

**SITE PLAN**

SCALE: NONE

NOTE:  
EXISTING LOCK AND SPILLWAY STRUCTURE IS  
OVERLAYED ON EXISTING PRE DAM TOPO DRAWING.



**Stantec**

Stantec Consulting Michigan Ltd.  
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www.stantec.com

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Consultants

Legend

BORINGS TO ROCK			
NUMBER	ELEVATION	NUMBER	ELEVATION
578.1	578.7		
578.0	580.0		
576.8	578.4		
578.5	578.4		
579.2	581.0		
579.2	580.2		
577.7	577.3		
578.5	581.0		
580.0	578.7		
579.2	580.3		
579.3	579.3		
580.0			

BORINGS TO ROCK			
NUMBER	ELEVATION	NUMBER	ELEVATION
579.02	580.28		
578.92	580.28		
579.11	579.17		
579.09	579.81		
578.82	579.16		
578.76	578.54		
578.54	578.71		
578.87	579.14		
581.51	578.56		
581.02	580.56		
579.63	579.19		
579.88	580.06		
578.35	580.06		
579.35	581.53		
580.50	580.72		
Struck boulder	579.51		
577.68	579.84		
578.10	578.94		

Revision \_\_\_\_\_ By \_\_\_\_\_ Appd. \_\_\_\_\_ MM.DD.YY

Issued \_\_\_\_\_ By \_\_\_\_\_ Appd. \_\_\_\_\_ MM.DD.YY

File Name: \_\_\_\_\_ FDA PJM PJM 05.21.13

Permit-Seal \_\_\_\_\_ Dwn. Chkd. Dsgn. MM.DD.YY

Client/Project

FLATROCK DAM  
OVERLAY ON 1921 TOPO  
FLATROCK, MICHIGAN

Title

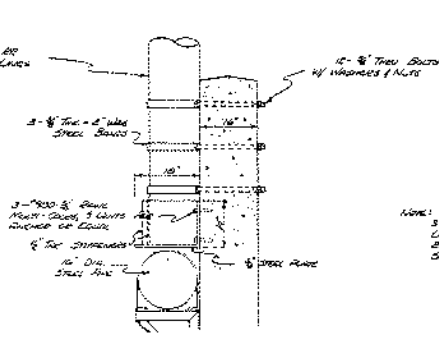
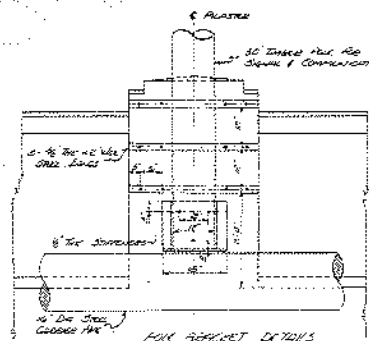
**BORINGS TO ROCK  
(REFERENCE DRAWING)**

Project No. \_\_\_\_\_ Scale \_\_\_\_\_

2075092501 NONE

Drawing No. \_\_\_\_\_ Sheet \_\_\_\_\_ Revision \_\_\_\_\_

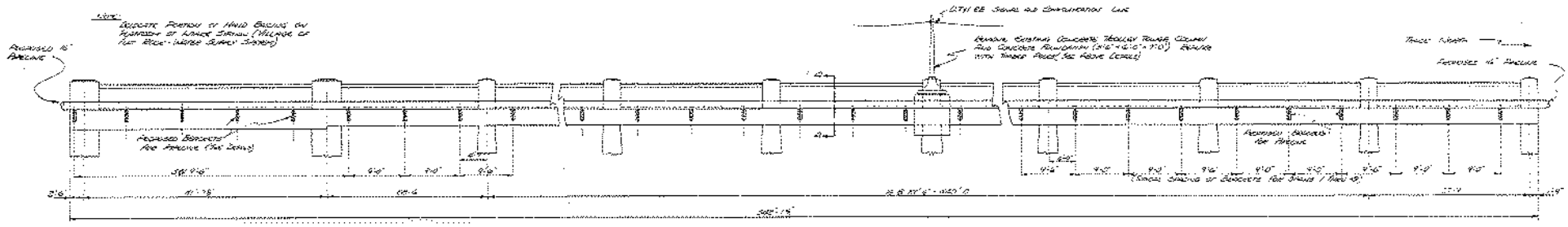




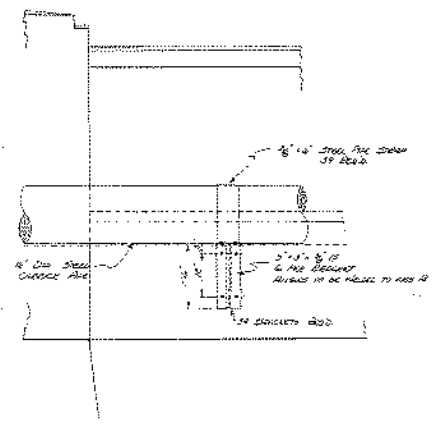
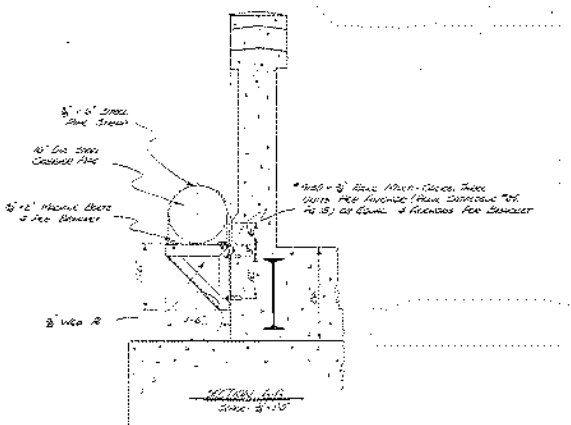
NOTE:  
 3 PIPES TO BE SET ON CONCRETE PAVEMENT (SHOWN). LOCATION OF PIPE BRACKETS TO BE DETERMINED BY THE BRIDGE ENGINEER. PIPES TO BE SET BY IR. BRCS.

SEE SHEET DETAIL  
 SCALE: 3/4" = 1'-0"

SECTION THRU 10" DIA PIPE  
 SCALE: 3/4" = 1'-0"



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



GENERAL NOTES

1. CONTRACTOR TO BE RESPONSIBLE TO THE BRIDGE ENGINEER OF THE BRIDGE CONSTRUCTION OF THE BRIDGE SHALL BE SUPERVISED BY THE CONTRACTOR'S ENGINEER. BRIDGE TO BE MADE ACCORDING TO THE CONTRACTOR'S DRAWINGS.
2. ALL STRUCTURAL STEEL TO CONFORM TO THE STANDARD SPECIFICATIONS FOR STRUCTURAL STEEL FOR BRIDGES AND BUILDINGS, FEDERAL SPECIFICATION AT 17 OF THE A.S.T.M., AS APPROVED TO DATE.
3. (a) WELDS SHALL BE MADE ONLY BY CONTRACTORS WHO HAVE BEEN SUCCESSFUL BY TESTS, AS PROVIDED BY THE AMERICAN WELDING SOCIETY. ALL WELDS SUBJECT TO WELDS SHALL CONFORM TO AMERICAN INSTITUTE STANDARD SPECIFICATIONS.  
 (b) APPROVED WELDS OF NOT LESS THAN 3/16 INCH MAY BE USED IN CONNECTION WITH BRIDGE BRACKETS.
4. ALL NEW STRUCTURAL STEEL TO BE SHIPPED ONE (1) FOOT OF GALVANIZED METAL PROTECTIVE PAINT, (A.P.P.) GALV. FINISH BY A TANK COAT OF GALVANIZED METAL PROTECTIVE PAINT (A.P.P.) GALV. FINISH TO BE APPLIED AFTER SUSPENSION OF STEEL HAS BEEN THOROUGHLY CLEANED. ALL NEW STEEL SHALL HAVE ONE COAT OF RED LEAD PAINTER.

DETROIT TOLEDO AND IRONTON RAILROAD  
 ENGINEERING DEPT. DEARBORN, MICH.

PROPOSED PIPE LINE CROSSING BRIDGE  
 N.E. 1/4 OF 14 NORTH 57<sup>TH</sup> ST  
 AT 1547<sup>TH</sup> ST, NORTON, MICH.

SYL.	REVISION	DATE	BY

DESIGNED BY: [Signature] DATE: 10/10/20  
 DRAWING NO.: 18.55-1.1 SHEET NO. 11

AA995-18.55-1.1

10-10-20 18.54 5333

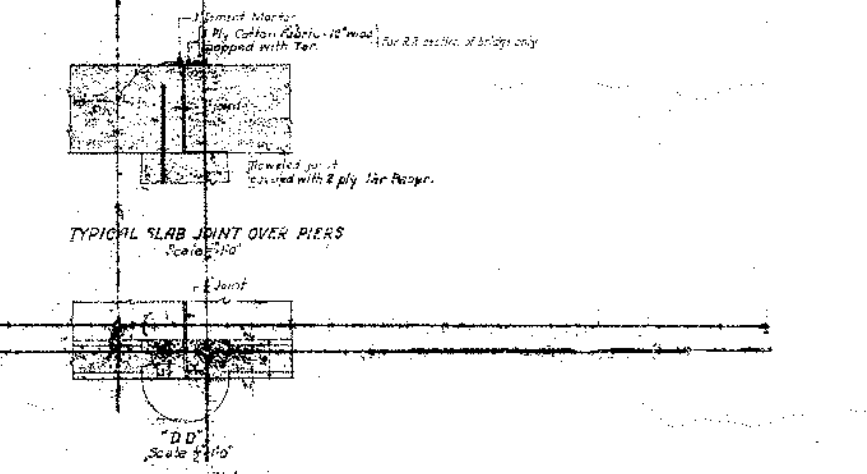
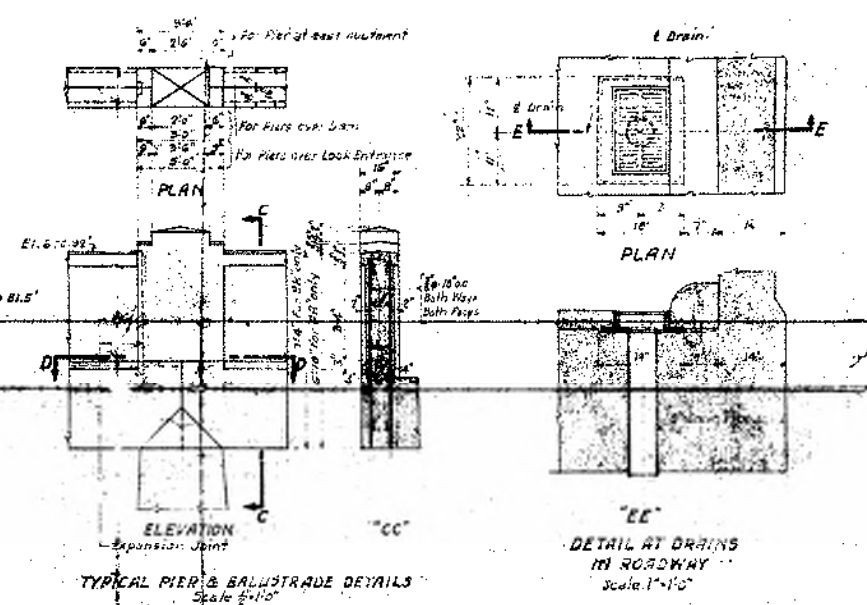
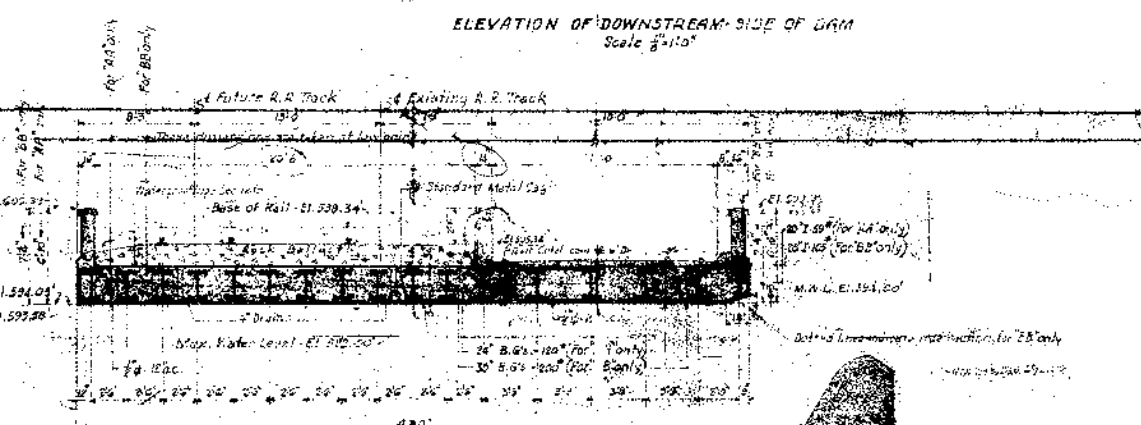
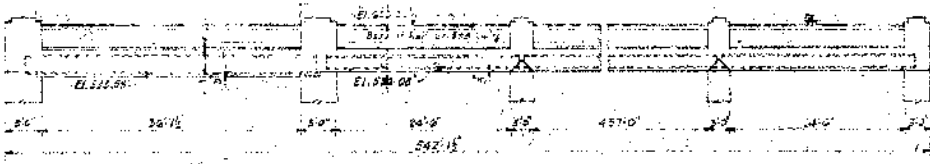
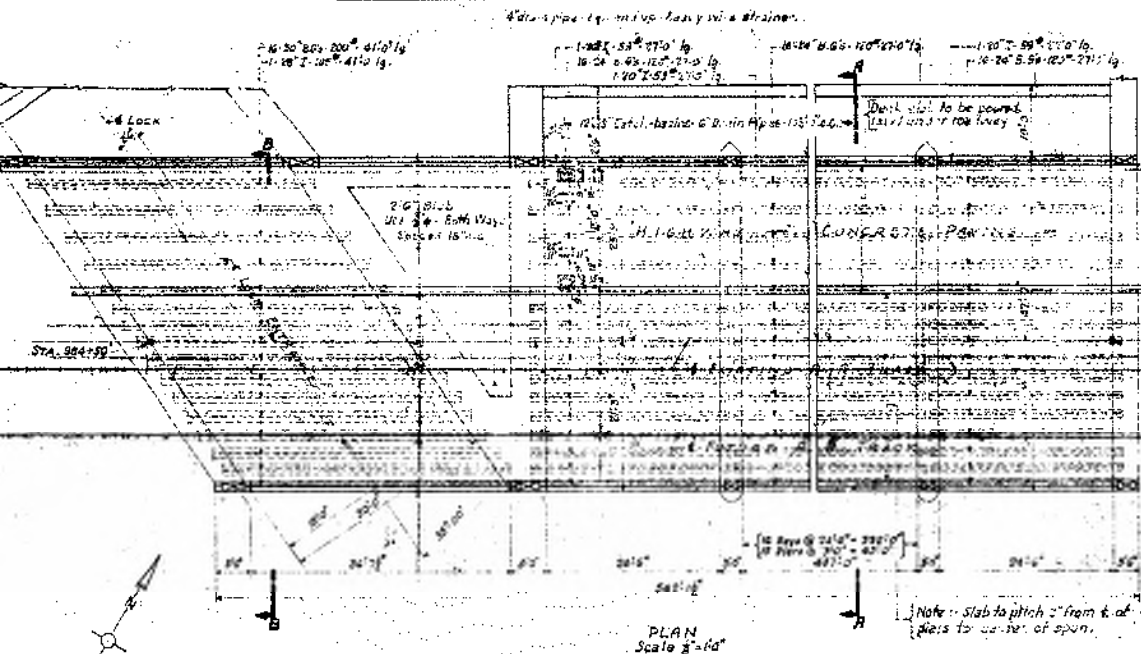












Notes:  
 For details of Lock see 781494 & 187700.  
 For details of concrete Linement on Dam see 187700.  
 For Pier Details see 187700.  
 Concrete Milling  
 Cast in place top of abutments on R & S sections only, and backs of parapets and spill  
 to lower section with heavy bedding of concrete with profiles of cast.

A-6-3

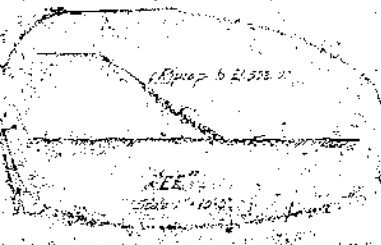
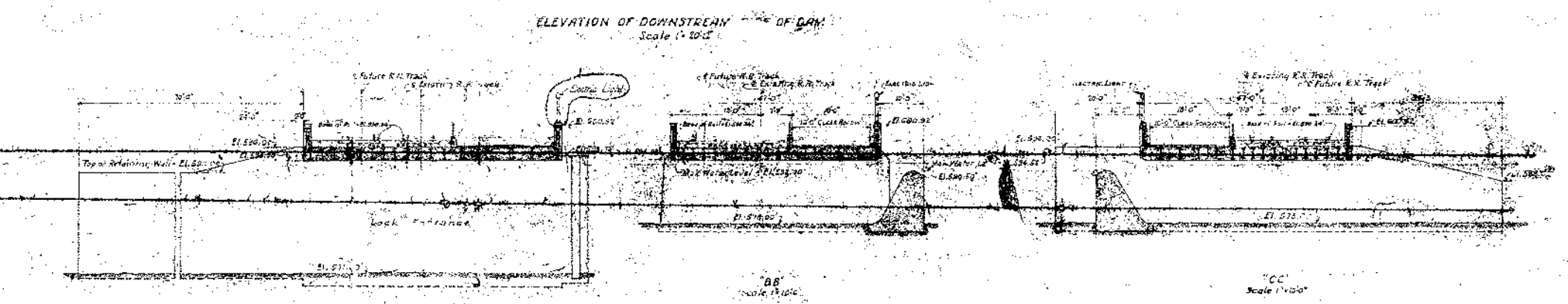
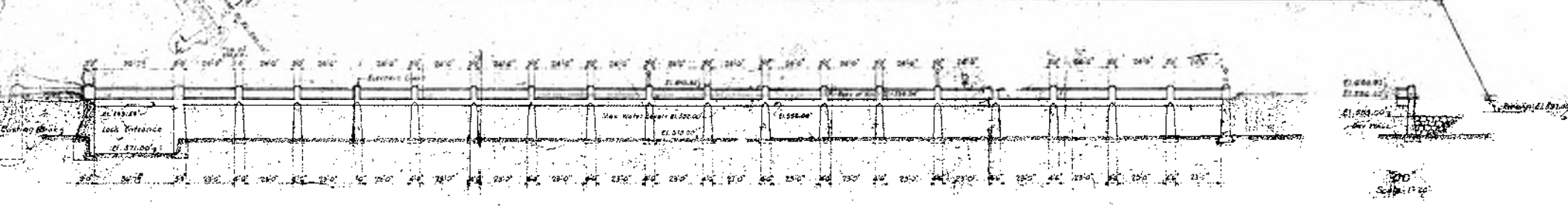
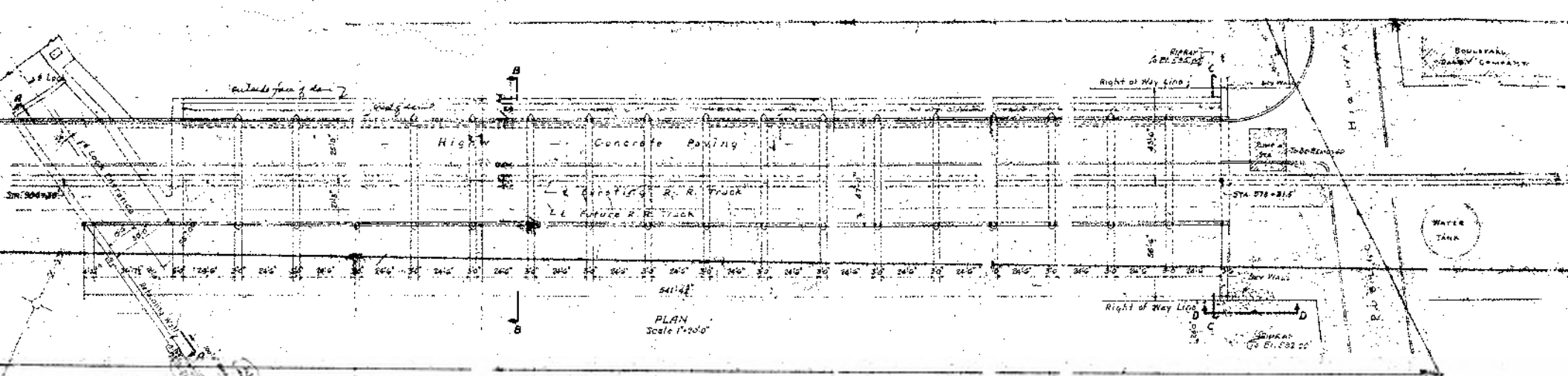
**DAM DETAILS - CONCRETE - SHEET NO. 2**  
 HYDRAULIC STR. - HYDRO-ELEC. STA. - SLAT ROCK, M.C.  
 FORD MOTOR COMPANY

**STONE & WEBSTER**  
 DIVISION OF CONSTRUCTION AND ENGINEERING  
 BOSTON

SCALE GIVEN  
 JULY 11, 1922  
 2-240-2388

V82288





DESIGNED BY	CHECKED BY	DATE	BY
DRAWN BY	APPROVED BY	DATE	BY
SCALE	PROJECT NO.	DATE	BY
DATE	PROJECT NO.	DATE	BY

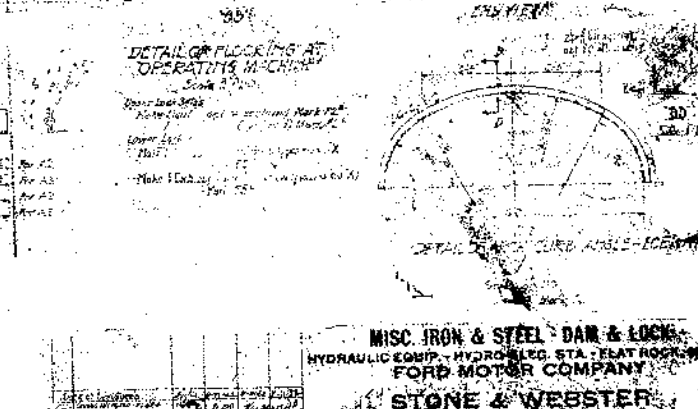
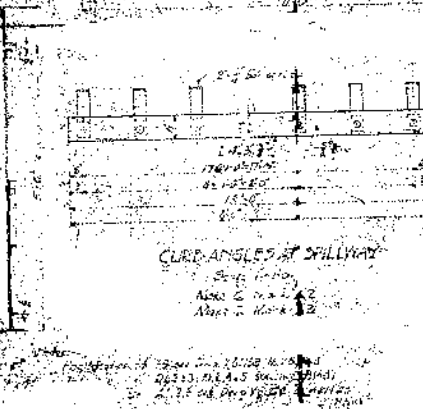
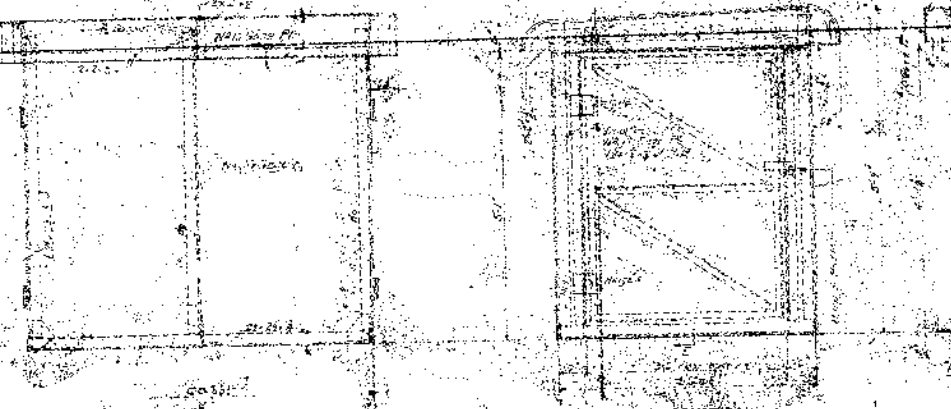
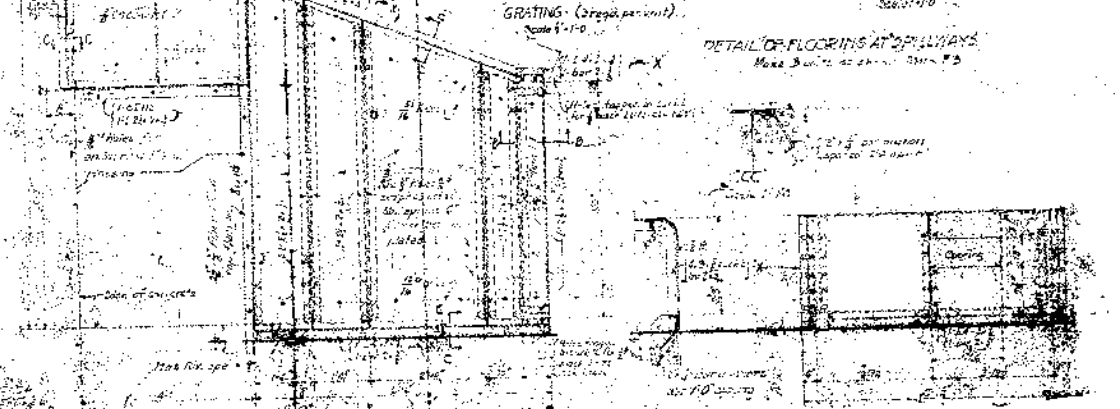
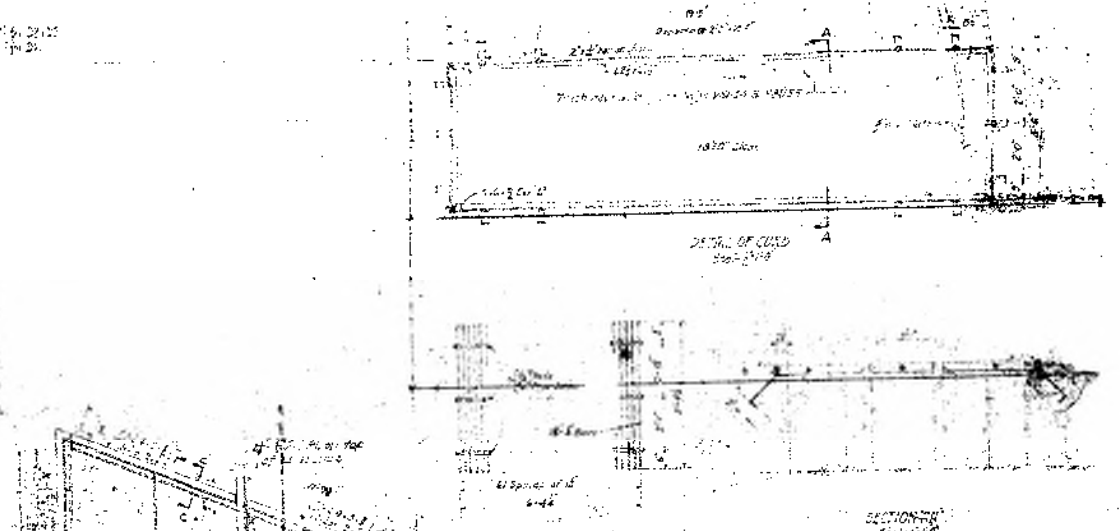
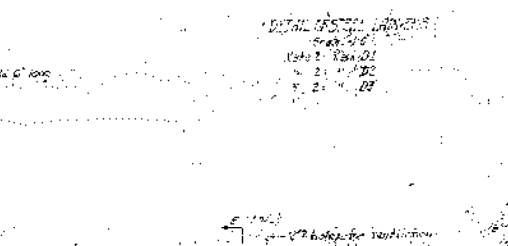
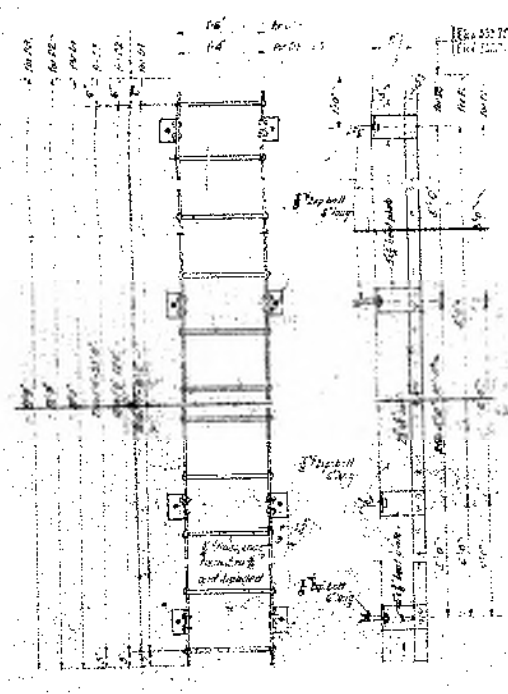
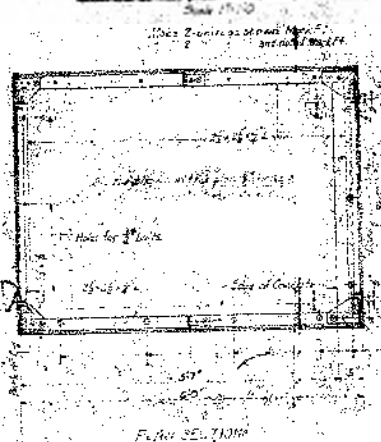
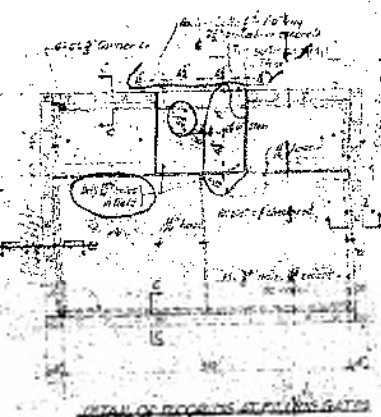
**DAM AND BRIDGE - PLAN, ELEVATION & SECTION**  
 HYDRAULIC BY. - HYDRO-ELEC. STATIONARY ROCK, MICH.  
**FORD MOTOR COMPANY**

**STONE & WEBSTER**  
 DIVISION OF CONSTRUCTION AND ENGINEERING  
 BOSTON

DATE OF ADDITIONS AND REVISIONS: JUNE 15, 1922  
 I. C. NO. 3588

AA95-18.55-1.5





MISC. IRON & STEEL - DAM & LOCK  
HYDRAULIC EQUIP. - HYDRO-LEG STA. - LEAT ROOM  
FORD MOTOR COMPANY  
STONE & WEBSTER  
DIVISION OF CONSTRUCTION

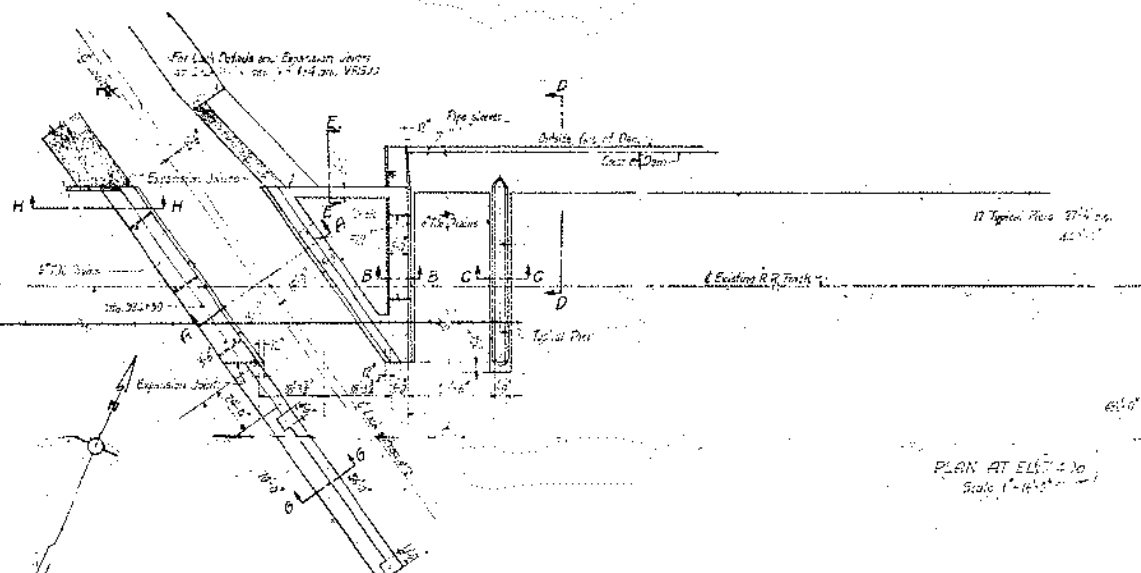
NO.	DESCRIPTION	QUANTITY	UNIT	AMOUNT
1	STEEL JOIST	100	LINEAL FEET	100
2	PLYWOOD SHEATHING	100	SQUARE FEET	100
3	SILL	100	LINEAL FEET	100
4	GRATING	100	SQUARE FEET	100

