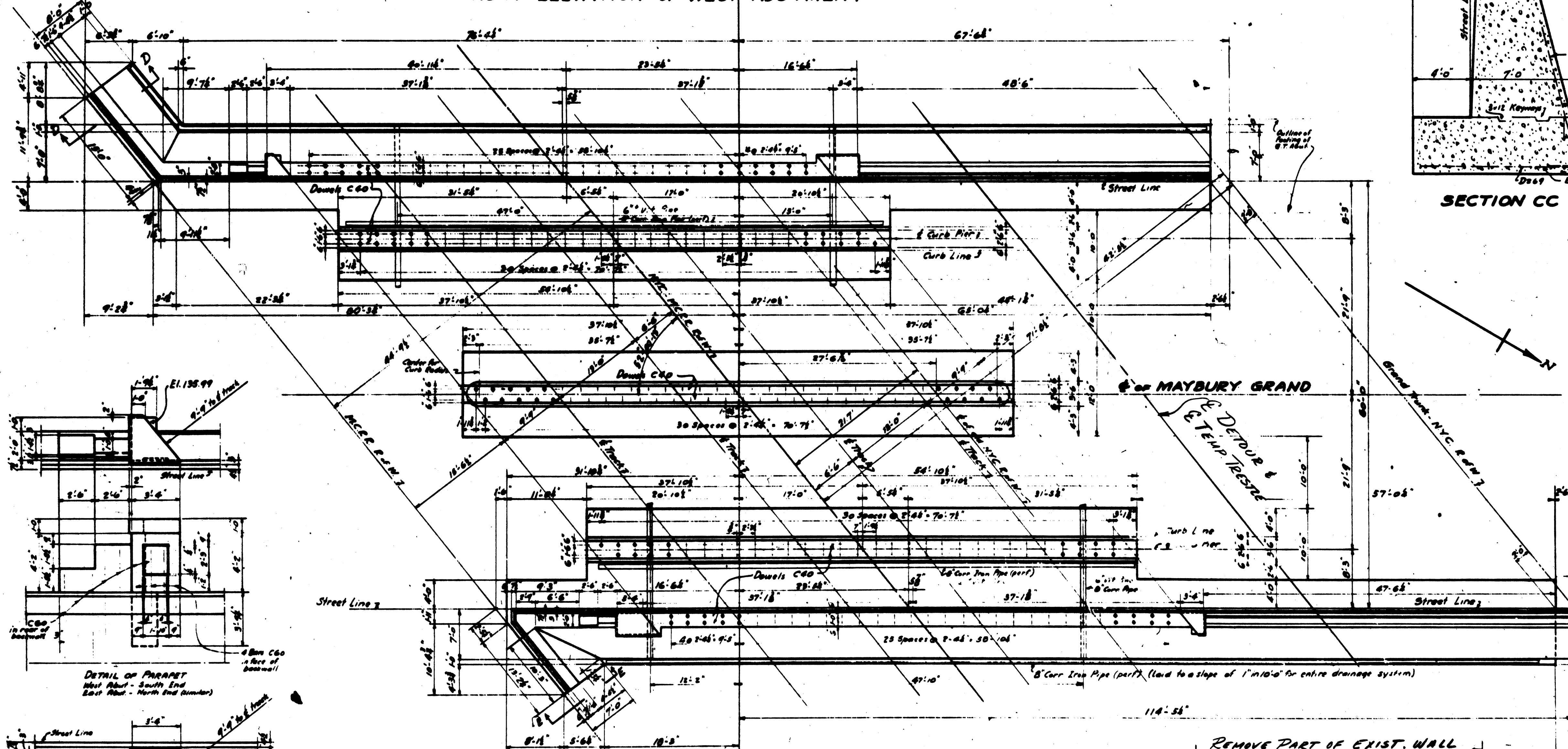
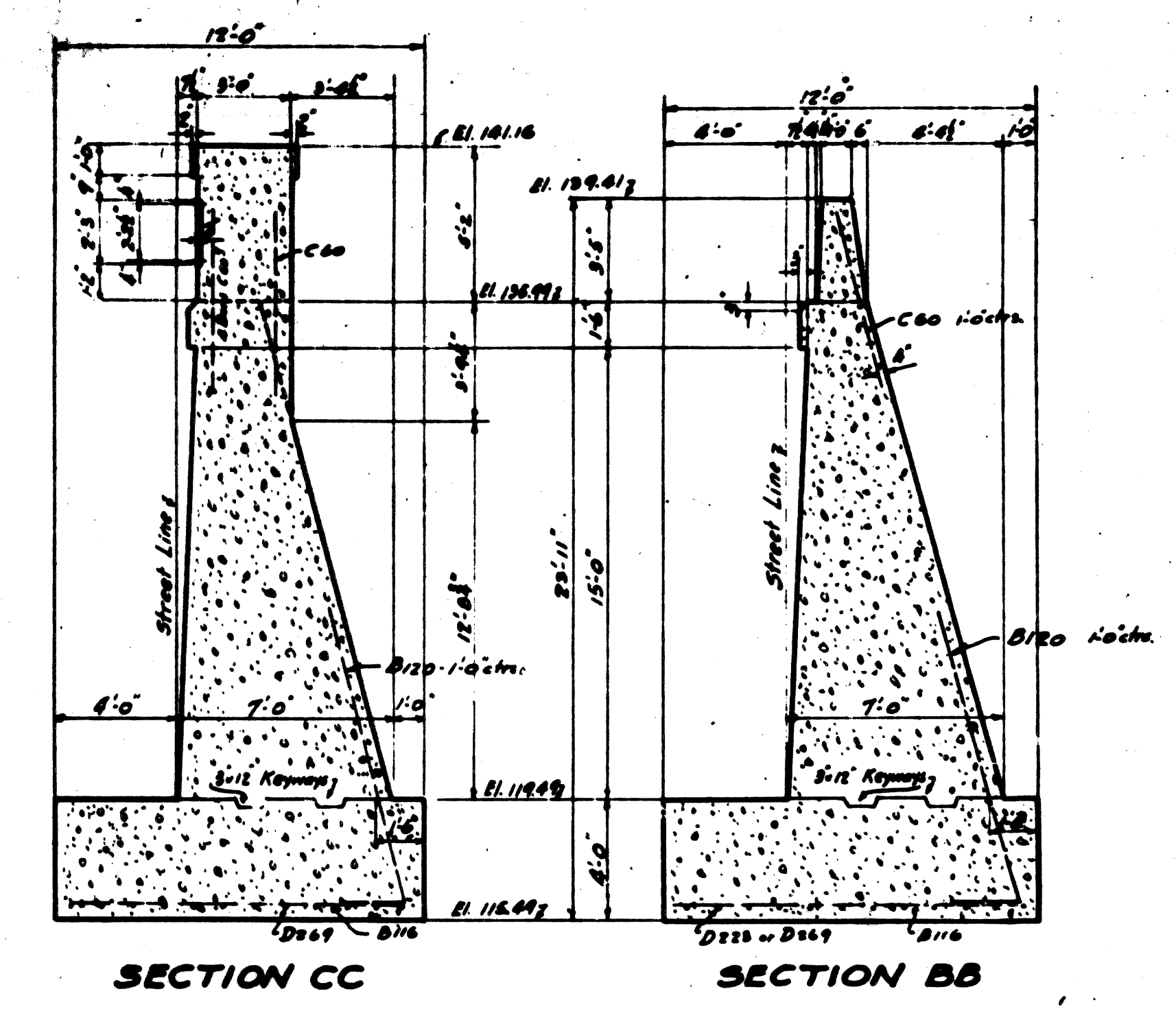
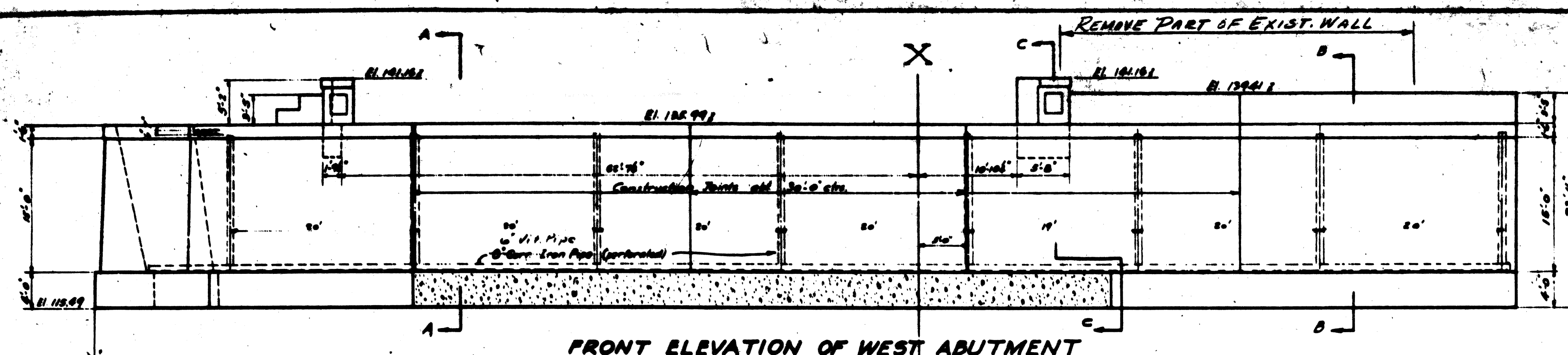
JOB No.  
PW 990(1)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS			
GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION CROSSING THE JEFFRIES FREEWAY IN DETROIT			
EXISTING BRIDGE DETAILS			
CITY OF DETROIT			
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SHEET 33 OF 34

