

### DRAWING INDEX

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# CHIPPEWA RIVER DAM

SHERMAN TOWNSHIP

ISABELLA COUNTY, MICHIGAN

W I L L I A M S & W O R K S

ENGINEERS - SURVEYORS - PLANNERS

GRAND RAPIDS, MICHIGAN

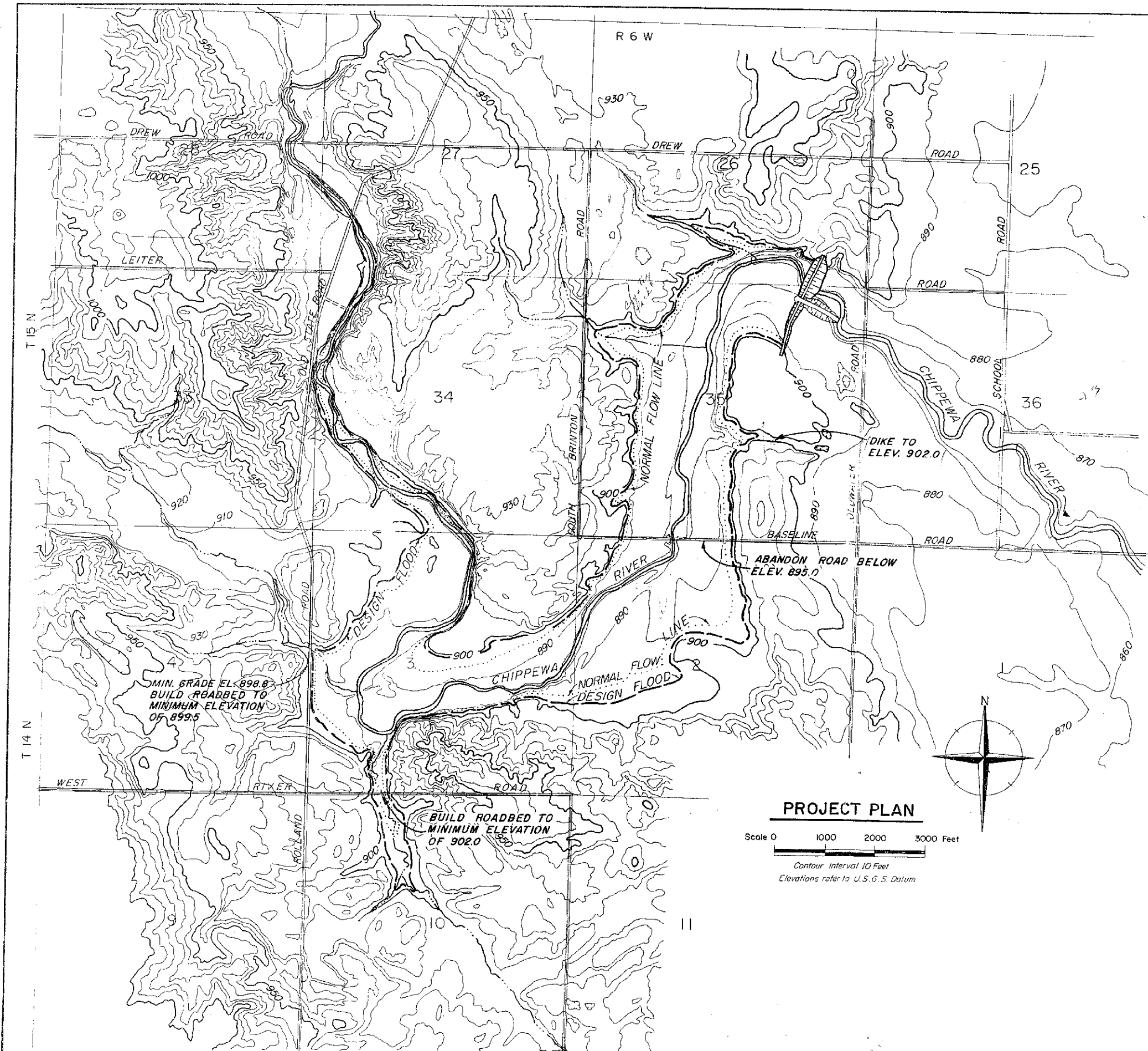
F A R G O E N G I N E E R I N G C O M P A N Y

CONSULTING ENGINEERS

JACKSON, MICHIGAN

PETITIONERS Exhibit 1

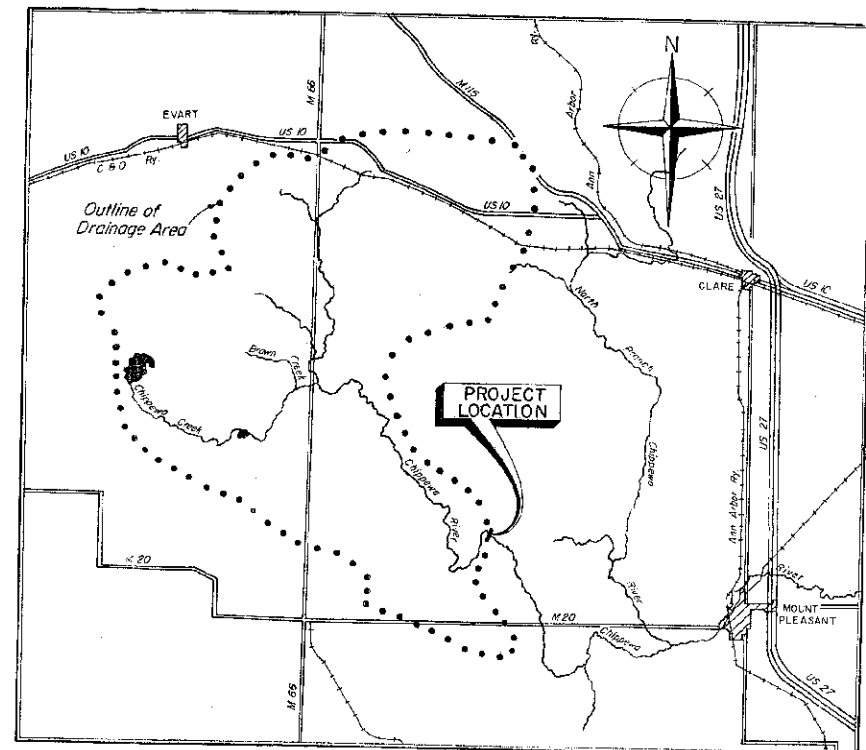
*Handwritten notes:*  
Approved by  
Michigan State Board of  
Engineering Examiners  
March 10, 1914