A-6-8-500

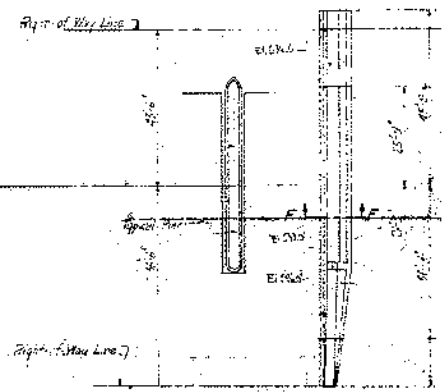
AA915-18.55-1-A  
A-6-3

W-4078 MP 12.55

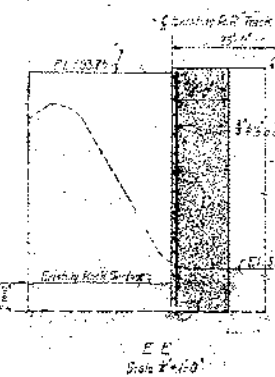




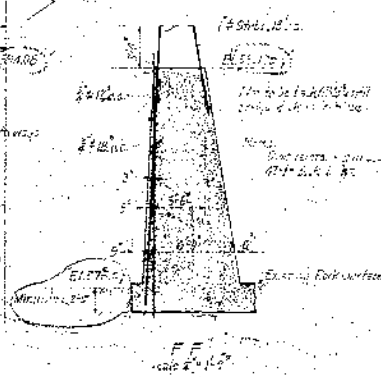
PLAN AT ELEV. 400  
Scale 1" = 16'



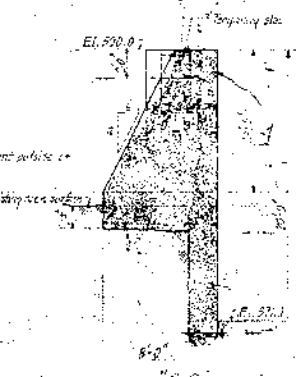
Right of the Dam



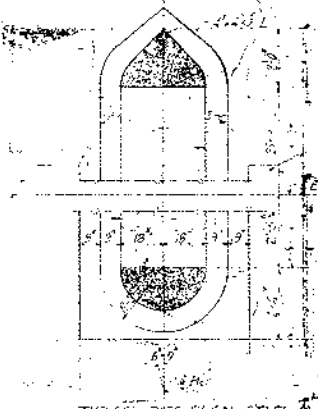
E-E  
Scale 1" = 10'



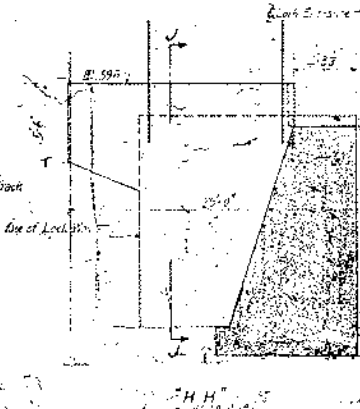
F-F  
Scale 1" = 10'



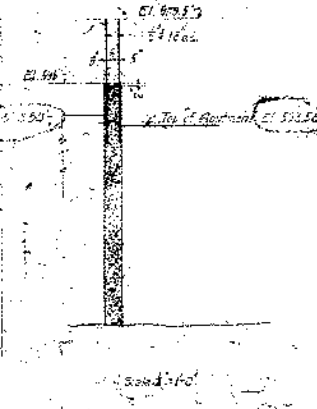
B-B  
Scale 1" = 10'



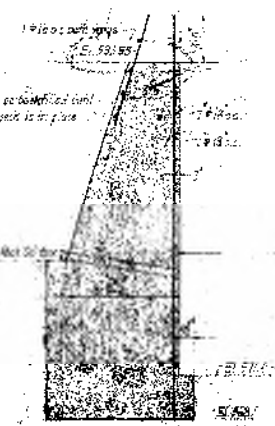
TYPICAL PIER PLAN AT ELEV. 160  
Scale 1" = 10'



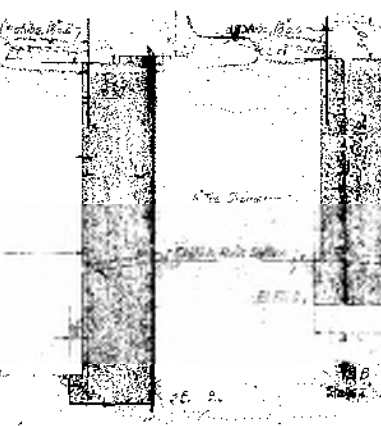
H-H  
Scale 1" = 10'



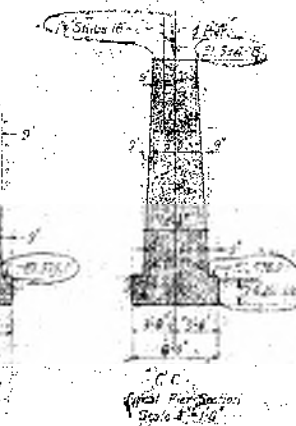
G-G  
Scale 1" = 10'



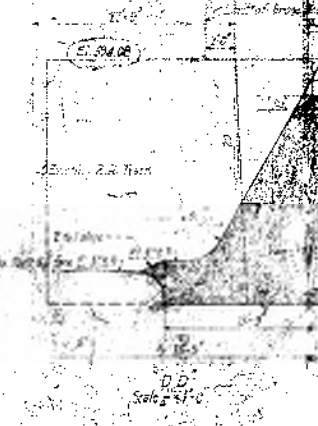
SECTION A-A  
Scale 1" = 10'



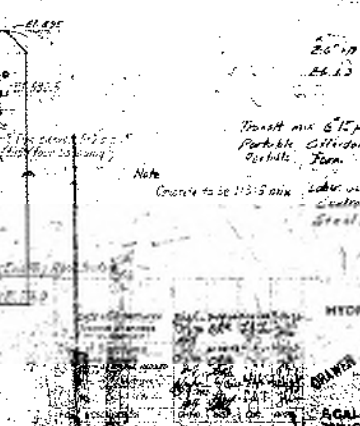
D-D  
Scale 1" = 10'



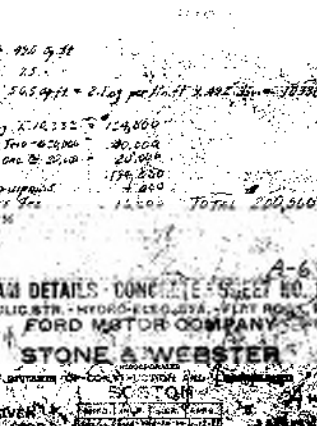
C-C  
Scale 1" = 10'



G-G  
Scale 1" = 10'



B-B  
Scale 1" = 10'



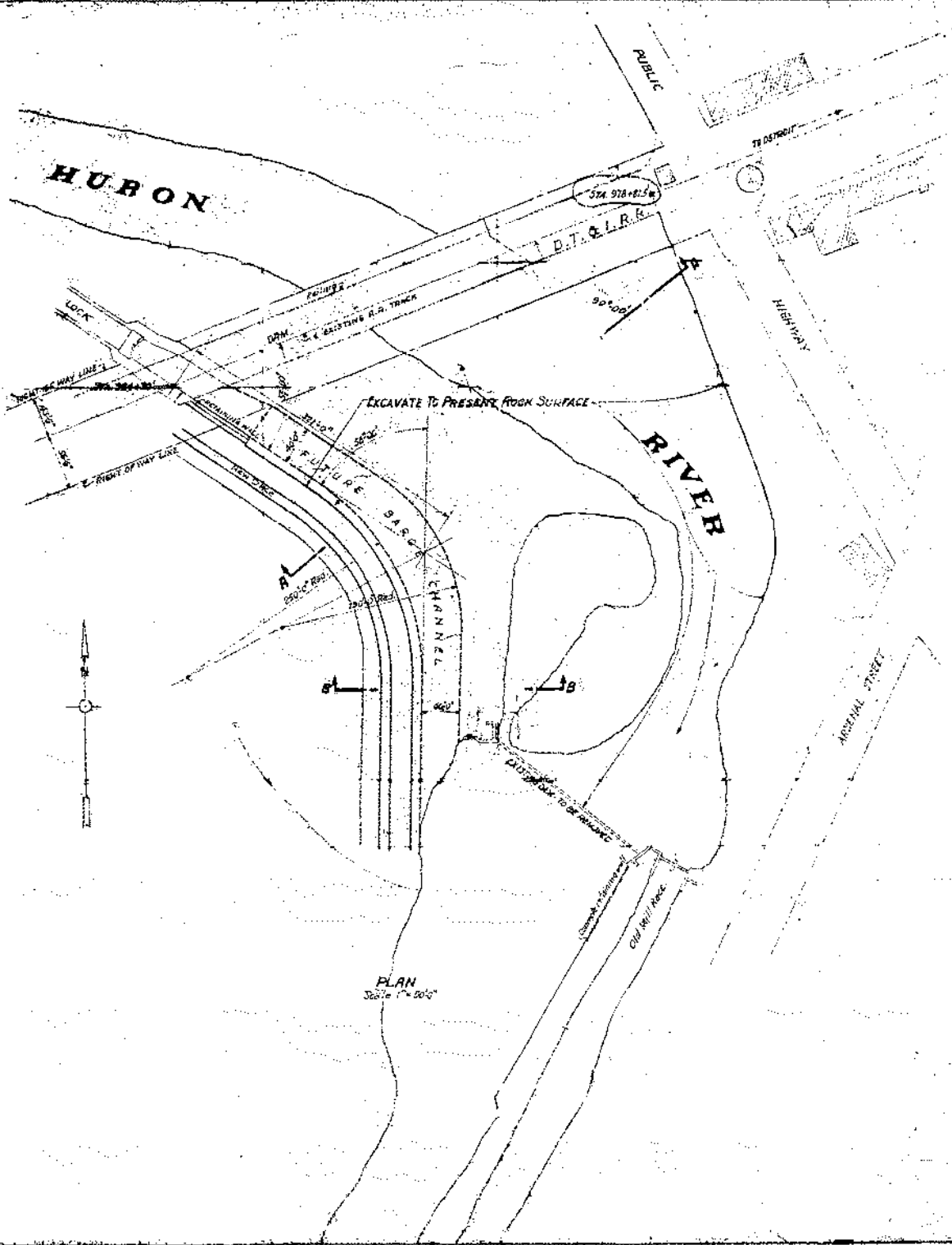
A-A  
Scale 1" = 10'

20' x 8' = 160 sq ft  
Elev. 12 = 25  
545 sq ft = 212 sq ft of 2.495 cu yd = 1035 cu yd

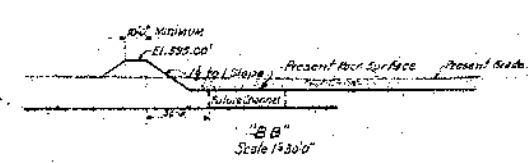
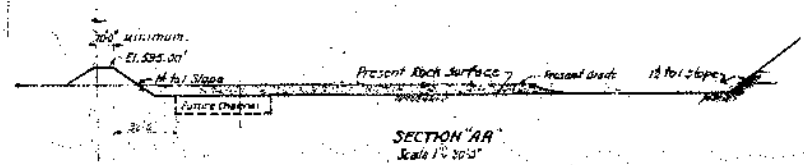
Transit mix 6" x 12" x 12" = 12,800  
Portable Cylinders 100 = 20,000  
Perch. Form 100 = 20,000  
Labor and equipment 175,000  
Contractor Fee 4,800  
Steel 300  
TOTAL 200,500

DAM DETAILS - CONCRETE - SHEET NO. 1  
HYDRAULIC STR. - HYDRO-ELECTR. - FLY ROCK, ETC.  
FORD MOTOR COMPANY  
STONE & WEBSTER  
DIVISION OF CONSTRUCTION AND MANAGEMENT  
EASTON, MASS.  
SCALE GIVEN  
BY THE ARCHITECT  
20' x 8" = 160





PLAN  
Scale 1" = 50'0"



Notes:-  
For excavation of Lock, Dam and Spillway see drawing V8214 B.

AA95-1855-1.8

EXCAVATION PLAN - CHANNEL BELOW DAM  
HYDRAULIC STR. - HYDRO-ELEC. STA. - FLAT ROCK, MICH.  
FORD MOTOR COMPANY

STONE & WEBSTER  
DIVISION OF CONSTRUCTION AND ENGINEERING  
BOSTON

Date of Stationing	11/1/21	11/1/21	11/1/21
Level of Stationing	11/1/21	11/1/21	11/1/21
Section Stationing	11/1/21	11/1/21	11/1/21
Section Stationing	11/1/21	11/1/21	11/1/21
Section Stationing	11/1/21	11/1/21	11/1/21

SCALE GIVEN  
NOV. 3, 1921  
A. O. NO. 10548

Checked	11/1/21
Approved	11/1/21

V81103



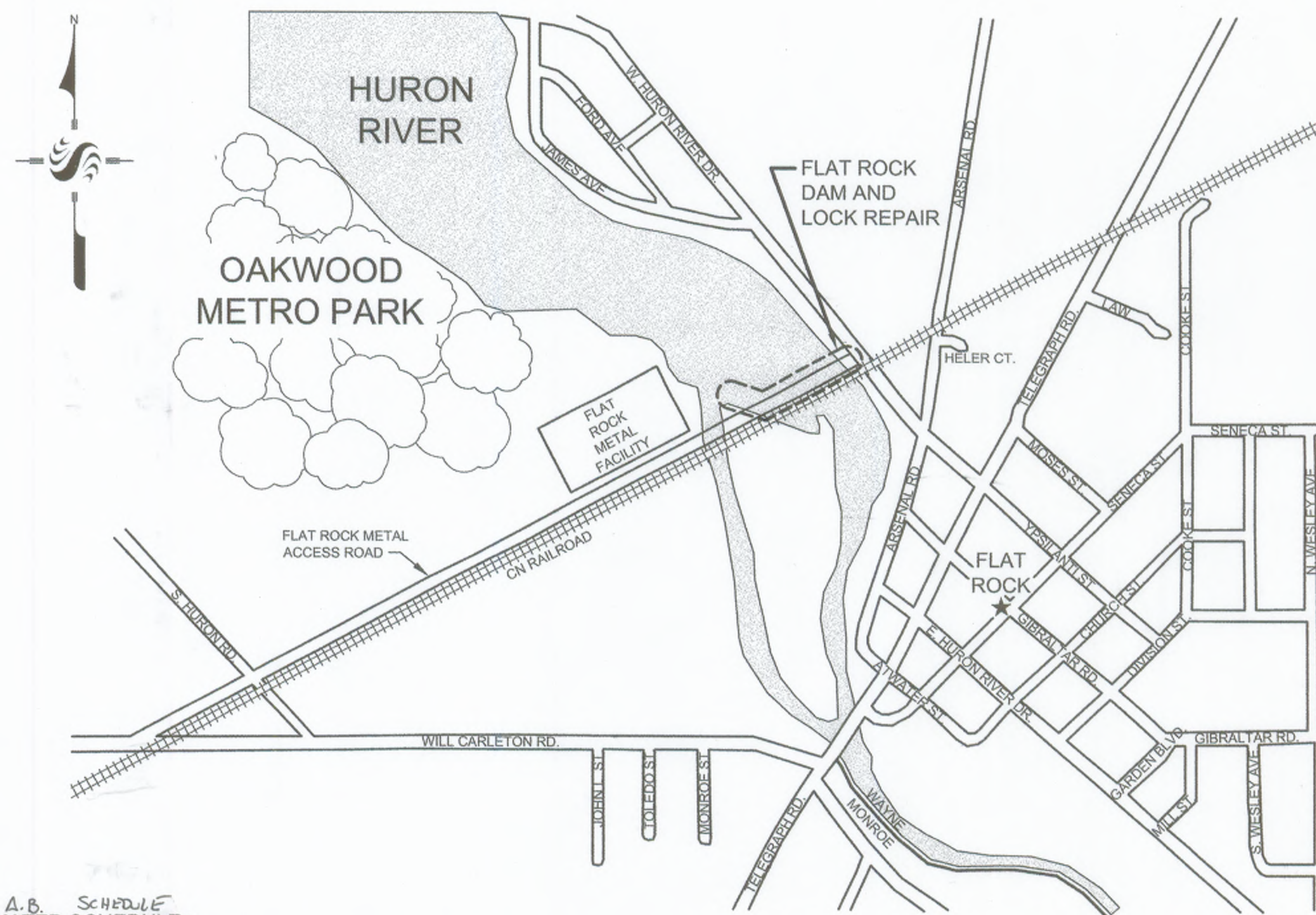




# HURON CLINTON METROPOLITAN AUTHORITY

## PLANS FOR FLAT ROCK DAM 2008 REPAIRS

**BID SET** AS-BUILTS  
(A.B.)  
**MAY 2008**



AREA MAP  
NO SCALE

**DRAWING INDEX:**

- A.B. C-001 — OVERALL SITE PLAN
- A.B. C-002 — SOIL EROSION CONTROL AND MISC. DETAILS
- A.B. C-101 — RIGHT SIDE, LOCK DEMOLITION PLAN
- A.B. C-102 — RIGHT SIDE, LOCK DEMOLITION DETAILS
- A.B. C-103 — RIGHT SIDE RECONSTRUCTION PLAN
- A.B. C-201 — LEFT SIDE, DEMOLITION PLAN
- A.B. C-202 — LEFT SIDE, RECONSTRUCTION PLAN
- A.B. C-301 — RECONSTRUCTION DETAILS AND SECTIONS I
- A.B. C-302 — RECONSTRUCTION DETAILS AND SECTIONS II

**REFERENCE DRAWINGS (1922 STONE AND WEBSTER)**

- C-401 — LOCATION, GENERAL PLAN AND SECTIONS
- C-402 — EXCAVATION PLAN
- C-403 — PLAN, ELEVATION AND SECTIONS
- C-404 — DETAILS
- C-405 — DETAILS
- C-406 — BORINGS TO ROCK

MDOT STANDARD DETAILS NOT INCLUDED IN THESE PRINTS (R-60-F, R-66-E AND R-67-E)



**A.B. SCHEDULE ESTIMATED SCHEDULE:**

1. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY MDNR FISHERIES DIVISION (SEE CONTACT INFO, THIS SHEET) OF PROPOSED SCHEDULE. NO IN-WATER CONSTRUCTION ACTIVITIES WILL BE PERMITTED FROM OCTOBER 30 THROUGH JUNE 30, INCLUSIVE.

2. COFFERDAM INSTALLATION AND REMOVAL SHALL BE AS PER IN-WATER GENERAL SEQUENCE OF CONSTRUCTION (SHEET C.001).

START: JULY 1, 2008 - AUGUST 2008

**JULY, 2008**

- DELIVER EQUIPMENT TO SITE
- INSTALL SILT FENCE, FISH LADDER COVER, MUD TRACKING DEVICE AND TEMPORARY RIP RAP, ALL LOCATIONS.
- SETUP TEMPORARY FENCE, ALL LOCATIONS.
- DEMOLISH OLD FENCE.
- INSTALL LOCK COFFERDAM AND DEWATER.
- EXCAVATE ALONG LOCK WALL.
- DEMOLISH OLD CONCRETE AND LOCK STRUCTURE EQUIPMENT.
- RECONSTRUCT CONCRETE AND FILL VOIDS IN LOCK WALLS.
- REMOVE LOCK COFFERDAMS.
- BACKFILL ALONG LOCK WALL.

**AUGUST, 2008**

(REPAIR STEPS SHALL INCLUDE TURBIDITY CURTAINS, COFFERDAMS AND DEWATERING AS REQUIRED PER NOTES ON C.001)

- MAKE REPAIRS TO STRUCTURES. PLACE TREMIE CONCRETE IN BAYS #1, #2 AND #3, #4 A.B.
- MAKE REPAIRS TO STRUCTURES AND REPLACE TREMIE CONCRETE, BAYS #4, #5 AND #6.
- PLACE TREMIE CONCRETE BAYS #7, #8 AND #9.

OPENED FISH LADDER BY 11.05.08 AS DIRECTED BY DNR (DNR WANTED COFFERDAM TO REMAIN IN PLACE UNTIL THEY DID SOME REPAIRS.)

CONTRACTOR STOPPED WORK IN DECEMBER, DUE TO TEMP. RESTRICTIONS ON MAT'L'S.

START UP AFTER WINTER, JULY, 2009.

**SEPTEMBER, 2008**

- MAKE REPAIRS AND PLACE TREMIE CONCRETE BAYS #10, #16 AND #17
- INSTALL TEMPORARY GUARDRAIL AT LEFT SIDE AND REMOVE OLD GUARDRAIL AT GAS LINE.
- INSTALL COFFERDAM ON LEFT BANK.
- REMOVE OLD REVETMENT BLOCKS.
- EXCAVATE ALONG LEFT UPSTREAM WALL.
- DEMOLISH OLD CONCRETE AND MAKE REPAIRS.
- BACKFILL ALONG LEFT WALL.
- CONSTRUCT NEW REVETMENT WALL.
- REMOVE LEFT COFFERDAM.
- INSTALL NEW PERMANENT GUARDRAIL AT GAS LINE AND REMOVE TEMPORARY GUARDRAIL.

**OCTOBER, 2008**

TREMIE CONC. IN BAYS # 5 - #8.

- REMOVE MAJOR EQUIPMENT FROM SITE.
- REMOVE TEMPORARY FENCING AND MUD TRACKING DEVICE.
- DO FINE-GRADING TO SITE.
- INSTALL PERMANENT FENCING.
- TRAP AND RELOCATE WOODCHUCKS. (DONE BEFORE BREAK)
- ESTABLISH PERMANENT GROUND COVER.
- REMOVE SILT FENCING AND FISH LADDER COVER.

**FINISH: OCTOBER 15, 2008**

DECEMBER, 2009

PLACED LEFT COFFERDAM & REMOVED LEFT SIDE REVETMENT. RIGHT SIDE REPAIRS DONE + TREMIE IN BAYS # 1-#4.

**Project Contacts**

**Utilities and Holders of Rights of Way**

- Ameritech  
800-482-7161
- AT & T  
Peter Wlotkowski  
734-523-6888
- Buckeye Pipeline  
800-437-3497  
734-721-8835
- Comcast  
734-788-3631
- DTE  
Electric: 734-397-4321  
Gas: Jim Barnette  
313-389-7304.
- Kindermorgan (Dome Pipeline Corp)  
Doug Miller  
Cell 419-764-3132  
Office 734-856-2161
- Marathon Ashlund Pipeline Company  
Dave Wisner  
419-421-2211  
Don Kam  
734-260-8254 (cell)
- Qwest  
800-482-7161  
330-233-0496
- Sunoco  
Matt Vale  
313-292-8850

**Municipal:**

- City of Flat Rock  
  
Bruce Hammond  
Director of Public Works  
734-782-2470

**Railroad:**

- CN Railroad  
(Flat Rock Subdivision. Mile post 18.55 to 18.65 bridge over Huron River.)  
Waldemar Wolosiewicz.  
248-452-4989

**Local Industry:**

- Flat Rock Metal  
Greg Zang  
734-782-4454

**Owner:**

- Huron Clinton Metropolitan Authority  
Mike Arens  
810-227-2757 Ext 5154

**Regulatory/Agency**

- Huron River Fishermen's Association  
Ed McCarter  
734-262-0120
- MDEQ Dam Safety  
Paul Wessel  
517-241-9862
- MDNR Fisheries Division  
Jeffrey Braunscheidel  
248-359-9048
- US Fish and Wildlife Service  
(East Lansing Field Office)  
Barb Hofer  
517-351-2555
- Wayne County Watershed Management  
John Jones  
734-326-3936
- Wayne County DPS  
Yolanda Clemens  
734-595-6504

**PERMITS**

MDEQ-INLAND LAKES AND STREAMS DAM SAFETY  
WAYNE COUNTY SOIL EROSION  
WAYNE COUNTY WORK WITHIN R.O.W. (HURON RIVER DRIVE)

**PERMIT/FILE NO.**

07-82-0168-P  
07-219  
R 08-030



**Stantec**

STANTEC #2075092501  
PREPARED BY:

**STANTEC**  
3959 RESEARCH PARK DRIVE  
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Consultants

Legend

- ===== COFFERDAM
- TURBIDITY CURTAIN
- ..... SILT FENCE
- TREE PROTECTION FENCE
- TEMPORARY CHAINLINK FENCE
- RIGHT OF WAY

LOCAL DATUM BENCHMARK:  
 EAST SIDE OF SPILLWAY AT LEFT  
 UPSTREAM RETAINING WALL = 590.5'  
 (BASED ON ORIGINAL STONE & WEBSTER DRAWINGS)

- ⊗ GATE VALVE
- ⊙ STORM SEWER MANHOLE
- ⊙ POWER POLE
- ⊙ SANITARY SEWER MANHOLE
- ⊙ WATER MANHOLE
- ⊙ FIRE HYDRANT
- ⊙ BENCH MARK
- G GAS LINE
- ST STORM SEWER
- OHP OVERHEAD POWER

UNDERLINED NOTES ARE PAY ITEMS.

AS-BUILT ("A.B.") DRAWING NO.	BY	DATE	REV.
Revision	By	Appd.	MM.DD.YY
BID SET			05.08
(WCPS) RESUBMITTAL			03.08
OWNER REVIEW			03.08
QA/QC (95%)			02.08
ROAD COMMISSION SUBMITTAL (WCPS)			01.08
REVISIONS PER MDCQ			12.13.07
PERMITS (BOX SET)			10.31.07
BOX REVIEW			07.10.07
Issued	By	Appd.	MM.DD.YY

File Name:	SMJ	DMD	PJM
	Dwn.	Chkd.	Dagn.

Permit-Seal

Client/Project  
**HURON-CLINTON METROPOLITAN AUTHORITY  
 FLATROCK DAM 2008 REPAIRS**

FLATROCK, MICHIGAN

Title

**OVERALL SITE PLAN**

Project No.	Scale	
2075092501	1" = 40'	
Drawing No.	Sheet	Revision
C.001		

**WAYNE COUNTY DPS GENERAL NOTES: A.B.**

- ALL WORK WITHIN THE WAYNE COUNTY ROAD RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND GENERAL SPECIFICATIONS, INCLUDING SOIL EROSION AND SEDIMENTATION CONTROL OF THE WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES.
- THESE PLANS ARE NOT VALID WITHOUT ATTACHMENT OF THE WAY COUNTY PERMIT SPECIFICATIONS FOR CONSTRUCTION WITHIN ROAD RIGHT OF WAY, PARKS, DRAIN EASEMENT OR SANITARY SEWER UNDER JURISDICTION OF THE WAYNE COUNTY (7/01/93) REVISED 12/15/2004.
- RESTORE ALL DISTURBED AREAS WITHIN THE COUNTY ROAD RIGHT OF WAY WITH 3" OF TOPSOIL AND CLASS "A" HYDROSEED. SLOPES STEEPER THAN 1:3 SHALL BE RESTORED BY PLACING SOD.
- MAINTAIN TWO WAY TRAFFIC AT ALL TIMES. ALL SIGNING AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE M.U.T.C.D.

IMPOUNDMENT  
 WATER ELEVATIONS:  
 -100 YEAR: EL. 593.9'  
 -50 YEAR: EL. 593.7'  
 -10 YEAR: EL. 593.0'  
 -TYPICAL AUGUST  
 95% EXCEEDANCE 590.6'  
 -NORMAL WATER LEVEL  
 (ORDINARY HIGH WATER): 591.0'±

**A.B. CAUTION!**  
 PRIMARY ELECTRIC IN CONDUIT ATTACHED TO NORTH FACE OF BRIDGE AND UNDERGROUND EAST & WEST OF BRIDGE. VERIFY EXACT LOCATION IN FIELD PRIOR TO ANY WORK. USE EXTREME CAUTION!

SANDBAG SPILLWAY 1 EA. FOR BAYS #1 AND #2 TOTAL (INCLUDED WITH ASSOCIATED COFFERDAM ITEM) A.B.

COFFERDAM, SPILLWAY BAYS (ONE EACH FOR BAYS #1, #4, #16 AND #17). TOTAL 5 A.B.  
 DRAWING C.201 AND C.202

HURON RIVER DRIVE R.O.W.  
 TEMPORARY CHAIN LINK FENCE 110 LF.  
 SHORELINE  
 TEMPORARY STOCKPILE AREA (SEE SESC NOTE 10).  
 NOT USED A.B.  
 STEEL SHEET PILE COFFERDAM LEFT A.B.

**DANGER: OVERHEAD UTILITY LINE**

**DANGER: EXPOSED AND BURIED MAIN PRESSURE GAS LINES, THIS AREA**

ESTIMATED DEPTHS, LOCATIONS AS SHOWN, UPSTREAM POINTS (FROM 590.8±)

- a. 10'
- b. 12'
- c. 12'
- d. 6'
- e. 6'
- f. 4'
- g. 10'
- h. 7'
- i. 6'

DOWN STREAM POINTS (FROM 583.2±)

- j. 2.5'
- k. 5'
- l. 4'
- m. 4.5'

**SOIL TYPE**

(BASED ON 1977 SURVEY REPORT BY USDA SOIL CONSERVATION SERVICE)

GENERAL:  
 PEWAMO-SELFRIDGE-CORUNNA ASSOCIATION: NEARLY LEVEL TO GENTLY SLOPING, VERY POORLY DRAINED TO SOMEWHAT POORLY DRAINED SOILS THAT HAVE A MODERATELY FINE TEXTURED TO COARSE TEXTURED SUBSOIL.

RIGHT SIDE: (BbB) BLOUT LOAM  
 LEFT SIDE: (MhB) META LOAMY SAND  
 NEARBY: (ShB) SHOALS SILT LOAM

**APPROXIMATE DISTURBED ACREAGE**

RIGHT UPSTREAM: 0.46AC (THIS AREA INCLUDES AN EXISTING BIT PARKING LOT THAT MAY ONLY BE USED AS A STOCKPILE AREA)  
 RIGHT DOWNSTREAM: 0.34AC  
 LEFT UPSTREAM: 0.06AC  
 TOTAL: 0.86AC

**DEWATERING NOTES A.B.**

- THE EXISTING 4' FISH LADDER SLUICE GATE AND 24" ATTRACTION WATER LINE ARE AVAILABLE TO AID IN DEWATERING THE LOCK STRUCTURE; HOWEVER, PUMPAGE MAY BE REQUIRED IN ADDITION TO DRAINING THROUGH GRAVITY OUTLETS.
- ESTIMATED DEWATERING ELEVATION FOR LOCK=587.0' LOCK WATER SURFACE ELEVATION SHALL NOT BE DRAWN DOWN BELOW 586.0' A.B. WITHOUT PERMISSION OF ENGINEER. (SEE PERMITS FOR CONTRACTORS) A.B.
- THE FISH LADDER MUST BE PROTECTED AT ALL TIMES FROM THE INTRUSION OF SILTS, DEBRIS OR OTHER DAMAGE.
- PUMPAGE FROM THE RIGHT COFFERDAM SHALL BE DISCHARGED AT THE HEAD OF THE LOCK.
- PUMPAGE FROM SPILLWAY BAYS SHALL DISCHARGE IN TO RIVER UPSTREAM OF DAM AT A LOCATION 10' MINIMUM FROM ANY ACTIVE SPILLWAY.
- PUMPING DISCHARGE SHALL NOT BE ALLOWED TO ERODE OR SCOUR EXISTING EARTH.
- FLOW MAY BE CUT OFF FROM A MAXIMUM OF 3 SPILLWAY BAYS AT ONE TIME. STRIKE ONLY WITH MORE THAN 3 - CONTRACTORS RISK OF TEMP. COFFERDAMS. A.B.

**IN-WATER GENERAL SEQUENCE OF CONSTRUCTION A.B.**

- INSTALL ALL UPSTREAM AND DOWNSTREAM TURBIDITY CURTAINS AS SHOWN ON DRAWINGS. A.B.
- IF APPLICABLE TO LOCATION, INSTALL COFFERDAM AND DEWATER.
- DEMOLISH OLD CONCRETE AND CONSTRUCT NEW CONCRETE STRUCTURES, REVETMENTS, RIP RAP, AND/OR TREMIE CONCRETE. CURE AND FINISH CONCRETE AS REQUIRED.
- AS APPLICABLE, TURN OFF DEWATERING AND EQUALIZE WATER LEVELS. REMOVE COFFERDAM.
- PRIOR TO REMOVAL OF TURBIDITY CURTAINS, ALLOW ALL SUSPENDED MATERIAL TO SETTLE. REMOVE SILTS THAT HAVE COLLECTED ON THE BOTTOM OR IN THE FABRIC AND DISPOSE OF OFF SITE.

