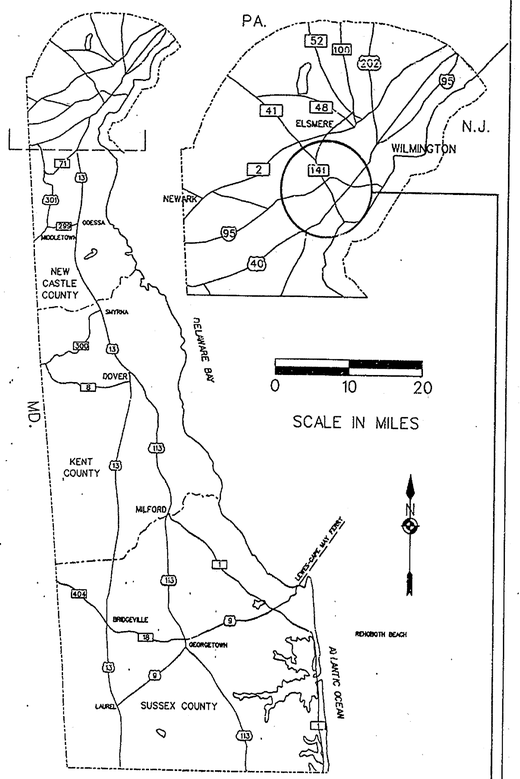


GENERAL LOCATION OF CONTRACT

THE STATE OF DELAWARE

DEPARTMENT OF TRANSPORTATION

SPECIFICATIONS AND CONSTRUCTION PLANS FOR:

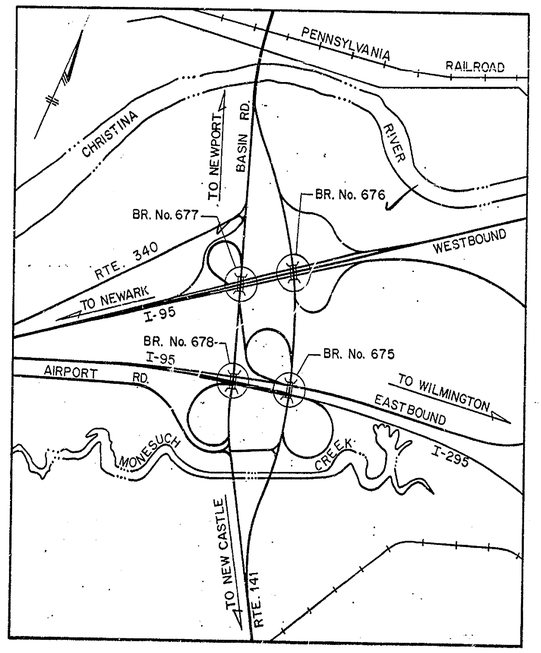
FED 2 5 1993

REHABILITATION OF BRIDGE NUMBERS 675, 676, 677 AND 678 ON STATE ROUTE 141 OVER DELAWARE TURNPIKE (I-95)

CONTRACT NUMBER 7511

FEDERAL AID PROJECT NUMBER N/A

ROADWAY LENGTH _____ FEET = _____ MILES
STRUCTURE LENGTH _____ FEET = _____ MILES
TOTAL LENGTH _____ FEET = _____ MILES



LOCATION MAP
N.T.S.

CONTRACT	COUNTY	M.R. NO.	F.H.W.A. REG. NO.	FEDERAL AID PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
7511	NEW CASTLE		3		1	4

DESIGN DESIGNATION

FUNCTIONAL CLASS _____
TYPE OF CONSTRUCTION _____
A.D.T. CURRENT _____
A.D.T. PROJECTED _____
D.H.V. PROJECTED _____
DESIGN SPEED _____
% TRUCKS _____
DIRECTION DISTRIBUTION % _____
CLEAR ZONE (S) _____

SCALES

PLAN SHEET: 1" = ____ Feet
PROFILE SHEET:
Horizontal: 1" = ____ Feet
Vertical: 1" = ____ Feet
DETAIL SHEET: 1" = ____ Feet

INDEX OF SHEETS

SHEET No.	TABLE OF CONTENTS
1	TITLE SHEET
2	QUANTITY SUMMARY, GENERAL NOTES AND PROJECT NOTES
3	FRAMING PLANS BRIDGE NO. 675, 676, 677 & 678, KEY PLAN AND BEARING REPLACEMENT SCHEDULE
4	JACKING PLAN & ELEVATION, JACK PEDESTAL DETAIL AND BEARING PLANS & SECTIONS