**PROJECT PLAN**

Scale 0 1000 2000 3000 Feet

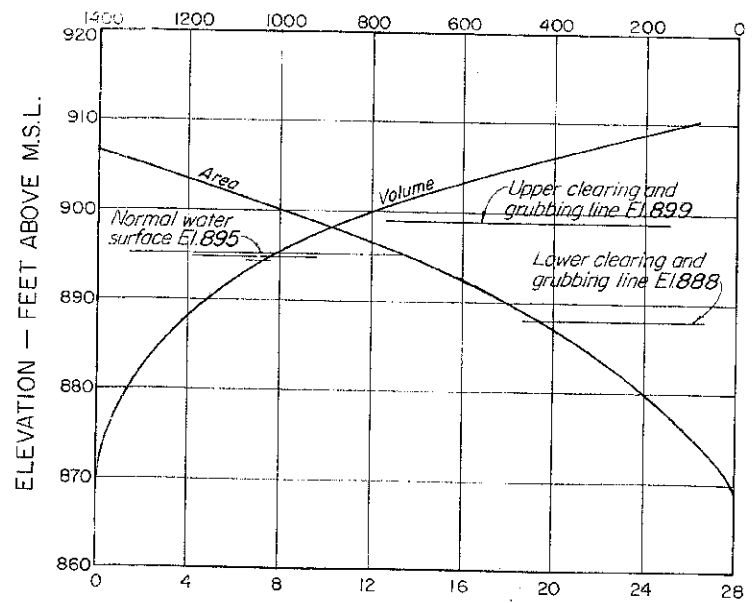
Contour Interval 10 Feet  
Elevations refer to U.S.G.S. Datum