**SOIL EROSION CONTROL MAINTENANCE NOTES A.B.**

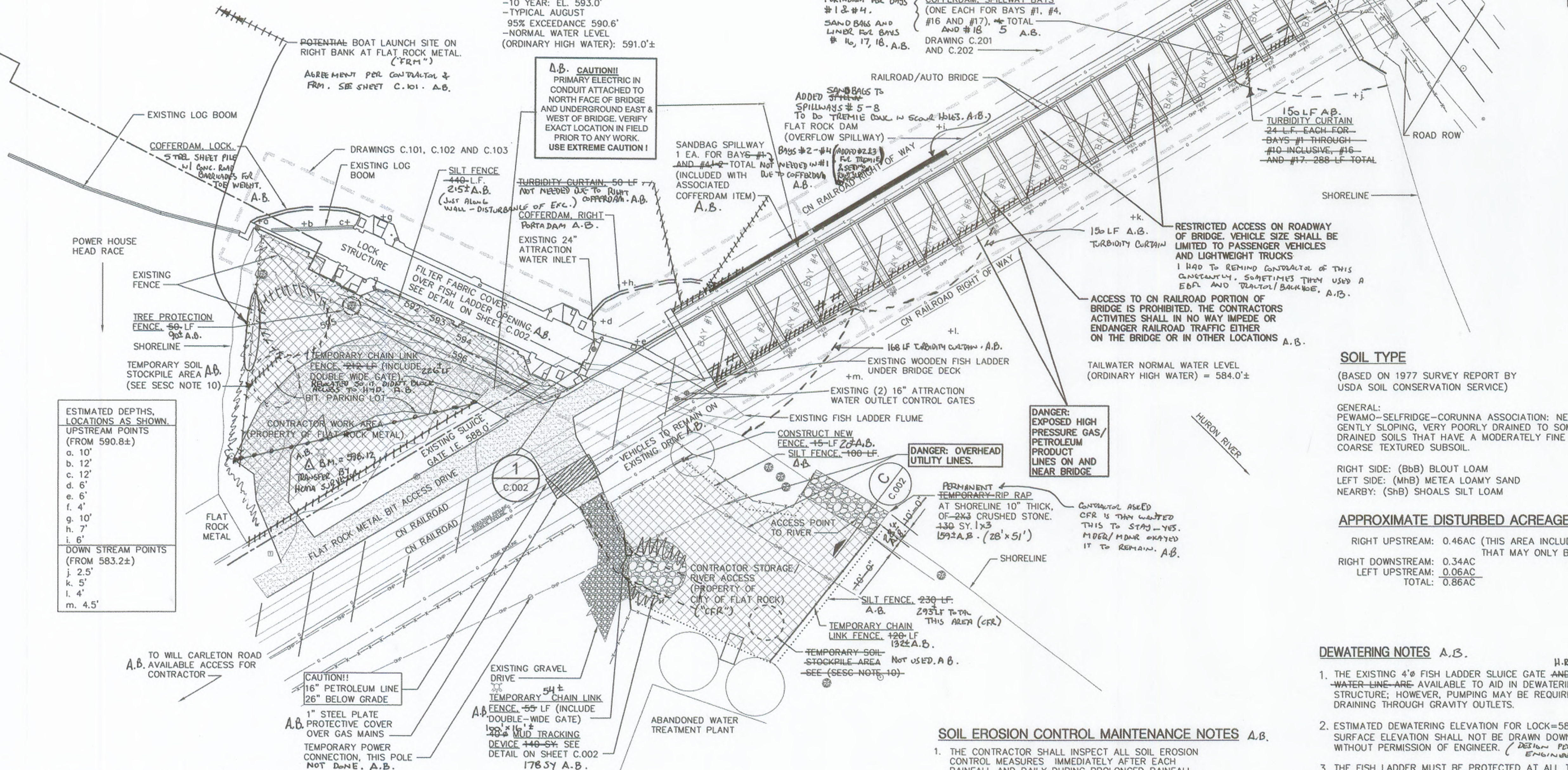
- THE CONTRACTOR SHALL INSPECT ALL SOIL EROSION CONTROL MEASURES IMMEDIATELY AFTER EACH RAINFALL AND DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
- ALL SILT FENCE SHALL BE INSPECTED DAILY, INCLUDING AROUND YARD DRAINS. SILT FENCE WHICH IS UNDERMINED, CLOGGED, DECOMPOSED, FALLING OVER, OR OTHERWISE FUNCTIONING IMPROPERLY SHALL BE REPAIRED AND RESTORED TO ITS ORIGINAL INSTALLATION DETAIL.
- A WATER TRUCK SHALL BE AVAILABLE TO WATER DOWN THE SITE ON A DAILY BASIS AS REQUIRED TO MAINTAIN DUST CONTROL.
- SWEEP STREETS WEEKLY FOR SEDIMENT BUILD-UP. REMOVE TRACKED MUD/DIRT DAILY.

**EROSION CONTROL GENERAL SEQUENCE OF CONSTRUCTION A.B.**

- INSTALL TEMPORARY FENCING AS SHOWN ON PLANS.
- INSTALL TEMPORARY EROSION CONTROL MEASURES INCLUDING SILT FENCE INLET FILTERS, TREE PROTECTION FENCING AND MUD TRACKING PAD.
- EXCAVATE AND REMOVE FENCING, CONCRETE STRUCTURES AND OTHER ITEMS TO BE DEMOLISHED.
- COMPLETE CONCRETE REPAIRS AND BACKFILL WHEN APPROVED BY ENGINEER.
- INSTALL PERMANENT LANDSCAPING.
- REMOVE TEMPORARY SOIL EROSION CONTROL MEASURES AFTER PERMANENT VEGETATION HAS BEEN ESTABLISHED.
- RESTORE ALL LANDSCAPE AREAS, PAVEMENT AND CURBING DISTURBED DURING THE PROJECT TO ORIGINAL CONDITIONS.

**SOIL EROSION & SEDIMENTATION CONTROL (SESC) NOTES A.B.**

- ALL EROSION AND SEDIMENT CONTROL WORK SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE WAYNE COUNTY D.O.E. SOIL EROSION.
- DAILY INSPECTION SHALL BE MADE BY THE CONTRACTOR TO DETERMINE EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES, AND ANY NECESSARY REPAIRS SHALL BE PERFORMED WITHOUT DELAY.
- ANY EROSION AND SEDIMENTATION RESULTING FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT ALLOWED TO COLLECT ON ANY OFF-SITE AREAS OR WATERWAYS. WATERWAYS INCLUDE BOTH NATURAL AND MAN-MADE DITCHES, STREAMS, STORM DRAINS, LAKES AND PONDS.
- EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO, OR AS THE FIRST STEP IN, CONSTRUCTION. SEDIMENT CONTROL PRACTICES SHALL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTATION OF SILT OFF THE SITE.
- CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL AS REQUIRED AND AS DIRECTED IN THESE PLANS. HE SHALL REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES AND OTHER EARTH CHANGES HAS BEEN ACCOMPLISHED.
- PERMANENT SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 5 CALENDAR DAYS AFTER FINAL GRADING, OR AFTER THE FINAL EARTH CHANGE HAS BEEN COMPLETED. WHEN IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA AFTER AN EARTH CHANGE ACTIVITY CEASES, TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED IMMEDIATELY. ALL TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED.
- ALL PERMANENT SOIL EROSION CONTROL MEASURES WILL BE IMPLEMENTED AND ESTABLISHED BEFORE A CERTIFICATE OF COMPLIANCE IS ISSUED.
- ALL MUD/DIRT TRACKED ONTO EXISTING CITY/COUNTY/STATE ROADS FROM THIS SITE, DUE TO CONSTRUCTION, SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR/BUILDER. ALL MUD/DIRT TRACKED OR SPILLED ONTO PAVED ROADS OR PAVED SURFACES WITHIN THIS SITE SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR/BUILDER.
- DISTURBED AREAS WITHIN PUBLIC RIGHTS-OF-WAY SHALL BE RESTORED WITH 4" TOPSOIL, SEEDED AND MULCHED.
- IF A TEMPORARY SOIL STOCKPILE IS NEEDED, AREA MUST BE SURROUNDED BY 2 ROWS OF CONTINUOUS HAY BALES. LOCATION OF OFFSITE DISPOSAL AREA TO BE DETERMINED. 1 Row of silt fence per county sesc official. A.B.











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Consultants

Legend

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- ⊕ STORM SEWER MANHOLE
- ⊖ POWER POLE
- ⊗ SANITARY SEWER MANHOLE
- ⊙ WATER MANHOLE
- ⊕ FIRE HYDRANT
- ⊕ BENCH MARK
- G GAS LINE
- ST STORM SEWER
- OHP OVERHEAD POWER

UNDERLINED NOTES ARE PAY ITEMS.

AS-BUILT ("A.B.") DRAWING NOTES JRR By Appd. 01.10 MM.DD.YY

BID SET	05.08
OWNER REVIEW	03.08
QA/QC (95%)	02.08
ROAD COMMISSION SUBMITTAL (WCDS)	01.08
PERMITS (90% SET)	10.31.07
60% REVIEW	07.07.10
ISSUED	By Appd. MM.DD.YY

File Name: SMJ DMD PJM  
 Dwn. Chkd. Dsgn. MM.DD.YY

Permit-Seal

Client/Project  
 HURON-CLINTON METROPOLITAN AUTHORITY  
 FLATROCK DAM 2008 REPAIRS

FLATROCK, MICHIGAN

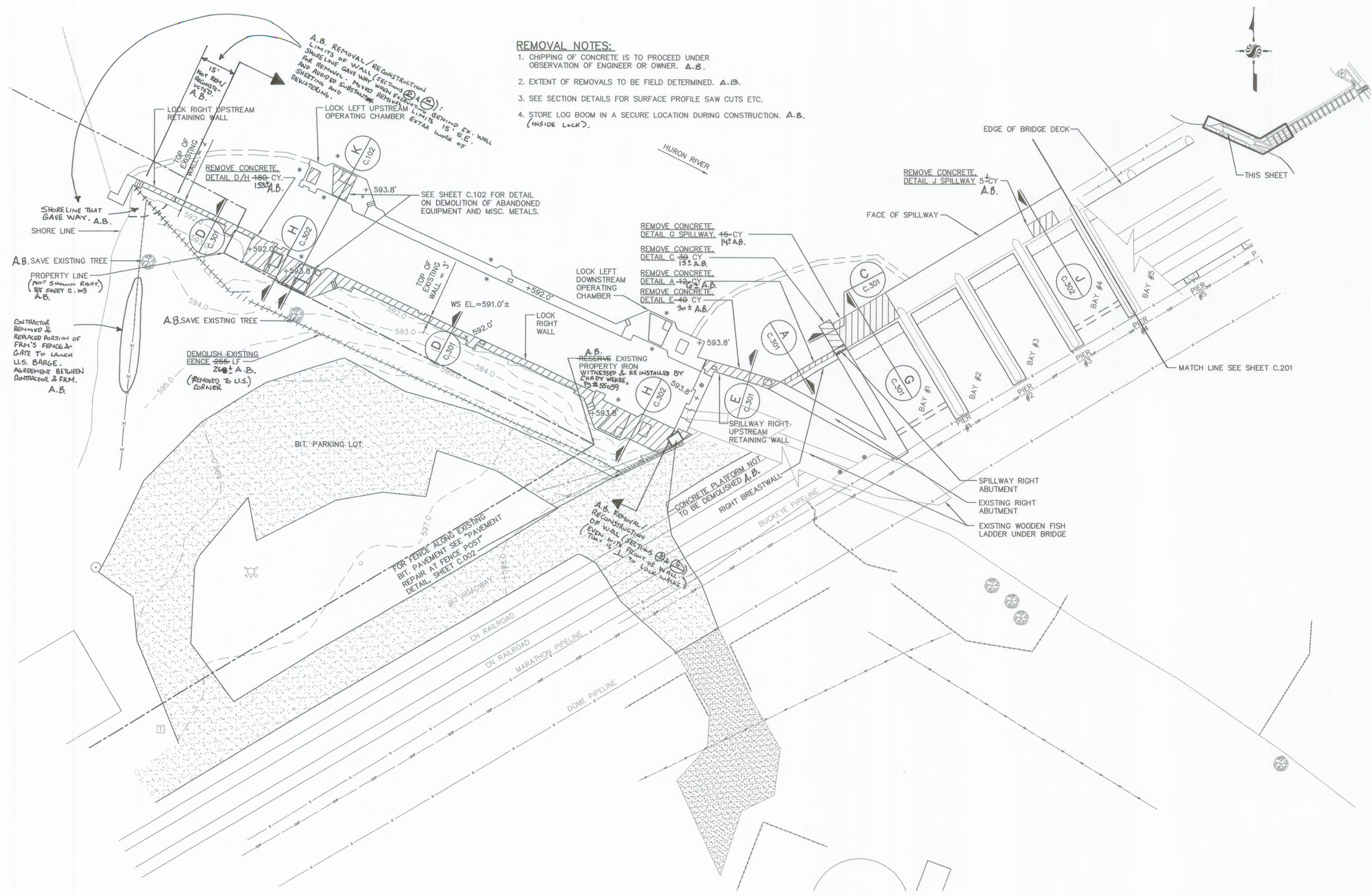
Title  
 RIGHT SIDE, LOCK  
 DEMOLITION PLAN

Project No. 2075092501 Scale AS-NOTED  
 Drawing No. Sheet of Revision

C.101 of

**REMOVAL NOTES:**

1. CHIPPING OF CONCRETE IS TO PROCEED UNDER OBSERVATION OF ENGINEER OR OWNER. A.B.
2. EXTENT OF REMOVALS TO BE FIELD DETERMINED. A.B.
3. SEE SECTION DETAILS FOR SURFACE PROFILE SAW CUTS ETC.
4. STORE LOG BOOM IN A SECURE LOCATION DURING CONSTRUCTION. A.B. (INSIDE LOCK).



**LOCK SITE PLAN**

SCALE: 1" = 20'-0"

\* INSPECT FOR UNDERWATER OPENINGS. A.B. - SEE DIVER REPORTS (2 EACH)  
 08.25.08 & 12.04.08/10.22.08

SHOWS EQUIPMENT AND CONCRETE TO BE REMOVED.





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Consultants

Legend

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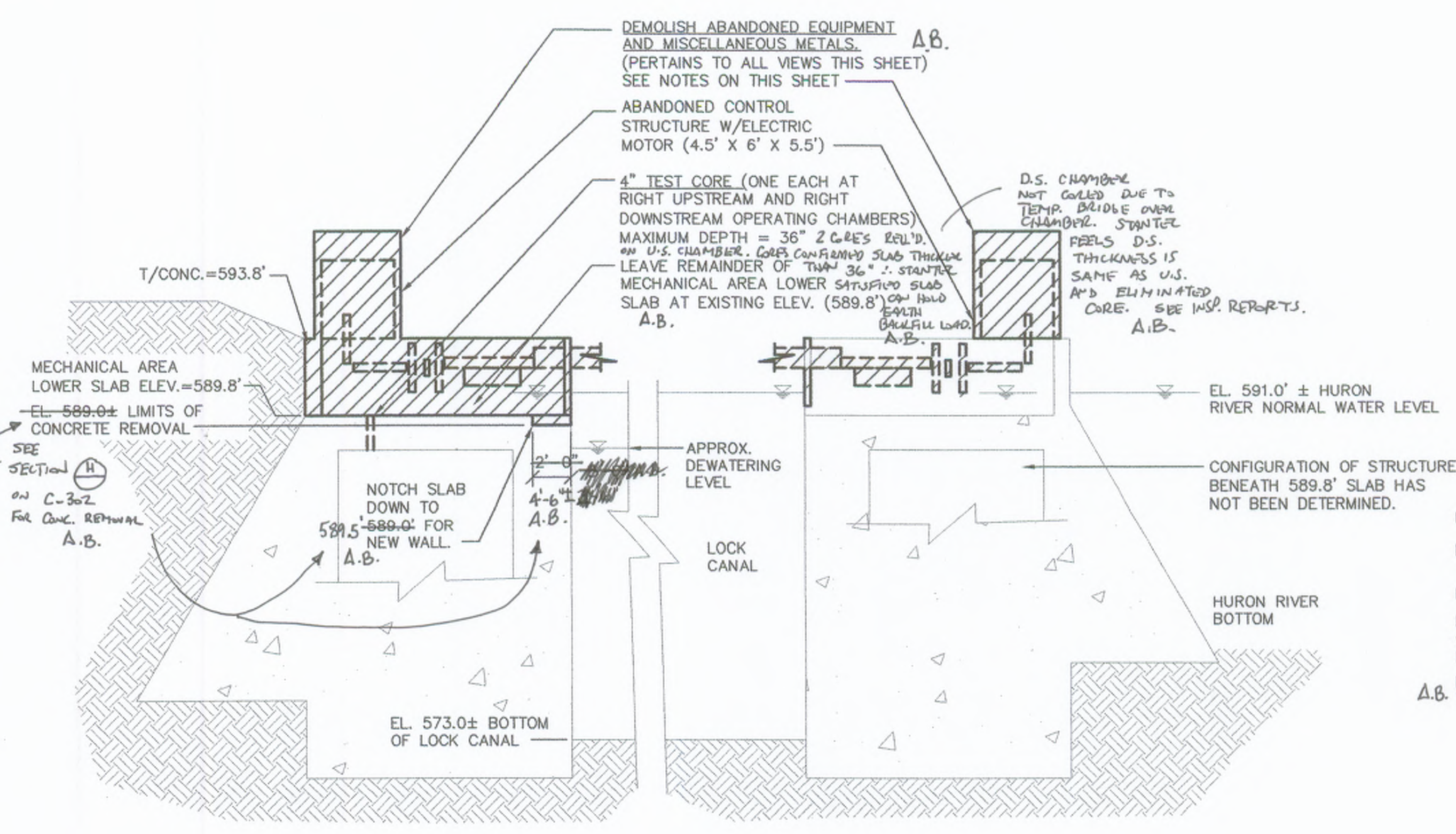
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	Dwn.	Chkd.	Dgn.
Permit-Seal			MM.DD.YY

Client/Project  
**HURON-CLINTON METROPOLITAN AUTHORITY  
 FLATROCK DAM 2008 REPAIRS**

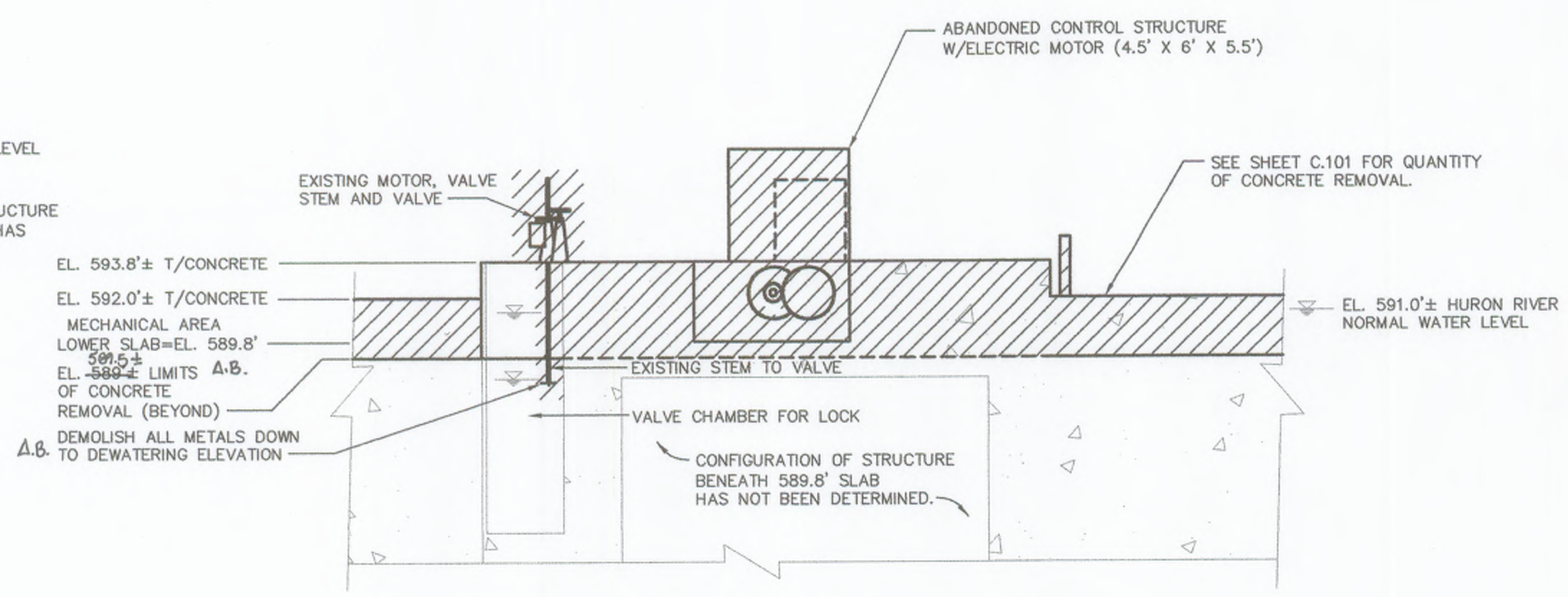
FLATROCK, MICHIGAN

Title  
**RIGHT SIDE, LOCK  
 DEMOLITION DETAILS**

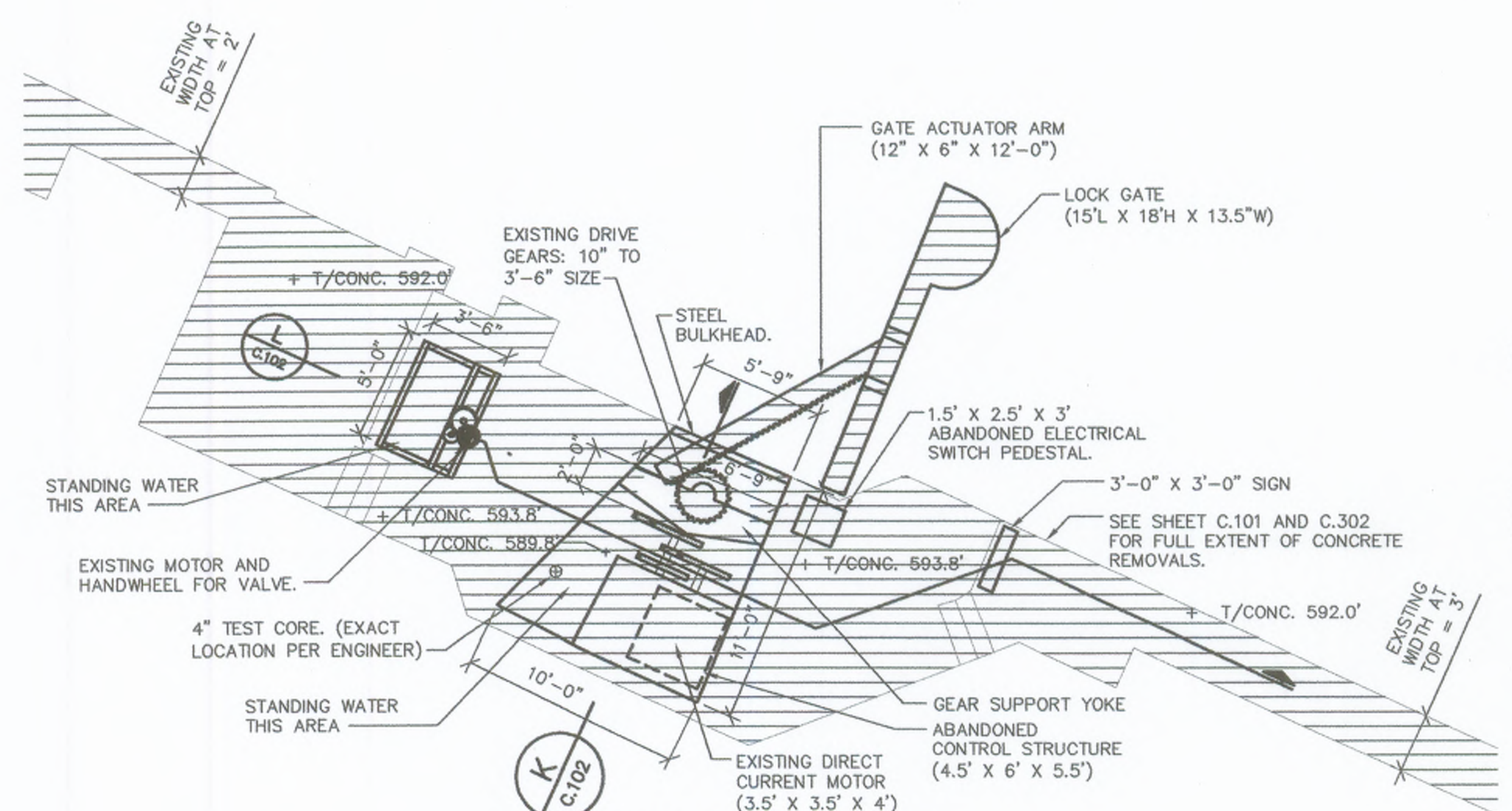
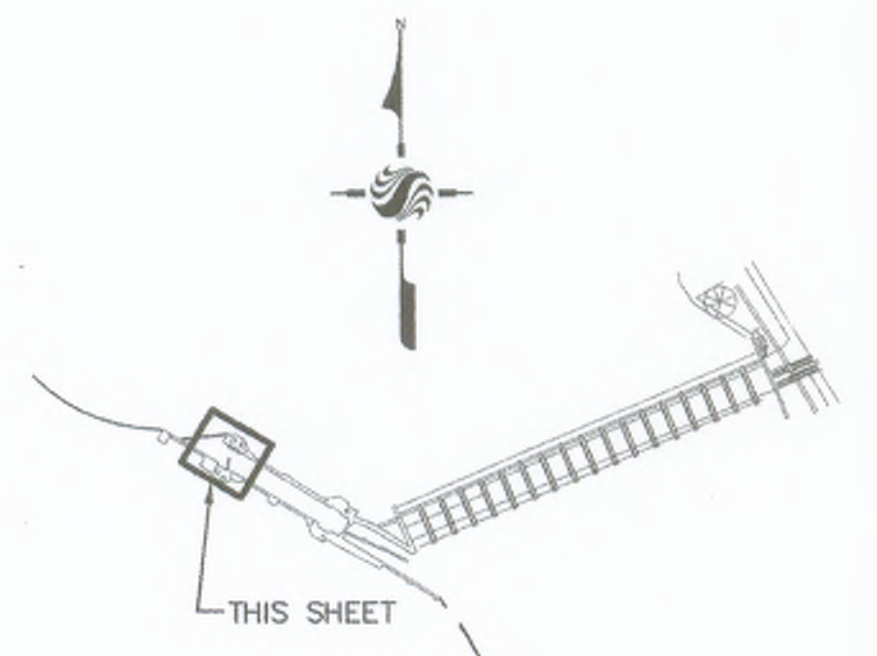
Project No. 2075092501	Scale AS-NOTED
Drawing No.	Sheet
	Revision



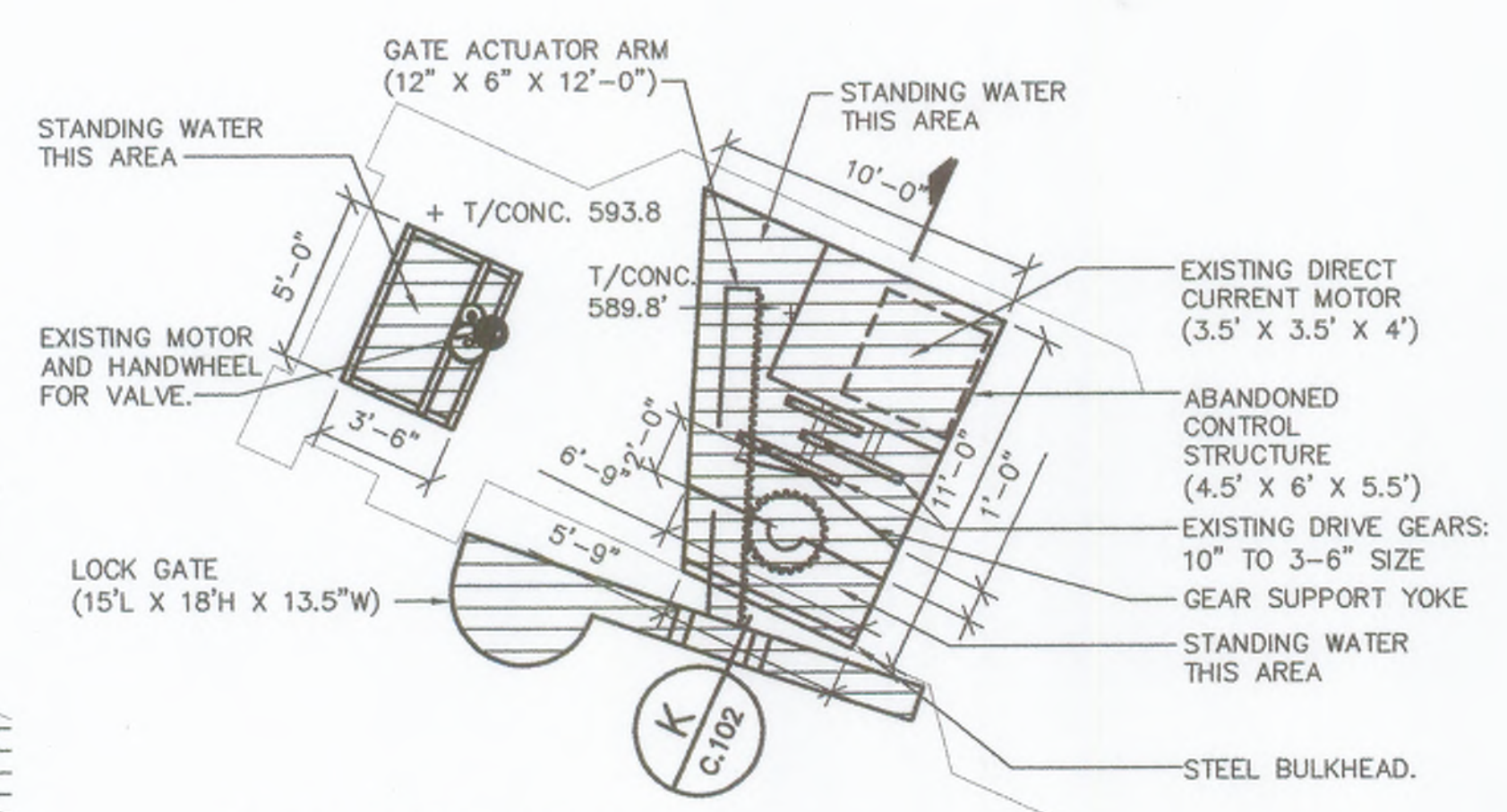
**UPSTREAM OPERATING CHAMBER, DEMOLITION**  
 SCALE: 3/16" = 1'-0"  
 K C.102



**LOCK RIGHT UPSTREAM OPERATING CHAMBER (SECTION), DEMOLITION**  
 SCALE: 3/16" = 1'-0"  
 L C.102



**LOCK RIGHT UPSTREAM OPERATING CHAMBER, DEMOLITION**  
 SCALE: 3/16" = 1'-0"  
 K C.102



**LOCK LEFT UPSTREAM OPERATING CHAMBER DEMOLITION**  
 SCALE: 3/16" = 1'-0"  
 K C.102

- DEMOLISH ABANDONED EQUIPMENT AND MISC. METALS:**
- NOTES:
- DEMOLISH AND REMOVE ALL EQUIPMENT AND MISC. METALS IN THE AREAS SHOWN. THIS SHEET DEPICTS MOST OF THE SIGNIFICANT MECHANICAL EQUIPMENT THAT EXISTS AT THE LOCK CONTROL STRUCTURES. THE INTENT IS THAT ALL ABANDONED EQUIPMENT IN THE REMOVAL AREAS OF THE CONTROL STRUCTURES BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. DIMENSIONS ARE SHOWN ONLY FOR THE PURPOSE OF CONVEYING THE APPROXIMATE SIZE OF THE REMOVALS.
  - IN BOTH STRUCTURES, REMOVALS SHALL INCLUDE ALL VISIBLE EQUIPMENT, GATE ACTUATOR ARMS, MOTORS, GEARS, DRIVE SHAFTS, LADDER RUNGS, SUPPORT STEEL, STEEL STRUCTURES AND APPURTENANCES FROM THE DEWATERING ELEVATION AND UP. Δ.B. THE LOCK GATES ON BOTH THE LEFT AND RIGHT SIDES SHALL BE REMOVED IN THEIR ENTIRETY (TO FULL DEPTH). Δ.B.
  - SUPPORT POINTS AND ANCHORAGES INCLUDING GATE PIVOTS AND OTHER METAL APPURTENANCES (INCLUDING THOSE BELOW WATER) REMAINING IN THE EXISTING CONCRETE SHALL BE CUT FLUSH SO AS TO AVOID SHARP OR JAGGED EDGES, SNARE POINTS OR OTHER HAZARDS. Δ.B. (LADDERS IN WELLS COULD BE CUT FLUSH-WARNING) Δ.B.
  - HAZ-MAT DELINEATION HAS BEEN PERFORMED ON THIS EQUIPMENT. THE FOLLOWING SPECIFIC HAZARDS HAVE BEEN IDENTIFIED (SEE APPENDIX IN THE SPECIFICATIONS (FUTURE NET REPORT)):
    - LOCK RIGHT UPSTREAM CONTROL STRUCTURE
      - 20 PLUG CONNECTORS-25% CHRYSOTILE ASBESTOS.
    - LOCK LEFT UPSTREAM CONTROL STRUCTURE
      - 10 BRAKE PADS-20% CHRYSOTILE ASBESTOS.
      - 10 CABLE CONNECTORS-25% CHRYSOTILE ASBESTOS.
      - 1000 SF.-22% BY WT. LEAD BASED PAINT.
- ALL PAINTED SURFACES SHOULD BE PRESUMED TO CONTAIN LEAD. ALL PLUG CONNECTORS, CABLE CONNECTORS AND BRAKE PADS SHOULD BE PRESUMED TO CONTAIN ASBESTOS.

