

CONRAIL
CONSOLIDATED RAIL CORPORATION
CHIEF ENGINEER - DESIGN & CONSTRUCTION PHILA., PA.
APPROVED: [Signature]
ENGR. BRIDGES & BUILDINGS
ASST. CHIEF ENGR. STRUCTURES

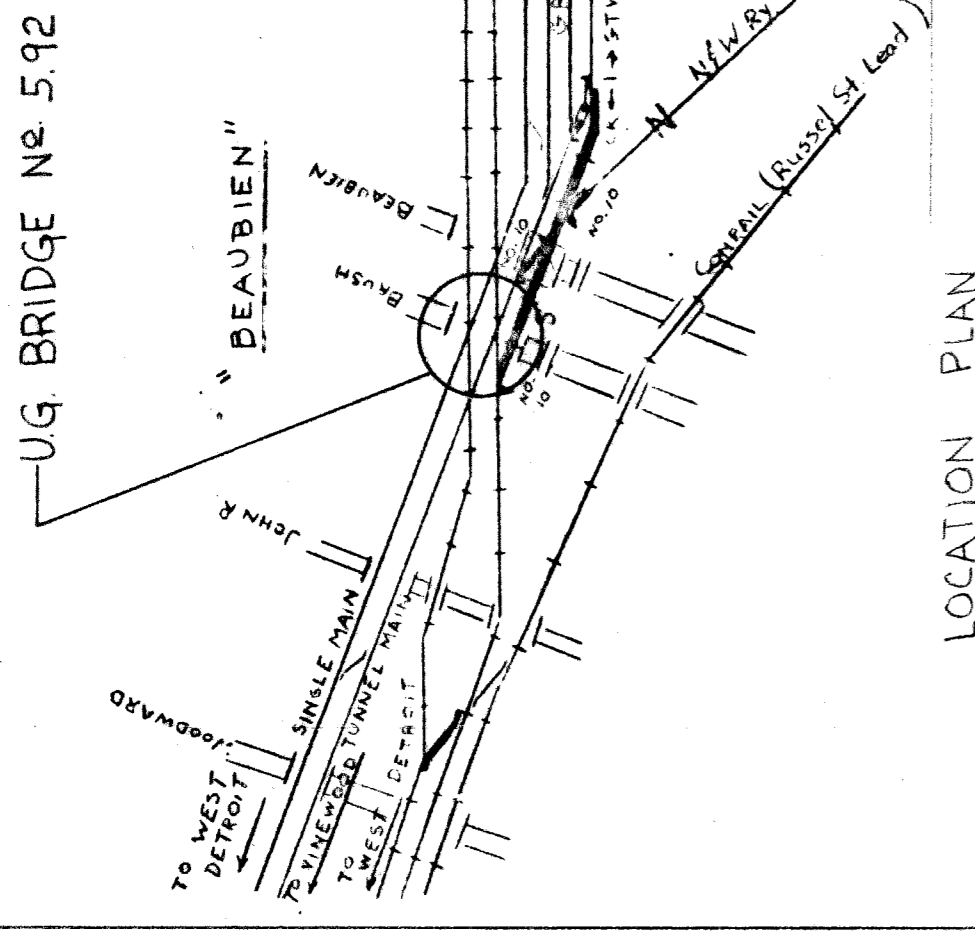
NO.	DATE	REMARKS

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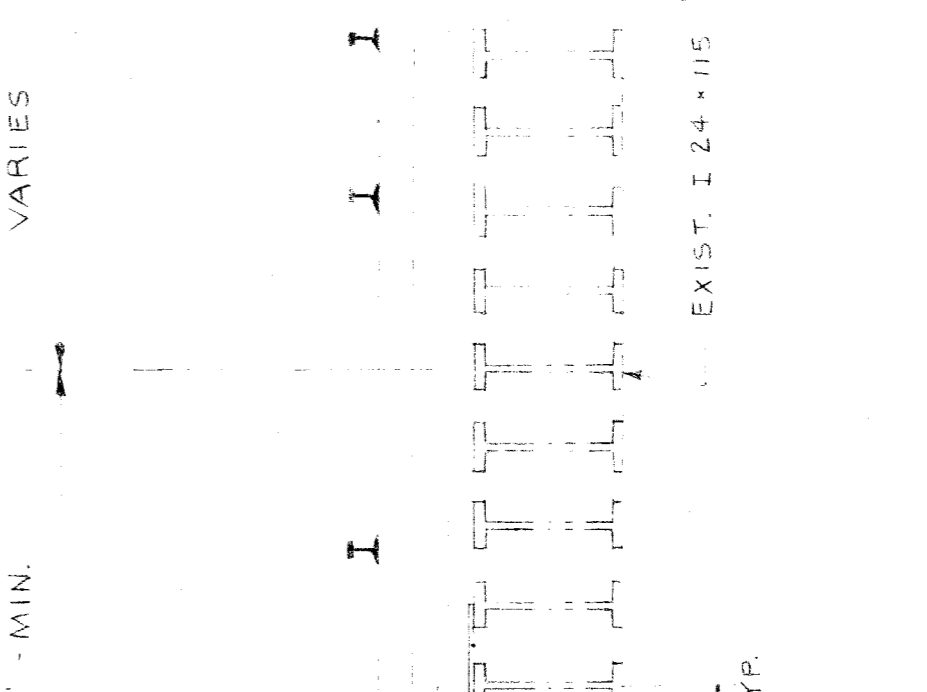
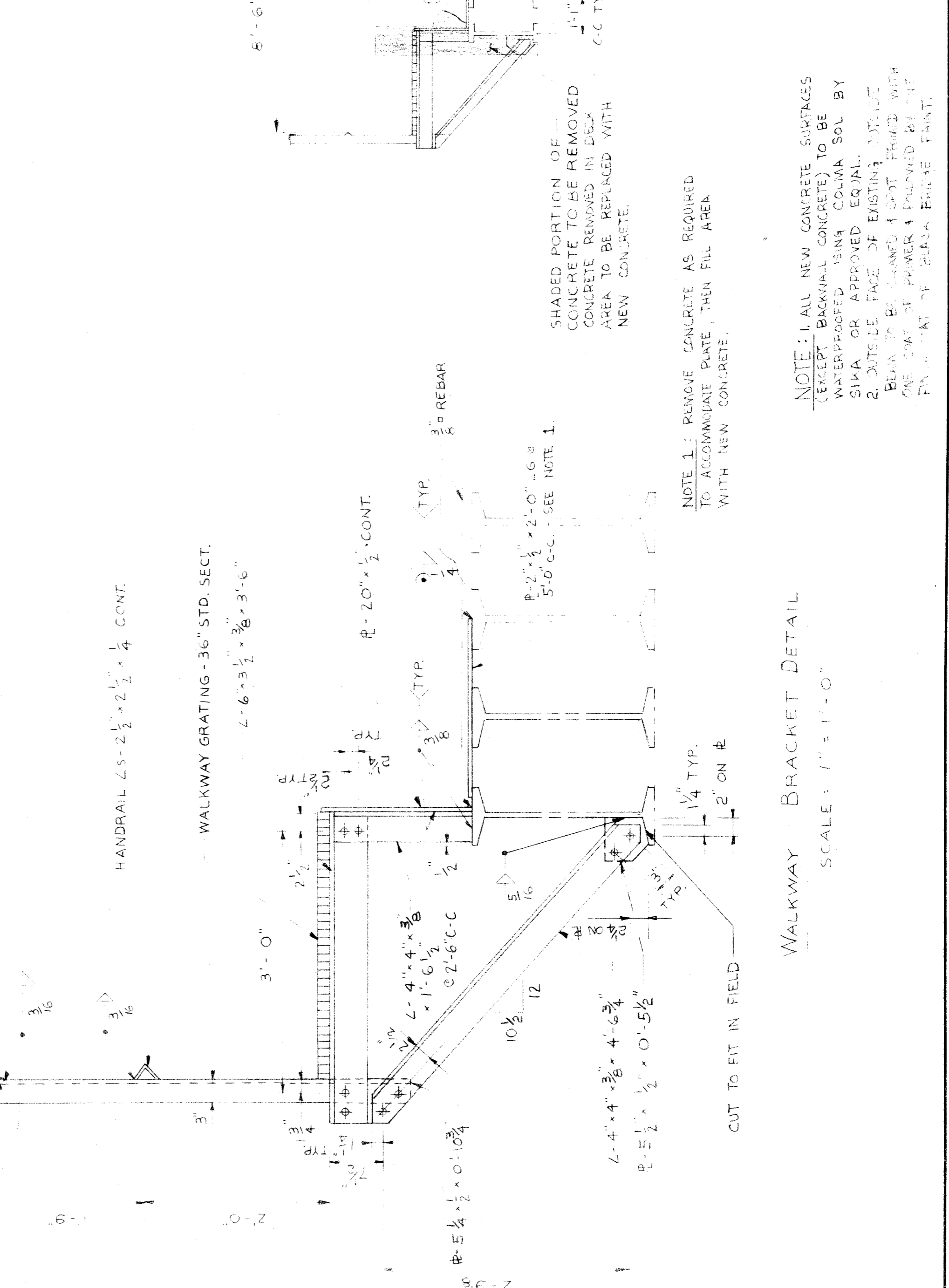
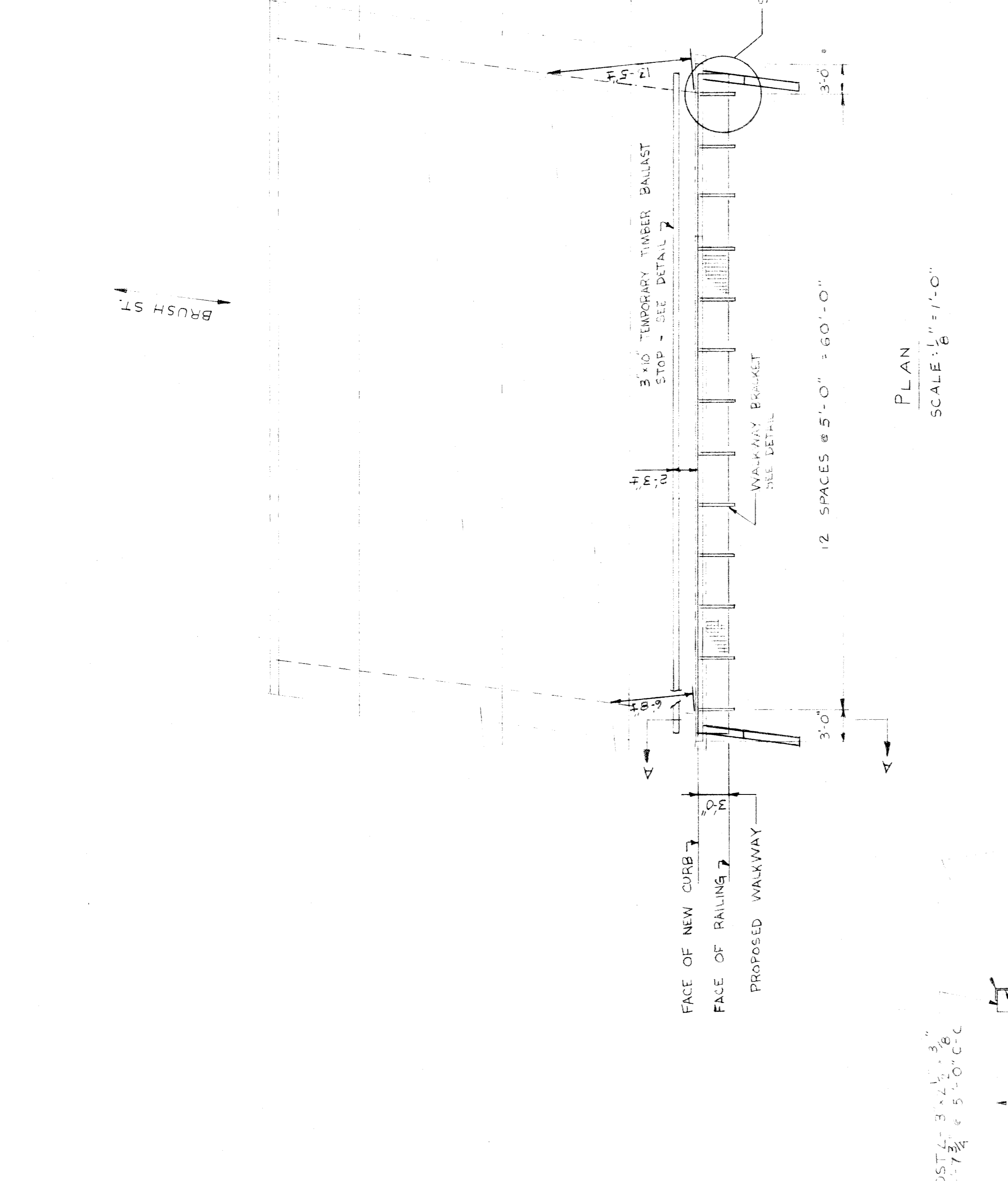
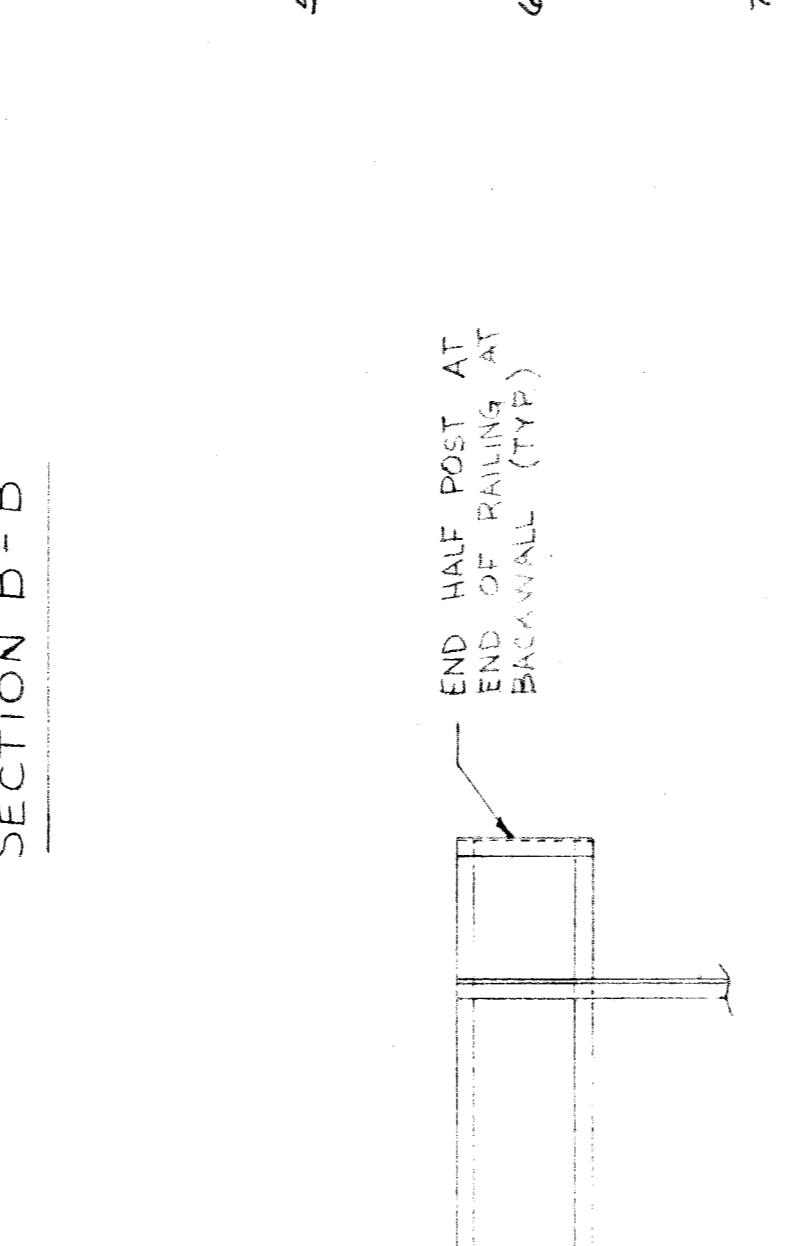
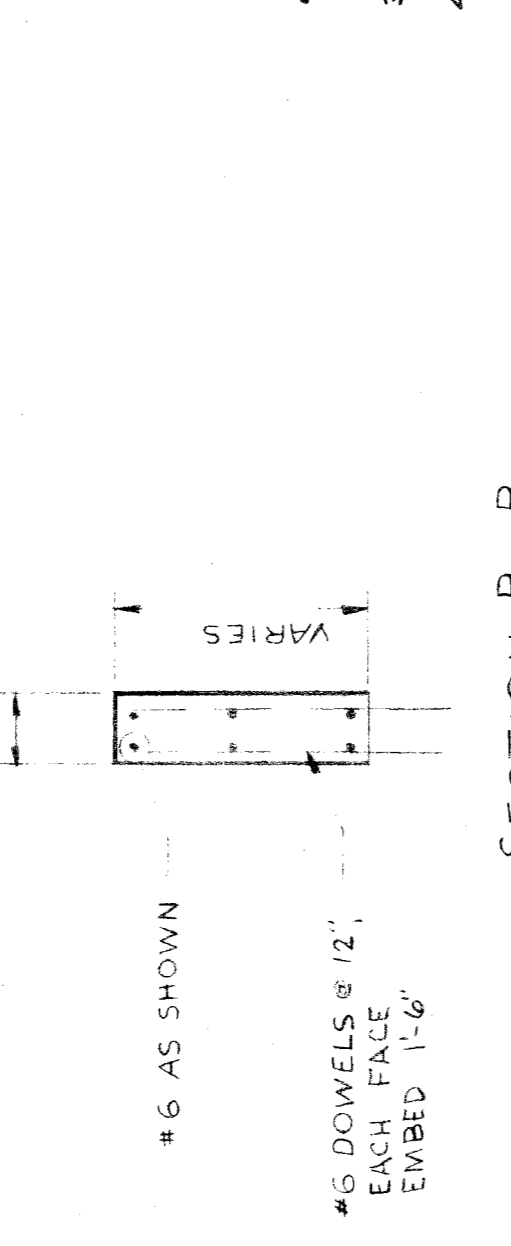
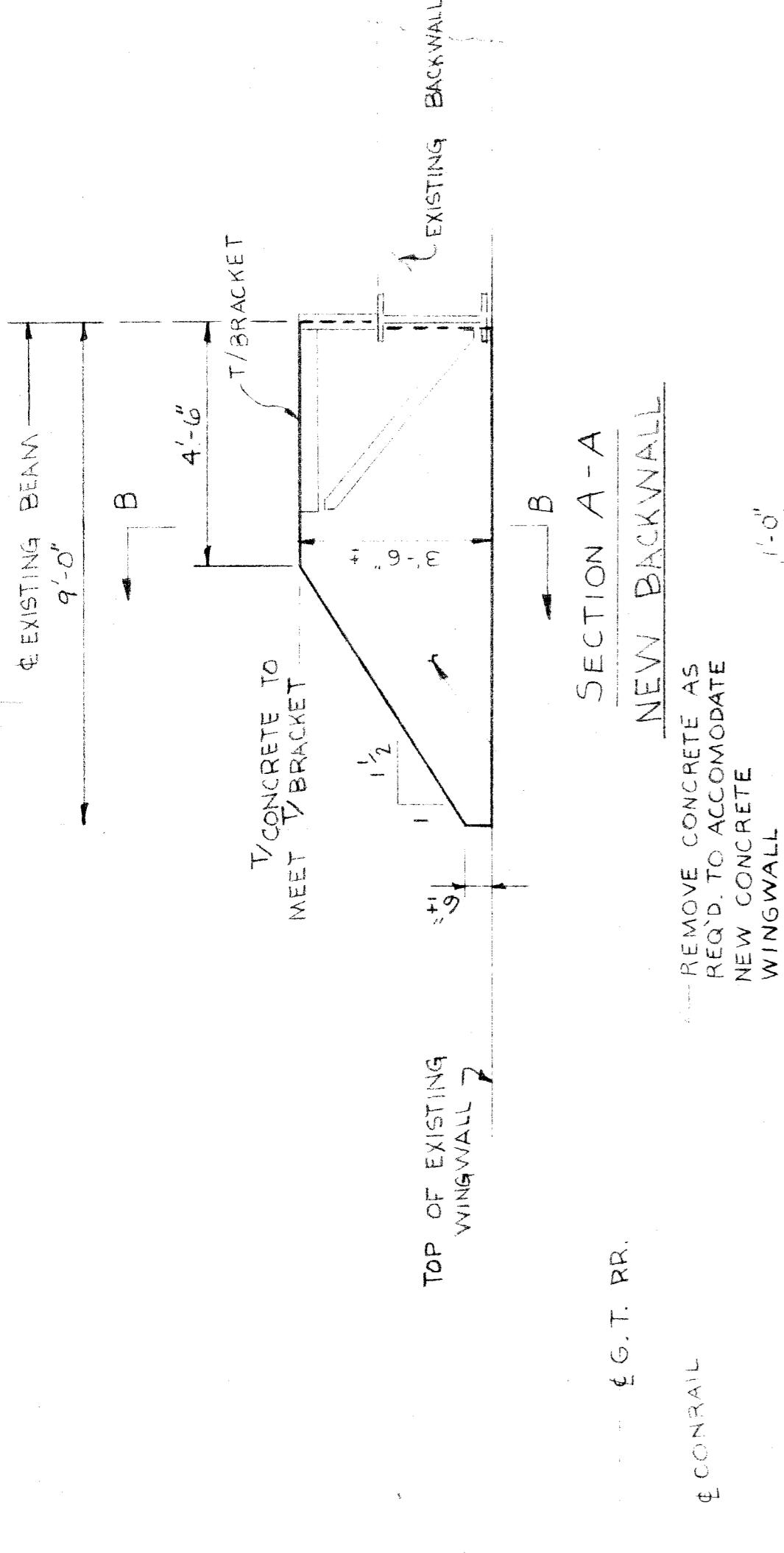
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PROJECT TITLE:
U.G. BRIDGE No. 5.92
MACKINAW BRANCH
DETROIT DIVISION
OVER BRUSH ST.
DETROIT, MI.
WALKWAY ADDITION