MILEPOST

UTILITIES

RECOMMENDED		RECOMMENDED		RECOMMENDED		APPROVED			
BRIDGE ENGINEER	Muhammad T. Chaudhri REGISTERED NO. 5693 DELAWARE PROFESSIONAL ENGINEER	DESIGN ENGINEER	CHAO H. HU REGISTERED NO. 4274 DELAWARE PROFESSIONAL ENGINEER	TURNPIKE ENGINEER	BRUCE C. FURMAN REGISTERED NO. 2972 DELAWARE PROFESSIONAL ENGINEER	CHIEF ENGINEER	Raymond M. Harbeson Jr. REGISTERED NO. 4672 DELAWARE PROFESSIONAL ENGINEER	STV/GROUP	RONALD J. WISE REGISTERED NO. 5893 DELAWARE PROFESSIONAL ENGINEER
RECOMMENDED 12.16.1992	SEAL	RECOMMENDED Dec 16 1992	SEAL	APPROVED Dec. 4 1992	SEAL	APPROVED Dec. 21, 1992	SEAL	APPROVED Nov 17 1992	SEAL

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
7511	NEW CASTLE	N/A	2	4

QUANTITY SUMMARY, GENERAL NOTES AND PROJECT NOTES

REHABILITATION OF BRIDGE NUMBERS 675, 676, 677 AND 678 ON STATE ROUTE 141 OVER DELAWARE TURNPIKE (I-95)

ADDENDUM △1

DELETED ITEM 605004 ADDED ITEM 605522

ITEM	~~605004~~ △1	605533	605603	605606	763000	763500	17635	605522 △1
ITEM TITLE	PAINTING ALKYD SYSTEM	CLEANING EXISTING STEEL STRUCTURES	REPLACING BRIDGE BEARINGS	TEMPORARY BRIDGE SUPPORT SYSTEM	INITIAL EXPENSE	MAINTENANCE OF TRAFFIC	MAINTENANCE AND REPAIRS	URETHANE PAINTING SYSTEM
UNIT	L.S.	L.S.	L.S.	L.S.	L.S.	L.S.	L.S.	L.S.
PROJECT	L.S.	L.S.	L.S.	L.S.	L.S.	L.S.	L.S.	L.S.
TOTAL	L.S.	L.S.	L.S.	L.S.	L.S.	L.S.	L.S.	L.S.
PROPOSAL	L.S.	L.S.	L.S.	L.S.	L.S.	L.S.	L.S.	L.S.

QUANTITY SUMMARY

GENERAL NOTES

1. Construction Of This Contract Shall Conform To "Delaware Department Of Transportation Standard Specifications For Road And Bridge Construction, July 1985." The Plans, And As Amended By The Special Provisions.

2. The Contractor And All Others Shall Perform All Work In A Manner That Will Insure The Least Practicable Obstruction To Traffic Consistent With Safety And Shall Comply With The Manual Entitled "Delaware Traffic Controls For Street And Highway Construction And Maintenance Operations As Revised December, 1990." All Construction Safety Equipment Shall Meet The New Specifications.

3. The Contractor Shall Protect Existing Utilities At All Times During Construction. Locations Of Utilities Shown On These Plans Are Approximate. The Contractor Shall Notify "Miss Utility" Two Consecutive Working Days Prior To Any Excavation So That All Affected Utilities May Respond And Determine The Exact Location Of Their Existing Facilities On The Job Site.

4. The Contractor Shall Protect All Adjoining And Nearby Buildings, Equipment, Utilities, Fences, Trees, And Shrubbery During The Construction Period. Any Damage Caused Directly Or Indirectly Shall Be Repaired Or Replaced At The Contractor's Expense.

PROJECT NOTES

DESIGN CRITERIA:

1983 AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, WITH INTERIM SPECIFICATIONS THROUGH 1991.

SPECIFICATIONS:

MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE "DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS" DATED JULY 1985, WITH CURRENT MODIFICATIONS, ADDITIONS AND SPECIAL PROVISIONS.

LOADING:

THE JACKING BEAM AND JACK CAPACITY SHALL CARRY ALL LEGAL TRUCK LOADINGS.

