STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS

PLANS OF PROPOSED BRIDGES

MICHIGAN PROJECT I-96-4(81)229
STATE PROJECT BI 82123-053

JEFFRIES FREEWAY
WAYNE COUNTY
CITY OF DETROIT

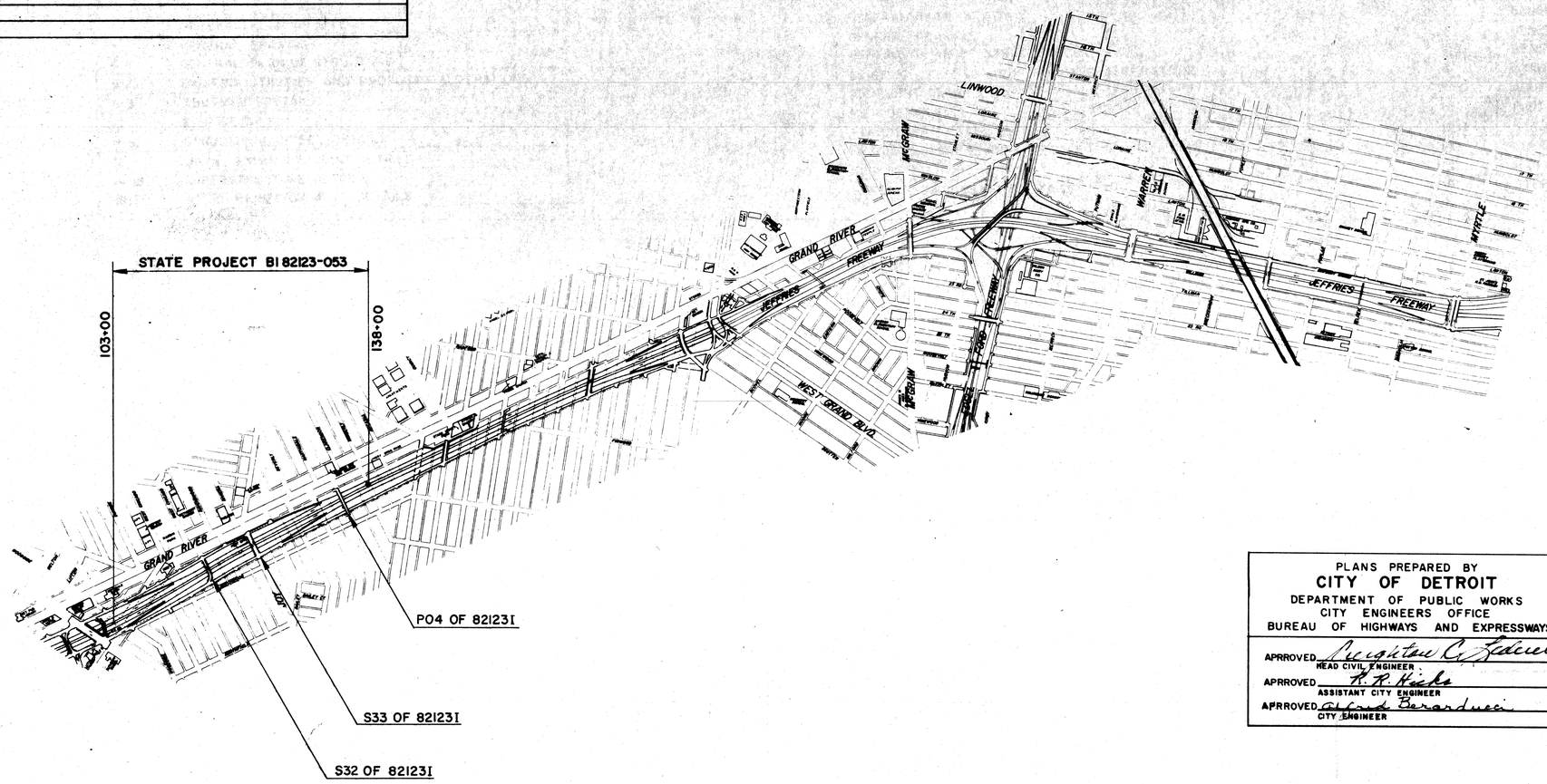
NOTE
Where the following items are called for on the Plans, they are to be constructed according to the Standard Plan given below opposite each item, unless otherwise indicated.

STANDARD PLANS TO BE PRINTED

SHEET NO.	TITLE
R16	Bridge Railing, Drain Casting, Bar Chair, Molding & Bevel Details
SP2J	Standard Slope Paving Details

STANDARD PLANS NOT TO BE PRINTED

SHEET NO.	TITLE



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 AASHO Standard Specifications for Highway Bridges, HS20-44 Loading.
Live load plus impact deflection = 1/1000 of span length and 1/350 of cantilever arm.
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.

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 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 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' = 3000 psi.
Steel Reinforcement; ..... f_s = 20,000 psi.
Structural Steel A588 ..... f_s = 27,000 psi, max.

5-28-69
Sopecs of S33
as corrected
by M.D.S.H.

ITEM NO. 1172

CONTRACT FOR **STRUCTURES**

APPROVALS

CHECKED _____ DESIGN ENGINEER _____ DATE

RECOMMENDED FOR APPROVAL _____ ENGINEER OF BRIDGE AND ROAD DESIGN _____ DATE

RECOMMENDED FOR APPROVAL _____ TRAFFIC DIVISION _____ DATE

RECOMMENDED FOR APPROVAL _____ CONSTRUCTION DIVISION _____

RECOMMENDED FOR APPROVAL _____ CHIEF-BUREAU OF ENGINEERING _____ DATE

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

APPROVED Creighton C. Fedewa
HEAD CIVIL ENGINEER
APPROVED R. R. Hicks
ASSISTANT CITY ENGINEER
APPROVED Alfred Berarducci
CITY ENGINEER

DEPARTMENT OF STATE HIGHWAYS
HENRIK E. STAFSETH - STATE HIGHWAY DIRECTOR

APPROVED BY _____ DEPUTY STATE HIGHWAY DIRECTOR _____ DATE

PLANS PREPARED BY
CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF PUBLIC ROADS

APPROVED [redacted]
FOR THE DIVISION ENGINEER _____ DATE

STATE PROJECT NO.	FEDERAL PROJECT	SHEET NO.
BI 82123-053 S32, S33, P04	BI 82123-053	I-96-4(81)229	1

STATE PROJECT NO. BI 82123-053

UNDERWOOD AVE. BRIDGE S32 OF 821231

SHEET No	DESCRIPTION
2	GENERAL PLAN OF SITE
3	GENERAL DRAWING
4	GENERAL PLAN OF STRUCTURE
5	EXISTING UTILITIES AND PROPOSED ALTERATIONS
6-9	ABUTMENT DETAILS
10	PIER DETAILS
11-12	STRUCTURAL STEEL DETAILS
13	METAL EXPANSION JOINT DETAILS
14-18	SUPERSTRUCTURE DETAILS
19-20	STEEL REINFORCEMENT DETAILS

JOY ROAD BRIDGE S33 OF 821231

SHEET No	DESCRIPTION
2	GENERAL PLAN OF SITE
3	GENERAL DRAWING
4	GENERAL PLAN OF STRUCTURE
5	EXISTING UTILITIES AND PROPOSED ALTERATIONS
6-9	ABUTMENT DETAILS
10-11	PIER DETAILS
12-14	STRUCTURAL STEEL DETAILS
15	METAL EXPANSION JOINT DETAILS
16-20	SUPERSTRUCTURE DETAILS
21	STEEL REINFORCEMENT DETAILS

CLARENDON AVE. PEDESTRIAN BRIDGE P04 OF 821231

SHEET No	DESCRIPTION
2	GENERAL PLAN OF SITE
3	GENERAL DRAWING
4-5	GENERAL PLAN OF STRUCTURE
6	EXISTING UTILITIES AND PROPOSED ALTERATIONS
7-10	ABUTMENT AND RAMP DETAILS
11	PIER DETAILS
12-13	STRUCTURAL STEEL DETAILS
14	SUPERSTRUCTURE DETAILS
15	RAILING DETAILS
16	STEEL REINFORCEMENT DETAILS

SHEET No	DESCRIPTION
1	TITLE SHEET
1a	INDEX SHEET
1b	QUANTITY SHEET
RI6	BRIDGE RAILING, DRAIN CASTING, BAR CHAIR MOLDING AND BEVEL DETAILS
SP2 J	STANDARD SLOPE PAVING DETAILS

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

APPROVED _____ STRUCTURAL ENGINEER

JOB No. 990(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JEFFRIES FREEWAY IN DETROIT

INDEX SHEET

CITY OF DETROIT

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	STURM	5-68
DRAWN BY	MARGERUM	4-68
TRACED BY	—	—
CHECKED BY	IHS	5-68

SHEET 1a OF —

S32, S33, P04 OF 821231

ITEM	CODE NO	UNIT	CONTR. QUANT.	FINAL QUANT.	UNIT PRICE	FINAL COST	S32 OF 82123 I CONTR. QUANT.	REMARKS (AUTH. NOS.)	FINAL QUANT.	FINAL COST	S33 OF 82123 I CONTR. QUANT.	REMARKS (AUTH. NOS.)	FINAL QUANT.	FINAL COST	P04 OF 82123 I CONTR. QUANT.	REMARKS (AUTH. NOS.)	FINAL QUANT.	FINAL COST	CONTR. QUANT.	REMARKS (AUTH. NOS.)	FINAL QUANT.	FINAL COST
8IN SEWER CLASS A		L Ft	94												94							
CHAIN LINK FENCE AND FRAMING		L Ft.	227.7												227.7							
UNCLASSIFIED EXCAVATION		Cu Yds	3375				1870				1661				374							
STEEL PILES FURN AND DRIVEN		L Ft.	2180								2180											
SPLICES STEEL PILES (12 IN.)		Each	32								32											
STEEL TEST PILES (12 IN.)		Each	2								2											
FURNISHING EQUIPMENT FOR DRIVING PILES		Lump	Sum								Lump	Sum										
STEEL SHEET PILING L.I.P.		Sq Ft	1861				1093				768											
TEMPORARY STEEL SHEET PILING		Sq Ft	700								700											
GRADE A(6A) CONCRETE-SUBSTRUCTURE		Cu Yds	903.4				487.3				416.8				63.8							
GRADE A(6AA) CONCRETE-SUBSTRUCTURE		Cu Yds	906.3				372.6				431.0				90.3							
PROTECTIVE SEALANT COATING FOR CONCRETE		Sq Ft	26												26							
CLEAR PROTECTIVE COATING FOR SUBSTRUCTURE CONCRETE		Sq Yds	740				245				457				38							
GRADE A(6AA) CONCRETE-SUPERSTRUCTURE		Cu Yds	758.4				287.0				432.3				35.3							
GRADE XX CONCRETE		Cu Yds	19.2								19.2											
WATER REDUCING RETARDING ADMIXTURE		Gal	91				34				51				6							
LOW TEMPERATURE PROTECTION SUBSTRUCTURE CONCRETE		Cu Yds	1801.0				801.8				848.0				151.2							
LOW TEMPERATURE PROTECTION SUPERSTRUCTURE CONCRETE		Cu Yds	452								452											
PROTECTIVE TREATMENT FOR BRIDGE DECKS		Sq Ft	20050				7760				12290											
STEEL REINFORCEMENT		Lbs	325308				127735				184574				13000							
SHEAR DEVELOPERS S-32		Lump	Sum				Lump	Sum														
SHEAR DEVELOPERS S-33		Lump	Sum								Lump	Sum										
STRUCTURAL STEEL-FURNISHING AND FABRICATING A-588 ROLLED		Lbs	753600				263600				397000				93000							
STRUCTURAL STEEL-ERECTION ROLLED A-588		Lb	753600				263600				397000				93000							
CHAIN LINK FENCE-BRIDGE		L Ft	108.8												108.8							
ELASTOMERIC BEARING PADS		S. Ft.	3.0												3.0							
STRUCTURAL TILE - 4x12x12		Each	1350				840				510											
STRUCTURAL TILE - 6x12x12		Each	1354				504				850											
½IN. JOINT FILLER		Sq Ft	499				204				252				43							
3 IN. PREFORMED NEOPRENE JOINT SEALER		L Ft.	18												18							
JOINT WATERPROOFING		Sq Ft	1309				626				560				123							
TWO COMPONENT POLYURETHANE COLD APPLIED JOINT SEALER		L Ft.	110				40				70											
BRIDGE RAILING-SOLID PARAPET TYPE		L Ft.	1017.5				518.5				499.0				16							
3 IN. CONDUITS		L Ft.	111				56				55				55							
4 IN. CONDUITS		L Ft.	1736				348				1390				137							
8 IN. DUCTILE METAL PIPE		L Ft.	16												16							
SLOPE PROTECTION-CLASS A		Sq Yds	411				133				193				85							
SLOPE PROTECTION HEADERS		L Ft.	475				132				196				127							
FOUNDATION DRAINS		L Ft.	961				330				448				183							
TOTAL																						

PLAN EXTRAS

DATE	DESCRIPTION	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL

ITEM 1172
I-96-4(81)229

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

APPROVED 11-3-67
STRUCTURAL ENGINEER

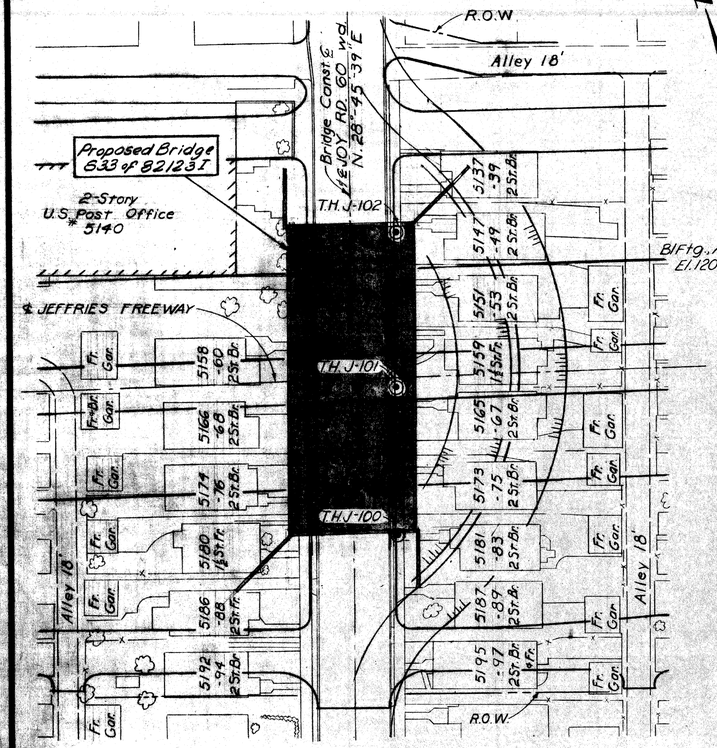
JOB No.
PW 9901(4)

MICHIGAN STATE HIGHWAY DEPARTMENT

THE JEFFRIES FREEWAY IN DETROIT
QUANTITY SHEET

CITY OF DETROIT		
SQUAD BOSS	STURM	5-69
DRAWN BY	L G	4-69
TRACED BY	–	–
CHECKED BY	IMS	5-69
SHEET 15 OF –		

S32, S33, P04 of 82123 I . BI 82123,053



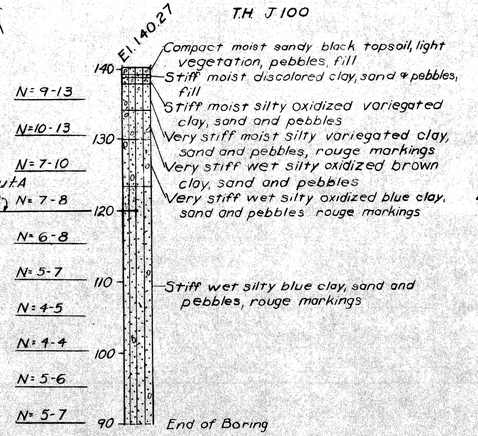
SURVEY PLAN

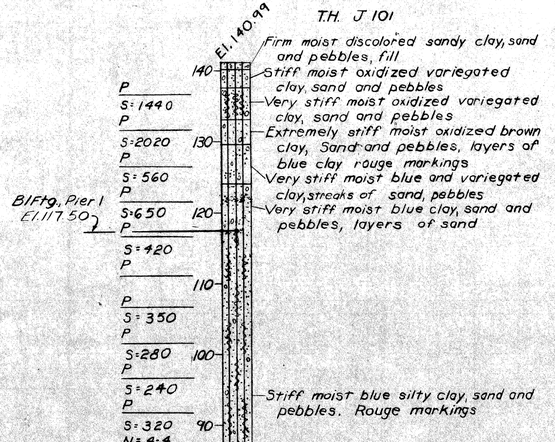
Scale 1" = 40'

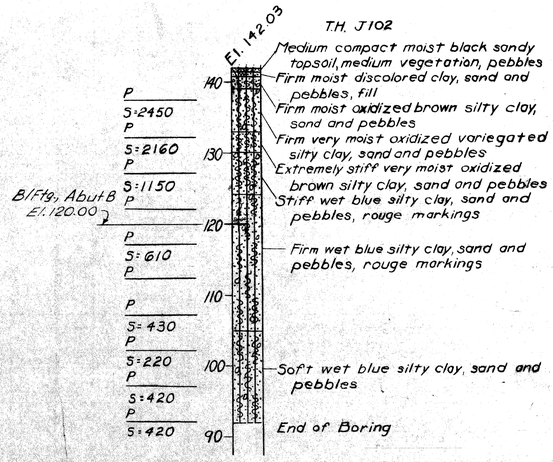
UTILITY LEGEND

- Sewer Manhole
- Sewer Inlet or Catch Basin
- Test Hole for Soil Profile
- Tree
- —x— Fence

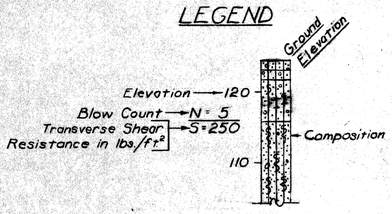
LOG OF SOIL BORINGS

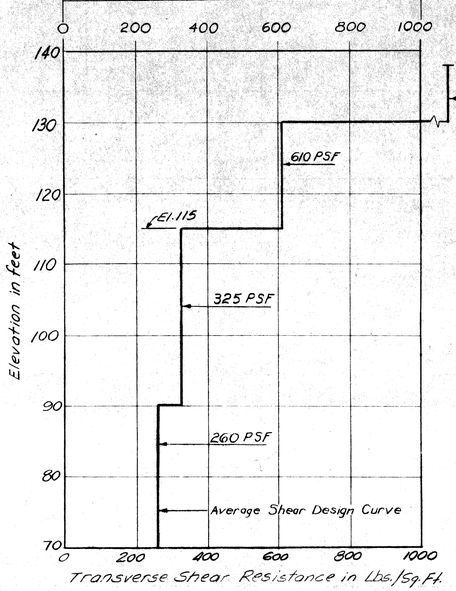






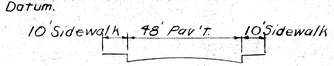
LEGEND





NOTES

N Indicates number of blows to drive a sampler 6" (or as noted) using a 140# hammer falling 30".
S Indicates Transverse Shearing Resistance in lbs./ft.² as determined by M.S.H.D. Standard Test.
P Indicates sampler was pushed.
Soil Boring Elevations are based on City of Detroit Datum.



APPROACH ROAD SECTION

GENERAL NOTES:

The work covered by these plans includes construction of the proposed bridge and placing slope protection to the limits shown. All other work is included in the Road Plans which are a part of this contract.

Removal of fences and buildings is not part of this contract.

The contractor shall locate all active underground utilities prior to starting work, and shall conduct his operations in such a manner as to insure that those utilities not requiring relocation will not be disturbed.

Datum refers to City of Detroit datum.

Topography shown here on represents conditions existing at the time the field survey was made. However, these conditions may have been materially altered by the operations of others before the work has been started.

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

APPROVED _____ STRUCTURAL ENGINEER

JOB No. PW 9901

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

GENERAL PLAN OF SITE

CITY OF DETROIT

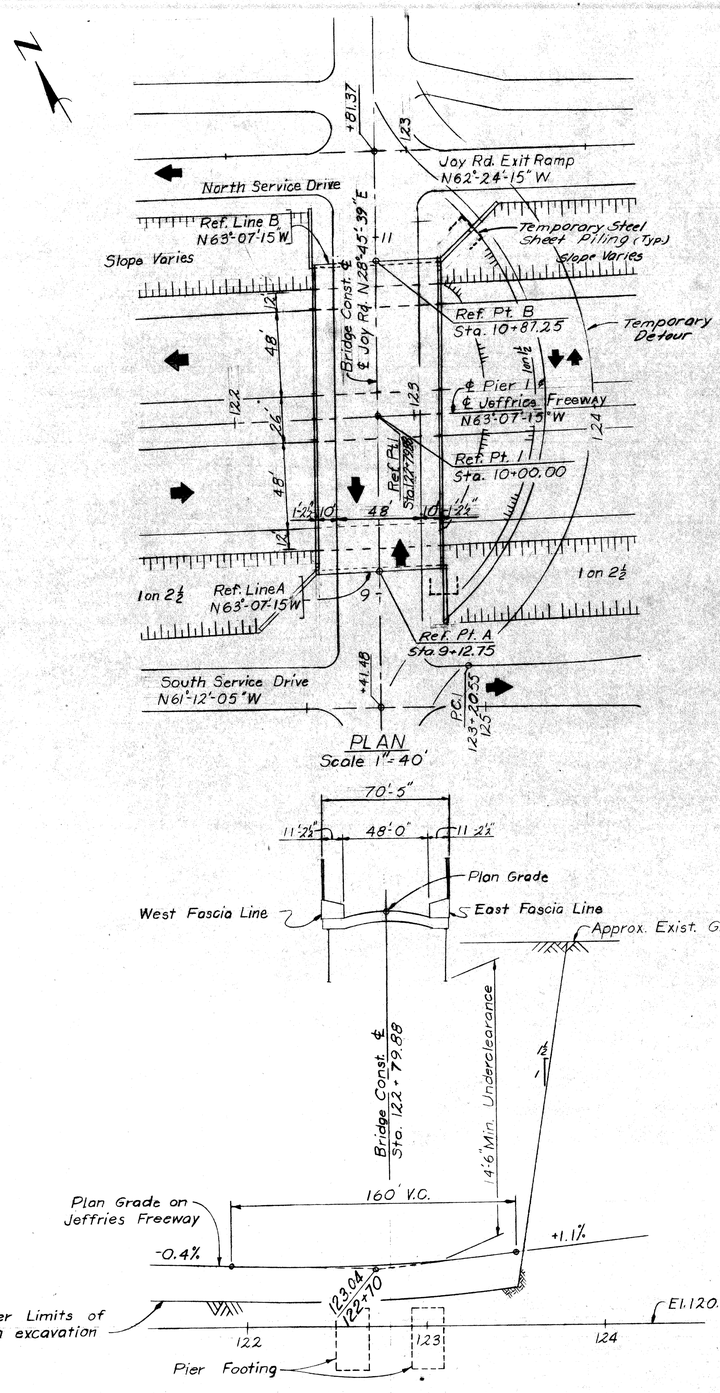
SQUAD BOSS	Jenkins	4-60
DRAWN BY	HERRING	3-60
TRACED BY		
CHECKED BY	I.H.K.	4-60

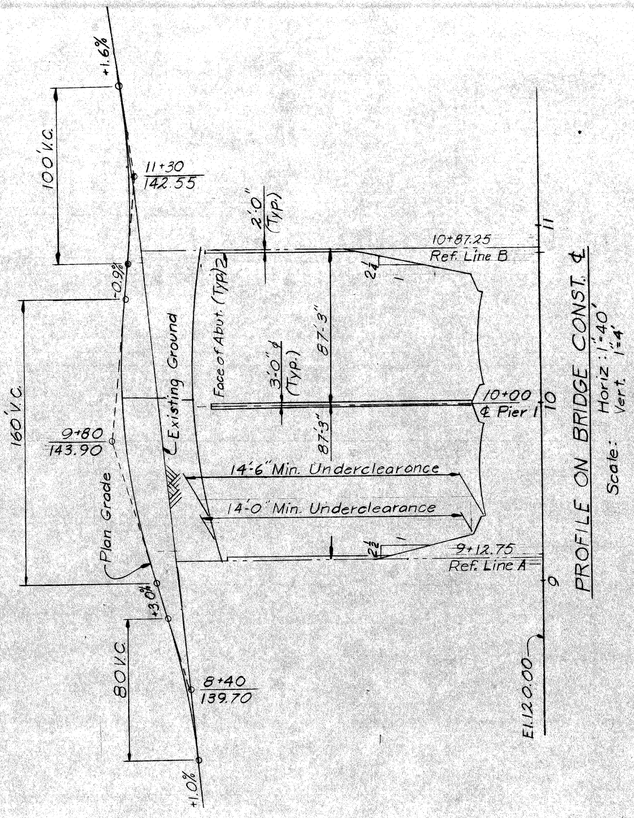
SHEET 2 OF 21

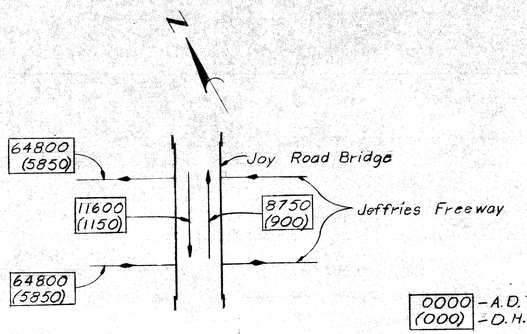
APPROVED _____ DESIGN SUPERVISING ENGINEER

APPROVED _____ DESIGN ENGINEER

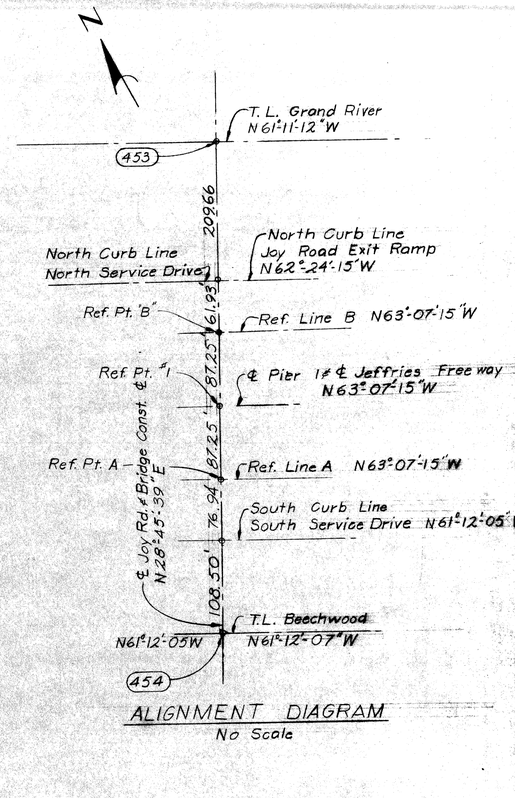
S33 of 82123I







TRAFFIC COUNT
Estimated Traffic 1990



ALIGNMENT DIAGRAM
No Scale

CONSTRUCTION BENCH MARKS

C.B.M. 118 Arrow on hydrant N.W. corner of Beechwood and Daily. El. 146.28.

C.B.M. 119 Arrow on hydrant S.W. corner of Grand River and Joy. El. 148.09.

C.B.M. 121 Arrow on hydrant N.E. corner of Beechwood and Whitfield. El. 146.53.

NOTES:

C.B.M. Denotes construction bench mark.

o Denotes Reference point or point of intersection.

(00) Denotes Survey Traverse Point.

Elevations are referred to City of Detroit Datum, which is 479.755 ft. above sea level.

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(41)

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

GENERAL DRAWING

CITY OF DETROIT

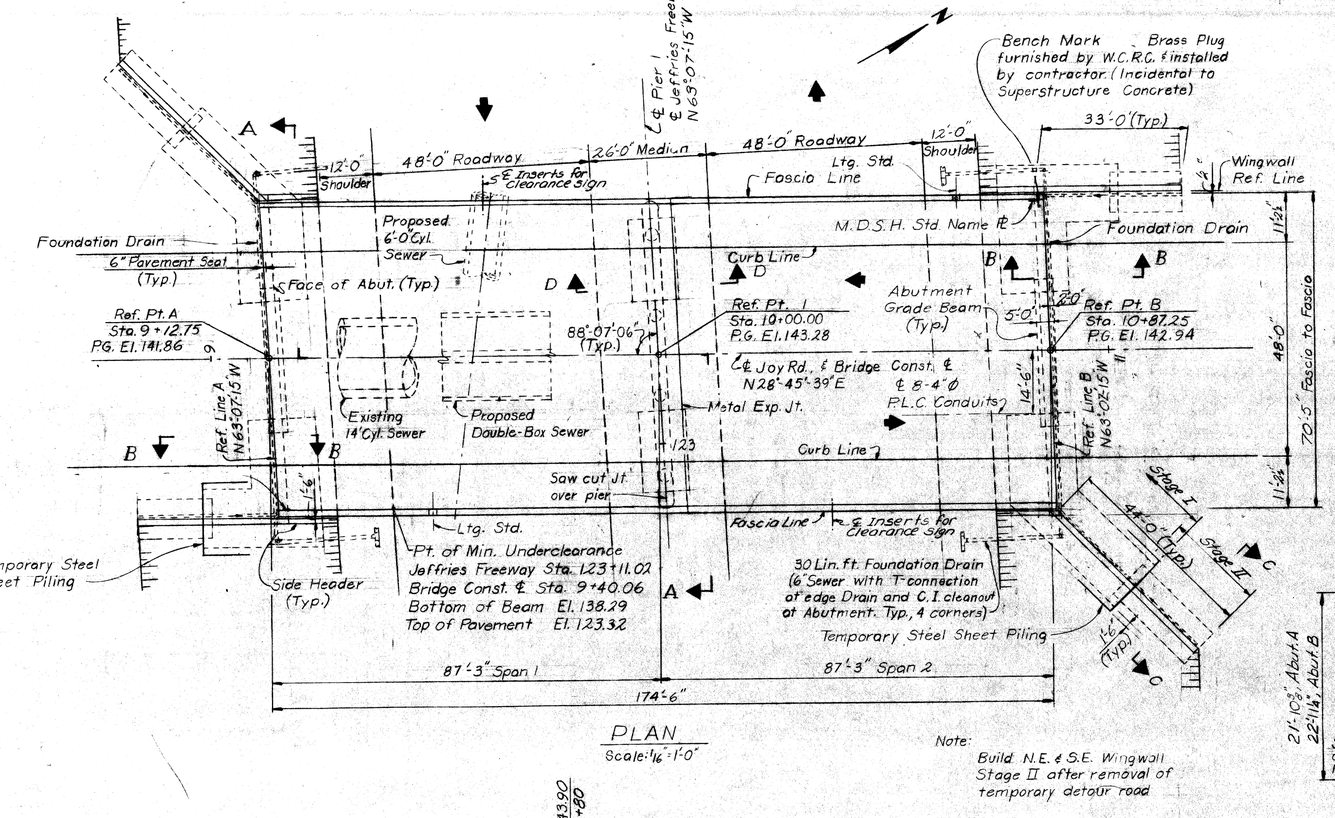
SQUAD BOSS	Straub	4-68
DRAWN BY	L.G.	2-68
TRACED BY	—	—
CHECKED BY	T.M.K.	4-68

SHEET 3 OF 21

APPROVED _____ DESIGN SUPERVISING ENGINEER

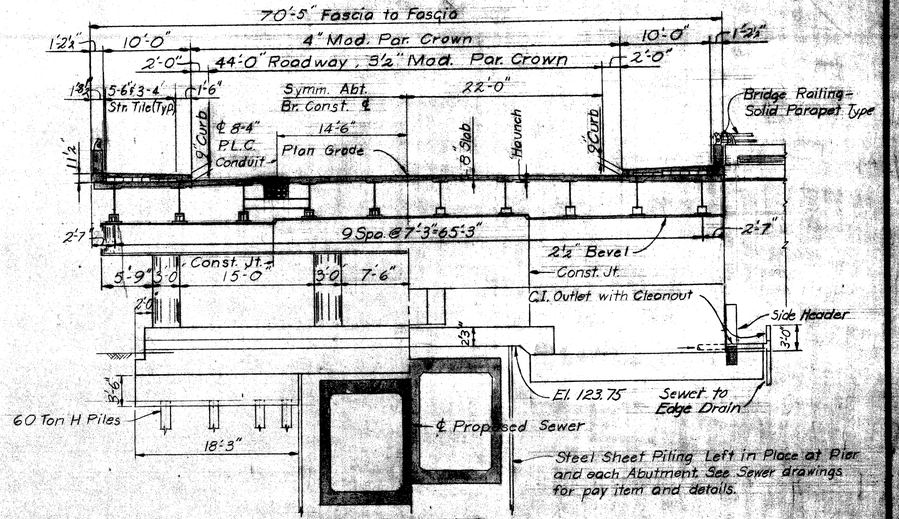
APPROVED _____ DESIGN ENGINEER

S33 of 82123I

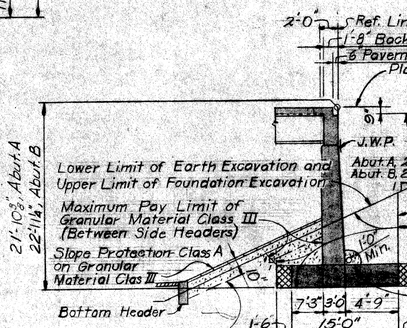


PLAN
Scale: 1/16" = 1'-0"

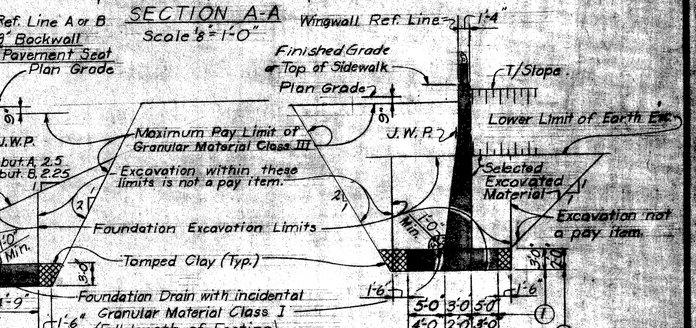
Note:
Build N.E. & S.E. Wingwall Stage II after removal of temporary detour road



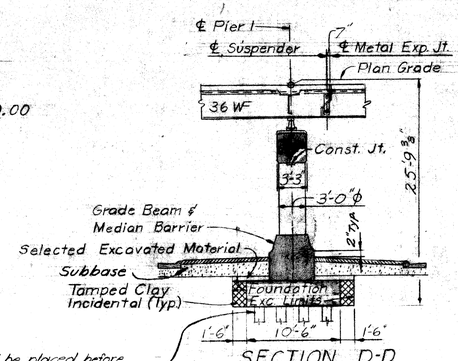
SECTION A-A
Scale 1/8" = 1'-0"



SECTION B-B

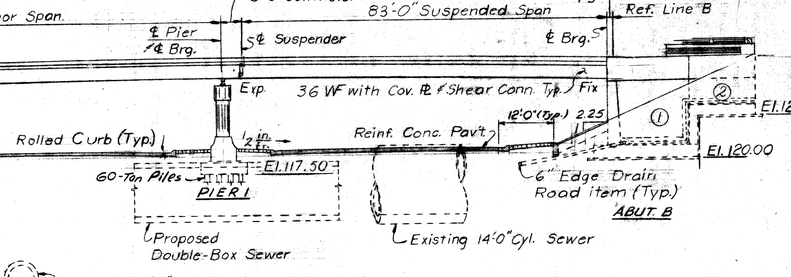


SECTION C-C

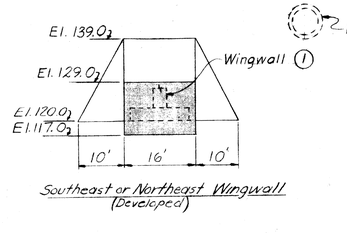


SECTION D-D
Scale: 1/8" = 1'-0"

All piles shall be placed before the double box sewer is constructed and shall be prebored 8" Diam. to ten feet below the invert of the existing sewer.



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



Southeast or Northeast Wingwall (Developed)

Note
At time of removal, leave shaded portion after cutting at El. 129.0 (Part of pay quantity, Sh. 9). Remainder is Temporary Steel Sheet Piling.

SHEET PILING PAY LIMITS

MISCELLANEOUS QUANTITIES

Item	Unit	Amount		
		Abut A	Abut B	Total
Temporary Steel Sheet Piling	Sq. Ft.	350	350	700
Foundation Drains	Lin. Ft.	60	60	120
Slope Protection - Class A	Sq. Yds.	96	97	193
Slope Protection Headers	Lin. Ft.	98	98	196

GENERAL NOTES

The design of this Structure is based on the M.S.H.D Specifications for the Design of Highway Bridges, 1958 Edition and current AASHO Standard Specifications for Highway Bridges H S20-44 loading.
Live load plus impact deflection = 1/1000 of Span Length and 1/375 of Cantilever Arm.
Top of roadway slab and tops of curbs are parallel to the vertical curve.
Tamped Clay is incidental to unclassified excavation.
For details of Slope Protection Class A, see Standard Sheet SP2.
Granular Material Class I incidental to Foundation Drain.
Granular Material Class III is billed on Road Plans.
Estimated Amount is 1850 cu. yds. Abutments.
70 cu. yds. Slope Protection.
P.G. El. Denotes Plan Grade Elevation.
N.E. Wingwall Stage II shall be constructed after removal of temporary detour road.
Temporary steel sheet piling shall be of the continuous interlock type, either new or used, in good condition, weighing not less than 22 pounds per square foot 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.