DRAWING TITLE:
GENERAL
PLAN & DETAILS
DATE: 5-18-81
PLAN NUMBER: 45480-R
DRAWING NUMBER: 1 OF 1



- ### GENERAL NOTES
- GENERAL SPECIFICATIONS AS PER A.R.E.A. SPECS.
 - REINFORCING STEEL SHALL BE IN ACCORDANCE WITH R.R. SPECS. C-E-77, A.S.T.M. SPECS. A-615Y GRADE 60.
 - STRUCTURAL STEEL AS PER A.S.T.M. SPECS. A-36.
 - WELDING TO BE IN ACCORDANCE WITH AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE D1.1-77 (REV. 1). ALL WELDS TO BE CONTINUOUS UNLESS OTHERWISE SHOWN. A.M.S. STRUCTURAL WELDING CODE SHALL BE OBSERVED. ALL FIELD WELDS TO BE MADE WITH E-70XX LOW HYDROGEN ELECTRODE WITH ON-SITE PROTECTION AND USE OF ELECTRODE HEATING UNITS PER CURRENT A.M.S. SPECIFICATIONS.
 - HIGH STRENGTH BOLT, NUT AND WASHER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF A.S.T.M. SPECS. A-325. CURRENT REQUIREMENTS FOR BOLTS TO BE IN ACCORDANCE WITH A.S.T.M. SPECS. FOR STEEL BOLTS SHALL BE FURNISH HEAVY DUTY HEX NUTS, HAS-BOLTS 7/8" DIA. OPEN HOLES 15/16" DIA. UNLESS OTHERWISE SHOWN.
 - ALL STEEL TO BE THOROUGHLY CLEANED AND SHOP PAINTED WITH TWO COATS OF RED IRON OXIDE PRIMER AND TWO COATS OF BLACK FINISH PAINT, COMPLYING WITH THE PAINT MANUFACTURER'S MIL THICKNESS REQUIREMENTS. NO PAINT ON CONTACT SURFACES OF STRUCTURALLY BOLTED JOINTS AND ON AREAS WITHIN 2 INCHES OF FIELD WELDS.
 - OPEN GRATING FOR BRIDGE FOOTWALK SHALL BE GALVANIZED STEEL WITH CARRYING BARS A MINIMUM OF 1-1/4" BY 3/16" AT 1-3/16" O.C. AND 5/16" SQUARE CROSS BARS OR TWISTED RODS 4" O.C. WELDED CONSTRUCTION, ALL ENDS BANDED.
 - CONCRETE TO BE CLASS 40 AS PER R.R. SPECIFICATION C-E-77, WITH AN APPROVED AIR ENTRAINING AGENT MORE THAN 1% AIR PER TO ENTRAIN NOT LESS THAN 3% MOR WHERE NEW CONCRETE JOINS OLD MASONRY. ALL LOOSE MATERIALS ARE TO BE CLEANED OFF. THE OLD SURFACES ARE TO BE ROUGHENED, DRAG HOLES DRILLED AND ALL SURFACES ARE TO BE WETTED FOR AT LEAST FOUR HOURS AND GIVEN A THIN COAT OF 1:2 GROUT MIX PRECEDING THE PLACING OF NEW CONCRETE.
 - ORIGINAL TRACINGS OR REPRODUCTIONS THEREOF, ON UNLESS OTHERWISE NOTED, MATERIAL OF ALL SHOP DETAIL DRAWINGS PREPARED FOR THE WORK SHALL BE FORWARDED TO AND REMAIN THE PROPERTY OF CONRAIL. PLANS SHALL BE NOT LARGER THAN 24 INCHES BY 36 INCHES. DRAFTING AND LETTERING TECHNIQUES SHALL BE IN ACCORDANCE WITH THE NATIONAL MICROGRAPHICS ASSOCIATION STANDARDS.



ESTIMATED QUANTITIES

STRUCTURAL STEEL	5800 LBS.
REINFORCING STEEL	170 LBS.
CONCRETE	2 CU. YD.
WALKWAY GRATING - STD. 36" SECT.	68 LIN. FT.

File XU90

GRAPHIC SCALE
 10
 8
 PROJECT NORTH

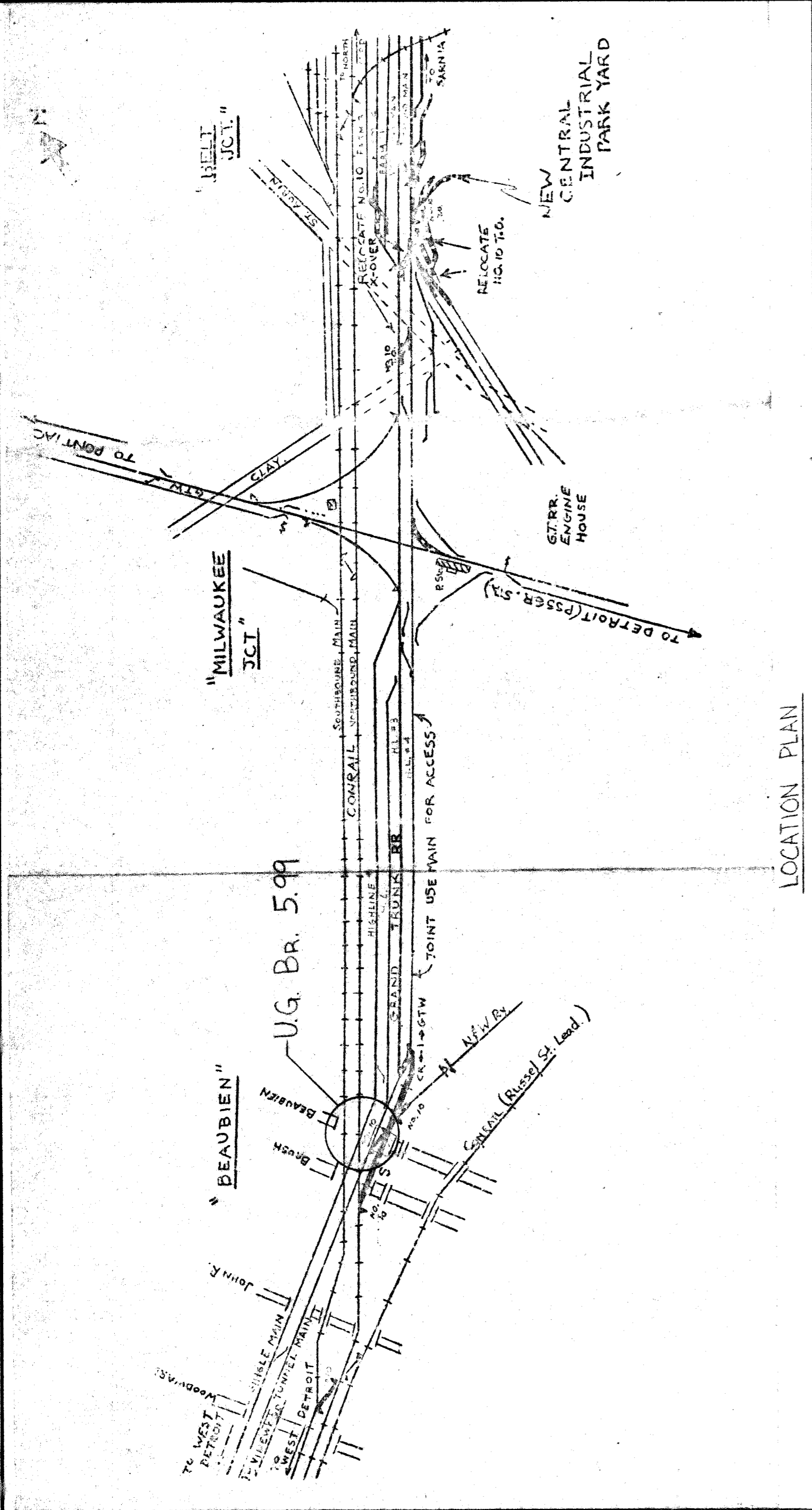
CONRAIL
 CHIEF ENGINEER - DESIGN & CONSTRUCTION PHILA, PA.
 APPROVED: [Signature]
 EAST CHIEF ENGINEER - STRUCTURES
 ENR BRIDGES & BUILDINGS

NO.	DATE	REVISIONS

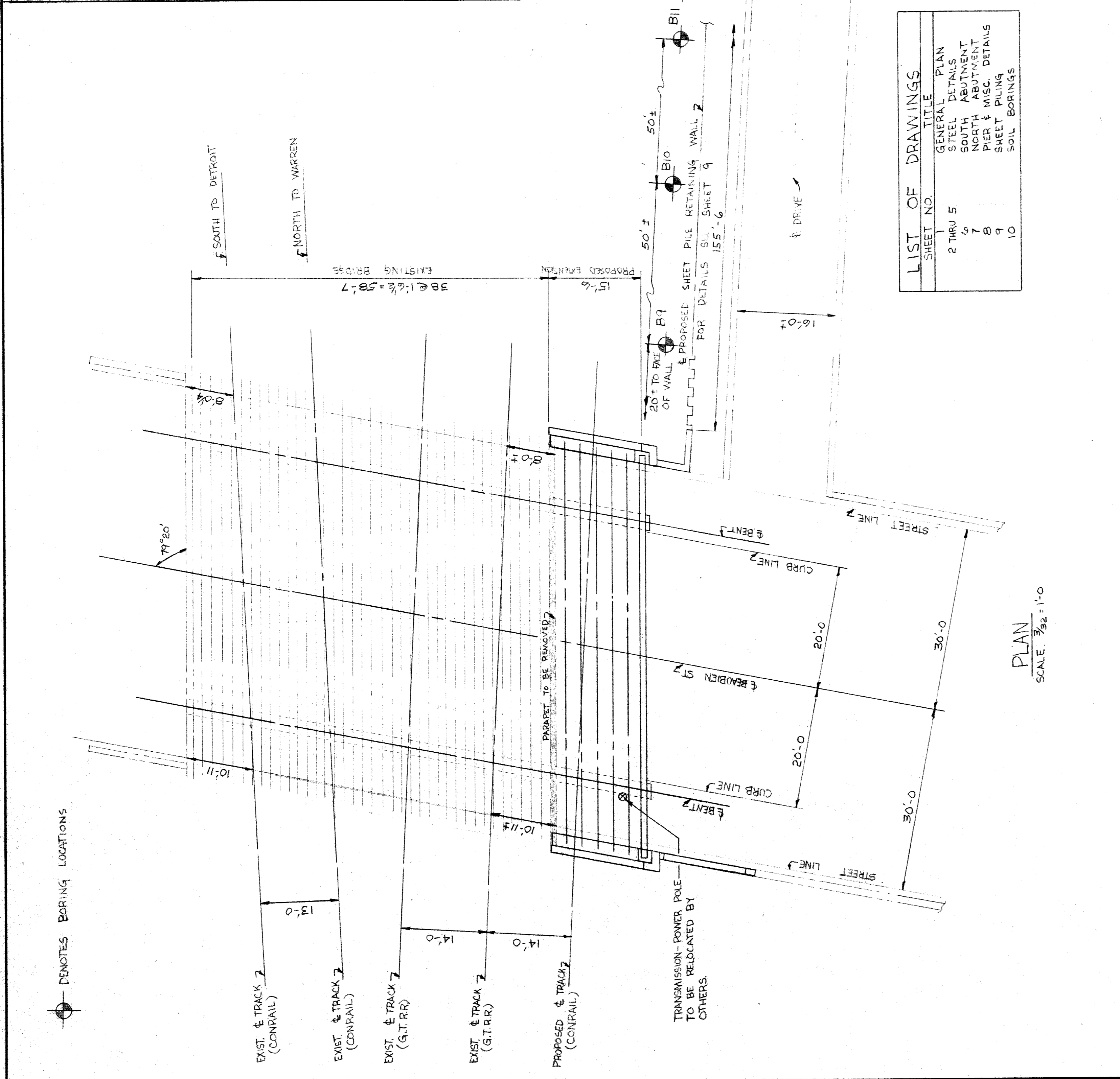
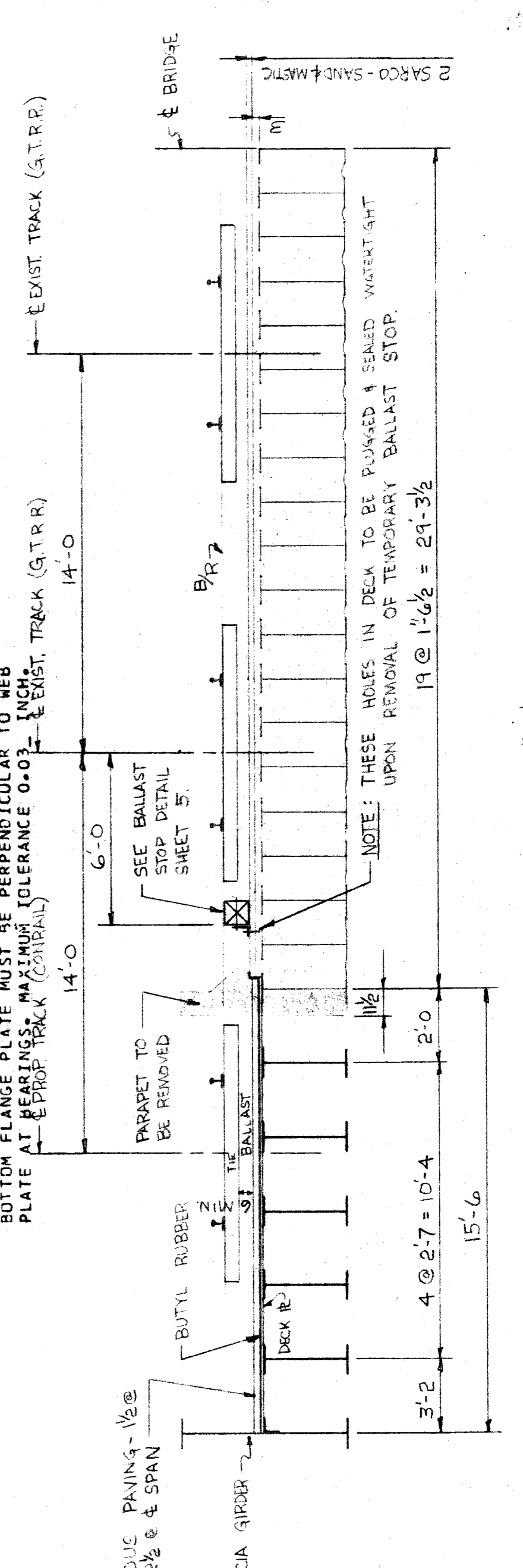
SEAL: _____
 SIGNATURE: _____

PROJECT TITLE:
 WESTERN REGION
 BRANCH
 BRANCH
 DETROIT DIVISION
 U.G. BRIDGE No. 599
 OVER BEAUBIEN ST
 DETROIT, MICHIGAN
 WIDENING BRIDGE

DRAWING TITLE:
GENERAL PLAN
 DIR. RAC.
 DR: BR
 DATE: 5-18-82
 PLAN NUMBER: 45482-R
 DRAWING NUMBER: 1 OF 10
 XU90



- GENERAL NOTES**
- GENERAL SPECIFICATIONS: AS PER A.A.R.E.A. SPECS.
 - LIVE LOAD COPPER E-80 AS PER A.A.R.E.A. SPECIFICATION WITH DIESEL IMPACT.
 - REINFORCING STEEL SHALL BE IN ACCORDANCE WITH R.R. SPECS. C-E. 77, A.S.T.M. SPECS. A-615, GRADE 60.
 - STRUCTURAL STEEL AS PER A.S.T.M. SPECS. A-36.
 - STEEL FOR FLANGES, WEB PLATES AND STIFFENERS SHALL BE FULLY KILLED FINE GRAIN PRACTICE. IMPACT TESTS SHALL BE IN ACCORDANCE WITH CHARRY V-NOTCH (CVN) TESTS AS GOVERNED BY ASTM A 673 FOR FREQUENCY OF TESTING WITH MINIMUM SERVICE TEMPERATURE OF 50 DEGREES F. WELD METAL AND TENSILE CUE EDGES SHALL BE FREE OF NICKS AND NOTCHES AND SHALL HAVE ALL EDGES GRIND TO A 1/16" RADIUS.
 - FLANGE SPICE WELDS ARE PROHIBITED.
 - WELDING TO BE IN ACCORDANCE WITH AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE D1.1-77 (REV. 1). ALL WELDS TO BE CONTINUOUS UNLESS OTHERWISE SHOWN. ALL WELDERS TO BE QUALIFIED IN ACCORDANCE WITH A.A.R.E.A. SPECS. FOR STEEL STRUCTURES. FURNISH PEATY DUT PER UNIT PER HOUR PER BRIDGE SPAN. OPEN HOLS 1 7/16" DIA. UNLESS OTHERWISE SHOWN.
 - HIGH STRENGTH BOLT, NUT AND WASHER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF A.S.T.M. SPECS. A-325, CURRENT ISSUE. INSTALLATION TO BE IN ACCORDANCE WITH A.A.R.E.A. SPECS. FOR STEEL STRUCTURES. FURNISH PEATY DUT PER UNIT PER HOUR PER BRIDGE SPAN. OPEN HOLS 1 7/16" DIA. UNLESS OTHERWISE SHOWN.
 - ALL HOLS CONNECTING FLANGE PLATE TO WEB PLATE MUST BE MADE BY AUTOMATIC SUBMERGED ARC WELDING. MILL SCALE TO BE REMOVED FROM FLANGE PLATES AT WEB TO FLANGE WELD.
 - ALL SPICE WELDS IN FLANGE PLATES AND WEBS TO BE RADIOGRAPHED. FLANGE WELD TO BE SUBJECT TO ULTRA-SOUND AND WELD SUBSTRUCTIVE TESTING IN ACCORDANCE WITH A.A.R.E.A. SPECS. FOR STEEL STRUCTURES. TRANSVERSE TACK WELDS WILL NOT BE PERMITTED ON THE TENSION FLANGE PLATES.
 - ALL GRINDING SHALL BE DONE IN THE DIRECTION OF APPLIED STRESSES. UNDERCUTTING BY GRINDING IS PROHIBITED.
 - BOTTOM FLANGE PLATE MUST BE PERPENDICULAR TO WEB PLATE AT BEARING PLATE CONNECTION. CLEARANCE 0-01" BETWEEN TRACK (G.T.R.R.) & EXIST. TRACK (G.T.R.R.)
 - ALL STEEL TO BE THOROUGHLY CLEANED AND SHOP PAINTED WITH TWO COATS OF RED IRON OXIDE PRIMER AND TWO COATS OF BLACK FINISH PAINT, COMPLYING WITH THE PAINT MANUFACTURER'S MIL THICKNESS REQUIREMENTS. NO PAINT ON CONTACT SURFACES OF STRUCTURALLY BOLTED JOINTS AND ON AREAS WITHIN 2 INCHES OF FIELD WELDS.
 - STEEL SHEET PILING SHALL CONFORM TO THE REQUIREMENTS OF A.S.T.M. SPECS. A-328.
 - CONCRETE TO BE CLASS 40 AS PER R.R. SPECIFICATION C-E. 77, WITH AN APPROVED AIR ENTRAINING AGENT ADDED TO THE MIXER TO ENTRAIN NOT LESS THAN 3% MORE THAN 8% AIR.
 - WHERE NEW CONCRETE JOINS OLD MAJORITY, ALL LOOSE SURFACES SHALL BE REMOVED, KEPT CLEAN, AND THE OLD SURFACES ARE TO BE REFINISHED TO THE SAME FINISH AS THE NEW SURFACES ARE TO BE MET FOR AT LEAST FOUR (4) HOURS AND GIVEN A THIN COAT OF 1:2 GROUT MIX PRECEDING THE PLACING OF NEW CONCRETE.
 - BACK SURFACES OF ALL NEW CONCRETE SHALL RECEIVE TWO (2) COATS OF AN APPROVED DAMPROOFING MATERIAL AS PER A.A.R.E.A. SPECS., CHAPTER 29, PART 3. COATING TO BE APPLIED TO WITHIN SIX (6) INCHES FROM TOP.
 - BITUMINOUS PAVING TO BE A TWO-COURSE, HOT MIXED, HOT LATA, ASPHALTIC CONCRETE SURFACE COURSE. MATERIALS AND PLACEMENT SHALL BE IN ACCORDANCE WITH THE STATE OF MICHIGAN SPECIFICATIONS, LATEST ISSUE.
 - ALL FABRICATED STRUCTURAL STEEL MUST BE ASSEMBLED AND MATCH MARKED IN THE SHOP BEFORE SHIPPING.
 - MATERIAL ON THIS PLAN IS SUBJECT TO CONRAIL INSPECTION AND TEST BEFORE IT IS PAINTED.
 - MILL INSPECTION OF STEEL WILL BE MAILED PROVIDED THE FABRICATOR FURNISHES CERTIFIED COPIES OF MILL'S REPORT ON PHYSICAL PROPERTIES OF THE STEEL USED ALONG WITH THE SHOP DETAILS.
 - ORIGINAL DRAWINGS OR REPRODUCTION THEREOF, ON WHICH THIS PLAN IS BASED, SHALL BE KEPT AT THE SHOP OFFICE. DRAWINGS PREPARED FOR THE PROJECT SHALL BE REPRODUCED TO REMAIN THE PROPERTY OF CONRAIL. PLANS SHALL BE NOT LARGER THAN 24" X 36" INCHES. SHOP DRAWING AND LETTERING TECHNIQUES SHALL BE IN ACCORDANCE WITH THE NATIONAL MICROGRAPHICS ASSOCIATION STANDARDS.