STRUCTURAL STEEL:

STRUCTURAL STEEL SHALL CONFORM TO ASTM A709 GRADE 36, INCLUDING THE ADDITIONAL REQUIREMENTS FOR CHARPY-V-NOTCH TESTING OF AASHTO M270 FOR PRIMARY LOAD CARRYING MEMBERS. STRUCTURAL TUBING SHALL BE ASTM A500, TYPE B. ALL BOLTS SHALL BE ASTM A325. ANCHOR BOLTS SHALL BE SWEDGE TYPE.

EXISTING STRUCTURE:

ALL DIMENSIONS AFFECTED BY THE GEOMETRICS, AND/OR LOCATION OF THE EXISTING STRUCTURE SHALL BE CHECKED IN THE FIELD BY THE CONTRACTOR, BEFORE ANY CONSTRUCTION IS DONE, AND BEFORE ANY STRUCTURAL STEEL, ETC., IS ORDERED OR FABRICATED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY THE ENGINEER WITH ALL FIELD DIMENSIONS REQUIRED TO CHECK DETAIL DRAWINGS. THE _ MARKS INDICATE EXISTING DIMENSIONS THAT MAY VARY AND DO REQUIRE FIELD VERIFICATION BY THE CONTRACTOR.

WELDING:

ALL WELDING SHALL CONFORM TO SECTION 607.032.26 ? 606.022. OF THE SPECIFICATIONS. ALL FIELD WELDING SHALL BE DONE BY THE ~~SHIELDED~~ METAL-ARC WELDING PROCESS.

HYDRAULIC JACKS:

EACH HYDRAULIC JACK SHALL HAVE A 50 TON MINIMUM CAPACITY.

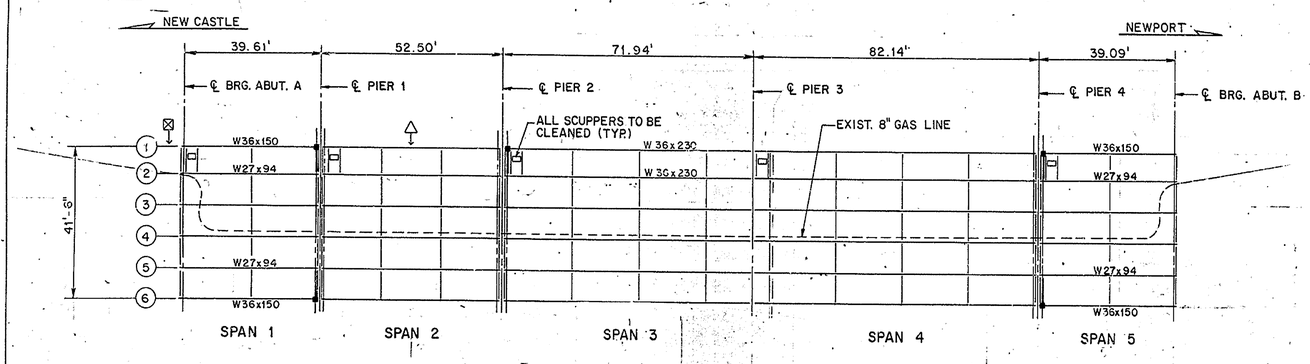
PREL. TRACING _____ DESIGN _____ CHKD. _____

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
7511	NEW CASTLE		3	4

REHABILITATION OF BRIDGE NUMBERS 675, 676, 677 AND 678 ON STATE ROUTE 141 OVER DELAWARE TURNPIKE (I-95)