X01 of 82124A





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APPROVED: [Signature]  
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PW 990(1)

**MICHIGAN STATE HIGHWAY DEPARTMENT**

GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
CROSSING THE JEFFRIES FREEWAY IN DETROIT

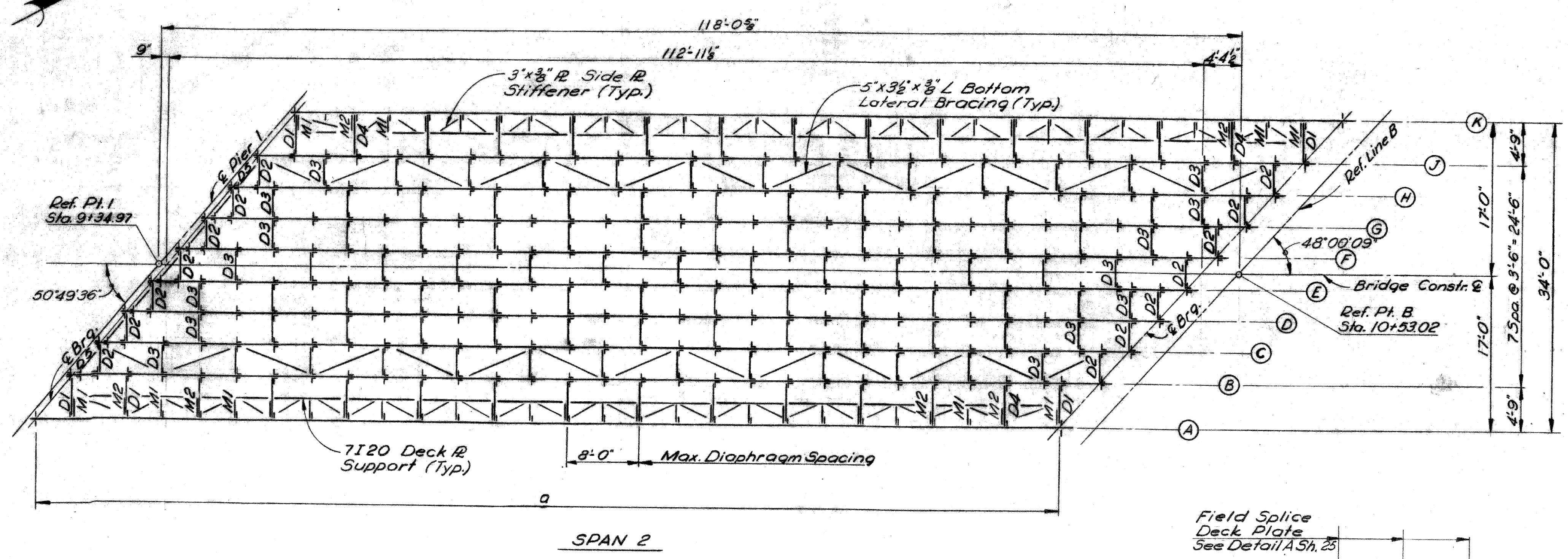
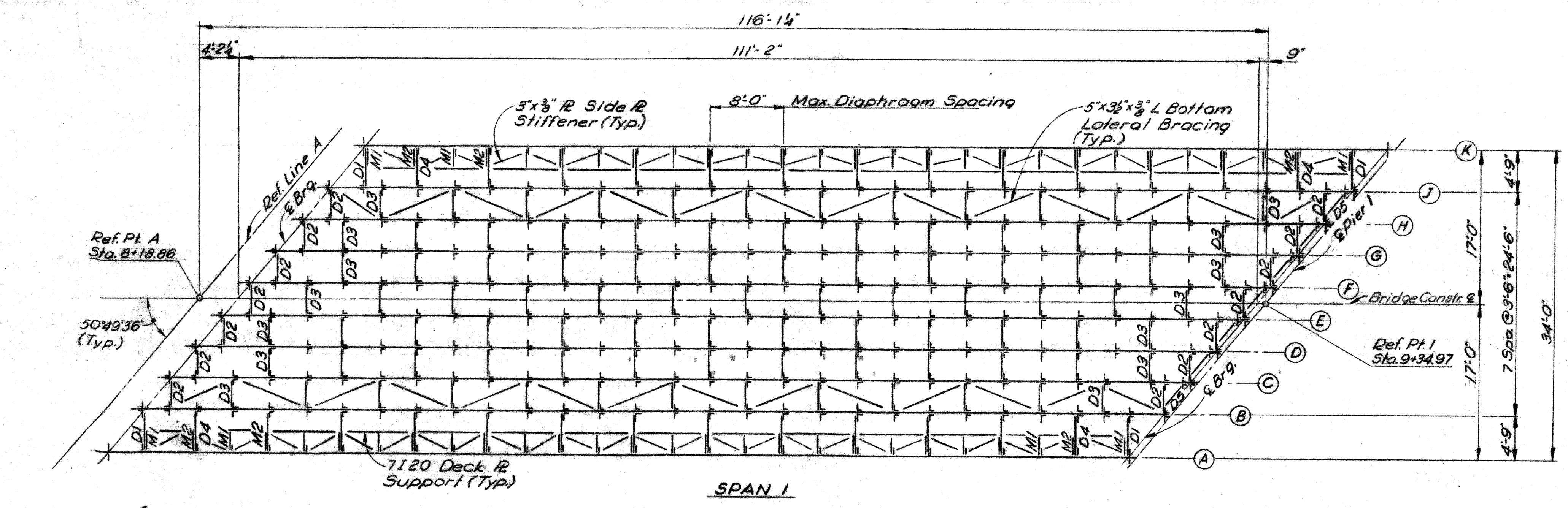
**EXISTING BRIDGE DETAILS**