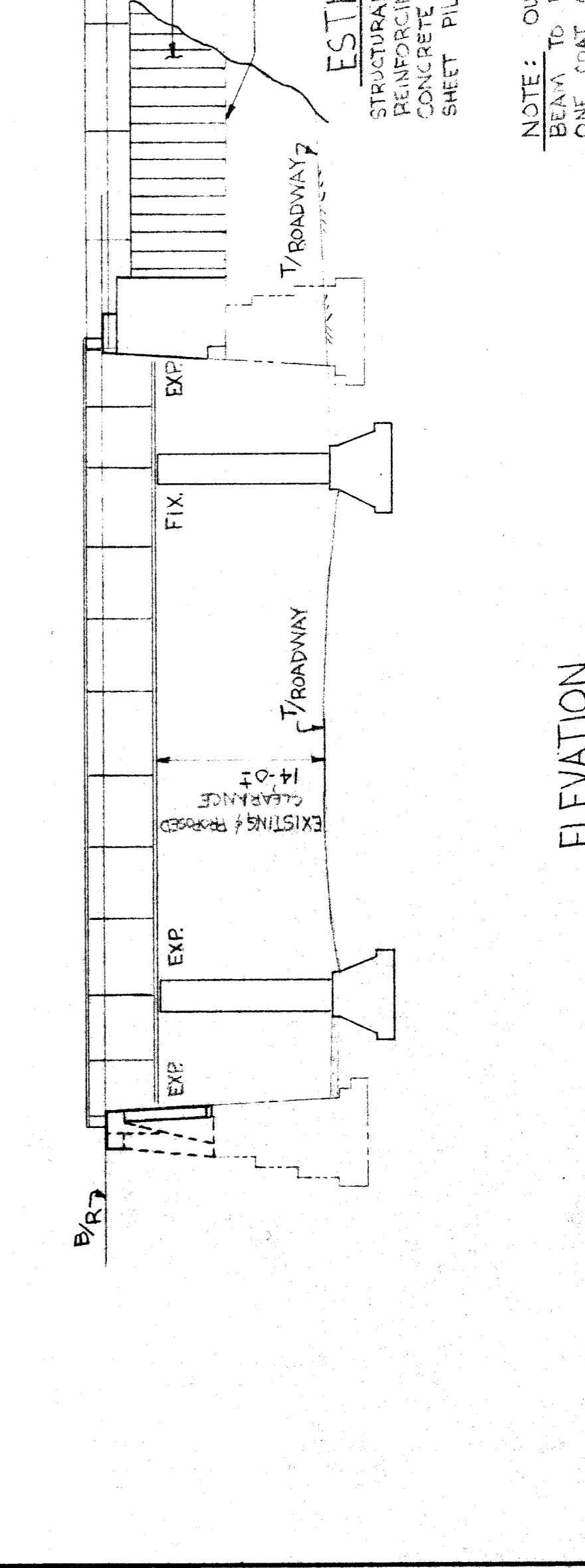


LIST OF DRAWINGS

SHEET NO.	TITLE
1	GENERAL PLAN
2	STEEL DETAILS
3	SOUTH ABUTMENT
4	NORTH ABUTMENT
5	PIER & MISC. DETAILS
6	SHEET PILING
7	SOIL BORINGS
8	
9	
10	

ESTIMATED QUANTITIES


STRUCTURAL STEEL	133,000 LBS.
REINFORCING STEEL	11,000 LBS.
CONCRETE	112 CU. YDS.
SHEET PILING - SEE SHEET 9	



DENOTES BORING LOCATIONS

GRAPHIC SCALE
 10
 8

PROJECT NORTH



CONSOLIDATED RAIL CORPORATION
 PHILA., PA.
 CHIEF ENGINEER - DESIGN & CONSTRUCTION
 APPROVED: *[Signature]*
 ASST. CHIEF ENGINEER - STRUCTURES
 BRK, BRIDGES & BUILDINGS

NO.	DATE	REMARKS

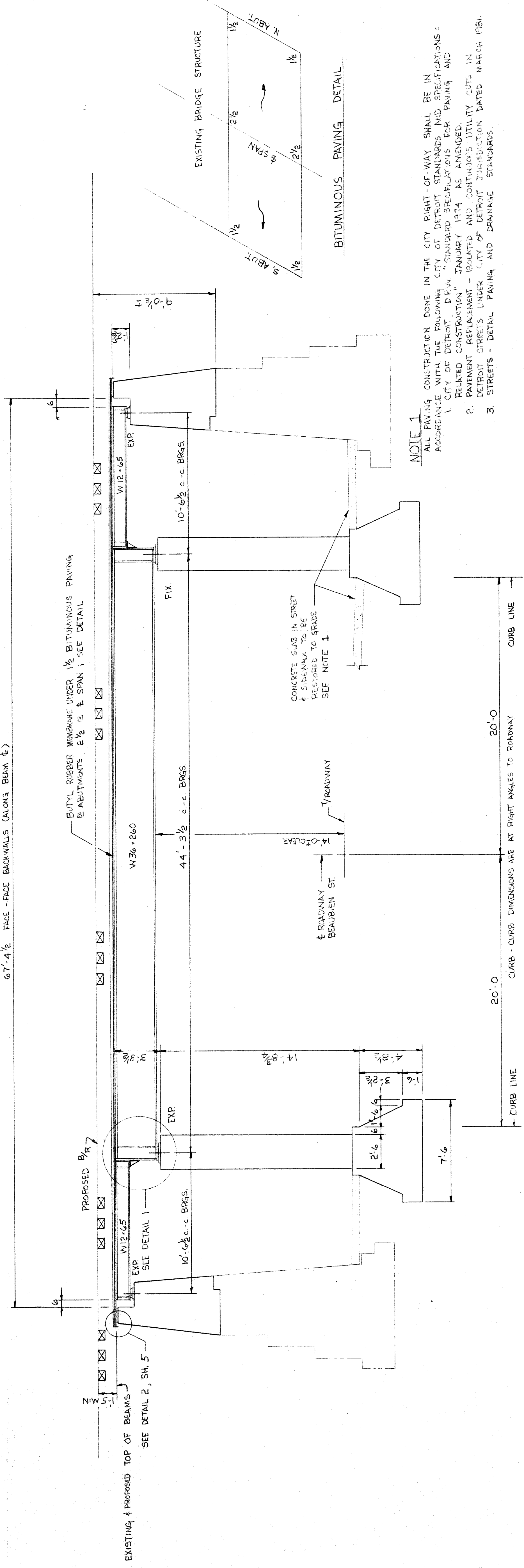
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SIGNATURE

PROJECT TITLE:
 WESTERN REGION
 MACKINAW BRANCH
 DETROIT DIVISION
 OVER EXAMINER'S
 DETROIT, MICHIGAN
 WIDENING BRIDGE
 U.G. BRIDGE NO. 599

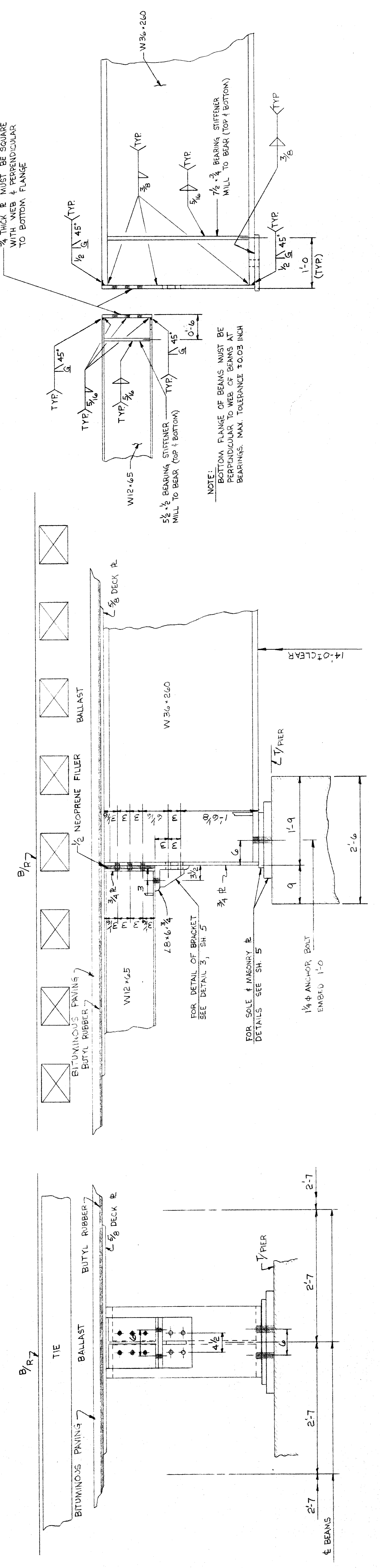
DRAWING TITLE:
 STEEL
 DETAILS

DESIGNER: RAC
 OK: BMT
 DATE: 5-18-82
 PLAN NUMBER: 45482-R
 DRAWING NUMBER: 2 OF 10
 X090

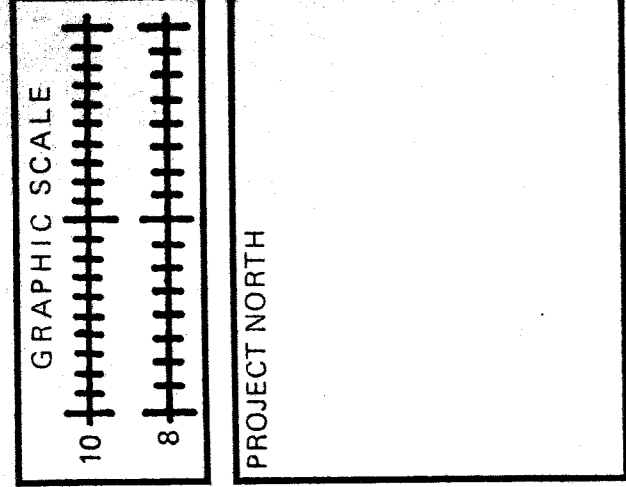


NOTE 1
 ALL PAVING CONSTRUCTION DONE IN THE CITY RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE FOLLOWING CITY OF DETROIT STANDARDS AND SPECIFICATIONS:
 1. CITY OF DETROIT DEPT. OF PUBLIC WORKS, STANDARD SPECIFICATIONS FOR PAVING AND RELATED CONSTRUCTION, JANUARY 1974 AS AMENDED.
 2. PAVEMENT REPLACEMENT - ISOLATED AND CONTIGUOUS UTILITY CUTS IN DETROIT STREETS UNDER CITY OF DETROIT JURISDICTION DATED MARCH 1981.
 3. STREETS - DETAIL PAVING AND DRAINAGE STANDARDS.

LONGITUDINAL SECTION
 SCALE 1/4" = 1'-0"



DETAIL 1
 SCALE 1" = 1'-0"



PROJECT NORTH

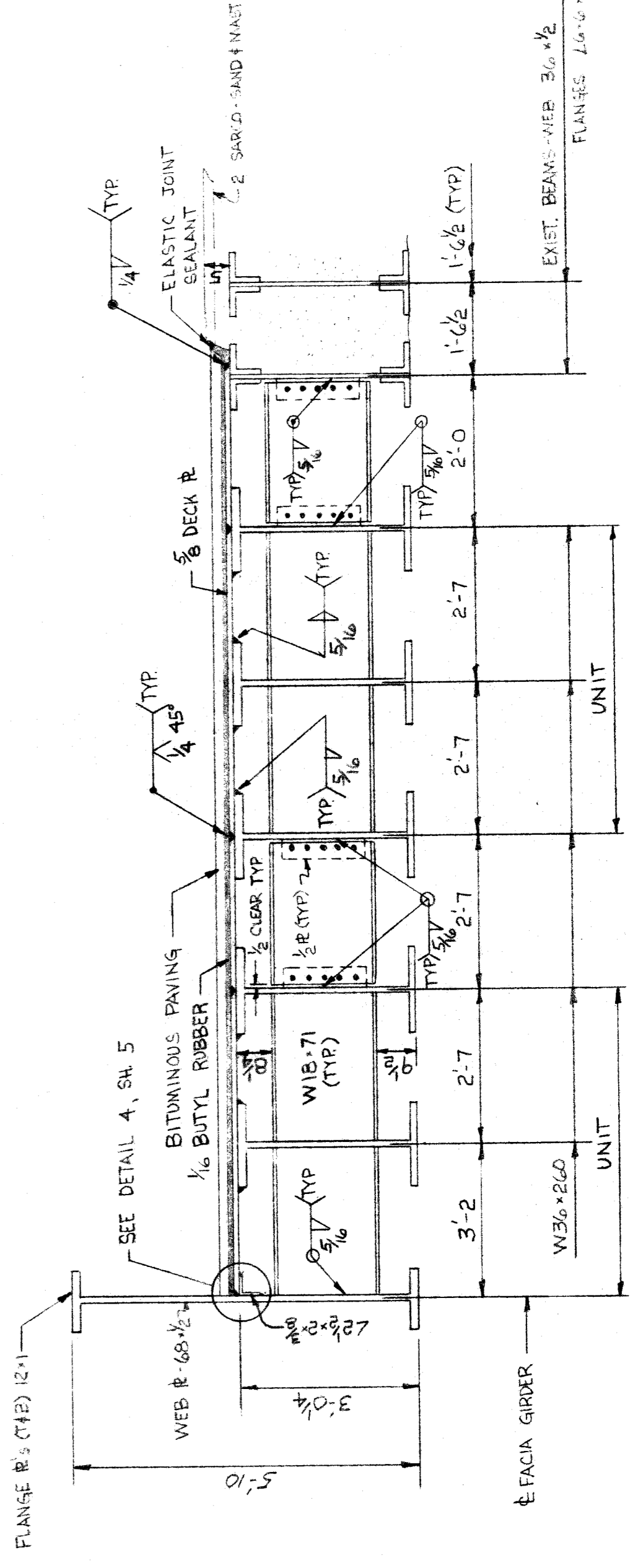
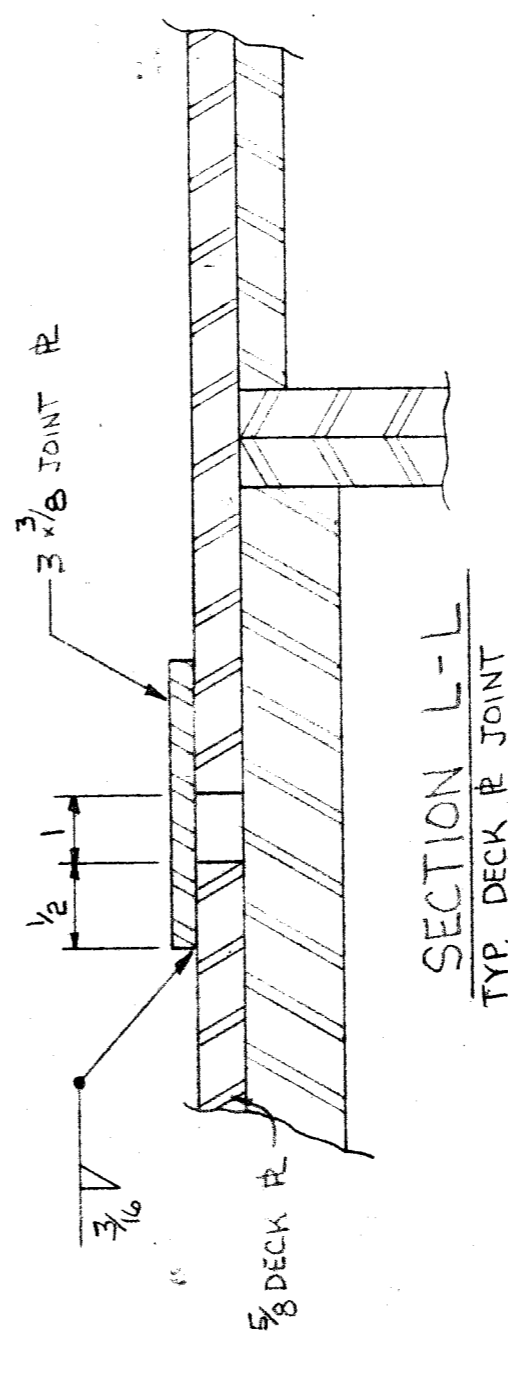
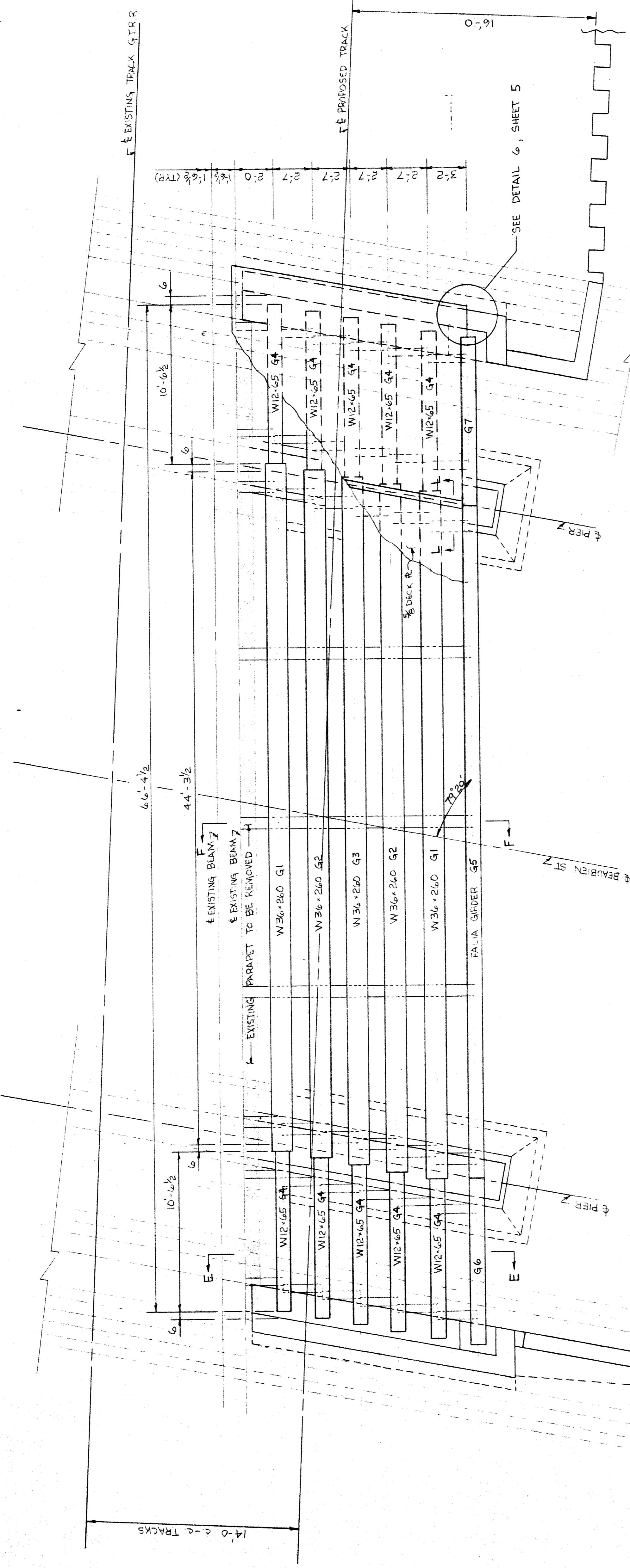
CONRAIL CONSOLIDATED RAIL CORPORATION PHILA., PA.
 CHIEF ENGINEER - DESIGN & CONSTRUCTION
 APPROVED: *[Signature]*
 ENGR. PROJECT BUILDINGS ASST. CHIEF ENGINEER - STRUCTURES