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

APPROVED H. Conrad STRUCTURAL ENGINEER

JOB No. PW 990(4)

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

GENERAL PLAN OF STRUCTURE

CITY OF DETROIT

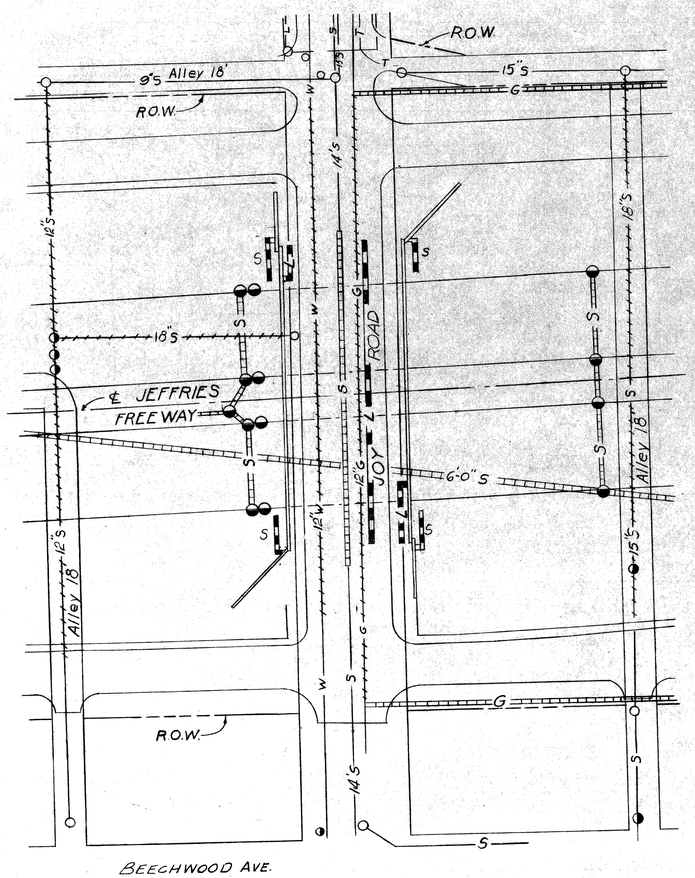
SQUAD BOSS	Strauss	4-62	
DRAWN BY	A.G.	7-62	
TRACED BY	—	—	
CHECKED BY	T.H.K.	4-62	

SHEET 4 OF 81

APPROVED _____ DESIGN SUPERVISING ENGINEER

APPROVED _____ DESIGN ENGINEER

S33 of 82123I



SITUATION PLAN
Scale 1"= 40'

LEGEND

UTILITY	EXISTING	DELETE OR ABANDONED	NEW WORK BY OTHERS	NEW WORK BY CONTRACTOR
DETROIT WATER DEPARTMENT	W			
FREEWAY & CITY OF DETROIT SEWERS	S	S	S	S
MICHIGAN CONSOLIDATED GAS CO.	G		G	
MICHIGAN BELL TELEPHONE CO.	T			
PUBLIC LIGHTING COMMISSION	L			L
DETROIT EDISON COMPANY	E			

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

APPROVED _____ STRUCTURAL ENGINEER

JOB NO.
PW 990141

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

EXISTING UTILITIES AND PROPOSED ALTERATIONS

REVISIONS

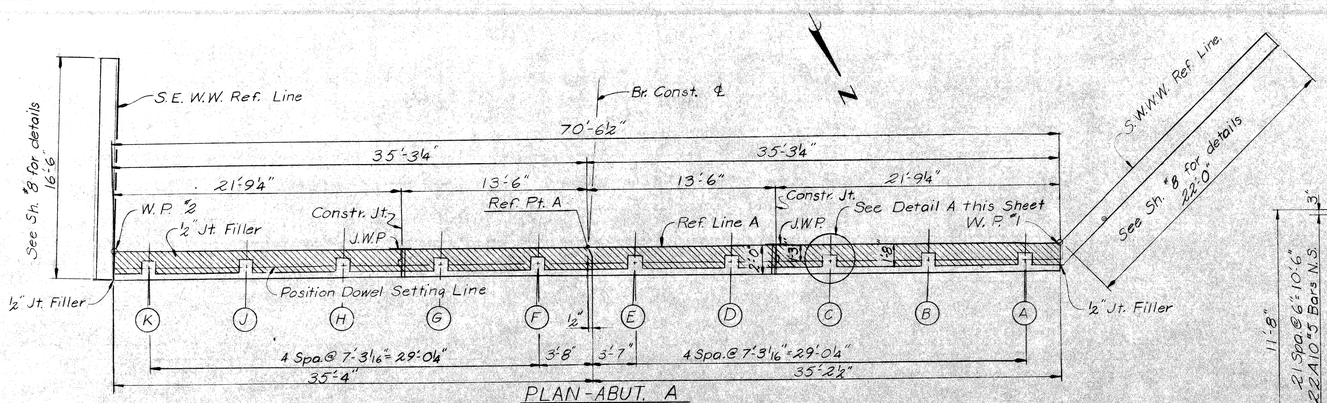
NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT

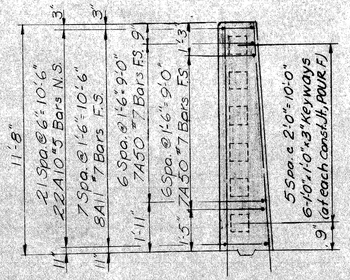
SQUAD BOSS	SOLEM	1-68
DRAWN BY	HOPKINS	3-68
TRACED BY	—	—
CHECKED BY	I.H.K.	4-68

SHEET 5 OF 21

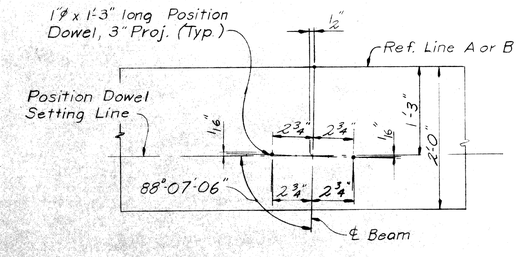
S33 of 82123I



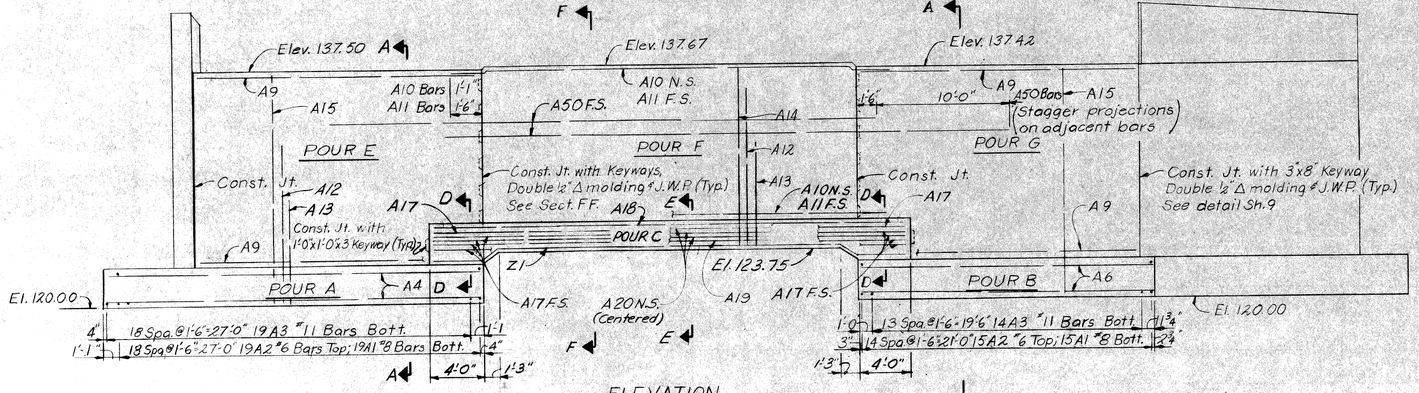
PLAN - ABUT. A



SECTION F-F



DETAIL A



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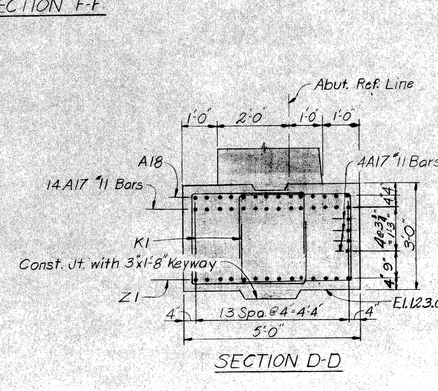

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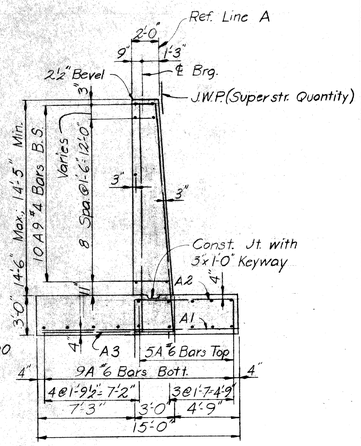

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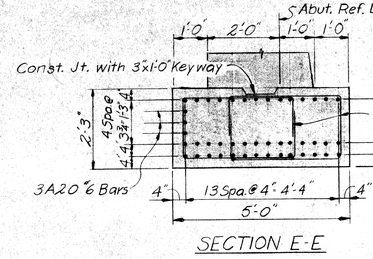

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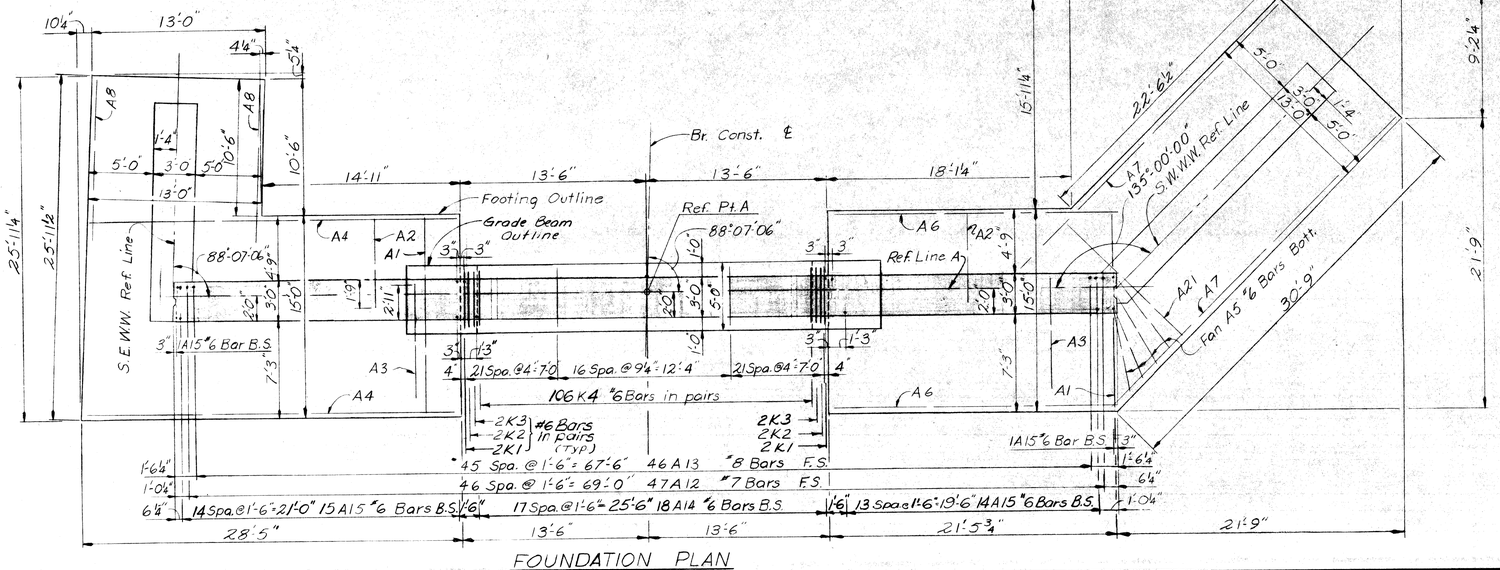


FOUNDATION PLAN

Work Sheets 6-9 together

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

APPROVED _____ STRUCTURAL ENGINEER

JOB No. PW 99014

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

ABUTMENT A DETAILS

REVISIONS

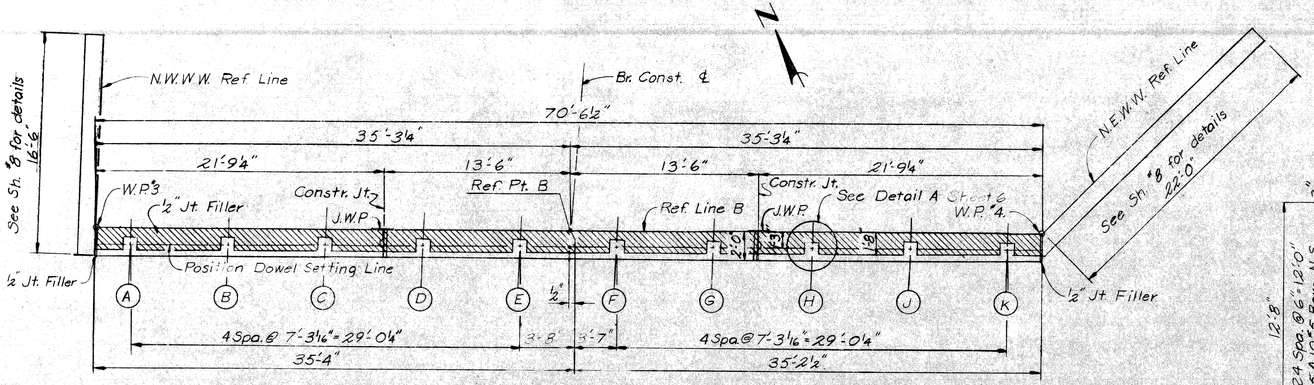
NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT

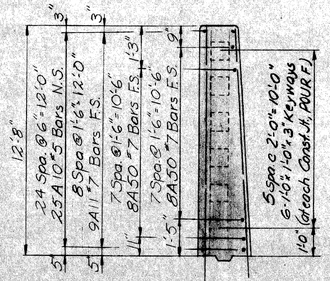
SQUAD BOSS	STURM	5-68
DRAWN BY	K.V.H.	9-68
TRACED BY	L.G.	9-68
CHECKED BY	J.H.K.	12-68

SHEET 6 OF 21

S33 of 821231



PLAN ABUT. B



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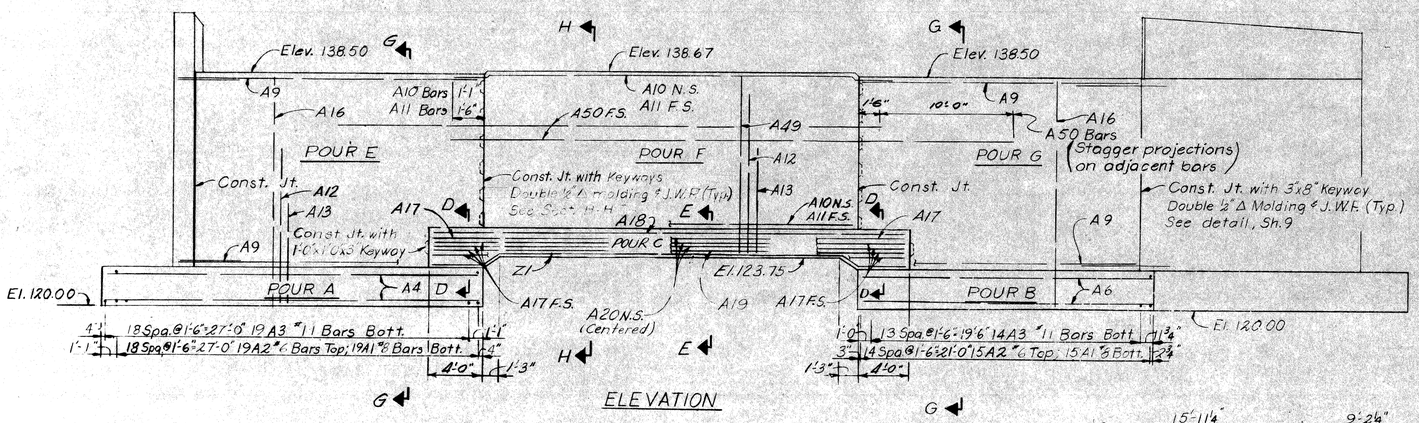

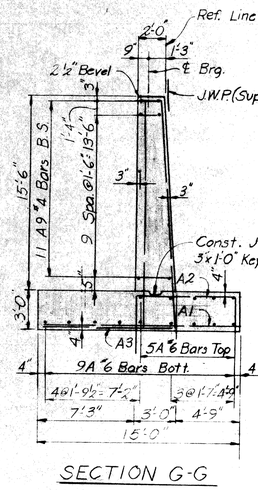

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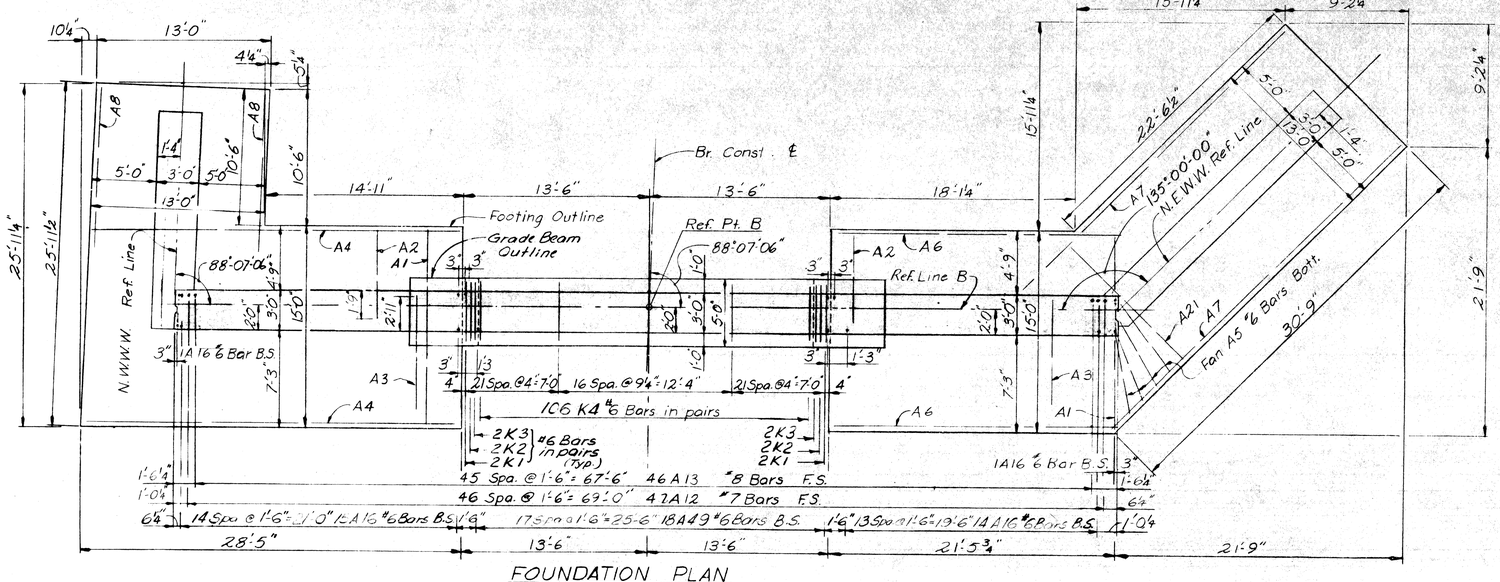

FOUNDATION PLAN

Work Sheets 6-9 together

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

APPROVED _____ STRUCTURAL ENGINEER

JOB NO. PW 99014

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

ABUTMENT B DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT		
SQUAD BOSS	STURM	5-68
DRAWN BY	K.V.H.	5-68
TRACED BY	L.G.	5-68
CHECKED BY	I.H.K.	12-68
SHEET	7 OF 21	

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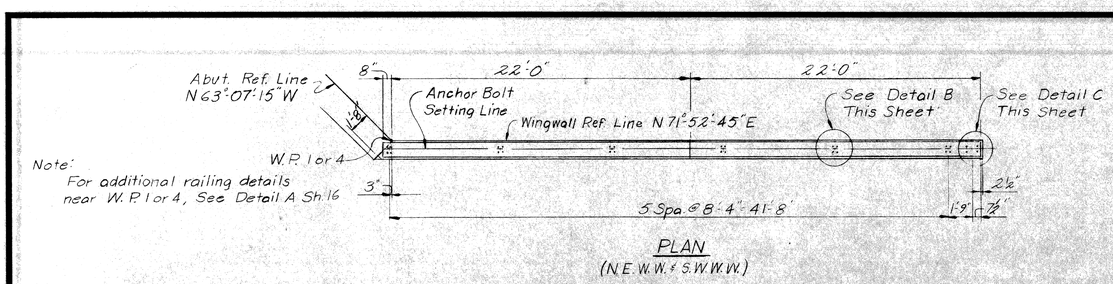
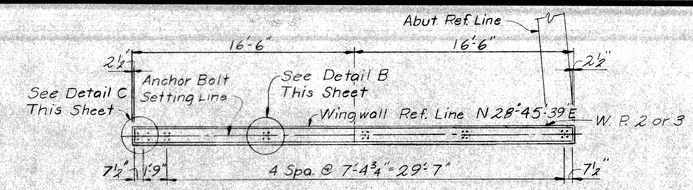
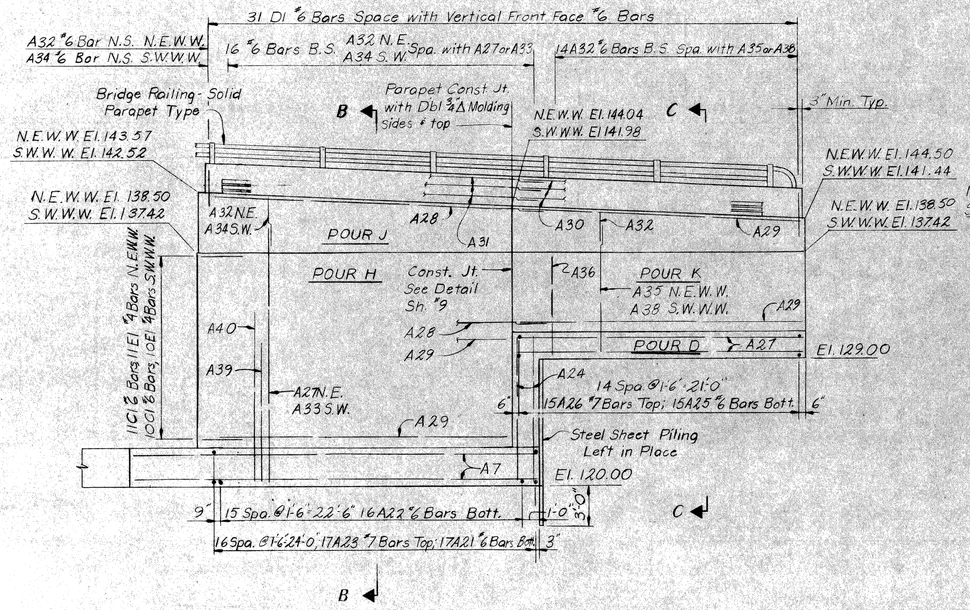


Note:
For additional railing details
near W.P. 1 or 4, See Detail A Sh. 16

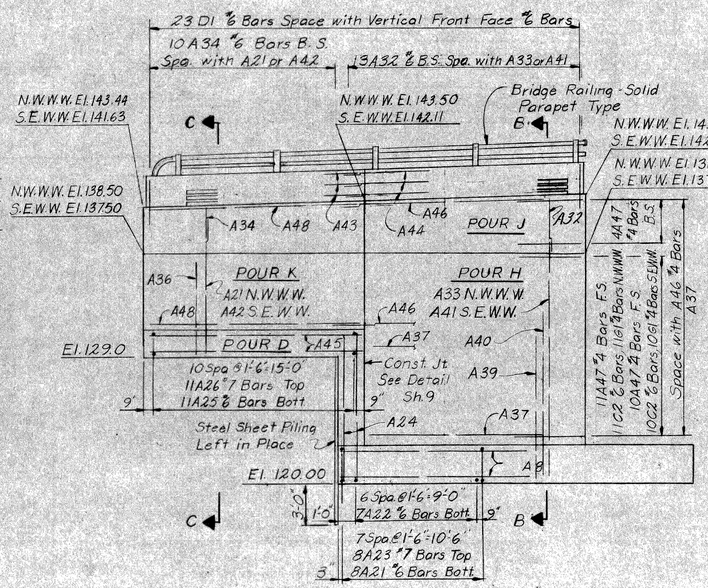
PLAN
(N.E.W.W. & S.W.W.W.)



PLAN
(N.W.W.W. & S.E.W.W.)



ELEVATION
N.E.W.W. & S.W.W.W.



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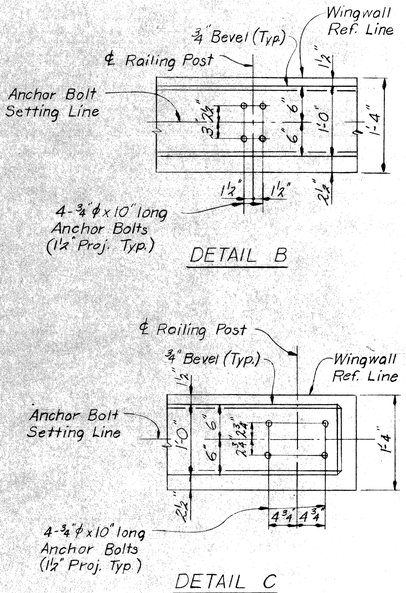
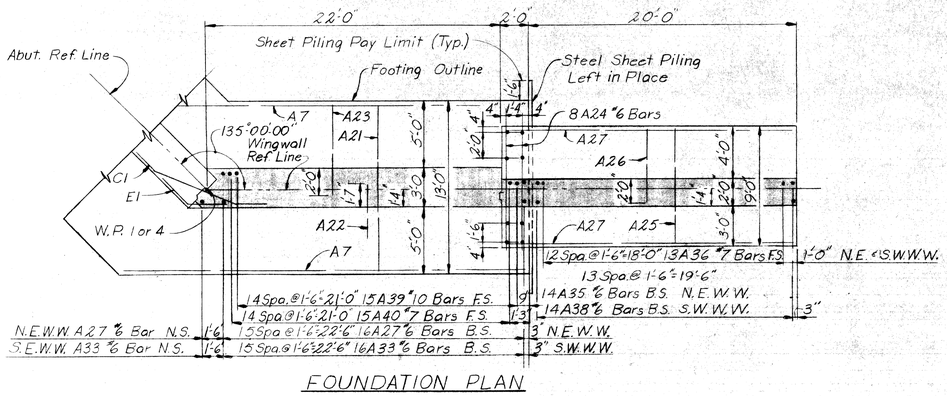
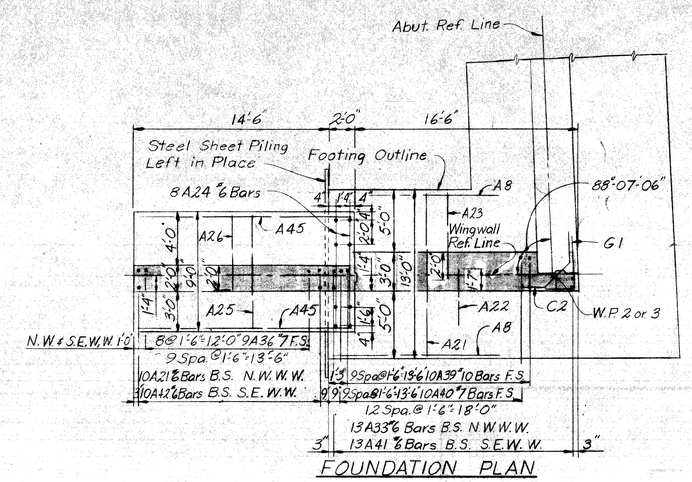


DETAIL B

DETAIL C



FOUNDATION PLAN



FOUNDATION PLAN

Work Sheets 6-9 together

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(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

WINGWALL DETAILS

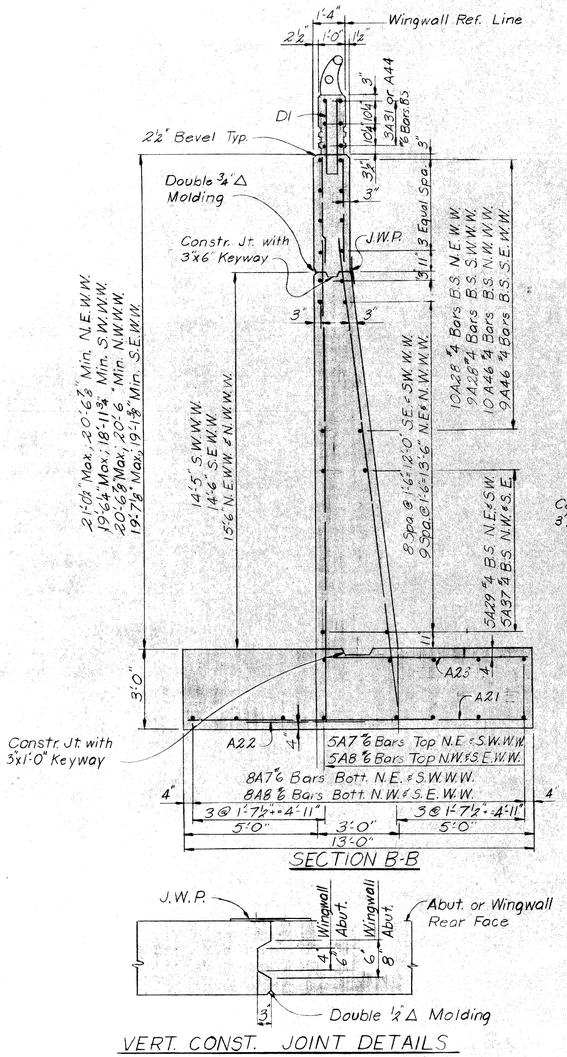
CITY OF DETROIT

SQUAD BOSS	STUMM	5-68
DRAWN BY	K.V.N.	9-68
TRACED BY	L.G.	9-68
CHECKED BY	I.H.K.	12-68
SHEET 8 OF 21		

REVISIONS

NO.	DESCRIPTION	DATE	BY

S33 of 821231

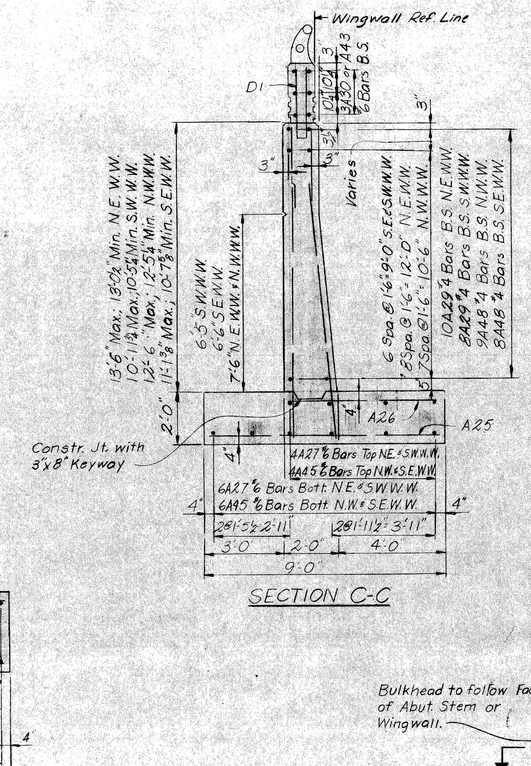


SECTION B-B

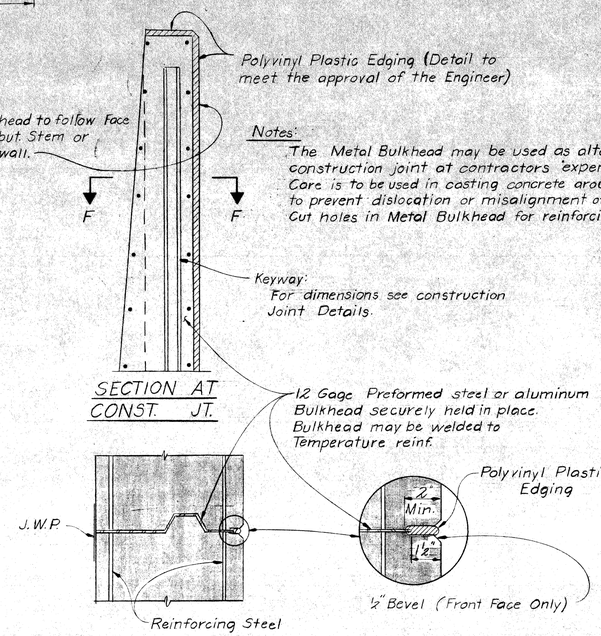
VERT. CONST. JOINT DETAILS

Note:
Stop all keyways 1'-0" below top of Wingwalls.

Note:
For details not shown see Section B-B



SECTION C-C



SECTION AT CONST. JT.

SECTION F-F

ALTERNATE - METAL BULKHEAD FOR CONSTRUCTION JOINTS

Notes:
The Metal Bulkhead may be used as alternate construction joint at contractors expense.
Care is to be used in casting concrete around Bulkhead to prevent dislocation or misalignment of the Bulkhead.
Cut holes in Metal Bulkhead for reinforcing steel.

MISCELLANEOUS QUANTITIES

Item	Unit	Amount		
		Abut. A	Abut. B	Total
Unclassified Excavation	Cu. Yds.	721	837	1558
Steel Sheet Piling (L. I. P.)	Sq. Ft.	384	384	768
Clear Protective Coating for Substructure Concrete	Sq. Yds.	107	115	222
Low Temp. Protection - Substr. Conc.	Cu. Yds.	343	358	701
½" Joint Filler	Sq. Ft.	126	126	252
Joint Waterproofing	Sq. Ft.	170	180	350
Bridge Railing - Solid Parapet Type	Lin. Ft.	77	77	154
Foundation Drains*	Lin. Ft.	164	164	328

* Foundation Drains shall be perforated pipe, sloped ⅛"/ft. min., continuous over the length of the Abutment and Wingwall Footings, and placed as shown on the General Plan of Structure.

CONCRETE QUANTITIES (Cu. Yds.)

Pour	Location	Abutment A		Abutment B	
		A(6A)	A(6AA)	A(6A)	A(6AA)
A	Footing	62.5	–	62.5	–
B	Footing	71.5	–	71.5	–
C	Grade Beam	15.9	–	15.9	–
D	Footing (S.W. & N.E. W.W.)	18.7	–	18.7	–
D	Footing (S.E. & N.W. W.W.)	15.0	–	15.0	–
E	Abut. Wall	–	28.0	–	30.0
F	Abut. Wall	–	29.2	–	31.7
G	Abut. Wall	–	27.7	–	29.9
H	Wingwall (S.W. & N.E.)	–	25.5	–	27.4
H	Wingwall (S.E. & N.W.)	–	16.3	–	17.4
J	Wingwall (S.W. & N.E.)	–	5.3	–	5.8
J	Wingwall (S.E. & N.W.)	–	3.9	–	4.1
K	Wingwall (S.W. & N.E.)	–	13.4	–	16.6
K	Wingwall (S.E. & N.W.)	–	10.2	–	11.7
	Total	183.6	159.5	183.6	174.6
Grade A(6A) Concrete - Substructure 367.2 Cu. Yds.					
Grade A(6AA) Concrete - Substructure 334.1 Cu. Yds.					

Parapet Concrete = 12.8 Cu. Yds. Grade A(6AA)
Part of Bridge Railing-Solid Parapet Type, and not a pay item.

GENERAL NOTES:

J.W.P. denotes Joint Waterproofing; N.S. denotes Near Side; F.S. denotes Far Side, B.S. denotes Both Sides.

Position Dowels shall be set accurately to a template and are to be furnished with Structural Steel.

Footing concrete quantities are computed on the basis of an outline 3½" outside of the footing where the concrete is poured against Steel Sheet Piling Left in Place. No additional allowance will be made in concrete or excavation quantities regardless of the steel sheet piling used.

Steel sheet piling left in place shall be of the continuous interlock type, either new or used, in good condition, weighing not less than 22 pounds per square foot 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.

Steel Sheet Piling Left in place shall be driven to its final Penetration before adjacent concrete is poured.

If it is necessary to lower the top of sheeting after the concrete has been poured, the excess shall be removed by cutting.

Adjust the spacing of the reinforcing steel as required to permit placing of foundation drains.

Maximum average foundation pressure D. L. only = 2900 P.S.F.

Maximum foundation pressure D.L. + L.L. = 4000 P.S.F.

For Bevel and Molding Details see Std. Sh. R16.

Bridge Railing is to be aluminum tubular railing on solid concrete parapet.

For Railing Details (except as noted) See Std. Sh. R16.

The bridge seat and front face of each abutment above top of footing or grade beam between wingwall returns shall be given an application of Clear Protective Coating for Substructure Concrete.

Work Sheets 6-9 together

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

APPROVED _____ STRUCTURAL ENGINEER

JOB No. PW 99041

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY IN DETROIT

ABUTMENT DETAILS

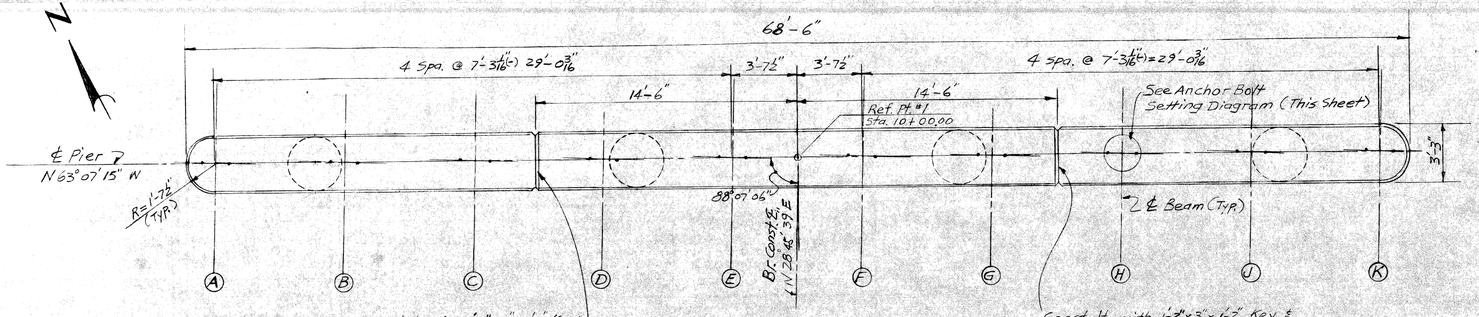
CITY OF DETROIT

SQUAD BOSS	STURM	5-68
DRAWN BY	K.V.H.	9-68
TRACED BY	L.G.	9-68
CHECKED BY	I.H.K.	12-68
SHEET 9 OF 21		

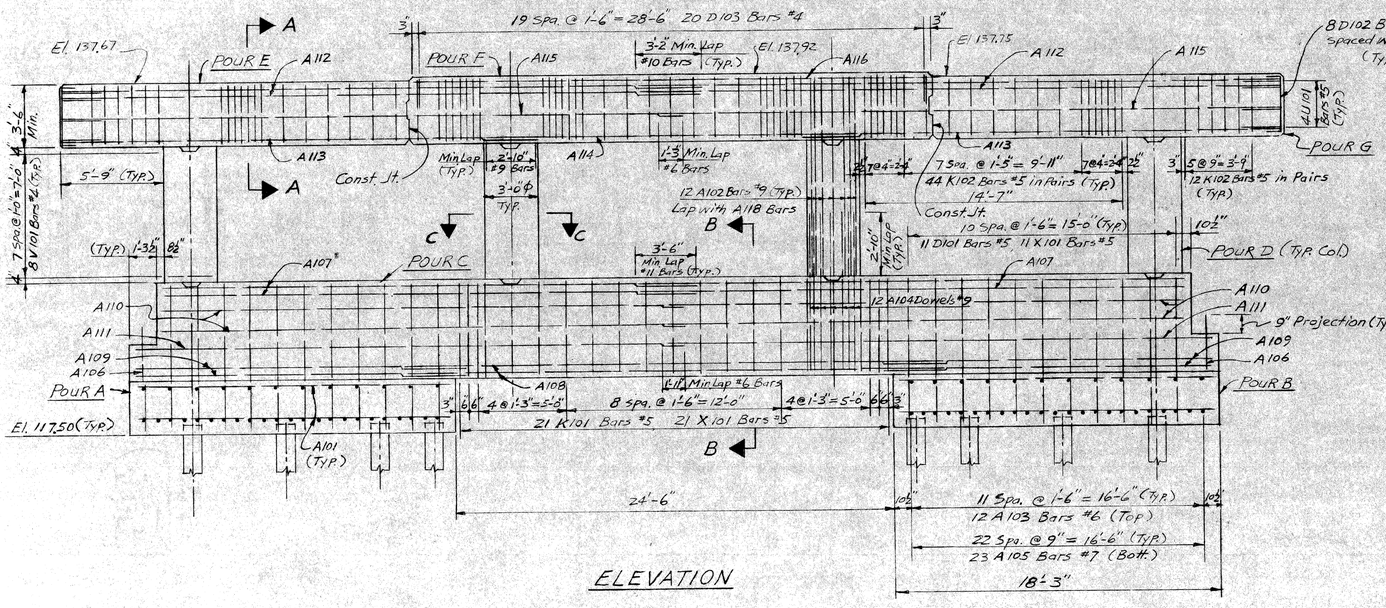
REVISIONS

NO.	DESCRIPTION	DATE	BY

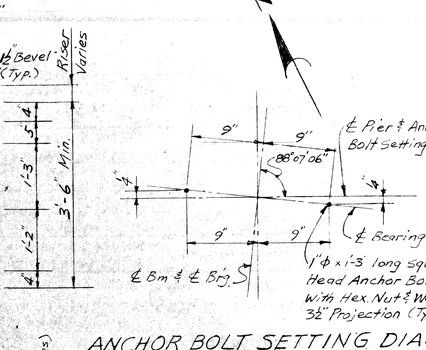
S33 of 82123I



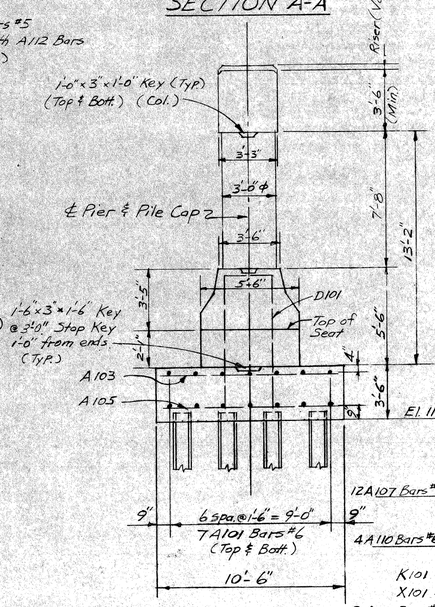
TOP PLAN



ELEVATION

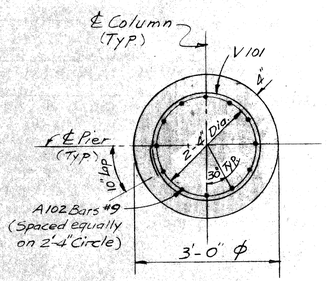


SECTION A-A

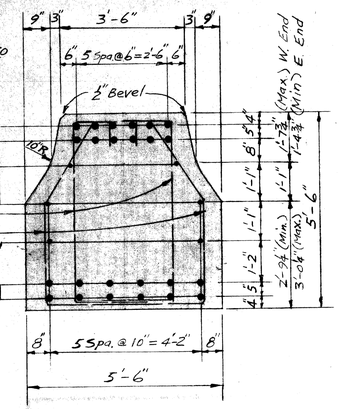


END ELEVATION

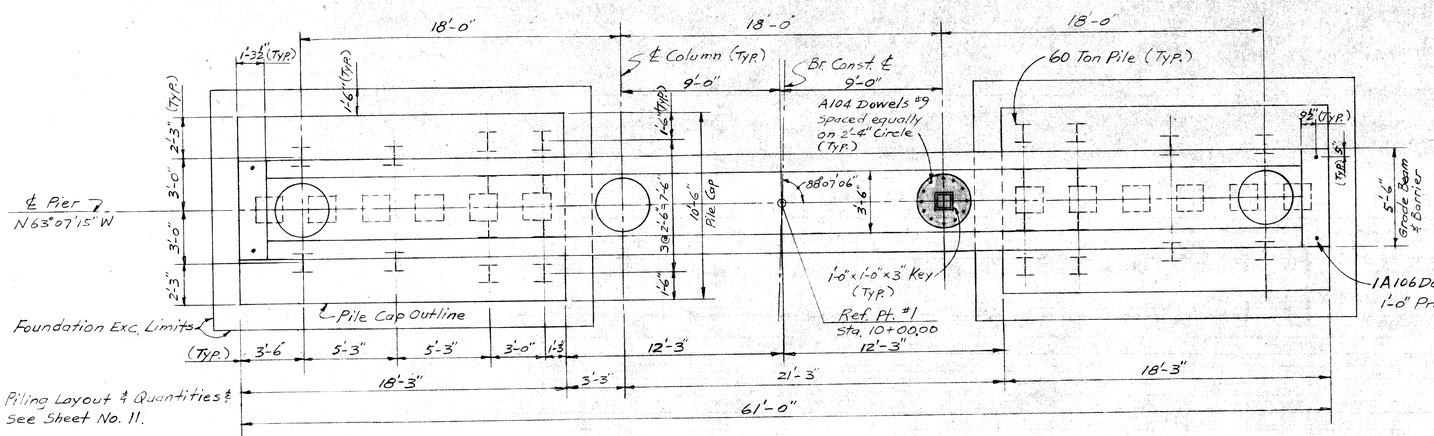
ANCHOR BOLT SETTING DIAG.



SECTION C-C



SECTION B-B



FOOTING PLAN

Note: For Piling Layout & Quantities & Notes, See Sheet No. 11.

GENERAL NOTES:

For Molding and Bevel Details, see M.D.S.H. Std. Dwg's R16.

Anchor Bolts are to be set accurately to a template.

Rockers and Anchor Bolts are furnished with Structural Steel.

The Project Engineer shall adjust the spacing of the reinforcing steel as required to permit placing of Anchor Bolts.

B.S. denotes Both Sides.

The complete exposed surface of the pier concrete above top of footing shall be given an application of Clear Protective Coating for Substructure Concrete.

Work this Sheet with Sheet No. 11

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

APPROVED [signature] STRUCTURAL ENGINEER

JOB No.