NO.	DESCRIPTION	DATE	BY

NO. 34 of 34

XO1 of 82124A

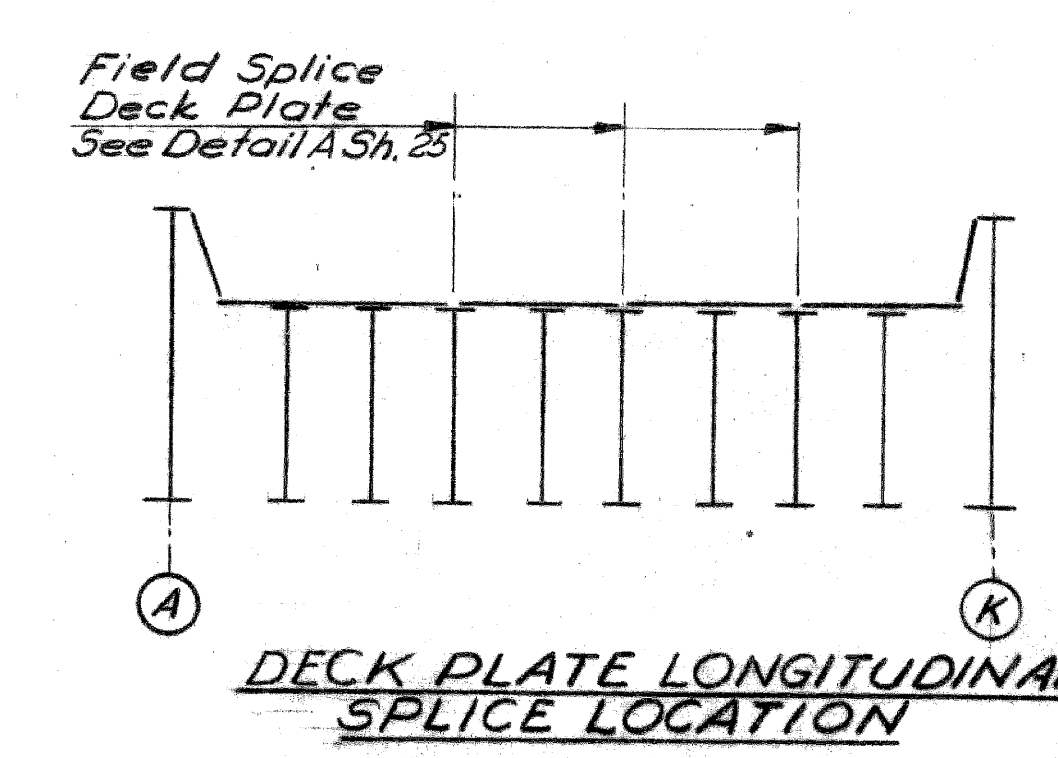




5/8\"/>

Bm.	A	B	C	D	E	F	G	H	J	K
a	111'-5 1/2"	111'-10 1/2"	112'-2 1/2"	112'-5 1/2"	112'-9 1/2"	113'-0 1/2"	113'-4 1/2"	113'-8 1/2"	113'-11 1/2"	114'-4 1/2"

Note:  
 Max. Interior stiffener Spacing = 6'-0"  
 The Fabricator may orient the interior stiffeners in the direction which is convenient to him.



**GENERAL NOTES:**  
 DESIGN: Current A.R.E.A. Specifications for Steel Railway Bridges.  
 LOADING: Cooper's E 72, with Impact & rolling effect =  $(\frac{2000}{L} + 16) \times 20$  %  
 FABRICATION & ERECTION: Current A.R.E.A. Specifications for Steel Railway Bridges.  
 WELDING: All welding shall conform to M.S.H.D. Standard Specifications and to the current A.W.S. Specifications for Welded Highway and Railway Bridges. Radiographs and Magnetic Particle inspection will be required. (See Supplemental Specifications.)  
 SHOP CONNECTIONS: All shop connections shall be riveted and welded as shown on plans. Rivets shall be 3/4" & shall conform to current A.R.E.A. Specifications.  
 FIELD CONNECTIONS: Field Connections shall be bolted with 3/4" diameter high strength bolts unless otherwise shown. Two washers are required for all high strength bolts.  
 OPEN HOLES: Open holes shall be 1 1/2" unless otherwise shown. Drilling, punching and reaming shall be done in accordance with the current A.R.E.A. Specifications.  
 SHOP PAINT: Shop painting shall be in accordance with M.S.H.D. Standard Specifications. In addition, the top surfaces of masonry plates & the curved bearing surfaces of rockers & pedestals shall be coated in accordance with the requirements for machine finished surfaces.  
 SOLE PLATES: Sole plates 3" or more in thickness may be built up by welding together plates not less than 1/2" in thickness. Edges must be beveled & welded with a continuous weld for the full perimeter. Welds shall be ground flush with faces of plates.  
 FIELD PAINTING: Field painting shall be according to M.S.H.D. Standard Specifications. Field paint for structural steel shall be one complete coat of paint No. 2A(2) and one complete coat of paint No. 5B.  
 SPLICES: The top flange plate in Spans 1 & 2 may be spliced, at the option of the fabricator, at minimum distances of 15 feet from the midpoint of the girder and one foot from any web splice. The location of the flange splice shall be alternated on adjacent girders.  
 STRUCTURAL STEEL MATERIALS: Deck and side plates shall be either wrought iron or a steel which conforms to the current ASTM Specification for weldable atmospheric corrosion resistant A 242 steel. The steel for these plates shall have 4 to 6 times the corrosion resistance of ASTM-A 7 steel and shall be suitable for welding in accordance with Section 4(d) of ASTM designation A 242. Steel for girders, diaphragms and bracing shall be A.S.T.M. A 36. Steel in anchor bolts may be ASTM A-307.  
 CAMBER: The girders shall not be cambered.  
 REAMING: Holes for shop rivets at end stiffeners, bent plates connecting end diaphragms and intermediate stiffeners connected to diaphragms must be sub-punched or sub-drilled 1/8 inch less and reamed to size with the members assembled. Holes for high strength field bolts connecting diaphragms must be sub-punched or sub-drilled 1/8 less and reamed to a template or with parts assembled. At intermediate stiffeners holes in stiffeners will be punched full size, holes in web will be sub-punched 1/8 inch less and reamed assembled.

**QUANTITIES**  
 Structural Steel - Furnishing & Fabricating Lbs.  
 Note: The quantity "Structural Steel - Furnishing and Fabricating includes: Steel A 36 A 242 Lead \*  
 Structural Steel-Erection  
 Field Painting for Structural Steel is to be Lump Sum.  
 \* The quantity "Lead" includes bearing lead & deck plate flashings.

Work this sheet with sheets 24 thru 27

MICHIGAN DEPARTMENT OF STATE HIGHWAYS  
 GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
 CROSSING THE JEFFRIES FREEWAY IN DETROIT

**STRUCTURAL STEEL DETAILS**

CITY OF DETROIT

PLANS PREPARED BY  
 CITY OF DETROIT  
 DEPARTMENT OF PUBLIC WORKS  
 CITY ENGINEERS OFFICE  
 BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED \_\_\_\_\_  
 STRUCTURAL ENGINEER

JOB No.  
 PW 990(1)