NO.	DATE	REMARKS

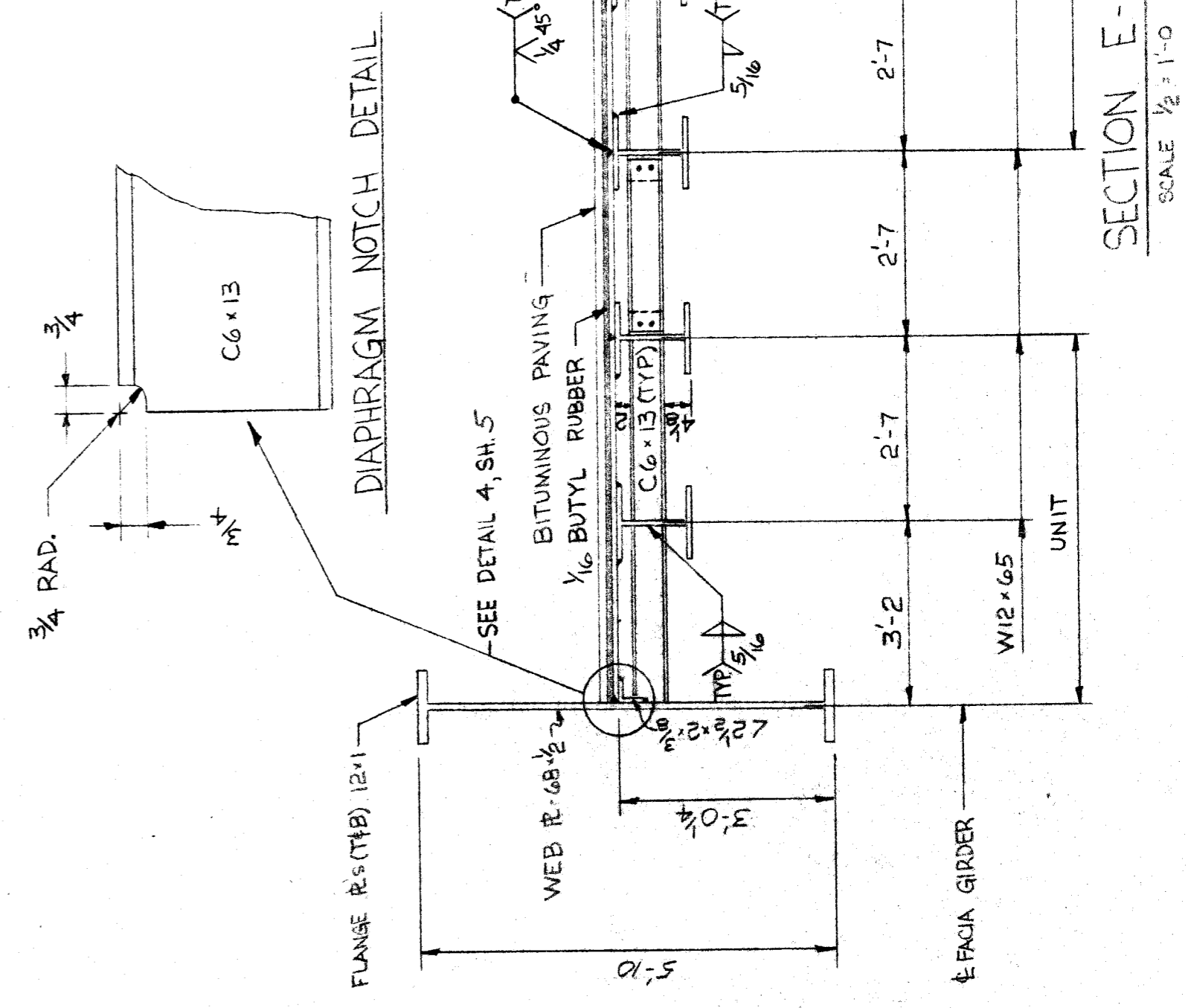
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PROJECT TITLE:
 WESTERN REGION BRANCH
 DETROIT DIVISION
 U.G. BRIDGE No. 599
 OVER BEAUBIEN ST
 DETROIT, MICHIGAN
 WIDENING BRIDGE

DRAWING TITLE:
 STEEL DETAILS
 DATE: 5-18-82
 PLAN NUMBER: 45482-R
 DRAWING NUMBER: 3 OF 10
 XU90



PLAN
 SCALE 1/8" = 1'-0"



NOTE:
 SEE DETAIL 5 SHEET 5
 FOR CUT IN BOTTOM
 FLANGE OF DIAPHRAGMS

NOTE:
 SEE DETAIL 4, SH. 5
 BITUMINOUS PAVING
 1/16 BUTYL RUBBER

NO.	DATE	REMARKS

SEAL: _____

WESTERN REGION
MACKINAW BRANCH
DETROIT DIVISION

U G BRIDGE No 599
OVER BRUBBEN ST
DETROIT, MICHIGAN
WIDENING BRIDGE

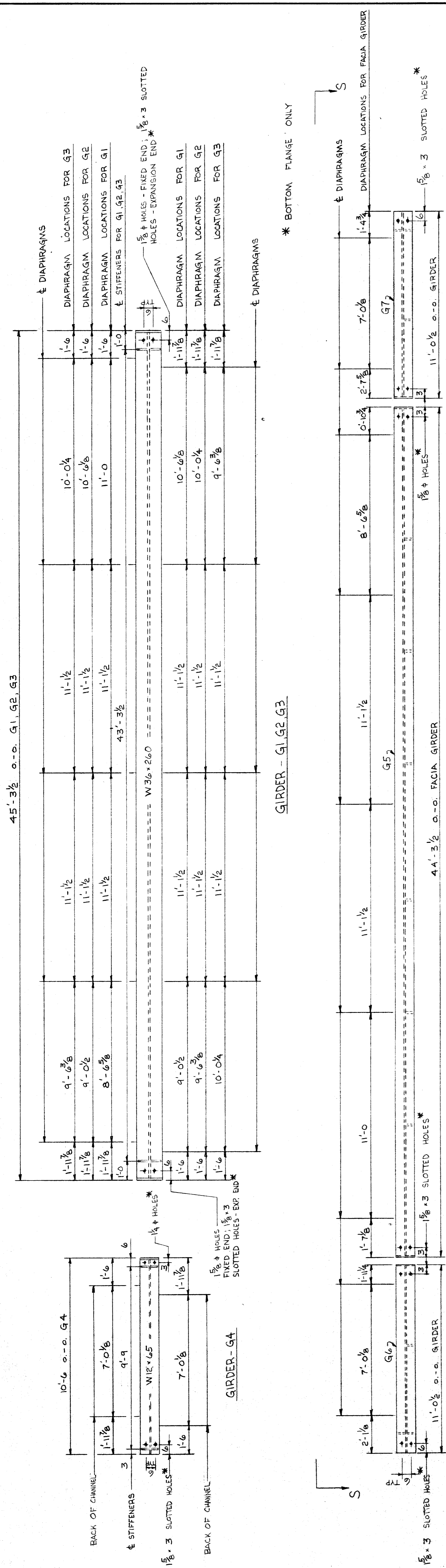
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STEEL DETAILS

DES: RAC dr: RAC
CHK: BNT TR:

DATE: 5-18-82

PLAN NUMBER:
45482-R

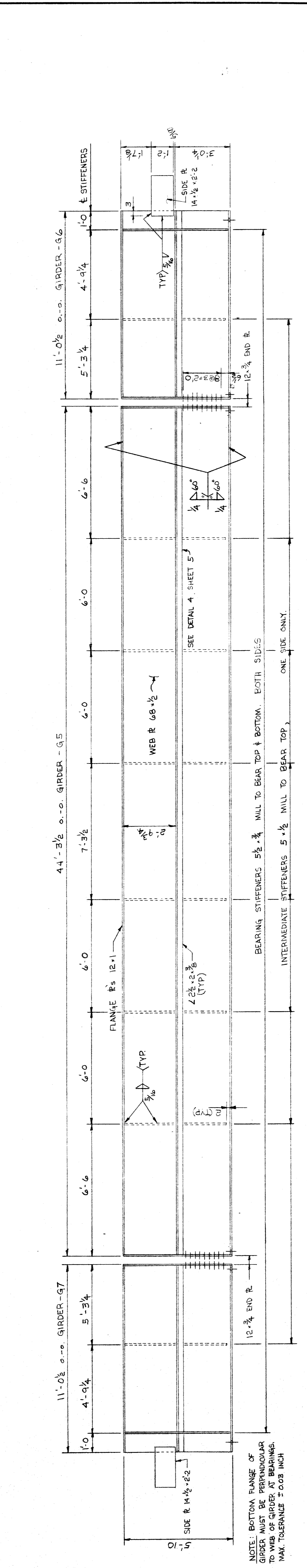
DRAWING NUMBER:
4 OF 10



GIRDER - G1, G2, G3

FACIA GIRDER

DIAPHRAGM LOCATIONS
SCALE: 3/8" = 1'-0"