CONCRETE AND EQUIPMENT REMOVAL Δ.B.

*GENERAL CONTRACTOR DEMO'D. EQUIPMENT PRIOR TO ASBESTOS ABATEMENT WHILE JOB'S WORK WASN'T PRESENT, (AS SPEC'D.).*  
*Δ.B. BLAUGHT W/ ABATEMENT CONTRACTOR AFTER BEING CHECKED FOR CLEAN-UP.*  
*- NEVER RECEIVED ABATEMENT RESULTS FROM G.L. DESPITE MANY ATTEMPTS. Δ.B.*









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Revision	By	Appd.
BID SET		05.08
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QA/QC (95%)		02.08
ROAD COMMISSION SUBMITTAL (WCOP5)		01.08
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	Dwn.	Chid.
Permit-Seal		MM.DD.YY

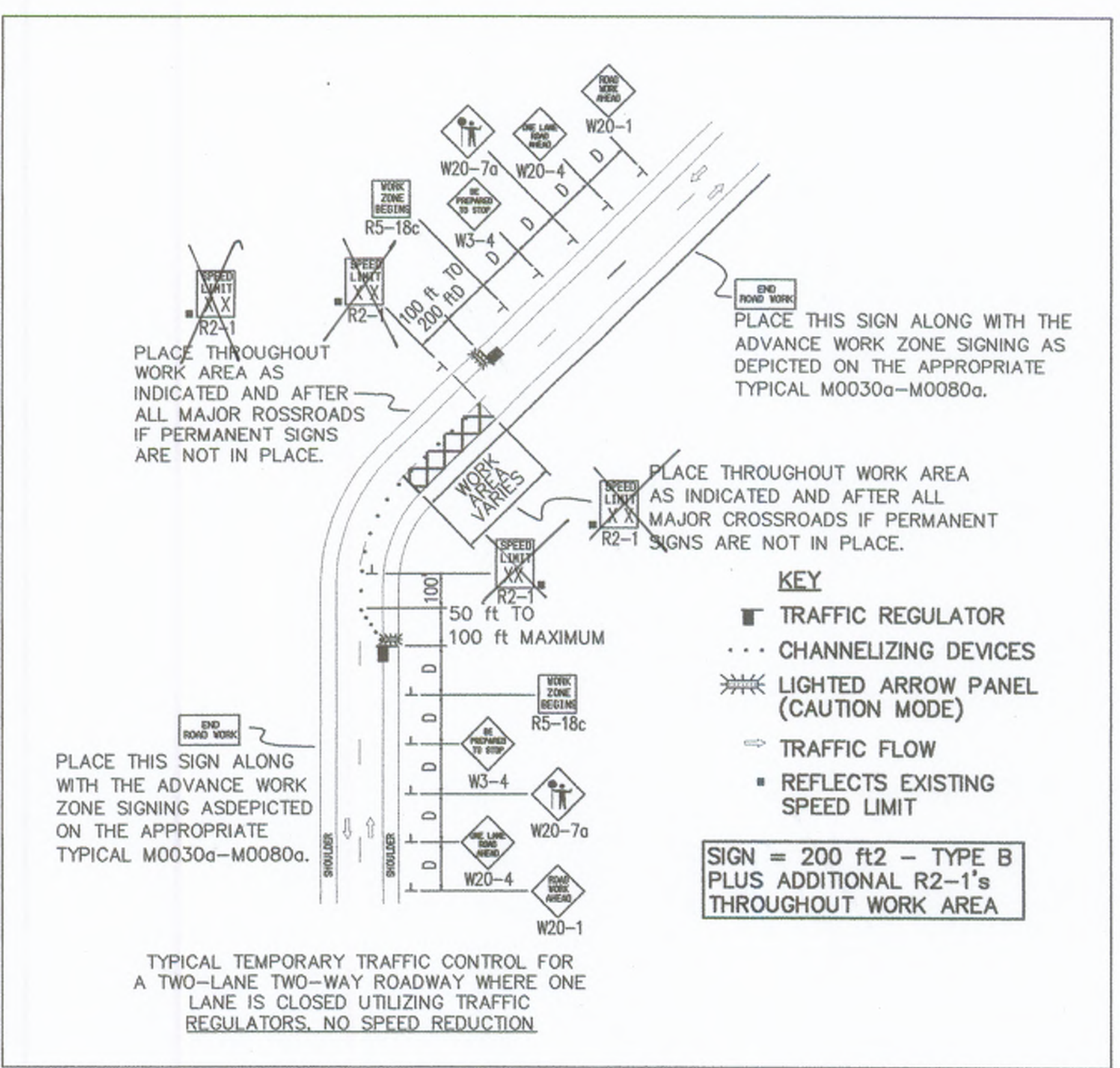
Client/Project  
 HURON-CLINTON METROPOLITAN AUTHORITY  
 FLATROCK DAM 2008 REPAIRS

Client/Project  
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 FLATROCK DAM 2008 REPAIRS

Client/Project  
 FLATROCK, MICHIGAN

Title  
**LEFT SIDE  
 DEMOLITION PLAN**

Project No. 2075092501  
 Scale AS NOTED  
 Drawing No. Sheet of  
 Revision

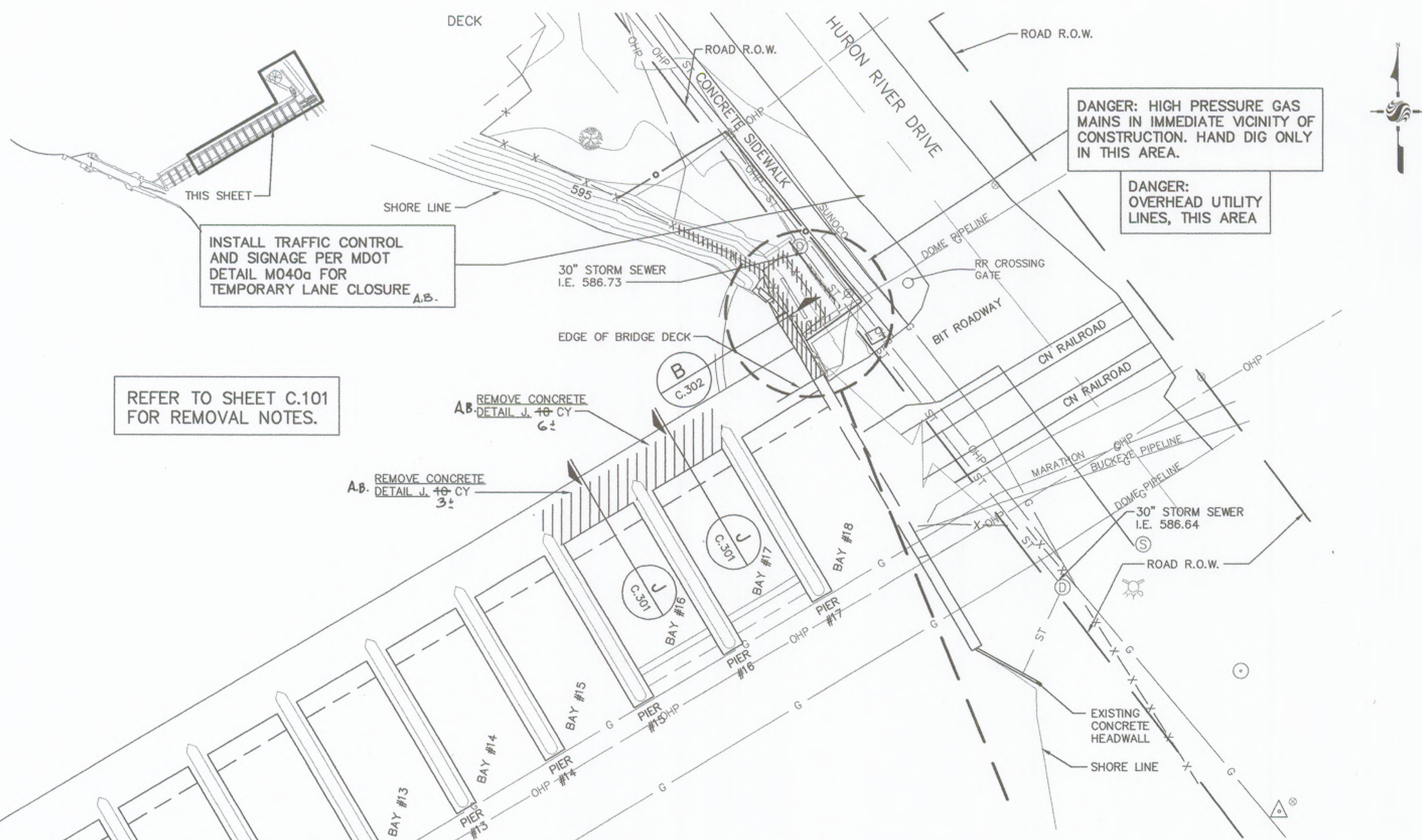


**MDOT DETAIL M040a FOR  
 TEMPORARY LANE CLOSURE**

SCALE: NONE

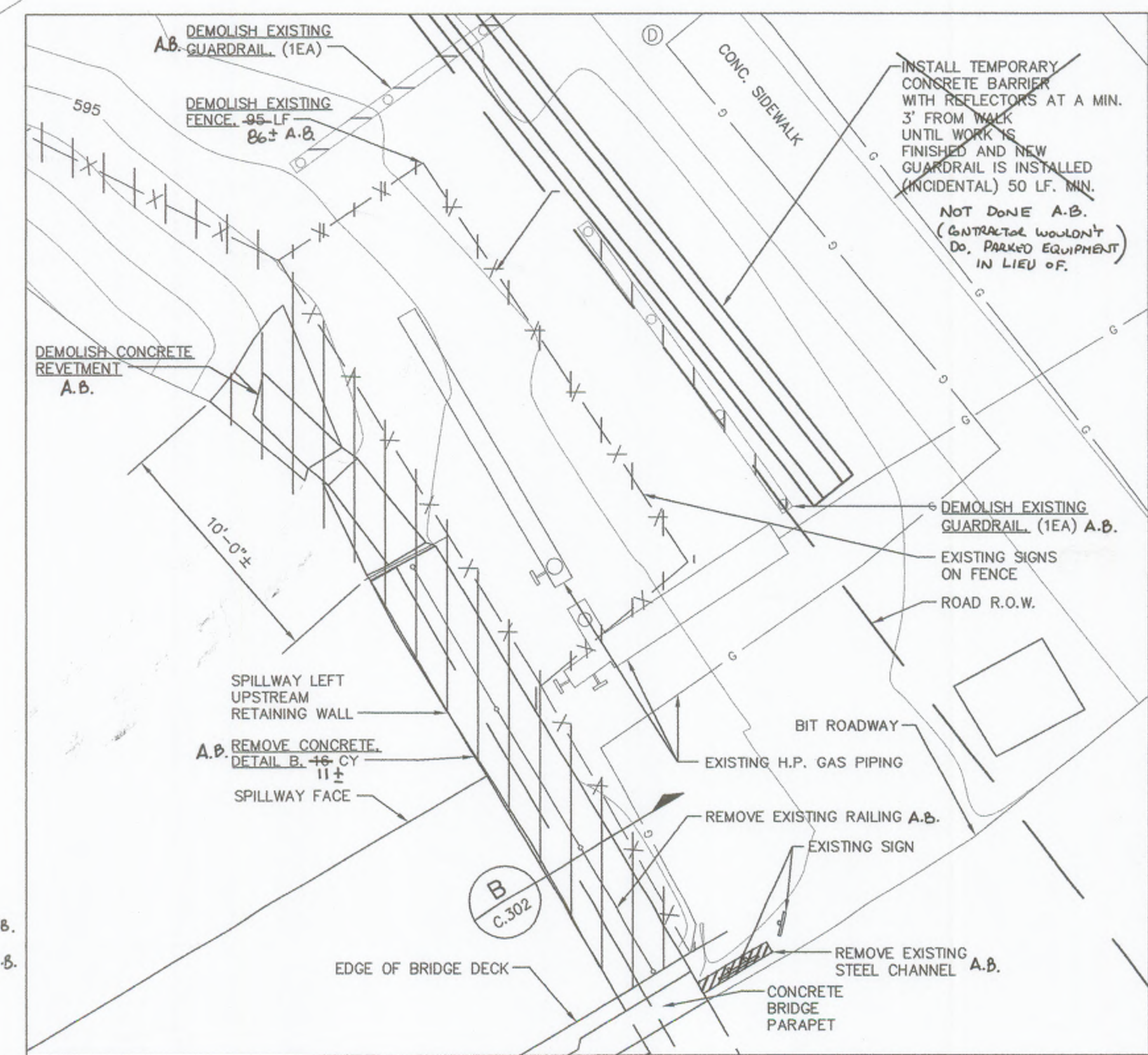
CONTRACTOR PROVIDES SIGNS AND FLAGMEN AS NEEDED AS THEY TOOK EQUIPMENT INTO TRAFFIC.

A.B.



**LEFT SIDE PLAN**

SCALE: 1"=20'-0"



**DETAIL**

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

**NOTES:**

- EXISTING ABOVE-GRADE AND BELOW GRADE HIGH PRESSURE GAS LINES MUST BE PROTECTED DURING ALL PHASES OF CONSTRUCTION.
- THE CONTRACTOR SHALL COORDINATE WITH THE OWNERS OF GAS UTILITIES IN THIS AREA, BASED ON MISS DIG INFO, FIELD MARKINGS AND CONTACTS FROM COVER SHEET. IN PARTICULAR, CONTACT THE OWNERS OF UTILITIES THAT ARE WITHIN THE FENCE ENCLOSURE (KINDERMORGAN AND SUNOCO) FOR TEMPORARY RELOCATION OF VALVE HANDWHEELS OR OTHER EQUIPMENT THAT MAYBE SUSCEPTIBLE TO DAMAGE.





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Permit-Seal	Drn.	Chkd.	Dsgn.

Client/Project  
**HURON-CLINTON METROPOLITAN AUTHORITY  
 FLATROCK DAM 2008 REPAIRS**

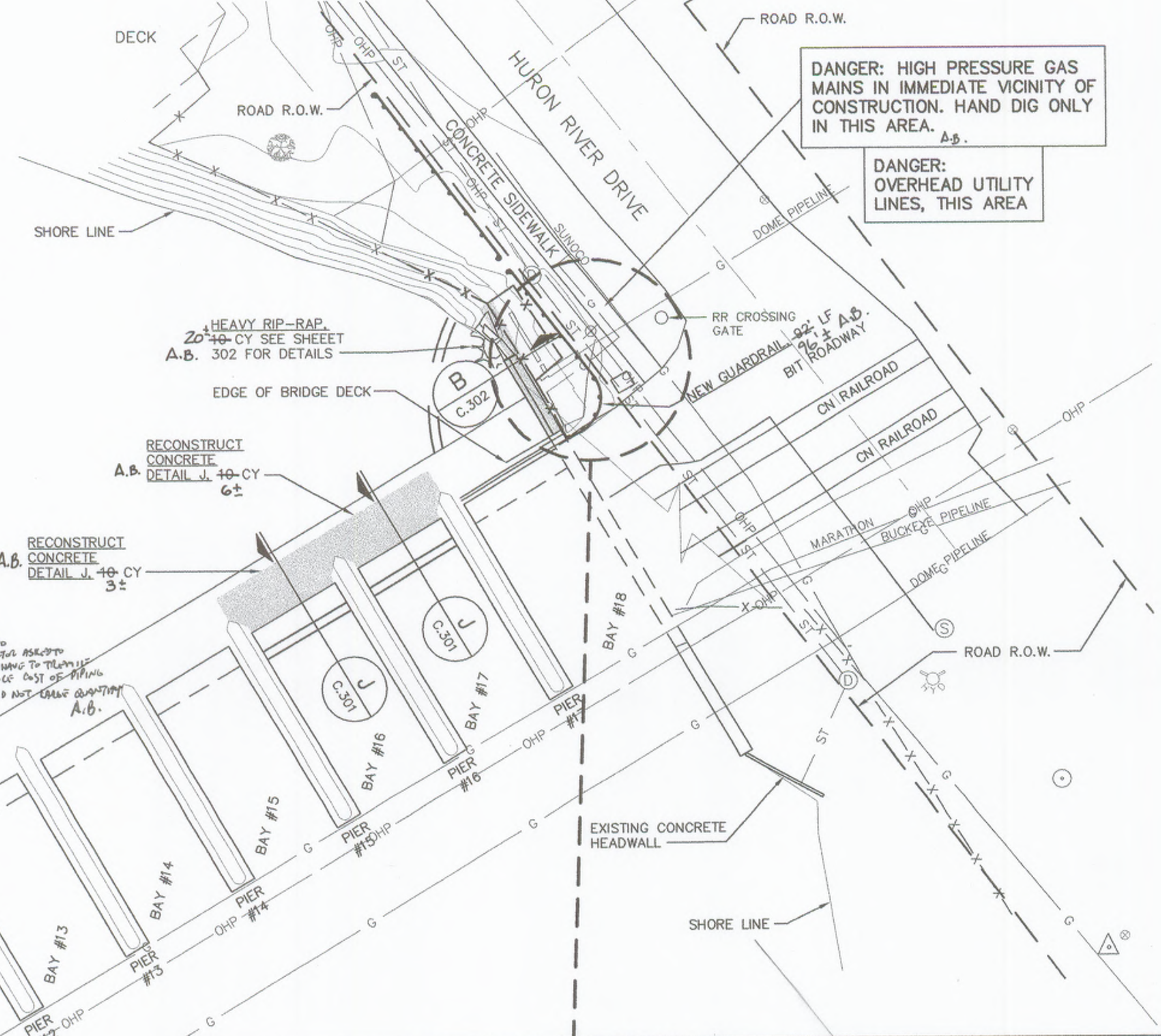
FLATROCK, MICHIGAN

Title  
**LEFT SIDE  
 RECONSTRUCTION PLAN**

Project No.	Scale
2075092501	AS NOTED
Drawing No.	Sheet
C.202	of

**DANGER: HIGH PRESSURE GAS MAINS IN IMMEDIATE VICINITY OF CONSTRUCTION. HAND DIG ONLY IN THIS AREA.** A.B.

**DANGER: OVERHEAD UTILITY LINES, THIS AREA**

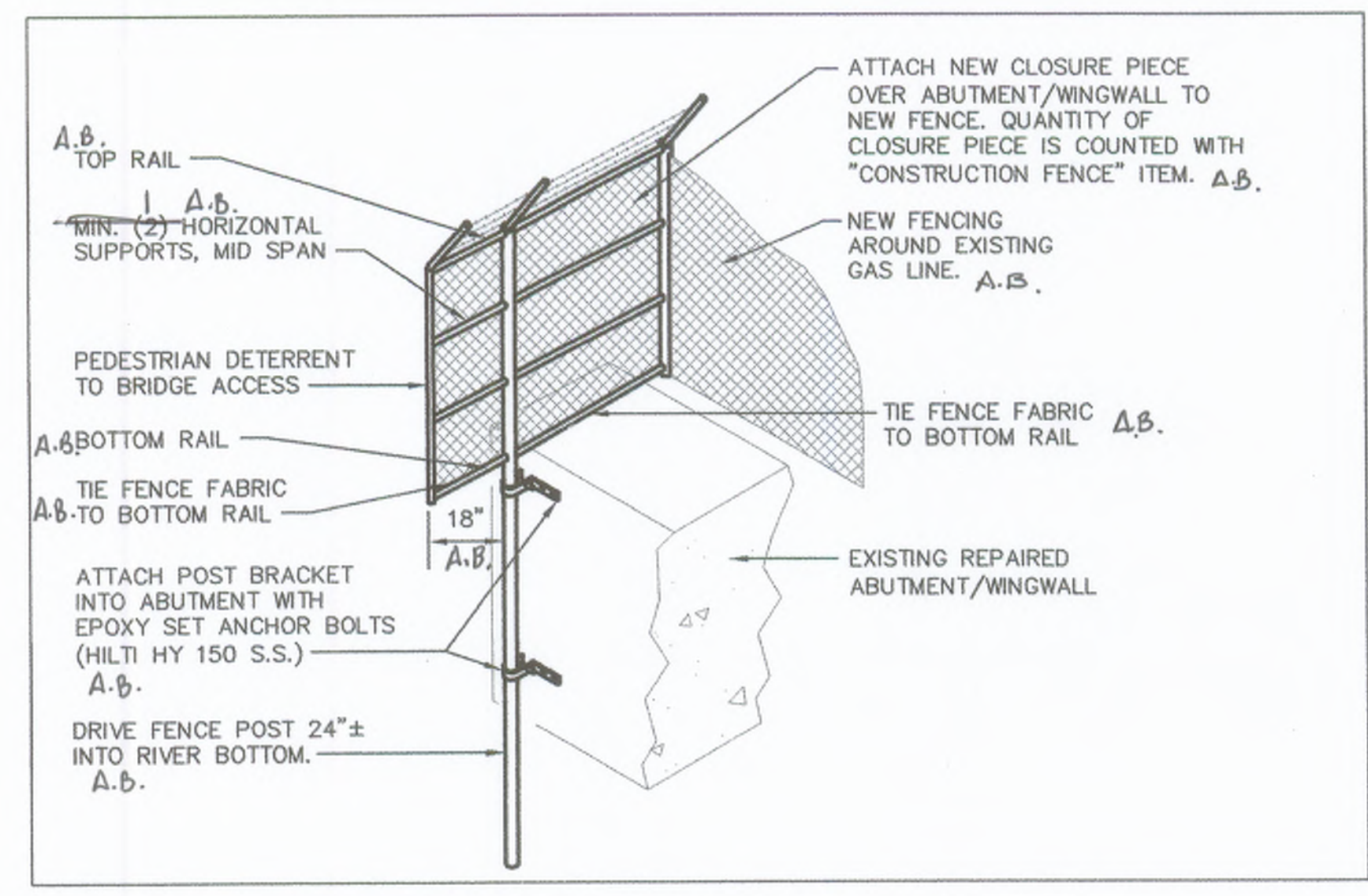


TREMIE CONCRETE

BAY	APPROX. QTY. (CY)
#5	47 ± A.B.
#6	48 ± A.B.
#7	56 ± A.B.
#8	50 ± A.B.
#9	45 ± A.B.
#10	45 ± A.B.

SEE NOTE ON SHEET C-103.

SIDEWALKS SHALL BE PROTECTED BY CONTRACTOR. DAMAGED SIDEWALK SHALL BE REPLACED IN KIND BY THE FLAG PER MDOT STANDARD MIX DESIGN AND DETAILS (INCIDENTAL).



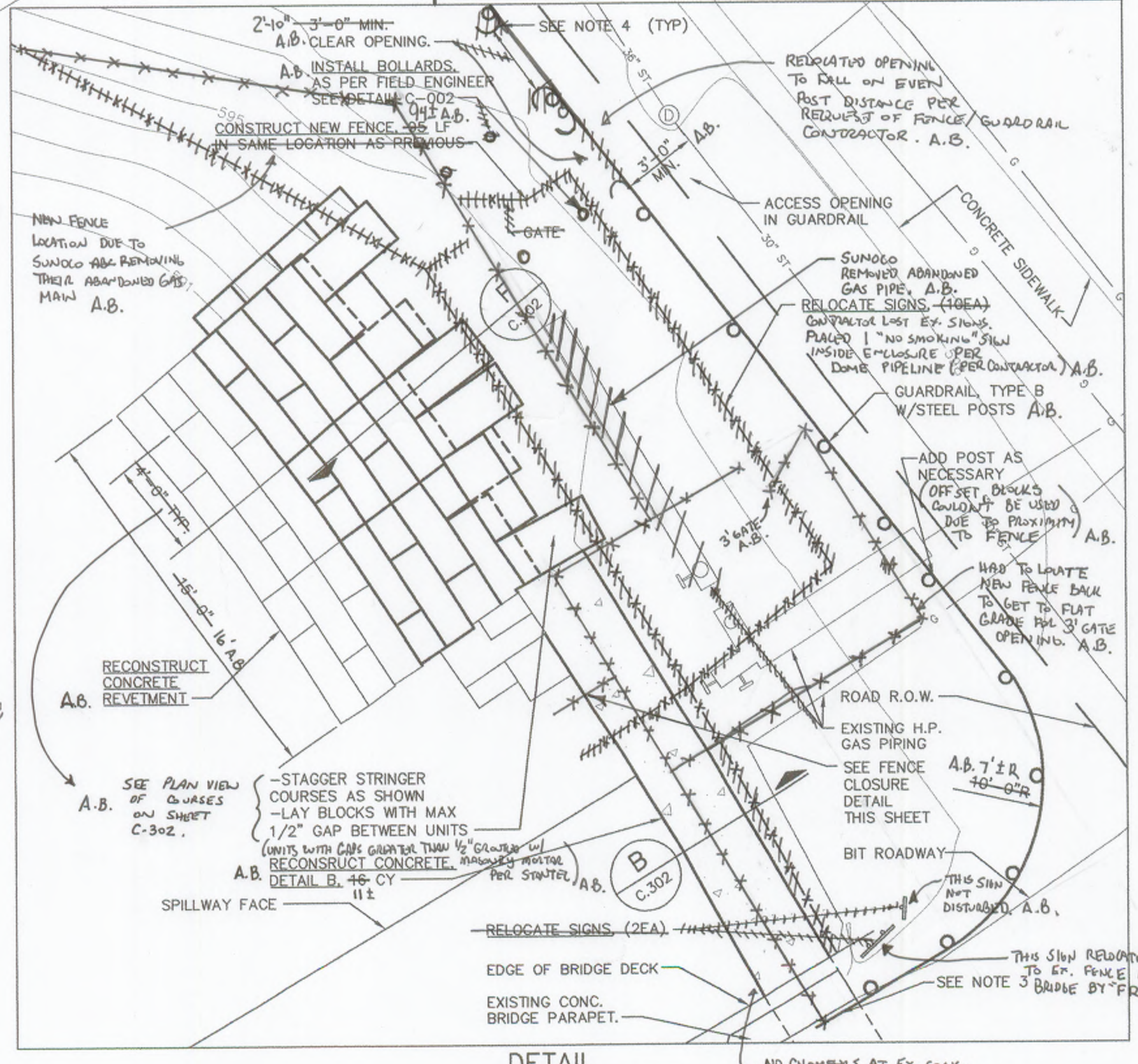
**FENCE CLOSURE DETAIL**  
 SCALE: NONE

PLACE TREMIE CONCRETE TYPICAL FOR BAYS #5, #6, #7, #8, #9 AND #10 (THIS SHEET). A.B. SEE SCHEDULE FOR APPROX. QUANTITY. SEE SCOUR HOLE DETAIL SHEET C.302.



**LEFT SIDE PLAN**  
 SCALE: 1"=20'-0"

- NOTES:
- ALL GUARDRAIL SHALL CONFORM TO MDOT TYPE B WITH STEEL POSTS. SEE MDOT DETAIL R-60-F. EXCEPT WHERE OFFSET BLOCKING WAS IN CONFLICT WITH FENCING. A.B.
  - PROVIDE 10'-RADIUS GUARDRAIL SECTION AT STREET CORNER.
  - USE SPECIAL END SHOE TERMINAL CONNECTOR AT BRIDGE PARAPET, INSTALLED PER MDOT DETAIL R-67-E. CONNECTOR NOT THROUGH-BOLTED DUE TO GAS MAIN, BUT ANCHORED. A.B.
  - PROVIDE TERMINAL END SHOE, TYPE B PER MDOT DETAIL R-66-E ON OTHER THREE GUARDRAIL ENDS. A.B.