NO.	DESCRIPTION	DATE	BY

REVISIONS

NO.	DESCRIPTION	DATE	BY

REVISIONS

DRAWN BY T. Baker 10-66  
 TRACED BY  
 CHECKED BY

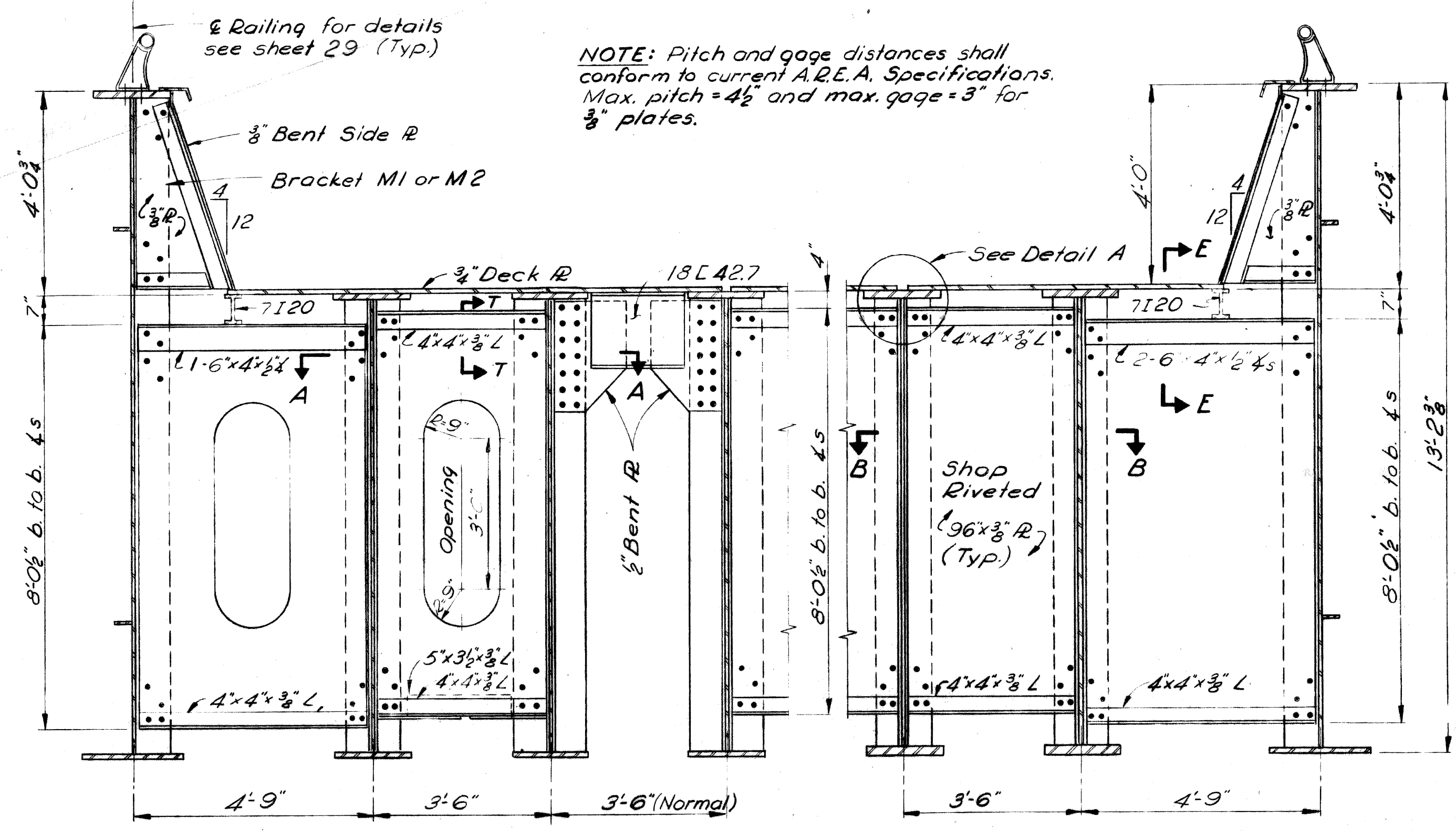
SHEET 23 OF 34

X01 of 82124A





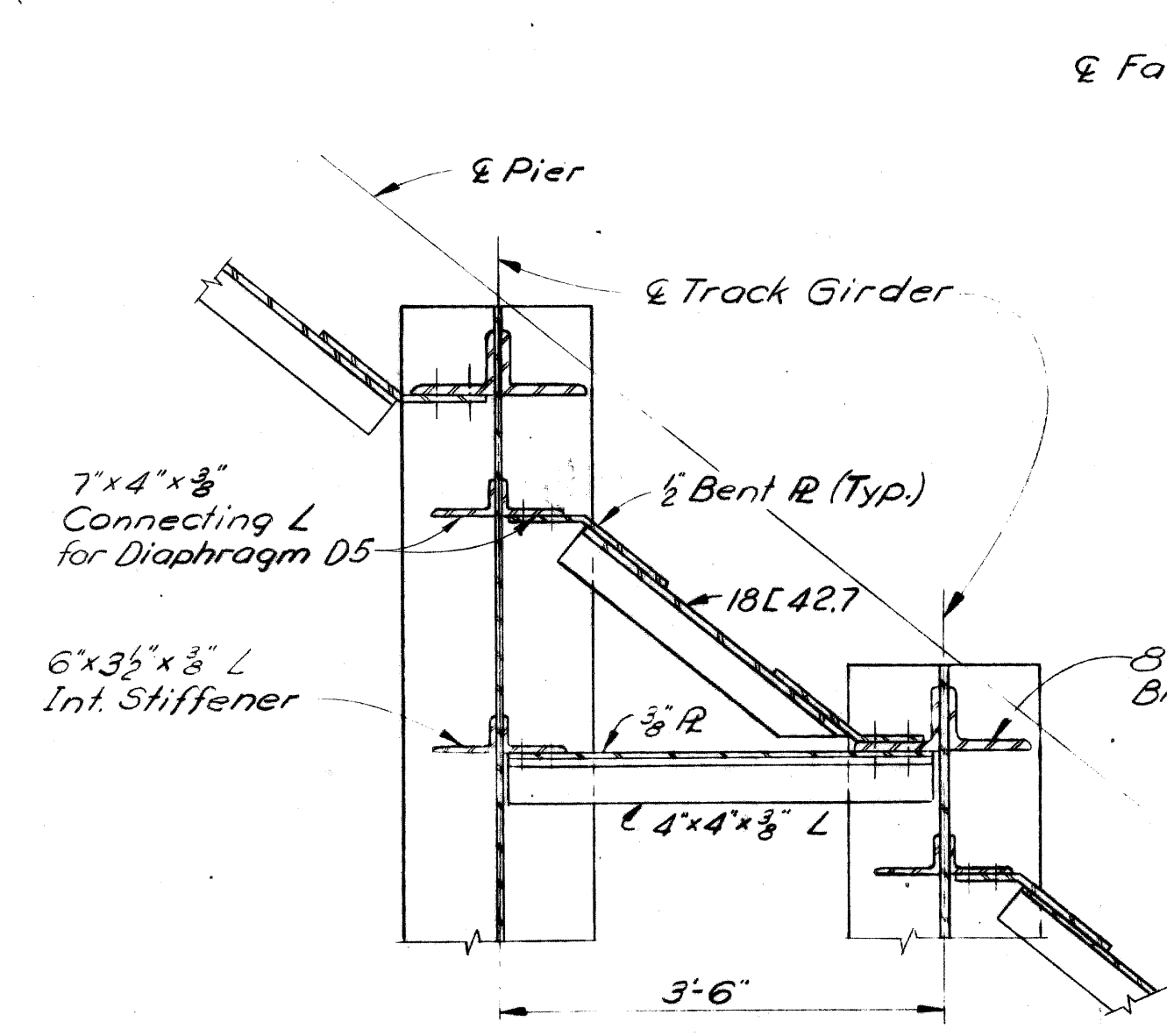




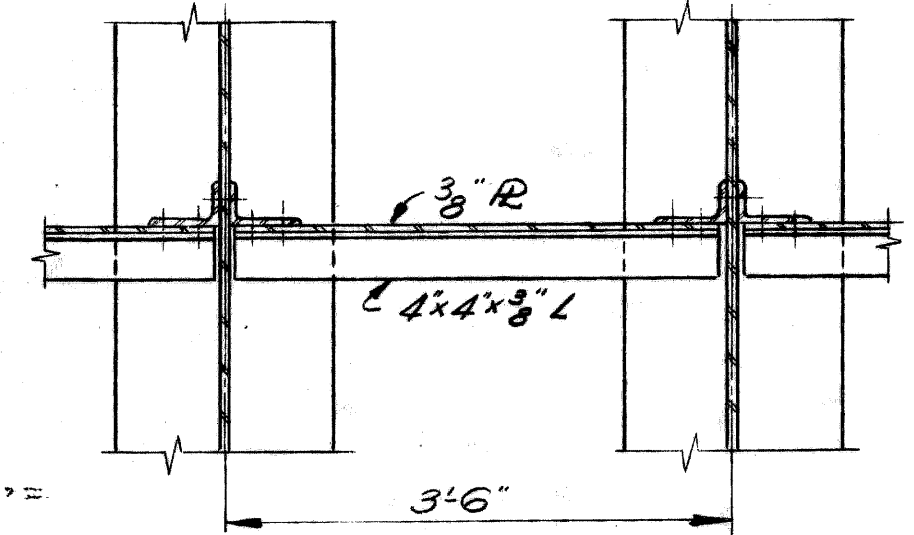
END DIAPHRAGM D1    END DIAPHRAGM D2    END DIAPHRAGM D5    INT. DIAPHRAGM D3    INT. DIAPHRAGM D4