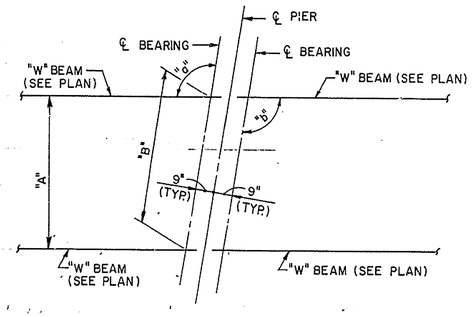
REVISIONS

FRAMING PLANS BRIDGE NO. 675, 676, 677 & 678
KEY PLAN AND BEARING REPLACEMENT SCHEDULE



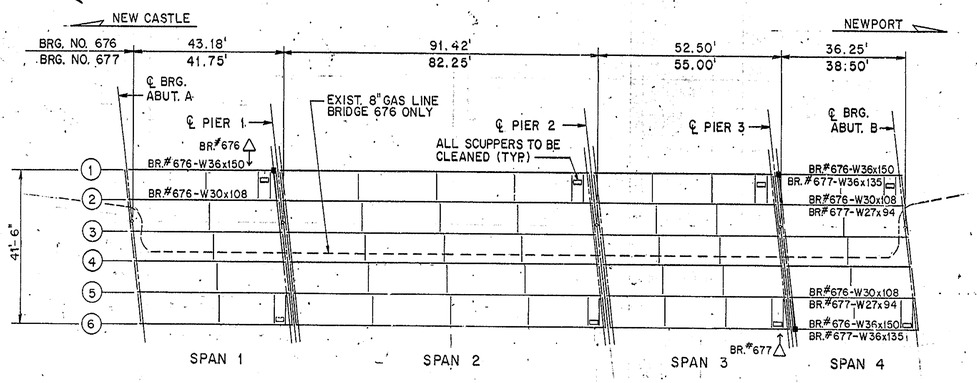
FRAMING PLAN – BRIDGE NO. 675

SCALE: 1" = 20'



TYPICAL KEY PLAN

N.T.S.



FRAMING PLAN – BRIDGE NOS. 676 & 677

SCALE: 1" = 20'

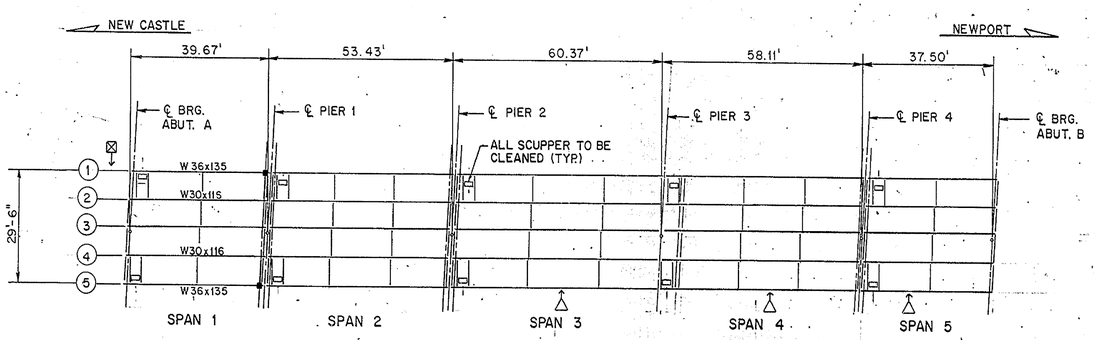
NOTE:

SCUPPERS ARE LOCATED ON WEST SIDE ONLY OF BRIDGE NO. 676 AND ON EAST AND WEST SIDE OF BRIDGE NO. 677 WHERE SHOWN.

BEARING REPLACEMENT SCHEDULE

BRIDGE NO.	LOCATION PIER NO.	LOCATION SPAN NO.	EXT. BEAM NO.	BEAM SPACING "A"	BEAM SPACING "B"	SKEW ANGLE "a"	SKEW ANGLE "b"	BEARING TYPE	* BEVEL REQUIRED
675	1	1	1	8'- 3 5/8"	8'- 3 9/16"	89° 26' 24"	–	EXP.	NONE
	1	1	6	"	8'- 3 5/8"	89° 29' 39"	–	EXP.	NONE
	2	3	1	"	8'- 3 5/8"	–	90° 33' 17"	FIXED	NONE
	4	5	1	"	8'- 3 3/4"	–	91° 54' 48"	EXP.	NONE
	4	5	6	"	8'- 3 5/8"	–	91° 53' 58"	EXP.	NONE
676	1	1	1	"	8'- 4 1/8"	82° 20' 04"	–	EXP.	3/16"/12"
	3	4	1	"	8'- 4 1/8"	–	84° 10' 58"	EXP.	1/4"/12"
	3	4	6	"	8'- 4 1/8"	–	84° 13' 30"	EXP.	9/32"/12"
677	3	4	1	"	8'- 8 1/8"	–	73° 00' 54"	EXP.	7/32"/12"
	3	4	6	"	8'- 8 1/8"	–	73° 00' 54"	EXP.	7/32"/12"
678	1	1	1	7'- 4 1/2"	7'- 4 13/16"	94° 54' 22"	–	EXP.	NONE
	1	1	5	7'- 4 1/2"	7- 4 13/16"	94° 54' 22"	–	EXP.	NONE

* TOP OF SOLE PLATE MUST BE BEVELED TO FIT GRADE OF BOTTOM FLANGE. IF SOLE PLATE NEEDS TO BE BEVELED, 2" THICKNESS OF SOLE PLATE SHALL BE MEASURED AT CENTERLINE BEARING.