**LOCATION MAP**

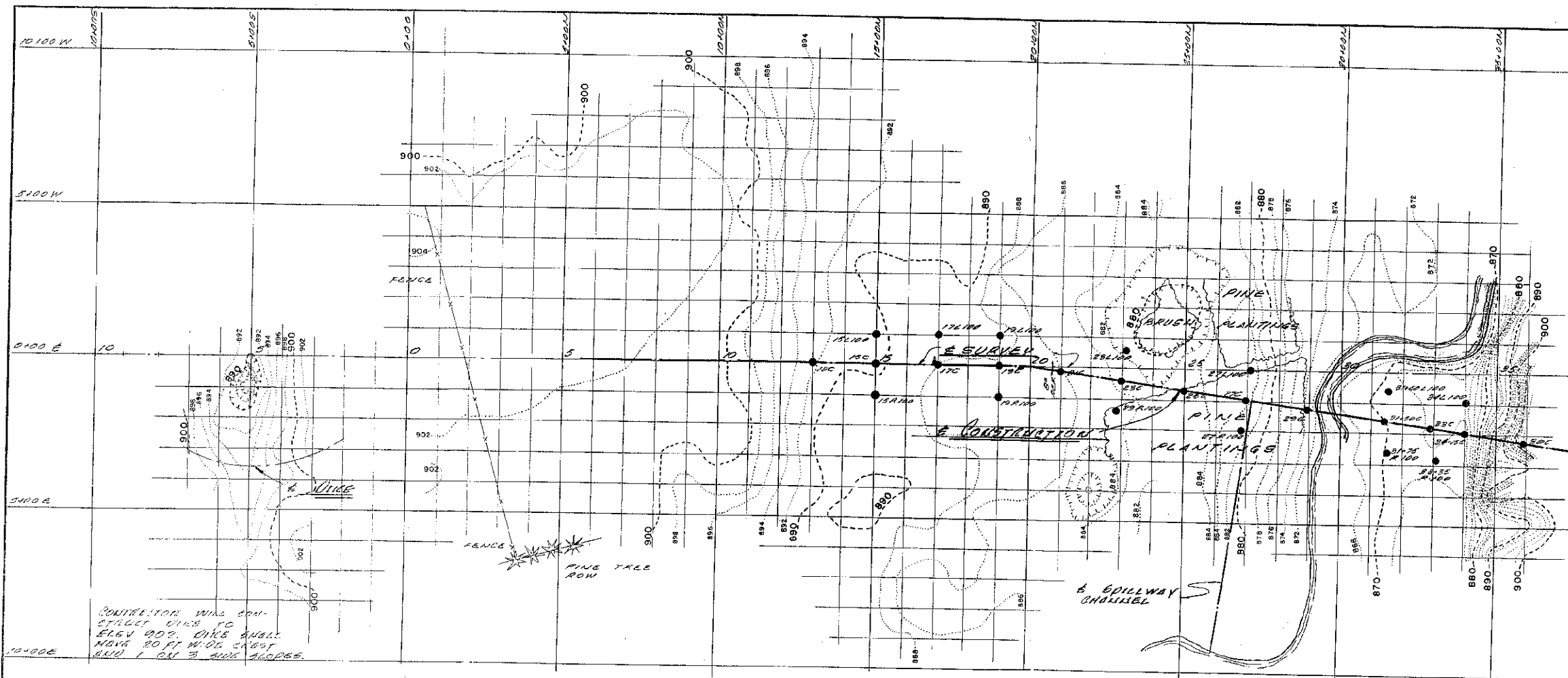
Scale 0 4 8 12 Miles

**AREA-ACRES**



**AREA-VOLUME CURVES**

PROJECT NO. E-66257				PROJECT PLAN & LOCATION MAP			
DR. BY	DATE	CHK. BY	DATE	DR. BY	DATE	CHK. BY	DATE
FARGO	10/66	PREIN	2/67				
NO.	REVISIONS	DR. BY	DATE	CHIPPEWA RIVER DAM			
				WILLIAMS & WORKS			
				GRAND RAPIDS MICHIGAN			
				FARGO ENGINEERING			
				JACKSON MICHIGAN			
							SHEET NO. 2/9



**BENCH MARKS**

B.M. U.S. 875.15 (PAINTED ON BRIDGE)  
 U.S. DEPARTMENT OF INTERIOR  
 GEOLOGICAL SURVEY, STAMPED  
 875 45 F.D.B. 1902 ON E. SIDE  
 OF BRIDGE, ON RD. SIDE, APPROX. E.

B.M.#1 ELEV. 885.00  
 TOP OF FENCE POST SET IN  
 GROUND AT STA. 22+64.300' E.

B.M.#2 ELEV. 884.00  
 TOP OF FENCE POST SET IN  
 GROUND AT STA. 22+52.117' E.

B.M.#4 ELEV. 912.00  
 TOP OF FENCE POST SET IN  
 GROUND AT STA. 35+70 AND  
 SURVEY.

**REFERENCE POINTS**

RP#1 - LOCATED 455.0 FT. N 125° E OF  
 E. OF BRIDGE OVER THE CHIPPEWA RIVER  
 ON E. OF COLUMBIAN ROAD. LOCATE STA.  
 32+57.6 OF E. OF CONSTRUCTION 3.015.  
 TANGLE 1220.0 FT. N 55° 39.6' W. OF RP#1.

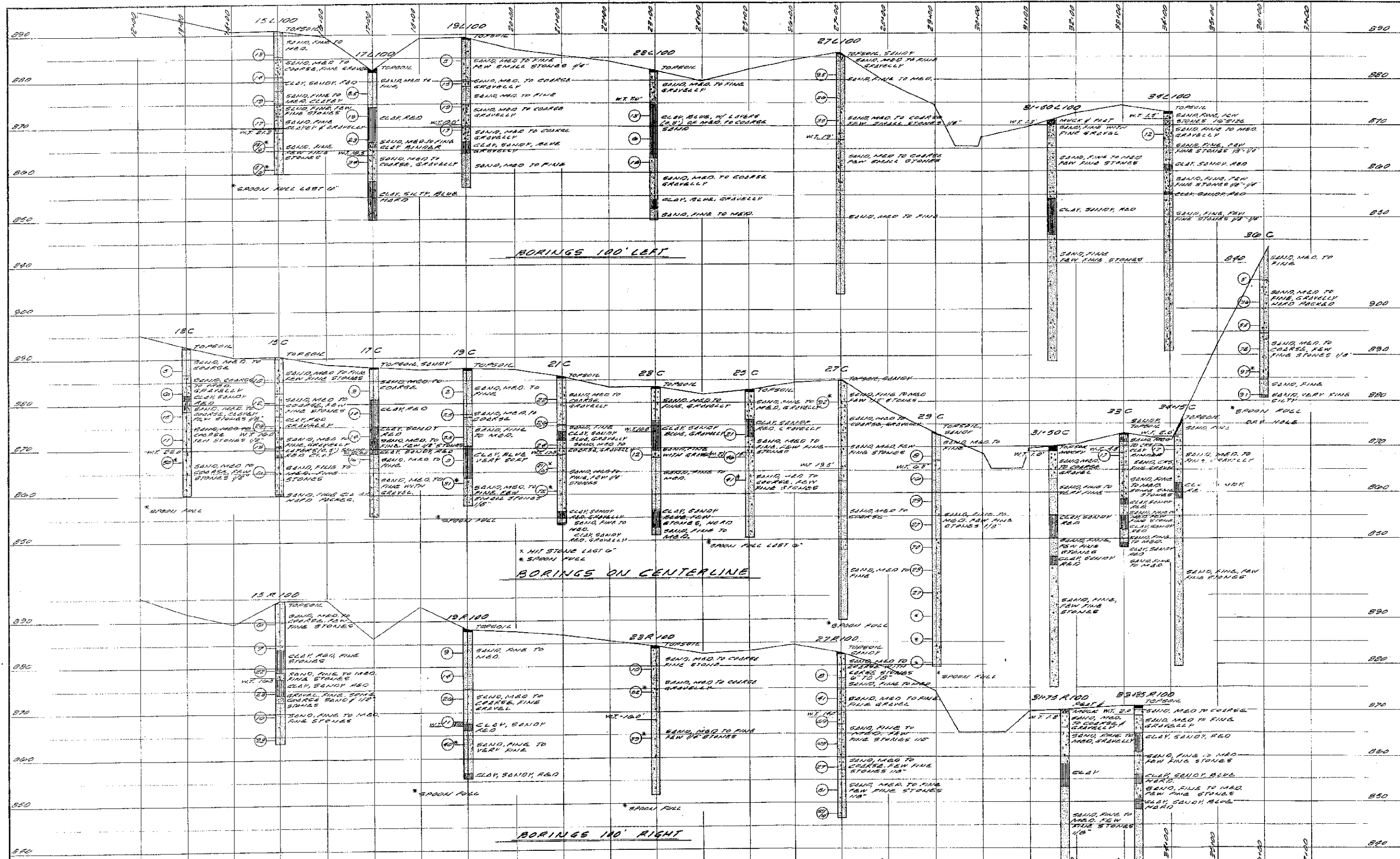
RP#2 - LOCATED 1050.5 FT. S 1° 45' W. OF  
 E. OF BRIDGE ON E. OF COLUMBIAN ROAD.  
 LOCATE STA. 10+00 OF E. OF CONSTRUCT-  
 ION A DISTANCE OF 1700.1 FT. N 83° 15.8' W  
 FROM RP#1.