DIAPHRAGM DETAILS

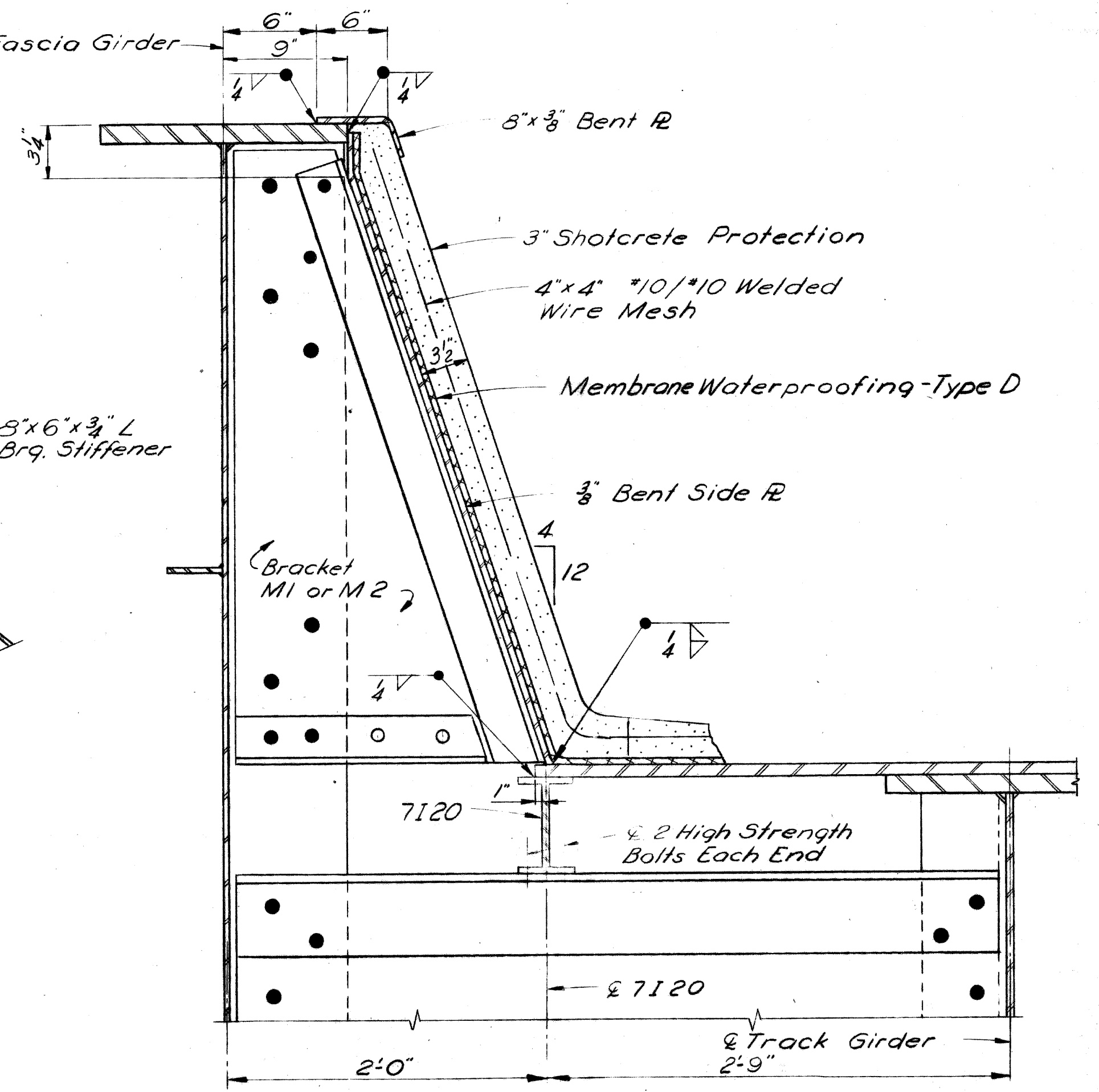
NOTE: Pitch and gage distances shall conform to current A.R.E.A. Specifications. Max. pitch = 4 1/2" and max. gage = 3" for 3/8" plates.