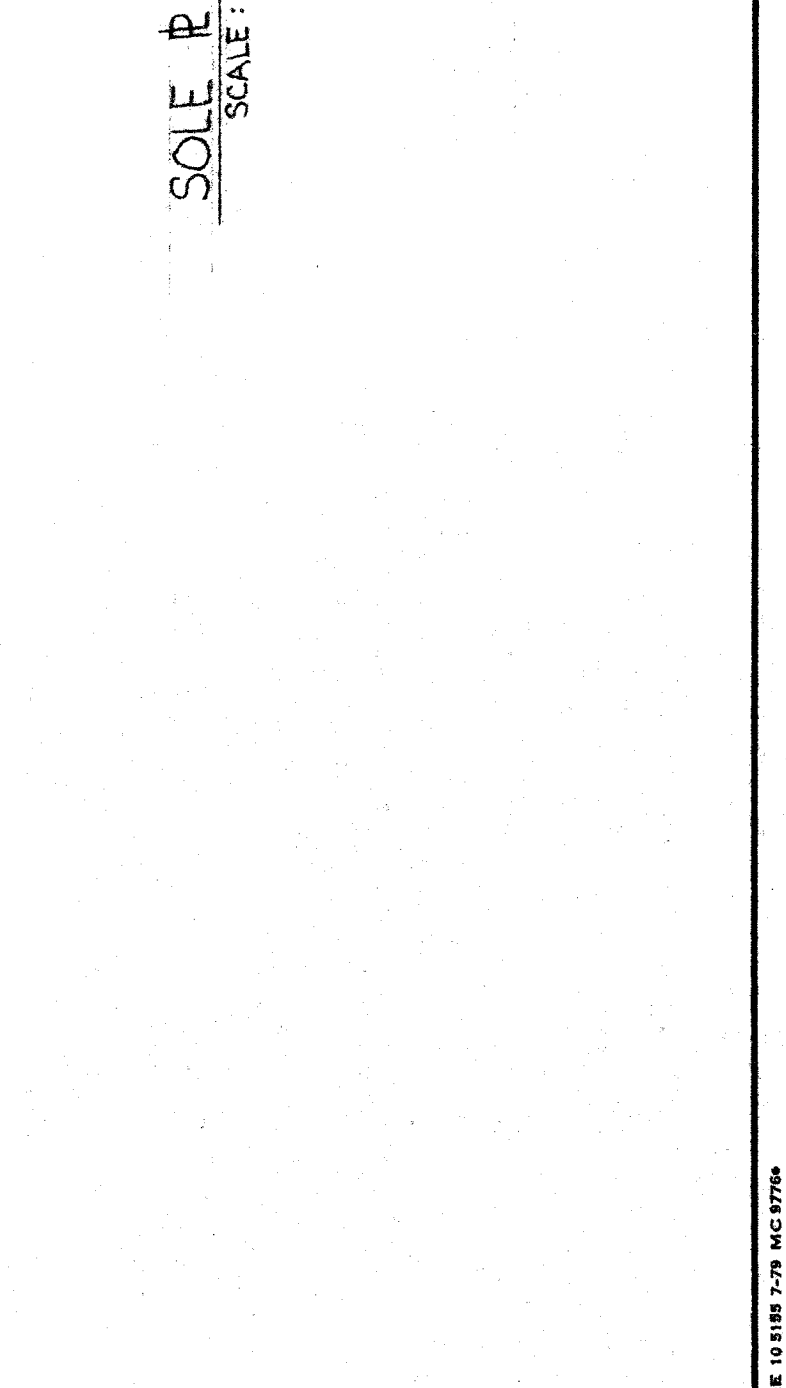
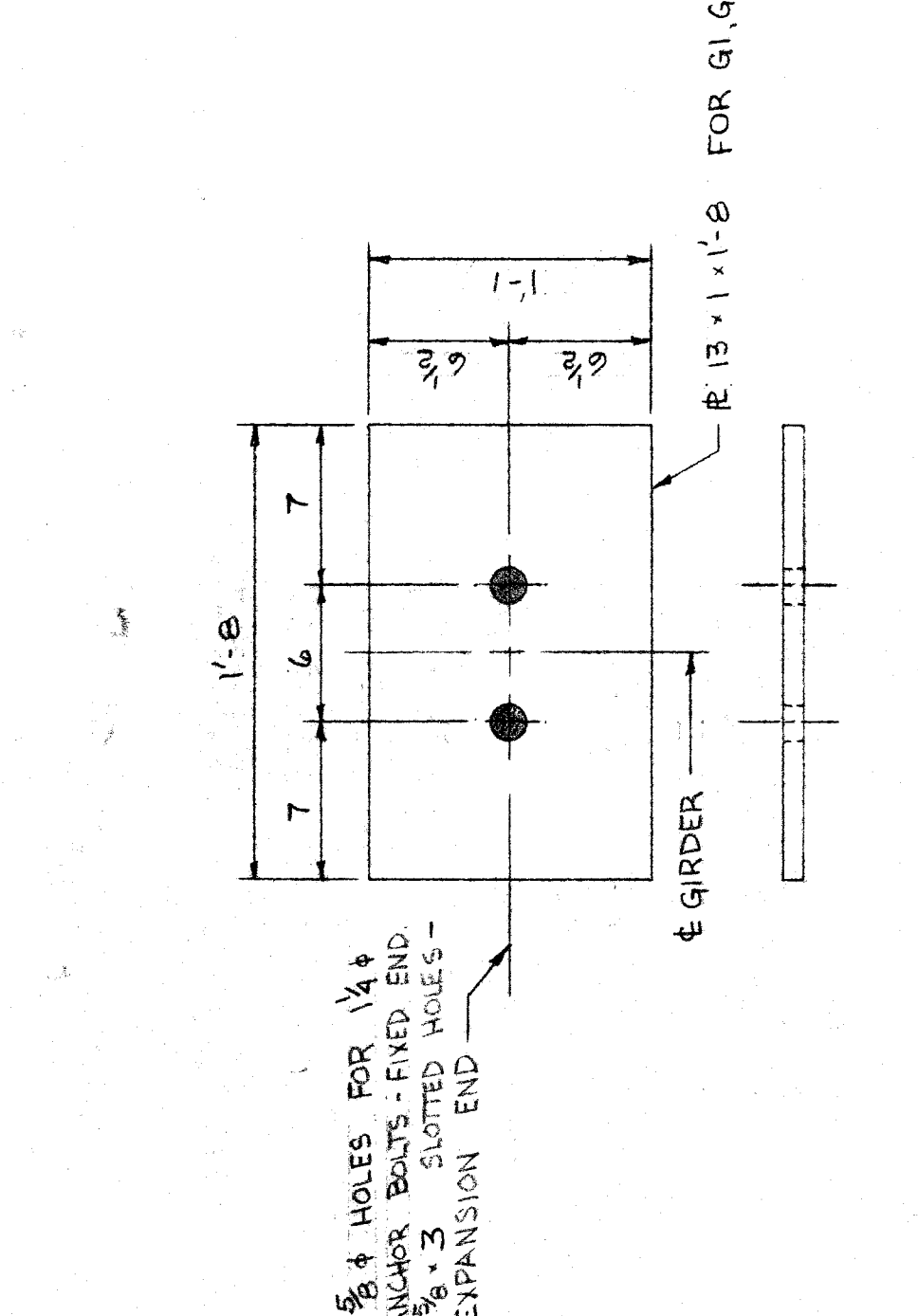
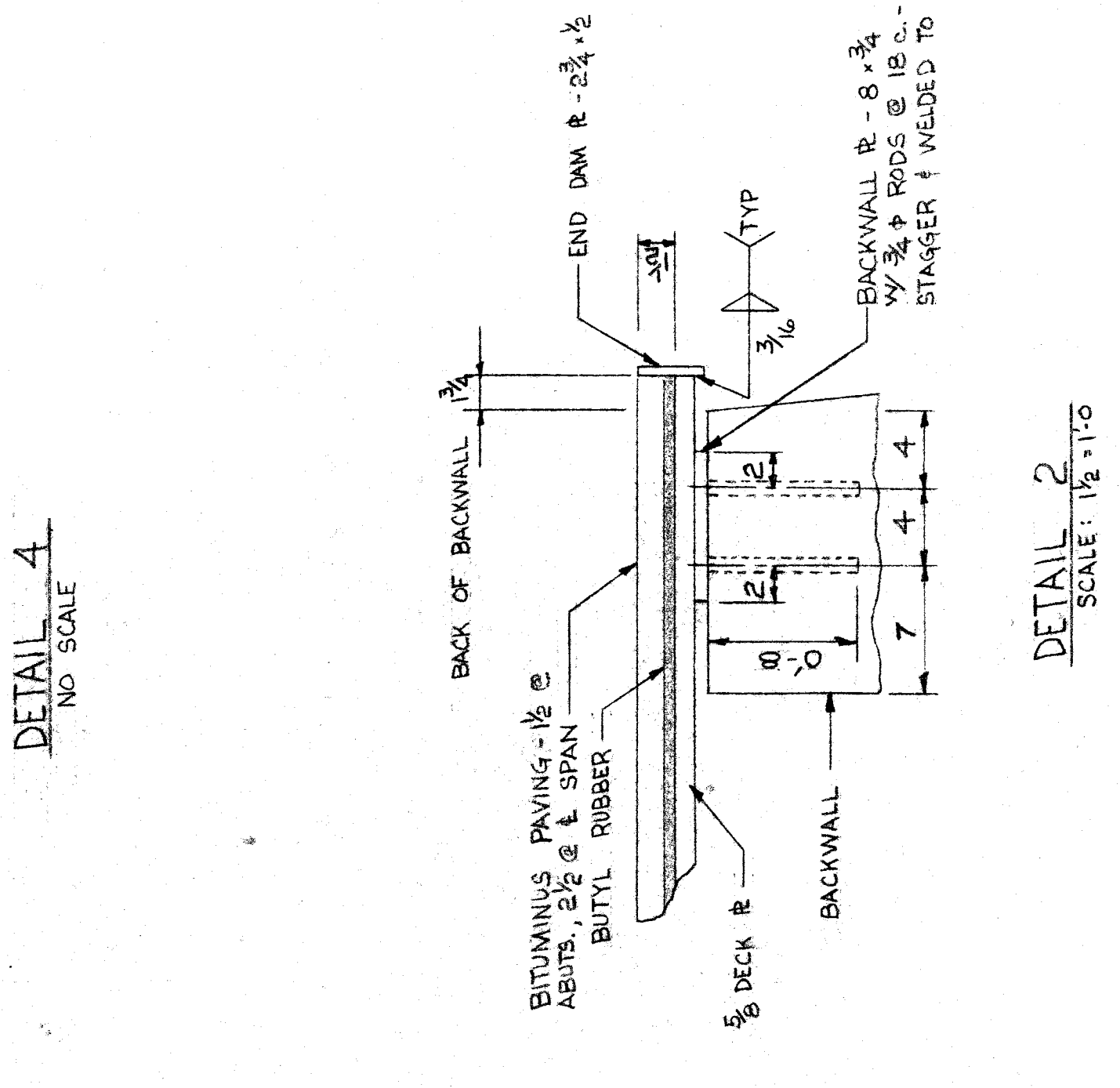
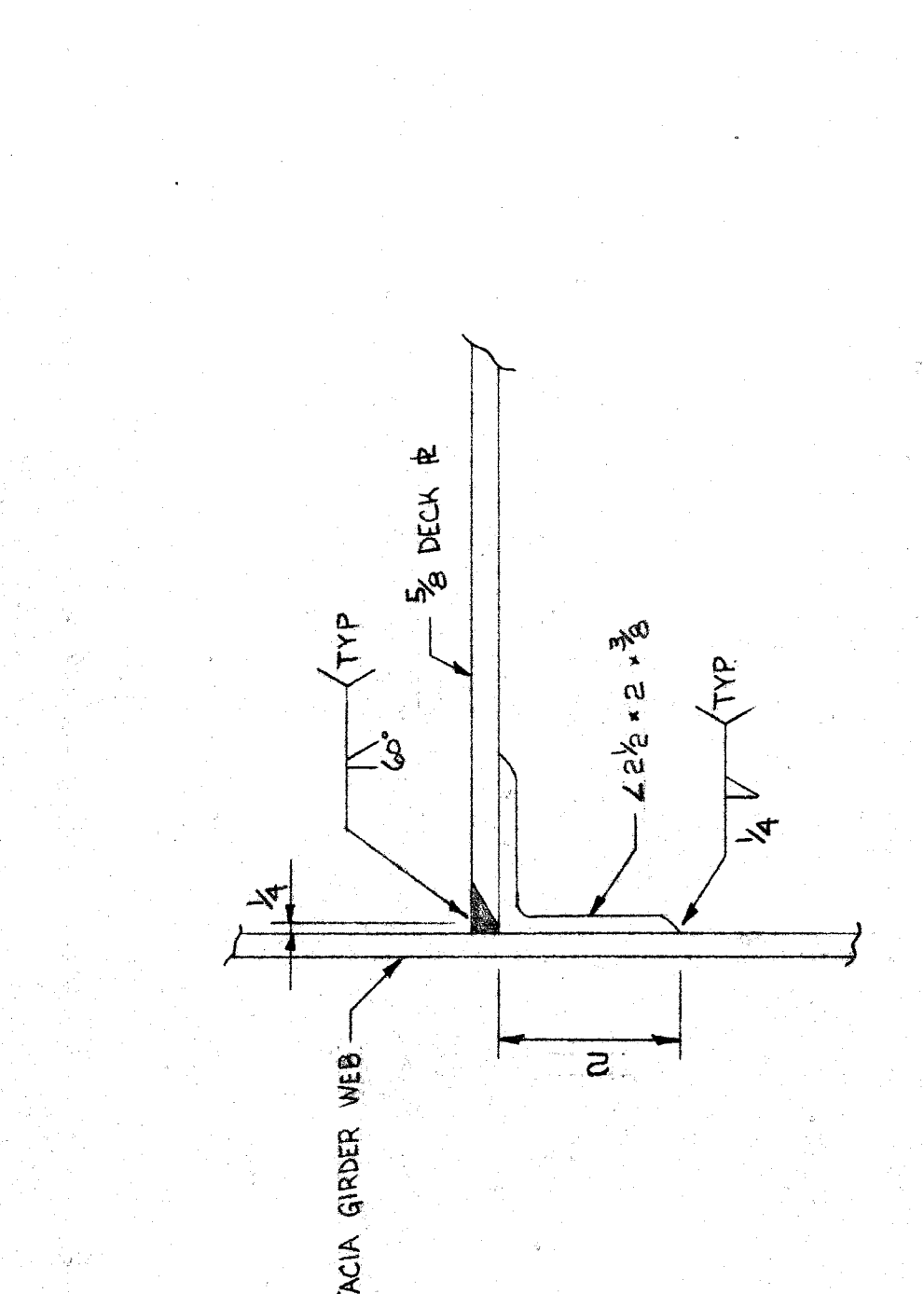
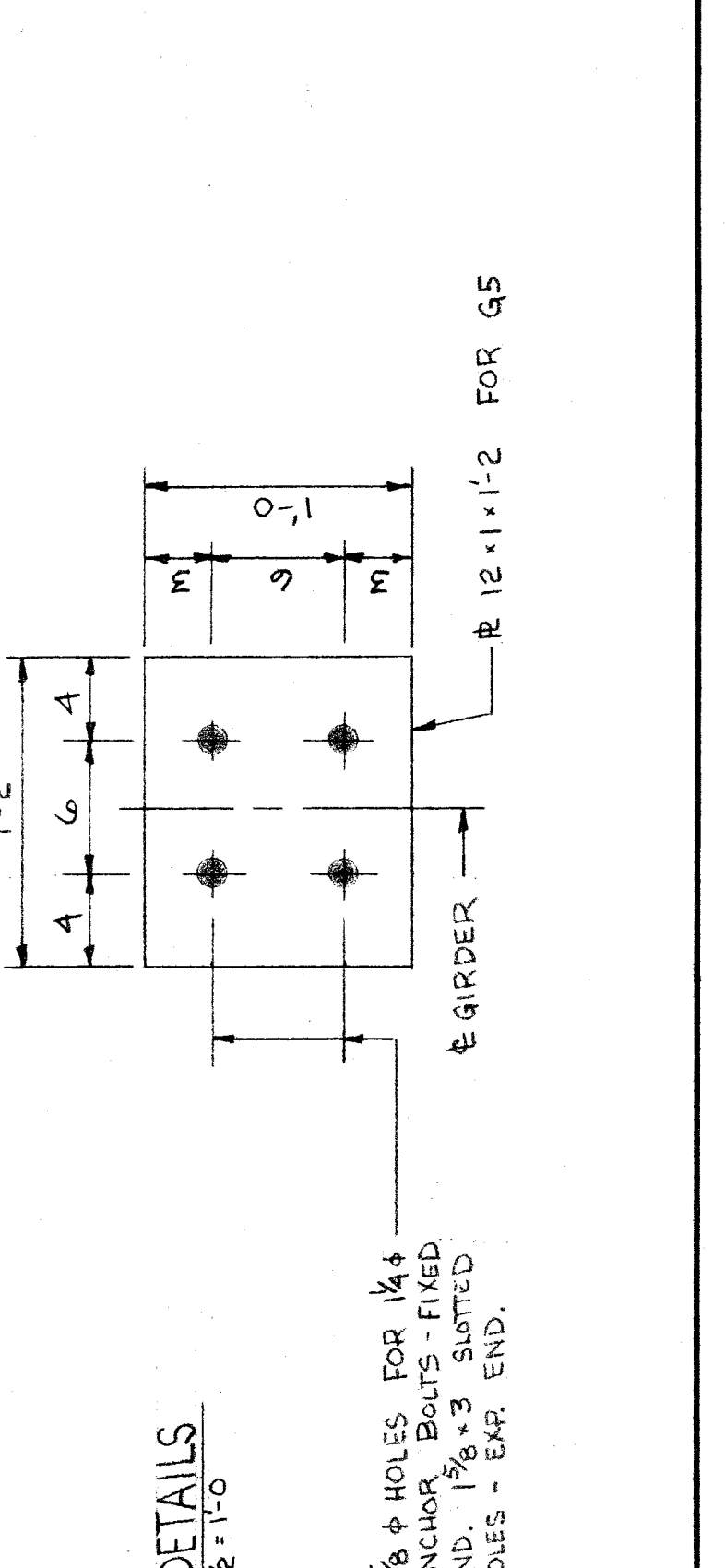
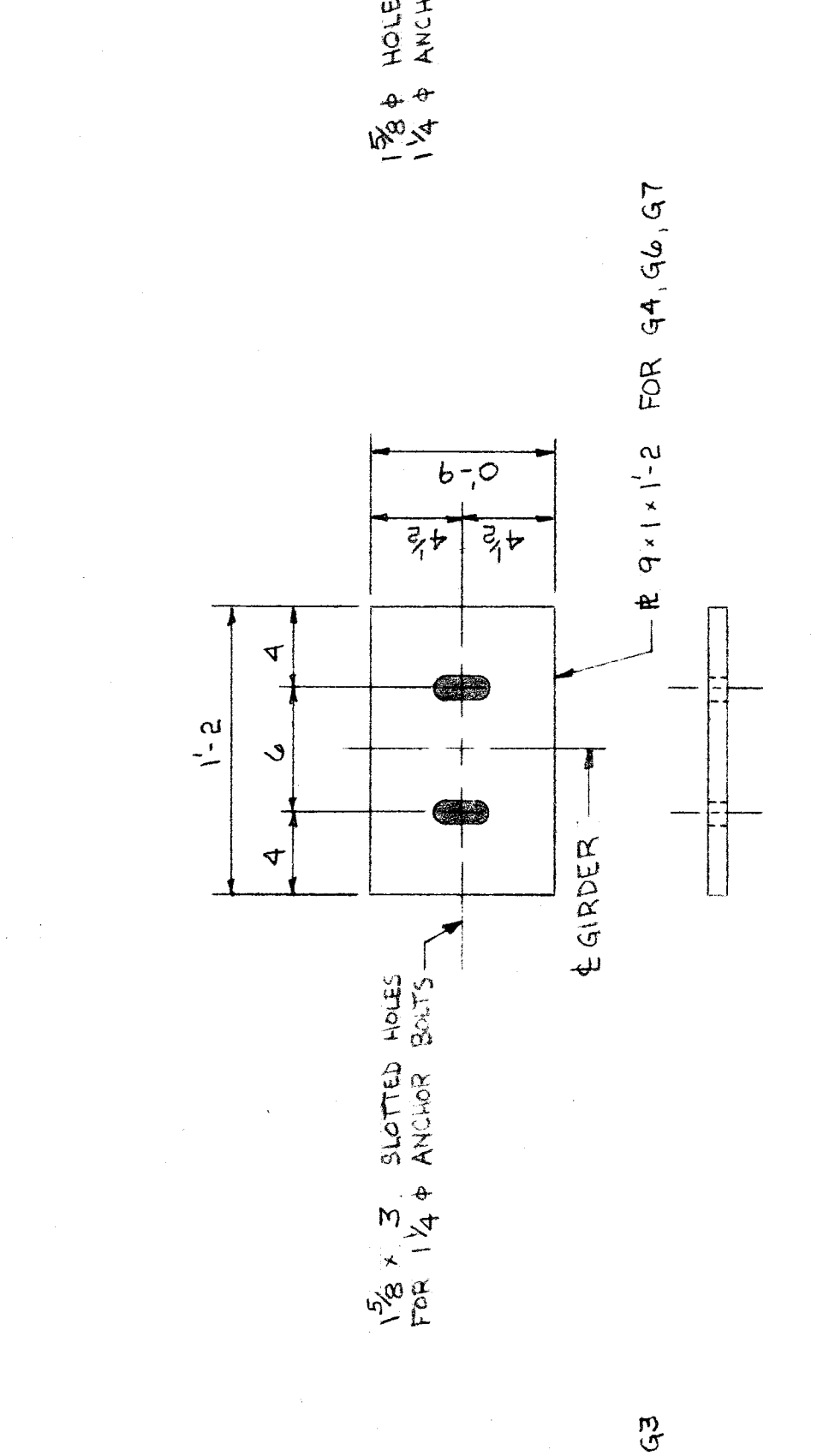
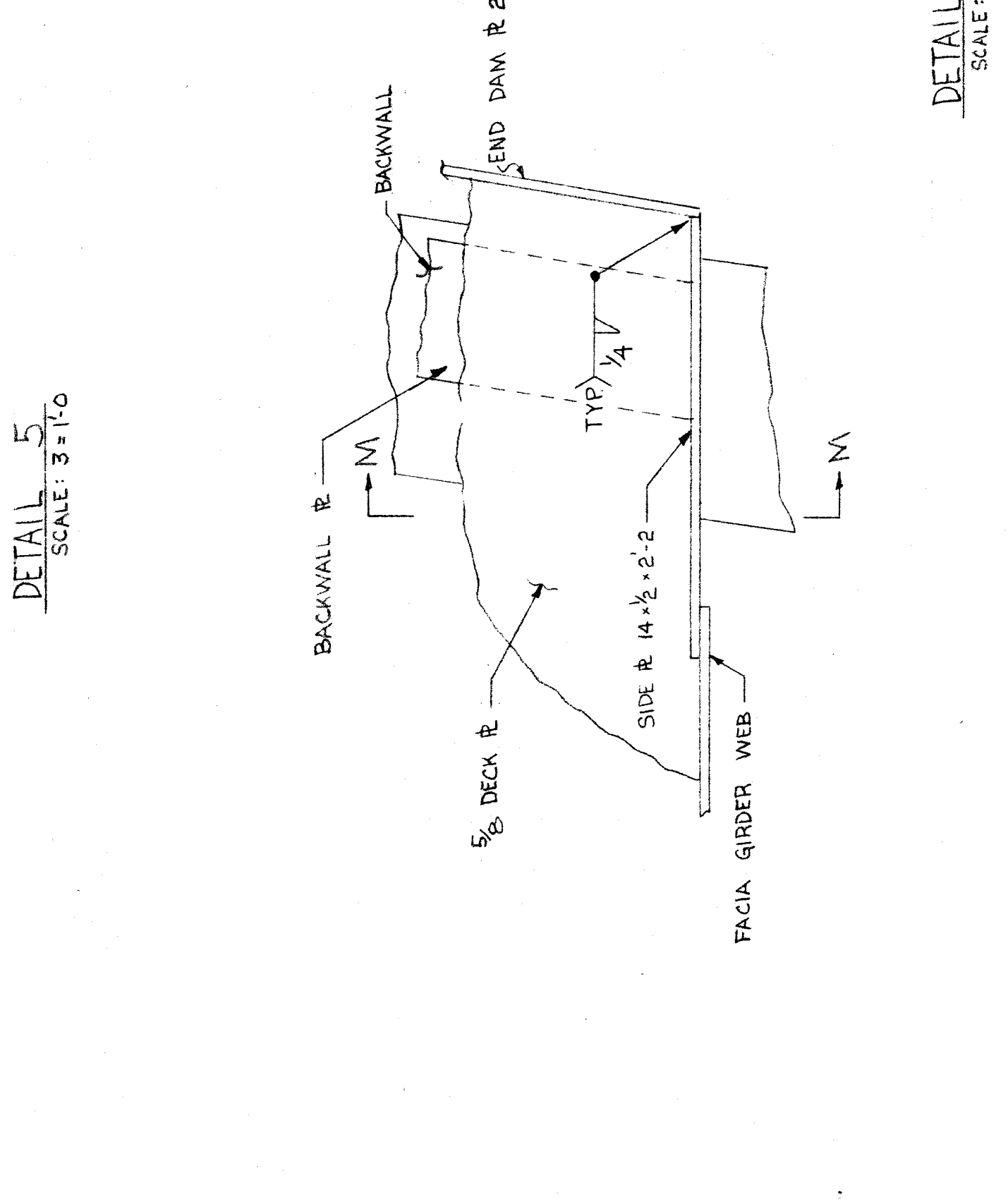
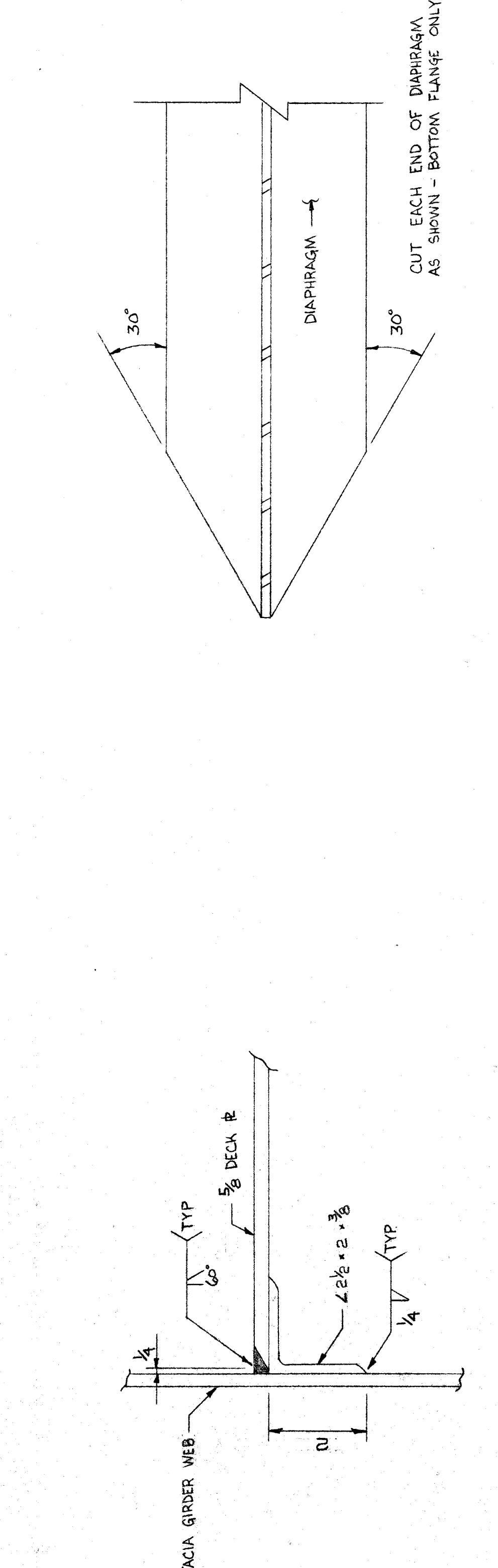
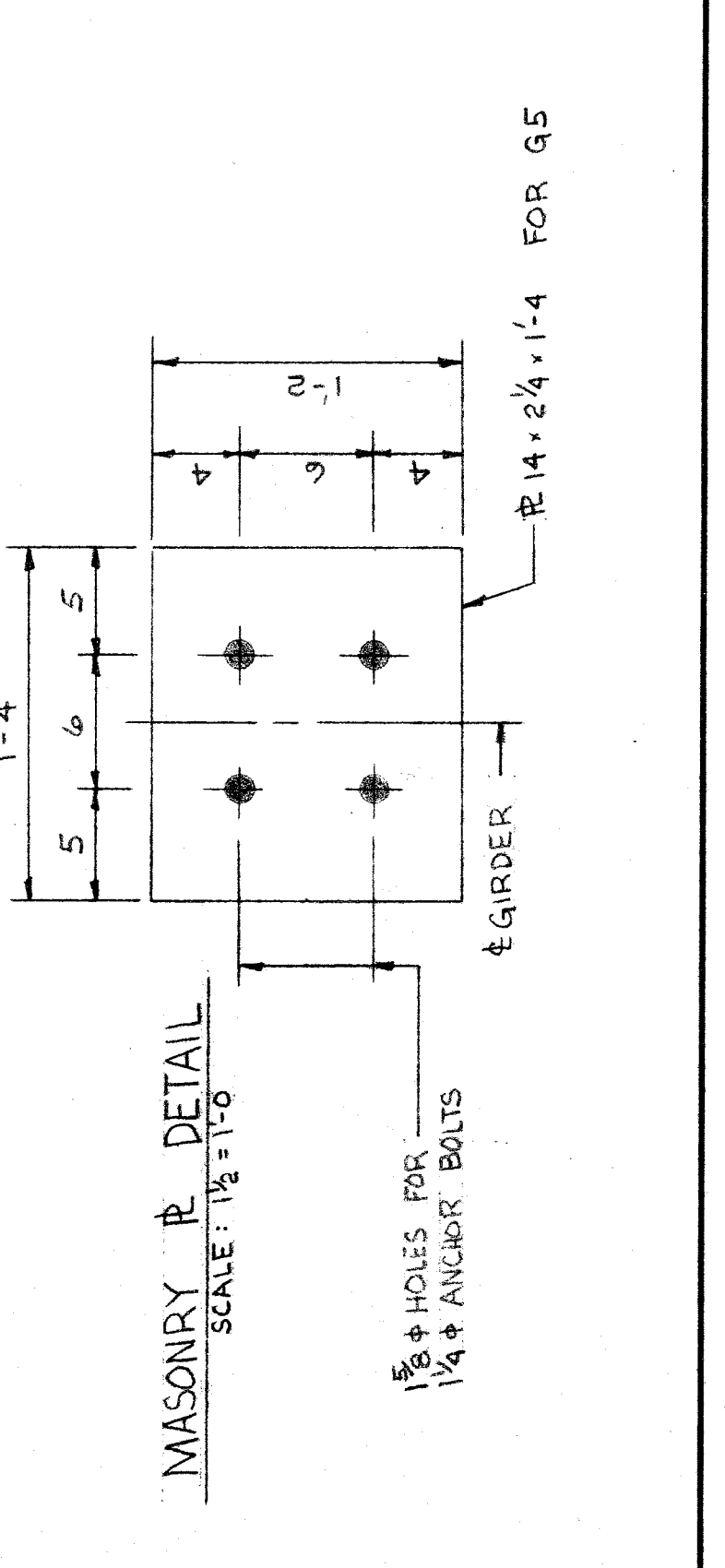
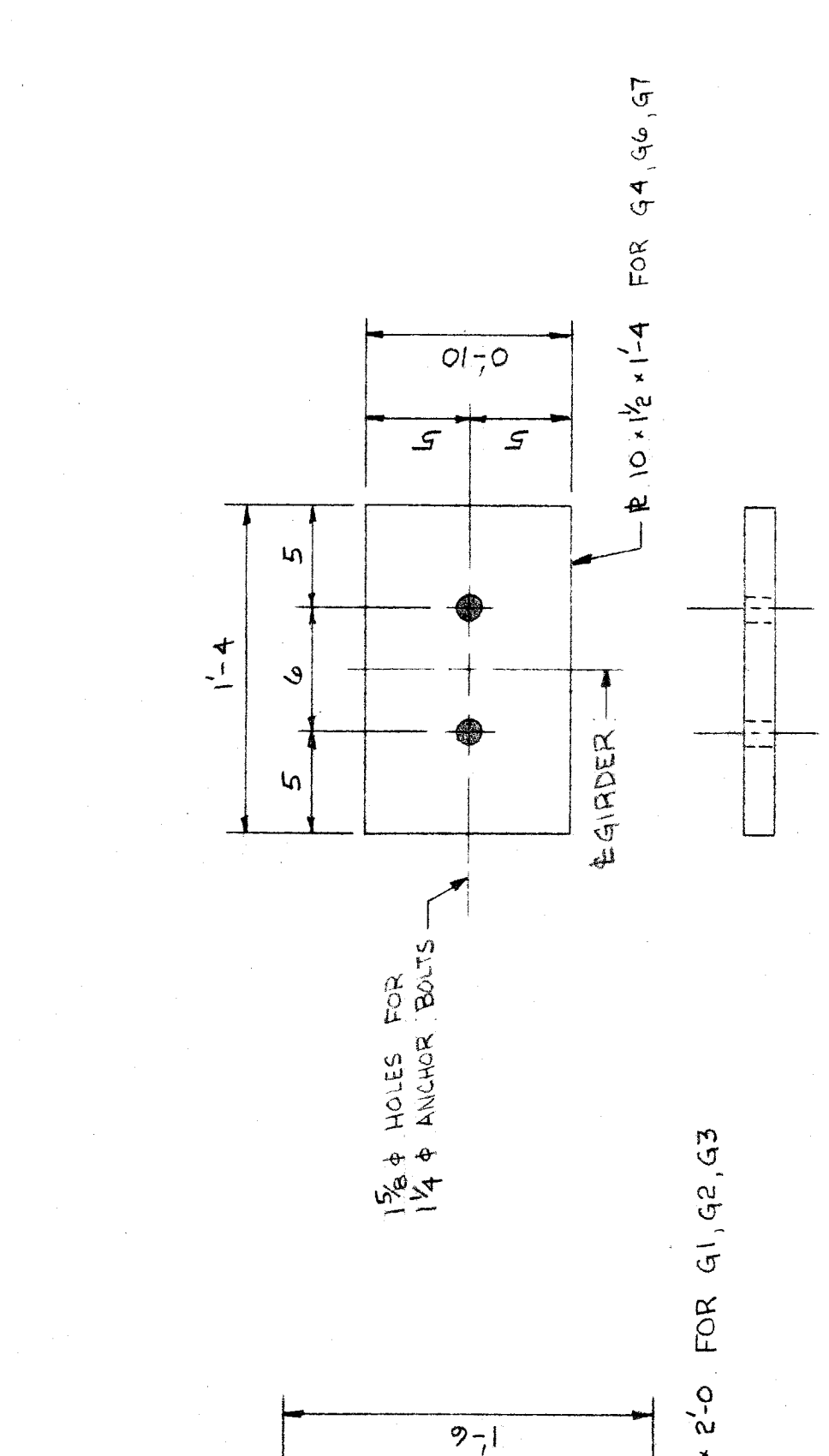
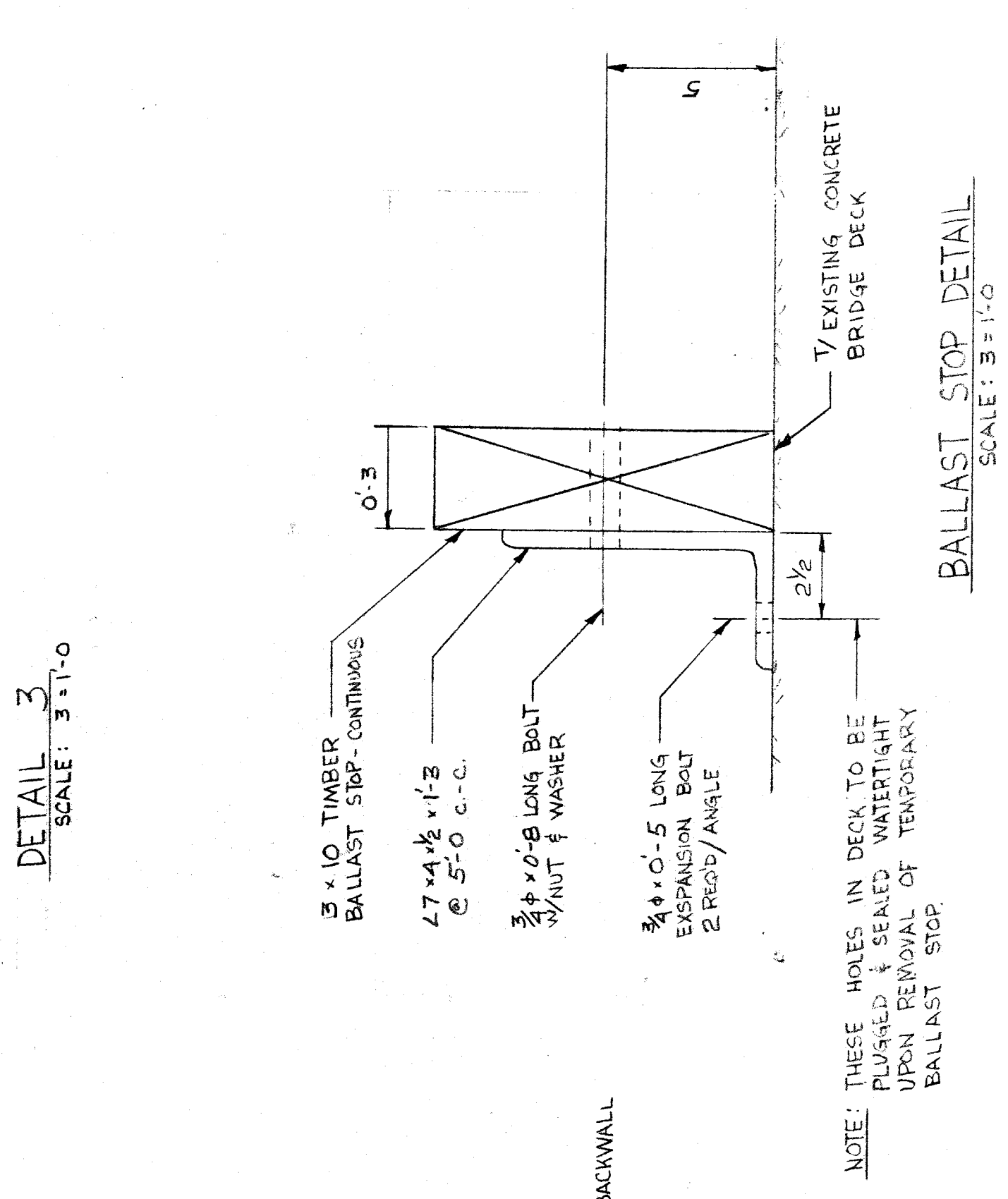
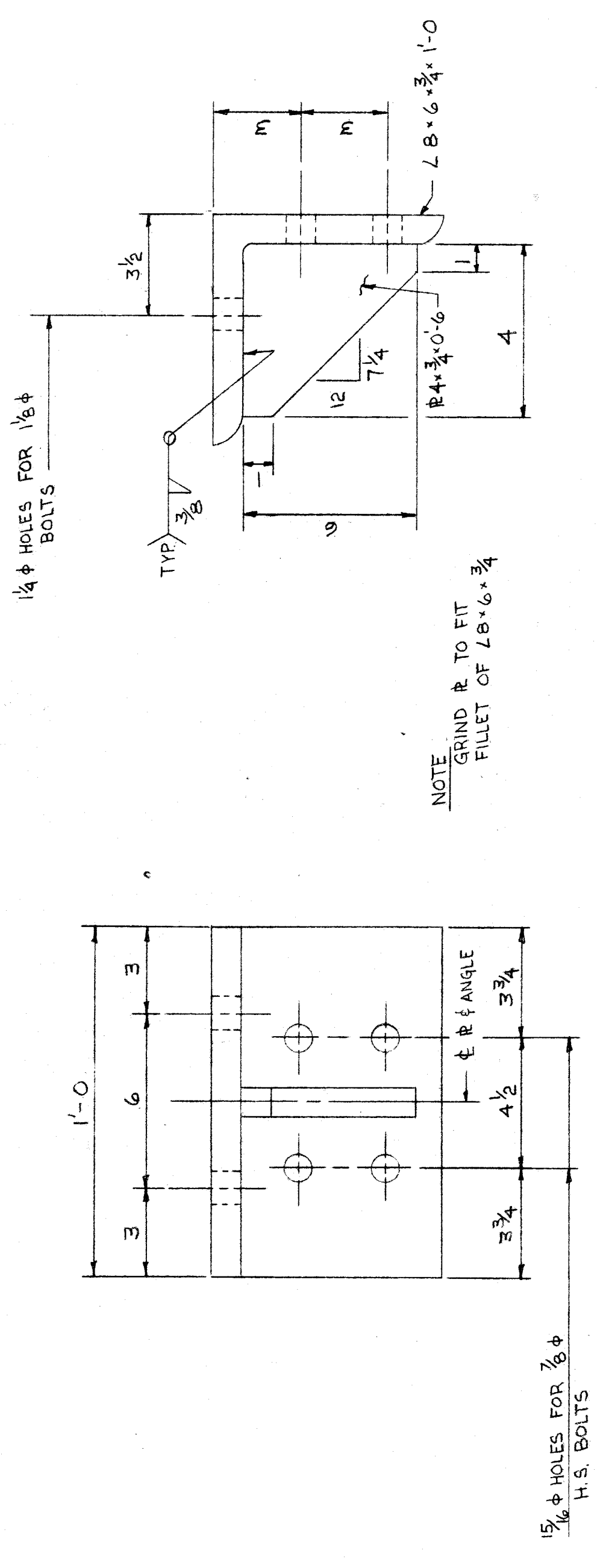
FACIA GIRDER DETAILS
SCALE: 3/8" = 1'-0"
(VIEW S-S)