CONSTRUCTION WILL CON-  
 STANTLY MAINTAIN TO  
 ELEV. 900. DUNE SHALL  
 HAVE 20 FT. WIDE SLOPE  
 AND 1 ON 3 DUNE SLOPES.

**SITE PLAN**  
 SCALE 1" = 200'  
 CONTOUR INTERVAL 2 FEET

*SHOULD BE REFERRED FOR ADDITIONAL SITE PLAN & BORING LOGS*

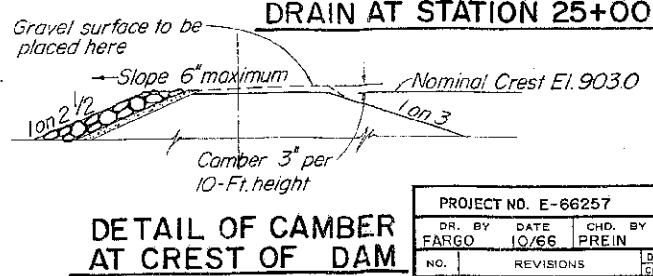
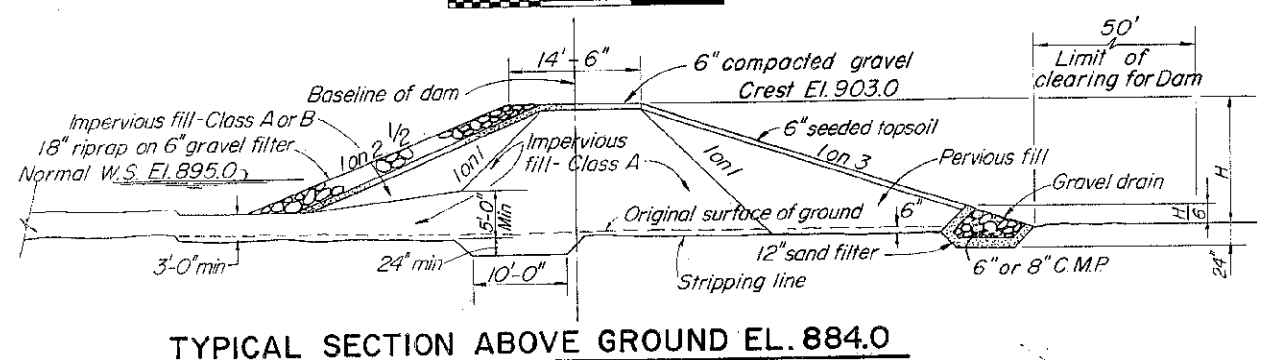
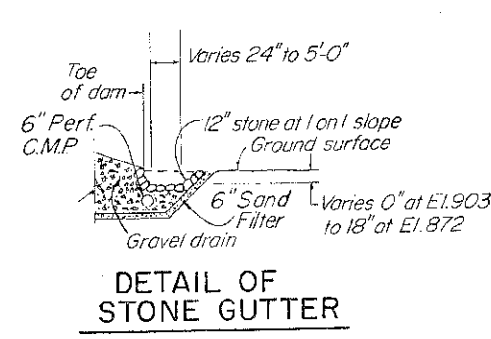
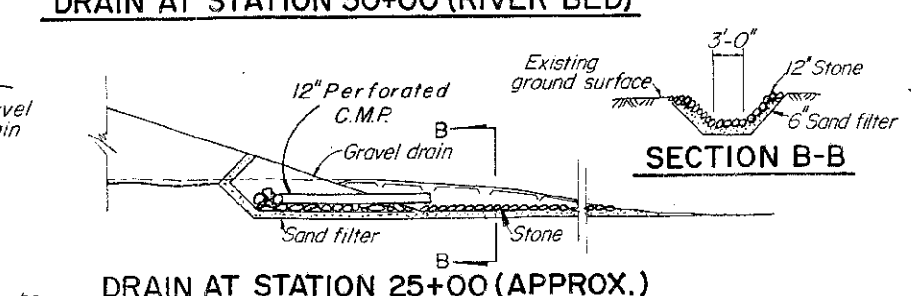