FRAMING PLAN – BRIDGE NO. 678

SCALE: 1" = 20'

LEGEND

- DENOTES LOCATION OF BEARING TO BE REPLACED AND JACKING BEAM.
- DENOTES LOCATION OF JUNCTION BOX COVER TO BE REPLACED.
- DENOTES APPROXIMATE LOCATION OF GUARDRAIL TO BE REPAIRED/REPLACED.

REFERENCE NOTES:

1. FOR GENERAL AND PROJECT NOTES, SEE SHEET NO. 2
2. FOR JACKING PLAN AND BEARING DETAILS, SEE SHEET NO. 4

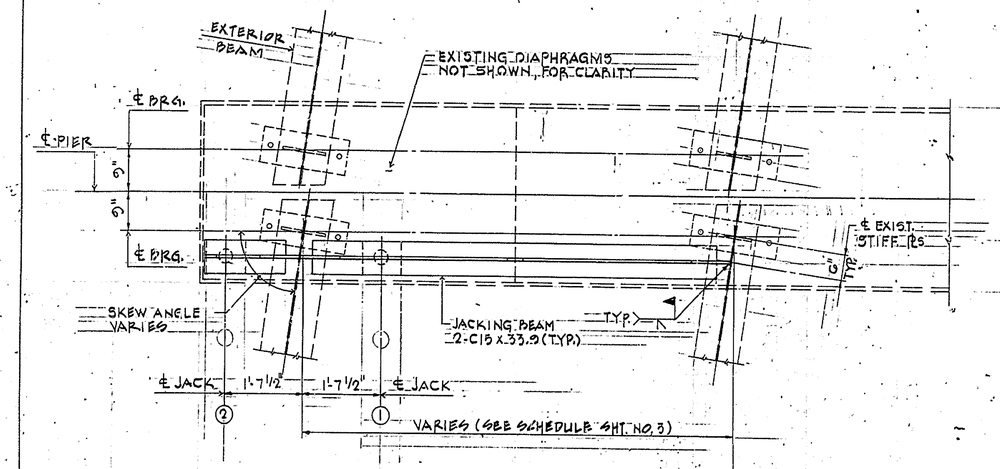
PREL. TRACING ____ DESIGN ____ CHKD. ____

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
7511	NEW CASTLE		4	4

JACKING PLAN & ELEVATION, JACK PEDESTAL DETAIL AND BEARING PLANS & SECTIONS

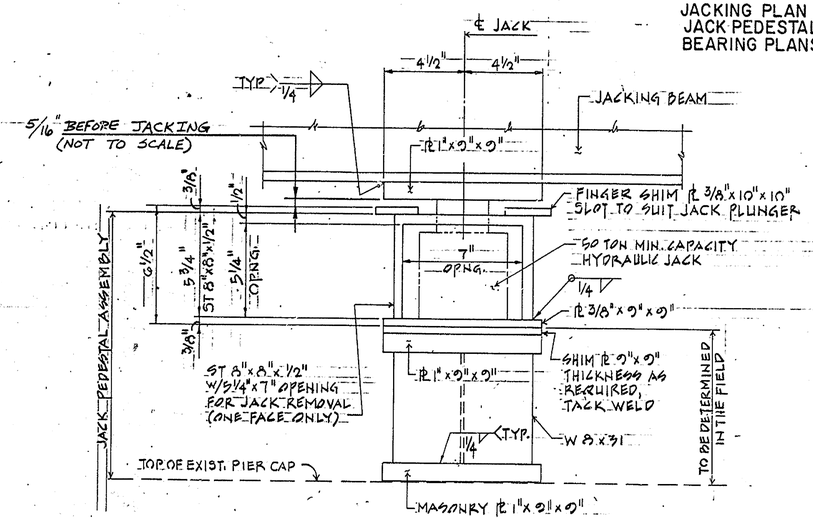
REHABILITATION OF BRIDGE NUMBERS 675, 676, 677 AND 678 ON STATE ROUTE 141 OVER DELAWARE TURNPIKE (I-95)