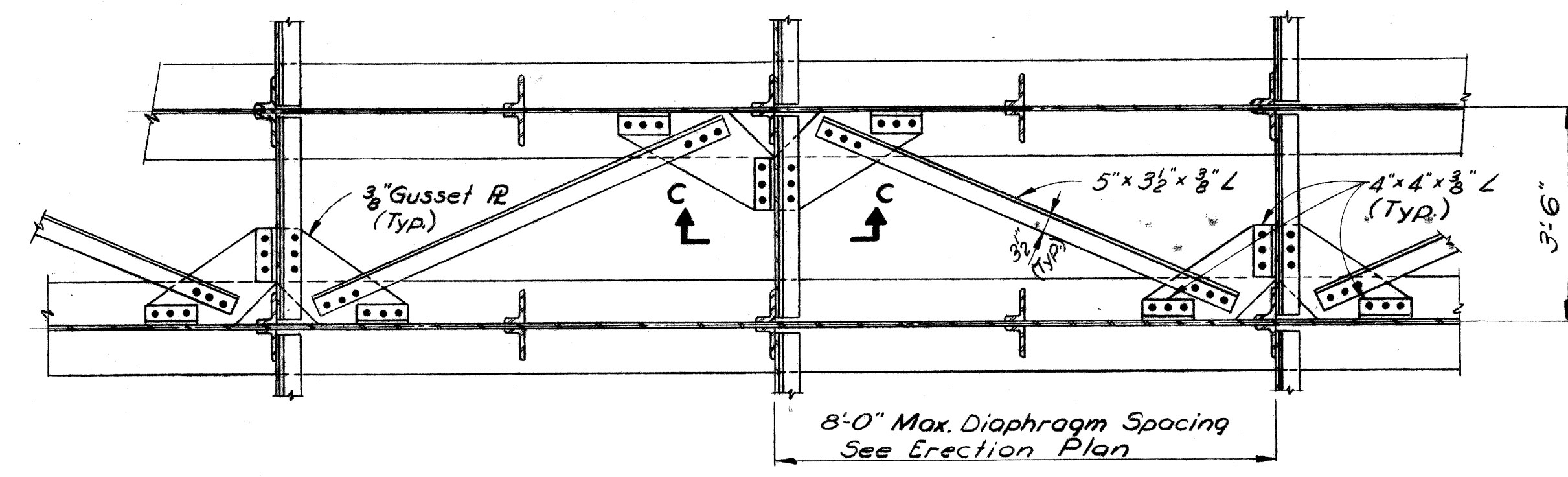
SECTION A-A



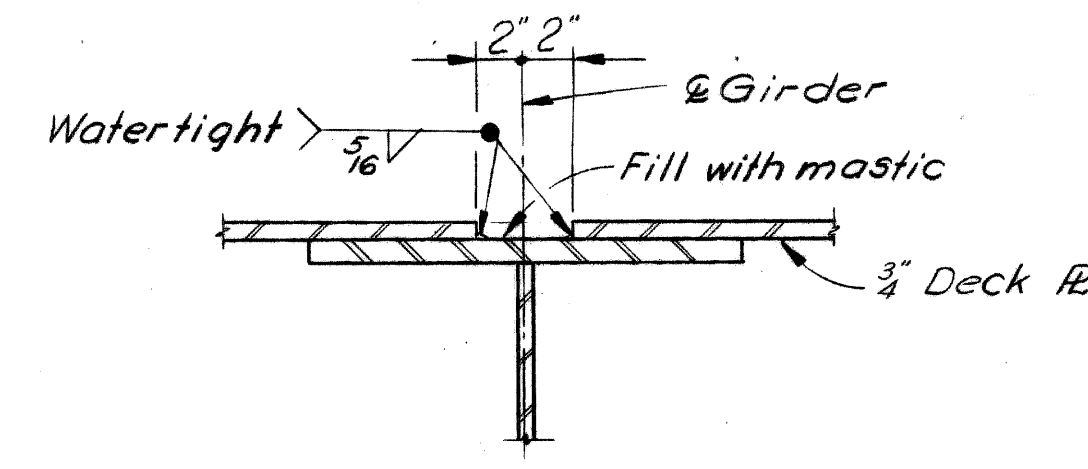
SECTION B-B



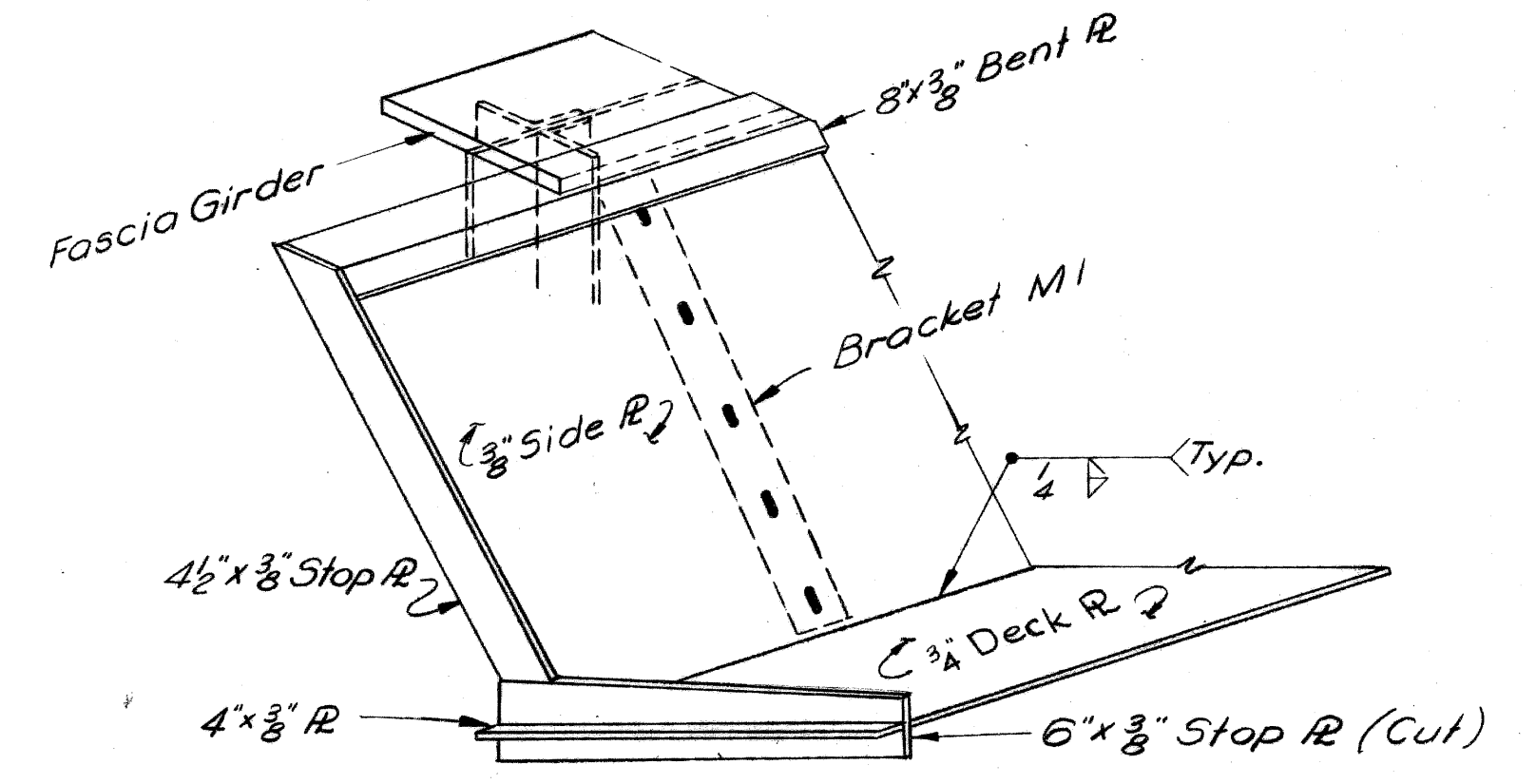
SIDE PLATE & BRACKET DETAIL



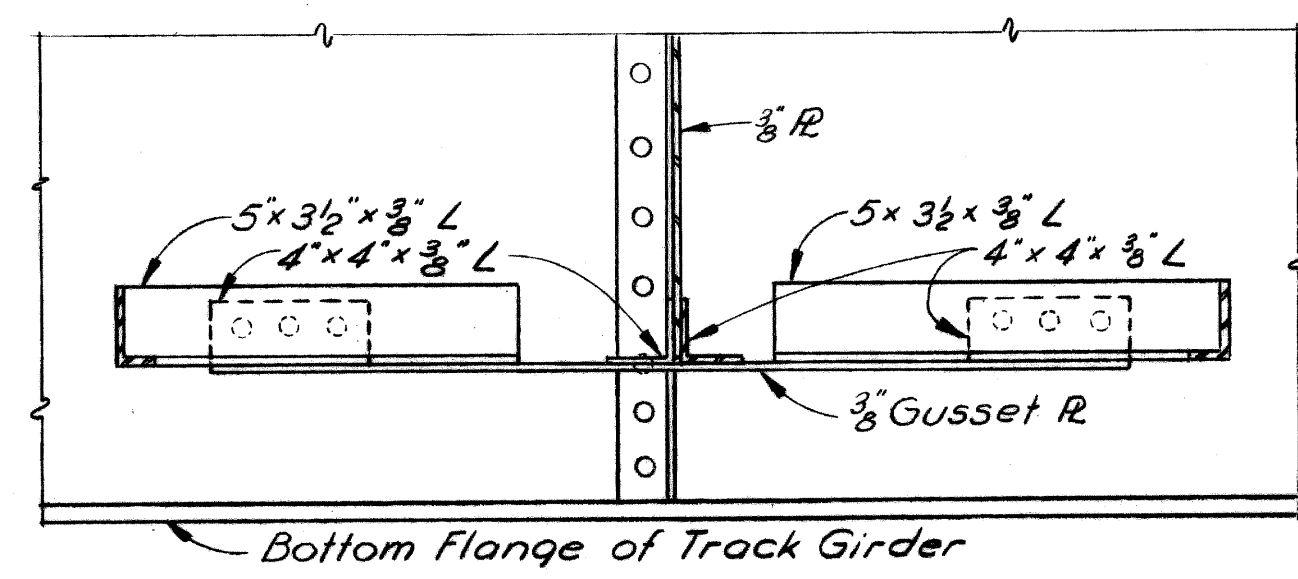
LATERAL BRACING DETAILS



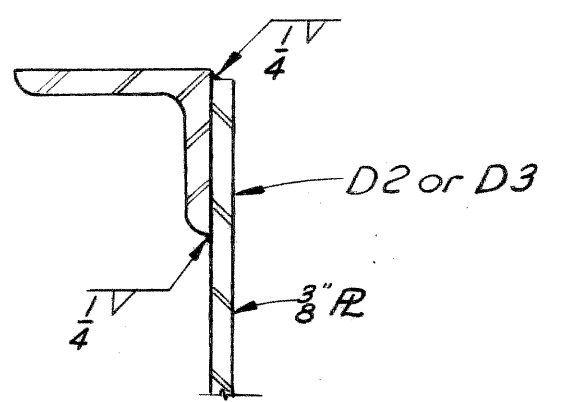
DETAIL A



ISOMETRIC VIEW AT ABUTMENT



SECTION C-C



SECTION T-T

Work this Sheet with Sheets 23, 24, 26 & 27

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
CROSSING THE JEFFRIES FREEWAY IN DETROIT