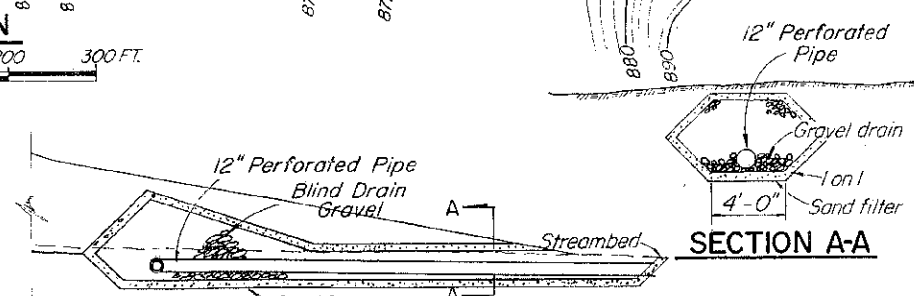
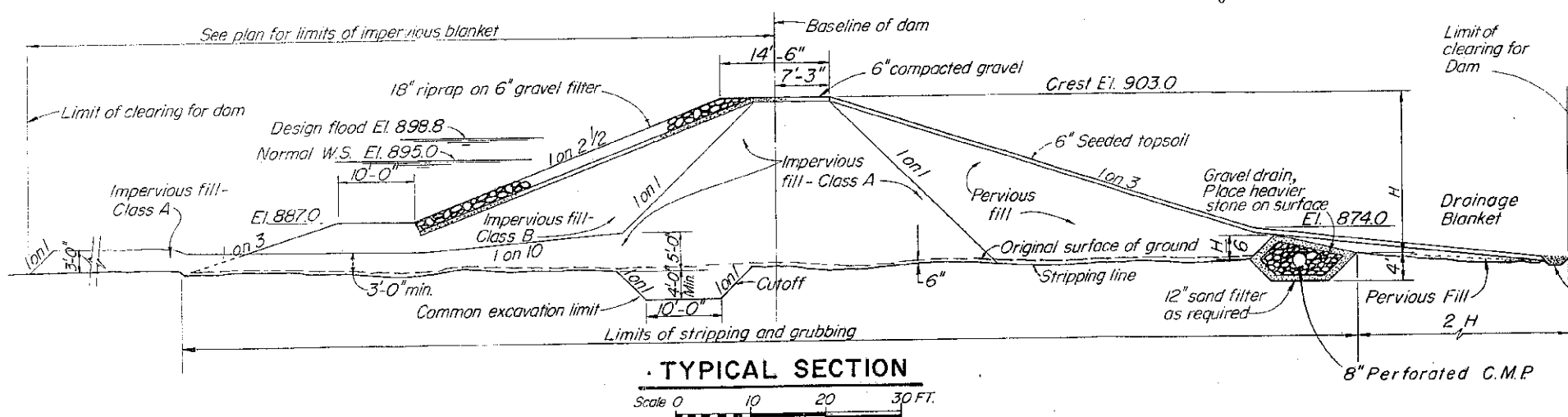
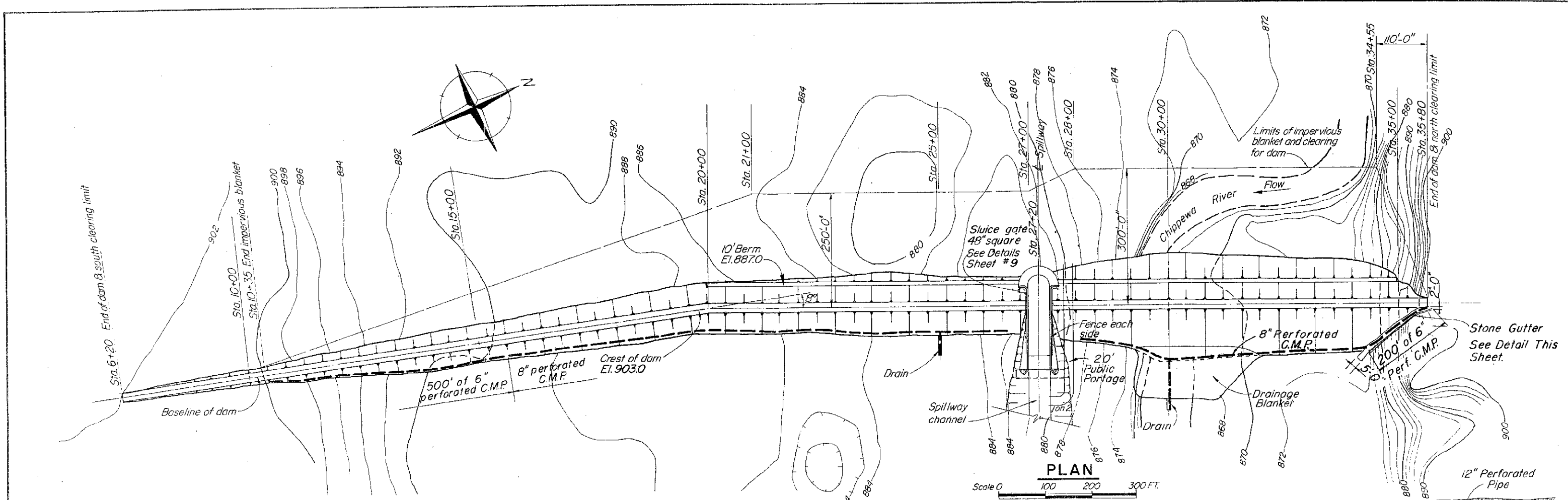
PROJECT NO. E-66257				SITE PLAN & BORING LOCATIONS	
DR. BY	DATE	CHK. BY	DATE		
D.W.S.	10/66	PREIN	2/67		
NO.	REVISIONS	DR. BY	DATE		
				CHIPPEWA RIVER DAM	
				WILLIAMS & WORKS	
				GRAND RAPIDS MICHIGAN	
				FARGO ENGINEERING	
				JACKSON MICHIGAN	
				SHEET NO. 3/9	