NO.	DATE	REVISIONS	REMARKS

SEAL: _____
SIGNATURE: _____

PROJECT TITLE:
WESTERN REGION
DETROIT DIVISION
MACKINAW BRANCH
U.S. BRIDGE No. 599
OVER BEAUBEN ST
DETROIT, MICHIGAN
WIDENING BRIDGE

DRAWING TITLE:
STEEL
DETAILS
DES: RAC
CHK: BMT
DATE: 5-18-82
PLAN NUMBER:
45482-R
DRAWING NUMBER:
5 OF 10
XU90



GRAPHIC SCALE
 10
 8
 6
 4
 2

PROJECT NORTH

CONSOLIDATED RAIL CORPORATION
 CHIEF ENGINEER - DESIGN & CONSTRUCTION PHILA., PA.
 APPROVED: [Signature]
 ENGR. BRIDGES & BUILDINGS
 ASST. CHIEF ENGINEER STRUCTURES

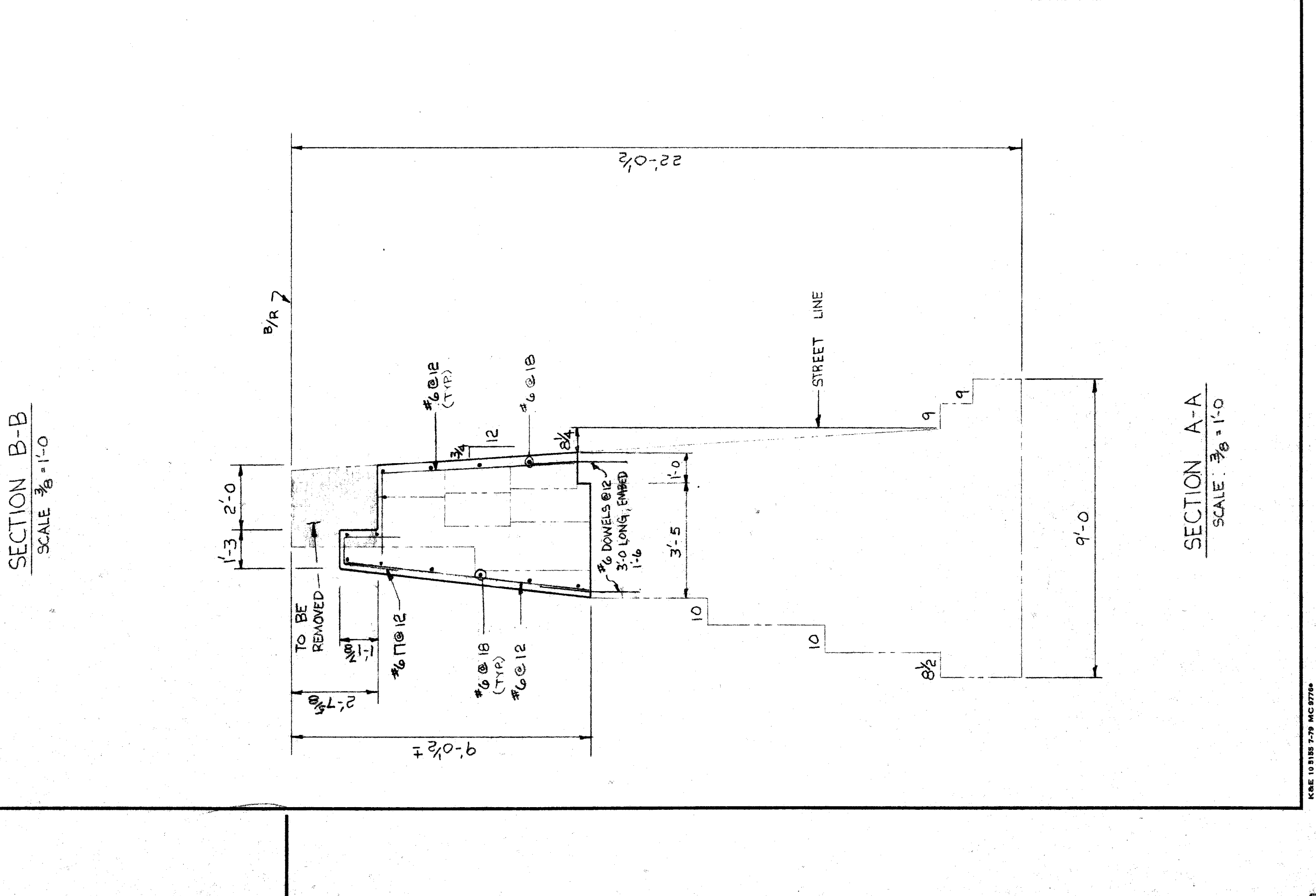
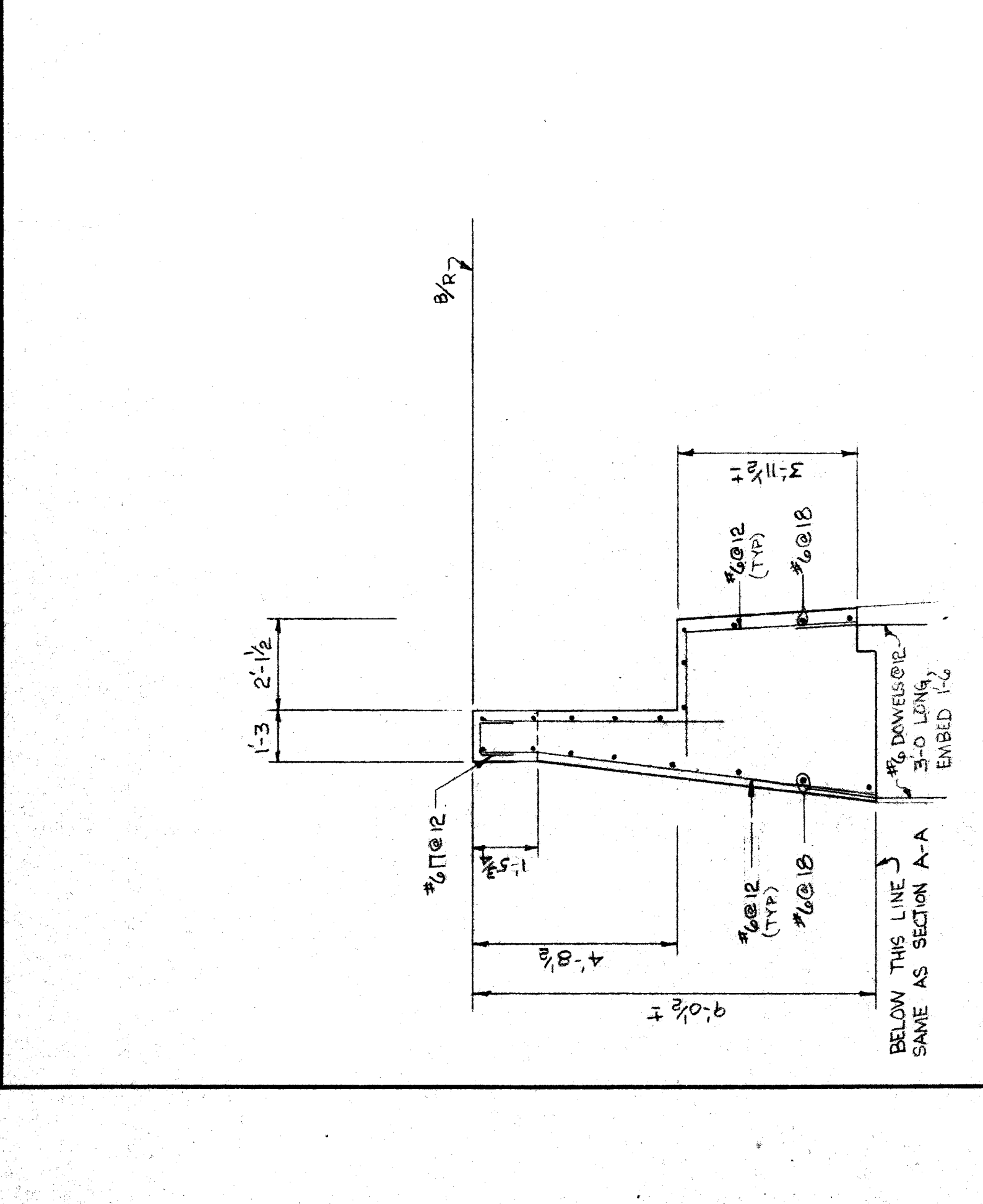
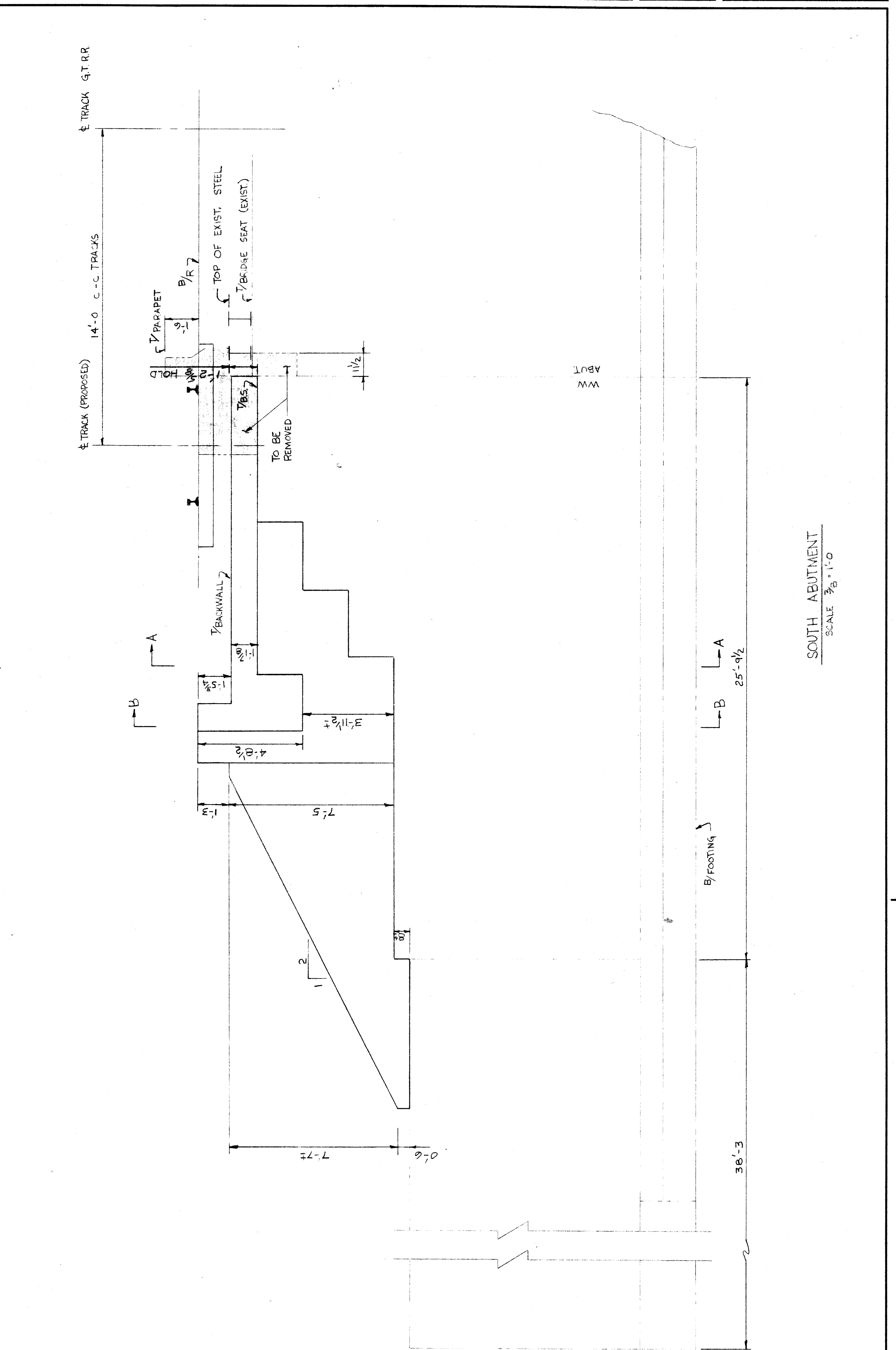
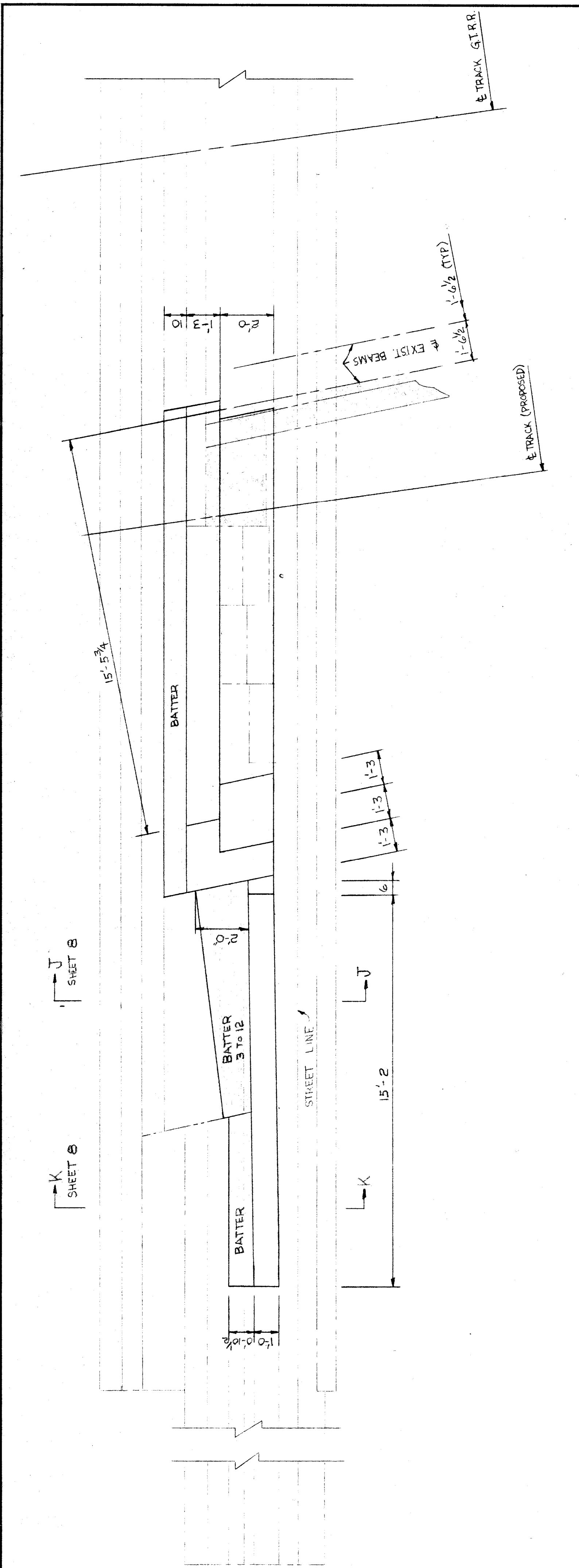
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SEAL: _____
 SIGNATURE: _____