DW DONAL

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY IN DETROIT

PIER DETAILS

CITY OF DETROIT

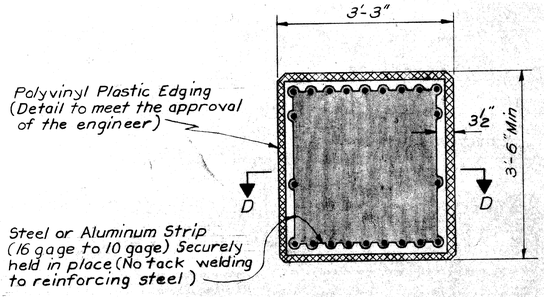
SQUAD BOSS	STURM	5-68
DRAWN BY	J.H.K	9-68
TRACED BY	—	—
CHECKED BY	J.A.B	12-68

SHEET 10 OF 21

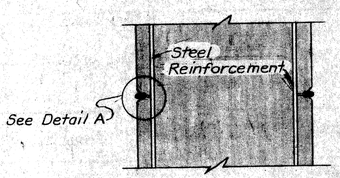
REVISIONS

NO.	DESCRIPTION	DATE	BY

82331



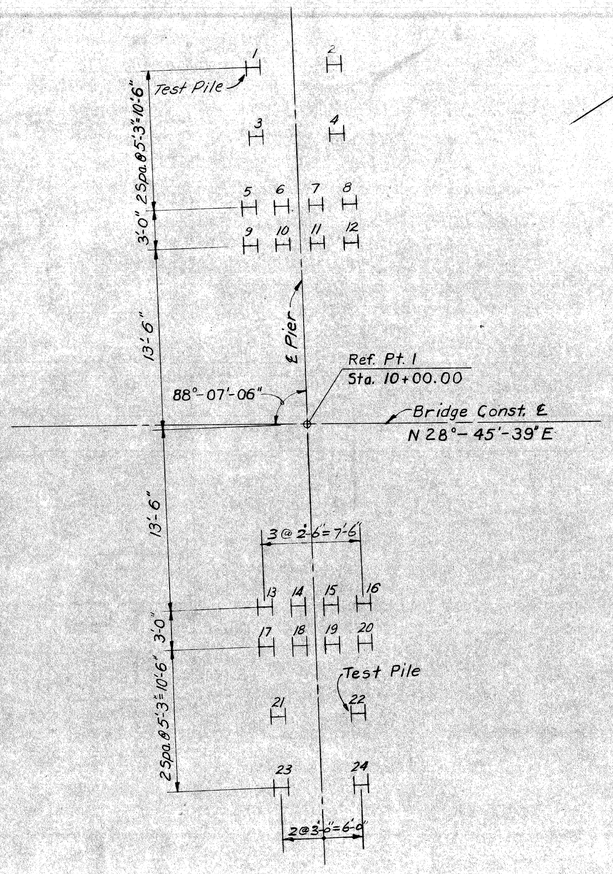
SECTION THRU. PIER CAP



SECTION D-D

CONCRETE QUANTITIES (Cu. Yds)			
POUR	LOCATION	A(6A)	A(6AA)
A	Pile Cap	24.8	—
B	Pile Cap	24.8	—
C	Grade Beam	—	59.2
D	Columns	—	8.0
E	Pier Cap	—	8.2
F	Pier Cap	—	13.1
G	Pier Cap	—	8.4
Grade A(6A) Concrete - Substructure			49.6 Cu. Yds
Grade A(6AA) Concrete - Substructure			96.9 Cu. Yds

MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMOUNT
Unclassified Excavation	Cu. Yds.	103
Clear Protective Coating for Substructure Concrete	Cu. Yds.	23.5
Low Temp. Protection - Substructure	Cu. Yds.	14.7



PILING PLAN

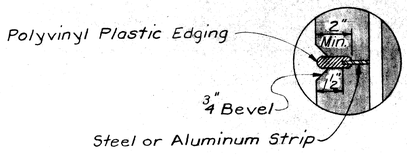
PILE QUANTITIES		
ITEM	UNIT	AMOUNT
Steel Piles - Furnished and Driven	Lin. Ft.	2180
Splices - Steel Piles (12 in)	Each	52
Steel Test Piles (12 in)	Each	2
Furnishing Equipment for Driving Piles	Lump Sum	—

NOTES:

Estimated length of each pile - furnished and driven = 90 Ft.
Estimated length of each test pile = 100 Ft.

GENERAL NOTES:

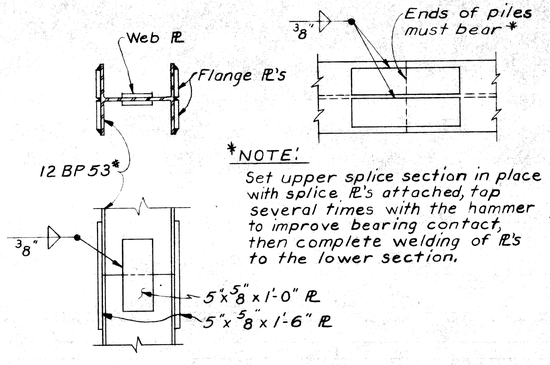
All piles shall be driven to a minimum bearing capacity of 60 Tons.
Steel Shell Piles shall not be used.
Piles shall be steel 12" H Section weighing not less than 53 Lbs. per Foot.
Butt - welded splices as described in the Supplement Specifications will be permitted as an alternate for the splices shown.
Splices for test pile are incidental to test pile.
All piles placed after the double box sewer construction shall be prebored 8' diameter to within the last 10 feet of final penetration.
Bridge Contractor shall be responsible for protecting new Box Sewer against damage during construction of Joy Road Bridge.



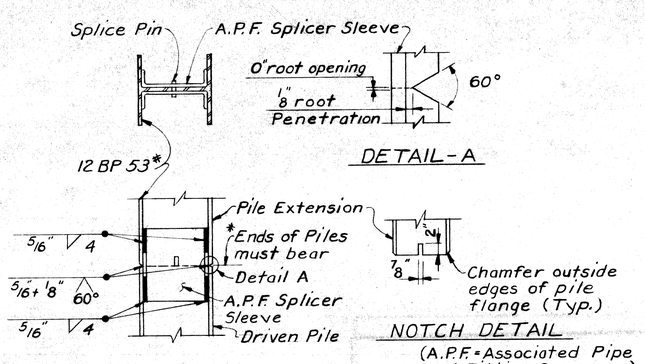
DETAIL A

NOTES:

Partial metal bulkhead may be used as alternate construction joint at contractor's expense.
Care is to be used in casting concrete around to prevent dislocation or misalignment of the bulkhead.
Notch metal strip to fit around reinforcing steel.

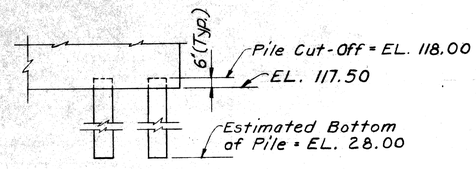


SPLICE DETAILS



NOTCH DETAIL
(A.P.F. = Associated Pipe and Fitting Company)

ALTERNATE SPLICE DETAILS



PILE CUT-OFF DETAIL

Work this sheet with Sheet No. 10

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

APPROVED _____ STRUCTURAL ENGINEER

JOB No. PW 9901(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

PIER DETAILS

CITY OF DETROIT

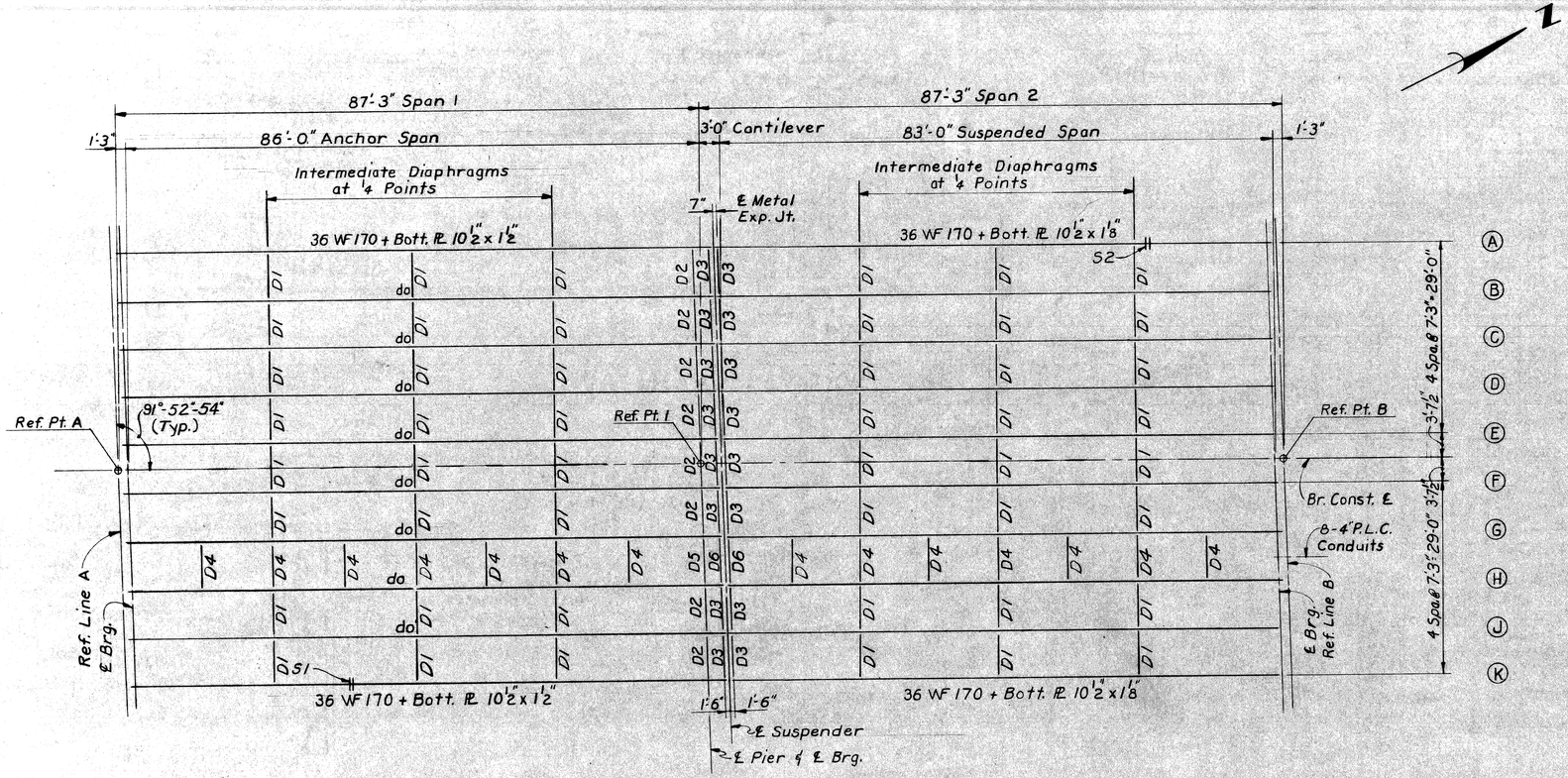
SQUAD BOSS	STURM	3-68
DRAWN BY	I.H.K.	3-68
TRACED BY	Jones	3-68
CHECKED BY	T.A.B.	12-68

SHEET 11 OF 21

REVISIONS

NO.	DESCRIPTION	DATE	BY

S33 of 82123I



ERECTION DIAGRAM

STRUCTURAL STEEL NOTES

Design: Michigan State Highway Department Specifications for Design of Highway Bridges - 1958 edition and current AASHO Standard Specifications for Highway Bridges, HS 20 Loading.

Fabrication: Michigan Department of State Highways Standard Specifications for Road and Bridge Construction - 1967 edition.

Camber: Camber shall be measured with the Beam lying on its side. Camber tolerance is ± ¼. Heating shall be used if necessary to assure permanent camber within the above limits. Mid-Span dead load deflection of the steel beams alone is calculated to be 5/8".

Sole Plates: Sole plates 3" or more in thickness may be built up by welding together plates not less than 1½ in thickness. Edges must be beveled ¼ and welded with a continuous weld for the full perimeter. Welds shall be ground flush with faces of plates.

Shop Connections: Shop connections shall be welded as shown on the plans. All welding shall be in accordance with current specifications for structural welding.

Field Connections: Field connections shall be bolted with ¾" ϕ high-strength bolts except as noted.

Welding Inspection: Magnetic Particle Inspection of welds is required and shall consist of 100 % inspection of not less than one fabricated section selected at random from each ten sections or fraction thereof.

Anchor Bolts: Steel in anchor bolts may be ASTM A-307. Anchor bolts and position dowels including nuts and washers shall be galvanized in accordance with ASTM Designation A-153.

Bronze for washers shall be ASTM B-100, Alloy No. 510 or No. 635.

Material: All steel shall be unpainted A 588. All steel material used for bearings, with exception of portion welded to beams, shall be galvanized in accordance with ASTM Designation A-123. Galvanizing shall be applied after fabrication of bearing. Mill scale and foreign material shall be removed prior to galvanizing.

Beams: Beam dimensions are horizonal and along ℄ beam.

QUANTITIES

Structural Steel - Furnishing and Fabricating *	399,000 Lbs.
Structural Steel - Erection	399 000 Lbs.
Shear Developers	Lump Sum

* Includes weight of Metal Exp. Jt., Sh. 15 and P.L.C. Steel, Sh. 19 and consists of:

ASTM A-588 Steel -	398,800 Lbs.
Sheet Lead	140 Lbs.
Bronze	60 Lbs.

Work Sheets 12, 13, & 14 Together

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

APPROVED H H Court
STRUCTURAL ENGINEER

JOB No.
PW 990(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

STRUCTURAL STEEL DETAILS

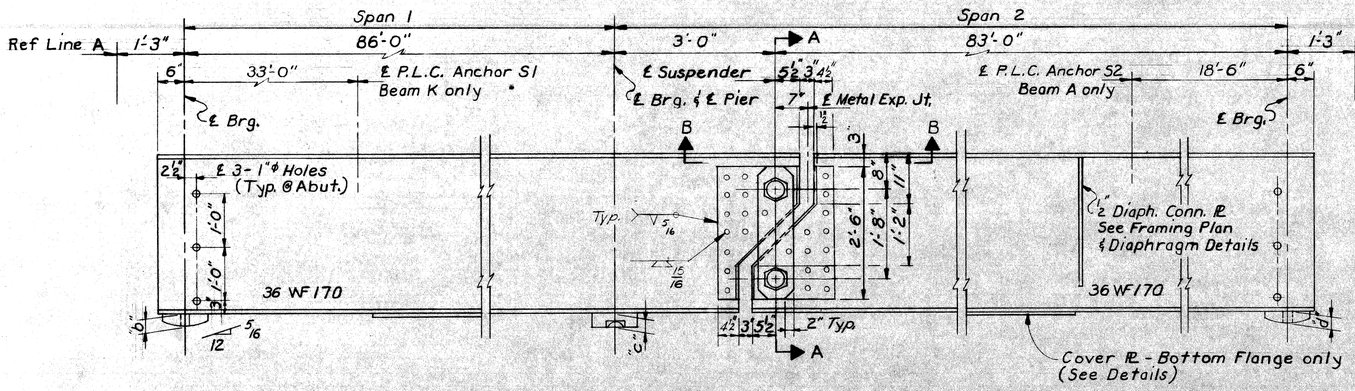
CITY OF DETROIT

REVISIONS

NO.	DESCRIPTION	DATE	BY

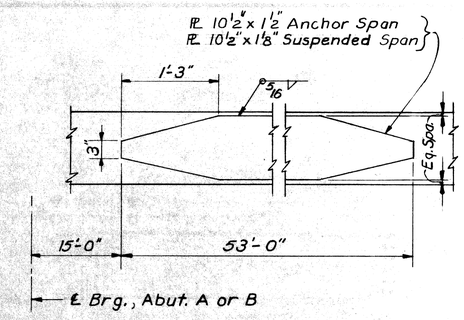
SQUAD BOSS	Sturm	3-68
DRAWN BY	J.N.S.	9-68
TRACED BY	Jones	9-68
CHECKED BY	T.A.B.	1-69
SHEET 12 OF 21		

S33 of 82123I

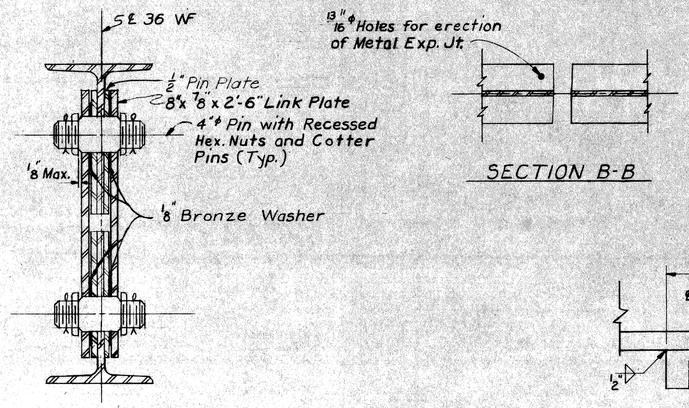


BEAM ELEVATION

SCHEDULE OF VARIABLE DIMENSIONS AND CAMBER (inches)										
Beam	"b"	"c"	"d"	"e"	"f"	"g"	"h"	"j"	"k"	"m"
A	2¼	3¾	2¼	4	5½	4	⅝	3⅜	4¾	3¾
B	2¼	3¾	2¼							
C	3¾	5¼	3½	4⅛	5¾	4⅛		3½	5	4
D	2¼	3½	3				¾			
E	3¼	4½	4							
F	3½	4½	4							
G	2½	3¾	3	4½	6⅛	4½		3⅞	5½	4⅜
H	3¼	4¼	3¾							
J	2	3	2¼	4⅛	5¾	4⅛		3½	5	4
K	2	3	2¼	4	5½	4	⅝	3⅜	4¾	3¾

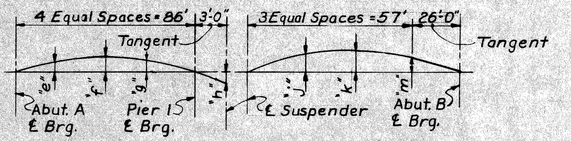


COVER PLATE DETAILS



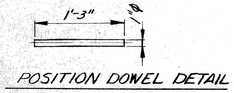
SECTION A-A

SECTION B-B



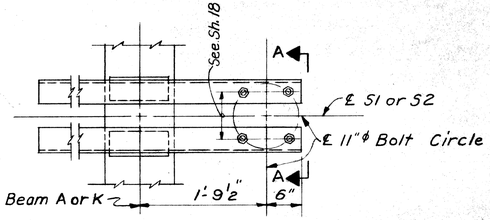
SPAN 1 SPAN 2

CAMBER DETAILS

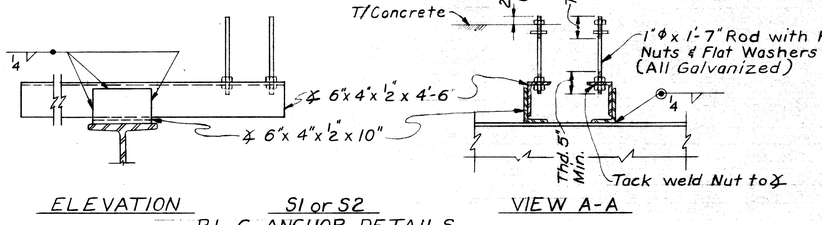


POSITION DOWEL DETAIL

ANCHOR BOLT DETAIL

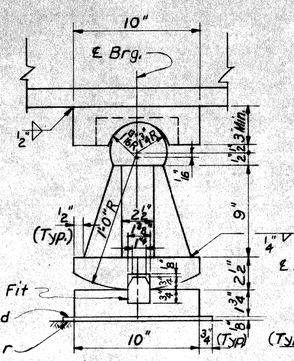


PLAN

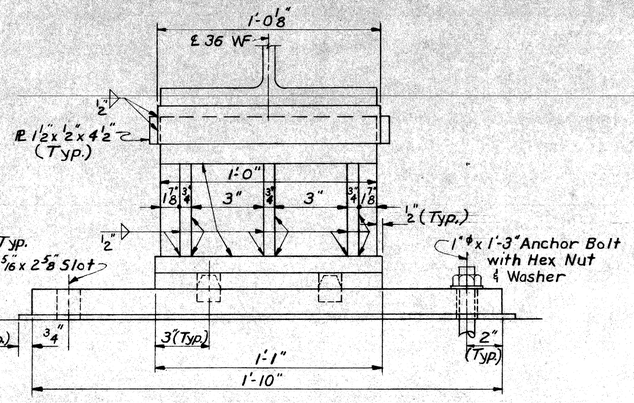


ELEVATION S1 or S2 VIEW A-A

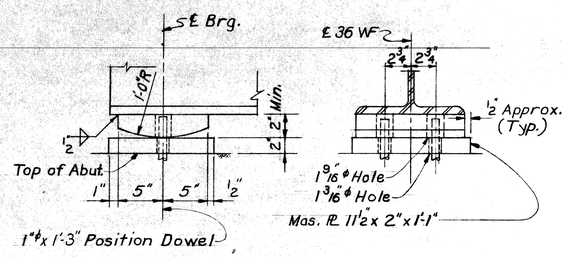
P.L.C. ANCHOR DETAILS



SECTION



ELEVATION



ELEVATION SECTION

ABUTMENT BEARING DETAILS

PIER BEARING DETAILS

Work Sheets 12, 13, & 14 Together

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES 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 _____ STRUCTURAL ENGINEER

JOB No. PW 9904(4)

REVISIONS

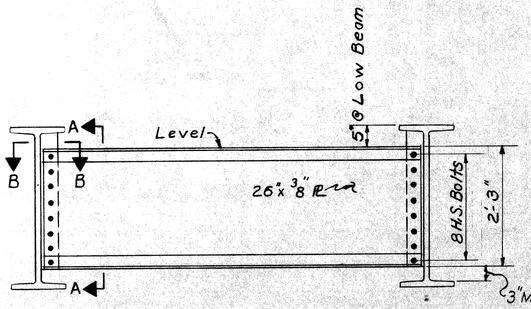
NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT

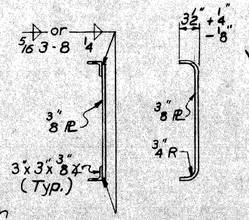
SQUAD BOSS	STURM	5-69
DRAWN BY	T.H.S.	5-68
TRACED BY	JONES	9-68
CHECKED BY	T.H.S.	1-69

SHEET 13 OF 21

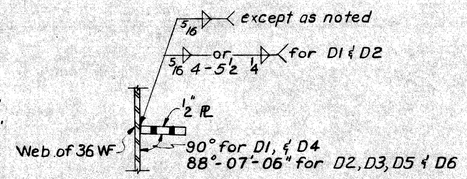
S33 of 82123T



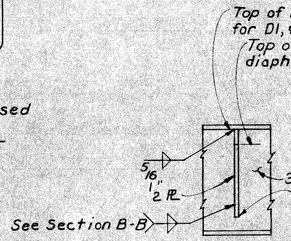
D1 & D2



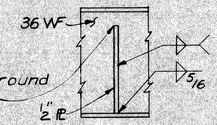
Either detail may be used
SECTION A-A



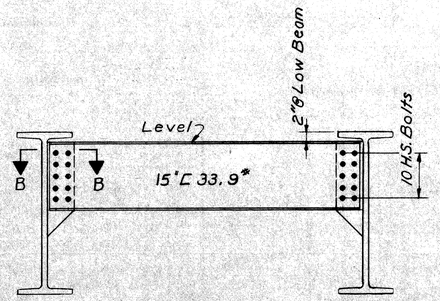
SECTION B-B



D1 & D4
D3 & D6



D2 & D5



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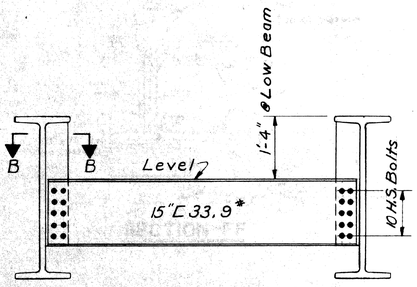
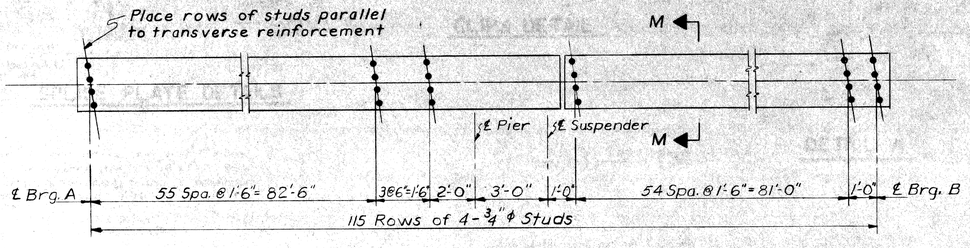
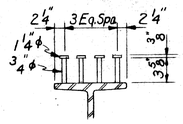


D4, D5, & D6

ELEVATION OF BEAM AT CONNECTION PLATE



STUD SHEAR CONNECTORS



SECTION M-M

Work Sheets 12, 13, & 14 Together

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY IN DETROIT

STRUCTURAL STEEL DETAILS

CITY OF DETROIT

SQUAD BOSS	STURM	3-69
DRAWN BY	J.H.S.	3-68
TRACED BY	JONES	9-68
CHECKED BY	T.A.B.	1-69
SHEET 14 OF 21		

REVISIONS

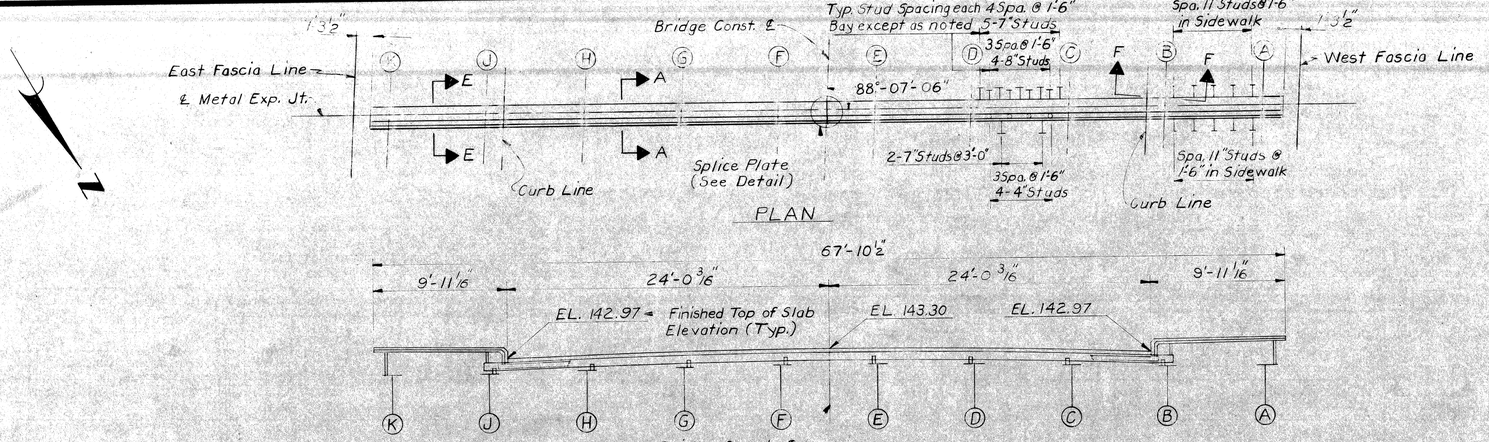
NO.	DESCRIPTION	DATE	BY

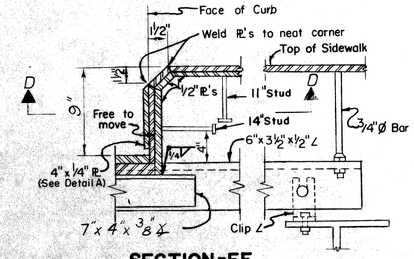
PLANS PREPARED BY
CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERS OFFICE
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED [signature] STRUCTURAL ENGINEER

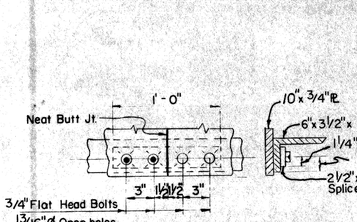
JOB No. PW 990(4)

S33 of 82123I

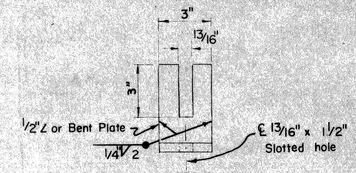




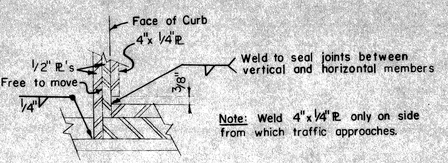
SECTION-FF



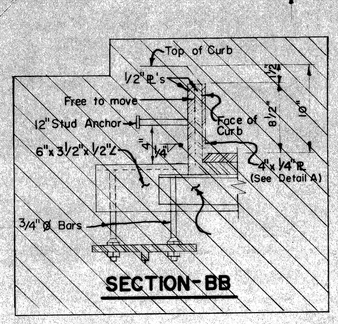
SPLICE PLATE DETAILS



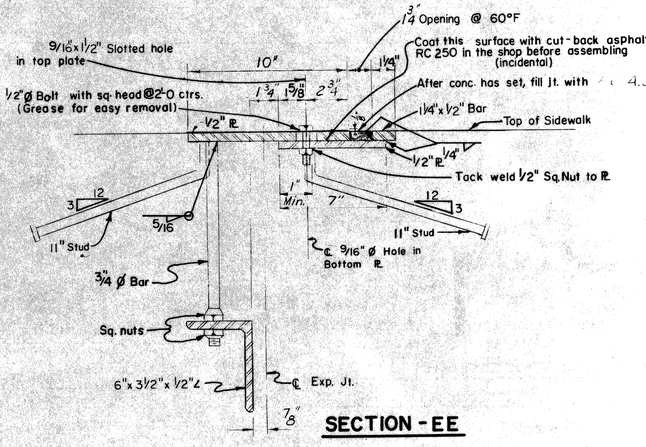
CLIP ∠ DETAIL



DETAIL A

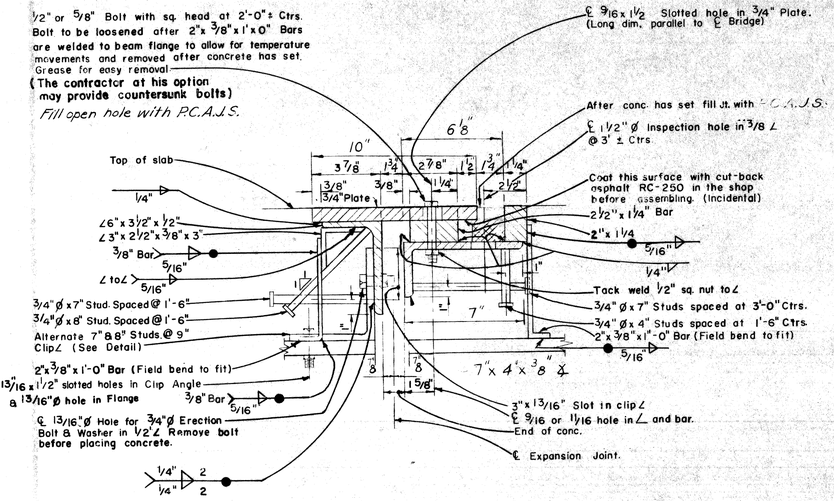


SECTION-BB

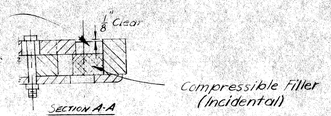


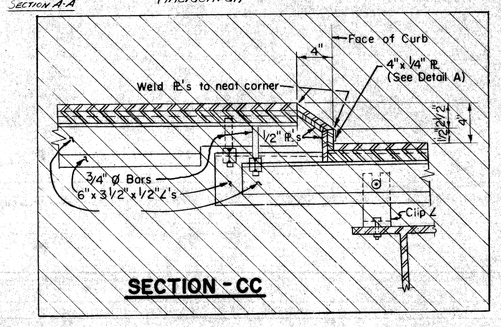
SECTION-EE

½" or ⅝" Bolt with sq. head at 2'-0"s Ctrs. Bolt to be loosened after 2"x⅜"x1'x0" Bars are welded to beam flange to allow for temperature movements and removed after concrete has set. Grease for easy removal (The contractor at his option may provide countersunk bolts) Fill open hole with P.C.A.J.S.



SECTION-AA





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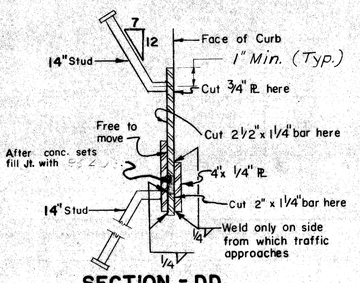
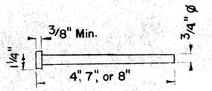
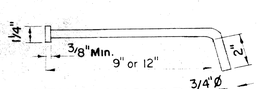


SECTION-DD



STUD ANCHOR (ROADWAY)



STUD ANCHOR (CURB & SIDEWALK)

Either single studs or two studs welded end to end may be used.

NOTES:

The Metal Expansion Joint shall be bent in the shop to conform with the contour of the top of roadway slab.

Weight of Metal Expansion Joint 4,500 lbs.
Weight of Metal Expansion Joint is included in Structural Steel weight on sheet # 12
P.C.A.J.S. denotes Two-component polyurethane Cold-Applied Joint sealer
P.C.A.J.S. is included in superstructures quantities, Sh. 17.

CITY OF DETROIT
STRUCTURAL ENGINEER

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY IN DETROIT

METAL EXPANSION JOINT DETAILS

REVISIONS

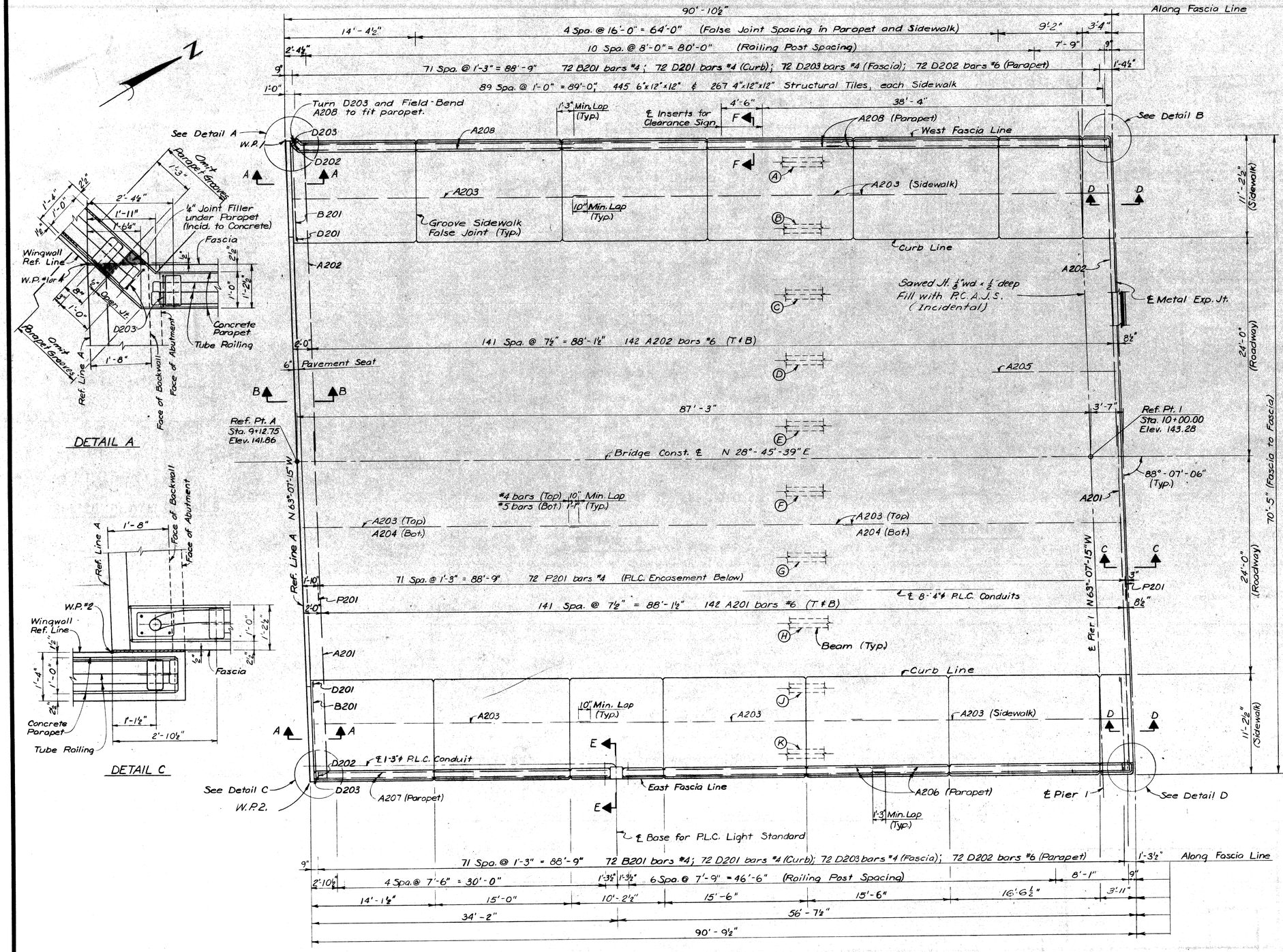
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	STUEN	3-68
DRAWN BY	JJ & AH	10-68
TRACED BY	—	—
CHECKED BY	TAB	1-69

SHEET 15 OF 21

CITY OF DET...

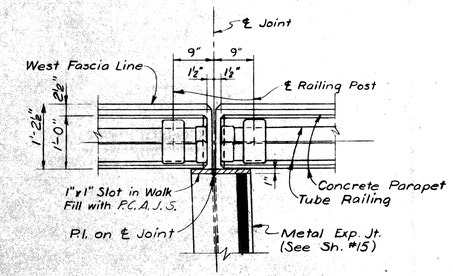
823 of 82120 I



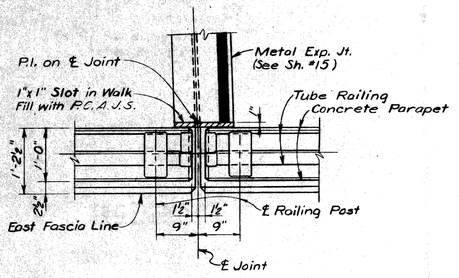
PLAN - SPAN 1

DETAIL A

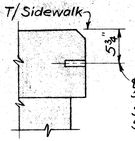
DETAIL C



DETAIL B



DETAIL D



SECTION F-F

Work Sheets 16-20 together.

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

APPROVED _____ STRUCTURAL ENGINEER

JOB No. PW 990(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

SUPERSTRUCTURE DETAILS

CITY OF DETROIT

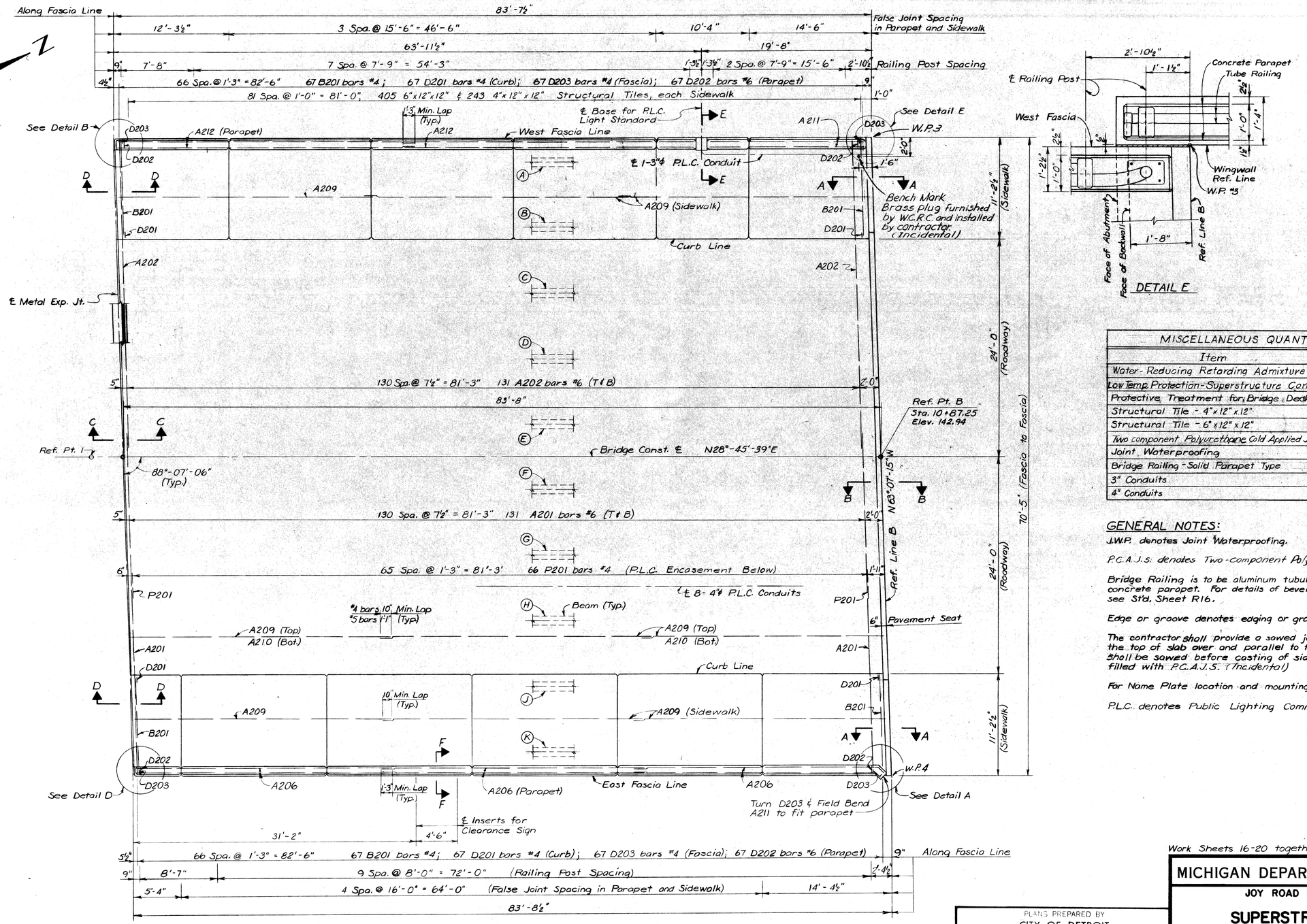
SQUAD BOSS	STURM	5-68
DRAWN BY	G. Nohar	5-68
TRACED BY	A. Marten	9-68
CHECKED BY	T.H.S.	5-68

SHEET 16 OF 21

REVISIONS

NO.	DESCRIPTION	DATE	BY

S33 of 82123I



PLAN - SPAN 2

DETAIL E

MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Water-Reducing Retarding Admixture	Gal.	51
Low Temp. Protection-Superstructure Concrete	Cu. Yds	452
Protective Treatment for Bridge Decks	Sq. Ft.	12,290
Structural Tile - 4"x12"x12"	Each	510
Structural Tile - 6"x12"x12"	Each	850
Two component Polyurethane Cold Applied Joint Sealer	Lin. Ft.	70
Joint Waterproofing	Sq. Ft.	210
Bridge Railing-Solid Parapet Type	Lin. Ft.	345
3" Conduits	Lin. Ft.	55
4" Conduits	Lin. Ft.	1390

GENERAL NOTES:

J.W.P. denotes Joint Waterproofing.

P.C.A.J.S. denotes Two-component Polyurethane Cold-Applied Joint Sealer.