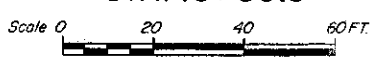
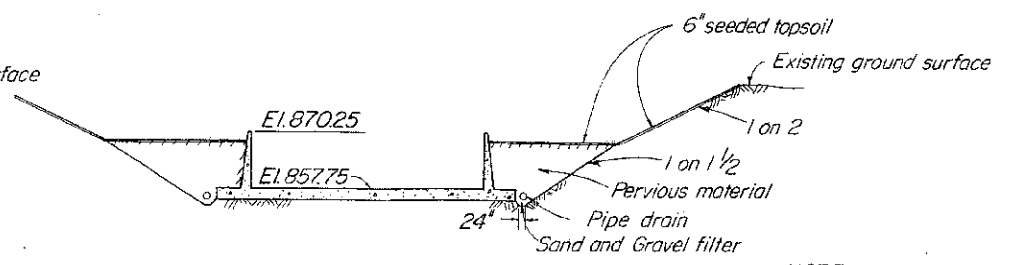
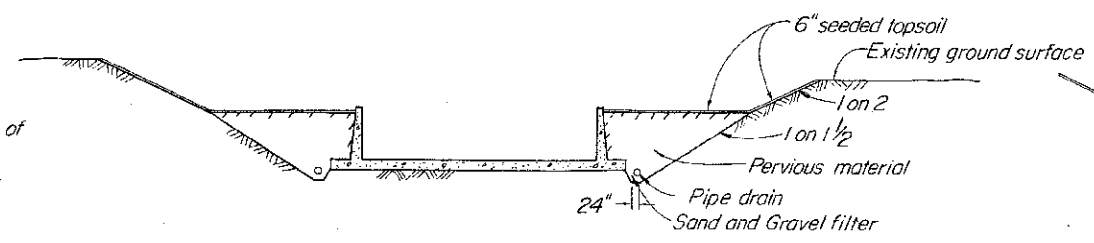
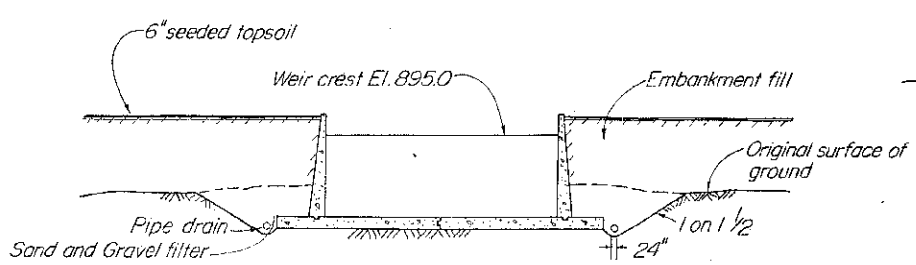
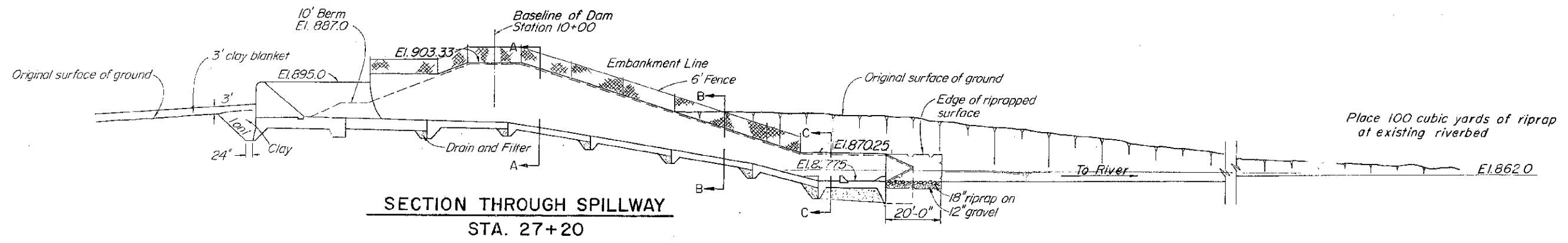
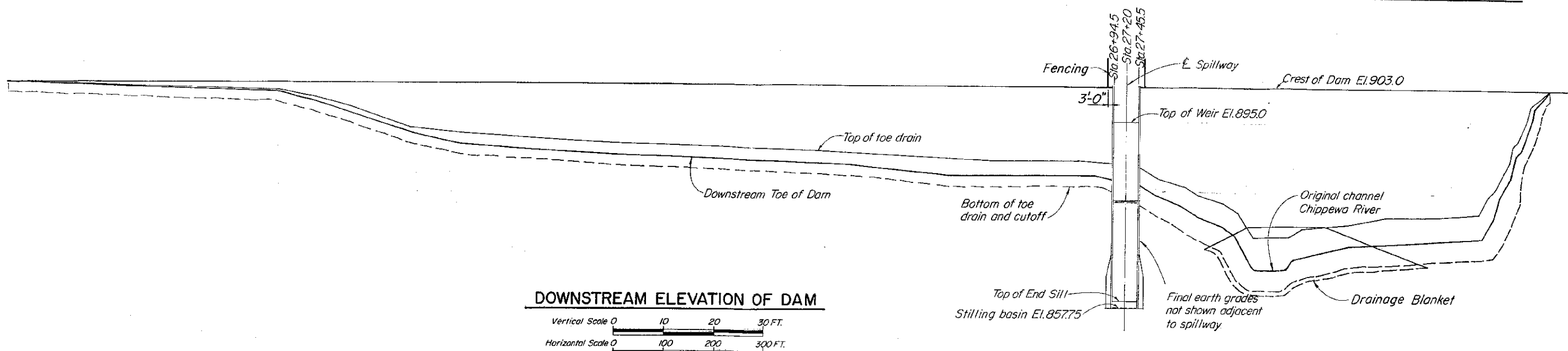
NUMBER OF BLOWS FOR 12" PENETRATION

PENETRATION TESTS ARE MADE WITH 8" DIAMETER SPLIT SPOON AND PENNMAN SLD 30" FREEFALL.