PROJECT TITLE:
 WESTERN REGION
 MACKINAW BRANCH
 OVER BEAUBIEN ST
 DETROIT, MICHIGAN
 WIDENING BRIDGE

DRAWING TITLE:
 SOUTH ABUTMENT
 DETAILS

DES: RAC dr: RAC
 CHK: EMT
 DATE: 5-18-82
 PLAN NUMBER:
 45482-R
 DRAWING NUMBER:
 6 OF 10



GRAPHIC SCALE
 10
 8
 PROJECT NORTH

CONRAIL
 CONSOLIDATED RAIL CORPORATION
 CHIEF ENGINEER - DESIGN & CONSTRUCTION PHILA., PA.
 APPROVED: *[Signature]*
 ENGR. BRIDGES-BUILDINGS
 ASST. CHIEF ENGINEER-STRUCTURES

NO.	DATE	REMARKS

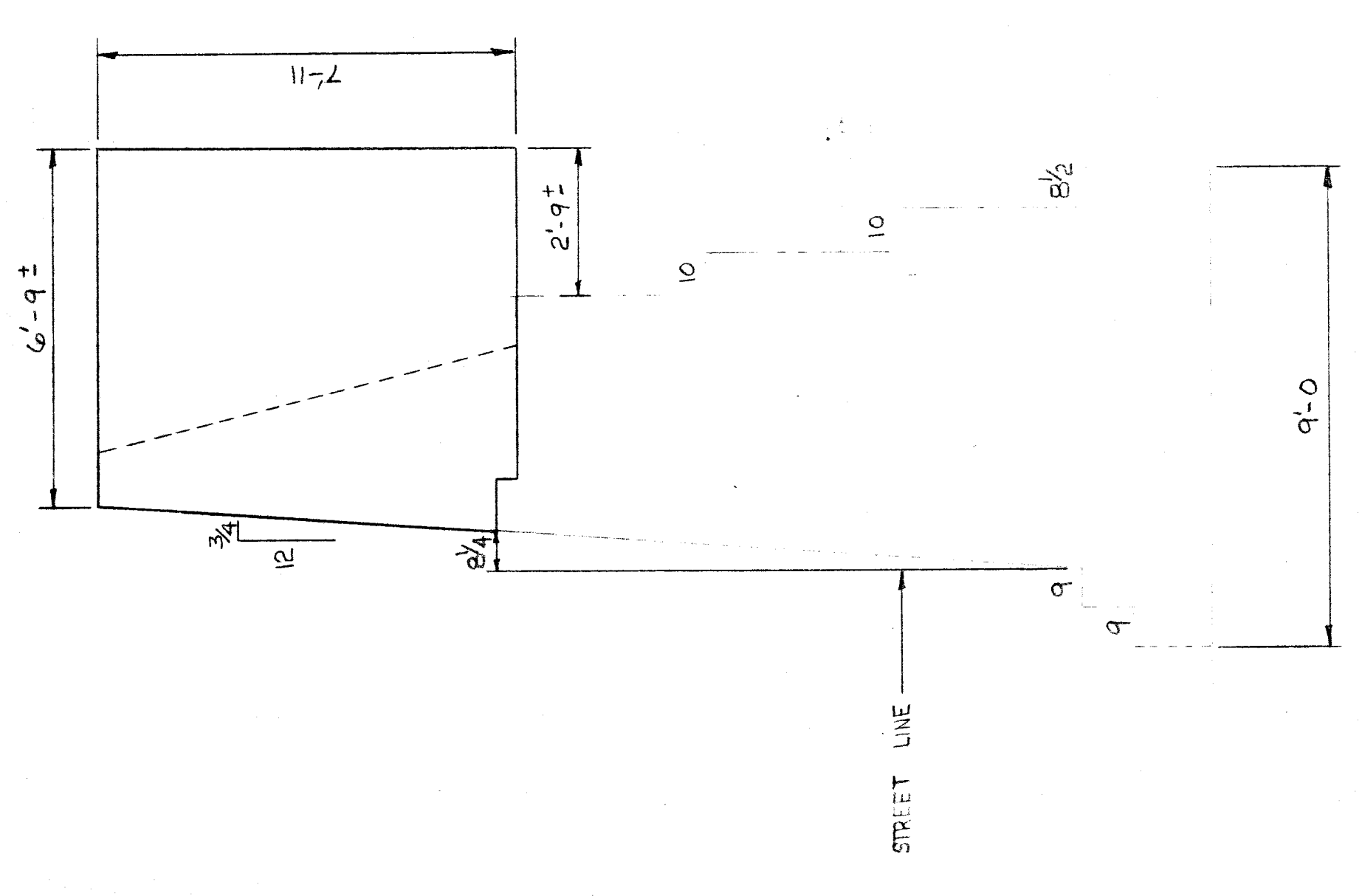
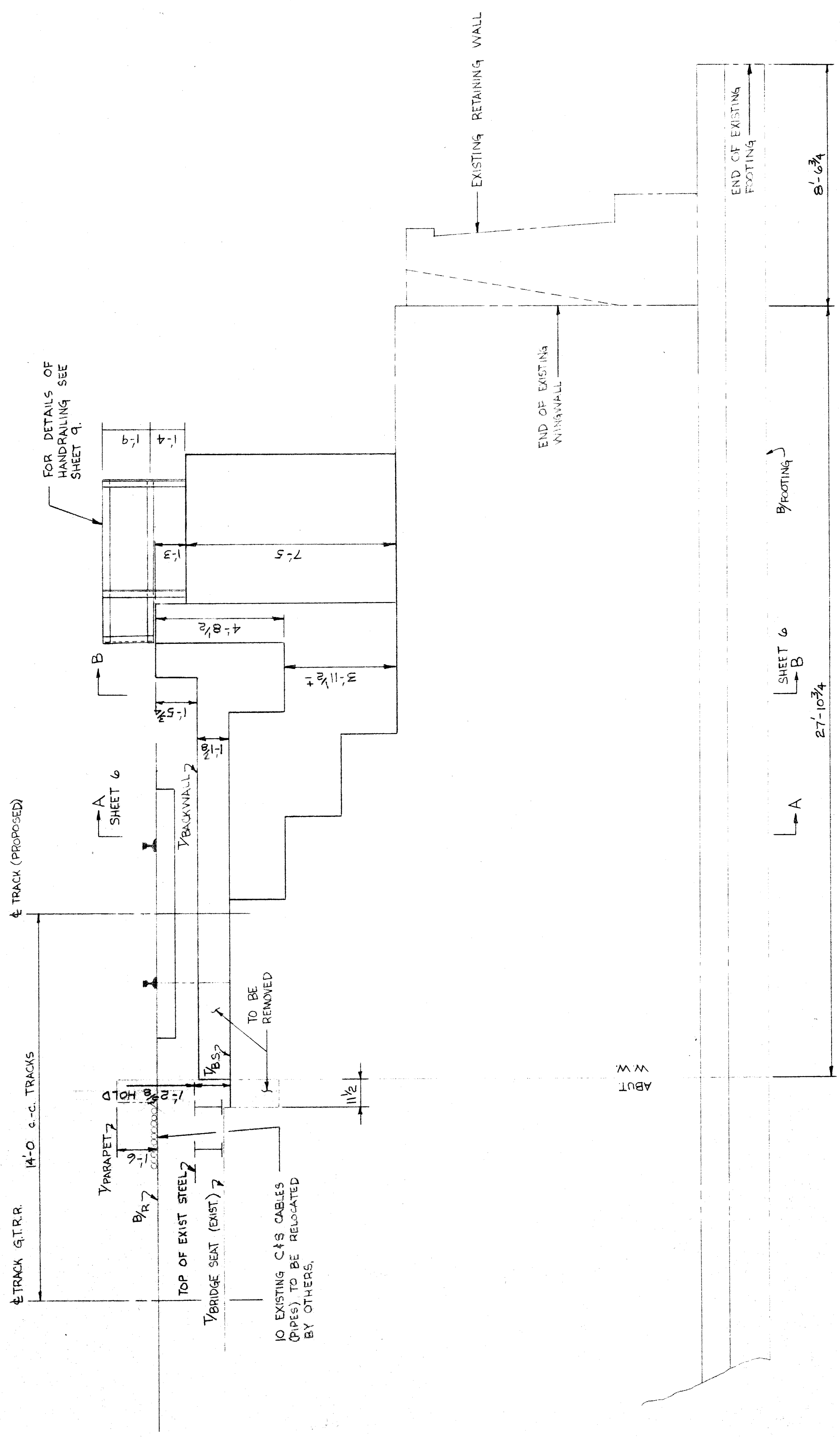
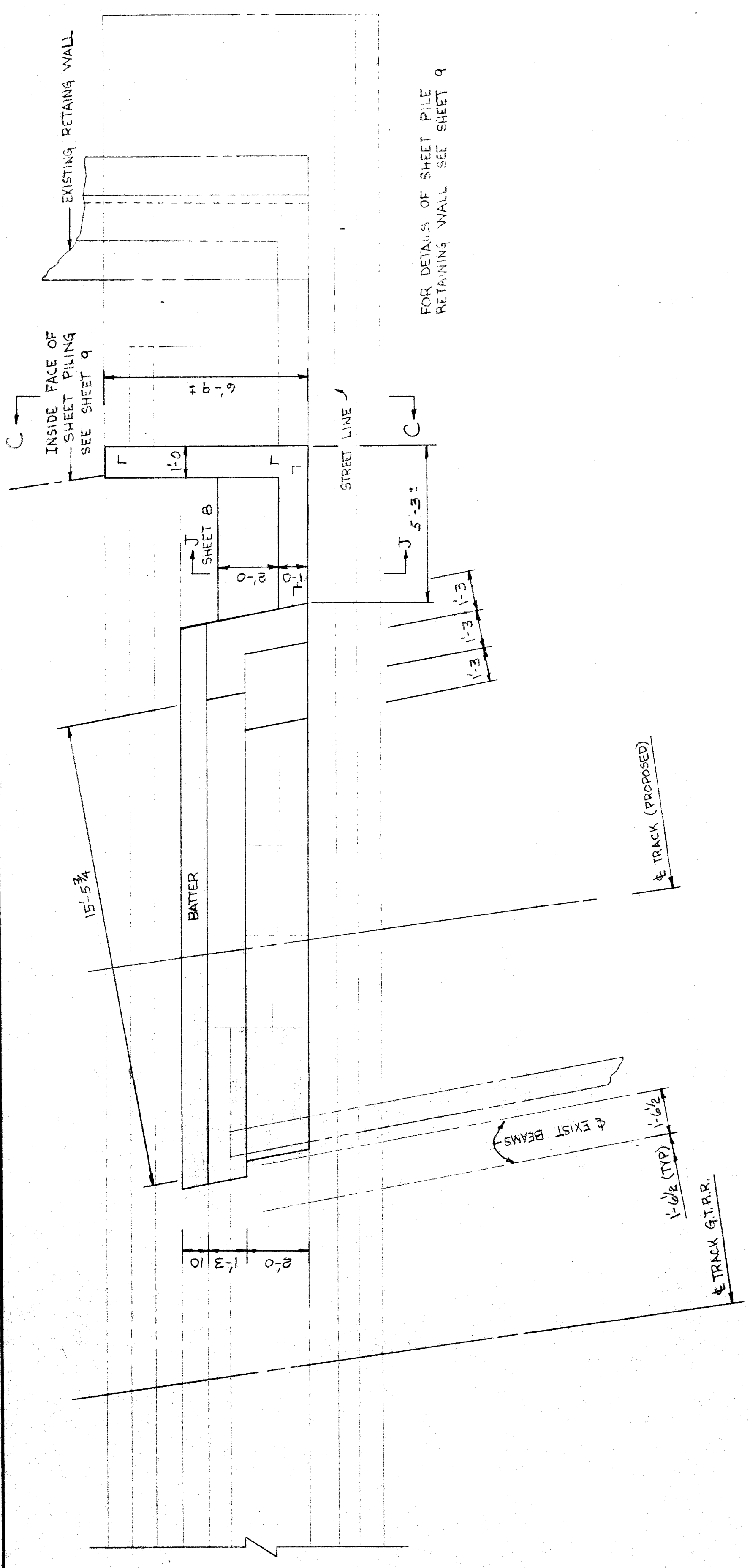
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PROJECT TITLE:
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 MACKINAW BRANCH
 U.G. BRIDGE No. 599
 OVER BEARBEN ST.
 DETROIT, MICHIGAN
 WIDENING BRIDGE

DRAWING TITLE:
NORTH ABUTMENT
 DETAILS

DR: RAC
 DR: RAC
 PK: BNT
 DATE: 5-18-82
 PLAN NUMBER:
 45482-R
 DRAWING NUMBER:
 7 OF 10

XU90

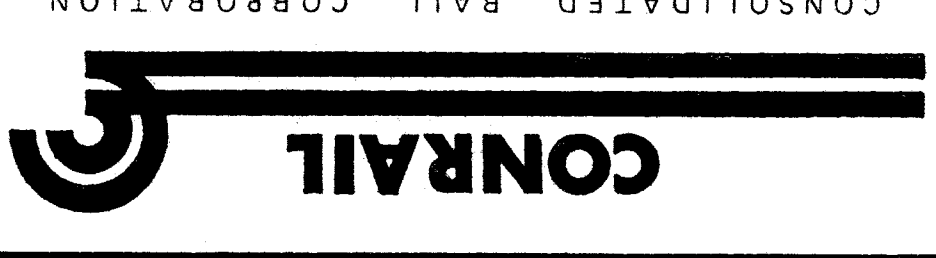


SECTION C-C
 SCALE 3/8" = 1'-0"

NORTH ABUTMENT
 SCALE 3/8" = 1'-0"

GRAPHIC SCALE
10
8

PROJECT NORTH



CONSOLIDATED RAIL CORPORATION
PHILA., PA.
CHIEF ENGINEER - DESIGN & CONSTRUCTION
APPROVED: [Signature]
ASST. CHIEF ENGINEER - STRUCTURES
ENGINEER: BRIDGES & BUILDINGS