**DETAIL**  
 SCALE: 1/4"=1'-0"



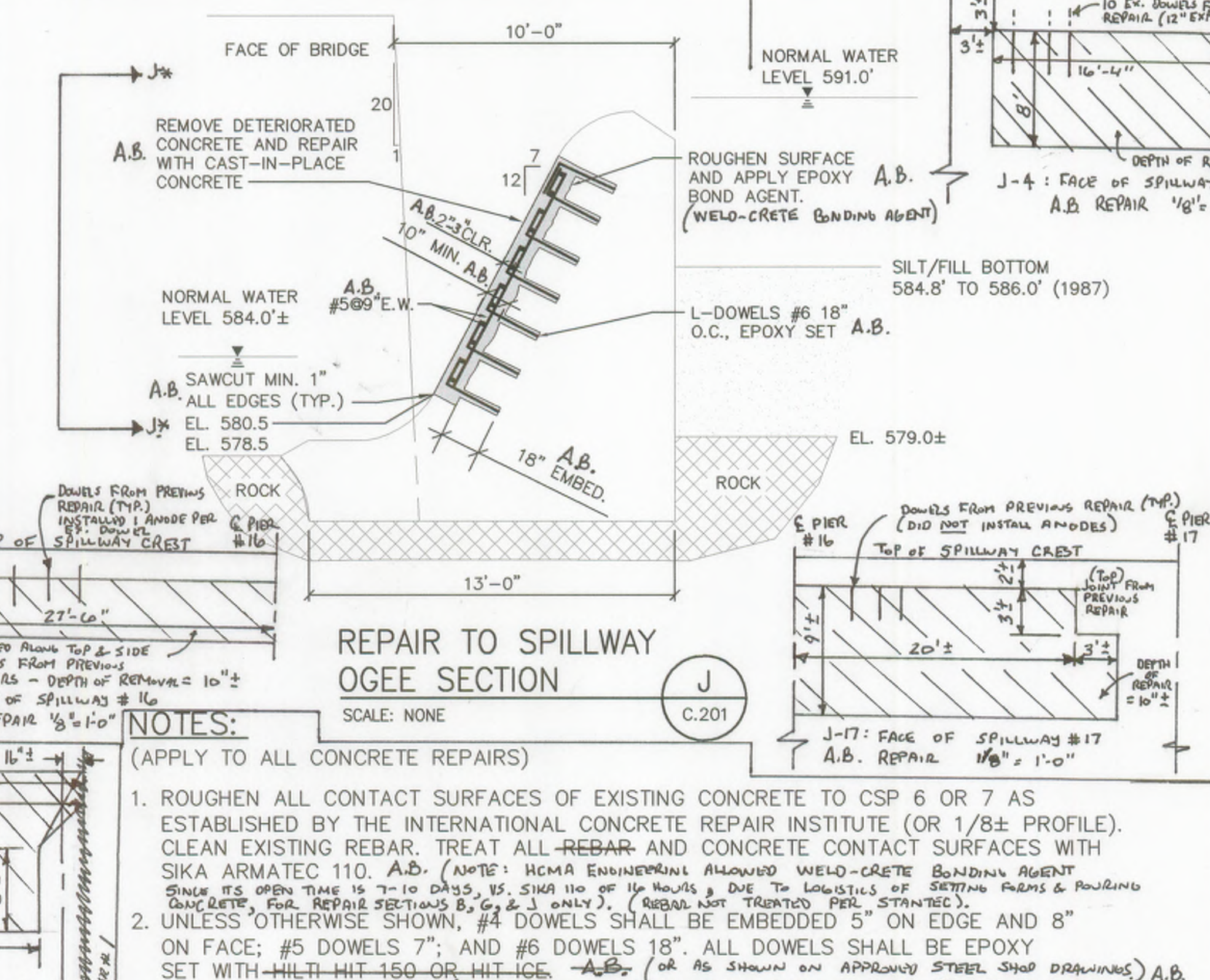
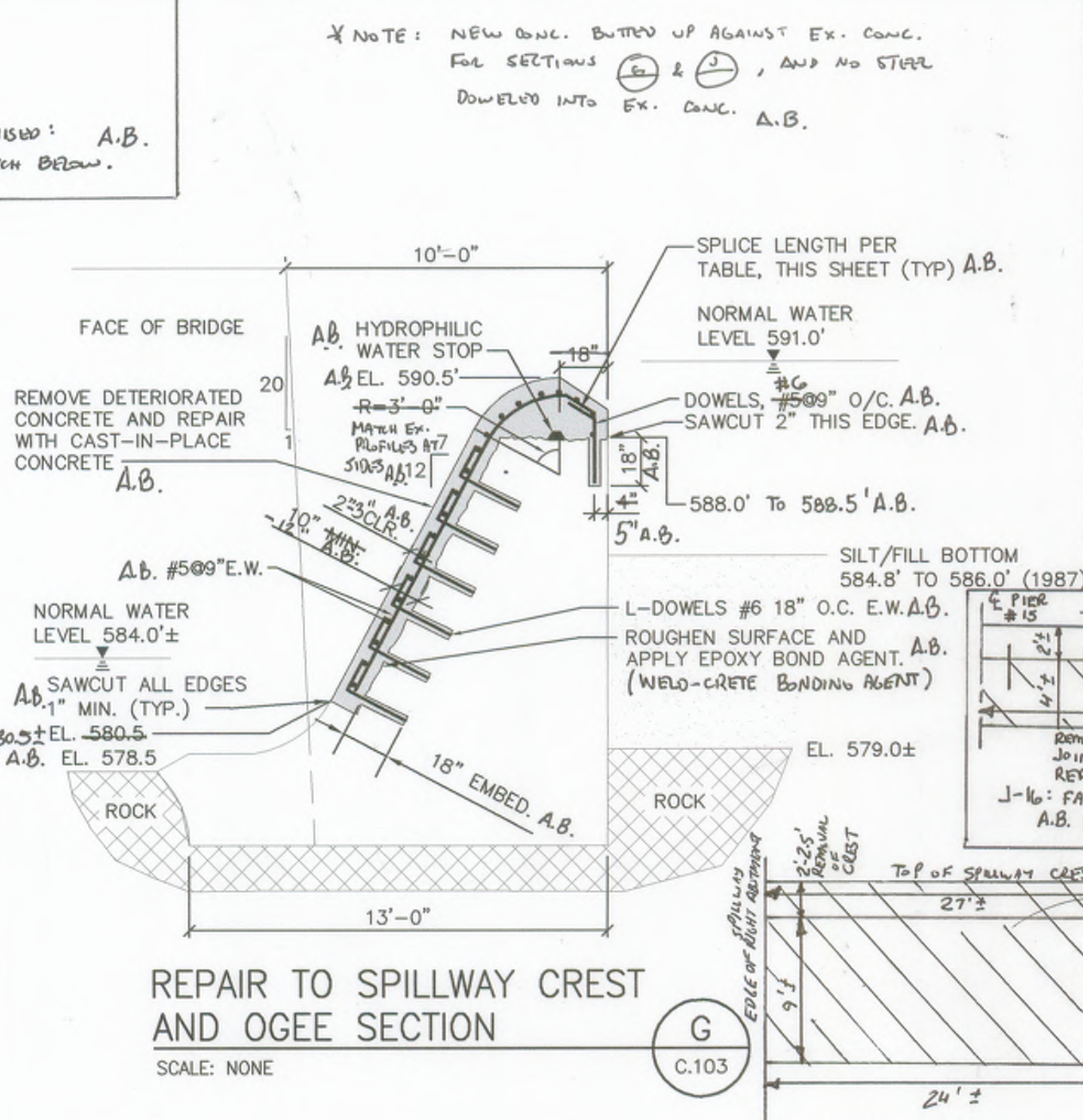
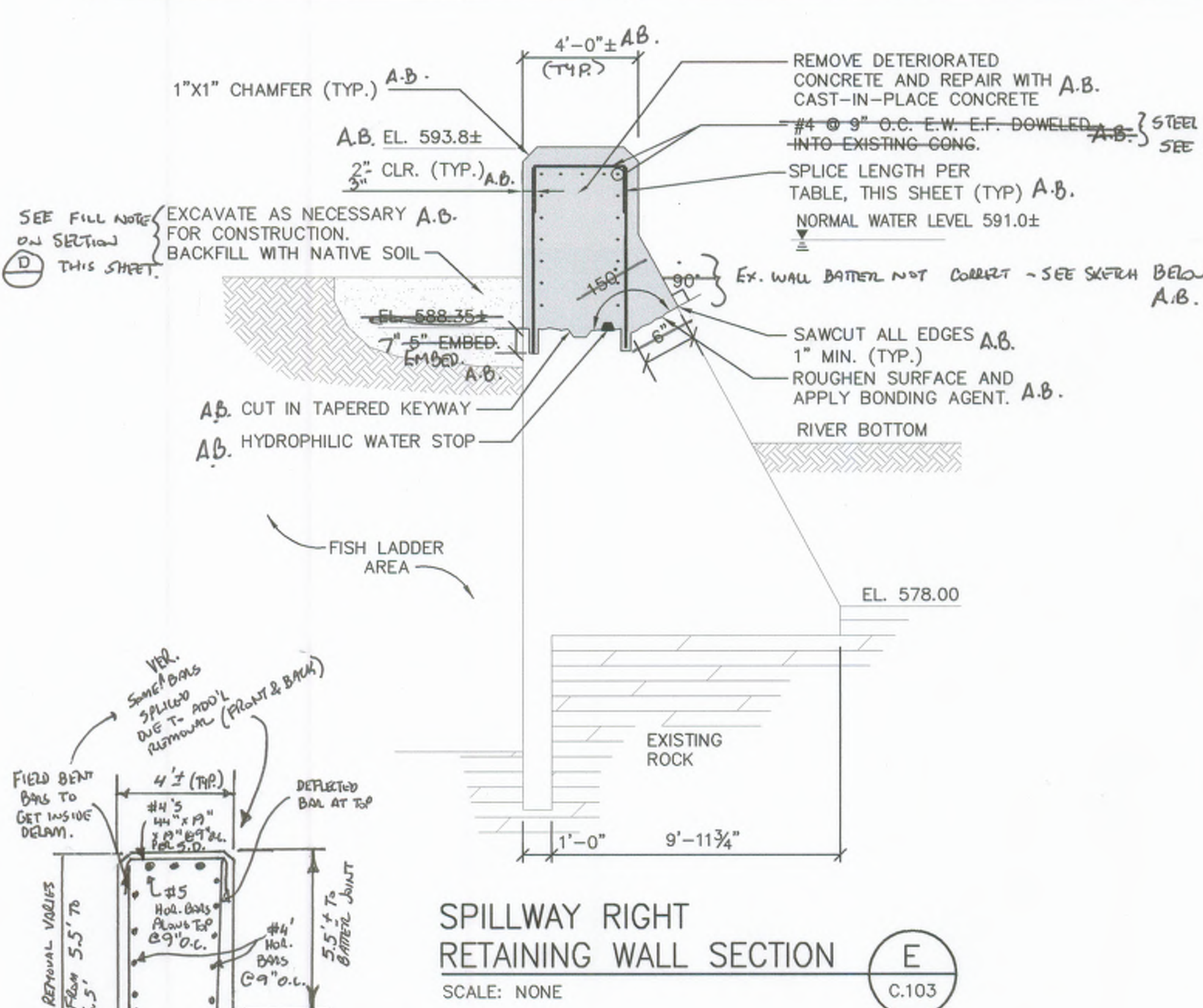
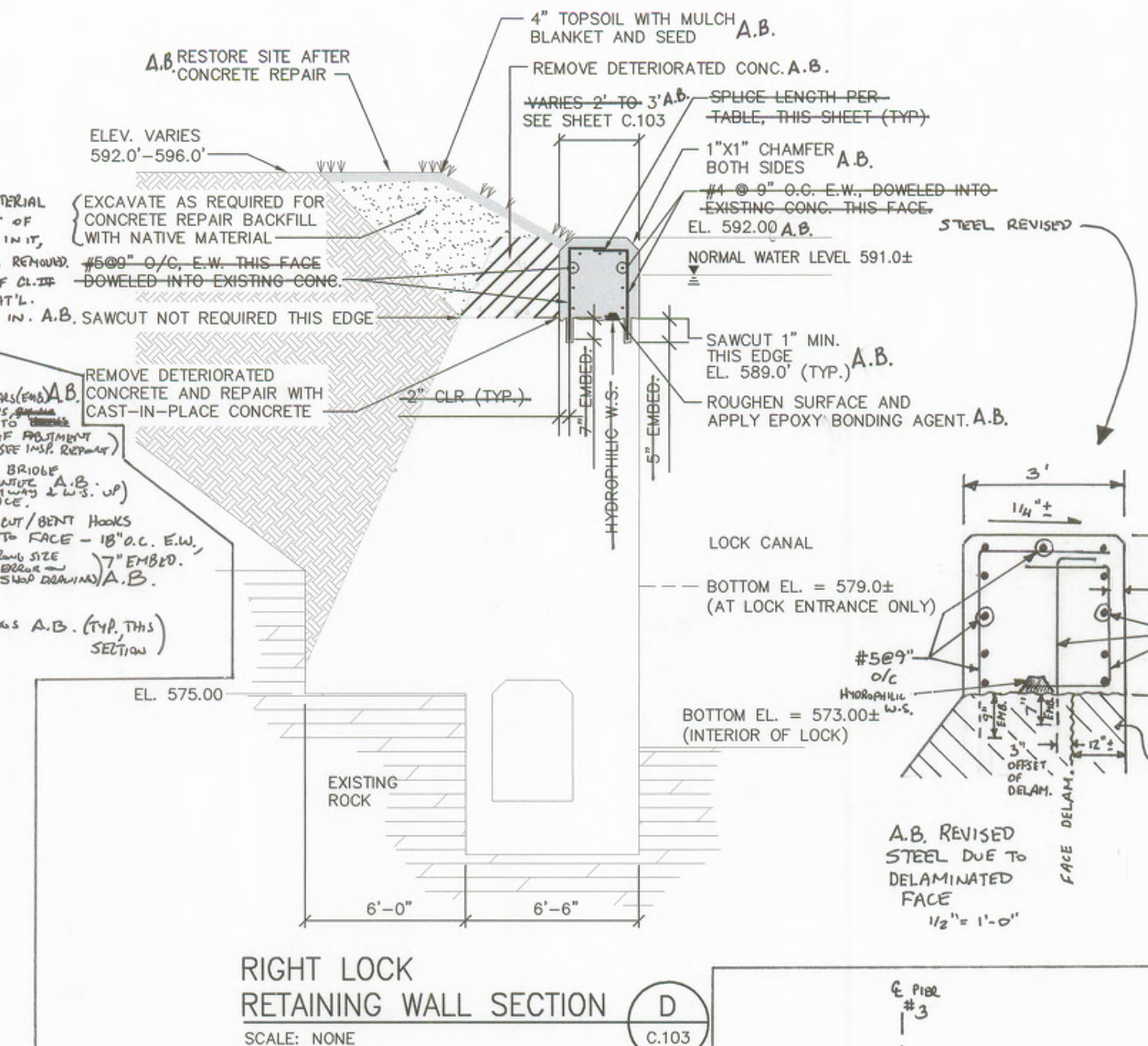
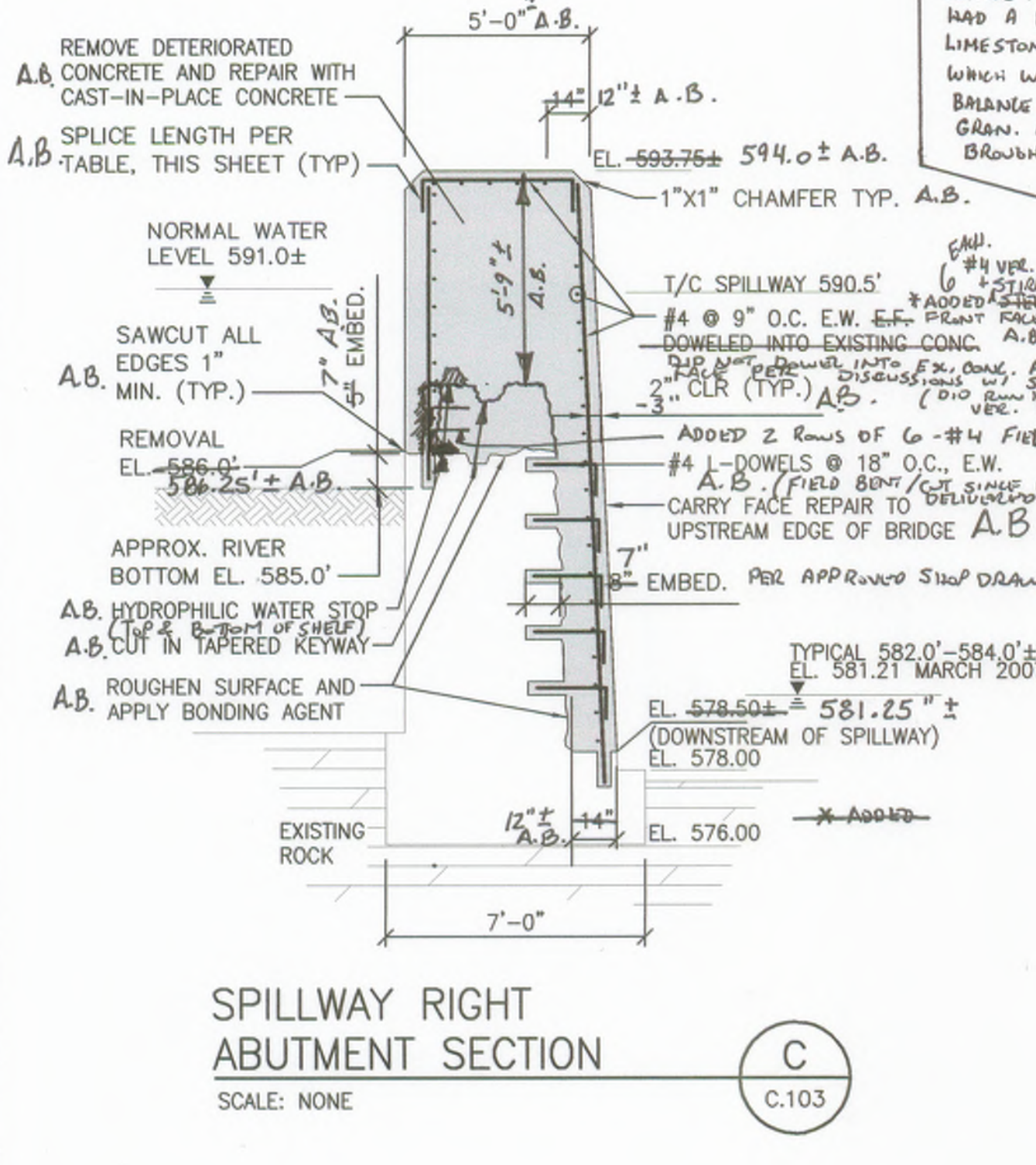
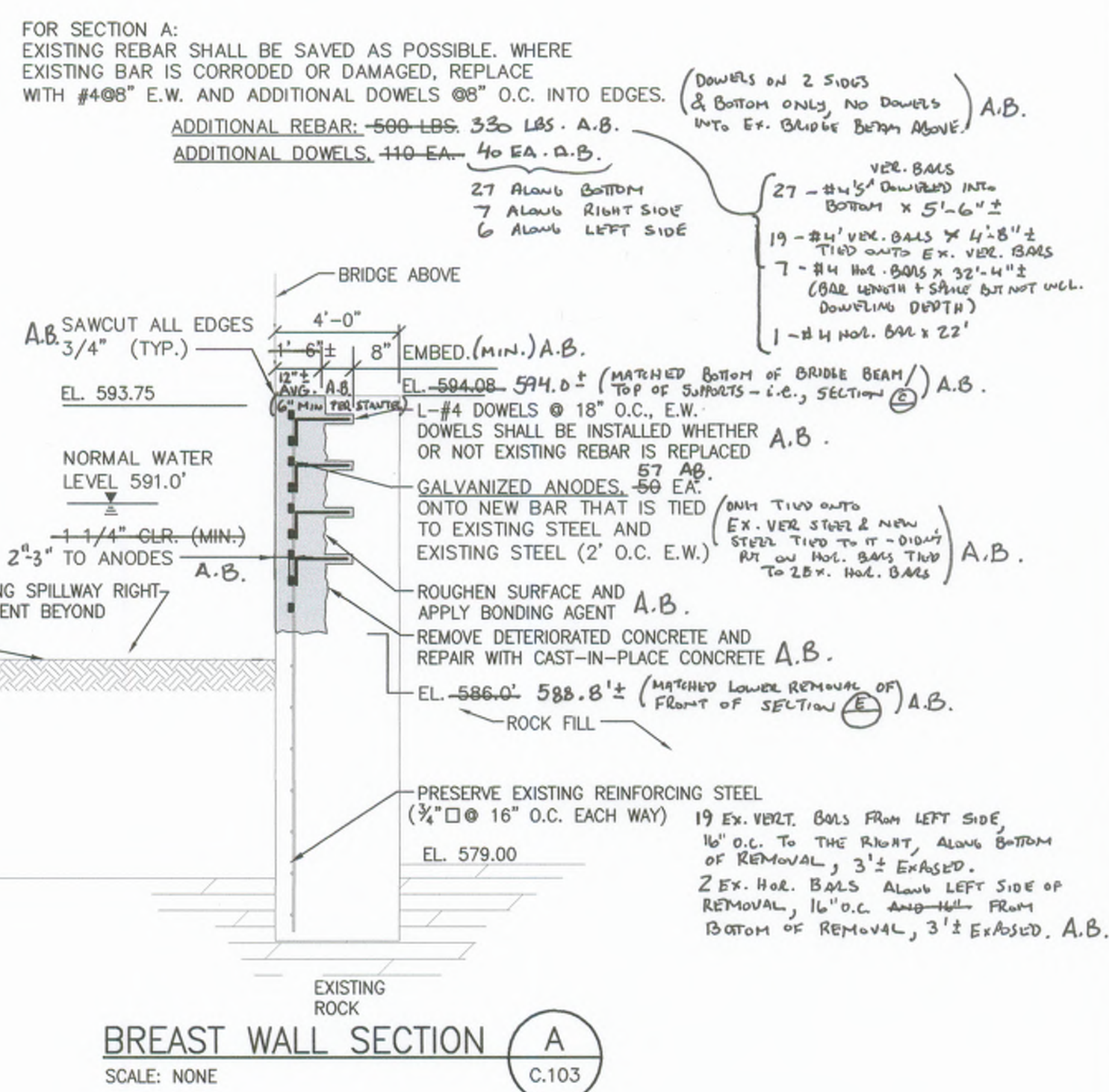
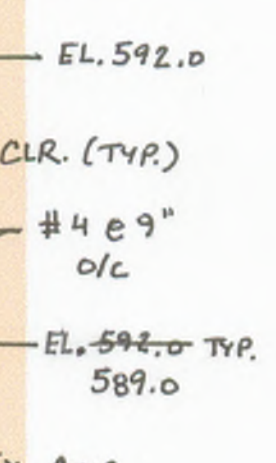


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Consultants

Legend



**REBAR NOTES (APPLY TO ALL SECTIONS AND DETAILS)**

- L-DOWELS SHALL HAVE STANDARD LENGTH HOOKS. STRAIGHT DOWELS SHALL HAVE MIN. SPICE LENGTH TO STEEL. A.B.
- ALL BAS INCLUDING HOOKS ARE TO BE TIED TIGHT TO RUNNING BARS, PER ACI. SEPARATIONS ARE SHOWN FOR CLARITY ONLY. A.B.

**MINIMUM SPICE LENGTHS FOR ALL REBAR**

#4	19"
#5	24"
#6	30"

A.B.

- NOTES:**  
 (APPLY TO ALL CONCRETE REPAIRS)
- ROUGHEN ALL CONTACT SURFACES OF EXISTING CONCRETE TO CSP 6 OR 7 AS ESTABLISHED BY THE INTERNATIONAL CONCRETE REPAIR INSTITUTE (OR 1/8" PROFILE). CLEAN EXISTING REBAR. TREAT ALL REBAR AND CONCRETE CONTACT SURFACES WITH SIKKA ARMATEC 110. A.B. (NOTE: HEMA ENHANCED WELDED WIRE MESH REPAIRS ARE NOT TO BE USED FOR REPAIR SECTIONS B, C, & J ONLY). (REBAR NOT TREATED PER STANTEC).
  - UNLESS OTHERWISE SHOWN, #4 DOWELS SHALL BE EMBEDDED 5" ON EDGE AND 8" ON FACE; #5 DOWELS 7"; AND #6 DOWELS 18". ALL DOWELS SHALL BE EPOXY SET WITH HILTI HIT 150 OR HIT ICE. A.B. (OR AS SHOWN ON APPROVED STEEL SHOP DRAWINGS) A.B. HILTI HIT RE 500 (EXCEPT A FEW LOCATIONS WHERE A BAR WAS ADDED PRIOR TO ABE, THEN) HIT 150 WAS USED FOR QUICKER CURE TIME.
  - UNLESS OTHERWISE SHOWN, ALL EXPOSED EDGES SHALL BE CHAMFERED. A.B.
  - SAWCUT EXISTING CONCRETE AT ALL CONTACT EDGES, UNLESS OTHERWISE SHOWN. A.B.
  - WIRE MESH REINFORCING MAY BE PRESENT IN EXISTING CONCRETE - NOT NOTED IN INDIVIDUAL DETAILS. WIRE MESH REINFORCING IS NOT TO BE REPLACED.
  - UNLESS OTHERWISE NOTED, ALL REBAR AND DOWELING SHOWN ARE INCLUDED WITH THE RESPECTIVE REPAIR DETAIL. ADDITIONAL REBAR AND ADDITIONAL DOWELS ARE CALLED OUT SEPARATELY ONLY WHERE APPLICABLE.
  - WATERSTOPS SHALL BE BEHIND REBAR WITH 4" MIN. CLR TO SURFACE AND 3" MIN. CLR TO KEYWAYS, WHERE DIMENSIONS ALLOW. A.B.
  - DOWEL HOOKS TO BE LAPPED TIGHT TO MAT. A.B.

UNDERLINED NOTES ARE PAY ITEMS.

AS-BUILT (A.B.) DRAWING NOTES	JPR	01.10
Revision	By	Appd.
BID SET		05.08
OWNER REVIEW		03.08
QA/QC (95%)		02.08
ROAD COMMISSION SUBMITTAL (WCDCPS)		01.08
PERMITS (90% SET)		10.31.07
60% REVIEW		07.07.10
ISSUED	By	Appd.
File Name:	SMJ	DMD
Permit-Seal	Dem.	Chkd.
		Desgn.
		MM.DD.YY

Client/Project  
 HURON-CLINTON METROPOLITAN AUTHORITY  
 FLATROCK DAM 2008 REPAIRS

FLATROCK, MICHIGAN

Title  
**RECONSTRUCTION  
 DETAILS AND SECTIONS I**

Project No. 2075092501	Scale AS-NOTED
Drawing No.	Sheet
	Revision













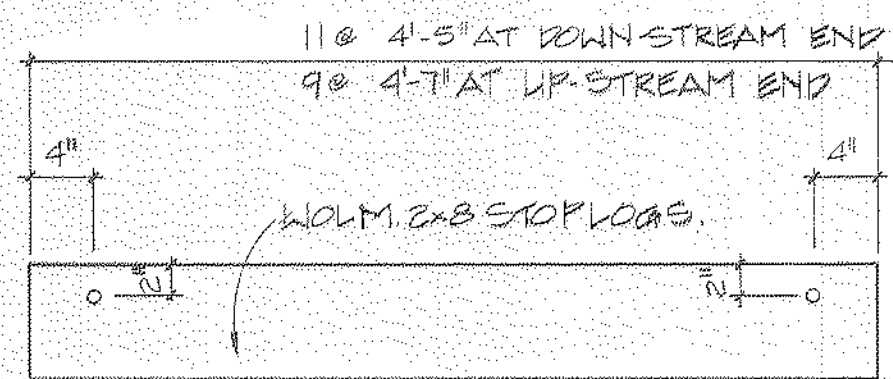
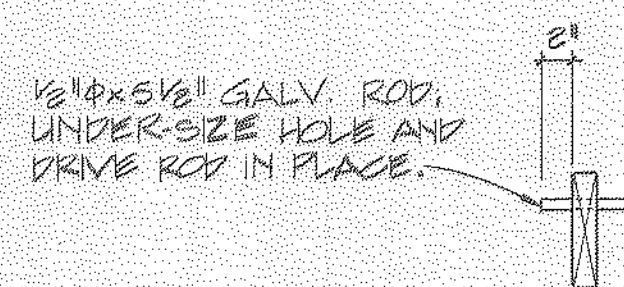






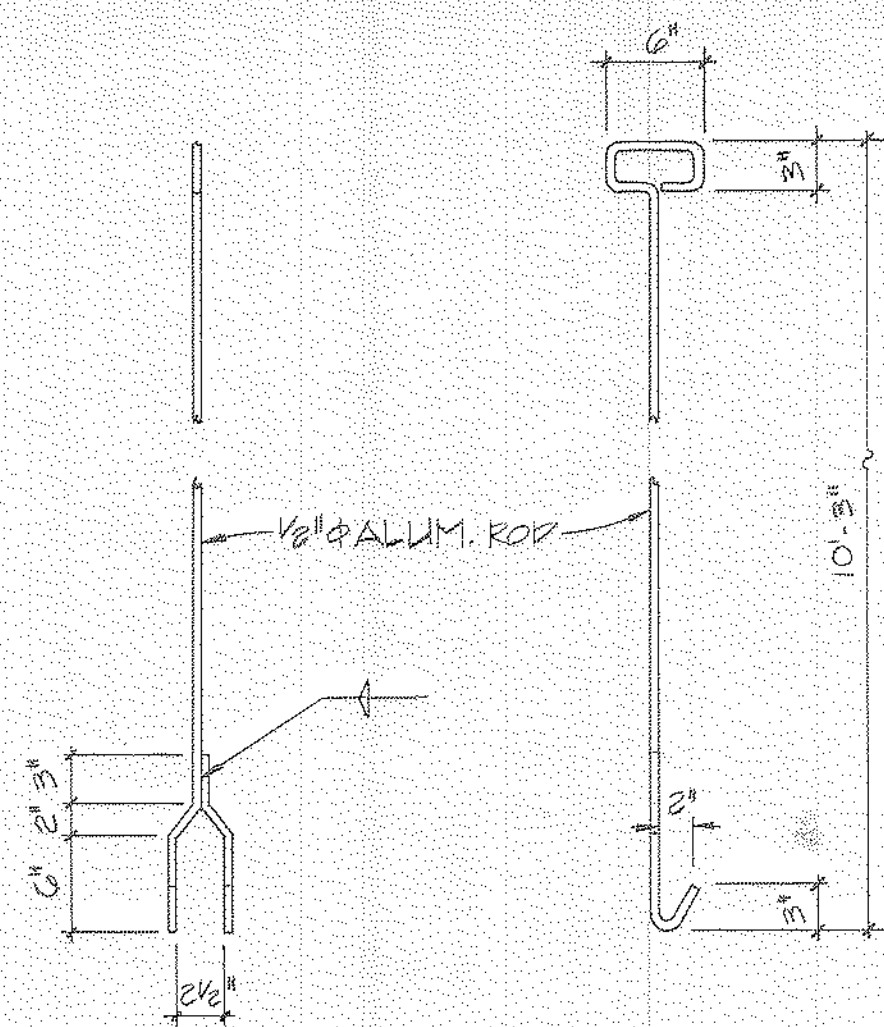






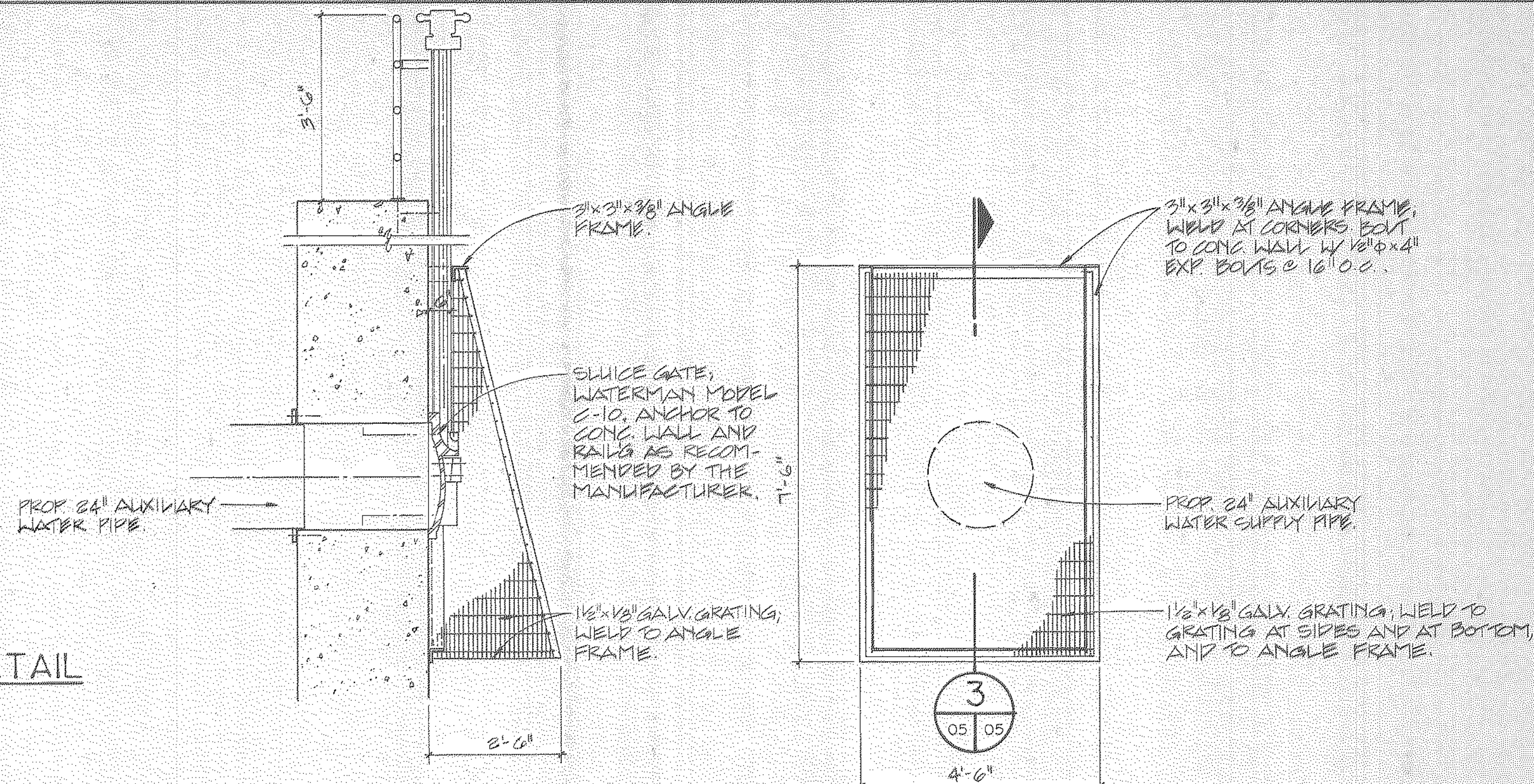
TYPICAL STOP LOG DETAIL

SCALE 1" = 1'-0"



STOPLOG LIFTING HOOK DETAIL

SCALE 1" = 1'-0" (2 REQ'D.)