PROJECT NO. E-66257				LOG OF BORINGS			
DR. BY	DATE	CHK. BY	DATE				
D.W.S.	10/66	FREIN	2/67				
NO.	REVISIONS	DR. BY	DATE				
				CHIPPEWA RIVER DAM			
				WILLIAMS & WORKS			
				GRAND RAPIDS MICHIGAN			
				FARGO ENGINEERING			
				JACKSON MICHIGAN			
				SHEET NO. 4/9			



PROJECT NO. E-66257				EARTH EMBANKMENT PLAN, SECTIONS, & DETAILS			
DR. BY FARGO	DATE 10/66	CHD. BY PREIN	DATE 2/67	CHIPPEWA RIVER DAM			
NO.	REVISIONS	DR. BY	DATE	WILLIAMS & WORKS GRAND RAPIDS MICHIGAN			
				FARGO ENGINEERING JACKSON MICHIGAN			
				SHEET NO. 5/9			

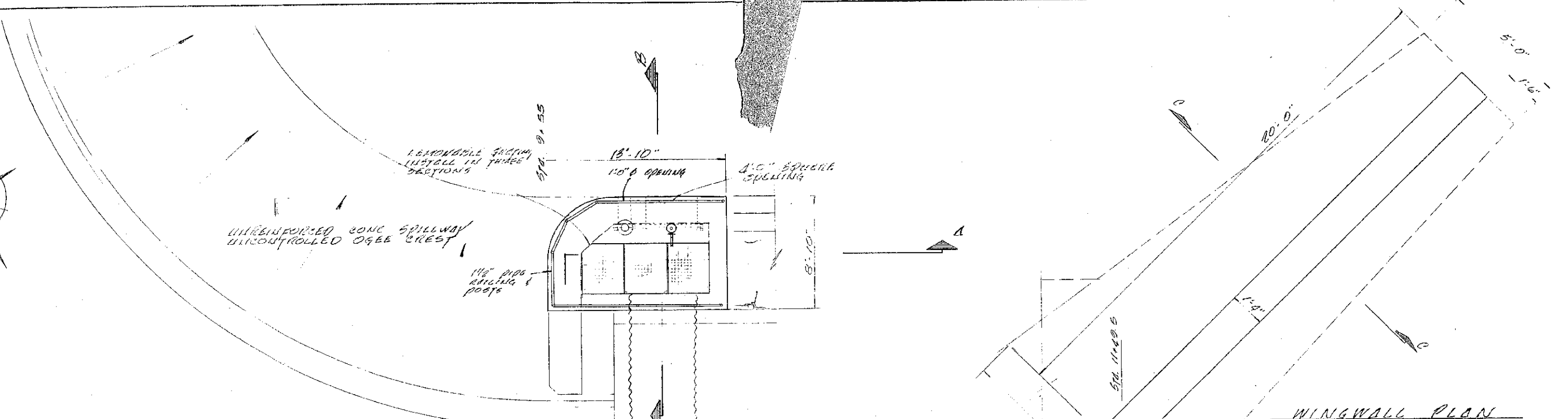
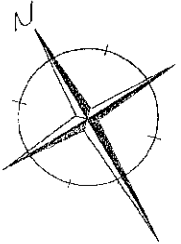


**NOTE:**  
For detail of sand and gravel drain see sheet titled Spillway Details.  
For stationing along E. spillway see sheet titled Spillway details.

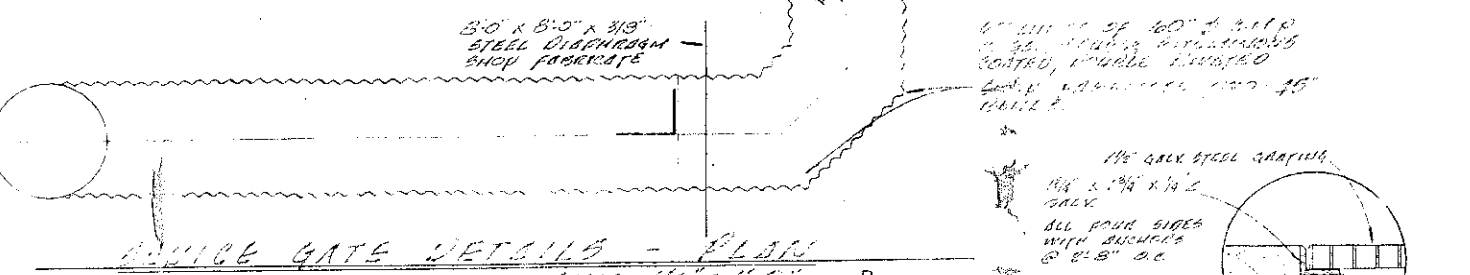
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DR. BY	DATE	CHD. BY	DATE	CHIPPEWA RIVER DAM			
FARGO	10/66	PREIN	2/67	WILLIAMS & WORKS			
NO.	REVISIONS	DR. BY	DATE	GRAND RAPIDS MICHIGAN			
				FARGO ENGINEERING			
				JACKSON MICHIGAN			
				SHEET NO. 6/9			