STRUCTURAL  
STEEL DETAILS

PLANS PREPARED BY  
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DEPARTMENT OF PUBLIC WORKS  
CITY ENGINEERS OFFICE  
BUREAU OF HIGHWAYS AND EXPRESSWAYS

NO.	DESCRIPTION	DATE	BY

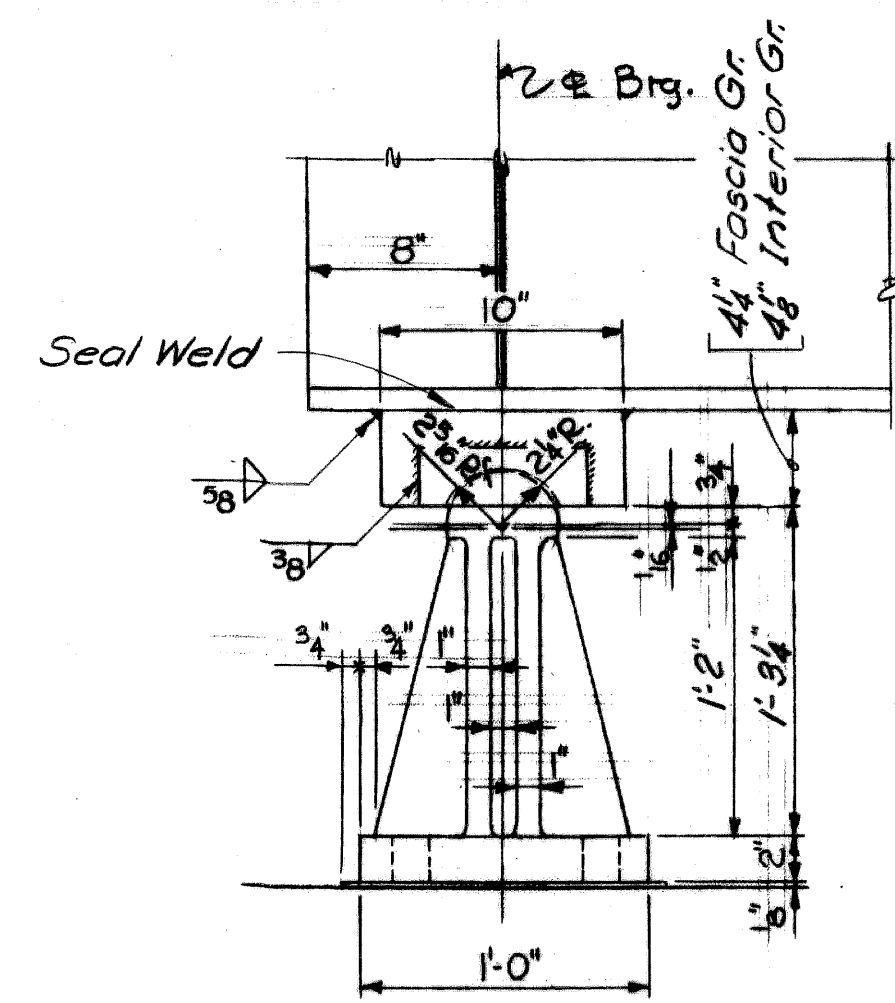
CITY OF DETROIT	
SQUAD BOSS	
DRAWN BY	F. Baker 11-66
TRACED BY	
CHECKED BY	
SHEET 25 OF 34	

X01 of 82124A

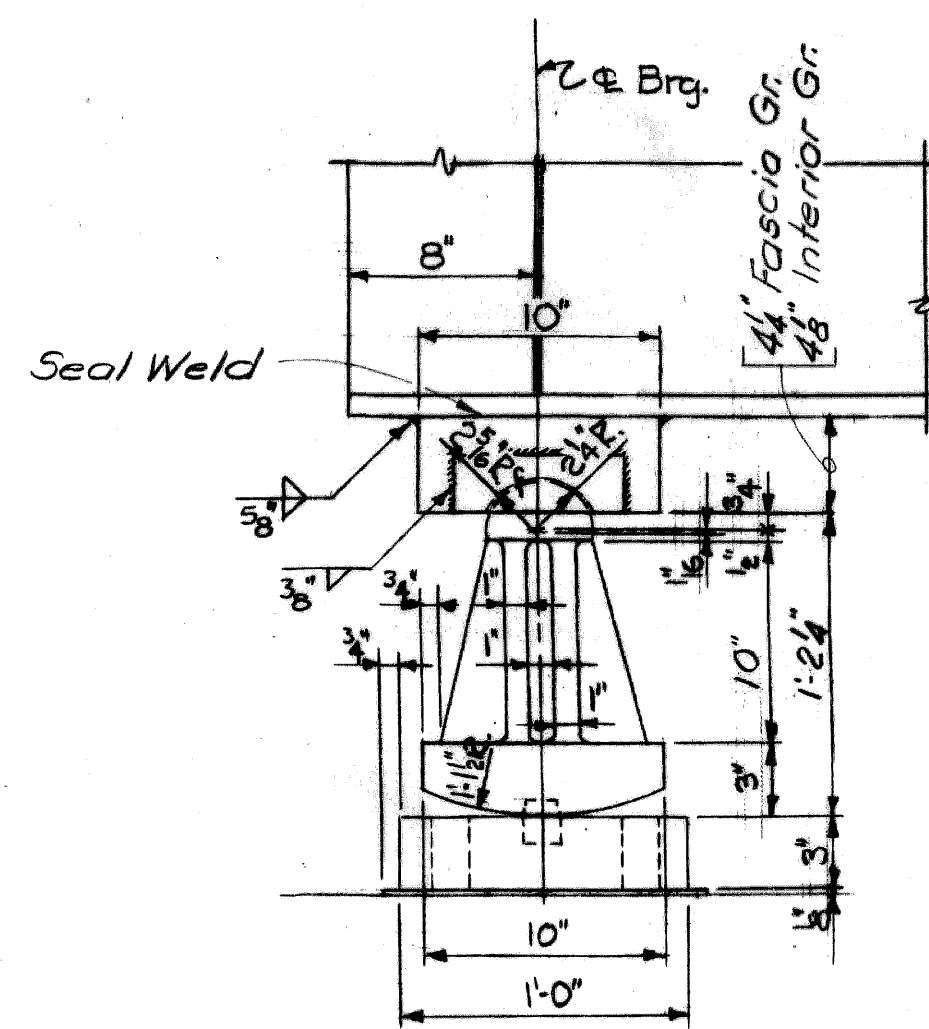
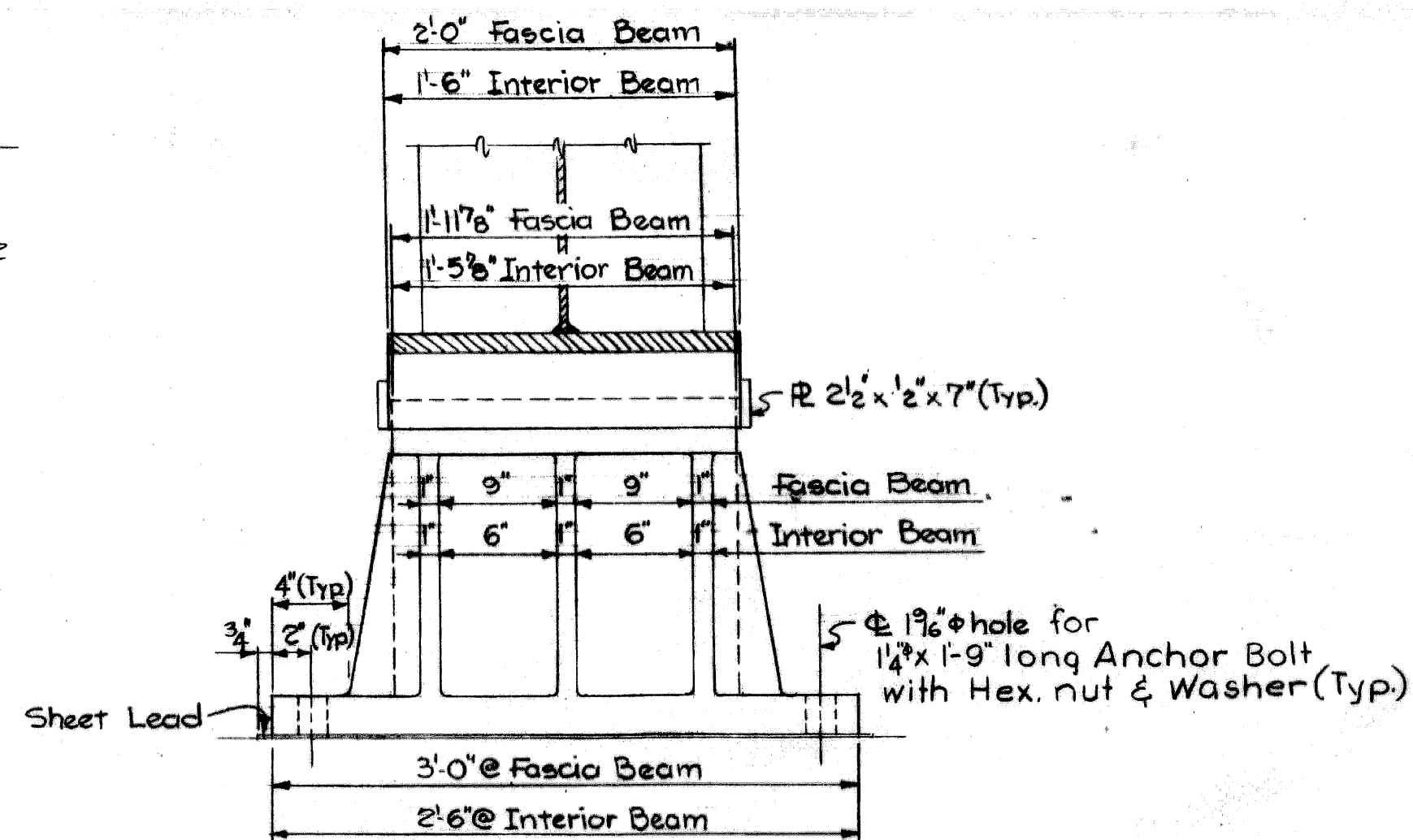