Bridge Railing is to be aluminum tubular railing on solid concrete parapet. For details of bevels, moldings, and Bridge Railing, see Std. Sheet R16.

Edge or groove denotes edging or grooving with an approved tool.

The contractor shall provide a sawed joint ½" deep by ⅛" wide (min.) in the top of slab over and parallel to the centerline of pier. The joint shall be sawed before casting of sidewalk, and shall be filled with P.C.A.J.S. (Incidental)

For Name Plate location and mounting details see Std. Sheet R16.

P.L.C. denotes Public Lighting Commission.

Work Sheets 16-20 together.

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

APPROVED H. Conrad STRUCTURAL ENGINEER

JOB No. PW 99014

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

SUPERSTRUCTURE DETAILS

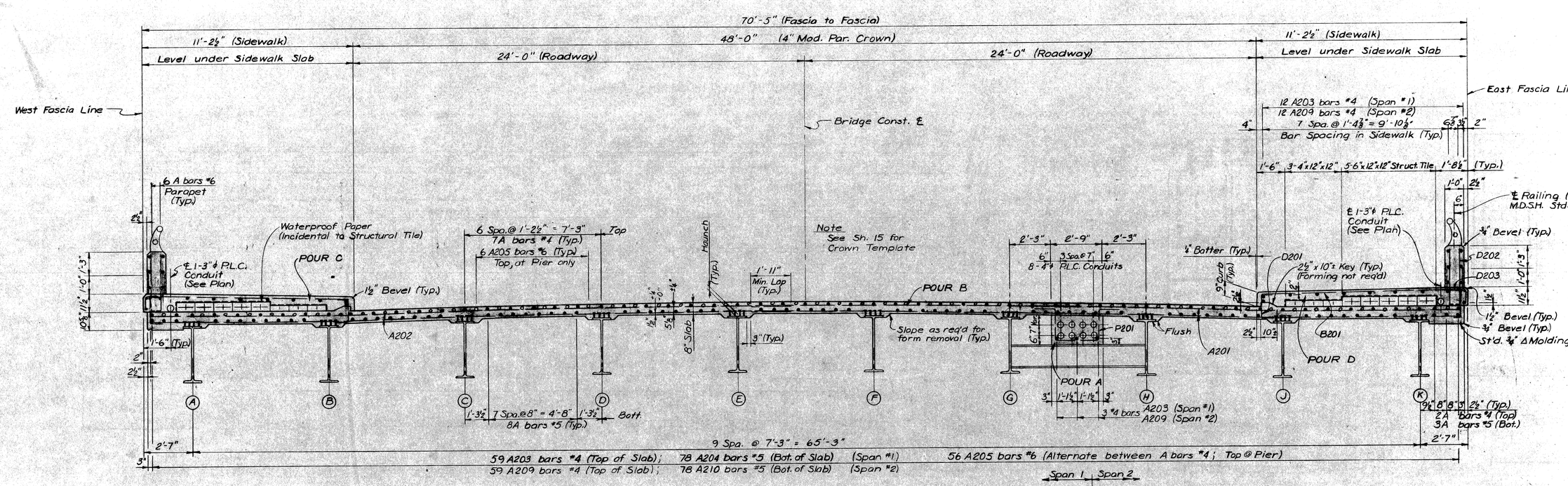
CITY OF DETROIT

REVISIONS			
NO.	DESCRIPTION	DATE	BY

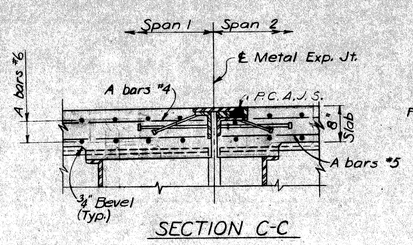
SQUAD BOSS	STUEM	5-69
DRAWN BY	G.Molner	8-68
TRACED BY	A.Morten	8-68
CHECKED BY	F.H.S.	9-68

SHEET 17 OF 21

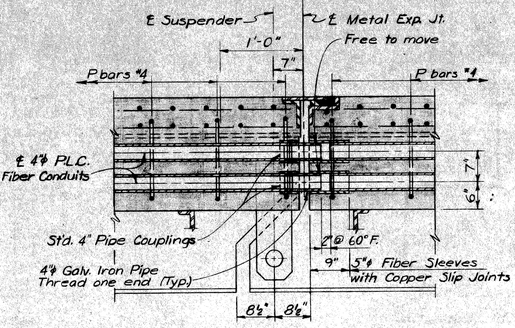
S33 of 82123I



CROSS SECTION



SECTION C-C



DETAIL OF P.L.C. CONDUITS AT SUSPENDER

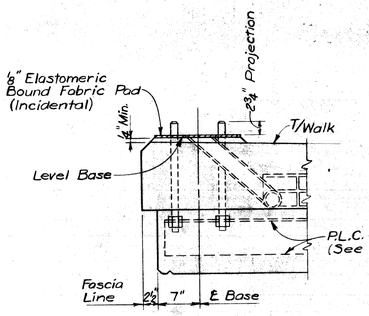
CONCRETE QUANTITIES (Cu. Yds.)				
Pour	Location	Grade	Span #1	Span #2
A	P.L.C. Encasement	XX	10.0	9.2
B	Deck Slab	A(6AA)	184.5	171.8
C	Sidewalk	A(6AA)	19.8	18.3
D	Sidewalk	A(6AA)	19.8	18.3
Total Grade XX Concrete - Superstructure = 19.2 Cu Yds.				
Total Grade A(6AA) Concrete - Superstructure = 432.5 Cu Yds.				

NOTES:

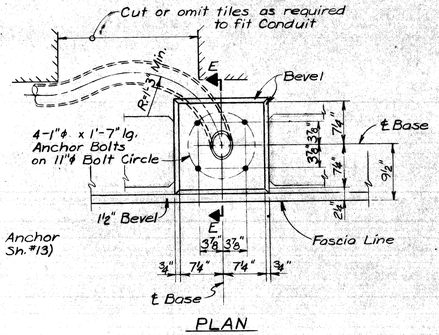
Parapet Concrete = 28 Cu Yds. Grade A(6AA). Part of Bridge Railing Solid Parapet Type and not a pay item.

Alphabetical designation of pours is not to be construed as a pour sequence.

Sidewalk pours shall not be cast until slab concrete has attained at least 50% of its design strength as determined by Section 3.01.05 of the Standard Specifications.

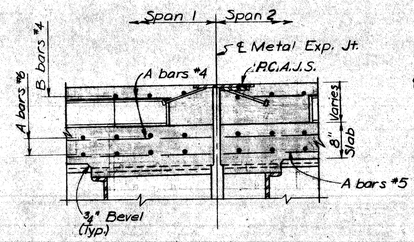


SECTION E-E

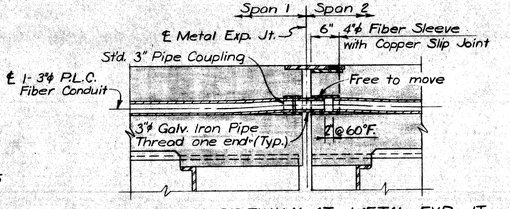


PLAN

DETAILS OF BASE FOR P.L.C. LIGHT STANDARD



SECTION D-D



P.L.C. CONDUIT IN SIDEWALK AT METAL EXP. JT.

Work Sheets 16-20 together.

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

APPROVED [signature] STRUCTURAL ENGINEER

JOB No. PW 99014

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY IN DETROIT

SUPERSTRUCTURE DETAILS

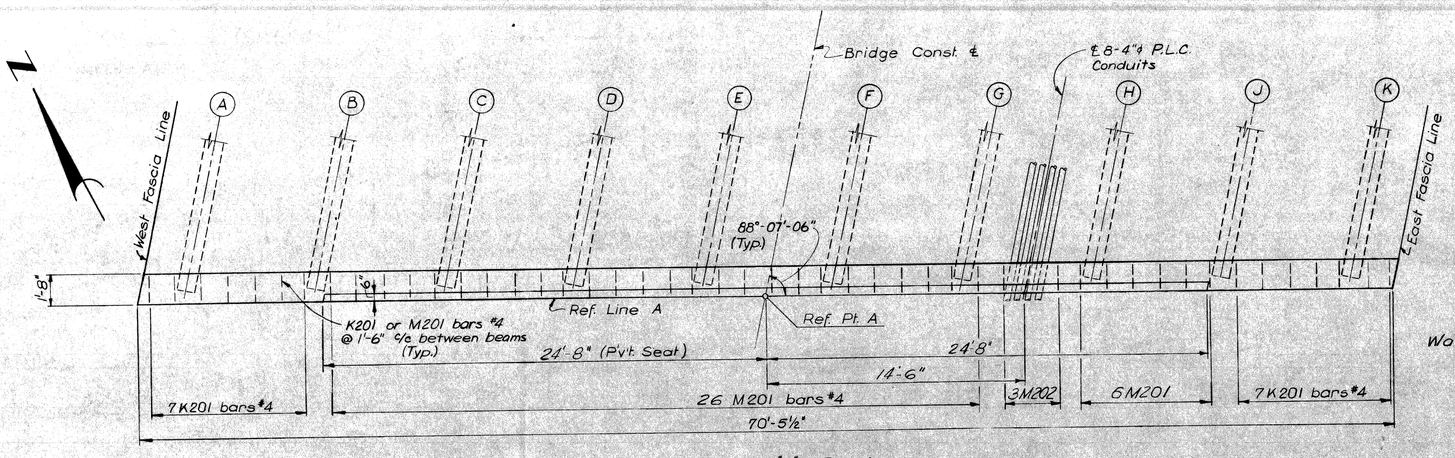
CITY OF DETROIT

REVISIONS			
NO.	DESCRIPTION	DATE	BY

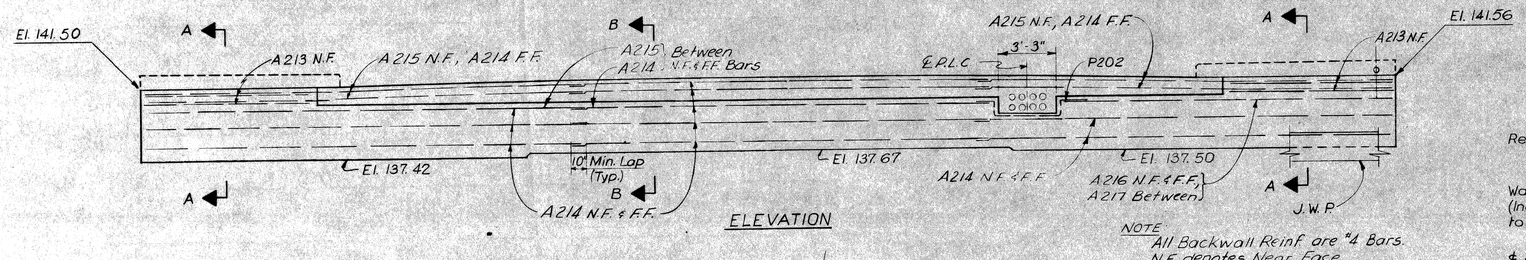
SQUAD BOSS	STURM	5-69
DRAWN BY	G. Miller	9-68
TRACED BY	A. Morton	9-68
CHECKED BY	I.W.S.	9-68

SHEET 18 OF 21

S33 of 82123I

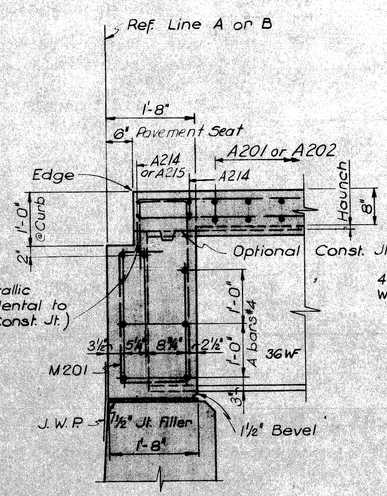


BACKWALL "A" PLAN

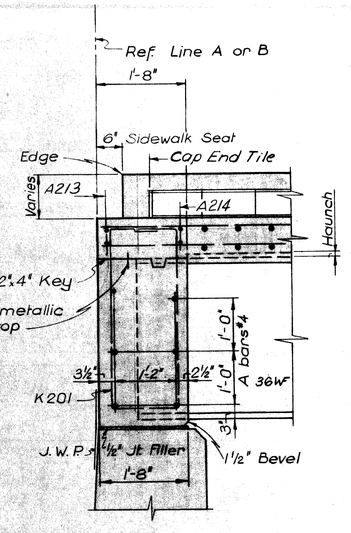


ELEVATION

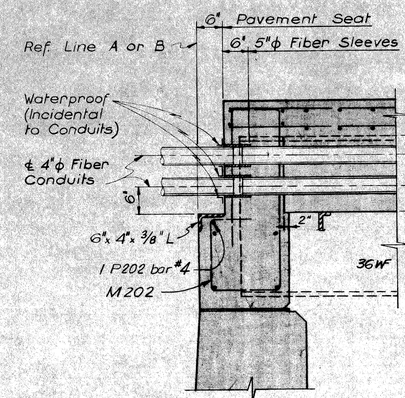
NOTE
All Backwall Reinf. are #4 Bars.
N.F. denotes Near Face.
F.F. denotes Far Face.



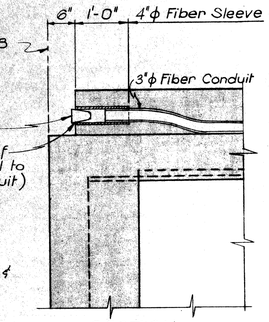
SECTION B-B



SECTION A-A



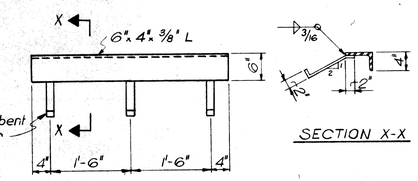
SECTION P.L.C. BELOW SLAB



SECTION P.L.C. IN SIDEWALK

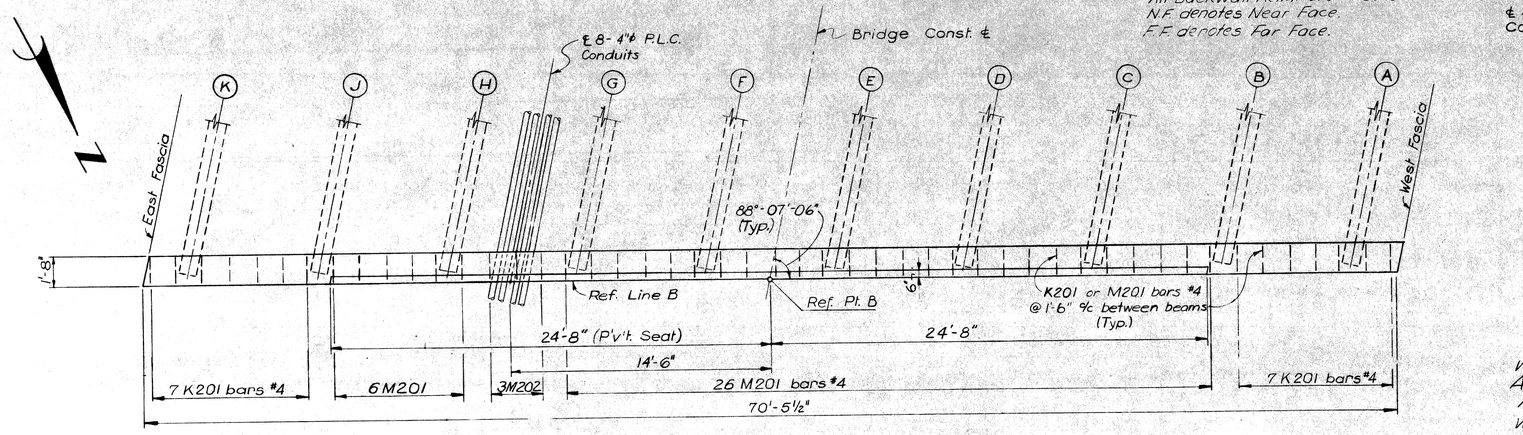
NOTE:
Fiber Sleeves & Plastic Plugs are Incidental to Conduits.

Weight of P.L.C. Anchor Bolts and Anchor (Sh. 18) and P.L.C. Ledge Angle is included in Structural Steel weight (Sh. 12).

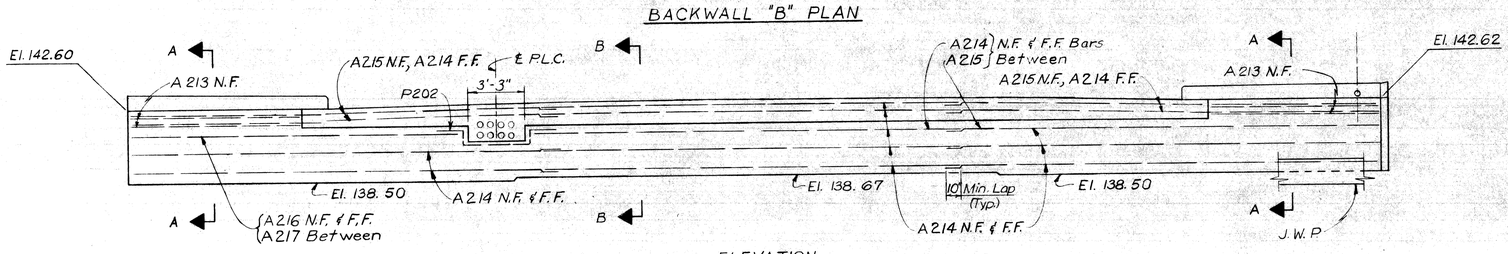


SECTION X-X

LEDGE ANGLE DETAIL



BACKWALL "B" PLAN



ELEVATION

Work Sheets 16-20 together

PLANS PREPARED BY
CITY OF DETROIT
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CITY ENGINEER'S OFFICE
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED _____ STRUCTURAL ENGINEER

JOB No.
PW 990(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY IN DETROIT

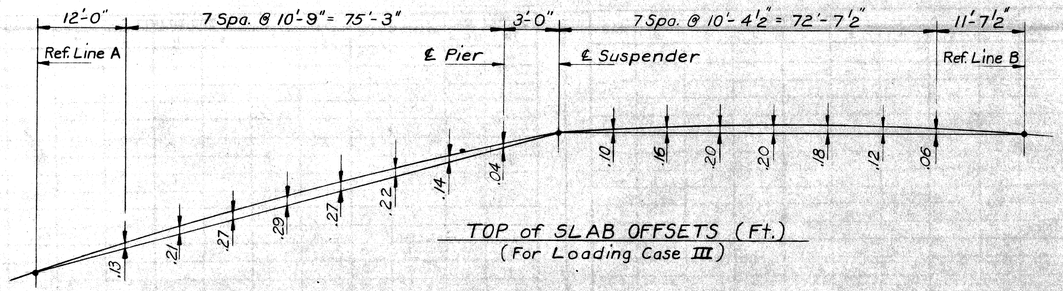
SUPERSTRUCTURE DETAILS

CITY OF DETROIT

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	J. Yuram	3-69
DRAWN BY	G. Molnar	9-1968
TRACED BY	G. Molnar	9-1968
CHECKED BY	J.H.S.	9-68
SHEET 19 OF 21		

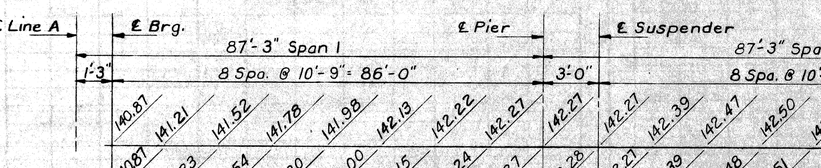
S33 of 82123 I



TOP of SLAB OFFSETS (Ft.)
(For Loading Case III)

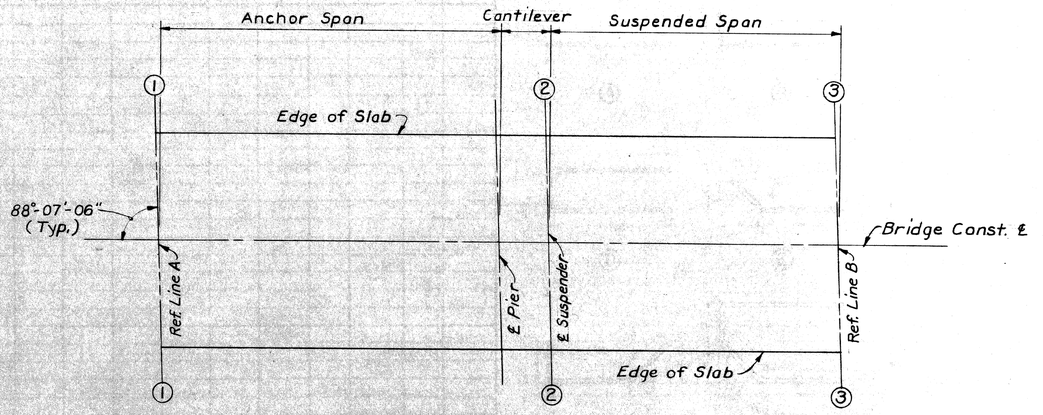
Ref. Line A	℄ Brg.	87'-3" Span 1	℄ Pier	℄ Suspender	87'-3" Span 2	℄ Brg.	Ref. Line B
	1'-3"	8 Spa. @ 10'-9" = 86'-0"	3'-0"		8 Spa. @ 10'-4½" = 83'-0	1'-3"	
	140.87	141.21 141.52 141.78 141.98 142.13 142.22 142.27	142.27	142.21	142.39 142.47 142.50 142.47 142.40 142.27 142.12	141.96	
A	140.87	141.23 141.54 141.80 142.00 142.15 142.24 142.27	142.28	142.21	142.39 142.48 142.51 142.49 142.41 142.28 142.12	141.96	A
B	141.00	141.35 141.66 141.92 142.12 142.27 142.36 142.39	142.39	142.39	142.51 142.59 142.63 142.60 142.53 142.40 142.24	142.07	B
C	141.12	141.47 141.78 142.04 142.24 142.39 142.47 142.51	142.51	142.51	142.63 142.71 142.74 142.72 142.64 142.51 142.35	142.19	C
D	141.21	141.56 141.87 142.13 142.33 142.47 142.56 142.59	142.59	142.59	142.71 142.79 142.82 142.80 142.72 142.59 142.43	142.27	D
E	141.21	141.56 141.87 142.13 142.33 142.47 142.56 142.60	142.60	142.59	142.71 142.79 142.82 142.80 142.72 142.59 142.43	142.26	E
F	141.14	141.50 141.82 142.09 142.29 142.43 142.51 142.53	142.52	142.51	142.64 142.73 142.77 142.75 142.67 142.53 142.36	142.18	F
G	141.03	141.39 141.71 141.98 142.18 142.32 142.39 142.42	142.40	142.39	142.52 142.62 142.66 142.63 142.55 142.41 142.24	142.06	G
H	140.92	141.27 141.57 141.83 142.03 142.17 142.25 142.29	142.29	142.28	142.40 142.48 142.51 142.48 142.40 142.27 142.11	141.94	H
J	140.92	141.27 141.57 141.82 142.02 142.16 142.24 142.28	142.29	142.28	142.39 142.46 142.49 142.46 142.38 142.25 142.10	141.94	J
K							K

BOTTOM of SLAB ELEVATIONS
(For Loading Case I)



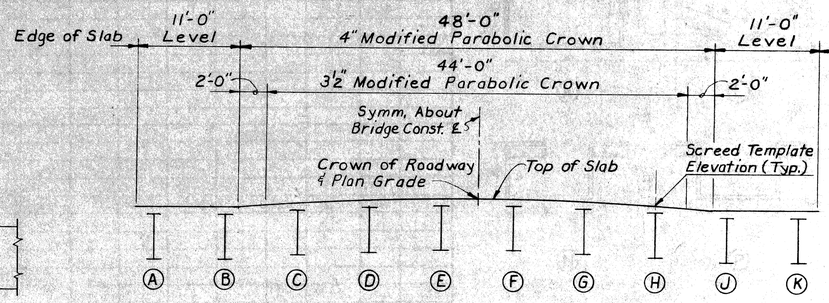
CAMBER DIAGRAM
(For Loading Cases Shown in Table)

CAMBER ORDINATES (inches)									
Beam		AK	BCDEFJ	GH	A-K	AK	BCDEFJ	GH	
Camber Dim'n.		"a"			"b"	"c"			
Loading Case	I	4 7/8	5 1/8	5 1/2	5/8	4 1/4	4 1/2	4 7/8	
	II	4 5/8	4 3/4	4 3/4	5/8	3 1/8	4	4	
	III	3 1/8			1/2	2 1/2			



PLAN of SLAB

TYPICAL SECTION
AT EACH BEAM



SCREED TEMPLATE

SCREED TEMPLATE ELEVATIONS FOR LOADING CASE II										
Line \ Beam	A	B	C	D	E	F	G	H	J	K
1-1	141.50	141.51	141.63	141.75	141.84	141.85	141.77	141.66	141.55	141.56
2-2	142.94	142.94	143.06	143.18	143.26	143.26	143.18	143.07	142.95	142.95
3-3	142.62	142.61	142.73	142.84	142.92	142.92	142.84	142.72	142.60	142.60

NOTES:

Use longitudinal strike-off finishing machine in placing slab concrete.

Pour suspended span before pouring anchor span.

Screeds affected by loads in other span shall be set to elevations shown before pouring any concrete.

Elevations and cambers shown include allowances for deflections due to the weight of structural steel, weight of forms, steel reinforcement, P.L.C. encasement, slab concrete, sidewalk and railing. The loading cases are as follow:

Case I - All structural steel erected and no other load applied.

Case II - Forms, steel reinforcement and P.L.C. encasement in place on structural steel and no other load applied.

Case III - Steel reinforcement, P.L.C. encasement and slab concrete in place on structural steel and no other load applied.

Work Sheets 16 - 20 Together

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(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

SUPERSTRUCTURE DETAILS

CITY OF DETROIT

SQUAD BOSS	STURM	5-69
DRAWN BY	I.H.S.	10-68
TRACED BY	Jones	10-68
CHECKED BY	I.H.K.	12-68

SHEET 20 OF 21

REVISIONS

NO.	DESCRIPTION	DATE	BY

S33 of 82123I

ABUTMENTS

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A1								#8	14'-6"	68	2633
A2								#6	6'-3"	68	638
A3								#11	7'-9"	66	2718
A4								#6	27'-9"	28	1167
A5								#6	7'-0"	8	84
A6								#6	21'-0"	28	883
A7								#6	30'-3"	26	1181
A8								#6	12'-0"	26	469
A9								#4	21'-3"	84	1192
A10								#5	29'-3"	47	1434
A11								#7	30'-0"	17	1042
A12								#7	11'-9"	94	2258
A13								#8	7'-9"	92	1904
A14								#6	13'-6"	36	730
A15								#6	17'-0"	62	1583
A16								#6	18'-0"	62	1676
A17								#11	13'-0"	72	4973
A18								#11	34'-6"	28	5132
A19								#7	15'-6"	28	887
A20								#6	15'-6"	6	140
A21								#6	12'-6"	70	1314
A22								#6	4'-0"	46	276
A23								#7	6'-9"	50	690
A24								#6	10'-6"	32	505
A25								#6	8'-6"	52	664
A26								#7	5'-9"	52	611
A27								#6	21'-6"	53	1,712
A28								#4	22'-9"	38	577
A29								#4	21'-6"	56	804
A30								#6	21'-3"	12	383
A31								#6	24'-0"	12	433
A32								#6	4'-6"	141	953
A33								#6	20'-6"	59	1817
A34								#6	3'-6"	73	384
A35								#6	12'-9"	28	536
A36								#7	7'-9"	44	697
A37								#4	13'-0"	20	174
A38								#6	10'-0"	28	421
A39								#10	11'-0"	50	2367
A40								#7	15'-9"	50	1610
A41								#6	20'-0"	26	781
A42								#6	11'-0"	20	330
A43								#6	15'-9"	12	284
A44								#6	17'-6"	12	315
A45								#6	16'-0"	20	481
A46								#4	14'-6"	38	368
A47								#4	4'-0"	37	99
A48								#4	16'-0"	34	363
A49								#6	14'-6"	36	784
A50								#7	40'-0"	30	2453
C1	1'-1⅞"	6'-3"	1'-1⅞"	5¾"	1'-3"	5¾"	1'-3"	#6	8'-9"	21	276
C2	10½"	3'-0"	10½"	10¾"	1'-3"	10¾"	1'-3"	#6	5'-6"	21	173
D1	2'-6⅝"	6¼"						#6	5'-6"	54	446
E1	3'-0"	1'-0¾"	1'-0¾"	1'-6"				#4	4'-6"	21	63
G1	11"	4'-1½"	1'-6"	⅝"	1'-6"			#4	6'-6"	21	91
K1	3'-2⅜"	2'-0¼"	1'-6"	2'-4½"				#6	12'-3"	8	147
K2	3'-2⅜"	1'-11⅜"	1'-6"	2'-2⅜"				#6	12'-0"	8	144
K3	3'-2⅜"	1'-8"	1'-6"	1'-11⅜"				#6	11'-6"	8	138
K4	3'-2⅜"	1'-6⅜"	1'-6"	1'-9⅜"				#6	11'-3"	212	3582
Z1	3'-7"	1'-3"	24'-8"	1'-5½"	9"			#11	34'-9"	28	5170

ABUTMENT TOTAL = 66,140 Lbs

PIER

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A101								#6	17'-9"	28	746
A102								#9	11'-0"	48	1795
A103								#6	10'-0"	24	360
A104								#9	8'-3"	48	1346
A105								#7	10'-0"	46	940
A106								#6	3'-0"	4	18
A107								#11	30'-9"	24	3921
A108								#11	31'-6"	12	2008
A109								#11	18'-3"	24	2327
A110								#6	30'-0"	8	360
A111								#6	31'-3"	4	188
A112								#10	35'-9"	32	4923
A113								#9	26'-6"	16	1442
A114								#9	21'-0"	8	571
A115								#6	34'-9"	4	209
A116								#5	28'-6"	3	89
D101	8'-3¾"	2'-8⅝"						#5	19'-3"	22	442
D102	2'-7"	2'-11⅝"						#5	8'-0"	16	134
D103	1'-6"	2'-10"						#4	5'-9"	20	77
K101	5'-0⅝"	2'-0"	2'-0⅜"	2'-8⅝"				#5	16'-9"	21	367
K102	3'-0⅝"	1'-7"	1'-7⅛"	1'-10⅜"				#5	11'-0"	156	1,790
U101	2'-9"	1'-7"	4'-4"	1'-4½"				#5	7'-6"	8	63
V101	7'-11"	10"						#4	8'-9"	32	187
X101	4'-4⅝"	2'-9¾"	2'-3"	1'-4½"	2'-7⅝"	1'-1¼"	8"	#5	18'-6"	43	830

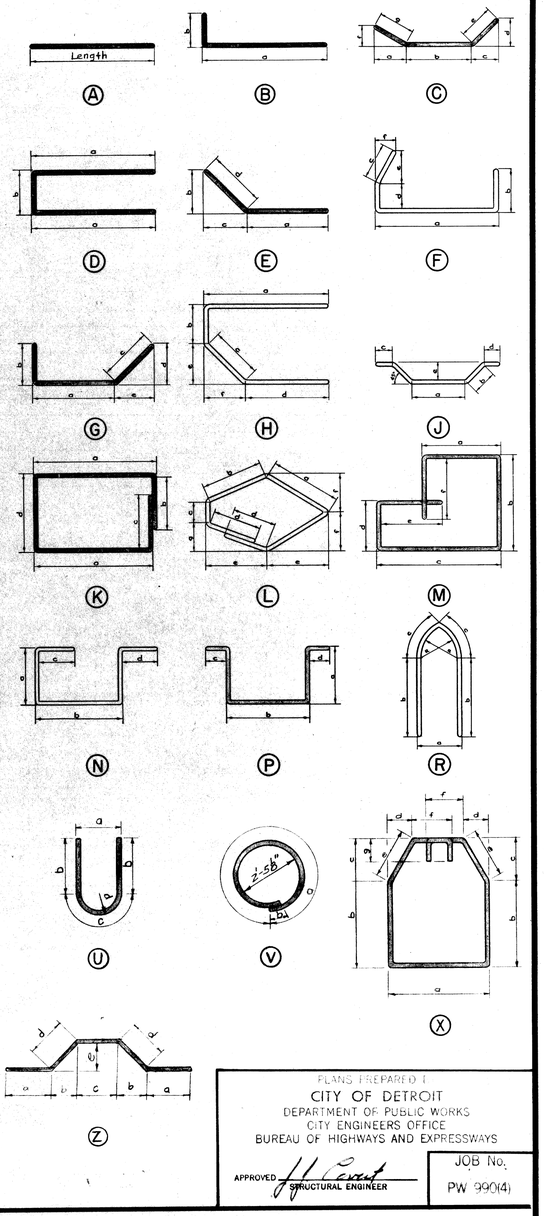
PIER TOTAL = 25133 Lbs

SUPERSTRUCTURE

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A201								#6	37'-6"	546	30753
A202								#6	34'-0"	546	27883
A203								#4	30'-9"	258	5300
A204								#5	31'-0"	234	7566
A205								#6	8'-0	56	673
A206								#6	28'-6"	30	1284
A207								#6	32'-6"	6	293
A208								#6	31'-0"	18	838
A209								#4	28'-3"	258	4869
A210								#5	28'-6"	234	6956
A211								#6	18'-0"	6	162
A212								#6	32'-0"	12	577
A213								#4	10'-0"	8	53
A214								#4	24'-0"	50	802
A215								#4	15'-0"	10	100
A216								#4	18'-6"	4	49
A217								#4	9'-6"	2	13
B201	10'-9½"	9"						#4	11'-6"	278	2136
D201	6⅜"	1'-24"						#4	2'-3"	278	418
D202	3'-0⅜"	64"						#6	6'-6"	278	2714
D203	5⅜"	1'-4⅜"						#4	2'-3"	278	418
K201	3'-4"	1'-0⅜"	1'-0¾"	1'-3½"				#4	10'-0"	28	187
M201	104"	3'-4"	1'-3½"	2'-5"	9"	1'-5⅜"		#4	10'-0"	64	428
M202	104"	3'-4"	1'-3½"	1'-3"	9"	2'-1¾"		#4	9'-6"	6	38
P201	1'-7½"	2'-4½"	1'-4¼"	1'-4¼"				#4	8'-3"	138	761
P202	11⅜"	3'-9"	1'-0⅜"	1'-0⅜"				#4	7'-9"	2	10

SUPERSTRUCTURE TOTAL = 95,281 Lbs

BAR BENDING DIAGRAM



Note:—
All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.
All bar numbers shown on this sheet are to be prefixed S33

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 Conc. Institute.
Grand Total Steel Reinforcement 136,554 lbs.

PLANS PREPARED BY
CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERS OFFICE
BUREAU OF HIGHWAYS AND EXPRESSWAYS
APPROVED _____ STRUCTURAL ENGINEER
JOB No. PW 99014

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

STEEL REINFORCEMENT DETAILS

CITY OF DETROIT

REVISIONS NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	SREN	569
DRAWN BY	E.Y.K.	1-69
TRACED BY	—	—
CHECKED BY	T.H.S.	1-69

SHEET 21 OF 21

S33 of 82123I

ABUTMENTS

BAR	a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A1								#8	14'-6"	68	2633
A2								#6	6'-3"	68	638
A3								#11	7'-9"	66	2718
A4								#6	27'-9"	28	1167
A5								#6	7'-0"	8	84
A6								#6	21'-0"	28	883
A7								#6	30'-3"	26	1181
A8								#6	12'-0"	26	469
A9								#4	21'-3"	84	1192
A10								#5	29'-3"	47	1434
A11								#7	30'-0"	17	1042
A12								#7	11'-9"	94	2258
A13								#8	7'-9"	92	1904
A14								#6	13'-6"	36	730
A15								#6	17'-0"	62	1583
A16								#6	18'-0"	62	1676
A17								#11	13'-0"	72	4973
A18								#11	34'-6"	28	5132
A19								#7	15'-6"	28	887
A20								#6	15'-6"	6	140
A21								#6	12'-6"	70	1314
A22								#6	4'-0"	46	276
A23								#7	6'-9"	50	690
A24								#6	10'-6"	32	505
A25								#6	8'-6"	52	664
A26								#7	5'-9"	52	611
A27								#6	21'-6"	53	1712
A28								#4	22'-9"	38	577
A29								#4	21'-6"	56	804
A30								#6	21'-3"	12	383
A31								#6	24'-0"	12	433
A32								#6	4'-6"	141	953
A33								#6	20'-6"	59	1817
A34								#6	3'-6"	73	384
A35								#6	12'-9"	28	536
A36								#7	7'-9"	44	697
A37								#4	13'-0"	20	174
A38								#6	10'-0"	28	421
A39								#10	11'-0"	50	2367
A40								#7	15'-9"	50	1610
A41								#6	20'-0"	26	781
A42								#6	11'-0"	20	330
A43								#6	15'-9"	12	284
A44								#6	17'-6"	12	315
A45								#6	16'-0"	20	481
A46								#4	14'-6"	38	368
A47								#4	4'-0"	37	99
A48								#4	16'-0"	34	363
A49								#6	14'-6"	36	784
A50								#7	40'-0"	30	2453
C1	1'-1⅞"	6'-3"	1'-1⅞"	5¾"	1'-3"	5¾"	1'-3"	#6	8'-9"	21	276
C2	10½"	3'-0"	10½"	10¾"	1'-3"	10¾"	1'-3"	#6	5'-6"	21	173
D1	2'-6⅝"	6¼"						#6	5'-6"	54	446
E1	3'-0"	1'-0¾"	1'-0¾"	1'-6"				#4	4'-6"	21	63
G1	11"	4'-1½"	1'-6"	⅝"	1'-6"			#4	6'-6"	21	91
K1	3'-2⅜"	2'-0½"	1'-6"	2'-4½"				#6	12'-3"	8	147
K2	3'-2⅜"	1'-11⅜"	1'-6"	2'-2⅜"				#6	12'-0"	8	144
K3	3'-2⅜"	1'-8"	1'-6"	1'-11⅜"				#6	11'-6"	8	138
K4	3'-2⅜"	1'-6⅜"	1'-6"	1'-9⅜"				#6	11'-3"	212	3582
Z1	3'-7"	1'-3"	24'-8"	1'-5½"	9"			#11	34'-9"	28	5170

ABUTMENT TOTAL = 66,140 Lbs.

PIER

BAR	a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A101								#6	17'-9"	28	746
A102								#9	11'-0"	48	1795
A103								#6	10'-0"	24	360
A104								#9	8'-3"	48	1346
A105								#7	10'-0"	46	940
A106								#6	3'-0"	4	18
A107								#11	30'-9"	24	3921
A108								#11	31'-6"	12	2008
A109								#11	18'-3"	24	2327
A110								#6	30'-0"	8	360
A111								#6	31'-3"	4	188
A112								#10	35'-9"	32	4923
A113								#9	26'-6"	16	1442
A114								#9	21'-0"	8	571
A115								#6	34'-9"	4	209
A116								#5	28'-6"	3	89
D101	8'-3¾"	2'-8⅝"						#5	19'-3"	22	442
D102	2'-7"	2'-11¼"						#5	8'-0"	16	134
D103	1'-6"	2'-10"						#4	5'-9"	20	77
K101	5'-0⅝"	2'-0"	2'-0⅜"	2'-8⅝"				#5	16'-9"	21	367
K102	3'-0⅜"	1'-7"	1'-7⅜"	1'-10⅜"				#5	11'-0"	156	1790
U101	2'-9"	1'-7"	4'-4"	1'-4½"				#5	7'-6"	8	63
V101	7'-11"	10"						#4	8'-9"	32	187
X101	4'-4⅝"	2'-9⅜"	2'-3"	1'-4½"	2'-7⅝"	1'-1¼"	8"	#5	18'-6"	43	830

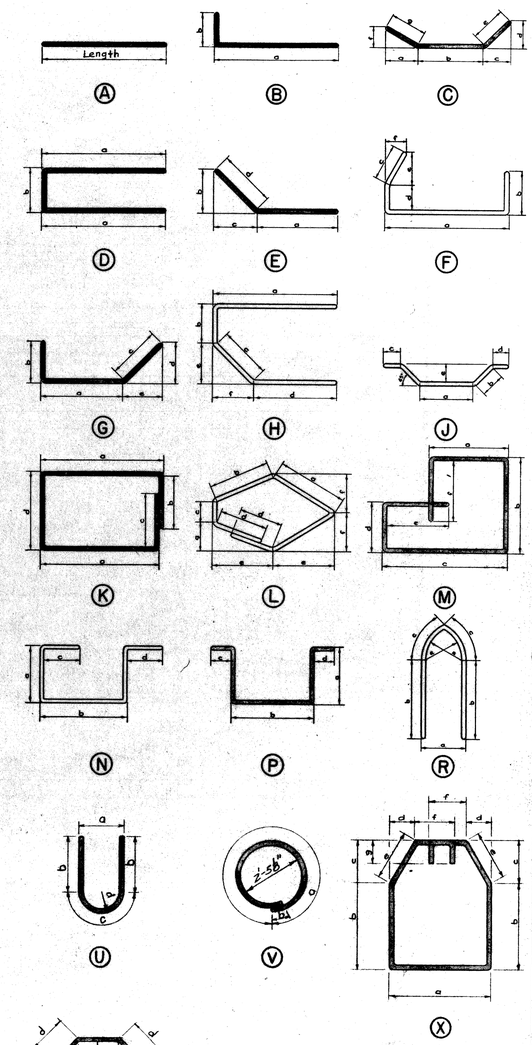
PIER TOTAL = 25133 Lbs.

SUPERSTRUCTURE

BAR	a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A201								#6	37'-6"	546	30753
A202								#6	34'-0"	546	27883
A203								#4	30'-9"	258	5300
A204								#5	31'-0"	234	7566
A205								#6	8'-0"	56	673
A206								#6	28'-6"	30	1284
A207								#6	32'-6"	6	293
A208								#6	31'-0"	18	838
A209								#4	28'-3"	258	4869
A210								#5	28'-6"	234	6956
A211								#6	18'-0"	6	162
A212								#6	32'-0"	12	577
A213								#4	10'-0"	8	53
A214								#4	24'-0"	50	802
A215								#4	15'-0"	10	100
A216								#4	18'-6"	4	49
A217								#4	9'-6"	2	13
B201	10'-9½"	9"						#4	11'-6"	278	2136
D201	6⅜"	1'-2⅛"						#4	2'-3"	278	418
D202	3'-0⅜"	6¼"						#6	6'-6"	278	2714
D203	5⅝"	1'-4⅜"						#4	2'-3"	278	418
K201	3'-4"	1'-0⅜"	1'-0⅜"	1'-3½"				#4	10'-0"	28	187
M201	10¼"	3'-4"	1'-3½"	2'-5"	9"	1'-5⅜"		#4	10'-0"	64	428
M202	10¼"	3'-4"	1'-3½"	1'-3"	9"	2'-1⅜"		#4	9'-6"	6	38
P201	1'-7½"	2'-4½"	1'-4¼"	1'-4¼"				#4	8'-3"	138	761
P202	11⅝"	3'-9"	1'-0⅜"	1'-0⅜"				#4	7'-9"	2	10

SUPERSTRUCTURE TOTAL = 95281 Lbs.