REVISIONS



TYPICAL JACKING PLAN

SCALE: 3/4"=1'-0"



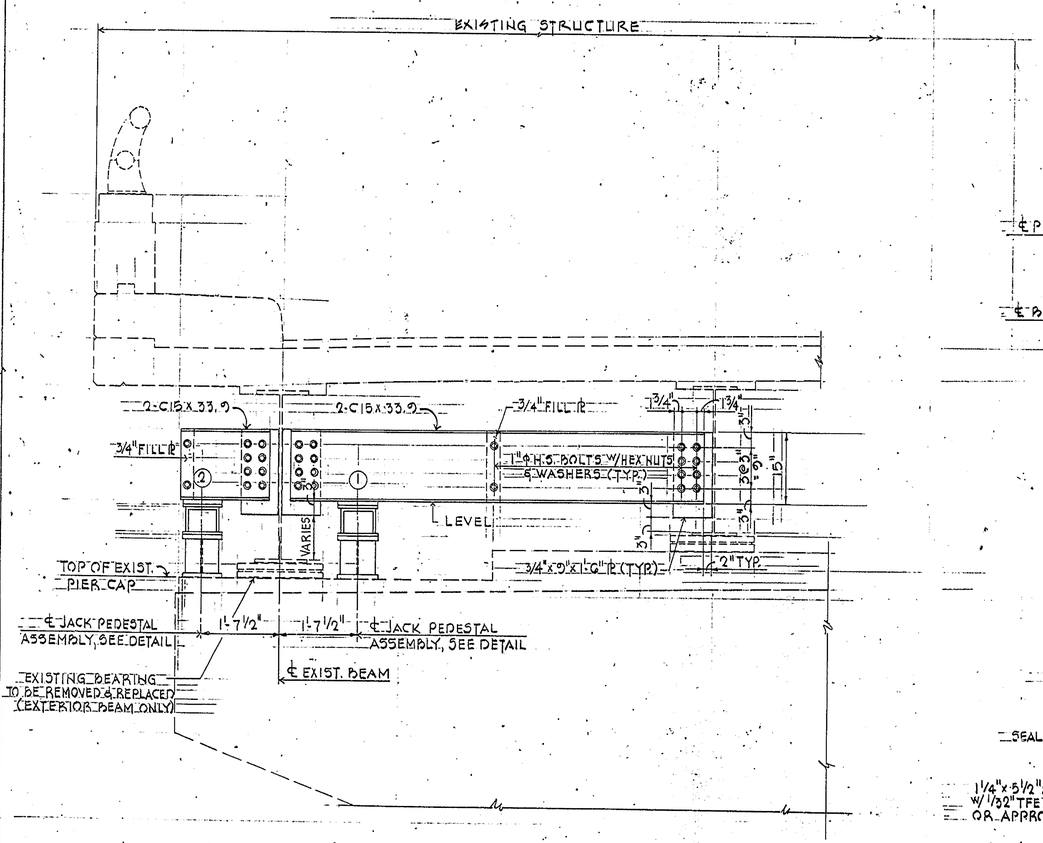
JACK PEDESTAL DETAIL

SCALE: 3"=1'-0"

PROCEDURE FOR REPLACING EXISTING BEARINGS

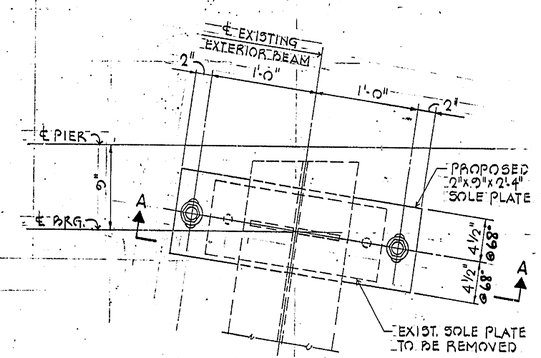
(SEE FRAMING PLANS SHEET NO. 3 FOR LOCATION)