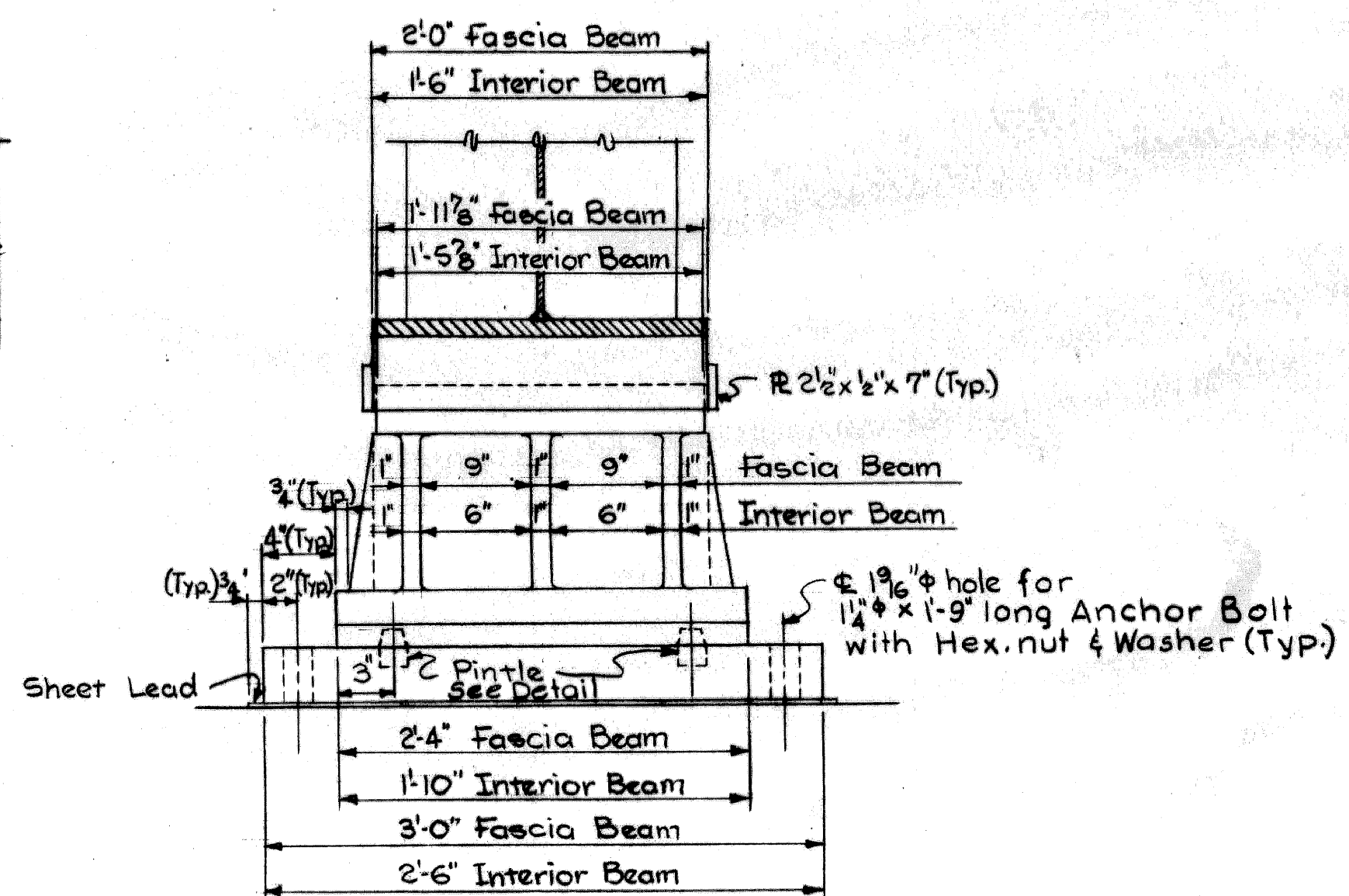




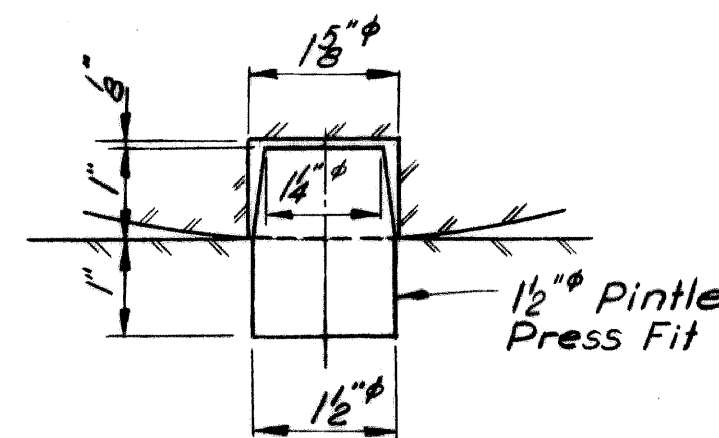
FIXED PEDESTAL



EXPANSION ROCKER



- NOTES:**  
 Rockers & Pedestals shall be cast steel.  
 All castings shall have inside corners filleted and outside corners rounded.  
 Steel castings shall conform to the current AREA Specifications.  
 Sheet lead is included in weight of Structural Steel.



PINTLE DETAIL

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MICHIGAN DEPARTMENT OF STATE HIGHWAYS

GRAND TRUNK WESTERN RAILROAD - MT. CLEMENS SUBDIVISION  
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STRUCTURAL  
 STEEL DETAILS

CITY OF DETROIT

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SHEET 27 of 34	

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Struct Steel Xc