BAR BENDING DIAGRAM



Note:—
All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.
All bar numbers shown on this sheet are to be prefixed S33

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 Conc. Institute.
Grand Total Steel Reinforcement 186,554 lbs.

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(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

STEEL REINFORCEMENT DETAILS

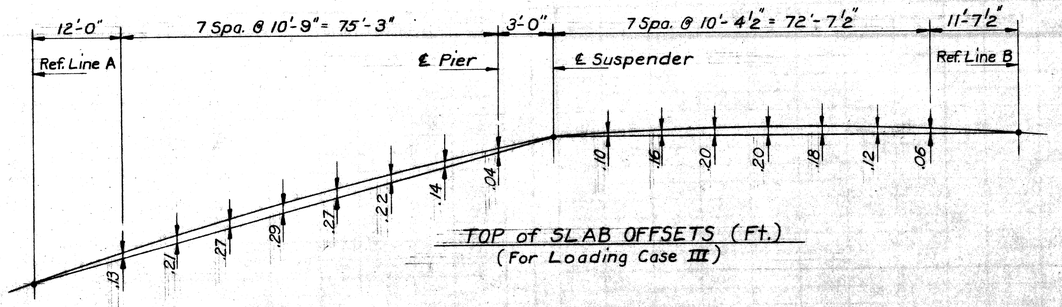
CITY OF DETROIT

REVISIONS			
NO.	DESCRIPTION	DATE	BY

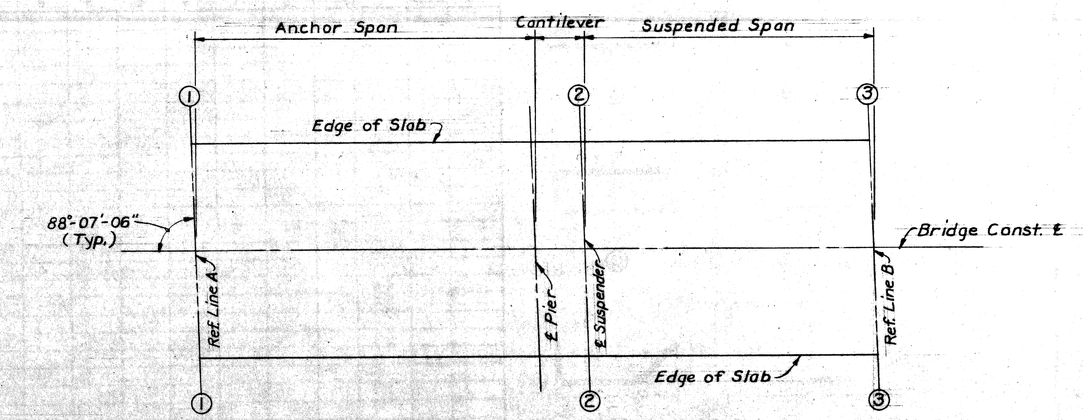
SQUAD BOSS	Sriven	5-69
DRAWN BY	J.A.K.	1-69
TRACED BY	—	—
CHECKED BY	T.H.S.	1-69

SHEET 21 OF 21

S33 of 821231



TOP of SLAB OFFSETS (Ft.)
(For Loading Case III)



PLAN of SLAB

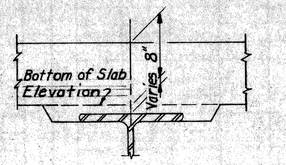
Ref. Line A — ℄ Brg. — ℄ Pier — ℄ Suspender — ℄ Brg. — Ref. Line B

87'-3" Span 1 — 8 Spa. @ 10'-9" = 86'-0" — 3'-0" — 87'-3" Span 2 — 8 Spa. @ 10'-4½" = 83'-0 — 1'-3"

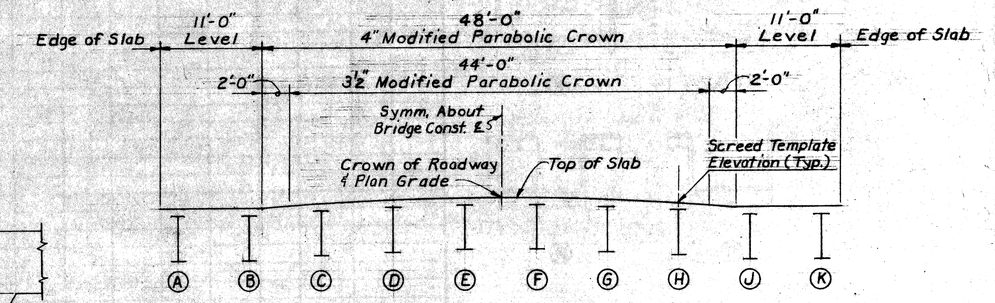
1'-3"	140.87	141.21	141.52	141.78	141.98	142.13	142.22	142.27	142.21
	140.87	141.23	141.54	141.80	142.00	142.15	142.24	142.27	142.28
	141.00	141.35	141.66	141.92	142.12	142.27	142.36	142.39	142.39
	141.12	141.47	141.78	142.04	142.24	142.39	142.47	142.51	142.51
	141.21	141.56	141.87	142.13	142.33	142.47	142.56	142.59	142.59
	141.21	141.56	141.87	142.13	142.33	142.47	142.56	142.60	142.60
	141.14	141.50	141.82	142.09	142.29	142.43	142.51	142.53	142.52
	141.03	141.39	141.71	141.98	142.18	142.32	142.39	142.42	142.40
	140.92	141.27	141.57	141.83	142.03	142.17	142.25	142.29	142.29
	140.92	141.27	141.57	141.82	142.02	142.16	142.24	142.28	142.29

142.27	142.39	142.47	142.50	142.47	142.40	142.27	142.12	141.96	(A)
142.27	142.39	142.48	142.51	142.49	142.41	142.28	142.12	141.96	
142.39	142.51	142.59	142.63	142.60	142.53	142.40	142.24	142.07	(B)
142.51	142.63	142.71	142.74	142.72	142.64	142.51	142.35	142.19	(C)
142.59	142.71	142.79	142.82	142.80	142.72	142.59	142.43	142.27	(D)
142.59	142.71	142.79	142.82	142.80	142.72	142.59	142.43	142.26	(E)
142.51	142.64	142.73	142.77	142.75	142.67	142.53	142.36	142.18	(F)
142.39	142.52	142.62	142.66	142.63	142.55	142.41	142.24	142.06	(G)
142.28	142.40	142.48	142.51	142.48	142.40	142.27	142.11	141.94	(H)
142.28	142.39	142.46	142.49	142.46	142.38	142.25	142.10	141.94	(J)
									(K)

BOTTOM of SLAB ELEVATIONS
(For Loading Case I)



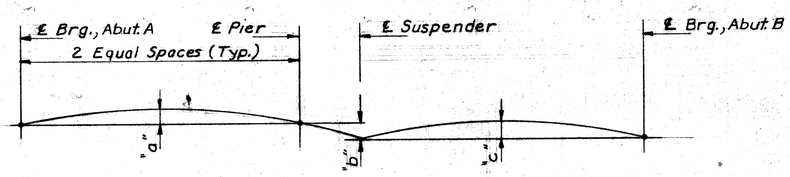
TYPICAL SECTION AT EACH BEAM



SCREED TEMPLATE

SCREED TEMPLATE ELEVATIONS FOR LOADING CASE II

Line \ Beam	A	B	C	D	E	F	G	H	J	K
1-1	141.50	141.51	141.63	141.75	141.84	141.85	141.77	141.66	141.55	141.56
2-2	142.94	142.94	143.06	143.18	143.26	143.26	143.18	143.07	142.95	142.95
3-3	142.62	142.61	142.73	142.84	142.92	142.92	142.84	142.72	142.60	142.60



CAMBER DIAGRAM
(For Loading Cases Shown in Table)

CAMBER ORDINATES (inches)

Loading Case	Beam	AK	BCDEFJ	GH	A-K	AK	BCDEFJ	GH
	Camber Dim'n.	"a"			"b"	"c"		
	I	4 7/8	5 1/8	5 1/2	5/8	4 1/4	4 1/2	4 7/8
	II	4 5/8	4 3/4	4 3/4	5/8	3 7/8	4	4
	III	3 1/8			1/2	2 1/2		

NOTES:

Use longitudinal strike-off finishing machine in placing slab concrete.

Pour suspended span before pouring anchor span.

Screeds affected by loads in other span shall be set to elevations shown before pouring any concrete.

Elevations and cambers shown include allowances for deflections due to the weight of structural steel, weight of forms, steel reinforcement, P.L.C. encasement, slab concrete, sidewalk and railing. The loading cases are as follow:

Case I - All structural steel erected and no other load applied.

Case II - Forms, steel reinforcement and P.L.C. encasement in place on structural steel and no other load applied.

Case III - Steel reinforcement, P.L.C. encasement and slab concrete in place on structural steel and no other load applied.

Work Sheets 16 - 20 Together

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

APPROVED H Covert STRUCTURAL ENGINEER

JOB No. PW 990(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY IN DETROIT

SUPERSTRUCTURE DETAILS

CITY OF DETROIT

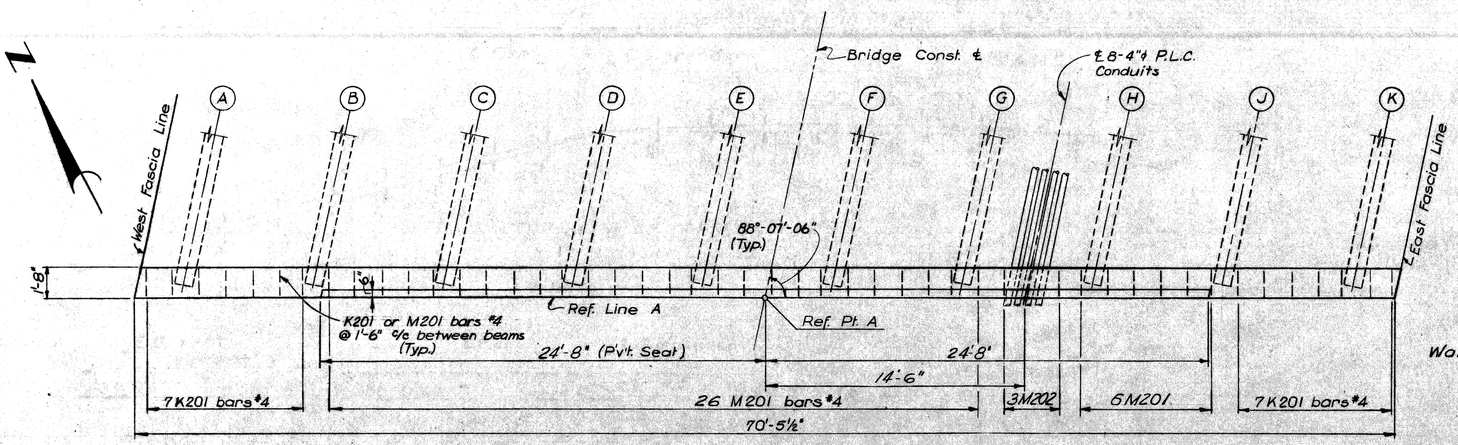
SQUAD BOSS	STURM	5-68
DRAWN BY	I.H.S.	10-68
TRACED BY	JONES	10-68
CHECKED BY	I.H.K.	12-68

SHEET 20 OF 21

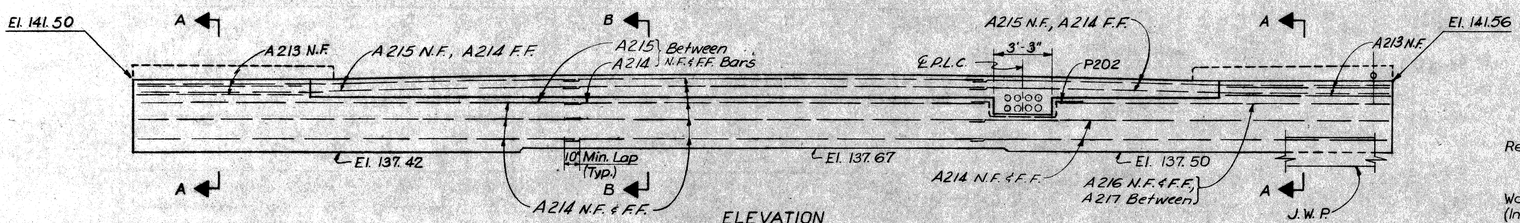
REVISIONS

NO.	DESCRIPTION	DATE	BY

S33 of 82123I

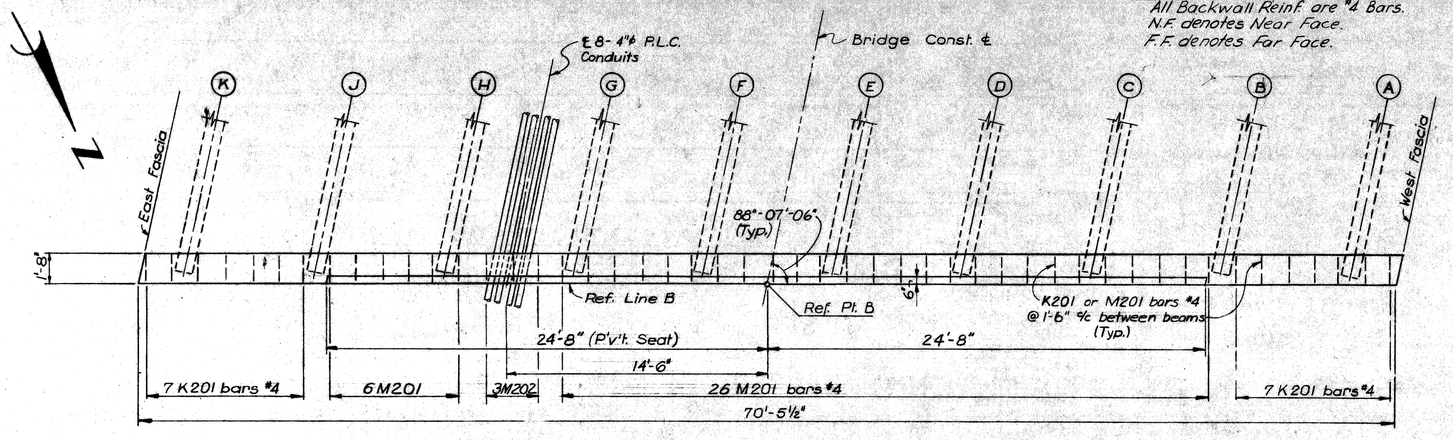


BACKWALL "A" PLAN

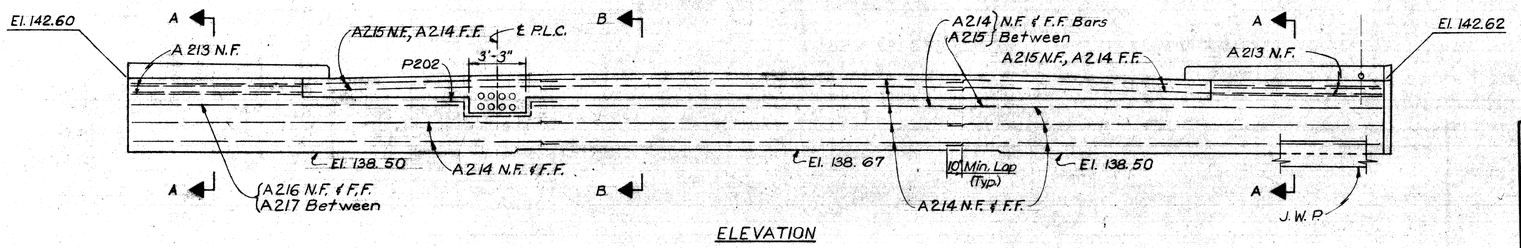


ELEVATION

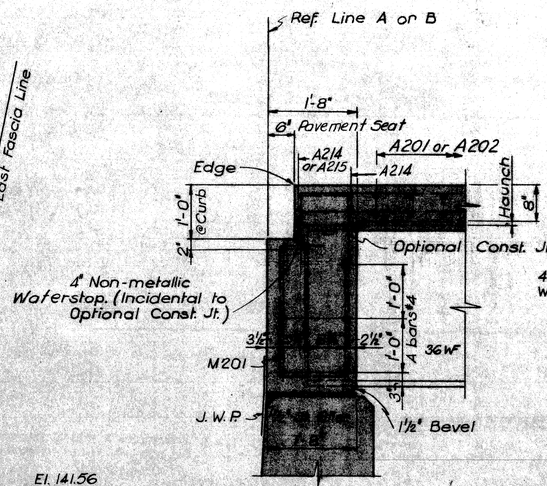
NOTE:
All Backwall Reinf. are #4 Bars.
N.F. denotes Near Face.
F.F. denotes Far Face.



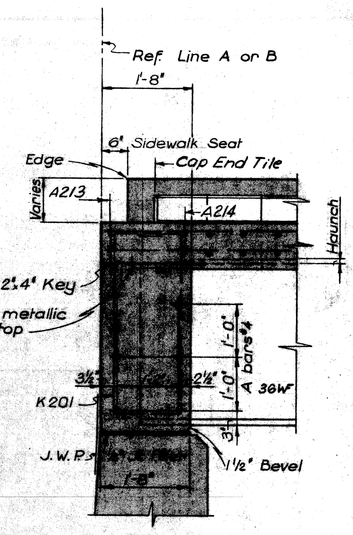
BACKWALL "B" PLAN



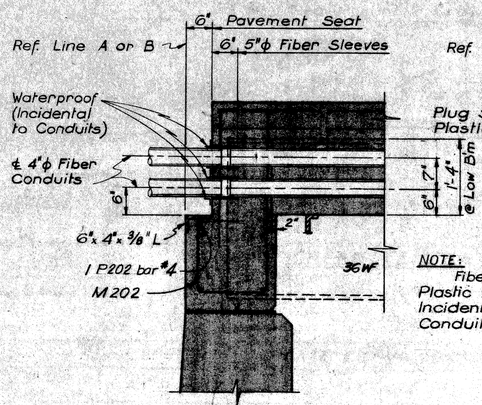
ELEVATION



SECTION B-B

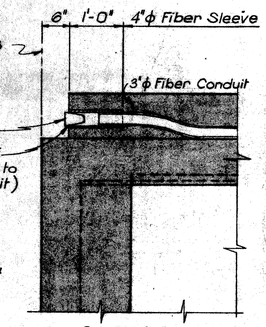


SECTION A-A



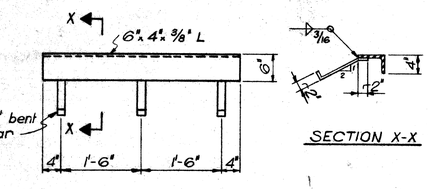
SECTION P.L.C. BELOW SLAB

NOTE:
Fiber Sleeves & Plastic Plugs are Incidental to Conduits.



SECTION P.L.C. IN SIDEWALK

Weight of P.L.C. Anchor Bolts and Anchor (Sh. 18) and P.L.C. Ledge Angle is included in Structural Steel weight (Sh. 12).



SECTION X-X

LEDGE ANGLE DETAIL

Work Sheets 16-20 together

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

APPROVED J. J. Canet
STRUCTURAL ENGINEER

JOB No.
PW 990(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY IN DETROIT

SUPERSTRUCTURE DETAILS

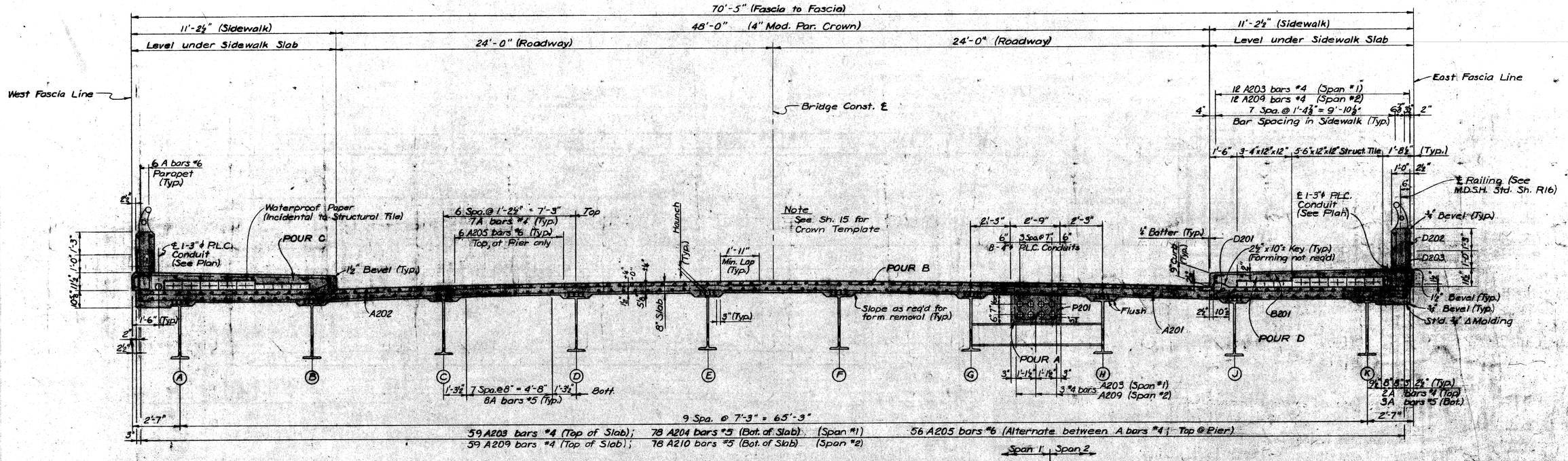
CITY OF DETROIT

SQUAD BOSS	STURM	3-69
DRAWN BY	G. Molnar	9-1968
TRACED BY	G. Molnar	9-1968
CHECKED BY	I.H.S.	9-69
SHEET 19 OF 21		

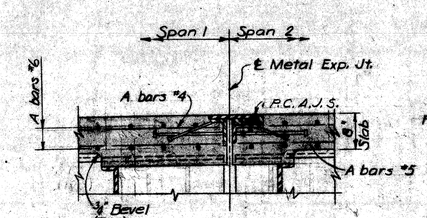
REVISIONS

NO.	DESCRIPTION	DATE	BY

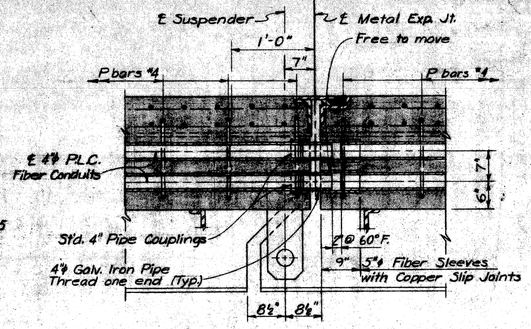
S33 of 82123I



CROSS SECTION



SECTION C-C



DETAIL OF P.L.C. CONDUITS AT SUSPENDER

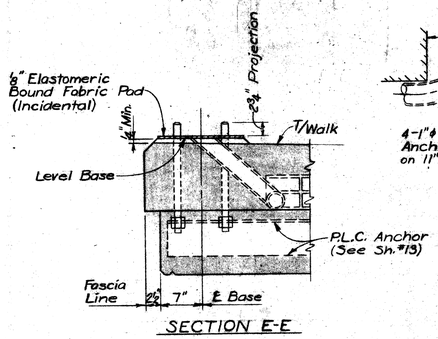
CONCRETE QUANTITIES (Cu. Yds.)				
Pour	Location	Grade	Span #1	Span #2
A	P.L.C. Encasement	XX	10.0	9.2
B	Deck Slab	A(6AA)	184.5	171.8
C	Sidewalk	A(6AA)	19.8	18.3
D	Sidewalk	A(6AA)	19.8	18.3
Total Grade XX Concrete - Superstructure = 19.2 Cu. Yds.				
Total Grade A(6AA) Concrete - Superstructure = 432.5 Cu. Yds.				

NOTES:

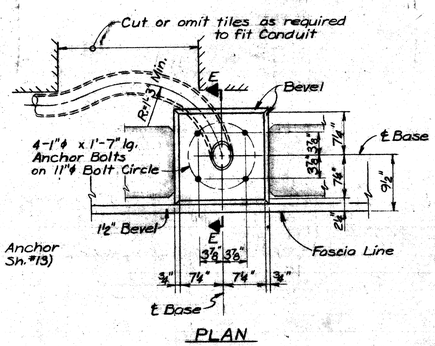
Parapet Concrete = 28 Cu. Yds. Grade A(6AA). Part of Bridge Railing - Solid Parapet Type and not a pay item.

Alphabetical designation of pours is not to be construed as a pour sequence.

Sidewalk pours shall not be cast until slab concrete has attained at least 50% of its design strength as determined by Section 5.01.05 of the Standard Specifications.

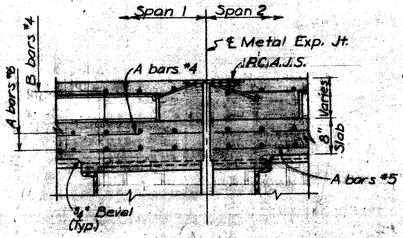


SECTION E-E

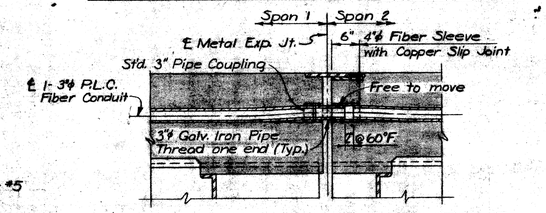


PLAN

DETAILS OF BASE FOR P.L.C. LIGHT STANDARD



SECTION D-D



P.L.C. CONDUIT IN SIDEWALK AT METAL EXP. JT.

Work Sheets 16-20 together.

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(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY IN DETROIT

SUPERSTRUCTURE DETAILS

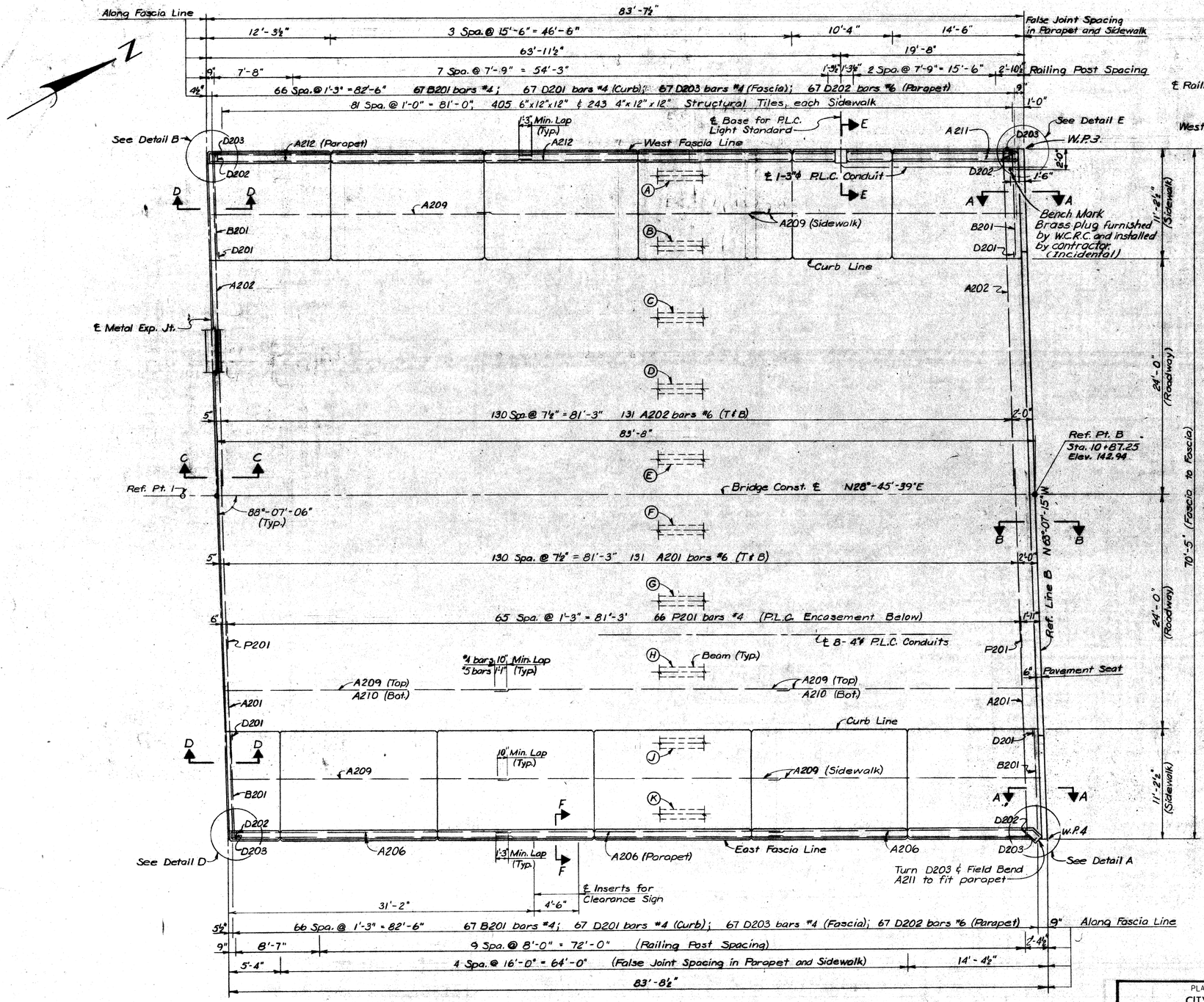
CITY OF DETROIT

REVISIONS

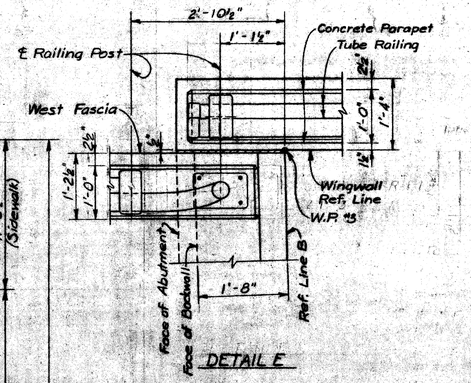
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	S.Y.U./E.M.	7-68
DRAWN BY	G. Mather	8-68
TRACED BY	A. Morton	9-68
CHECKED BY	E.M.S.	9-68
SHEET 18 OF 21		

S33 of 82123



PLAN - SPAN 2



DETAIL E

MISCELLANEOUS QUANTITIES

Item	Unit	Amount
Water-Reducing Retarding Admixture	Gal.	51
Cold Temp. Protection-Superstructure Concrete	Cu. Yds	452
Protective Treatment for Bridge Decks	Sq. Ft.	12,290
Structural Tile - 4"x12"x12"	Each	510
Structural Tile - 6"x12"x12"	Each	850
Two component Polyurethane Cold Applied Joint Sealer	Lin. Ft.	70
Joint Waterproofing	Sq. Ft.	210
Bridge Railing - Solid Parapet Type	Lin. Ft.	345
3" Conduits	Lin. Ft.	55
4" Conduits	Lin. Ft.	1390

GENERAL NOTES:

W.P. denotes Joint Waterproofing.

P.C.A.J.S. denotes Two-component Polyurethane Cold Applied Joint Sealer.

Bridge Railing is to be aluminum tubular railing on solid concrete parapet. For details of bevels, moldings, and Bridge Railing, see Std. Sheet R16.

Edge or groove denotes edging or grooving with an approved tool.

The contractor shall provide a sawed joint ½" deep by ⅛" wide (min.) in the top of slab over and parallel to the centerline of pier. The joint shall be sawed before casting of sidewalk, and shall be filled with P.C.A.J.S. (Incidental)

For Name Plate location and mounting details see Std. Sheet R16.

P.L.C. denotes Public Lighting Commission.

Work Sheets 16-20 together.

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

APPROVED H Conrad STRUCTURAL ENGINEER

JOB No. PW 9901(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY IN DETROIT

SUPERSTRUCTURE DETAILS

CITY OF DETROIT

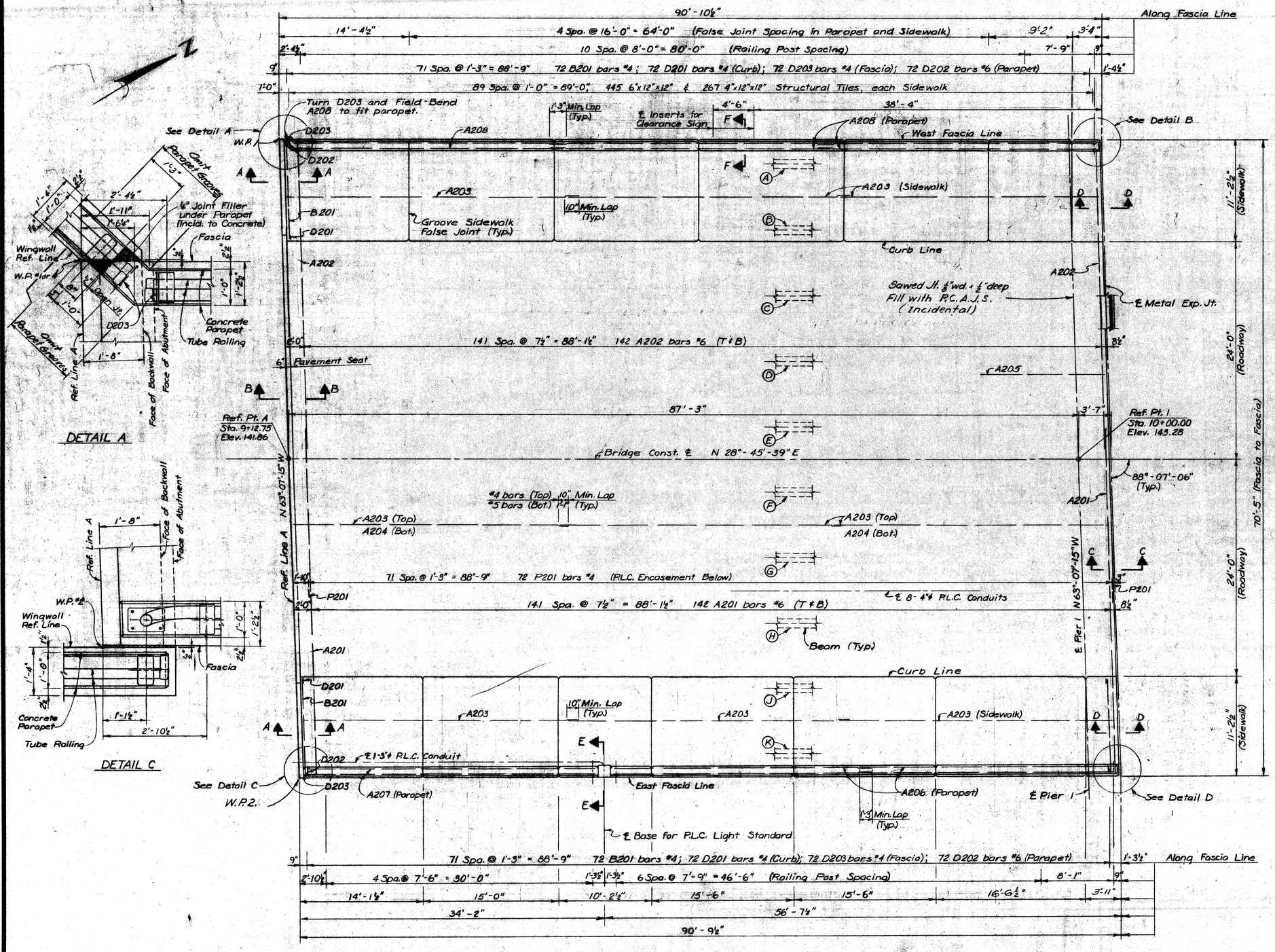
SQUAD BOSS	STURM	5-68
DRAWN BY	G. Meyer	8-68
TRACED BY	A. Morton	8-68
CHECKED BY	Z.H.S.	9-68

SHEET 17 OF 21

REVISIONS

NO.	DESCRIPTION	DATE	BY

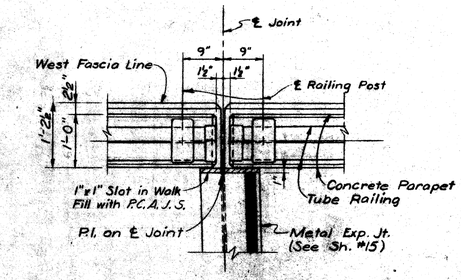
S33 of 82123I



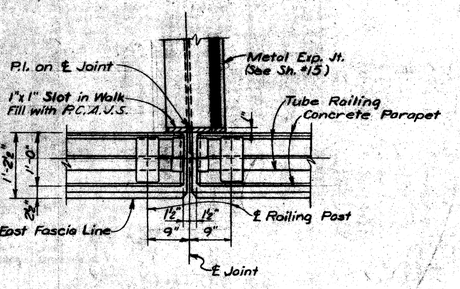
PLAN - SPAN 1

DETAIL A

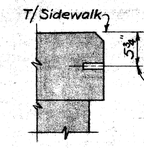
DETAIL C



DETAIL B



DETAIL D



SECTION F-F

Work Sheets 16-20 together.

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(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY IN DETROIT

SUPERSTRUCTURE DETAILS

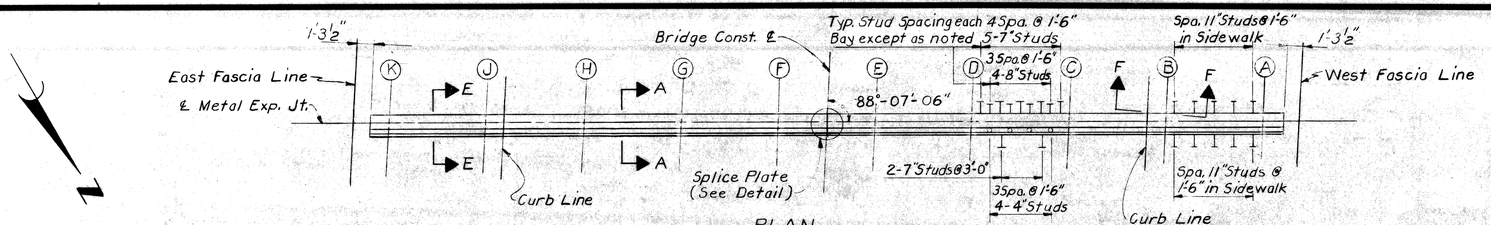
CITY OF DETROIT

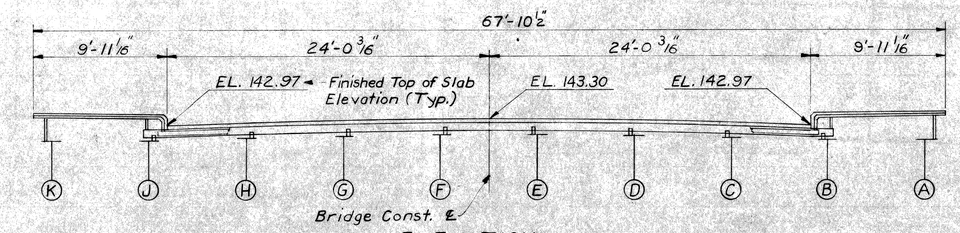
SQUAD BOSS	STURM	5-68
DRAWN BY	S. Milner	8-68
TRACED BY	A. Marten	9-68
CHECKED BY	T.H.S.	9-68
SHEET 16 OF 21		

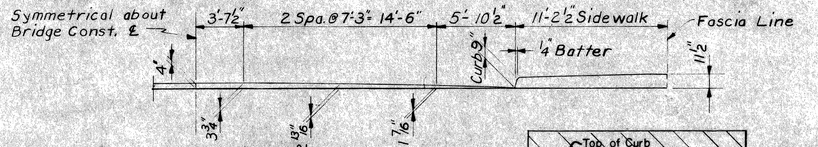
REVISIONS

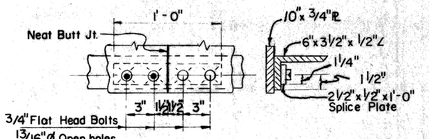
NO.	DESCRIPTION	DATE	BY

S33 of 82123I

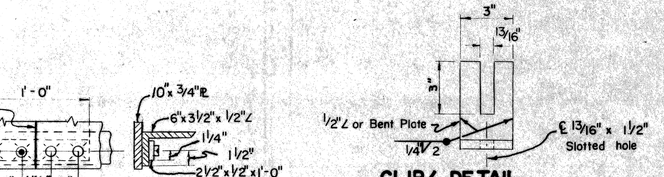




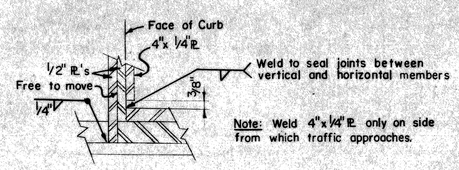




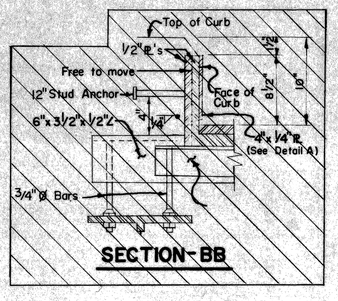
SPLICE PLATE DETAILS



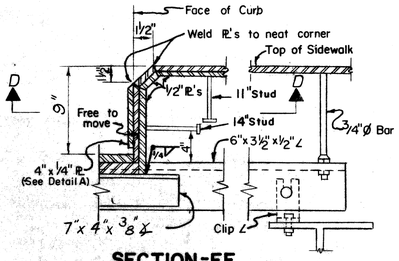
CLIP ∠ DETAIL



DETAIL A



SECTION - BB



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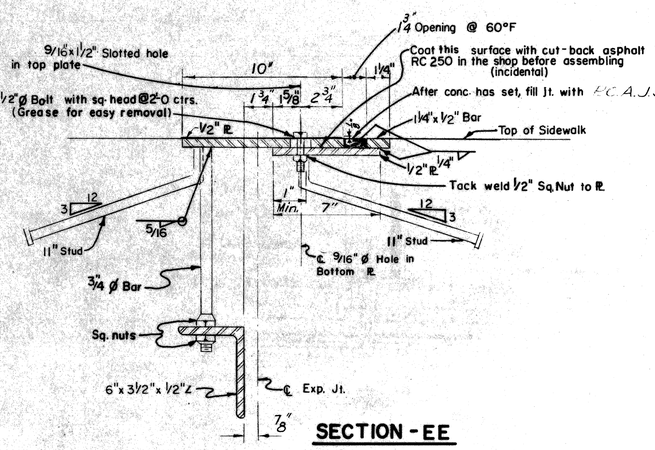

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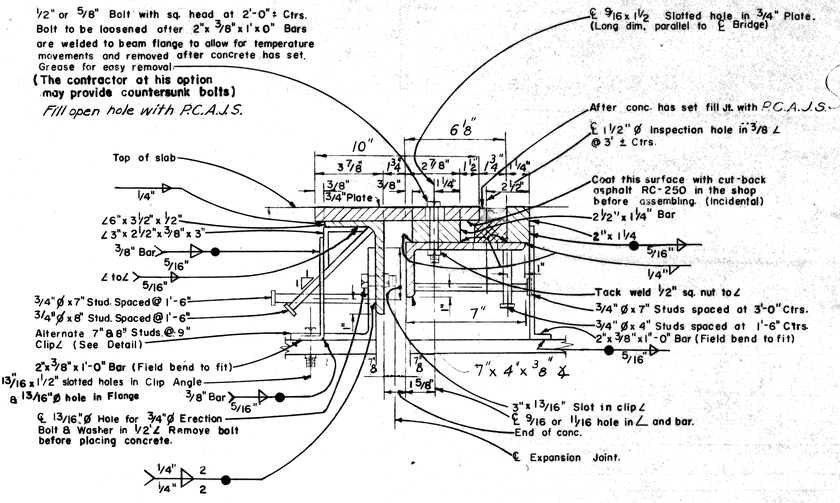

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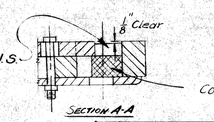

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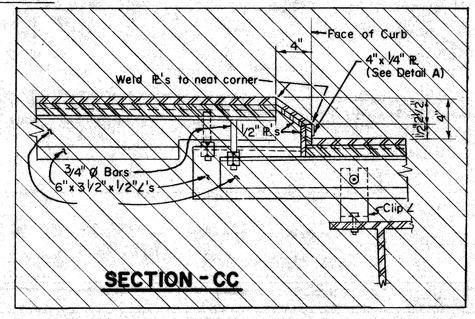

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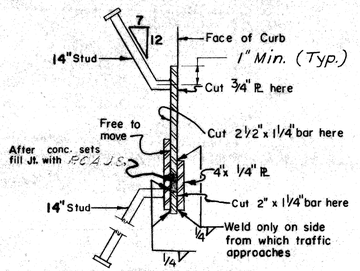
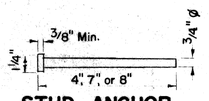
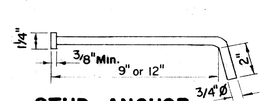


SECTION - DD



STUD ANCHOR (ROADWAY)



STUD ANCHOR (CURB & SIDEWALK)

Either single studs or two studs welded end to end may be used.