NO.	DATE	REVISIONS	REMARKS

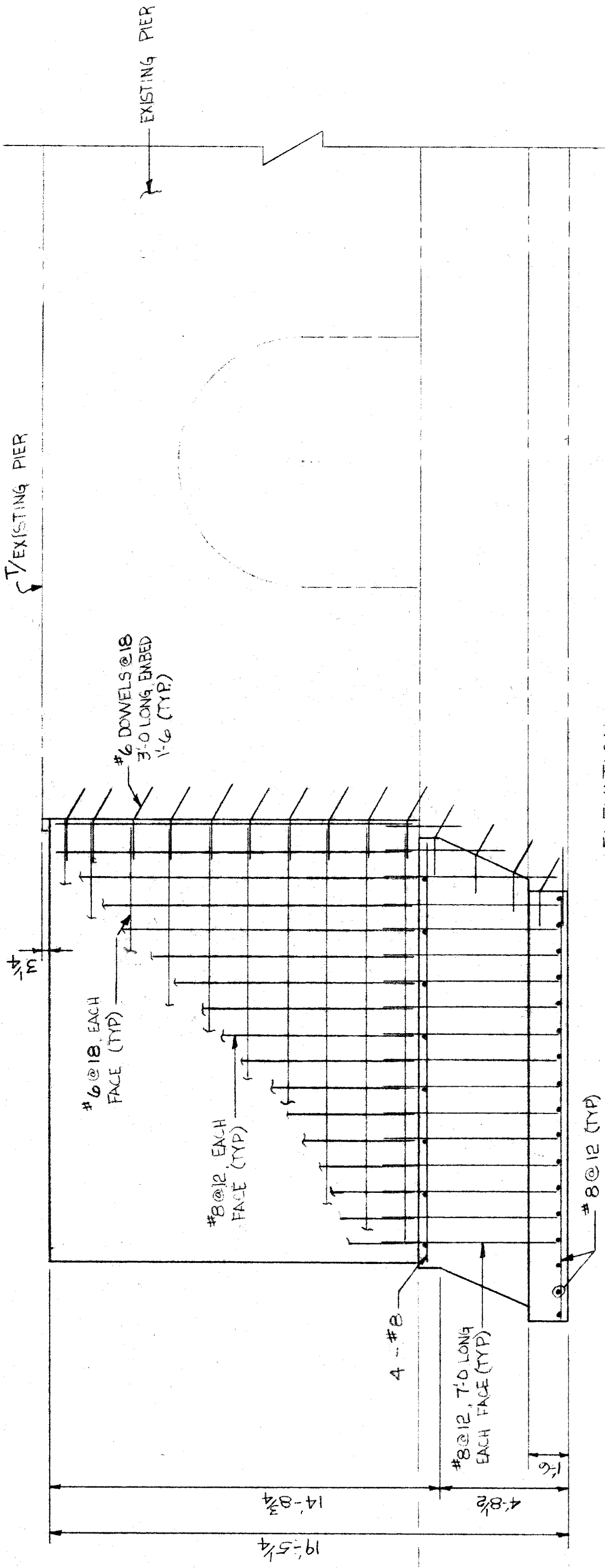
SEAL: _____
SIGNATURE: _____

PROJECT TITLE:
WESTERN REGION
DETROIT DIVISION
BRANCH
MACKINAW
OVER BAUBIEN ST.
DETROIT, MICHIGAN
WIDENING BRIDGE
U.S. BRIDGE No. 599

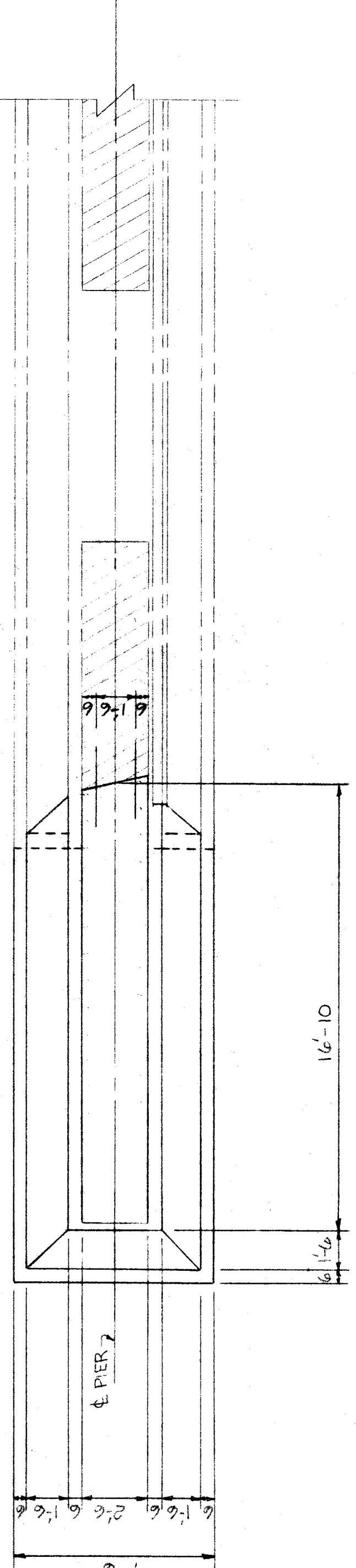
DRAWING TITLE:
PIER & MISC.
DETAILS

DES: RAC
DR: RAC
EC: ENT
DATE: 5-18-82
PLAN NUMBER:
45482-R

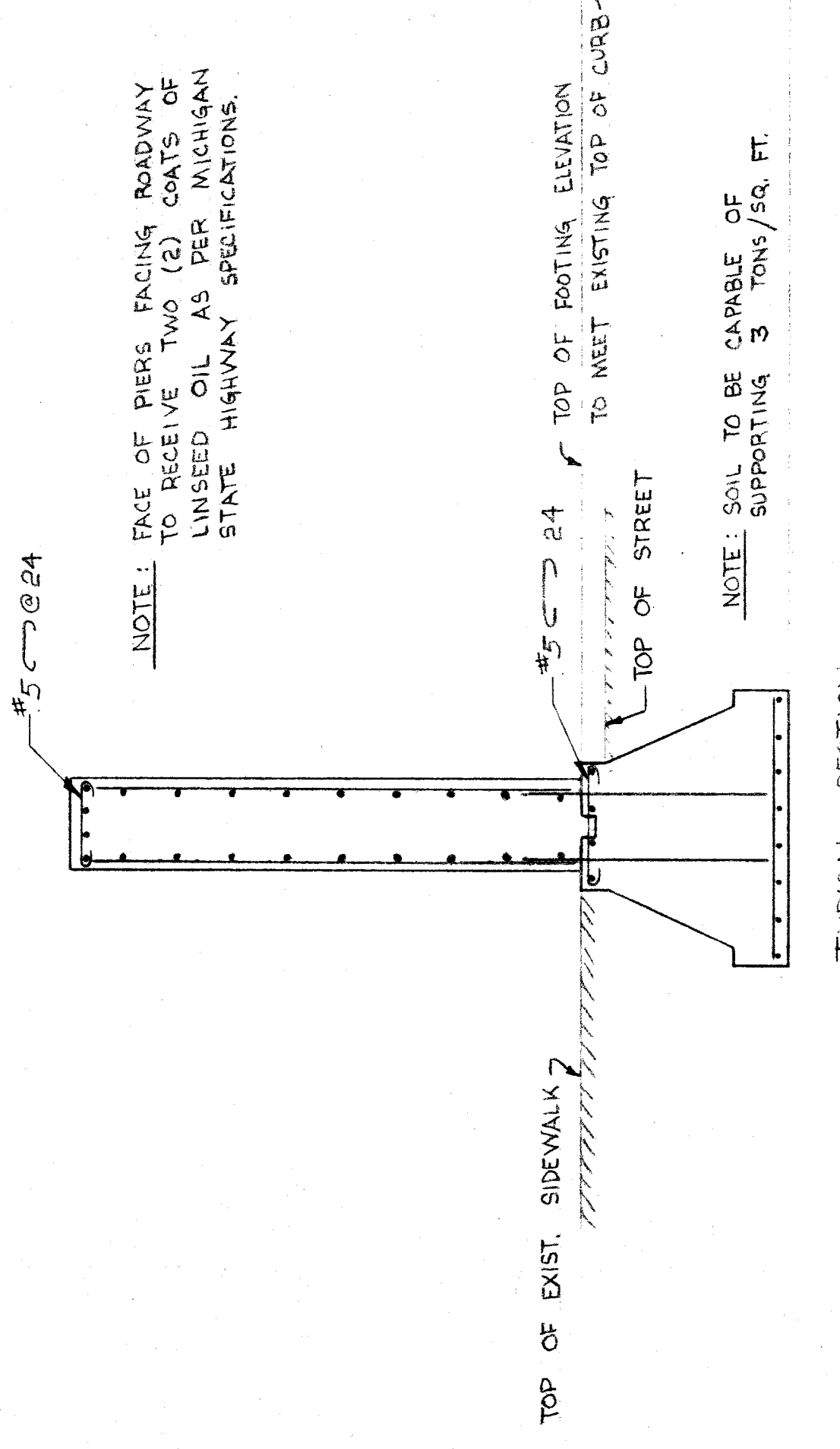
DRAWING NUMBER:
8 OF 10



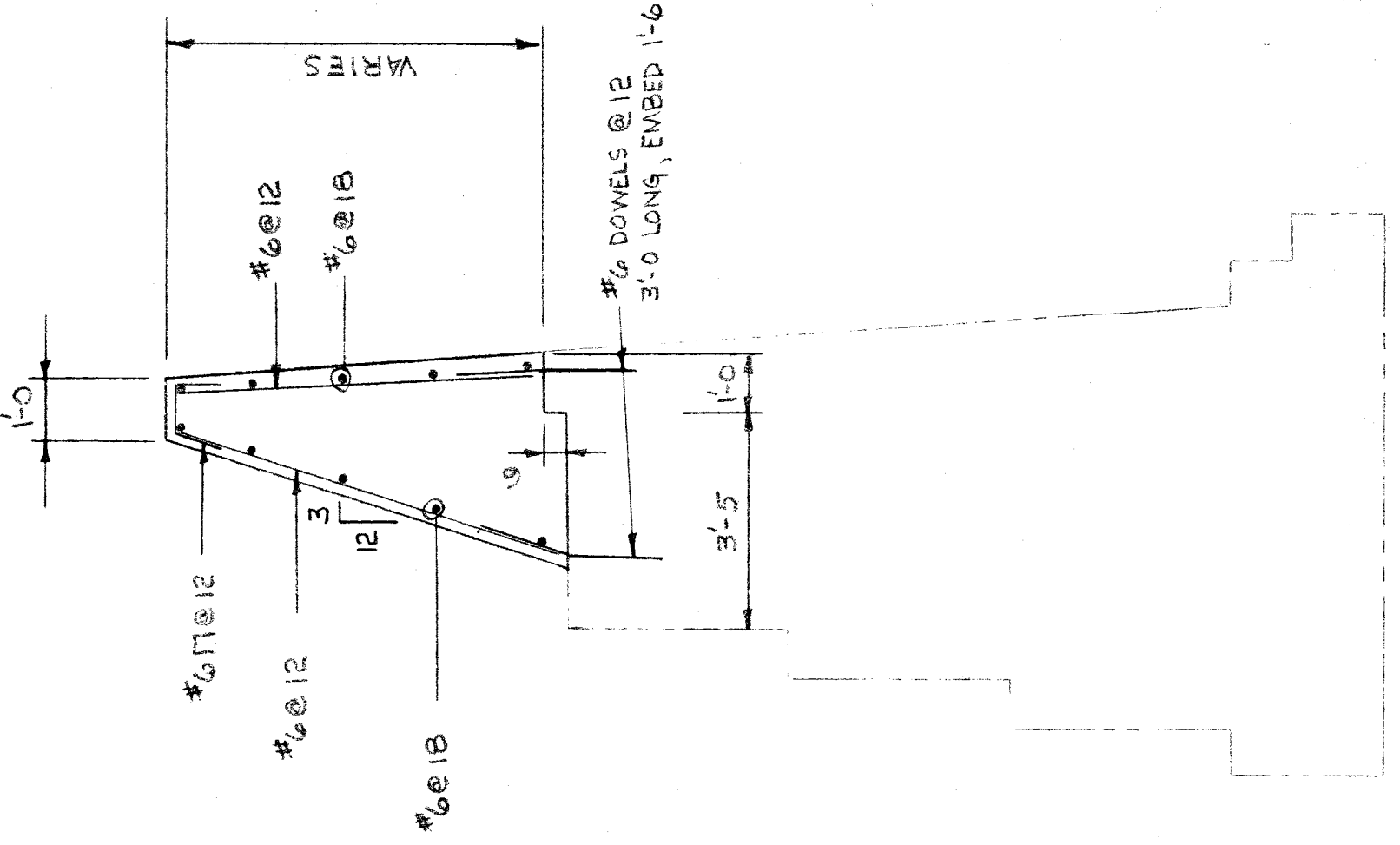
ELEVATION
SCALE: 1/4" = 1'-0"



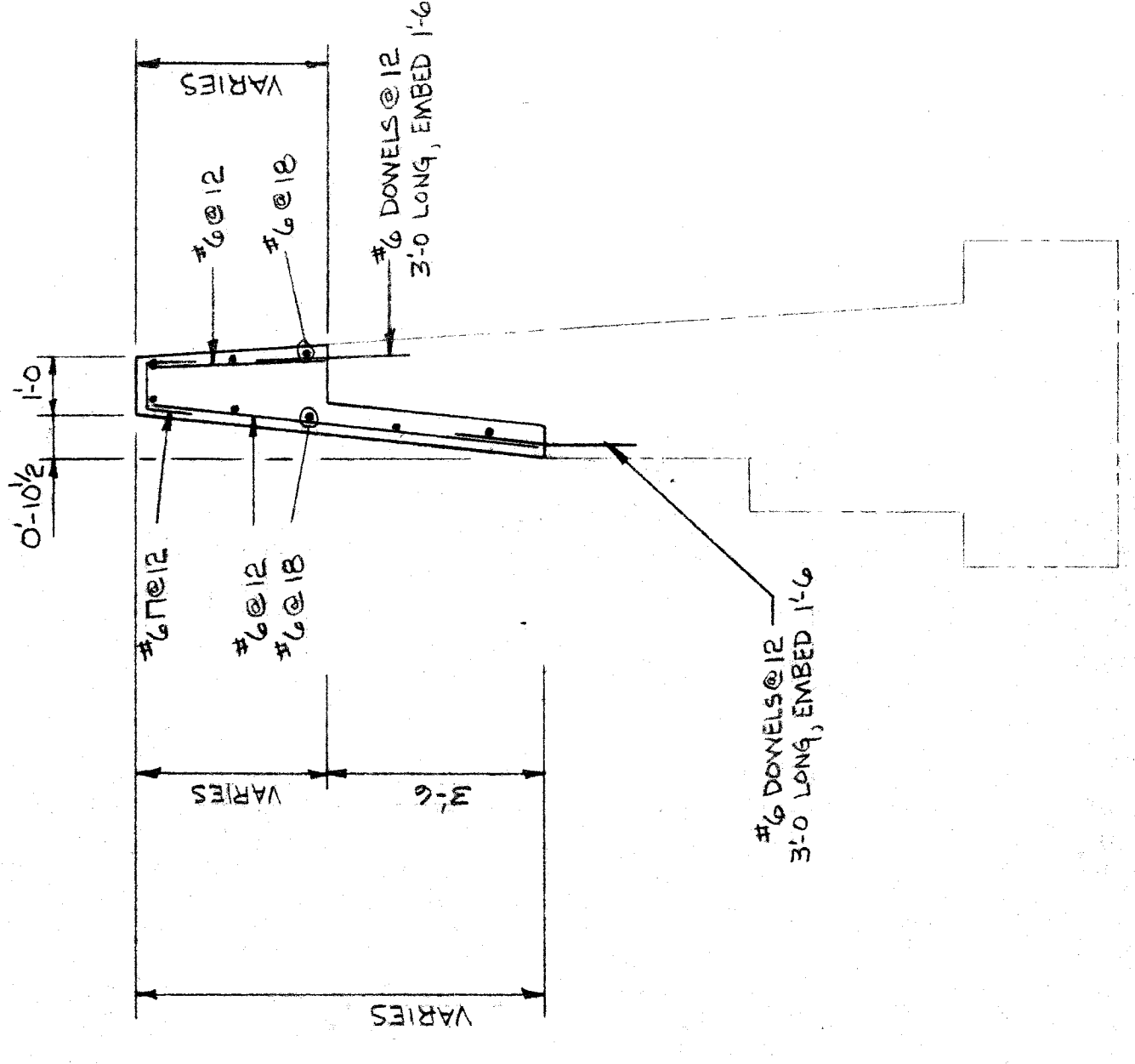
PLAN
SCALE: 1/4" = 1'-0"



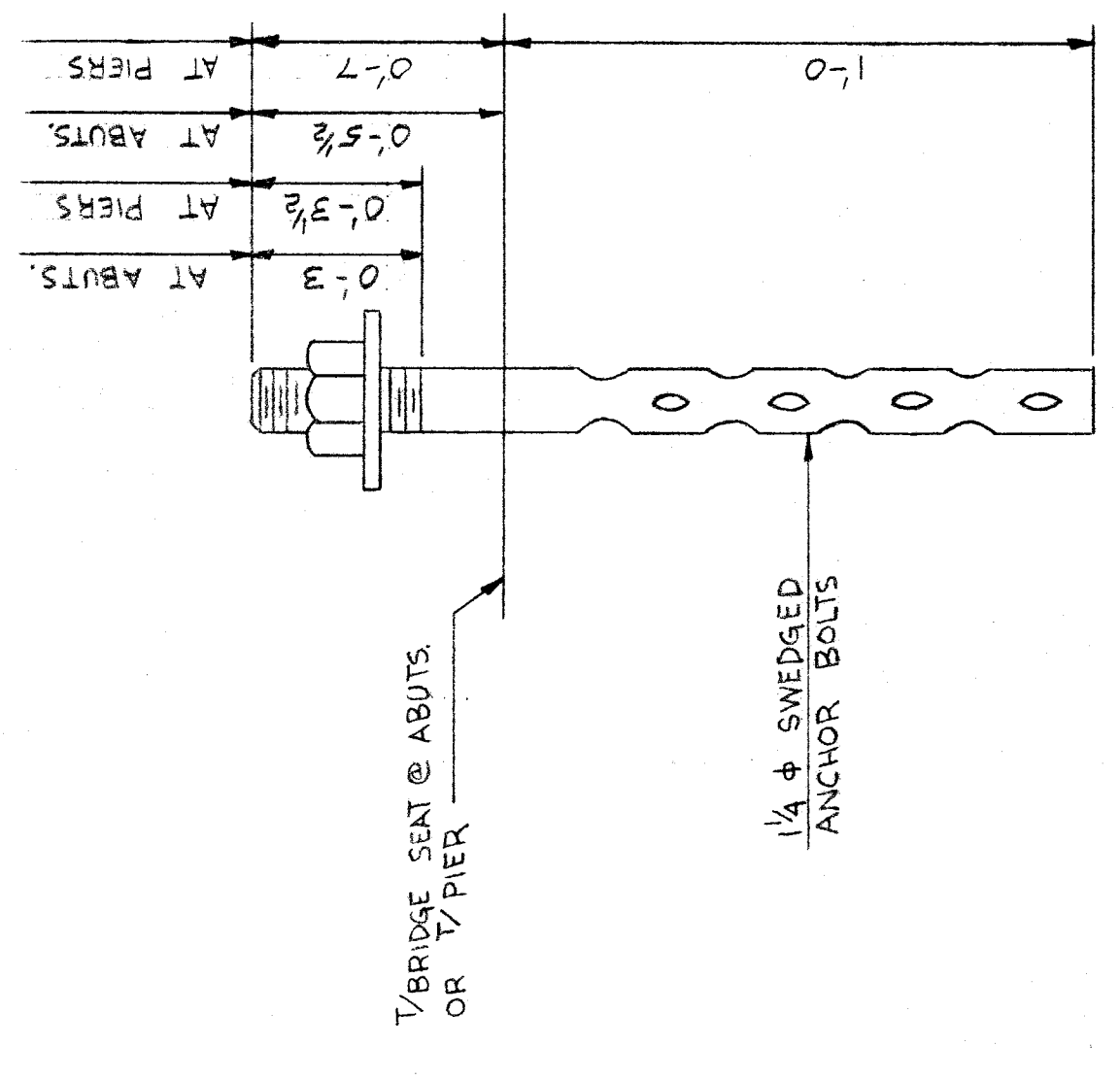
TYPICAL SECTION
SCALE: 1/4" = 1'-0"



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



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



XU90

NO.	DATE	REMARKS

SEAL: _____
 Signature _____

PROJECT TITLE:
 WESTERN REGION
 MACKINAW BRANCH
 OVER BEAUBIEN ST
 DETROIT DIVISION
 U.G. BRIDGE No 599
 DETROIT, MICHIGAN
 WIDENING BRIDGE

DRAWING TITLE:
 SHEET PILING
 DETAILS

DESIGNED BY: JJO
 DRAWN BY: JJO
 DATE: 5-18-82
 PLAN NUMBER: 45482-R
 DRAWING NUMBER: 9 OF 10