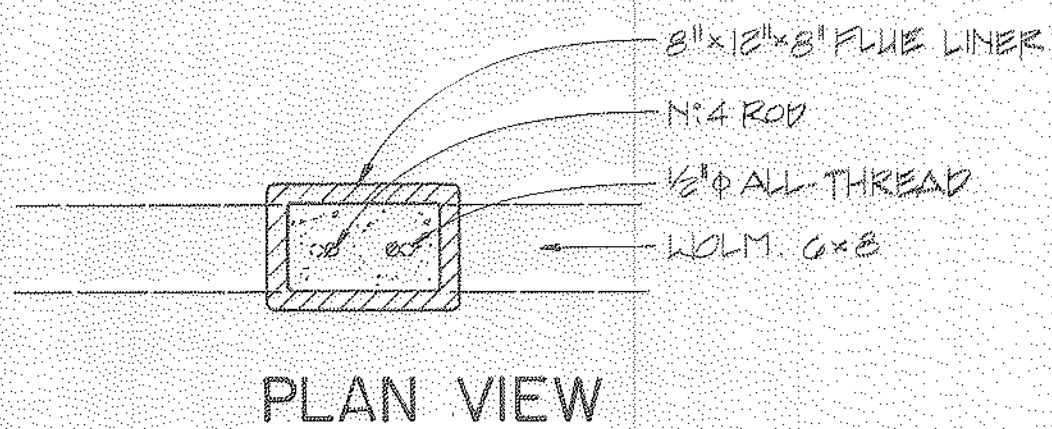


BAR RACK SECTION 3

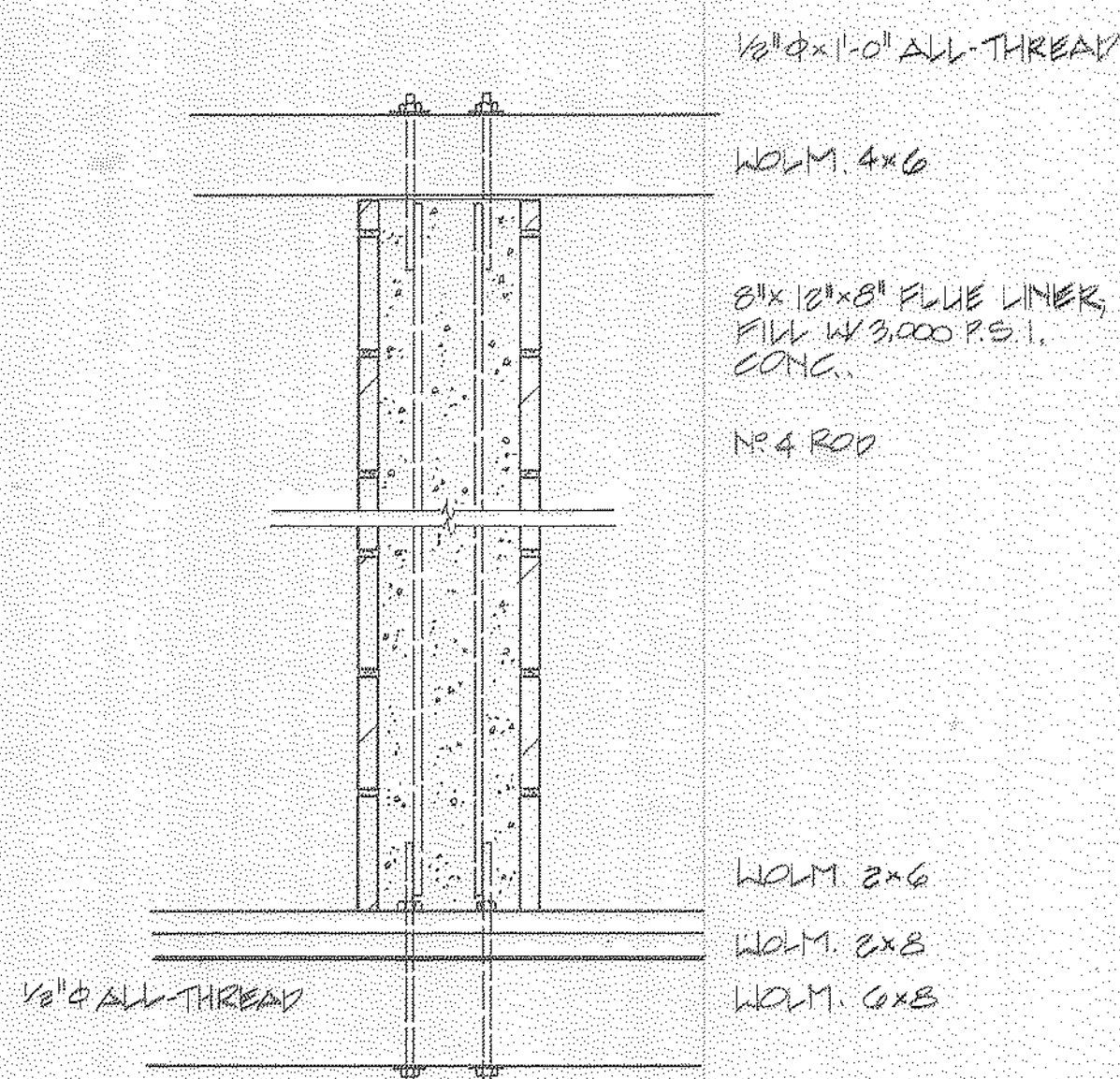
SCALE 1/2" = 1'-0"

BAR RACK ELEVATION 2

SCALE 1/2" = 1'-0"



PLAN VIEW



TYP. BAFFLE SECTION DETAIL

SCALE 1" = 1'-0"

GENERAL NOTES

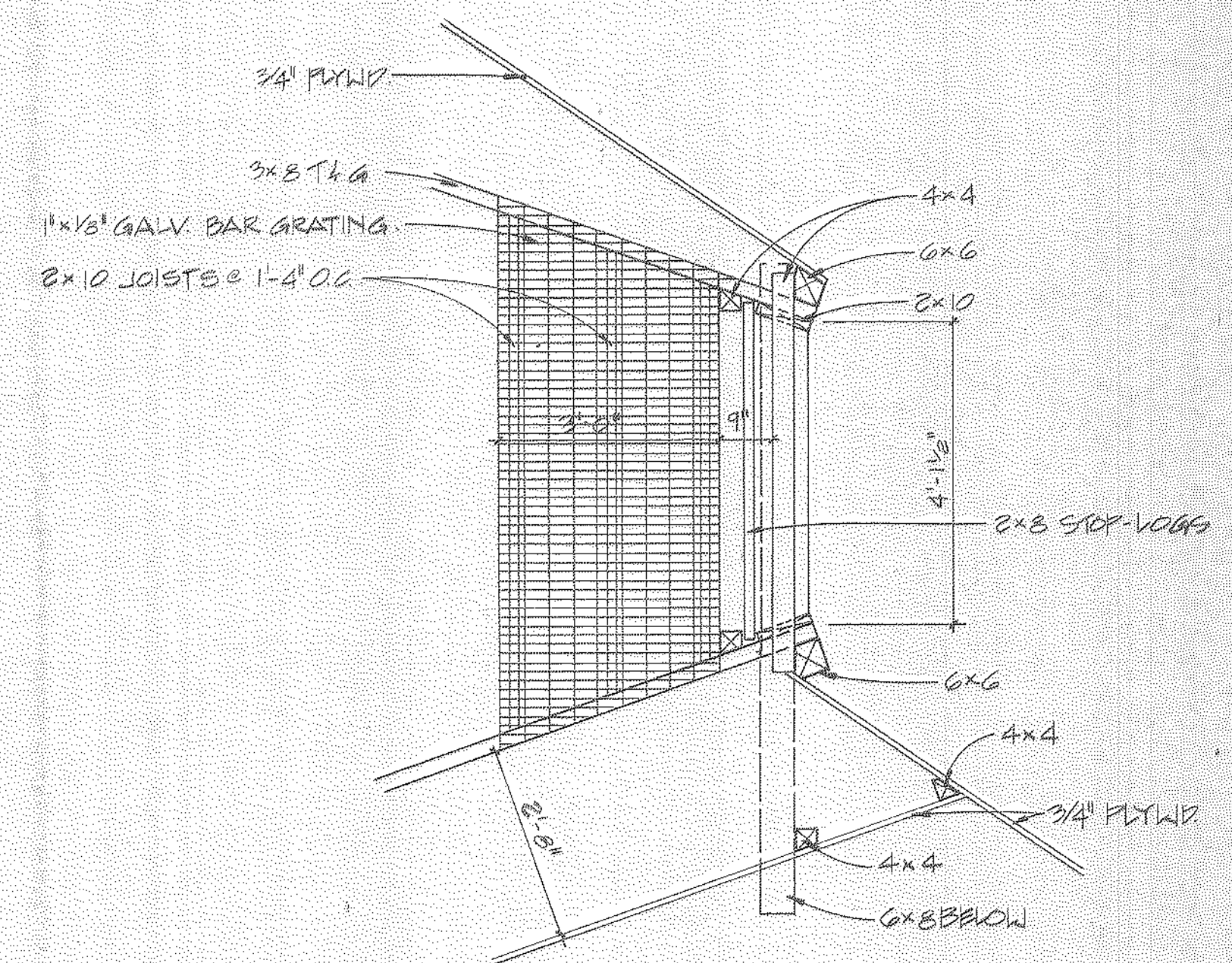
- ALL TIMBER WORK SHALL COMPLY WITH "TIMBER CONSTRUCTION STANDARD", AITC 100 TIMBER GRADING SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN LUMBER STANDARDS AND WESTERN WOOD PRODUCTS ASSOCIATION.
- PLYWOOD SHALL COMPLY WITH THE REQUIREMENTS OF AMERICAN PLYWOOD ASSN. AND MANUFACTURED UNDER U.S. PRODUCT STANDARD PS 1-83.
- ALL NEW TIMBER MATERIAL SHALL BE SOUTHERN YELLOW PINE, DOUGLAS FIR, HEM-FIR OR WESTERN HEMLOCK. ALL TIMBER SHALL BE PRESSURE TREATED WITH WOLMAN CCA WOOD PRESERVATIVE CHEMICALS CONFORMING TO AMERICAN WOOD PRESERVERS ASSOCIATION (AWPA) P-5.
- TIMBER SEASONING SHALL BE "DRY" WITH A MOISTURE CONTENT LESS THAN 19%.
- PLYWOOD USED FOR BAFFLES SHALL BE GRADE APA B-5, GROUP 1, EXTERIOR AND SHALL BE PRESSURE TREATED WITH WOLMAN CCA IN ACCORDANCE WITH ALU P-6.
- PROVIDE SCREWS, BOLTS, WASHERS AND NUTS AS REQUIRED FOR INSTALLATION OF TIMBER. BOLTS OR SCREWS SHALL BE COMMON MEETING FEDERAL SPECIFICATION FF-13-671.
- INSTALL TIMBER AS SHOWN ON DRAWINGS. SPLICES TO BE MADE AT SUPPORTS AND STAGGERED. A TIMBER SHALL BE LONG ENOUGH FOR MINIMUM 2 SPANS. WHERE TIMBER PLACED ON TIMBER, ARRANGE MEMBERS TO COVER PREVIOUS JOINT(S).
- ALL TIMBER CONSTRUCTION SHALL BE PERFORMED BY MECHANICS SKILLED AT THE TRADE USING PROPER TOOLS, MACHINES, AND EQUIPMENT. ALL WORK SHALL BE ERECTED PLUMB AND TRUE.
- FASTEN WOOD MEMBERS SECURELY TO ADJACENT CONSTRUCTION WITH BOLTS, WIRE TIES, ANCHORS, ETC. (GALVANIZED).
- PRIOR TO FINAL ASSEMBLY ALL END CUTS AND OTHER CROSS SECTION SURFACES SHALL BE SATURATED WITH THREE APPLICATIONS OF WOOD PRESERVATIVES.
- COMPLY WITH AITC 105 "RECOMMENDED PRACTICE FOR THE ERECTION OF STRUCTURAL TIMBER FRAMING."
- CONCRETE FILL SHALL HAVE COMPRESSIVE STRENGTH OF 2500 PSI WITH 6% 15# AIR.
- BASE FOR FISH LADDER IS WITH LIMESTONE AND SHALL MEET ASTM C-33 (3/4" TO 1 1/2") #4 AGGREGATE SIZE.
- BASE STONE SHALL BE GRADED AS SHOWN ON DRAWINGS.
- SURFACE LIMESTONE SHALL BE 8"-12" SIZE RIP RAP.
- GABION FILL LIMESTONE SHALL MEET ASTM-C33 #1 (3"-4" SIZE).
- FLOOR DECKING AND LADDER SIDE WALLS (3'x6" SIZE WOOD PLANKS) SHALL BE FASTENED TO SUPPORTS WITH 1/2"x6" LAG SCREWS.
- INSTALL CHAIN LINK FENCING ON TOP OF LADDER AND POOLS.
- ALL FLOOR DECKING WITHIN THE FISH LADDER AND POOLS SHALL HAVE EDGES BEVELED 60°.
- ALL HAND RAILS, BAR RACKS, AND DIFFUSER SCREEN SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION.
- ALL WELDING SHALL CONFORM TO LATEST REQUIREMENTS OF AWS (AMERICAN WELDING SOCIETY).
- THE PROJECT IS BEING CONSTRUCTED BY THE MICHIGAN UNITED CONSERVATION CLUB AND THE HURON RIVER FISHING ASSOCIATION WITH THE CORPORATION OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES.
- CONTRACTOR SHALL INSTALL TEMPORARY COFFERDAM (BOX TYPE) BEFORE DRILLING TAPE OPENINGS ON THE WALL.
- ALL DEBRIS, LARGE STONES AND STICKS AND THE LIKE, SHALL BE REMOVED AND DISPOSED OF AND THE ENTIRE DISTURBED AREA SHALL BE RESTORED TO THE ORIGINAL CONDITION.
- CONTRACTOR SHALL SAW CUT AND REMOVE THE EXISTING WALKWAY AT THE EXIT OF THE FISH LADDER WHEREVER THE SLAB INTERFERES WITH THE TOP LOGS FRAME, BAR RACK FRAME AND TEMPORARY COFFER DAM (BOX TYPE).

BILL OF MATERIALS

Item	Description	Quantity	Remarks
1.	Limestone (3/4"-1 1/2" size) for base	2600T	ASTM C-33 #4 aggregate
2.	Limestone 8"-12" rip rap for surface	850T	
3.	Gabion Fill Stones (3"-4" size)	285T	Gabion fill stone ASTM C-33 #1
4.	Gabions 6'x12'x9' 6'x9'x9'	20	Maccacren heavy duty mattress, 6'-0" wide 9" thick heavily zinc coated wire mesh of double twist hexagonal opening 2-1/2"x3-1/4"
5.	Plywood 1/2" thick for baffles	1500 SFT	Treated
6.	Wood decking and side walls (3" and 2" thick planks)	8.5 MBF	Treated
7.	Wood framing	6.0 MBF	Treated
8.	Chain link fencing	1000 SFT	Fabric #9 ga. finished size steel wires, 2" mech. Aluminized ASTM A491 CL. II.
9.	Sluice gate	1	DM-10 by waterman company or equivalent. include extra stem to operate gate and bent plate with anchor bolts to connect the gate frame to exist wall.
10.	Diffusers	260	#4 resteel bar 120# to reinforce block. The cores should be grouted later.
11.	Concrete	65 CYD	2500 psi concrete min. 5.2 sacks of cement, add air entrainers (8-15%)
12.	Diffuser screens (2 reg.)	73 Plates: 2" x 1/4" x 6'-9" 4 Horiz. Plates: 3" x 1/4" x 7'-6"-11/4" 4 Grid Plates: 3" x 1/4" x 6'-9" 4 1/2" steel rods (smooth), place at stud points and weld at every bar	Steel plates and rods A-36. Hot Dip galvanized the rack after fabrication.
13.	Pipe hand rails - upstream side, 3'-6" high with 4 rails at equal spaces	30 LFT 1 1/2" x 8" SCH 40 pipe posts and railing max. spacing of posts 8'-0"	Galvanized - Posts are welded to 1/2"x6" base plate. Base plate is installed on concrete using 4 1/2" expansion anchor bolts. (min. 3 1/2" EMB. length)
14.	Bar racks - upstream side	1 1/2" x 1/8" 8' grating with 3" x 3" x 3/8" angle frame.	Galvanize the whole fabrication.
15.	24" steel pipe - ASTM - A572 min. 1/4" thick.	100'0"	Bends, tees, flanges etc. as per drawings.
16.	16" steel pipe - ASTM - A572 min. 1/4" thick.	20'0"	10'0" long 10" 8 pipe connection from 24" pipe to diffuser chambers - bends, tees, flanges etc. As shown on drawings.

NOTES

- QUANTITIES GIVEN IN THE BILL OF MATERIALS ARE APPROXIMATE.
- QUANTITIES FOR ANCHOR BOLTS, LAG BOLTS, SCREWS, NAILS, WIRE TIES ETC. REQUIRED ARE TO BE ESTIMATED FROM THE DRAWINGS.



LOWER STOP GATE PLAN

SCALE 1/2" = 1'-0"

REV.		
REV.		
REV.		
REV.		
REV.		
REV.		
2/9/4	ORIGINAL ISSUE	
DRAWN BY:	CHECKED BY:	SEALED:

AYRES, LEWIS, NORRIS & MAY, INC.  
ENGINEERS - PLANNERS - SURVEYORS  
MAR 18 1994  
ANN ARBOR, MICHIGAN

HURON RIVER FISHING ASSOCIATION  
MICHIGAN UNITED CONSERVATION CLUB  
FLAT ROCK DAM/DENIL FISH LADDER  
SECTION DETAILS & PLANS

Ayres, Lewis, Norris & May, Inc.  
Engineers • Planners • Surveyors  
3959 Research Park Drive  
Ann Arbor, Michigan 48108  
(313) 761-1010  
SCALE: - AS NOTED  
92001-05



Wm SMITH

GROVER STOFLET

C.E. YOST

JOHN CHAMBERLIN

JOHN CHAMBERLIN

KATE CARNEY BIGELOW

FRANK H. STOFLET

NORMAN MACKIE

IDA GLASS

CHAS. LEE WILLIAMS

WILLIAM F. ERNEST

T.D. SMITH

S.H. SMITH

JOHN C. NEAR

GEORGE CASE

GEORGE CASE

CHAS. LEE WILLIAMS

HURON TWP

ASH TWP

Wayne Co.

Monroe Co.

26

25

35

36

590 FT. ELEV. FLOW LINE TRAVERSE AT FLAT ROCK MICHIGAN SCALE 1"=300' JAN. 1931

Notes: All bearings and courses of lines are referred to True Meridian as determined by Solar Observation. Traverse Lines are run 6 feet above proposed dam crest.

Proposed Water Level El. 500' Present Water Level El. 507'

DIAGRAMATIC SECTION AT DAM SCALE 1"=100'

NOTE: Elevations shown on this map are referred to a datum which is 0.22 feet above Sea Level datum as established by the U.S.G.S. Bench Mark 3 1/2 miles west of Flat Rock. To get true elevations add 0.22 feet to elevations shown.



MURON TWP BROWNSTOWN TWP

MURON TWP BROWNSTOWN TWP

MURON TWP BROWNSTOWN TWP

MURON TWP BROWNSTOWN TWP

VILLAGE OF FLAT ROCK

FLAT ROCK MFG CO.

25.73 A

George W. Case 20 1/2 Acres

1792.70 - N 02° 33' E

1385.00

1792.70 - N 02° 33' E

1385.00

1792.70 - N 02° 33' E

1385.00

1792.70 - N 02° 33' E

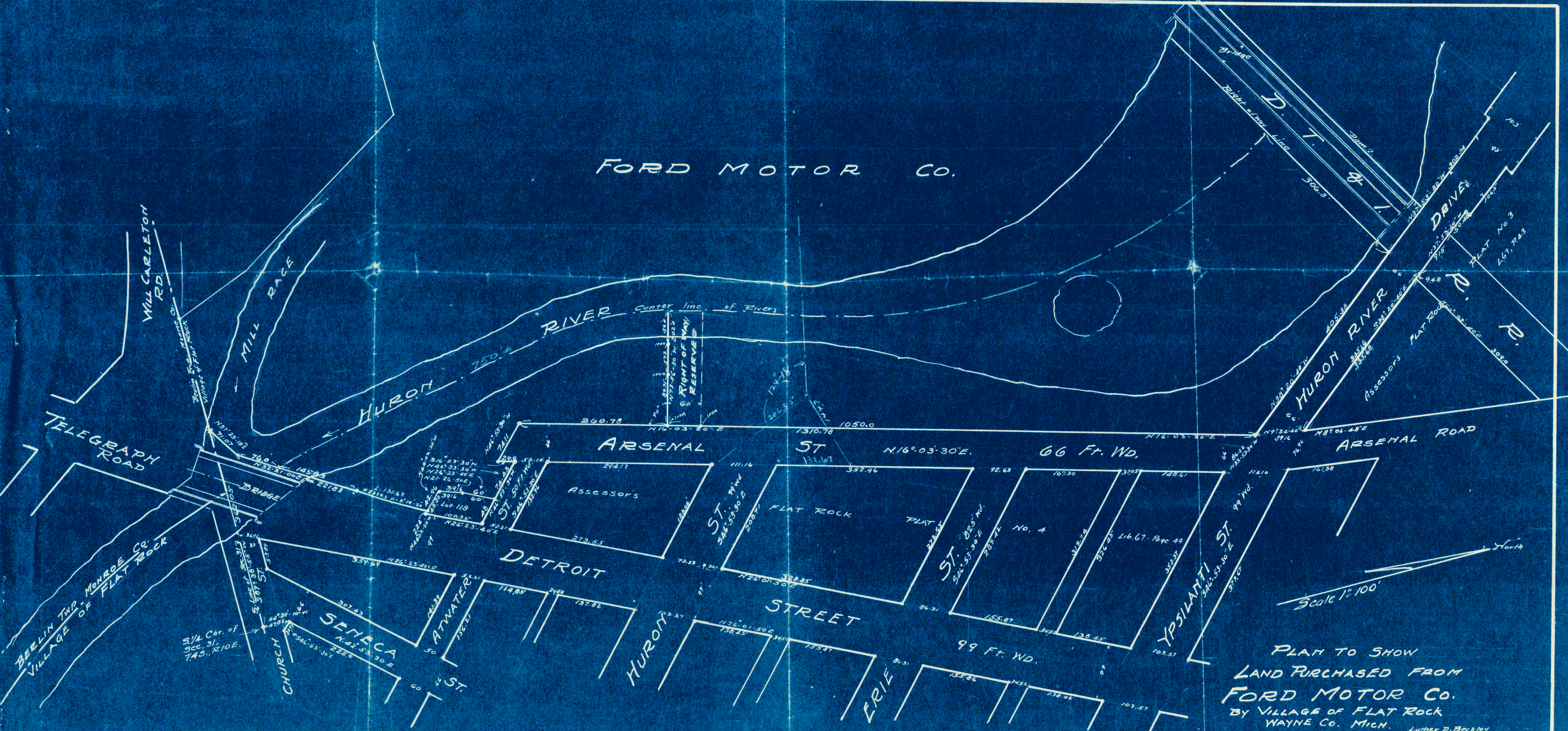
1385.00







FORD MOTOR CO.



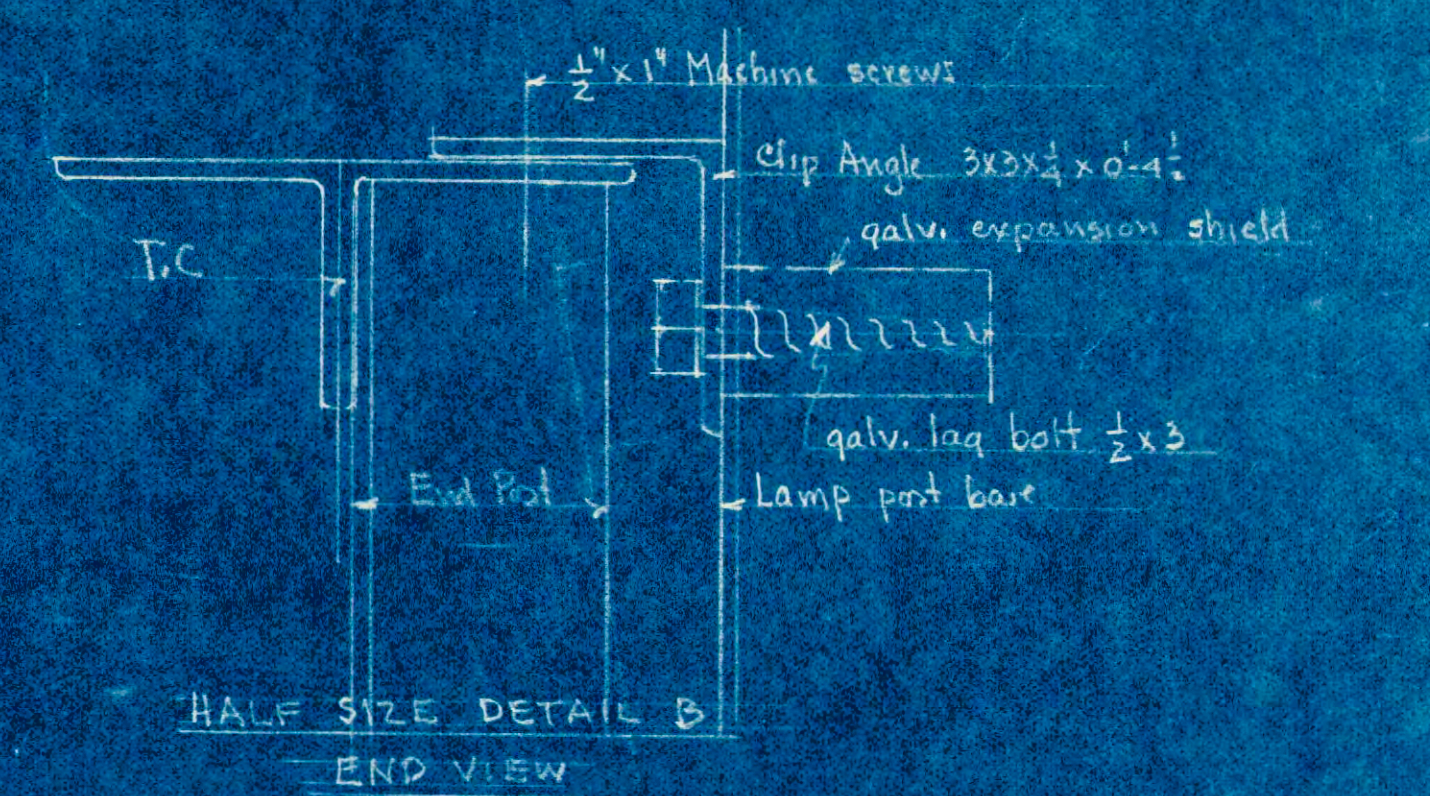
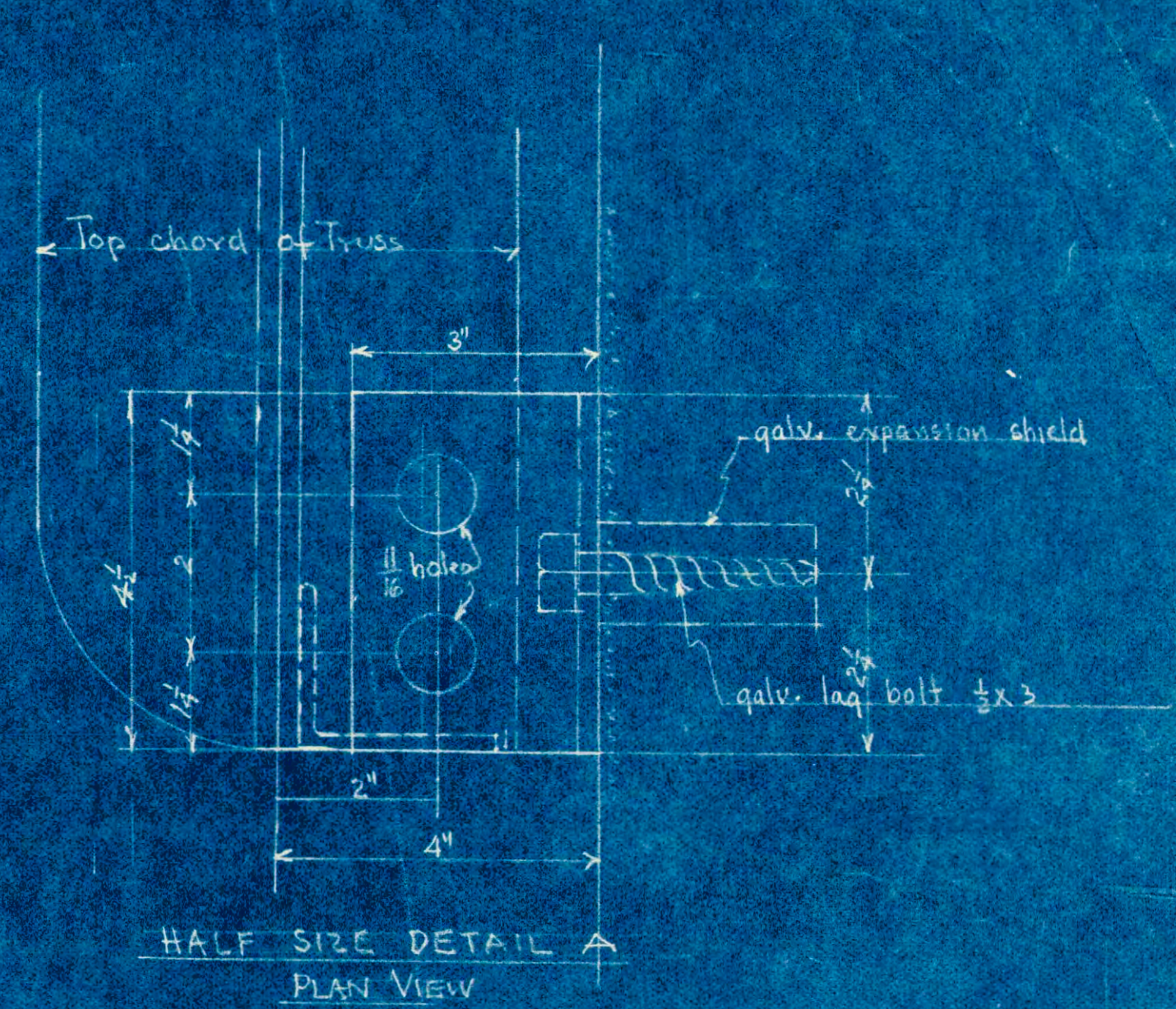
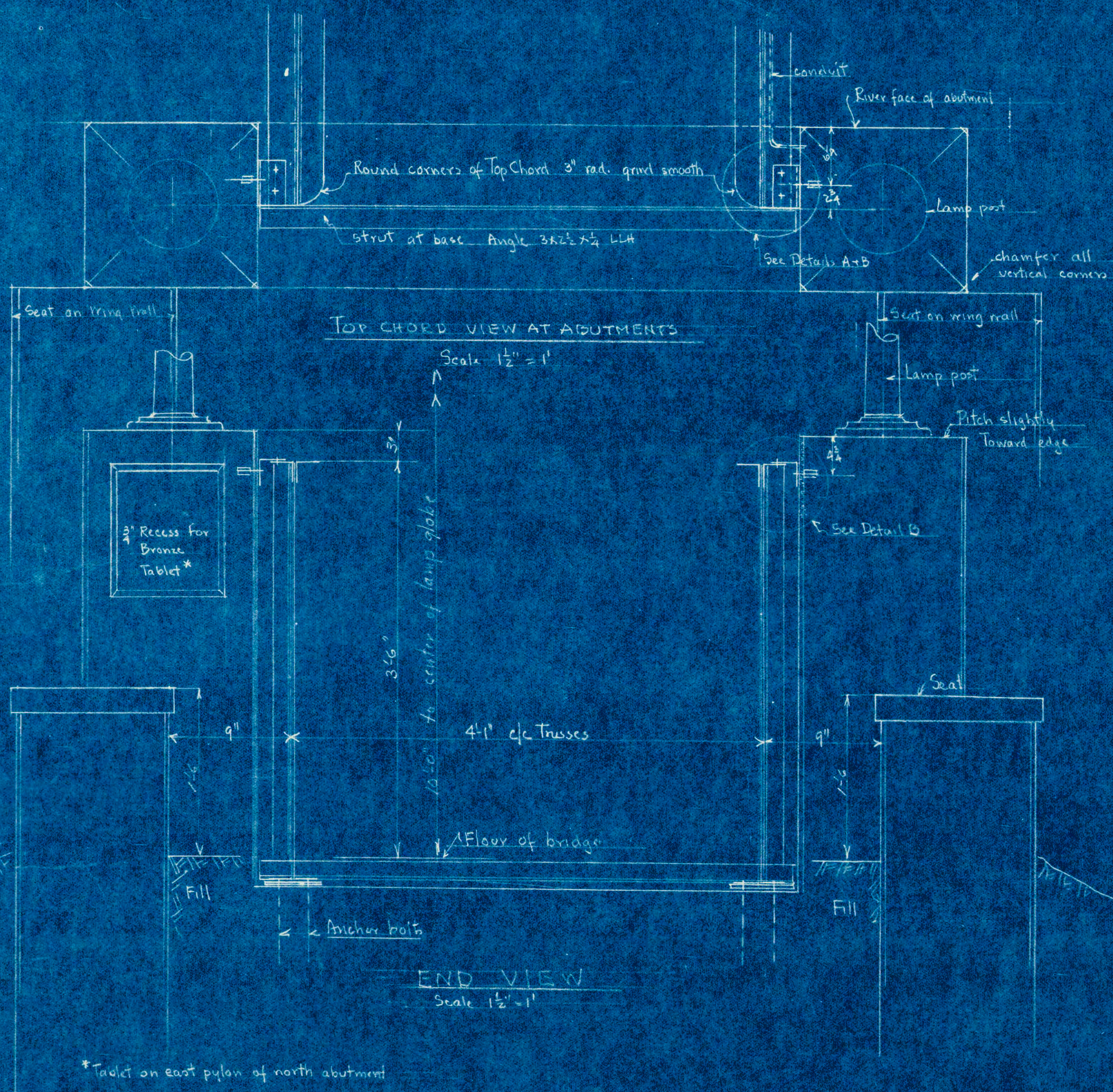
Scale 1"=100'

PLAN TO SHOW  
LAND PURCHASED FROM  
FORD MOTOR CO.  
BY VILLAGE OF FLAT ROCK  
WAYNE CO. MICH.