NOTES:

The Metal Expansion Joint shall be bent in the shop to conform with the contour of the top of roadway slab.

Weight of Metal Expansion Joint 4,500 lbs.
Weight of Metal Expansion Joint is included in Structural Steel weight on sheet # 12
P.C.A.J.S. denotes Two-component polyurethane Cold-Applied Joint sealer
P.C.A.J.S. is included in superstructures quantities, Sh. 17.

PLANS PREPARED BY CITY OF DETROIT
STRUCTURAL ENGINEER

S.B. NO. PW 20041

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY IN DETROIT

METAL EXPANSION JOINT DETAILS

REVISIONS

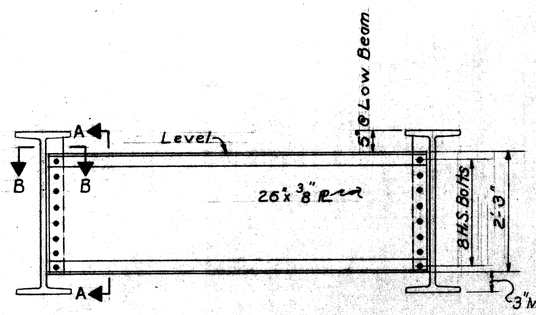
NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT

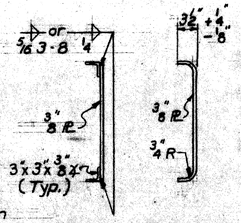
SQUAD BOSS	Sriram	3-68
DRAWN BY	J.J.AH	10-68
TRACED BY		-
CHECKED BY	T.A.B.	1-69

SHEET 15 OF 21

S33 of 82123I

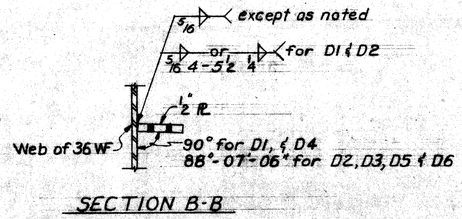


D1 & D2

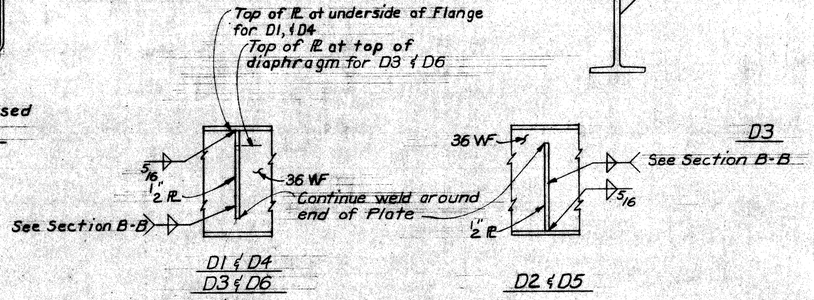


Either detail may be used

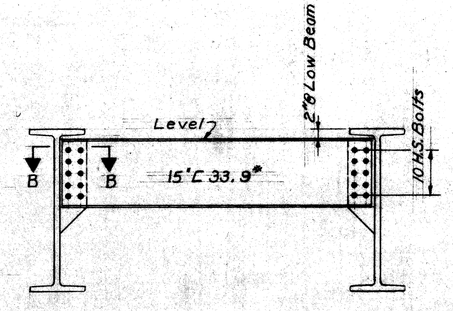
SECTION A-A



SECTION B-B



ELEVATION OF BEAM AT CONNECTION PLATE



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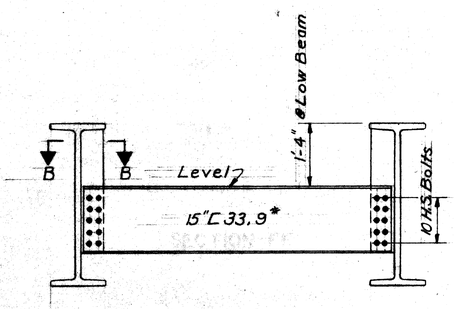
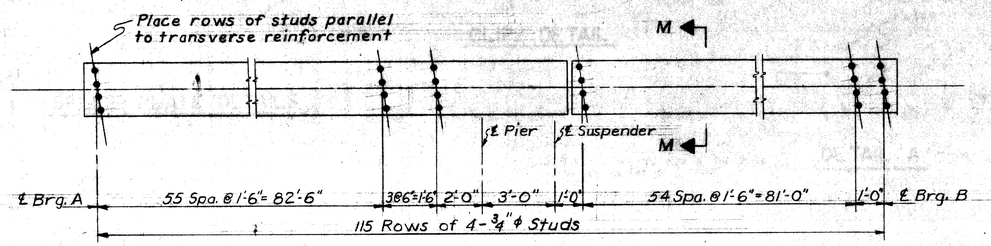
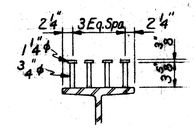


D4, D5, & D6



STUD SHEAR CONNECTORS



SECTION M-M

Work Sheets 12, 13, & 14 Together

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DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERS OFFICE
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED _____ STRUCTURAL ENGINEER

JOB No.
PW 990(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

STRUCTURAL STEEL DETAILS

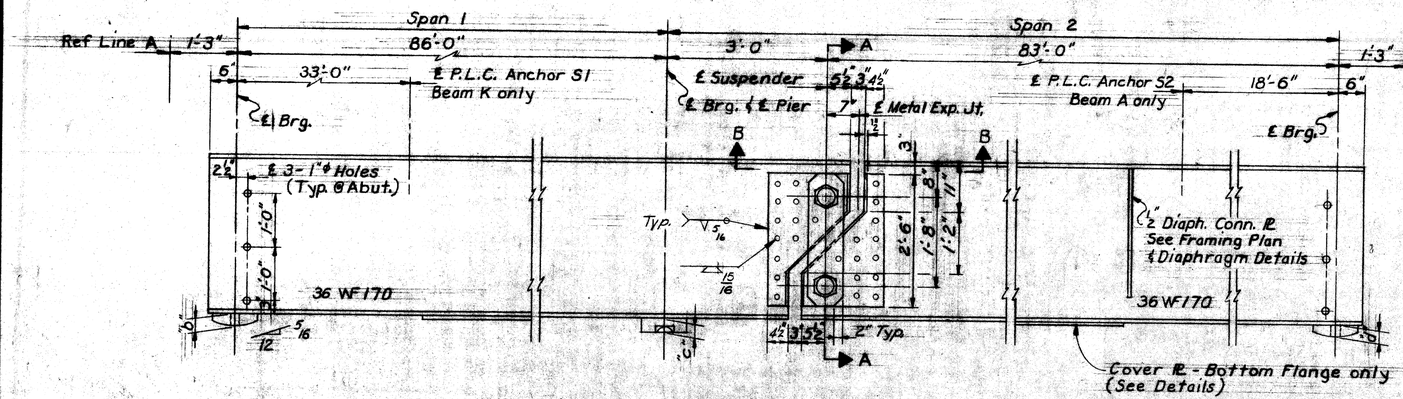
CITY OF DETROIT

SQUAD BOSS	Stuart	5-68
DRAWN BY	I. H. S.	5-68
TRACED BY	Jones	9-68
CHECKED BY	T. A. B.	1-69
SHEET 14 OF 21		

REVISIONS

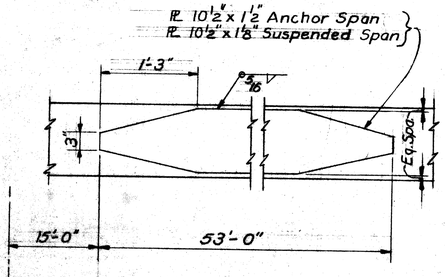
NO.	DESCRIPTION	DATE	BY

S33 of 82123I

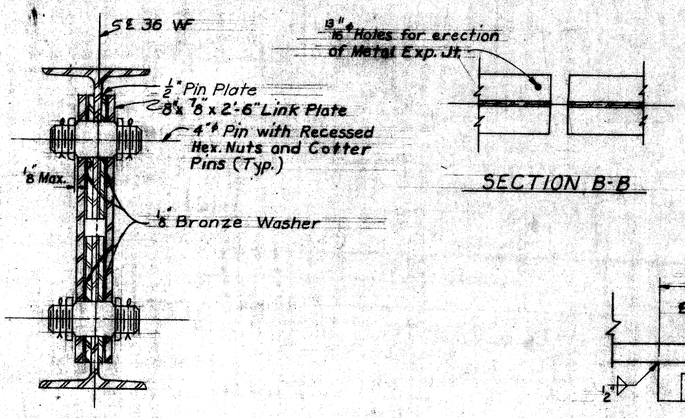


BEAM ELEVATION

SCHEDULE OF VARIABLE DIMENSIONS AND CAMBER (inches)										
Beam	"b"	"c"	"d"	"e"	"f"	"g"	"h"	"j"	"K"	"m"
A	2¼	3¾	2¼	4	5½	4	⅝	3⅜	4¾	3¾
B	2¼	3¾	2¼							
C	3¾	5¼	3½							
D	2¼	3½	3	4⅛	5¾	4⅛		3½	5	4
E	3¼	4½	4				¾			
F	3½	4½	4							
G	2½	3¾	3	4½	6⅛	4½		3⅜	5½	4⅜
H	3¼	4¼	3¾							
J	2	3	2¼	4⅛	5¾	4⅛		3½	5	4
K	2	3	2¼	4	5½	4	⅝	3⅜	4¾	3¾



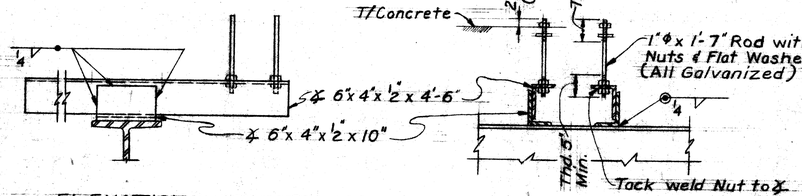
COVER PLATE DETAILS



SECTION A-A

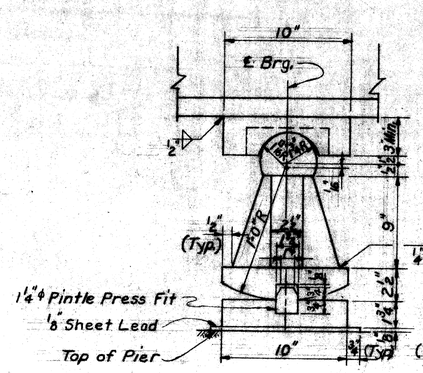
SECTION B-B

PLAN

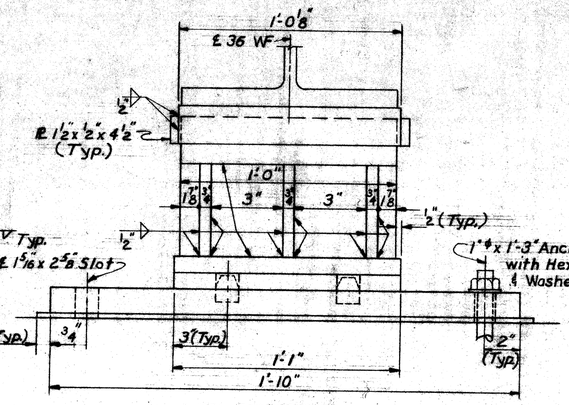


ELEVATION S1 or S2 VIEW A-A

P.L.C. ANCHOR DETAILS

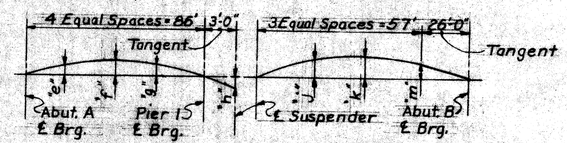


SECTION



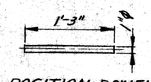
ELEVATION

PIER BEARING DETAILS

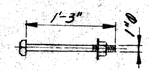


SPAN 1 SPAN 2

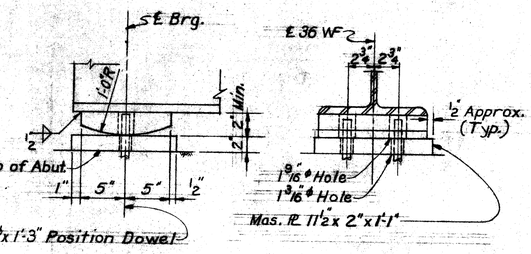
CAMBER DETAILS



POSITION DOWEL DETAIL



ANCHOR BOLT DETAIL



ELEVATION SECTION

ABUTMENT BEARING DETAILS

Work Sheets 12, 13, & 14 Together

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CITY ENGINEERS OFFICE
BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED H. Conant
STRUCTURAL ENGINEER

JOB No.
PW 990(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

STRUCTURAL STEEL DETAILS

CITY OF DETROIT

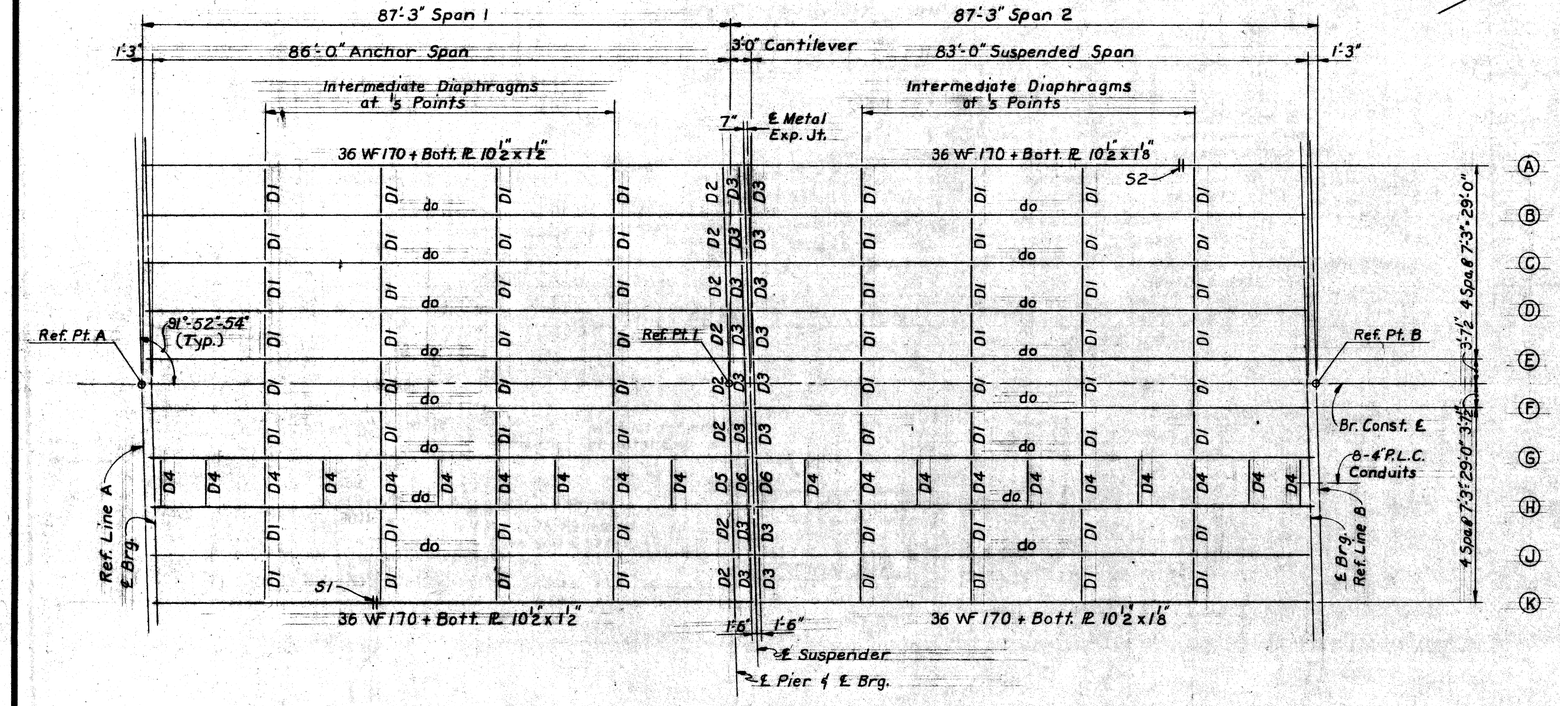
SQUAD BOSS	STURM	5-69
DRAWN BY	Z.H.S.	9-68
TRACED BY	JONES	9-68
CHECKED BY	T.A.G.	1-69

SHEET 13 OF 21

REVISIONS

NO.	DESCRIPTION	DATE	BY

S33 of 82123I



ERECTION DIAGRAM

STRUCTURAL STEEL NOTES

Design: Michigan State Highway Department Specifications for Design of Highway Bridges - 1958 edition and current AASHO Standard Specifications for Highway Bridges. HS 20 Loading.

Fabrication: Michigan Department of State Highways Standard Specifications for Road and Bridge Construction - 1967 edition.

Camber: Camber shall be measured with the Beam lying on its side. Camber tolerance is ± 1/4. Heating shall be used if necessary to assure permanent camber within the above limits. Mid-Span dead load deflection of the steel beams alone is calculated to be 5 1/2".

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 1/4 and welded with a continuous weld for the full perimeter. Welds shall be ground flush with faces of plates.

Shop Connections: Shop connections shall be welded as shown on the plans. All welding shall be in accordance with current specifications for structural welding.

Field Connections: Field connections shall be bolted with 3/4" ϕ high-strength bolts except as noted.

Welding Inspection: Magnetic Particle Inspection of welds is required and shall consist of 100 % inspection of not less than one fabricated section selected at random from each ten sections or fraction thereof.

Anchor Bolts: Steel in anchor bolts may be ASTM A-307. Anchor bolts and position dowels including nuts and washers shall be galvanized in accordance with ASTM Designation A-153.

Bronze for washers shall be ASTM B-100, Alloy No. 510 or No. 635.

Material: All steel shall be unpainted A 588. All steel material used for bearings, with exception of portion welded to beams, shall be galvanized in accordance with ASTM Designation A-123. Galvanizing shall be applied after fabrication of bearing. Mill scale and foreign material shall be removed prior to galvanizing.

Beams: Beam dimensions are horizonal and along ℄ beam.

QUANTITIES

Structural Steel - Furnishing and Fabricating*	399,000 Lbs.
Structural Steel - Erection	399 000 Lbs.
Shear Developers	Lump Sum

*Includes weight of Metal Exp. Jt., Sh. 15 and P.L.C. Steel, Sh. 19 and consists of:

ASTM A-588 Steel -	398,800 Lbs.
Sheet Lead	140 Lbs.
Bronze	60 Lbs.

Work Sheets 12, 13, & 14 Together

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BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED H. Coad STRUCTURAL ENGINEER

JOB No. PW 990(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY IN DETROIT

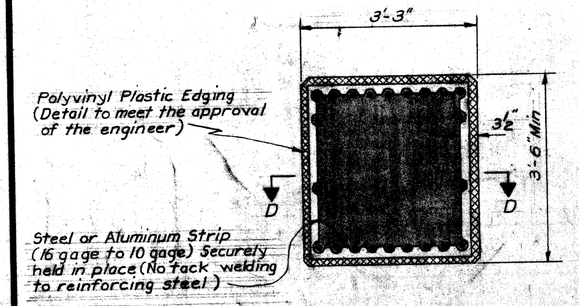
STRUCTURAL STEEL DETAILS

CITY OF DETROIT

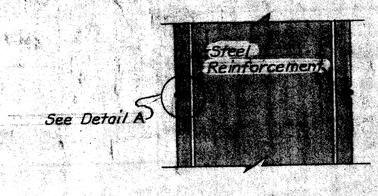
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Stuhm	3-68
DRAWN BY	J.H.S.	9-68
TRACED BY	Jones	9-68
CHECKED BY	T.A.B.	1-69
SHEET 12 OF 21		

S33 of 82123I



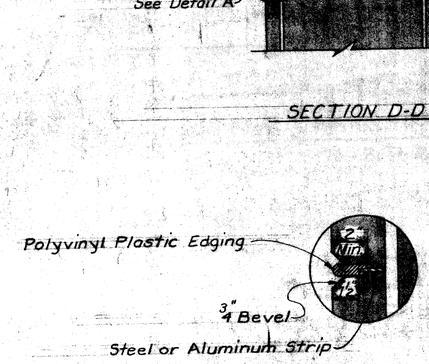
SECTION THRU. PIER CAP



SECTION D-D

CONCRETE QUANTITIES (Cu. Yds)			
POUR	LOCATION	A(6A)	A(6AA)
A	Pile Cap	24.8	—
B	Pile Cap	24.8	—
C	Grade Beam	—	59.2
D	Columns	—	8.0
E	Pier Cap	—	8.2
F	Pier Cap	—	13.1
G	Pier Cap	—	8.4
Grade A(6A) Concrete - Substructure			496 Cu. Yds.
Grade A(6AA) Concrete - Substructure			96.9 Cu. Yds.

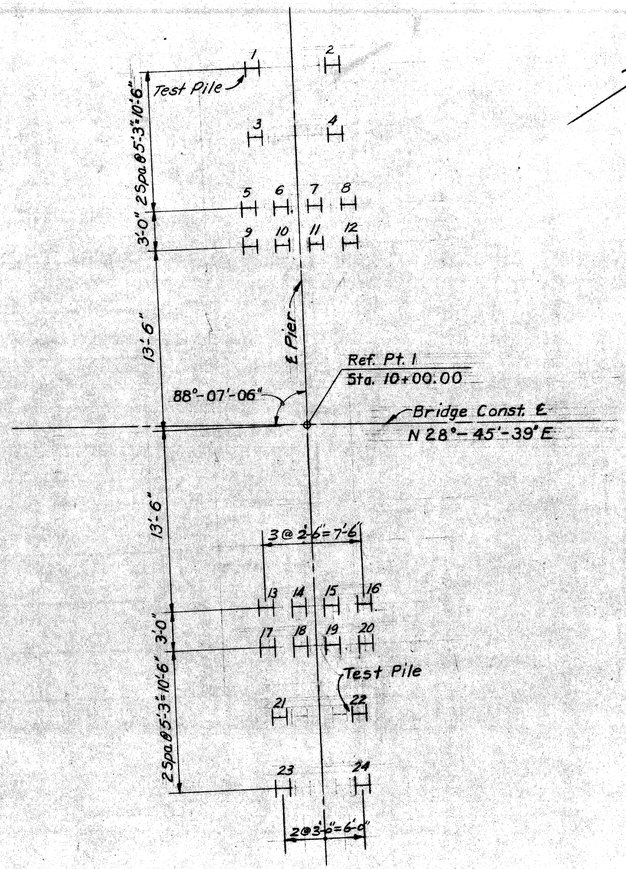
MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMOUNT
Unclassified Excavation	Cu. Yds.	103
Clear Protective Coating for Substructure Concrete	Cu. Yds.	235
Low Temp. Protection - Substructure	Cu. Yds.	147



DETAIL A

NOTES:

Partial metal bulkhead may be used as alternate construction joint at contractor's expense.
Care is to be used in casting concrete around to prevent dislocation or misalignment of the bulkhead.
Notch metal strip to fit around reinforcing steel.



PILING PLAN

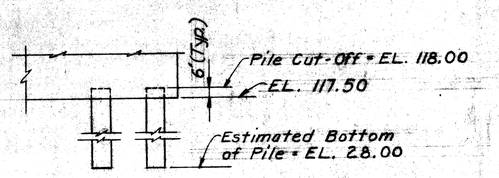
PILE QUANTITIES		
ITEM	UNIT	AMOUNT
Steel Piles - Furnished and Driven	Lin. Ft.	2,180
Splices - Steel Piles (12 in)	Each	52
Steel Test Piles (12 in)	Each	2
Furnishing Equipment for Driving Piles	Lump Sum	—

NOTES:

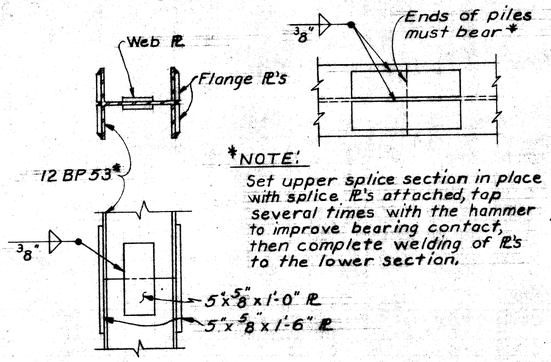
Estimated length of each pile - furnished and driven = 90 Ft.
Estimated length of each test pile = 100 Ft.

GENERAL NOTES:

All piles shall be driven to a minimum bearing capacity of 60 Tons.
Steel Shell Piles shall not be used.
Piles shall be steel 12" H Section weighing not less than 53 Lbs. per Foot.
Butt - welded splices as described in the Supplement Specifications will be permitted as an alternate for the splices shown.
Splices for test pile are incidental to test pile.
All piles placed after the double box sewer construction shall be prebored 8" diameter to within the last 10 feet of final penetration.
Bridge Contractor shall be responsible for protecting new Box Sewer against damage during construction of Joy Road Bridge.

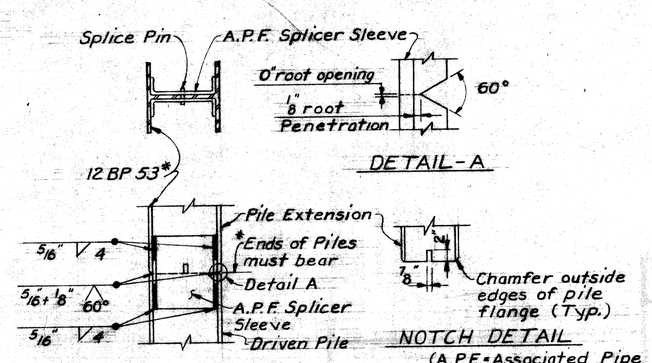


PILE CUT-OFF DETAIL



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

SPLICE DETAILS



NOTCH DETAIL
(A.P.F. = Associated Pipe and Fitting Company)

ALTERNATE SPLICE DETAILS

Work this Sheet with Sheet No. 10

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BUREAU OF HIGHWAYS AND EXPRESSWAYS

APPROVED [signature] STRUCTURAL ENGINEER

JOB No. PW 990(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY IN DETROIT

PIER DETAILS

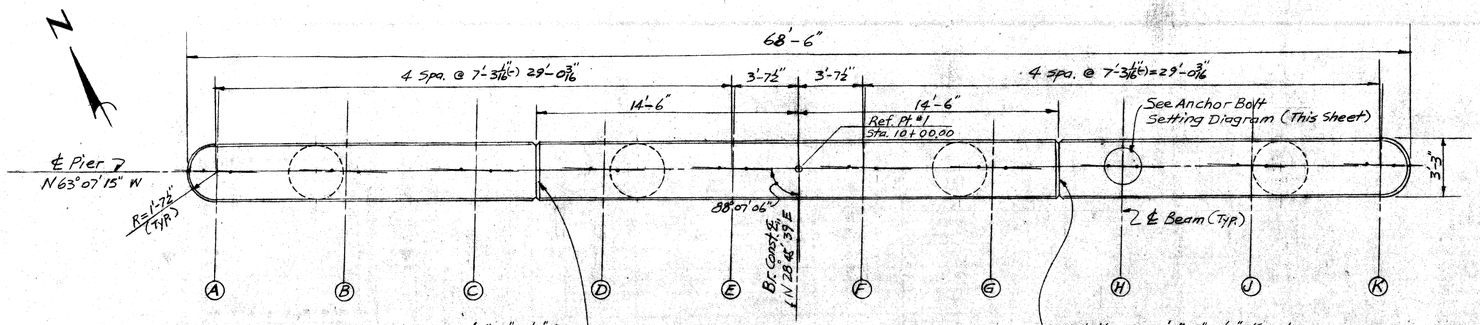
REVISIONS

NO.	DESCRIPTION	DATE	BY

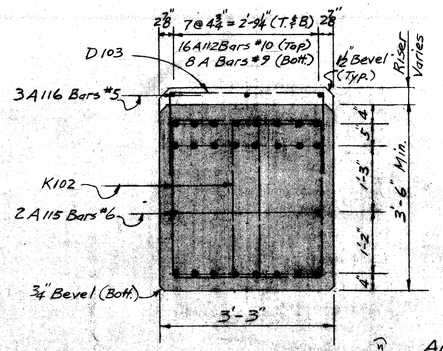
CITY OF DETROIT

SQUAD BOSS	STUHEN	5-68
DRAWN BY	I.A.M.	9-68
TRACED BY	Jones	9-68
CHECKED BY	I.A.B.	12-68
SHEET 11 OF 21		

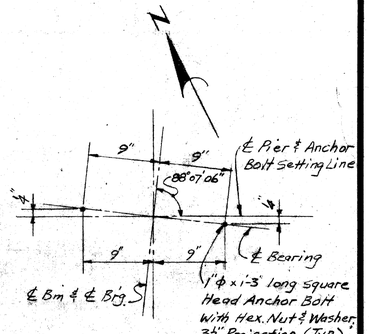
S33 of 82123I



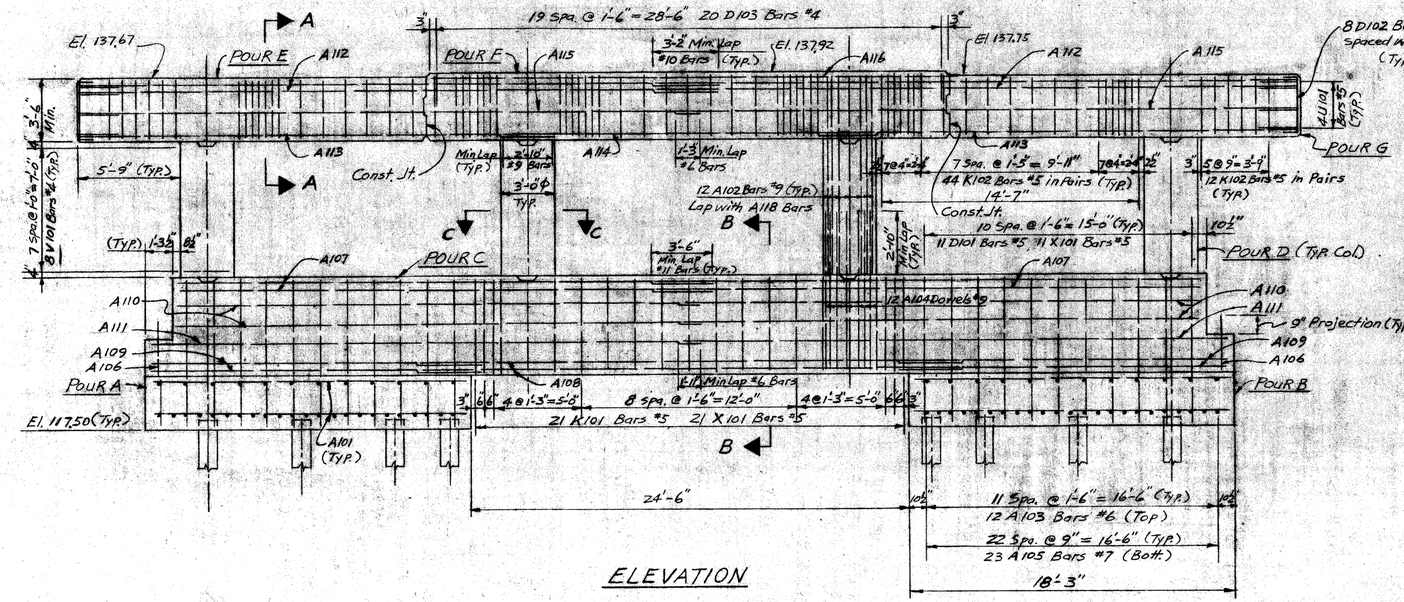
TOP PLAN



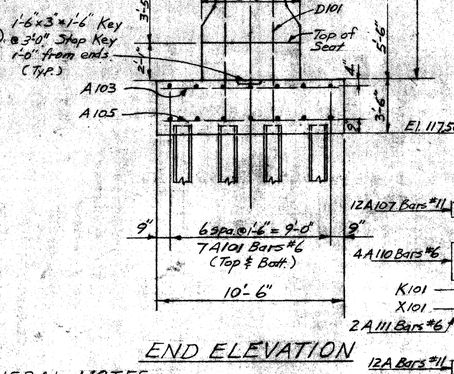
SECTION A-A



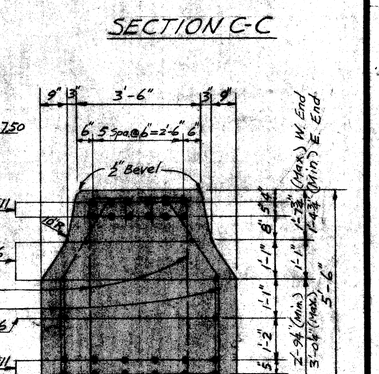
ANCHOR BOLT SETTING DIAG.



ELEVATION

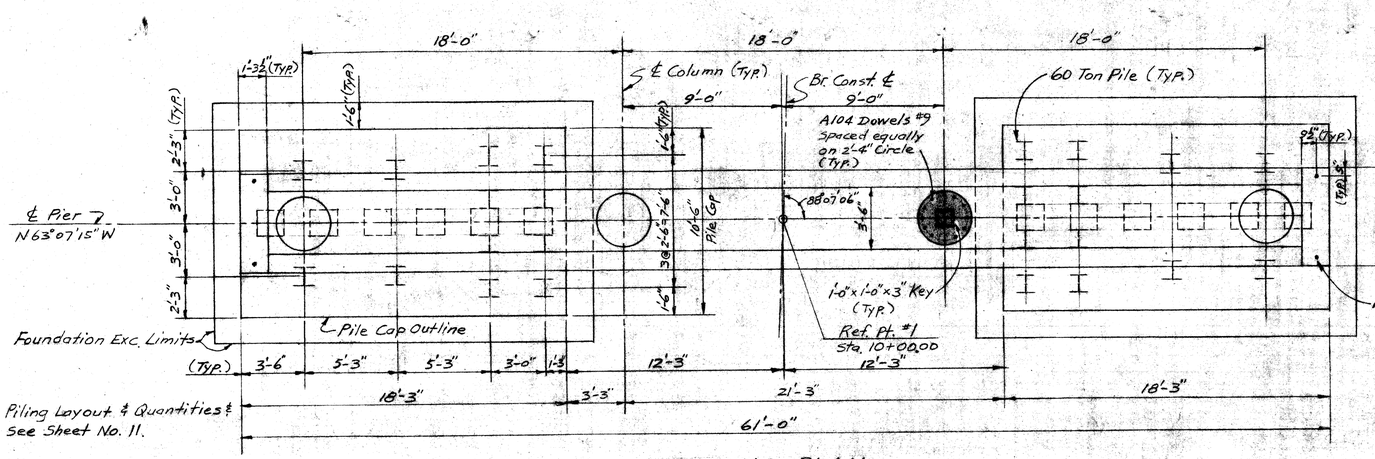


END ELEVATION



SECTION C-C

SECTION B-B



FOOTING PLAN

Note: For Piling Layout & Quantities & Notes, See Sheet No. 11.

GENERAL NOTES:

For Molding and Bevel Details, see M.D.S.H. Std. Dwgs R16.

Anchor Bolts are to be set accurately to a template. Rockers and Anchor Bolts are furnished with Structural Steel.

The Project Engineer shall adjust the spacing of the reinforcing steel as required to permit placing of Anchor Bolts.

B.S. denotes Both Sides.

The complete exposed surface of the pier concrete above top of footing shall be given an application of Clear Protective Coating for Substructure Concrete.

Work this Sheet with Sheet No. 11

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

APPROVED: H Conrad
STRUCTURAL ENGINEER

JOB No. PW 99041

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY IN DETROIT

PIER DETAILS

CITY OF DETROIT

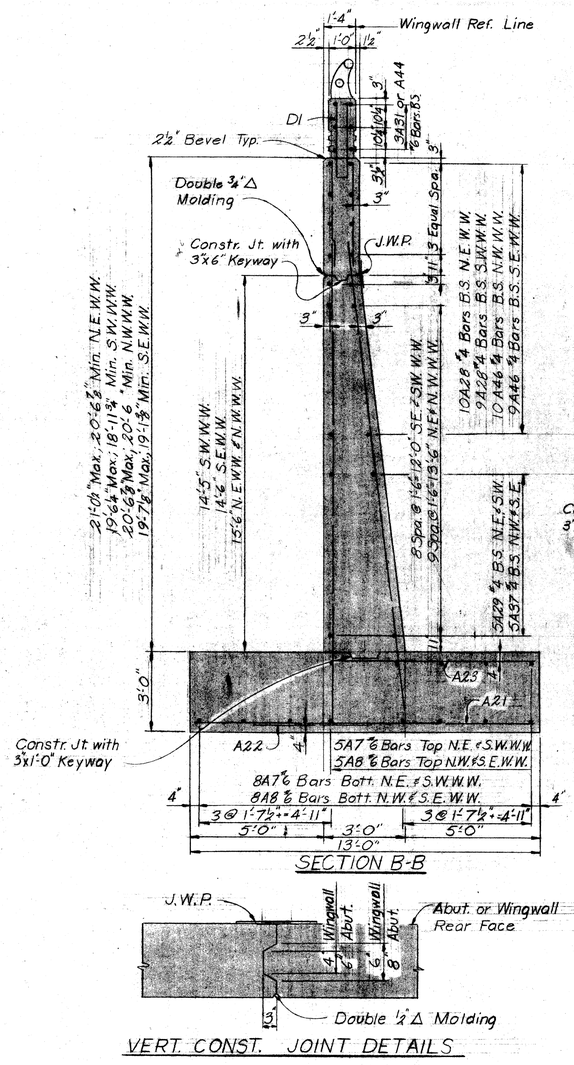
SQUAD BOSS	STURM	5-68
DRAWN BY	J.T.K	9-68
TRACED BY	—	—
CHECKED BY	J.P.B.	9-68

SHEET 10 OF 21

REVISIONS

NO.	DESCRIPTION	DATE	BY

S33 of 82123I

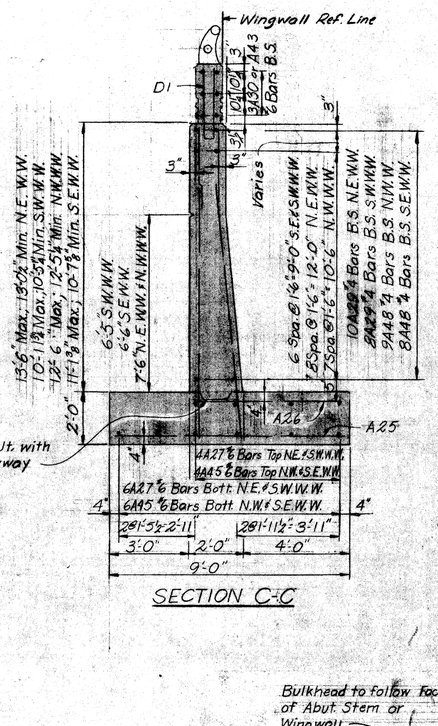


SECTION B-B

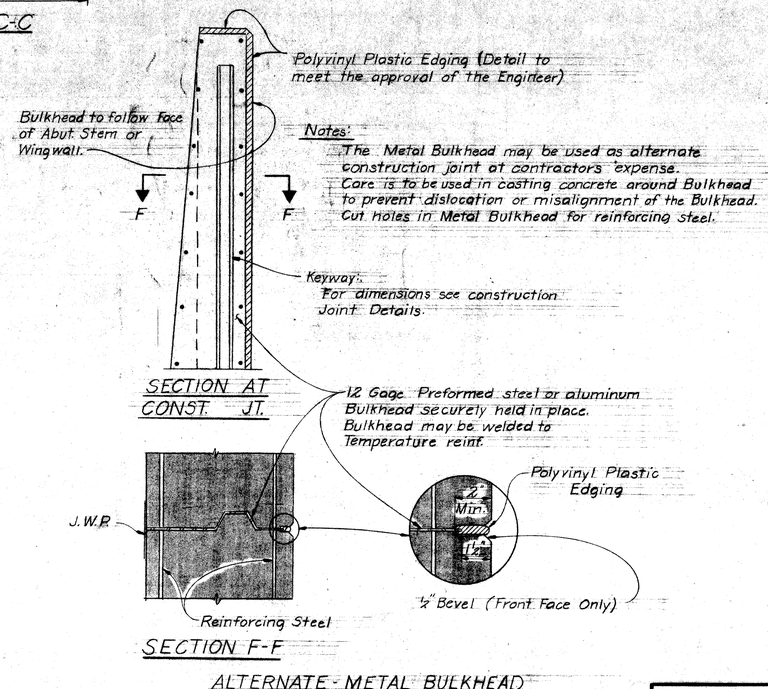
VERT. CONST. JOINT DETAILS

Note:
Stop all keyways 1'-0" below top of Wingwalls.