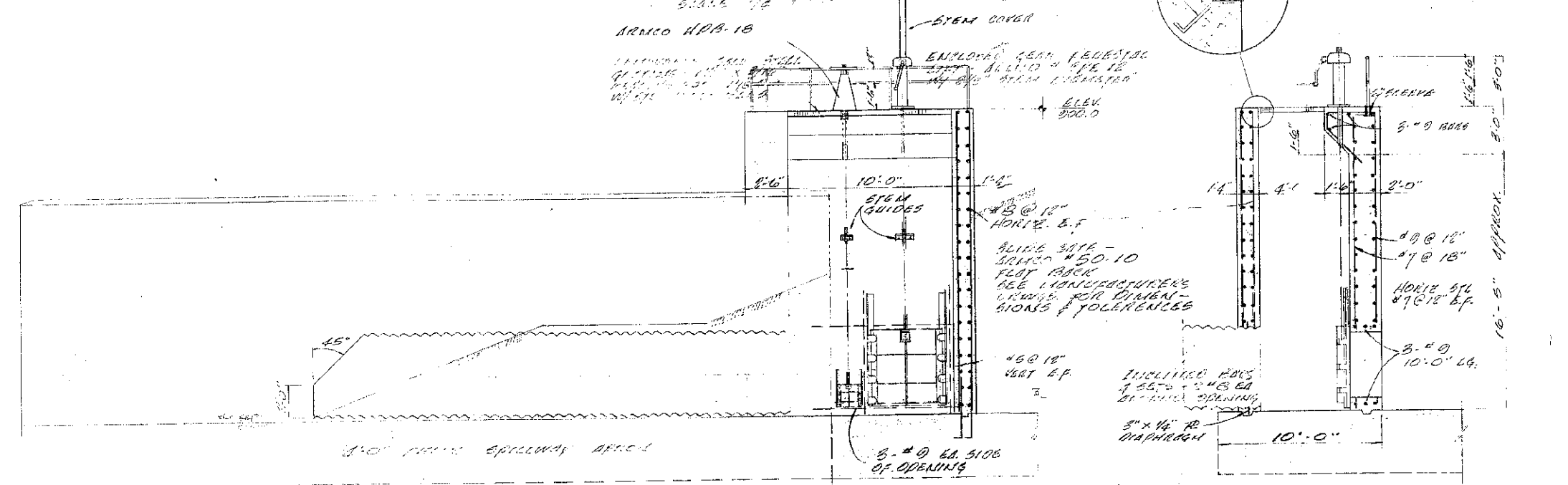




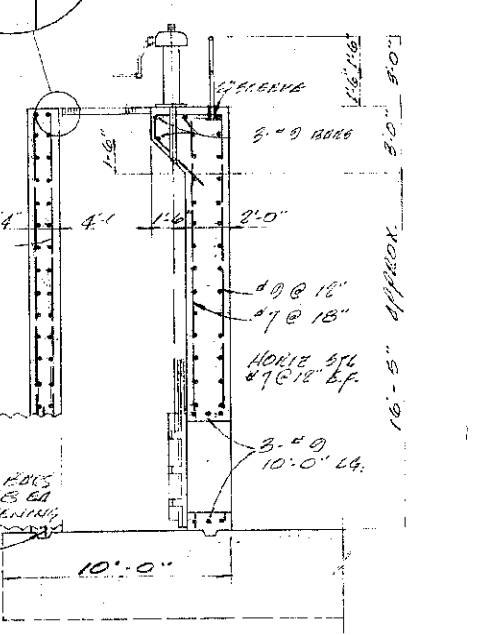
WINGWALL PLAN  
SCALE 1/2" = 1'-0"  
1/4"



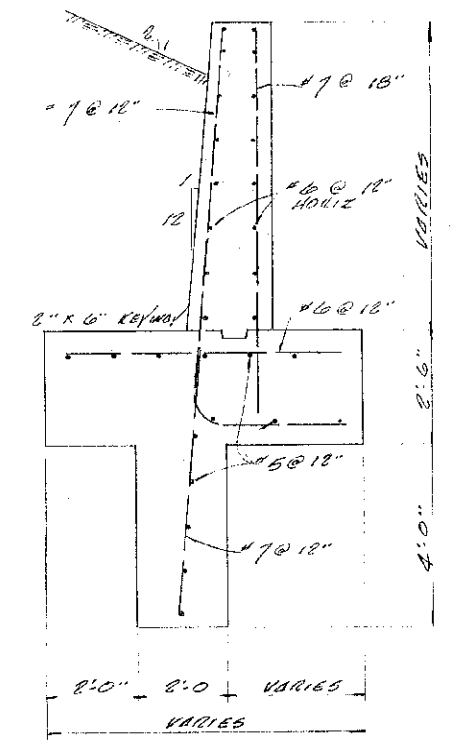
SLUICE GATE DETAILS - PLAN  
SCALE 1/4" = 1'-0"



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



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



SECTION C-C  
SCALE 1/2" = 1'-0"

PROJECT NO. E-66257				SLUICE GATE AND WINGWALL DETAILS			
DR. BY	DATE	CHK. BY	DATE	CHIPPEWA RIVER DAM			
E.M.F.	11/66	PREIN	2/67	WILLIAMS & WORKS			
				GRAND RAPIDS MICHIGAN			
				FARGO ENGINEERING			
				JACKSON MICHIGAN			
							SHEET NO. 9/9