AUG. 27-1949

Luther D. Beckley  
Registered Land Surveyor and  
Village Engineer

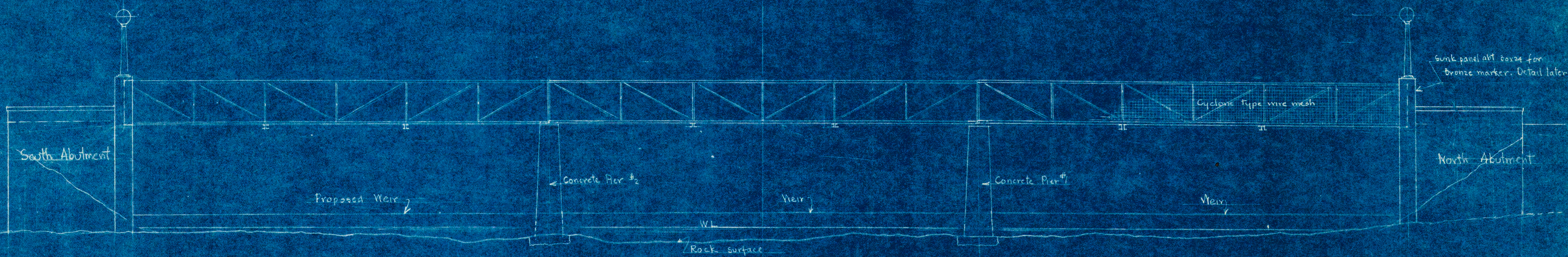




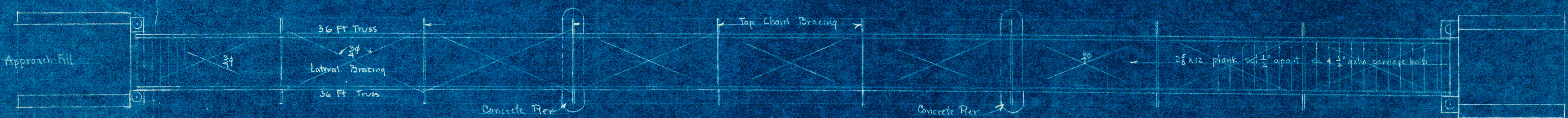
\*Tablet on east pylon of north abutment

Job 53-103 Sh 4	Proposed Pony Truss Bridge over the Huron River for the Village of Flat Rock Mich
	L. D. Beckley - Village Engineer William H Adams - Consulting Engineer

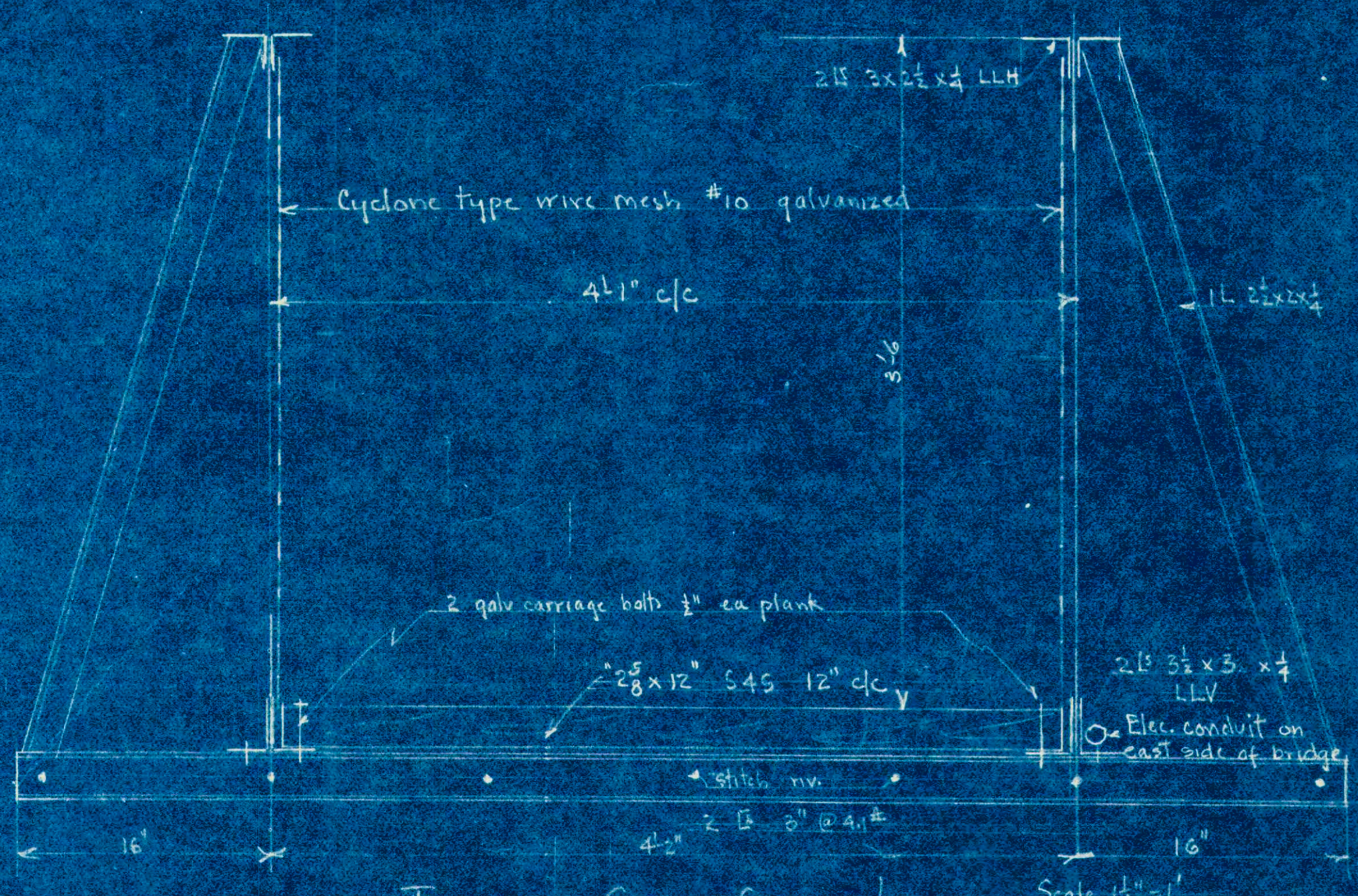




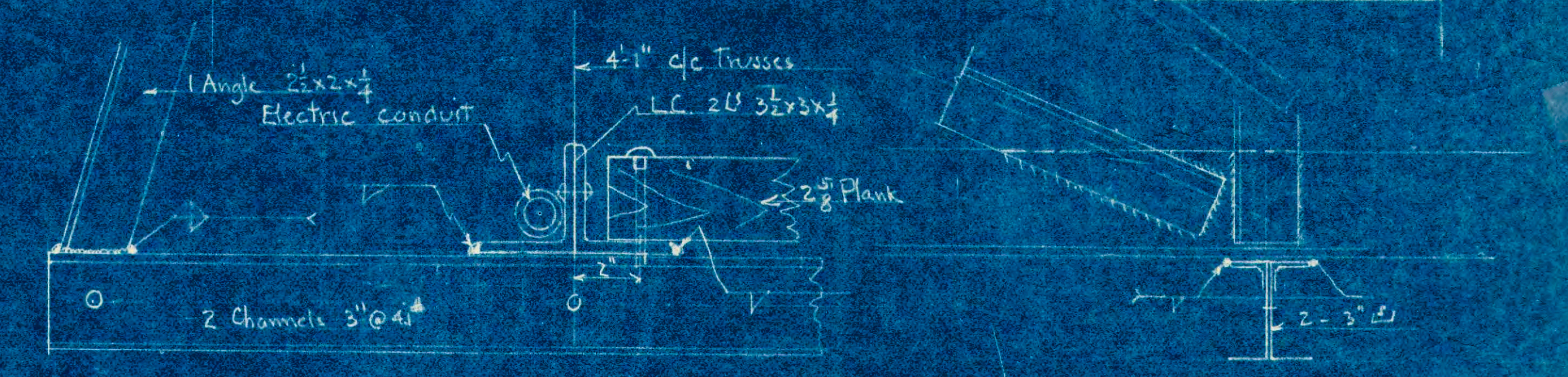
ELEVATION - LOOKING UP-STREAM  
Scale 1" = 4 Ft.



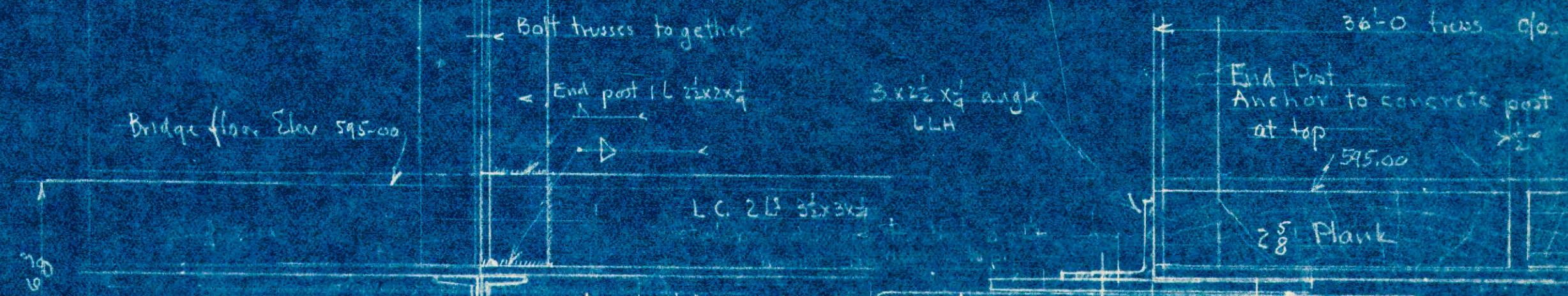
PLAN VIEW



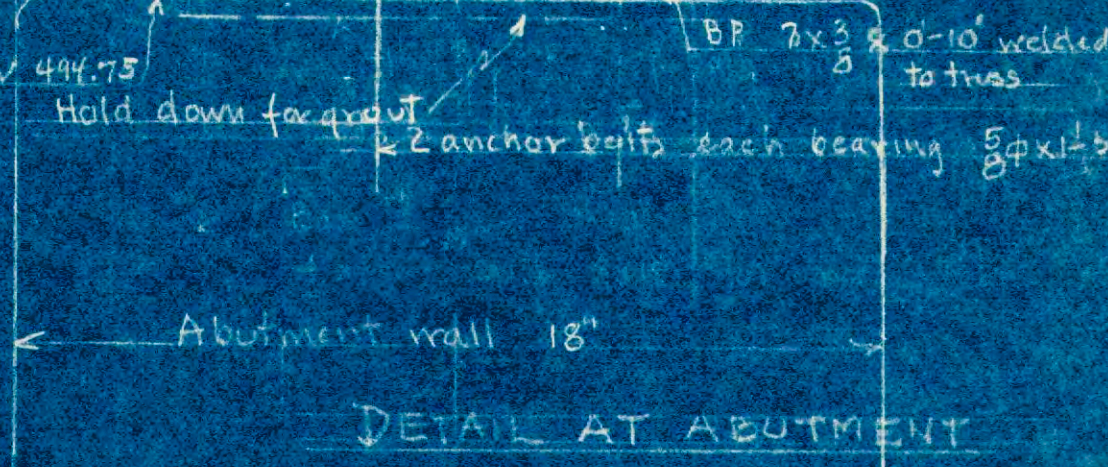
TYPICAL CROSS SECTION  
Scale 1 1/2" = 1'



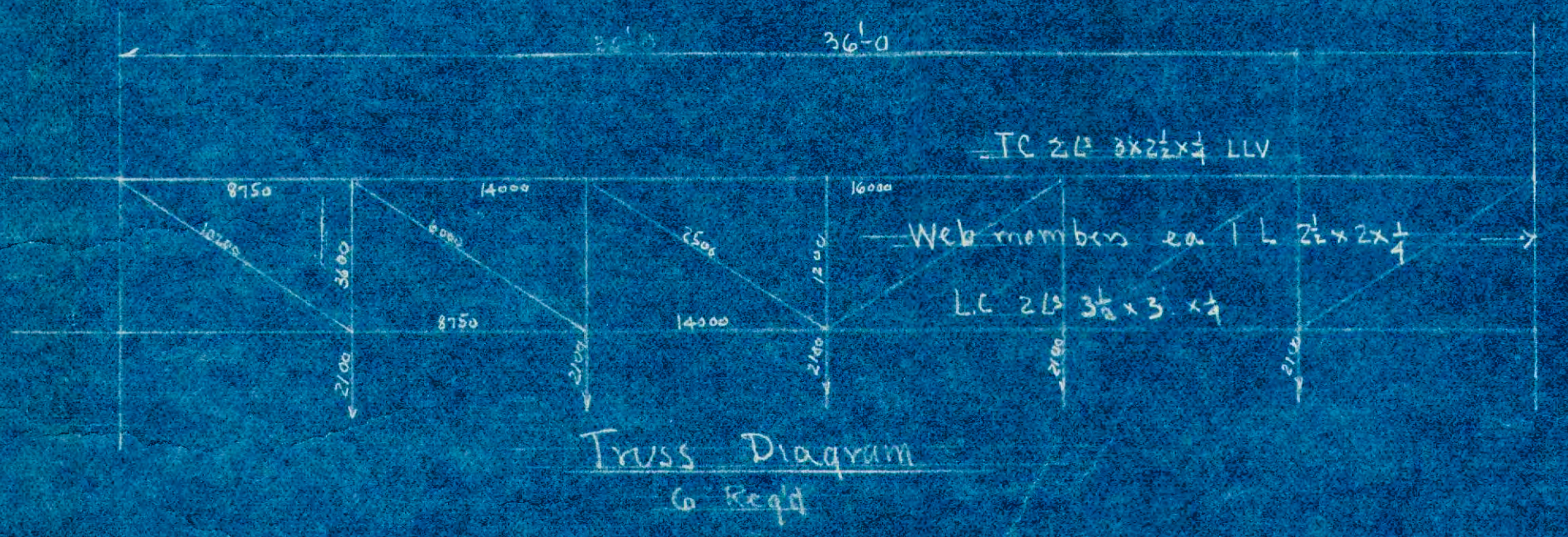
Lower Chord Details Scale 3" = 1'



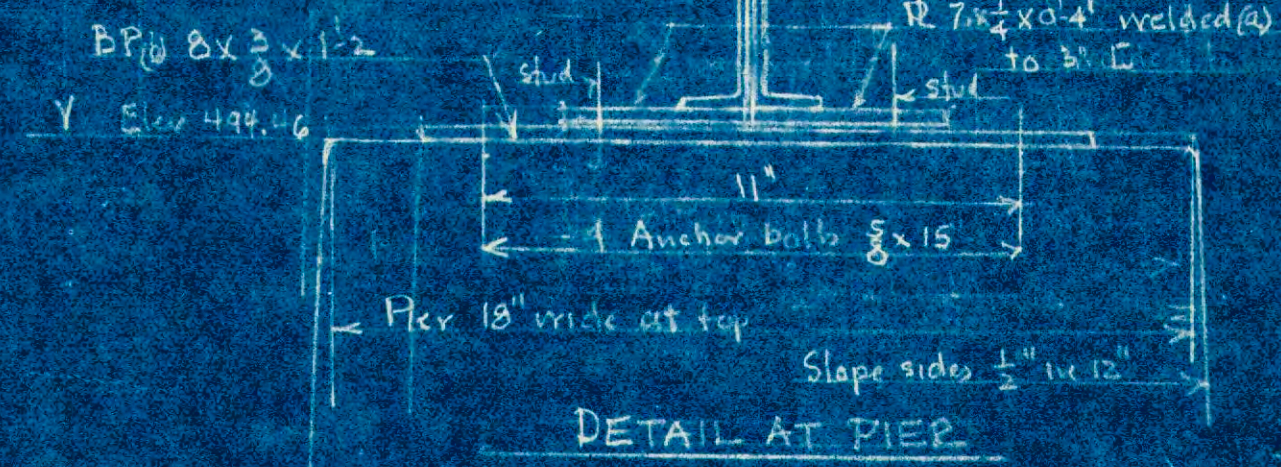
DETAIL AT PIER



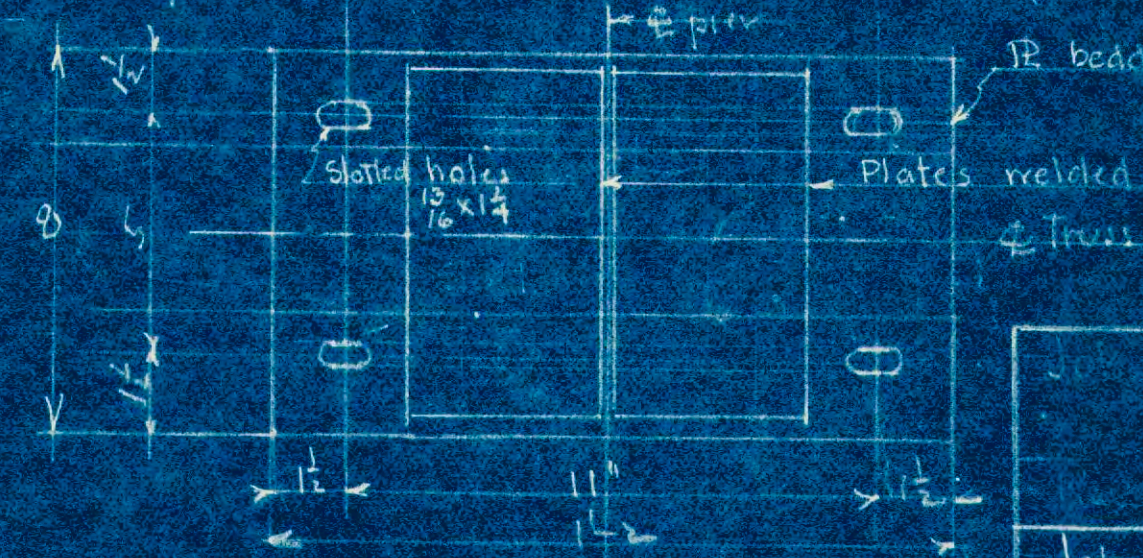
DETAIL AT ABUTMENT



Truss Diagram  
As Req'd



DETAIL AT PIER



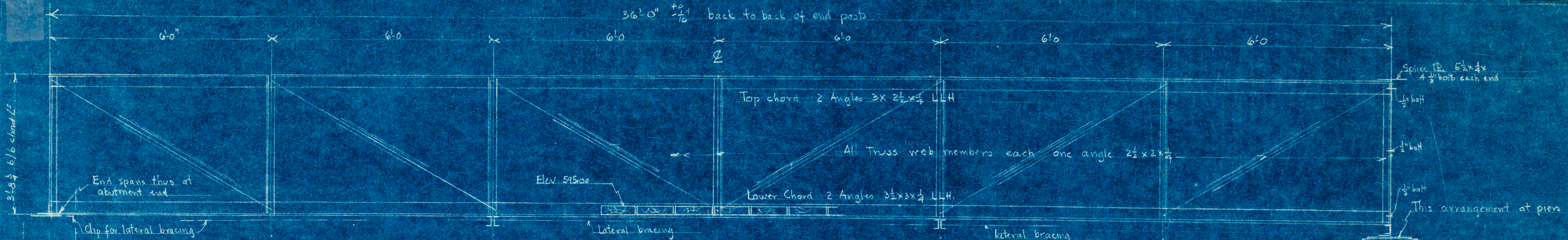
Approved Luther D Beckley  
Jan 16-1904 Village Engineer

Proposed Pony Truss Bridge over the Horan River for the Village of Flat Rock, Mich.	
Job 53-103	Luther D Beckley Village Engineer
Sh. 1	William H Adams Consulting Engineer

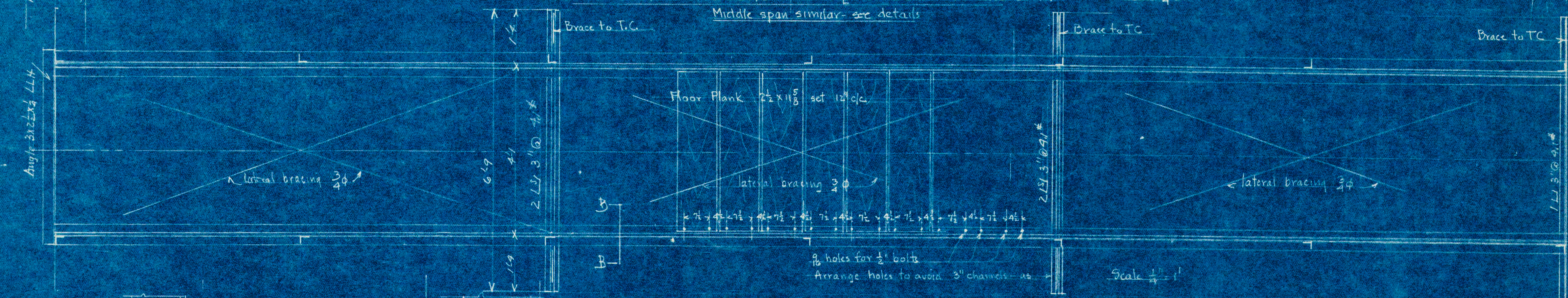




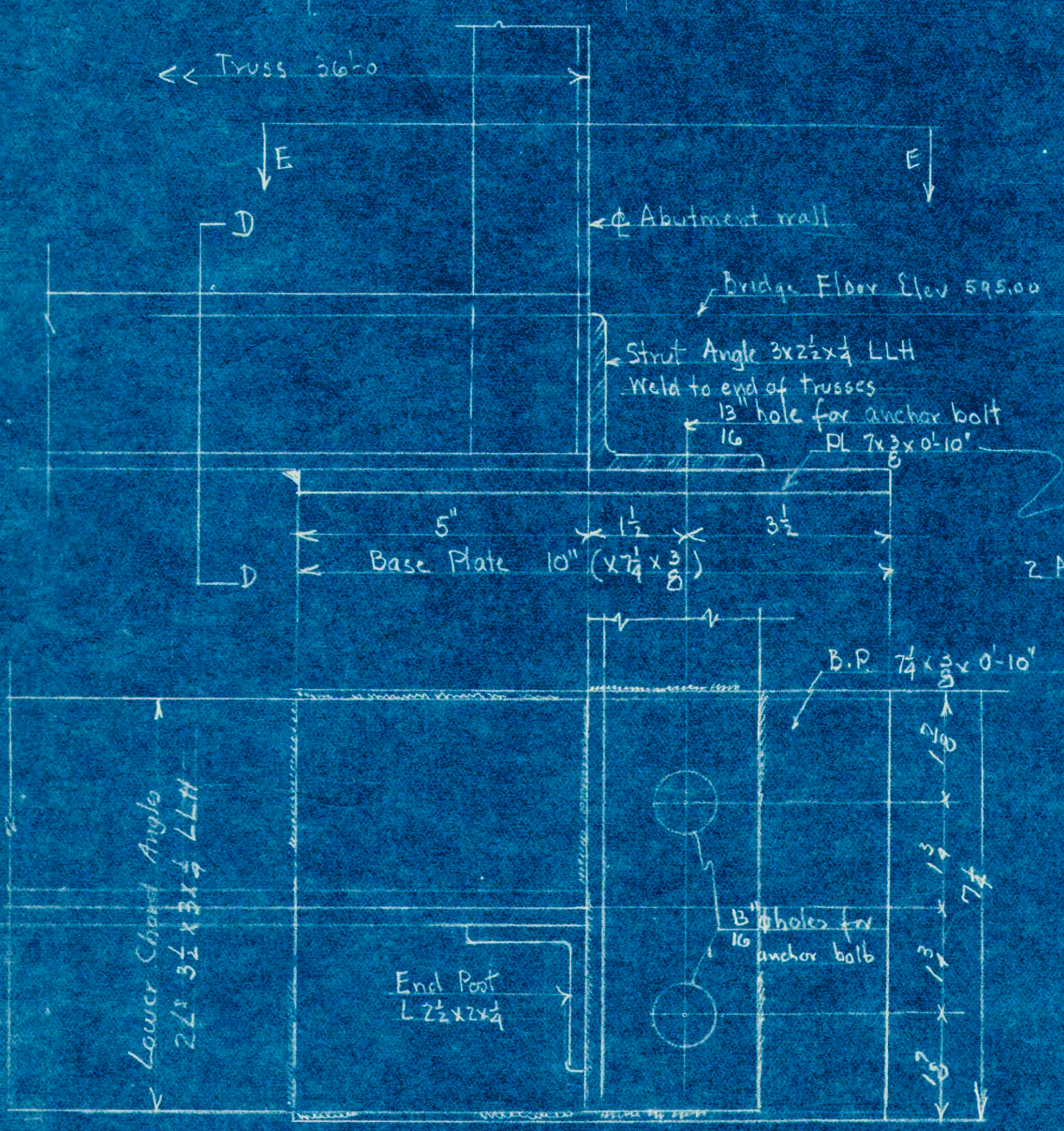
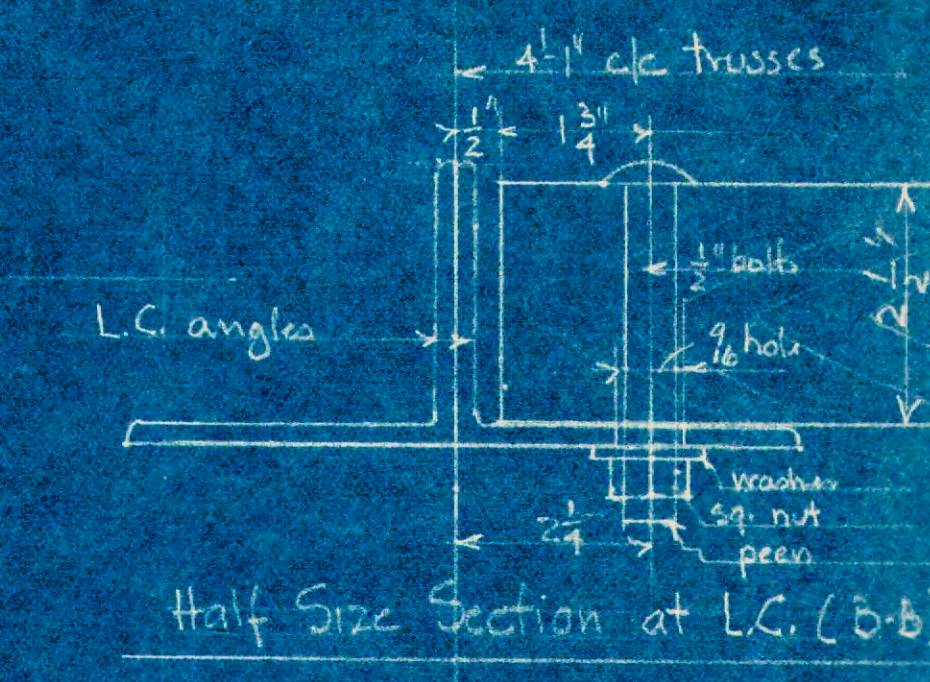




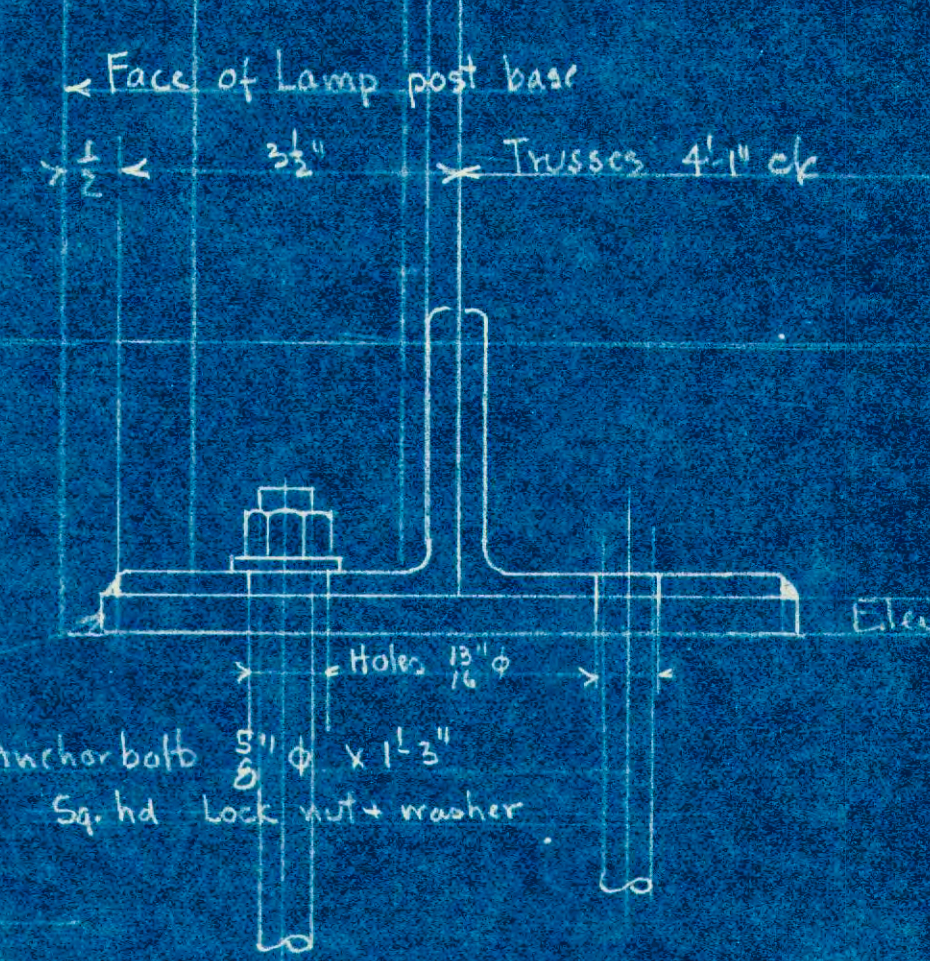
LONGITUDINAL SECTION ON Φ BRIDGE - AN END SPAN  
Middle span similar - see details



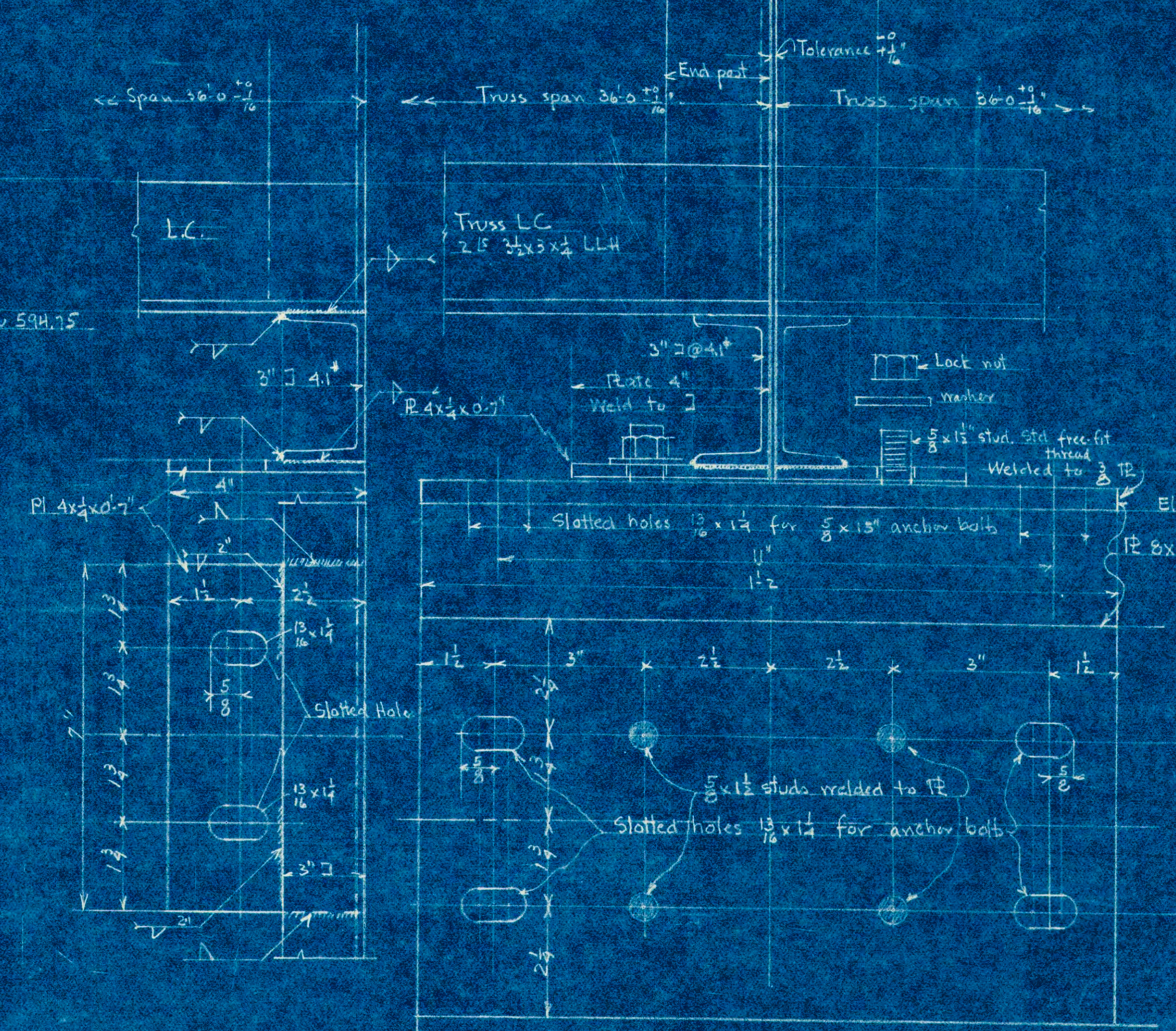
FRAMING PLAN AT FLOOR OF BRIDGE



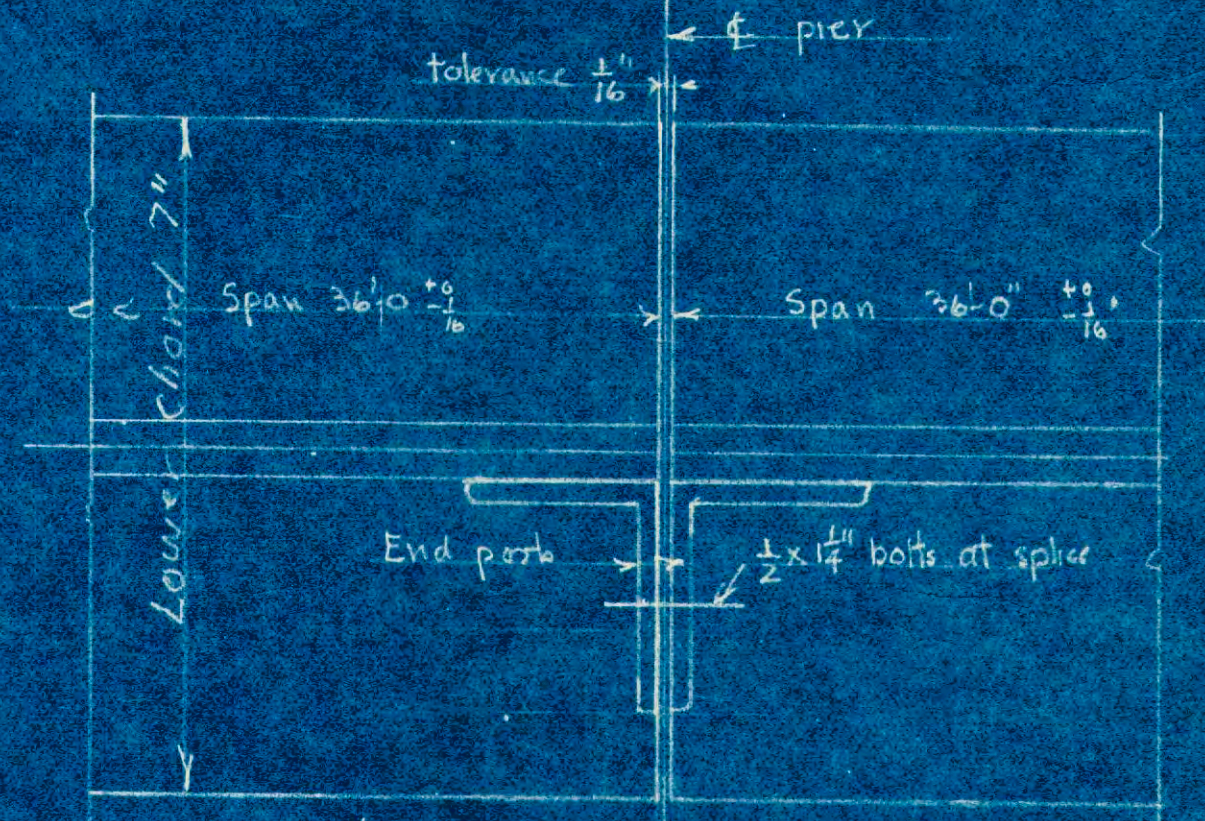
VIEW EE  
TRUSS BEARING DETAILS AT ABUTMENTS  
Half Size