1. INSTALL CONNECTION PLATES, JACKING BEAM AND JACK PEDESTAL ASSEMBLIES AS SHOWN, FOR EXTERIOR BEAM TO BE JACKED.
2. CAREFULLY JACK UNTIL ALL THE LOAD HAS BEEN REMOVED FROM THE BEARING AREA, RAISE BEAM 1/16" MAX. THE LOAD ON JACK ② SHALL BE 75 % OF THE LOAD ON JACK ①, GAUGE MEASURED.
3. WHEN THE LOAD HAS BEEN REMOVED FROM THE BEARING AREA, INSERT 3/8" FINGER SHIM PLS AND CAREFULLY RELEASE JACKS TO ALLOW LOAD TO BE TRANSFERRED TO JACK PEDESTAL ASSEMBLIES.
4. REMOVE EXISTING BEARINGS AND ANCHOR BOLTS (1" MIN. BELOW TOP OF PIER CAP) AS REQUIRED.
5. DRILL HOLES FOR NEW ANCHOR BOLTS AND INSTALL NEW BEARINGS AS SHOWN.
6. PLACE ANCHOR BLOTS AND REMOVE JACK PEDESTAL ASSEMBLIES, JACKING BEAMS AND CONNECTION PLATE ON EXTERIOR FACE OF EXTERIOR BEAM, OTHERS MAY REMAIN.



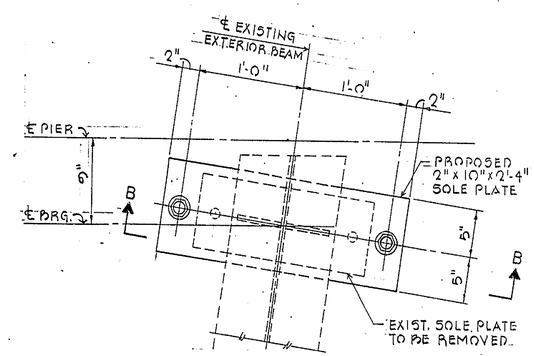
ELEVATION

SCALE: 3/4"=1'-0"



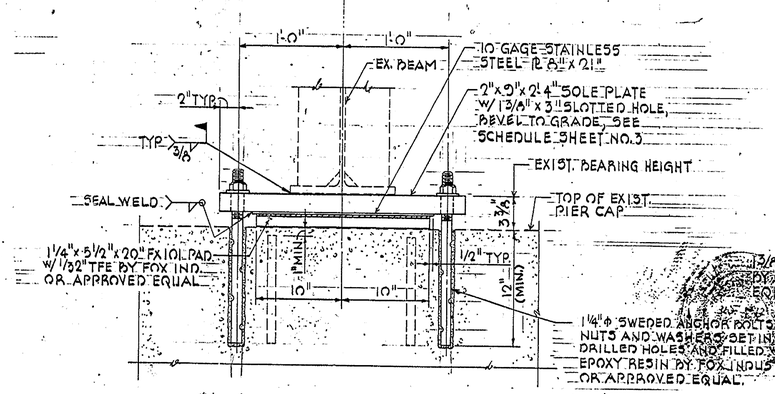
PLAN @ EXPANSION BEARING

SCALE: 1 1/2"=1'-0"



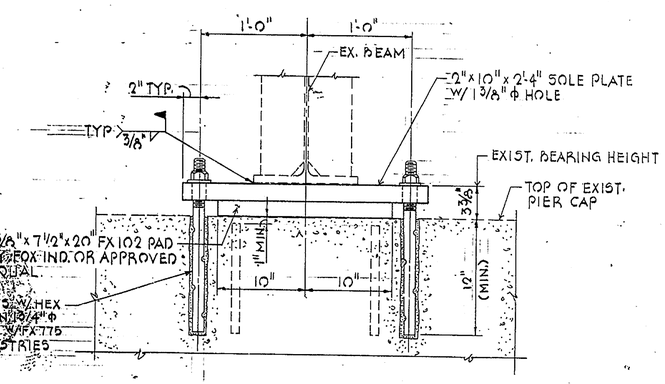
PLAN @ FIXED BEARING

SCALE: 1 1/2"=1'-0"



SECTION A-A

SCALE: 1 1/2"=1'-0"



SECTION B-B

SCALE: 1 1/2"=1'-0"

PRELIM. TRACING — DESIGN — CHKD.