Note:
For details not shown see Section B-B



SECTION C-C



SECTION AT CONST. JT.

SECTION F-F

ALTERNATE - METAL BULKHEAD FOR CONSTRUCTION JOINTS

MISCELLANEOUS QUANTITIES

Item	Unit	Amount		
		Abut. A	Abut. B	Total
Unclassified Excavation	Cu. Yds.	721	837	1558
Steel Sheet Piling (L.T.P.)	Sq. Ft.	384	384	768
Clear Protective Coating for Substructure Concrete	Sq. Yds.	107	115	222
Low Temp. Protection - Substr. Conc.	Cu. Yds.	343	358	701
½" Joint Filler	Sq. Ft.	126	126	252
Joint Waterproofing	Sq. Ft.	170	180	350
Bridge Railing - Solid Parapet Type	Lin. Ft.	77	77	154
Foundation Drains*	Lin. Ft.	164	164	328

* Foundation Drains shall be perforated pipe, sloped ⅛" / Ft. min., continuous over the length of the Abutment and Wingwall Footings, and placed as shown on the General Plan of Structure.

CONCRETE QUANTITIES (Cu. Yds.)

Pour	Location	Abutment A		Abutment B	
		A(6A)	A(6AA)	A(6A)	A(6AA)
A	Footing	62.5	–	62.5	–
B	Footing	71.5	–	71.5	–
C	Grade Beam	15.9	–	15.9	–
D	Footing (S.W. & N.E. W.W.)	18.7	–	18.7	–
D	Footing (S.E. & N.W. W.W.)	15.0	–	15.0	–
E	Abut. Wall	–	28.0	–	300
F	Abut. Wall	–	29.2	–	31.7
G	Abut. Wall	–	27.7	–	299
H	Wingwall (S.W. & N.E.)	–	25.5	–	27.4
H	Wingwall (S.E. & N.W.)	–	16.3	–	17.4
J	Wingwall (S.W. & N.E.)	–	5.3	–	5.8
J	Wingwall (S.E. & N.W.)	–	3.9	–	4.1
K	Wingwall (S.W. & N.E.)	–	13.4	–	16.6
K	Wingwall (S.E. & N.W.)	–	10.2	–	11.7
	Total	183.6	159.5	183.6	174.6
Grade A(6A) Concrete - Substructure 367.2 Cu. Yds.					
Grade A(6AA) Concrete - Substructure 334.1 Cu. Yds.					

Parapet Concrete = 12.8 Cu. Yds. Grade A(6AA)
Part of Bridge Railing - Solid Parapet Type, and not a pay item.

GENERAL NOTES:

J.W.P. denotes Joint Waterproofing; N.S. denotes Near Side; F.S. denotes Far Side; B.S. denotes Both Sides.

Position Dowels shall be set accurately to a template and are to be furnished with Structural Steel.

Footing concrete quantities are computed on the basis of an outline 3¼" outside of the footing where the concrete is poured against Steel Sheet Piling Left in Place. No additional allowance will be made in concrete or excavation quantities regardless of the steel sheet piling used.

Steel sheet piling left in place shall be of the continuous interlock type, either new or used, in good condition, weighing not less than 22 pounds per square foot 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.

Steel Sheet Piling Left in place shall be driven to its final Penetration before adjacent concrete is poured.

If it is necessary to lower the top of sheeting after the concrete has been poured, the excess shall be removed by cutting.

Adjust the spacing of the reinforcing steel as required to permit placing of foundation drains.

Maximum average foundation pressure D.L. only = 2900 P.S.F.

Maximum foundation pressure D.L. + L.L. = 4000 P.S.F.

For Bevel and Molding Details see Std. Sh. R16.

Bridge Railing is to be aluminum tubular railing on solid concrete parapet.

For Railing Details (except as noted) See Std. Sh. R16.

The bridge seat and front face of each abutment above top of footing or grade beam between wingwall returns shall be given an application of Clear Protective Coating for Substructure Concrete.

Work Sheets 6-9 together

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

APPROVED H Conrad STRUCTURAL ENGINEER

JOB No.
PW 9901(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

ABUTMENT DETAILS

REVISIONS

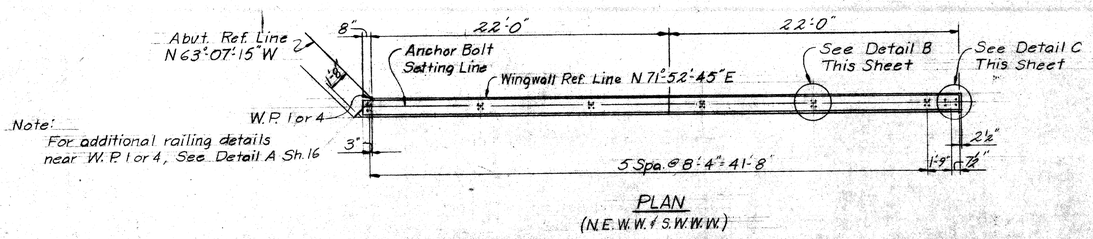
NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT

SQUAD BOSS	STURM	5-68
DRAWN BY	K.V.H.	9-68
TRACED BY	L.G.	9-68
CHECKED BY	Z.H.K.	12-68

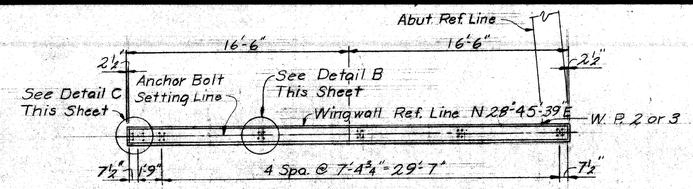
SHEET 9 OF 21

S33 of 82123I

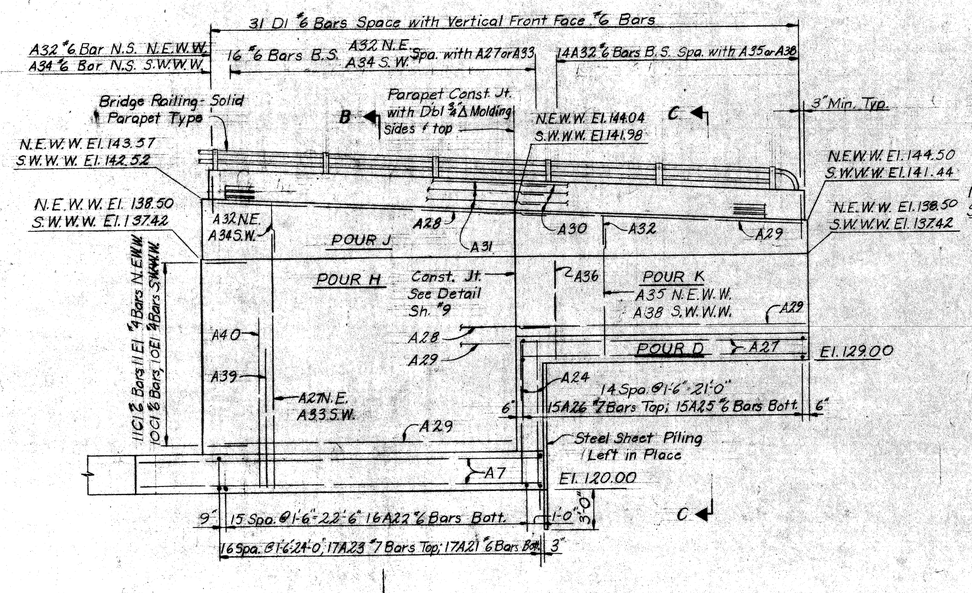


Note: For additional railing details near W.P. 1 or 4, See Detail A Sh. 16

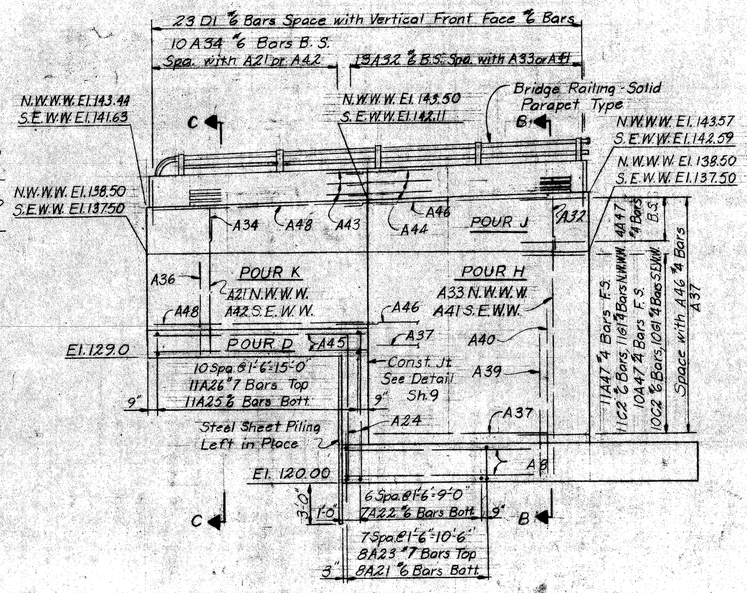
PLAN
(N.E.W.W. & S.W.W.W.)



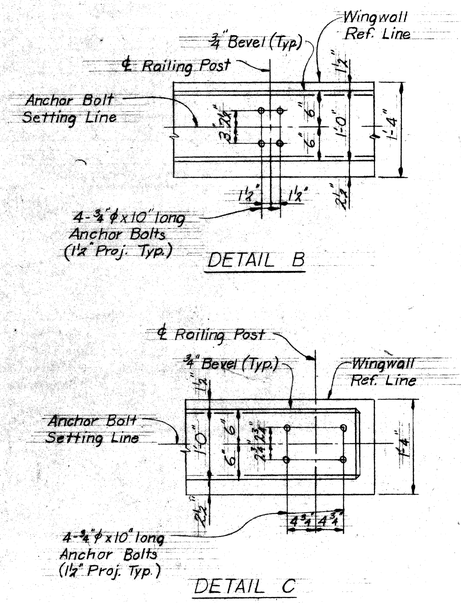
PLAN
(N.W.W.W. & S.E.W.W.)



ELEVATION
N.E.W.W. & S.W.W.W.

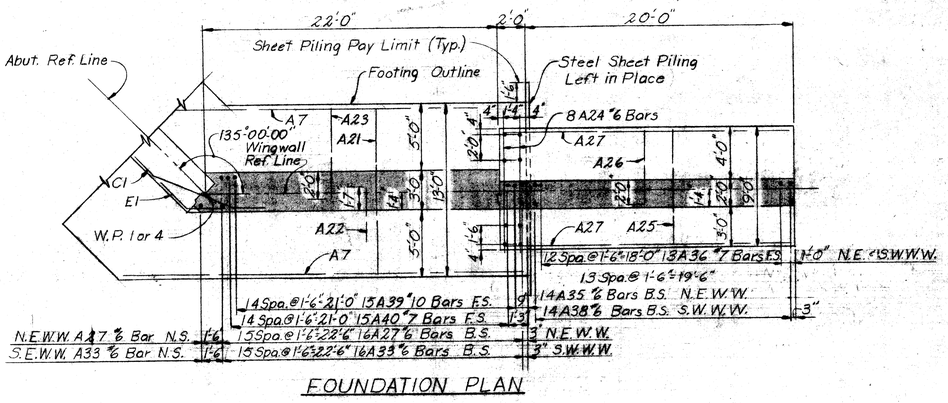


ELEVATION
N.W.W.W. & S.E.W.W.

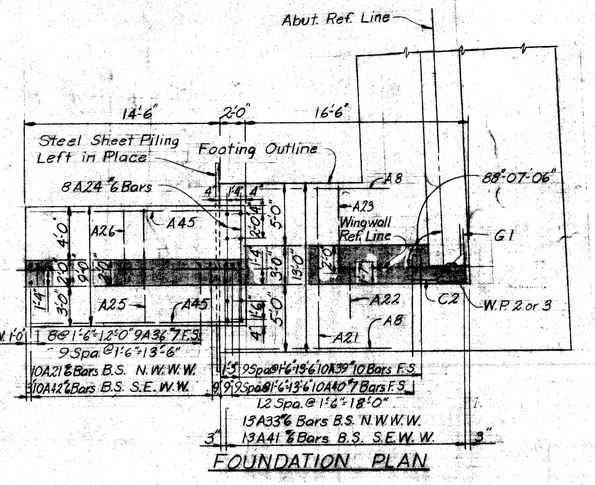


DETAIL B

DETAIL C



FOUNDATION PLAN



FOUNDATION PLAN

Work Sheets 6-9 together

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(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY IN DETROIT

WINGWALL DETAILS

REVISIONS

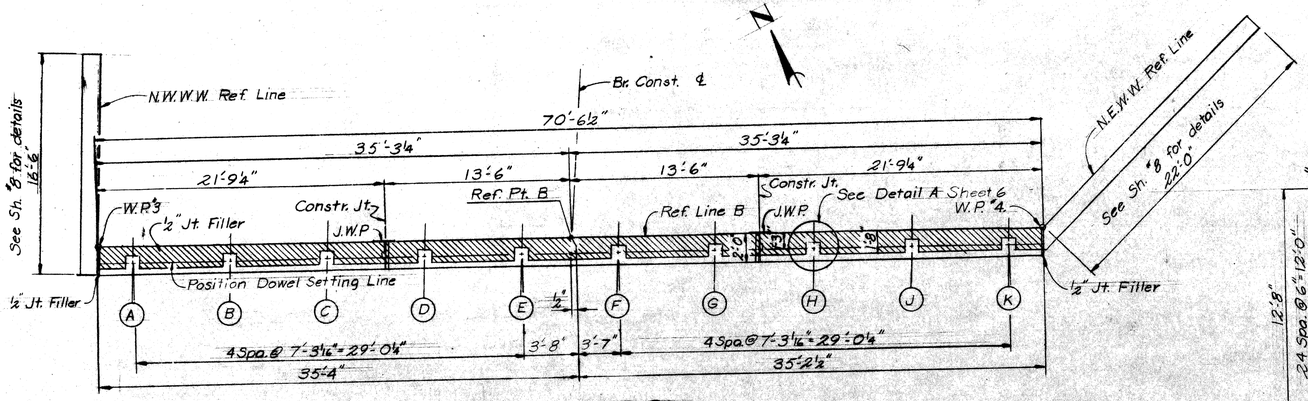
NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT

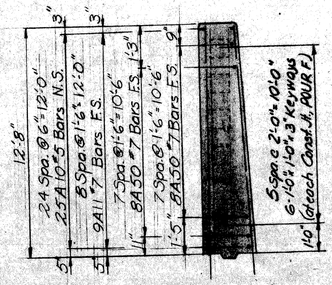
SQUAD BOSS	STURM	5-68
DRAWN BY	K.V.H	9-68
TRACED BY	L.G.	9-68
CHECKED BY	E.N.K.	12-68

SHEET 4 OF 21

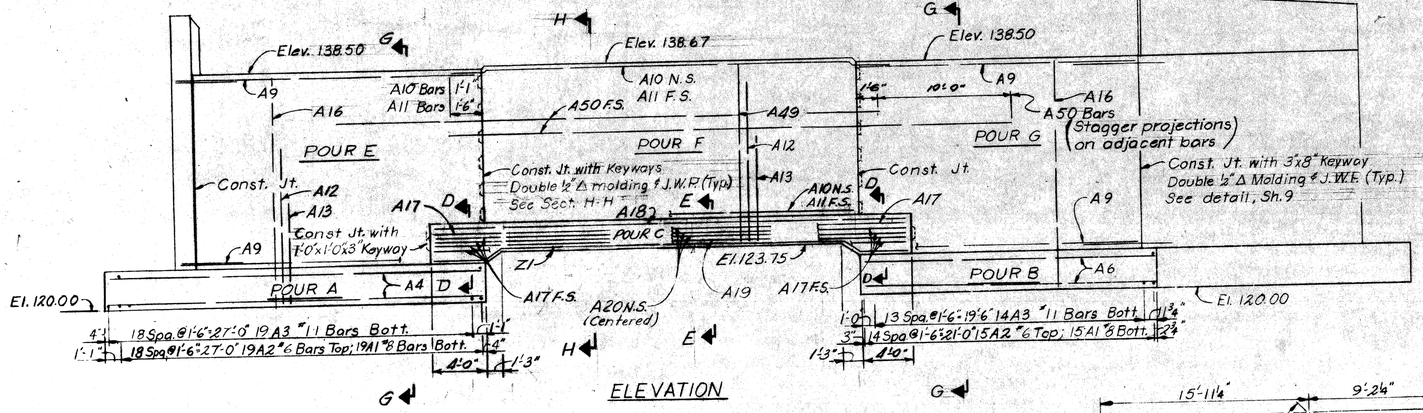
S33 of 82123I



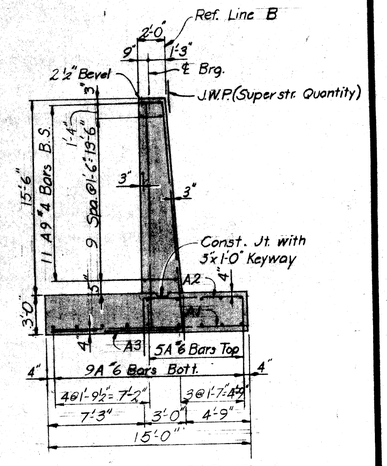
PLAN ABUT. B.



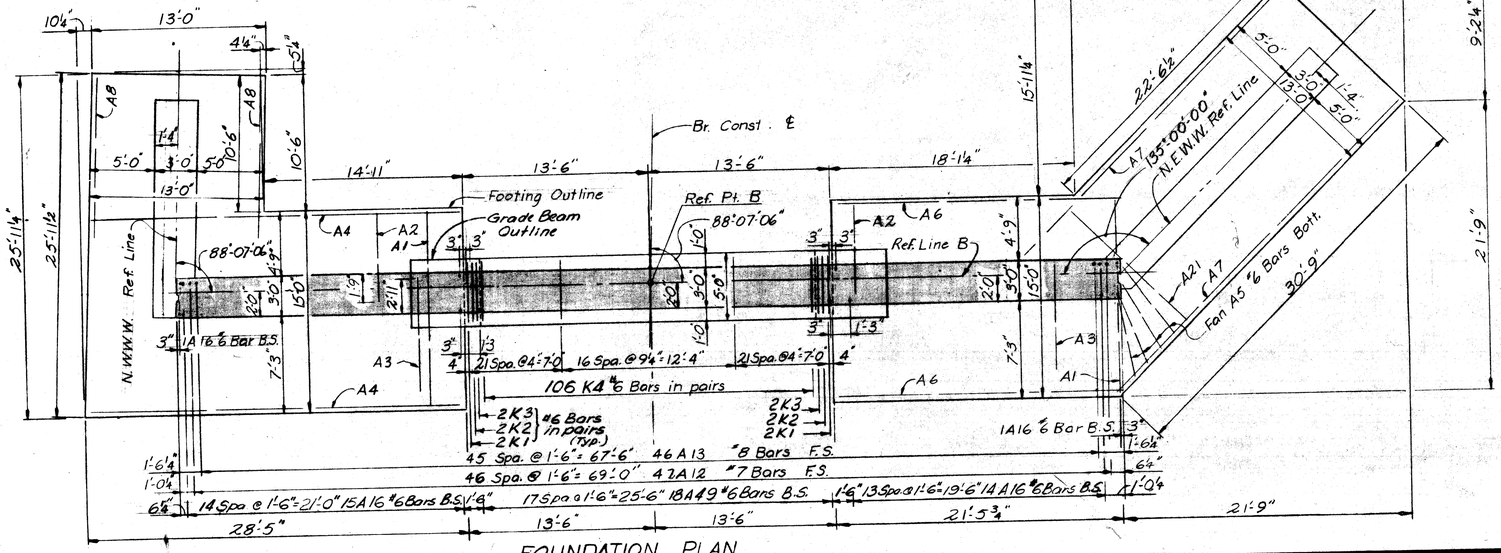
SECTION H-H



ELEVATION



SECTION G-G



FOUNDATION PLAN

Work Sheets 6-9 together

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(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

ABUTMENT B DETAILS

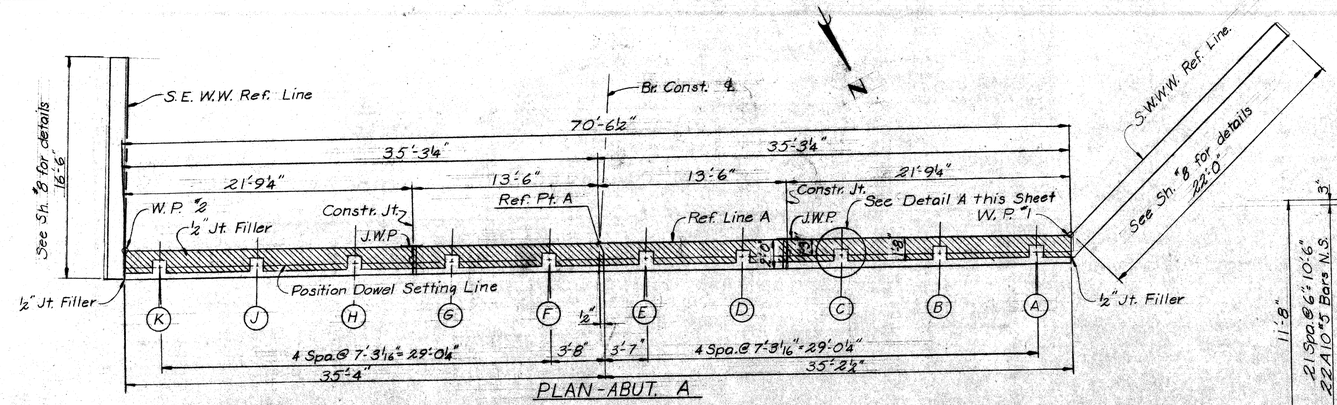
REVISIONS

NO.	DESCRIPTION	DATE	BY

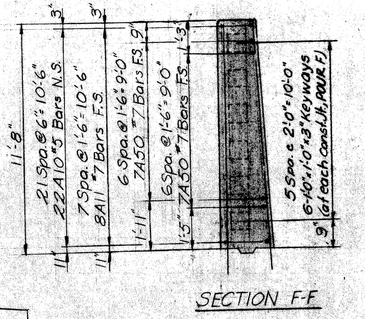
CITY OF DETROIT

BOARD DWGS	STEARN	5-68
DRAWN BY	K.V.H.	5-68
TRACED BY	L.G.	9-68
CHECKED BY	I.H.K.	12-68
SHEET 7 OF 21		

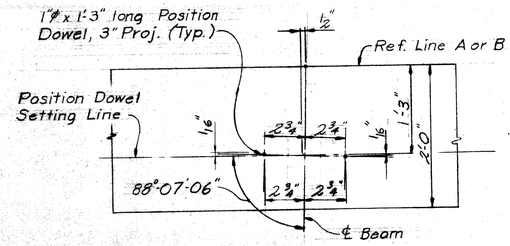
S33 of 82123I



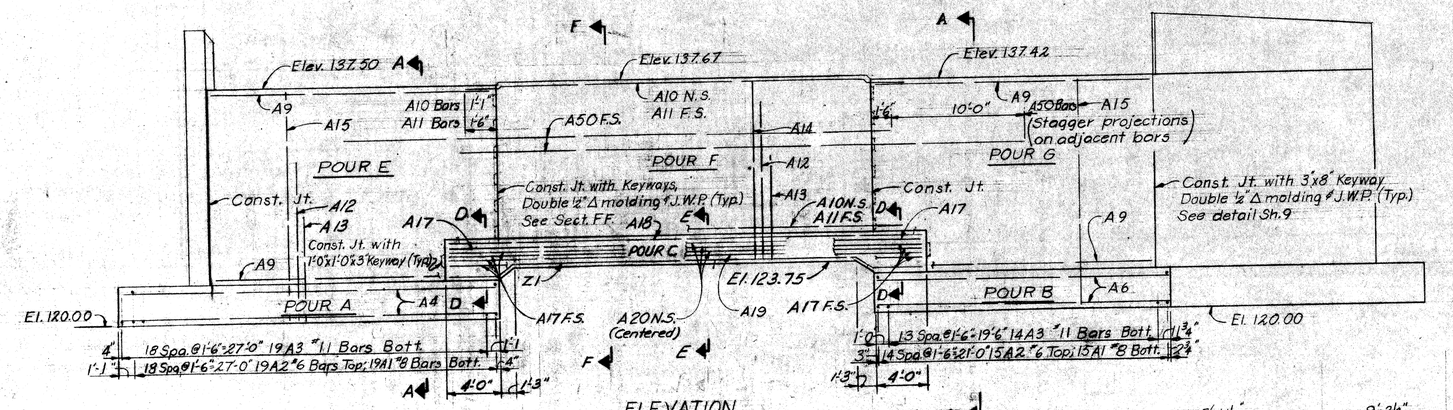
PLAN-ABUT. A



SECTION F-F



DETAIL A



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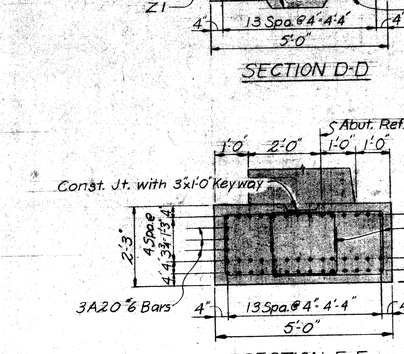
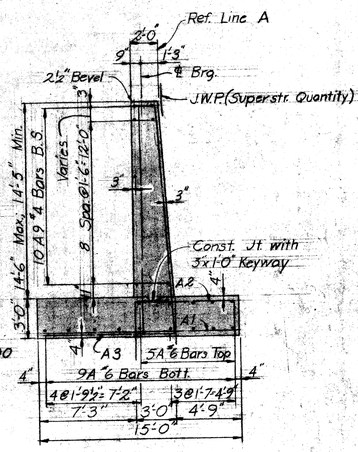
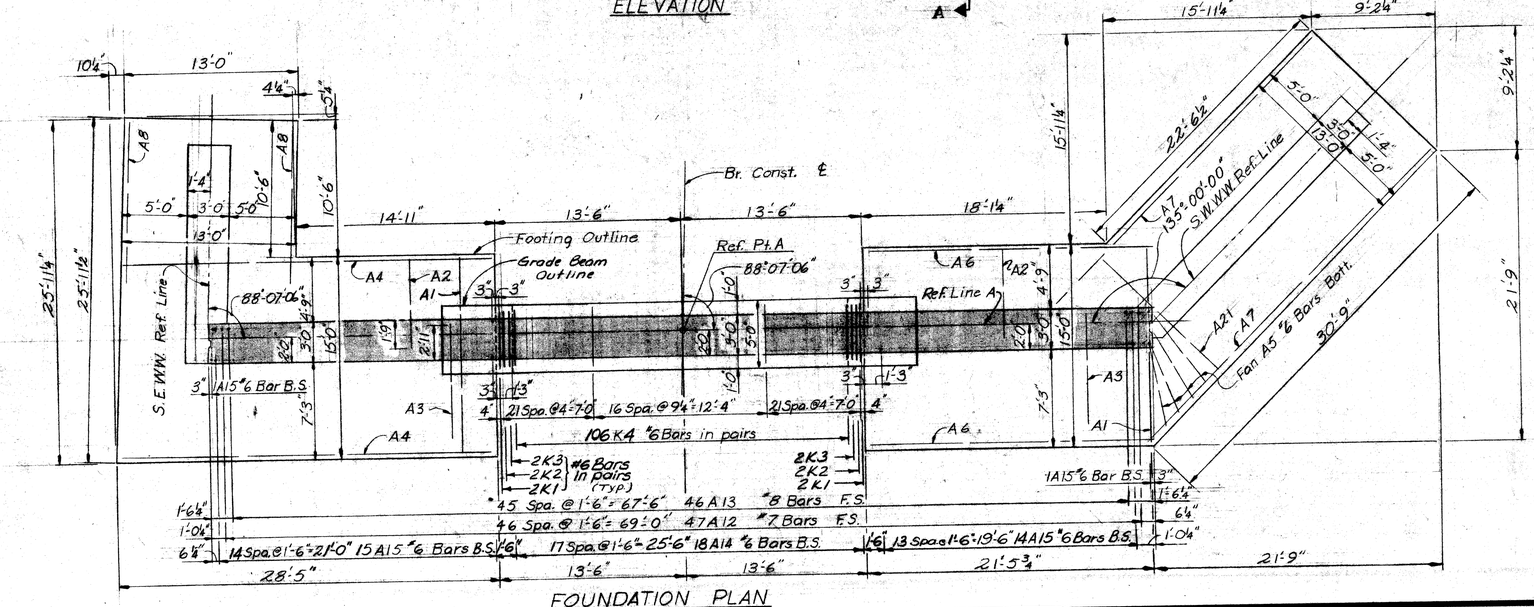


SECTION D-D



SECTION A-A

SECTION E-E



FOUNDATION PLAN

Work Sheets 6-9 together

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

APPROVED H Covert STRUCTURAL ENGINEER

JOB No. PW 990(4)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

ABUTMENT A DETAILS

REVISIONS

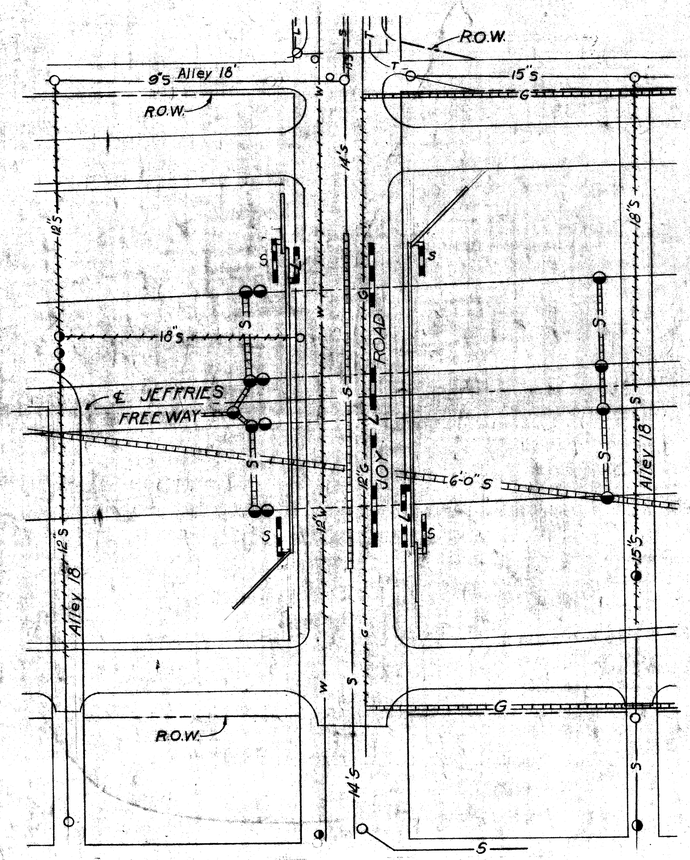
NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT

SQUAD BOSS	STURM	5-68
DRAWN BY	K.V.H.	9-68
TRACED BY	L.G.	9-68
CHECKED BY	E.H.K.	12-68

SHEET 6 OF 21

S33 of 821231



SITUATION PLAN
Scale 1"= 40'

LEGEND

UTILITY	EXISTING	DELETE OR ABANDONED	NEW WORK BY OTHERS	NEW WORK BY CONTRACTOR
DETROIT WATER DEPARTMENT	W			
FREEWAY & CITY OF DETROIT SEWERS	S	S	S	S
MICHIGAN CONSOLIDATED GAS CO.	G		G	
MICHIGAN BELL TELEPHONE CO.	T			
PUBLIC LIGHTING COMMISSION	L			L
DETROIT EDISON COMPANY	E			

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(41)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

EXISTING UTILITIES AND PROPOSED ALTERATIONS

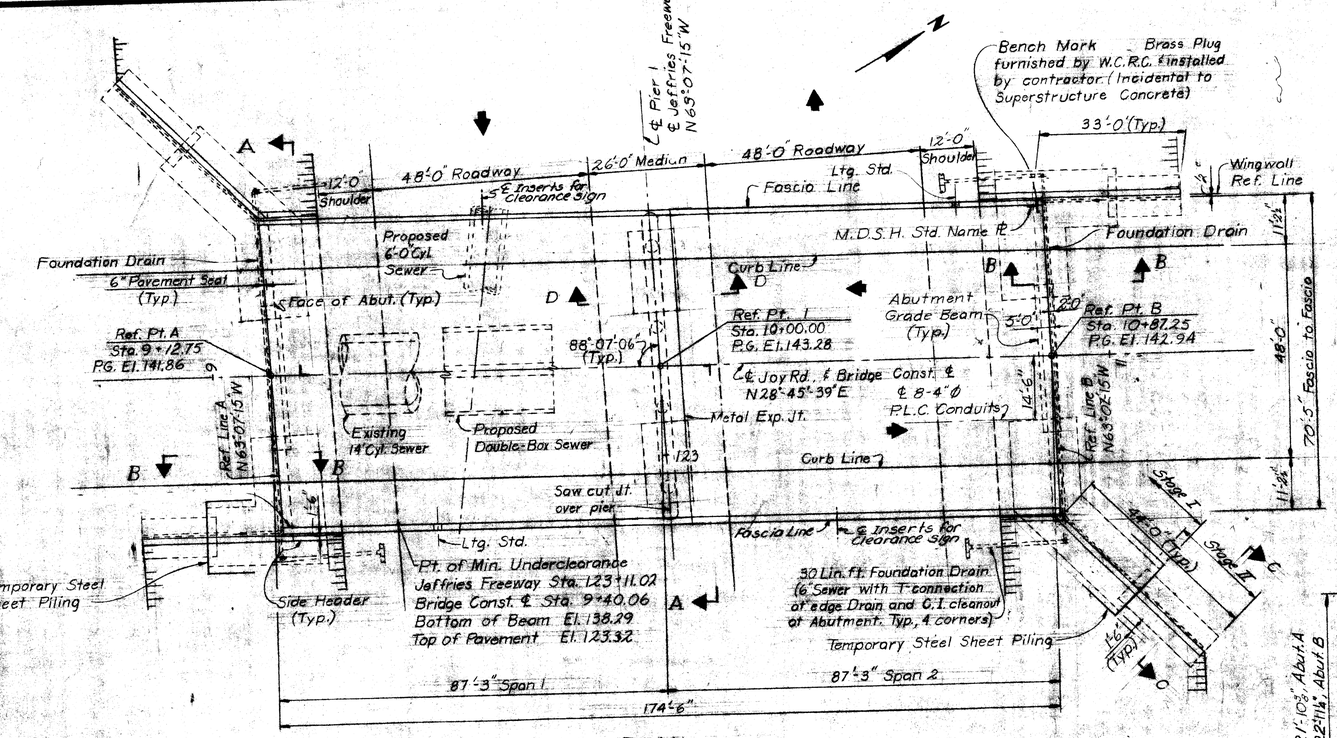
CITY OF DETROIT

SQUAD BOSS	SNIEM	4-68
DRAWN BY	HOPKINS	3-68
TRACED BY		
CHECKED BY	J.P.K.	4-68
SHEET	5 OF 21	

REVISIONS

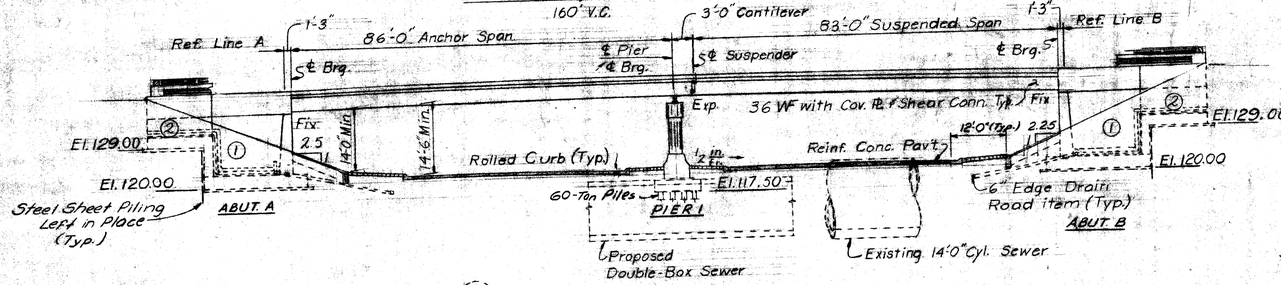
NO.	DESCRIPTION	DATE	BY

S33 of 82123 I

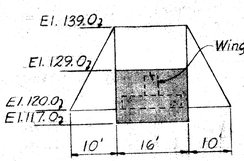


PLAN
Scale: 1/16"=1'-0"

Note:
Build N.E. & S.E. Wingwall Stage II after removal of temporary detour road.



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



Southeast or Northeast Wingwall (Developed)

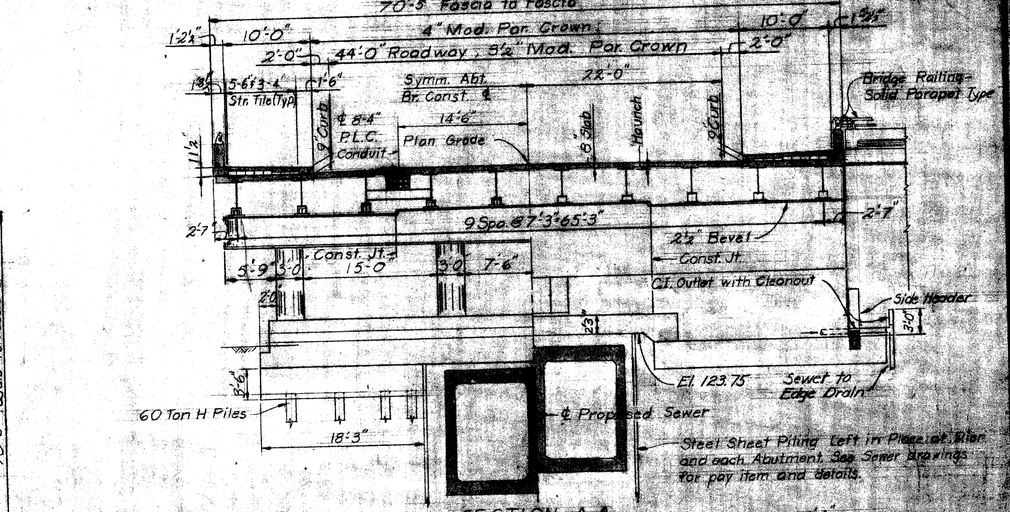
Note:
At time of removal, leave shaded portion after cutting at El. 129.0 (Part of pay quantity, Sh. 9). Remainder is Temporary Steel Sheet Piling.

SHEET PILING PAY LIMITS

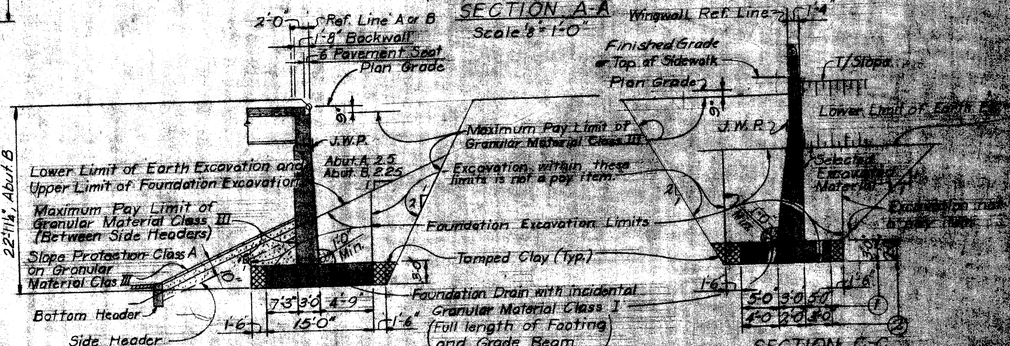
MISCELLANEOUS QUANTITIES

Item	Unit	Amount		
		Abut. A	Abut. B	Total
Temporary Steel Sheet Piling	Sq. Ft.	350	350	700
Foundation Drains	Lin. Ft.	60	60	120
Slope Protection - Class A	Sq. Yds.	96	97	193
Slope Protection Headers	Lin. Ft.	98	98	196

All piles shall be placed before the double box sewer is constructed and shall be prebored 8" Diam. to ten feet below the invert of the existing sewer.

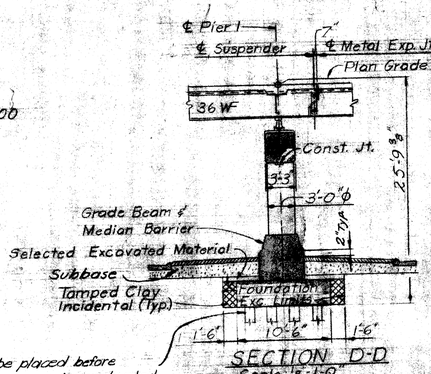


SECTION A-A
Scale: 3/16"=1'-0"



SECTION B-B

SECTION C-C



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

GENERAL NOTES

The design of this Structure is based on the M.S.H.D Specifications for the Design of Highway Bridges, 1938 Edition and current AASHO Standard Specifications for Highway Bridges. H 20-44 loading. Live load plus impact deflection = 1/600 of Span Length and 1/75 of Cantilever Arm.

Top of roadway slab and tops of curbs are parallel to the horizontal curve.

Tamped Clay is incidental to unclassified excavation.

For details of Slope Protection Class A, see Standard Sheet SP2.

Granular Material Class I incidental to Foundation Drain.

Granular Material Class III is billed on Road Plans.

Estimated Amount is 1850 cu. yds. Abutments.
70 cu. yds. Slope Protection.

P.G. El. Denotes Plan Grade Elevation.

N.E. Wingwall Stage II shall be constructed after removal of temporary detour road.

Temporary steel sheet piling shall be of the continuous interlock type, either new or used, in good condition, weighing not less than 22 pounds per square foot 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.