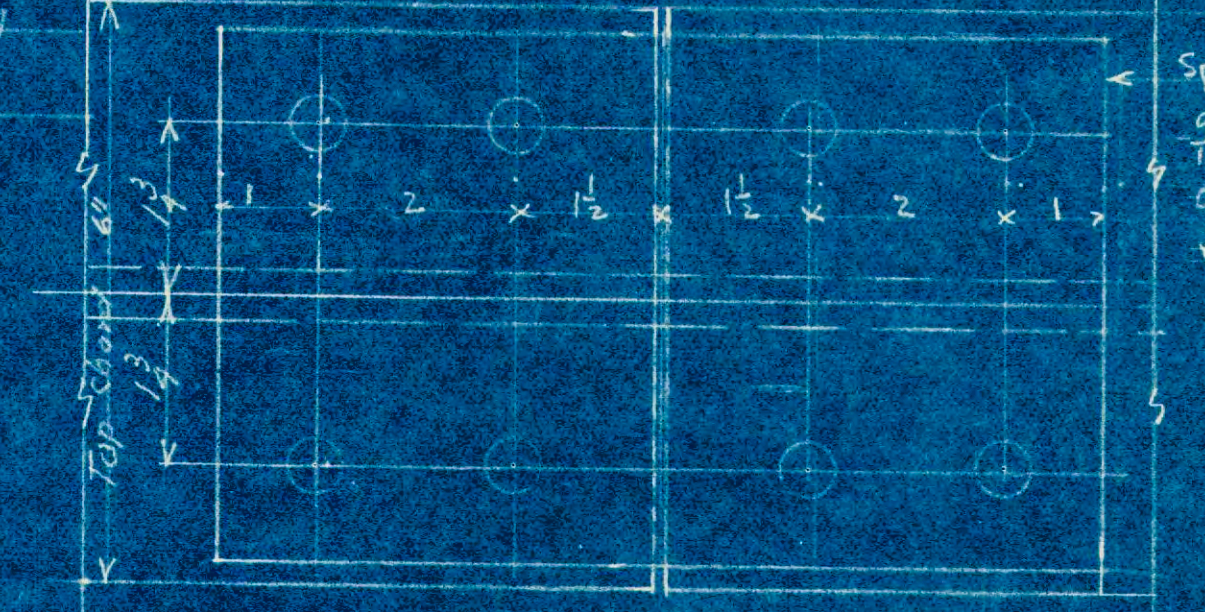
SECTION D-D  
Half Size



TRUSS BEARING DETAILS AT PIERS 1/2 SIZE



Connections - End Posts at Piers  
Half Size



Splice - Top chord over Piers  
Half Size

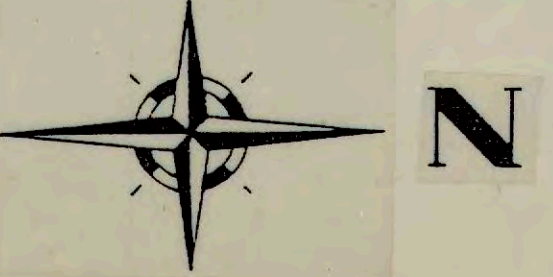
Job 53 103	Proposed Pony Truss Bridge over the Huron River For the Village of Flat Rock Mich
Sh 3	L.D. Beckley Village Engineer William H Adams Consulting Engineer





**SITE PLAN**

SCALE: 1" = 80'-0"



- NO ROLLER BLADES OR SKATES
  - NO BICYCLES
  - NO MOTOR VEHICLES
  - NO ANIMALS
  - NO FISHING FROM BRIDGE
  - NO SITTING ON BRIDGE RAILING
  - NO LITTERING
- VIOLATORS WILL BE PROSECUTED

ISSUED FOR	TRANGLE H. ANDERSON
APPENDIX #1	3-1-94
MINOR REVIEW	11-21-93
OWNER'S REVIEW	1-25-95
DATE	1-25-95
REV.	
ISSUED FOR	

DR. APPR. DATE  
 CHK. DATE  
 CHARLES E. RAINES COMPANY  
 CIVIL ENGINEERS / SURVEYORS  
 17700 FORT ST. RIVERVIEW MICHIGAN 48192  
 (313) 285-7510 FAX (313) 285-7572



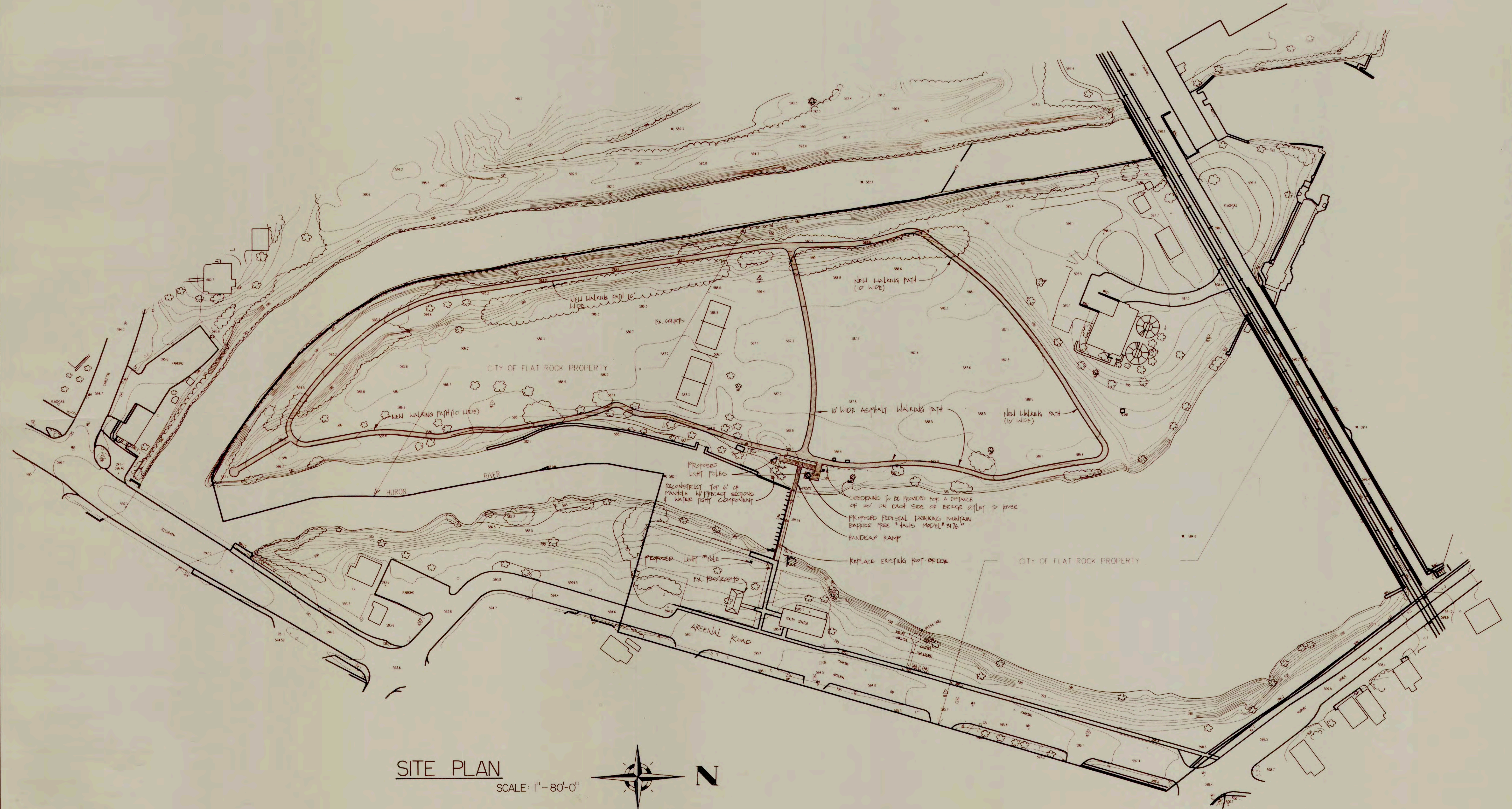
PROJECT  
**HUROC PARK PHASE II**  
 FLAT ROCK, MICHIGAN

JOB  
**FR-140**

SHEET  
**1**

**BRIDGE & WALKWAY LAYOUT**





**SITE PLAN**

SCALE: 1" = 80'-0"



PROJECT	<b>HUROC PARK PHASE II</b>		
JOB	FR-140		
SHEET	1		
DR. APPR. CHK. DATE	DR. APPR. CHK. DATE	REV. DATE	ISSUED FOR
<b>CHARLES E. RAINES COMPANY</b> CIVIL ENGINEERS / SURVEYORS 17700 FORT ST. RIVERVIEW MICHIGAN 48192 (313) 285-7510 FAX (313) 285-7572			





PROPOSED FOOT BRIDGE  
SCALE: 1/4" = 1'-0"

PROJECT	HUROC PARK PHASE II	DR.	
JOB	FR-140	APPR.	
SHEET	2	CHK.	
		DATE	
		REV.	
		DATE	
		ISSUED FOR	
CHARLES E. RAINES COMPANY CIVIL ENGINEERS / SURVEYORS 17700 FORT ST. RIVERVIEW MICHIGAN 48192 (313) 285-7510 FAX (313) 285-7572			



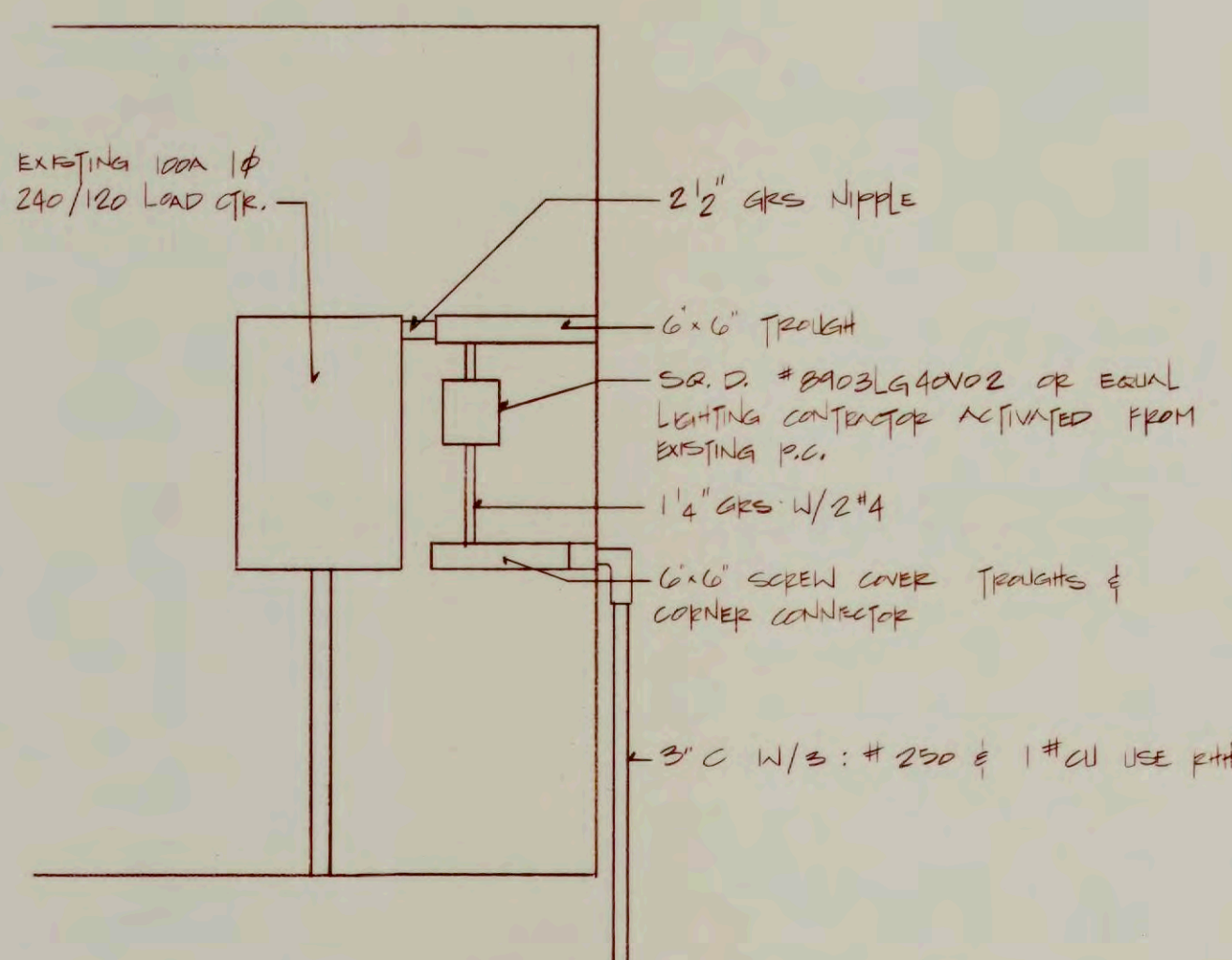
NOTE:

1. ALL POLE WIRING ON THE WEST SIDE OF THE BRIDGE IS TO HAVE NO SPLICES BELOW THE AREA 5' FROM THE POLE TOP. THIS MAY NECESSITATE MAKING UP THE WIRING CONNECTIONS AND SETTING THE POLE OVER THEM.
2. ANY SPLICES MADE UP IN HANDHOLES SHALL HAVE 1/2 LAPPED RUBBER SPLICING COMPOUND WITH ALL VOIDS FILLED WITH DUCT SEAL THEN TWO LAYERS OF SCOTCH 33 OR = TAPE AND WATERPROOFED PER MANUFACTURERS INSTRUCTIONS WITH SCOTCH KOTE.

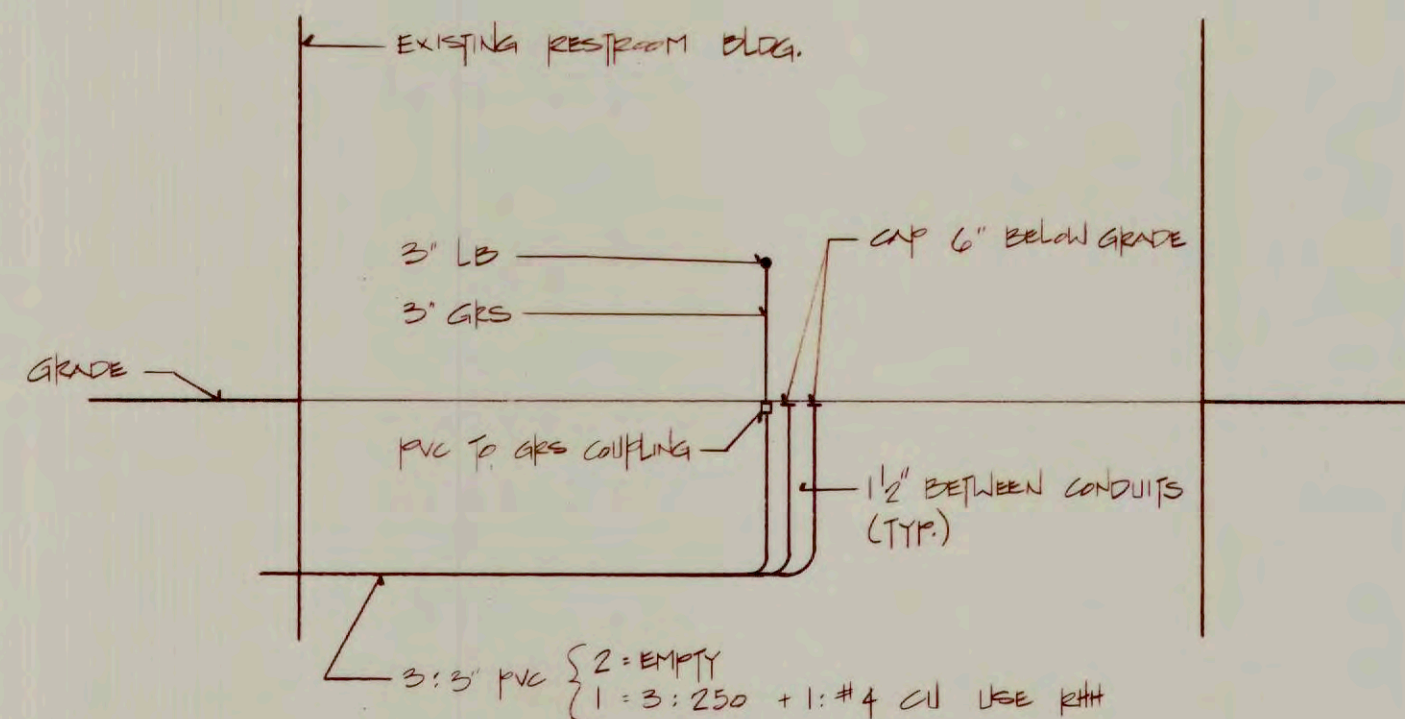
NOTE:

DETAILS ARE SHOWN FOR CONCEPT ONLY. CONTRACTOR SHALL PROVIDE A COMPLETE DESIGN OF ALL COMPONENTS NECESSARY TO PROVIDE THE OWNER WITH A COMPLETE STRUCTURE READY FOR USE. THE DESIGN SHALL BE PREPARED BY A LICENSED ENGINEER REGISTERED IN THE STATE OF MICHIGAN. ALL PLANS AND SHOP DRAWINGS SHALL BE SIGNED AND SEALED AND SUBMITTED FOR THE CITY'S APPROVAL. COMPLETE DETAILS AND PLANS PERTINENT TO ALL CONSTRUCTION REQUIRED, SHALL BE SUBMITTED FOR REVIEW AND APPROVAL.

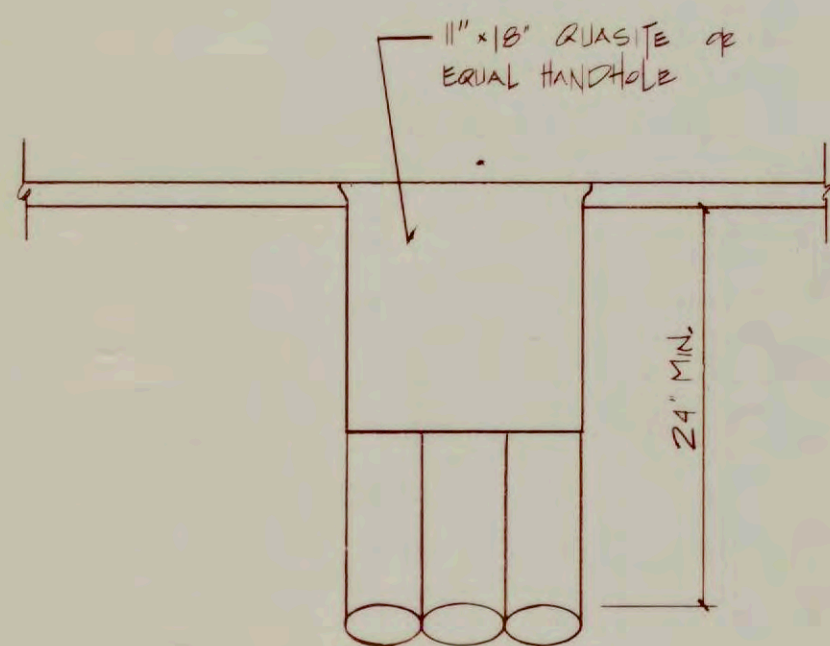
Contractor shall be responsible for making all measurements for the proposed foot bridge and all other construction.



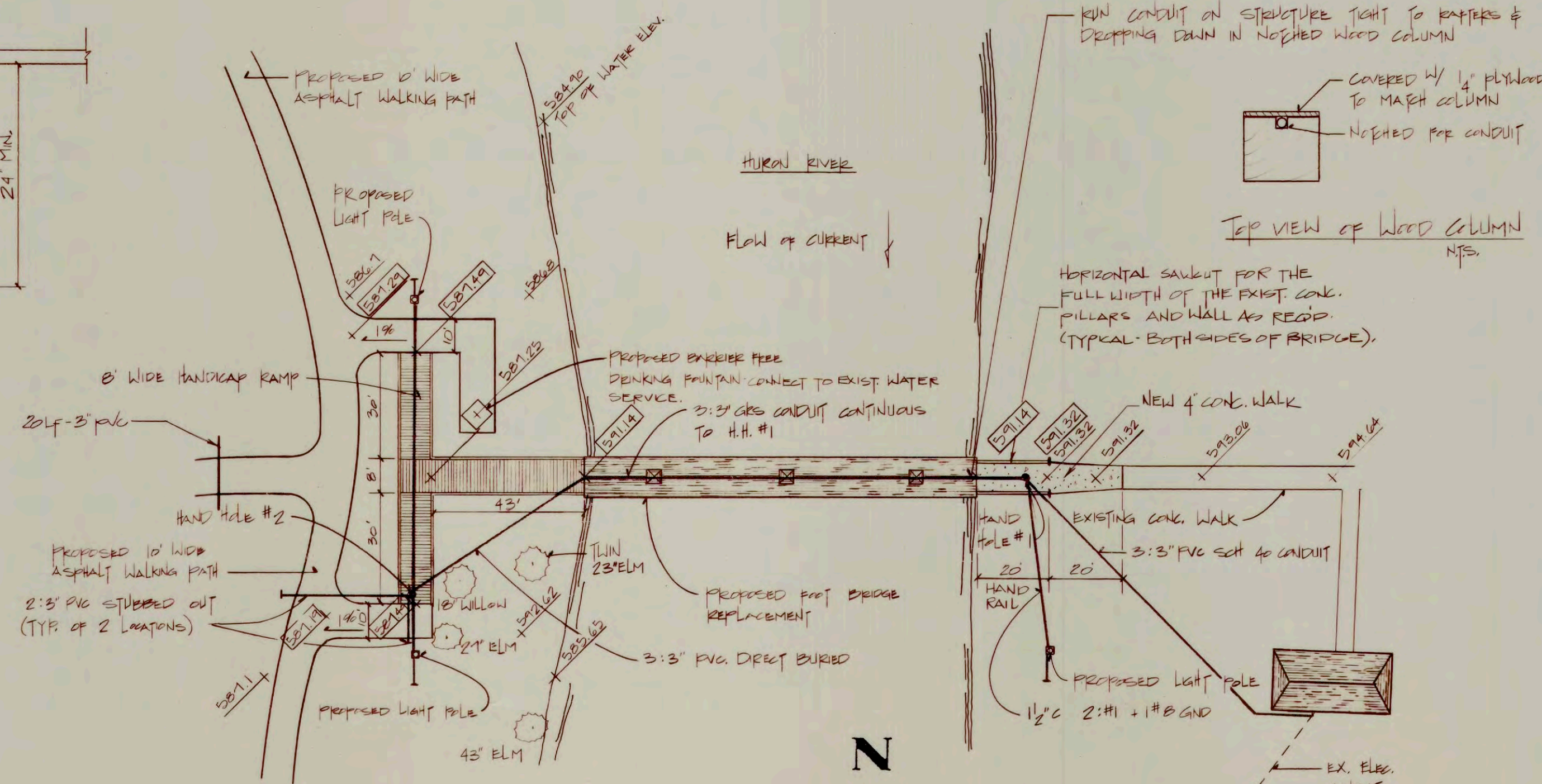
SERVICE & CONTROL



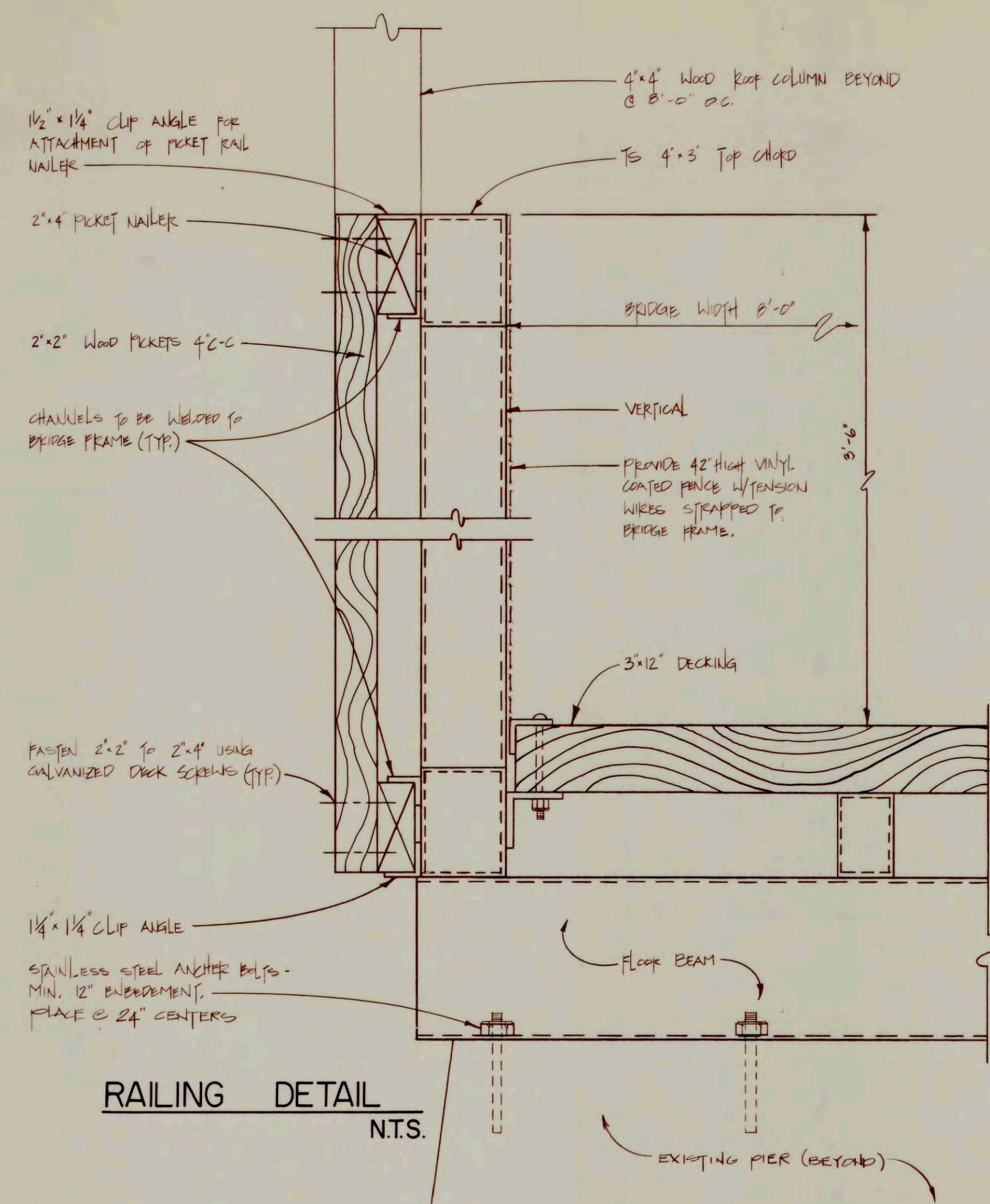
STUB UP DETAIL  
N.T.S.



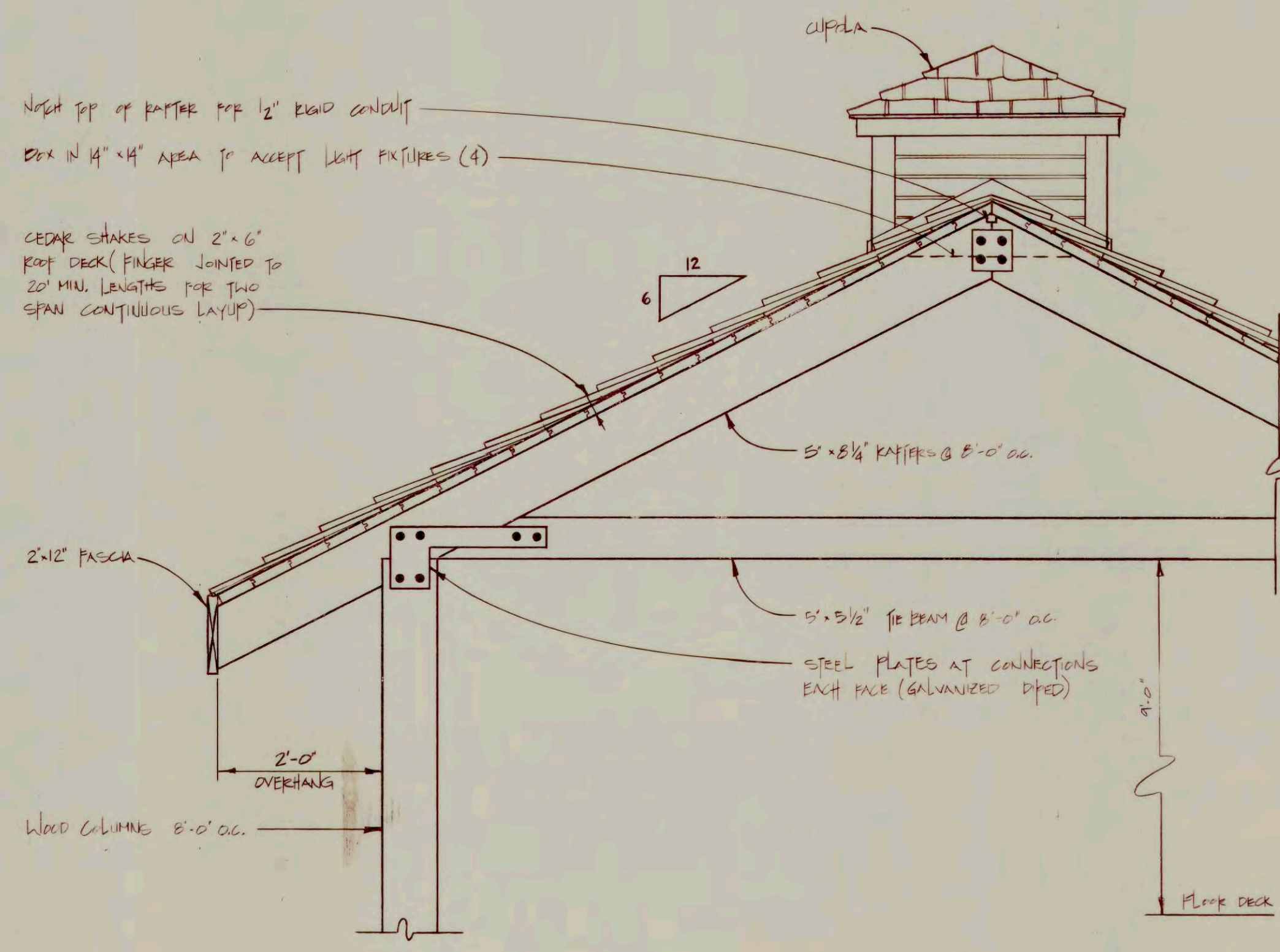
HANDHOLE DETAIL



SCALE: 1" = 30'



RAILING DETAIL  
N.T.S.

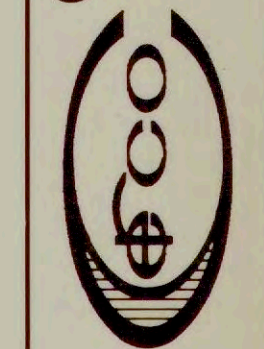


ROOF DETAIL  
N.T.S.

DR.	APPR.	CHK.	DATE
REV.			DATE

DR.	APPR.	CHK.	DATE

CHARLES E. RAINES COMPANY  
 CIVIL ENGINEERS / SURVEYORS  
 17700 FORT ST. RIVERVIEW MICHIGAN 48192  
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PROJECT: HURON PARK PHASE II  
 JOB: HURON PARK PHASE II  
 SHEET: 3