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

APPROVED H Conrad STRUCTURAL ENGINEER

JOB No. PW 9904

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

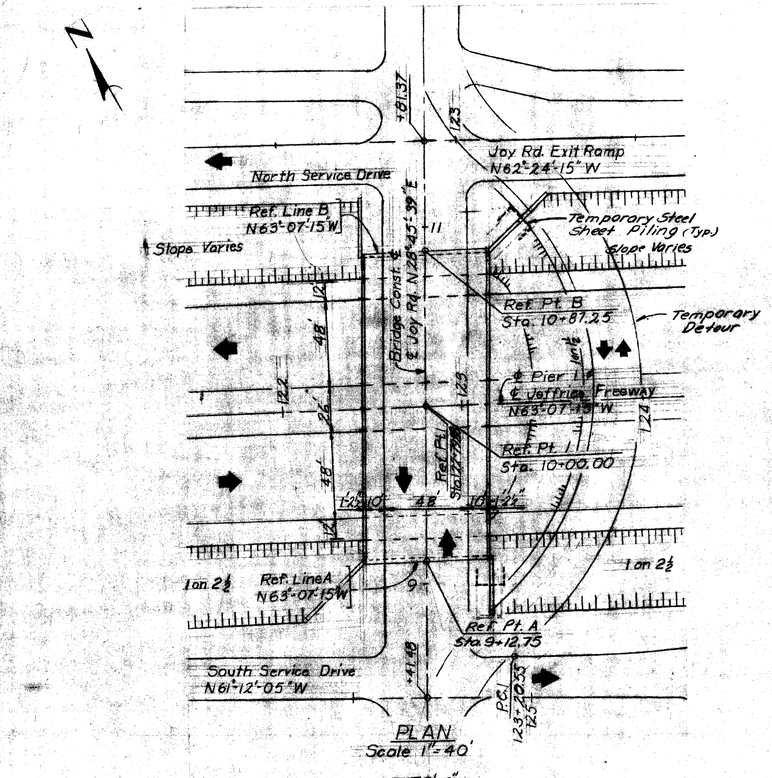
GENERAL PLAN OF STRUCTURE

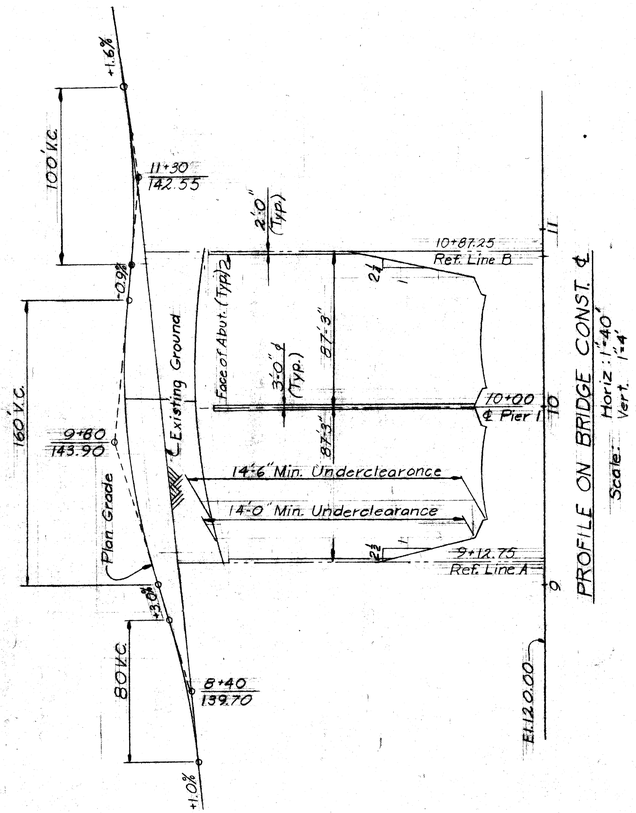
	DESIGNED BY	CHECKED BY
STRUCTURE		
DRAWN BY		
TRACED BY		
CHECKED BY		

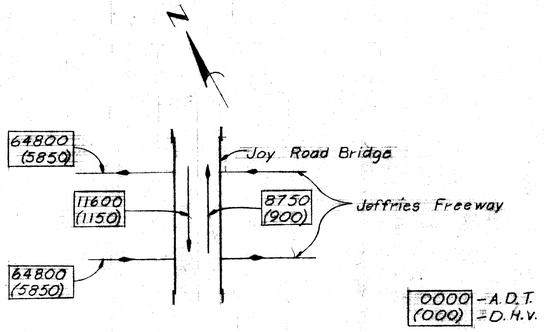
APPROVED _____ DESIGN SUPERVISING ENGINEER

APPROVED _____ DESIGN ENGINEER

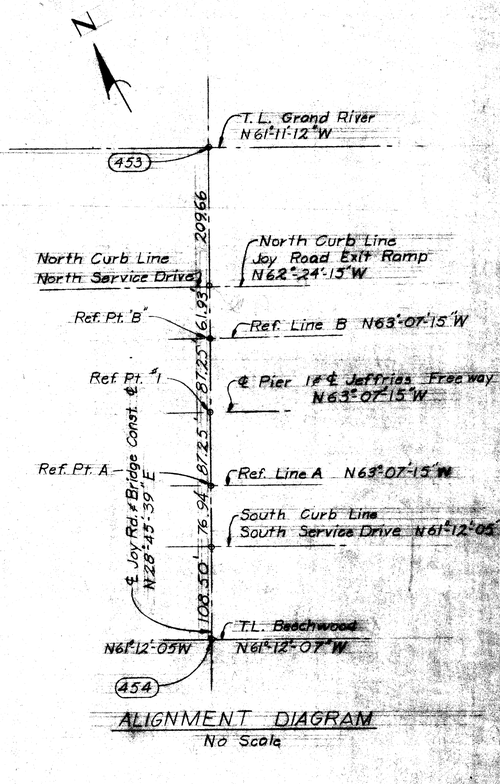
S23 of S21 Sh.







TRAFFIC COUNT
Estimated Traffic 1990



ALIGNMENT DIAGRAM
No Scale

CONSTRUCTION BENCH MARKS

C.B.M. 118 Arrow on hydrant N.W. corner of Beechwood and Daily. El. 146.28.

C.B.M. 119 Arrow on hydrant S.W. corner of Grand River and Joy. El. 148.09.

C.B.M. 121 Arrow on hydrant N.E. corner of Beechwood and Whitfield. El. 146.53.

NOTES:

C.B.M. Denotes construction bench mark.

o Denotes Reference point or point of intersection.

(00) Denotes Survey Traverse Point.

Elevations are referred to City of Detroit Datum, which is 479.123 ft above sea level.

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

APPROVED _____ STRUCTURAL ENGINEER

JOB No. PW 990141

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY IN DETROIT

GENERAL DRAWING

CITY OF DETROIT

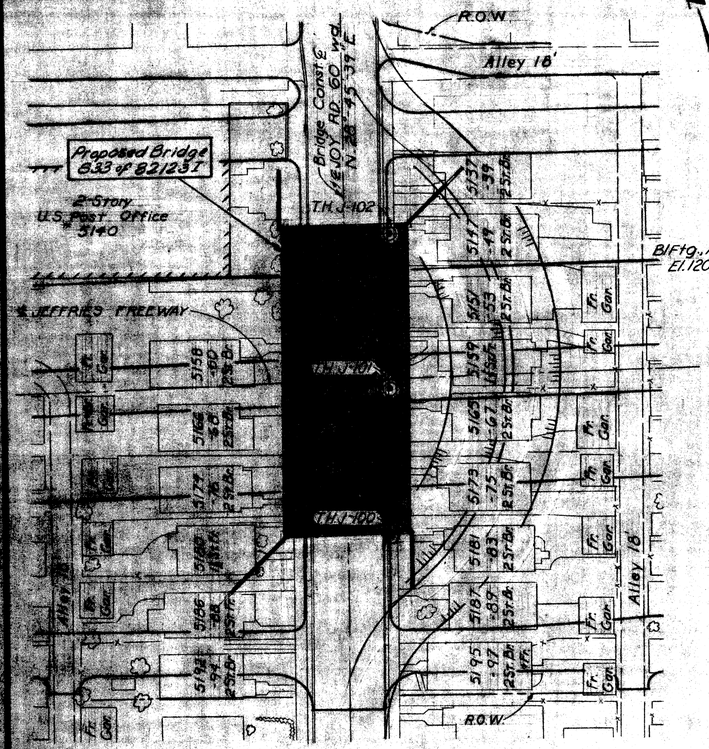
SQUAD BOSS	Sharma	K.P.S.
DRAWN BY	E.G.	A.S.B.
TRACED BY	—	—
CHECKED BY	K.P.S.	—

APPROVED _____ DESIGN SUPERVISING ENGINEER

APPROVED _____ DESIGN ENGINEER

SHEET 3 OF 7

S33 of 82123



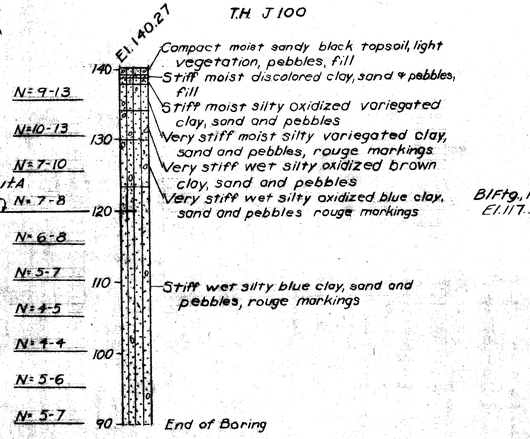
SURVEY PLAN

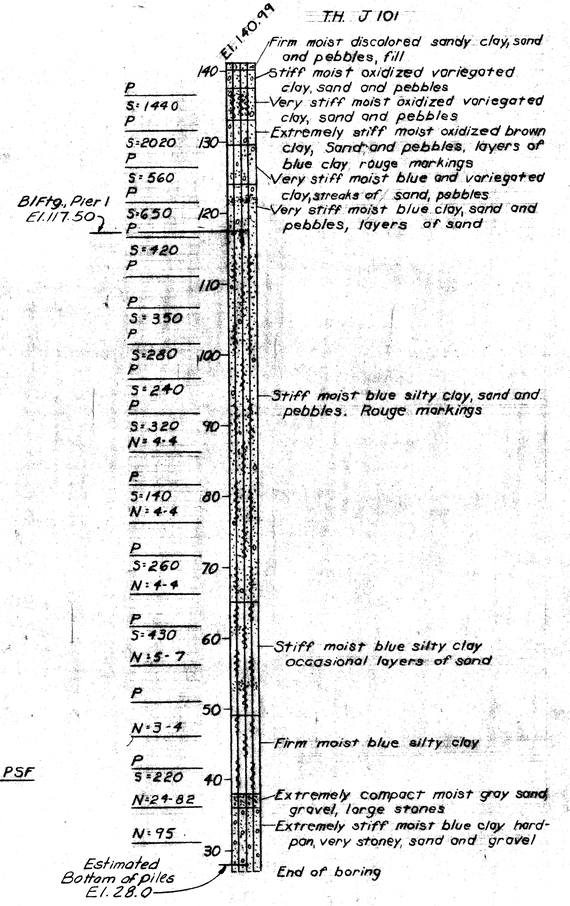
Scale 1"=40'

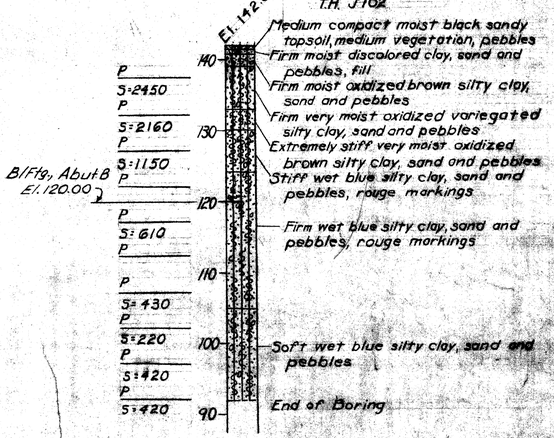
UTILITY LEGEND

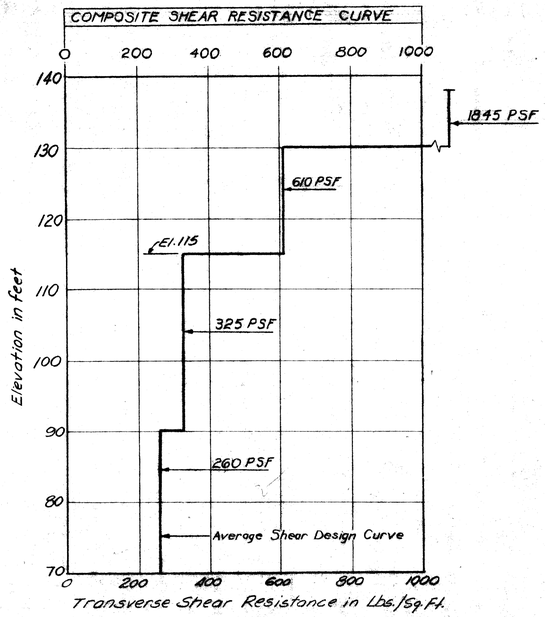
- Sewer Manhole
- Sewer Inlet or Catch Basin
- Test Hole for Soil Profile
- Tree
- —X— Fence

LOG OF SOIL BORINGS









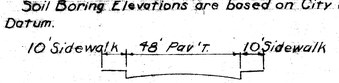
NOTES

N Indicates number of blows to drive a sampler 6" (or as noted) using a 140# hammer falling 30".

S Indicates Transverse Shearing Resistance in lbs./ft.² as determined by M.S.H.D. Standard Test.

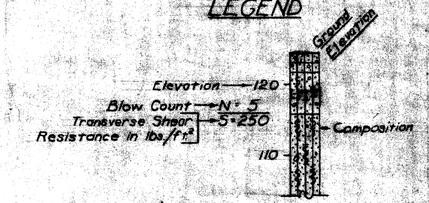
P Indicates sampler was pushed.

Soil Boring Elevations are based on City of Detroit Datum.



APPROACH ROAD SECTION

LEGEND



GENERAL NOTES:

The work covered by these plans includes construction of the proposed bridge and placing slope protection, to the limits shown. All other work is included in the Road Plans which are a part of this contract.

Removal of fences and buildings is not part of this contract.

The contractor shall locate all active underground utilities prior to starting work, and shall conduct his operations in such a manner as to insure that those utilities not requiring relocation will not be disturbed.

Datum refers to City of Detroit datum.

Topography shown here on represents conditions existing at the time the field survey was made. However, these conditions may have been materially altered by the operations of others before the work has been started.

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

APPROVED _____ STRUCTURAL ENGINEER

JOB No. PW 9901A1

NO.	DESCRIPTION	DATE	BY
REVISIONS			

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

GENERAL PLAN OF SITE

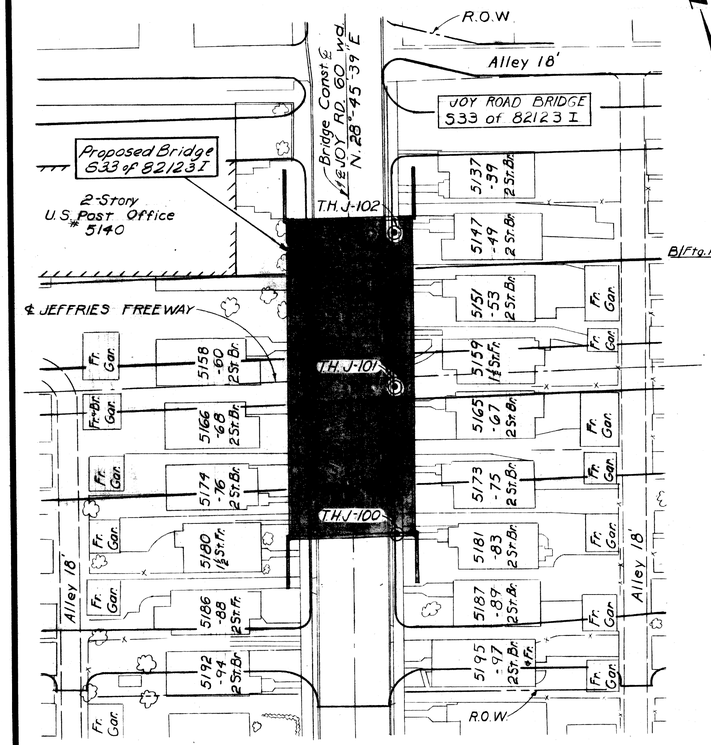
CITY OF DETROIT

SQUAD BOSS			
DRAWN BY			
TRACED BY			
CHECKED BY			

APPROVED _____ DESIGN SUPERVISING ENGINEER

APPROVED _____ DESIGN ENGINEER

S33 of 82123.1

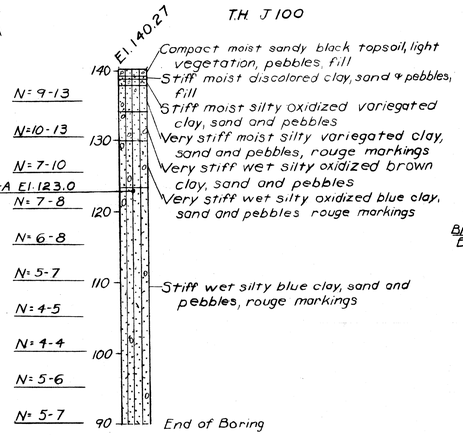


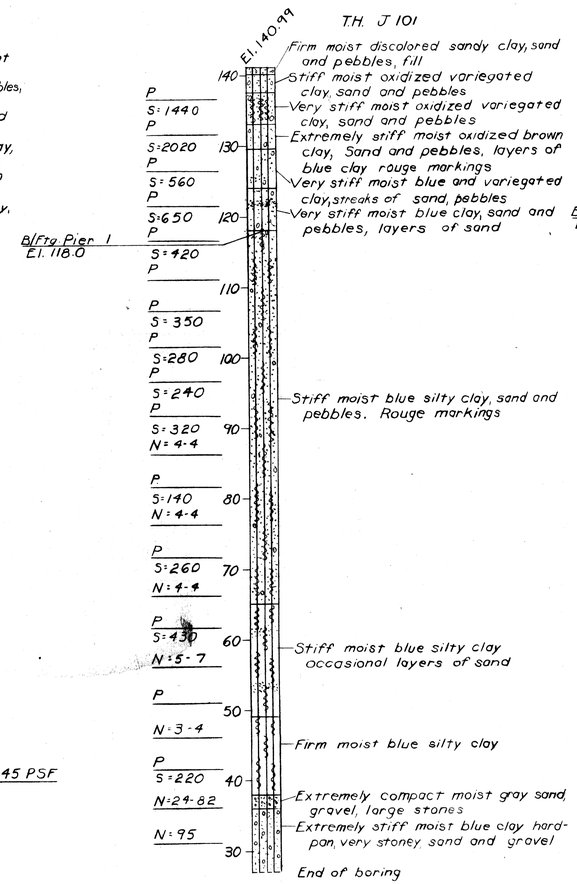
SURVEY PLAN
Scale 1" = 40'

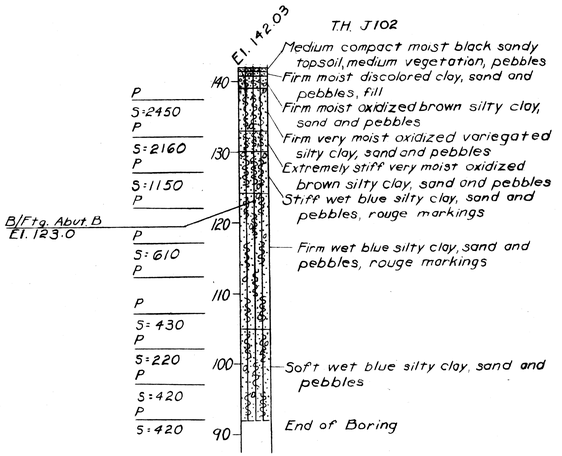
UTILITY LEGEND

- Sewer Manhole
- Sewer Inlet or Catch Basin
- Test Hole for Soil Profile
- Tree
- x — Fence

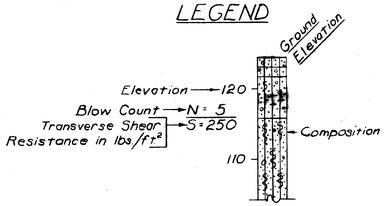
LOG OF SOIL BORINGS

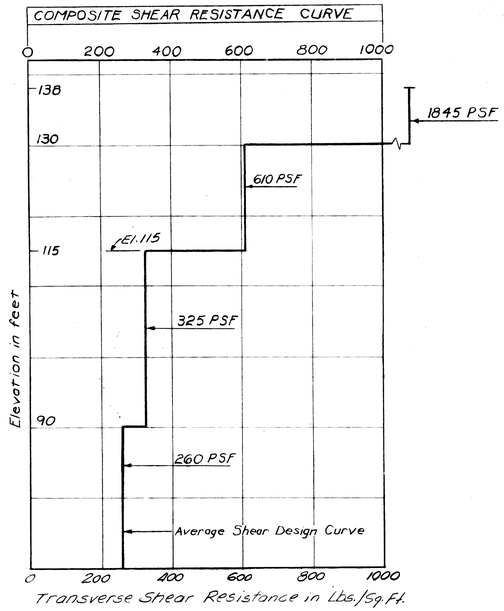






LEGEND





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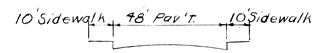
Soil Boring Elevations are based on City of Detroit Datum.



APPROACH ROAD SECTION

GENERAL NOTES:

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Datum refers to City of Detroit datum.

Topography shown here on represents conditions existing at the time the field survey was made. However, these conditions may have been materially altered by the operations of others before the work has been started.

PRINTED 5/9/68
Before Revising Side Clearance to 24'

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

APPROVED _____ STRUCTURAL ENGINEER

JOB No. PW 90014

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT
GENERAL PLAN OF SITE

CITY OF DETROIT

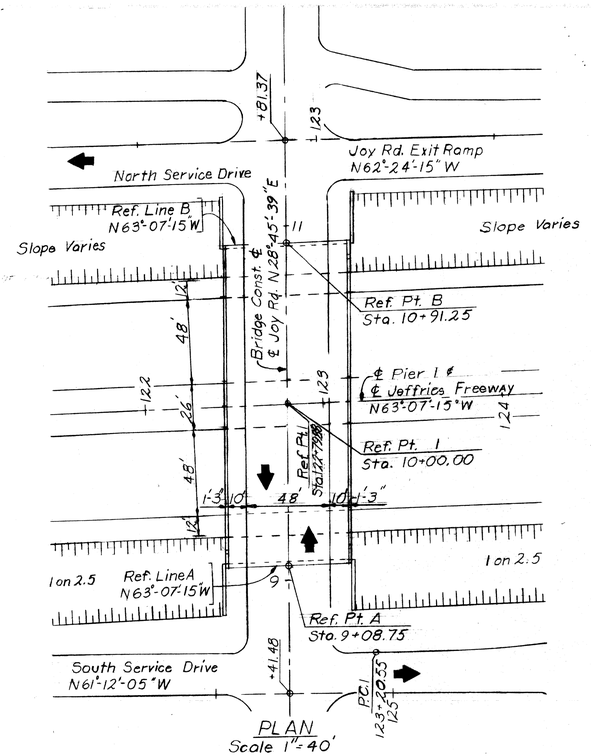
SQUAD BOSS	STAHM	4-68
DRAWN BY	HAPELIAN	3-68
TRACED BY	—	—
CHECKED BY	I.H.K.	4-68

SHEET 1 OF 4

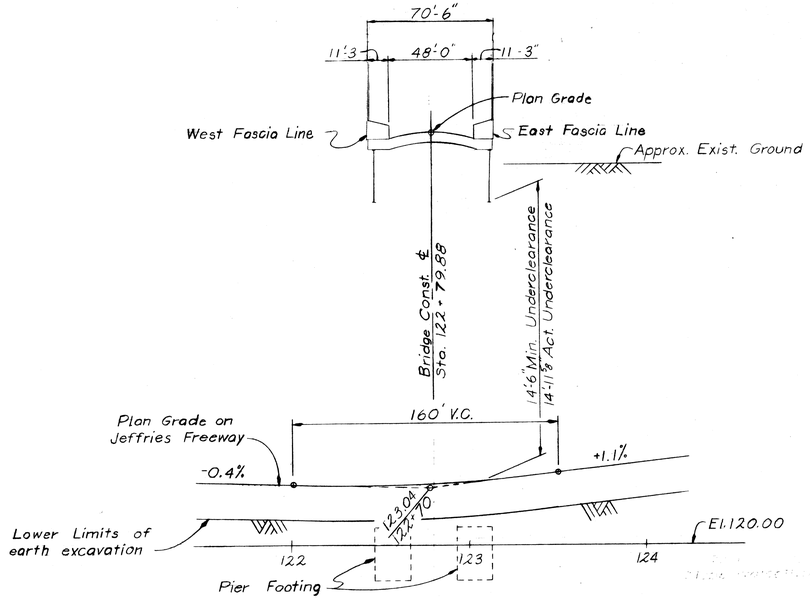
APPROVED _____ DESIGN SUPERVISING ENGINEER

APPROVED _____ ASS'T. ENGINEER OF DESIGN

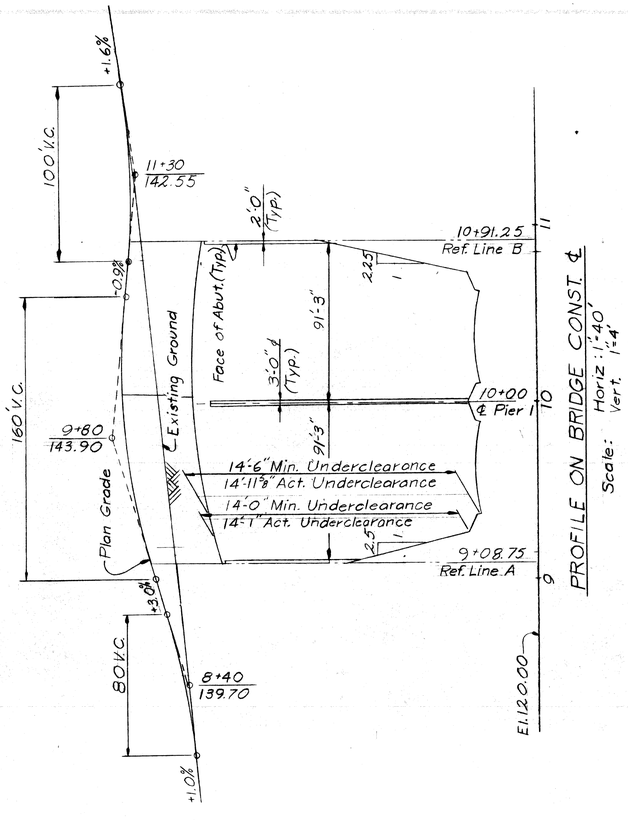
S33 of 82123 I



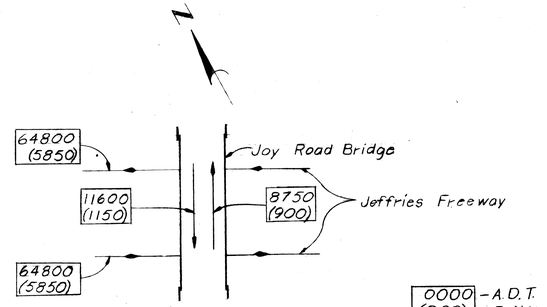
PLAN
Scale 1"=40'



PROFILE ALONG ℄ JEFFRIES FREEWAY
Scale: Horiz: 1"=40'
Vert: 1"=4'

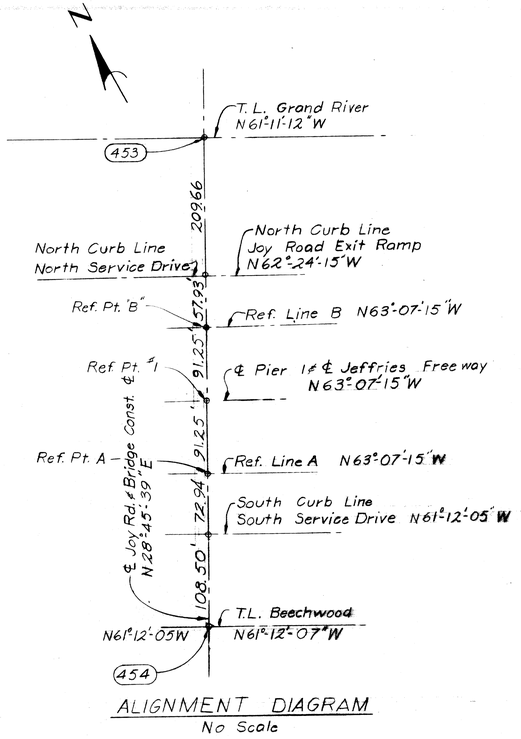


PROFILE ON BRIDGE CONST. ℄
Scale: Horiz: 1"=40'
Vert. 1"=4'



0000 - A.D.T.
(000) - D.H.V.

TRAFFIC COUNT
Estimated Traffic 1990



ALIGNMENT DIAGRAM
No Scale

CONSTRUCTION BENCH MARKS

C.B.M. 118 Arrow on hydrant N.W. corner of Beechwood and Daily. El. 146.28.

C.B.M. 119 Arrow on hydrant S.W. corner of Grand River and Joy. El. 148.09.

C.B.M. 121 Arrow on hydrant N.E. corner of Beechwood and Whitfield. El. 146.53.

NOTES:

C.B.M. Denotes construction bench mark.

o Denotes Reference point or point of intersection.

(00) Denotes Survey Traverse Point.

Elevations are referred to City of Detroit Datum, which is 479.755 ft. above sea level.

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

APPROVED _____ STRUCTURAL ENGINEER

JOB No. PW 990(4)

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

CITY OF DETROIT

SQUAD BOSS	Strum	4-68
DRAWN BY	L.G.	2-68
TRACED BY	—	—
CHECKED BY	I.H.K.	4-68

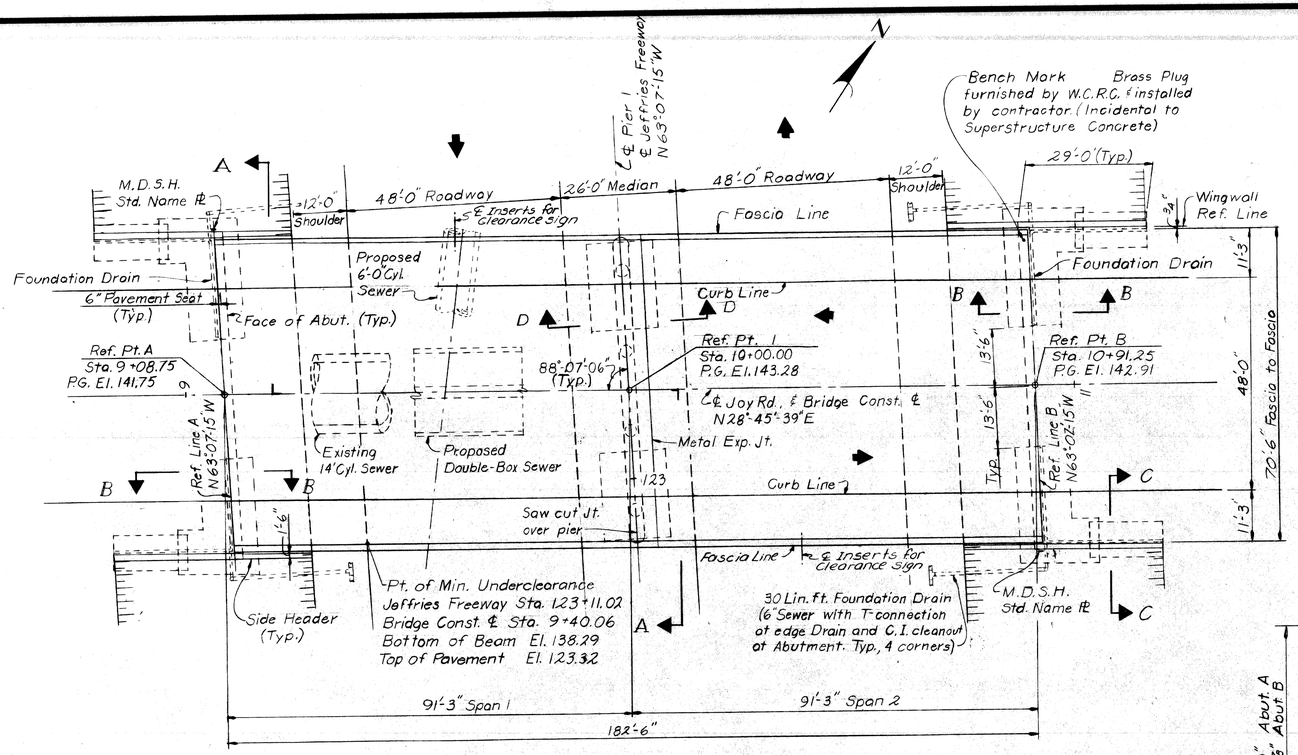
SHEET 2 OF 4

GENERAL DRAWING

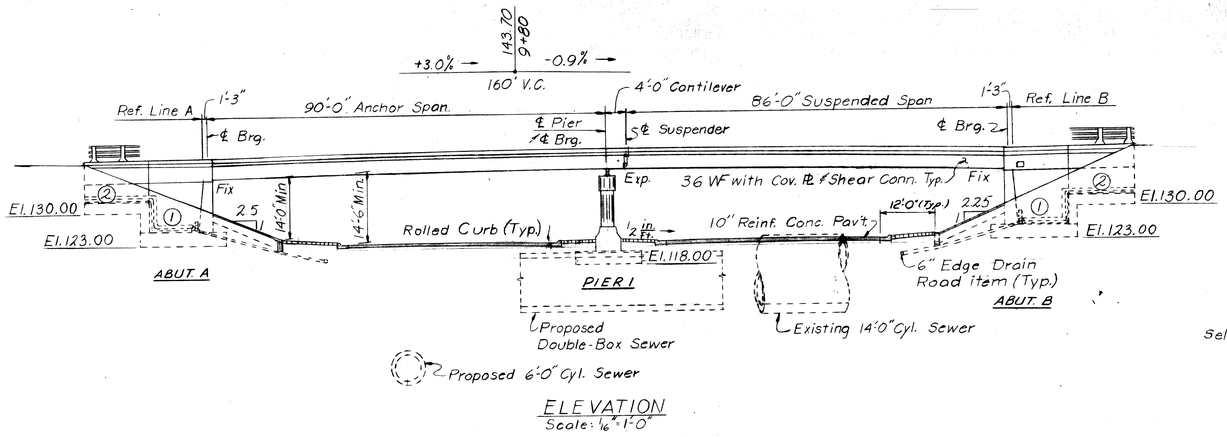
APPROVED _____ DESIGN SUPERVISING ENGINEER

APPROVED _____ ASS'T. ENGINEER OF DESIGN

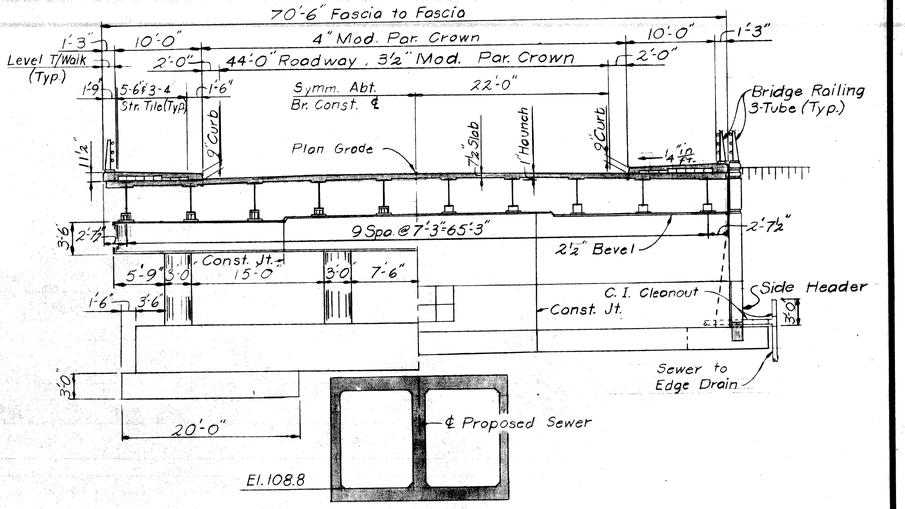
S33 of 82123I

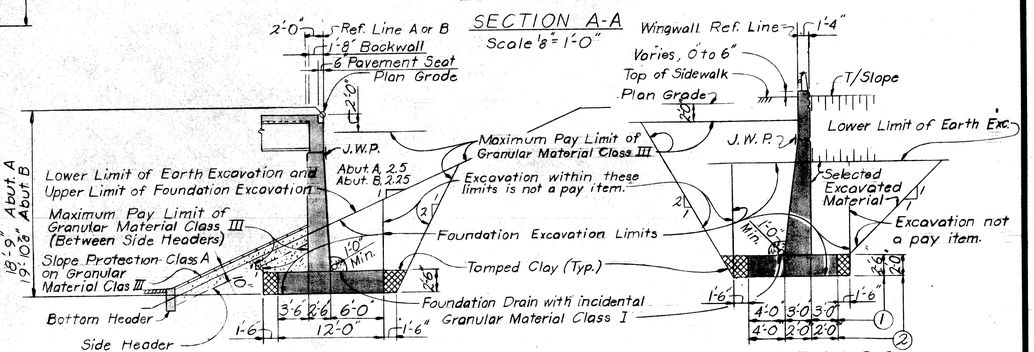


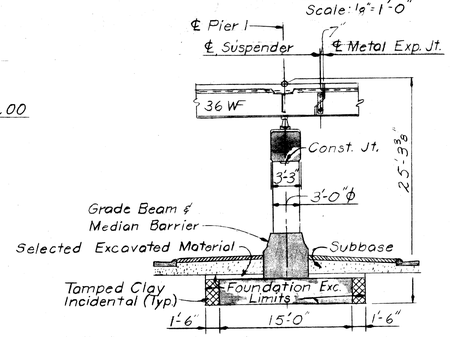
PLAN
Scale: 1/16" = 1'-0"



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







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

GENERAL NOTES

The design of this Structure is based on the M.S.H.D Specifications for the Design of Highway Bridges, 1958 Edition and current AASHO Standard Specifications for Highway Bridges HS20-44 loading.

Live load plus impact deflection = 1/1000 of Span Length and 1/350 of Cantilever Arm.

Top of roadway slab and tops of curbs are parallel to the vertical curve.

Tamped Clay is incidental to unclassified excavation.

For details of Slope Protection Class A, see Standard Sheet SP2.

Granular Material Class I incidental to Foundation Drain.

Granular Material Class III is billed on Road Plans.

Estimated Amount is _____ cu. yds. Abutments.
_____ cu. yds. Slope Protection.

P.G. El. Denotes Plan Grade Elevation.

FOOTING PRESSURE D.S.F.				
	Average D.L.	Allowable R=1.0	Maximum DL.+L.L.	Allowable R=1.5
Abutments	3000	3800	5500	5500
Pier	3300	3400	4200	4400

MISCELLANEOUS QUANTITIES		
Item	Amount	Unit
Slope Protection - Class A	274	Sq. Yds.
Slope Protection - Header	210	Lin. Ft.
Foundation Drains	360	Lin. Ft.

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

APPROVED _____ STRUCTURAL ENGINEER

JOB No. PW 9901(4)

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

GENERAL PLAN OF STRUCTURE

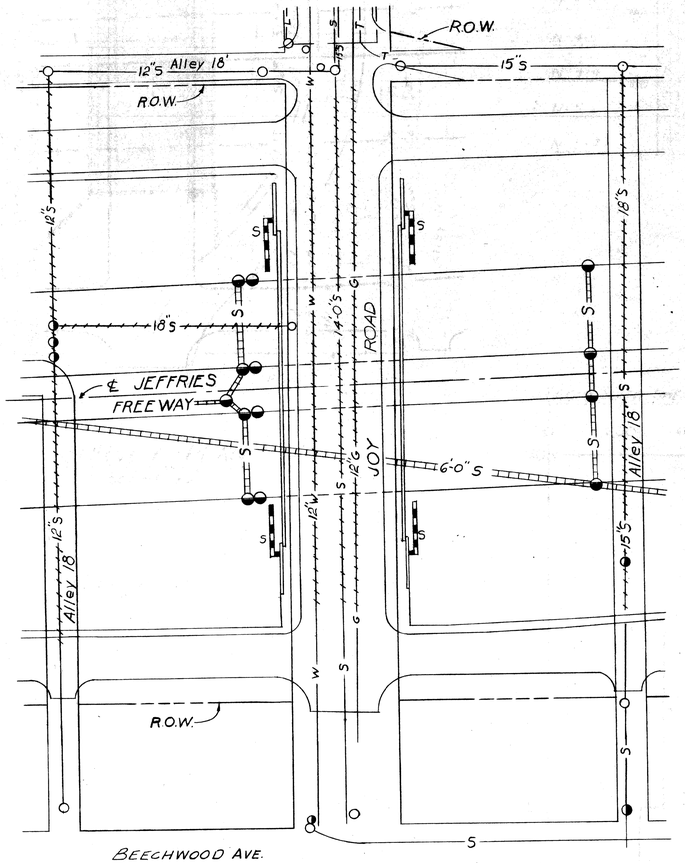
CITY OF DETROIT

SQUAD BOSS	STUBEN	1-68
DRAWN BY	A.C.	2-68
TRACED BY	—	—
CHECKED BY	J.H.K.	4-68
SHEET 3 OF 4		

APPROVED _____ DESIGN SUPERVISING ENGINEER

APPROVED _____ ASS'T. ENGINEER OF DESIGN

S33 of 82123I



SITUATION PLAN
Scale 1"=40'

LEGEND

UTILITY	EXISTING	DELETE OR ABANDONED	NEW WORK BY OTHERS	NEW WORK BY CONTRACTOR
DETROIT WATER DEPARTMENT	W			
FREEWAY & CITY OF DETROIT SEWERS	S	S	S	S
MICHIGAN CONSOLIDATED GAS CO.	G			
MICHIGAN BELL TELEPHONE CO.	T			
PUBLIC LIGHTING COMMISSION	L			
DETROIT EDISON COMPANY	E			

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

APPROVED _____
STRUCTURAL ENGINEER

JOB NO.
PW 99041

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

JOY ROAD OVER JEFFRIES FREEWAY
IN DETROIT

EXISTING UTILITIES AND PROPOSED ALTERATIONS

REVISIONS

NO.	DESCRIPTION	DATE	BY

CITY OF DETROIT

SQUAD BOSS	STURM	4-68
DRAWN BY	HOPKINS	3-68
TRACED BY	—	—
CHECKED BY	J.H.K.	4-68
SHEET 4 OF 4		

S33 of 82123I