

JULY 20, 2004

LETTING DATE:

PIPE CULVERT
BROS-C024(65) -- 5F-24

CRAWFORD COUNTY

TRAFFIC CONTROL PLAN

THIS ROAD WILL BE CLOSED TO THROUGH TRAFFIC DURING CONSTRUCTION. LOCAL TRAFFIC TO ADJACENT PROPERTIES WILL BE MAINTAINED AS PROVIDED FOR IN ARTICLE 1107.08 OF THE CURRENT STANDARD SPECIFICATIONS. TRAFFIC CONTROL DEVICES, PROCEDURES, LAYOUTS, SIGNING, AND PAVEMENT MARKINGS INSTALLED WITHIN THE LIMITS OF THIS PROJECT SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AS ADOPTED BY THE DEPARTMENT PER 761 OF THE IOWA ADMINISTRATIVE CODE (IAC) CHAPTER 130."

PERMITS

THIS PROJECT IS COVERED BY THE FOLLOWING CORPS OF ENGINEERS (COE) AND IOWA DEPARTMENT OF NATURAL RESOURCES (IDNR) FLOOD PLAIN DEVELOPMENT PERMITS.
COE PERMIT: NWP #14
IDNR PERMIT: N/A

FHWA No.: 128850

IOWA DEPARTMENT OF TRANSPORTATION

PROJECT DEVELOPMENT DIVISION
PLANS OF PROPOSED IMPROVEMENT ON THE
**FARM TO MARKET SYSTEM
CRAWFORD COUNTY**

PIPE CULVERT
BROS-C024(65) -- 5F-24

LOCATED ON J AVE. BETWEEN ROCKY RUN ROAD AND 310TH ST.
NORTH LINE SECTION 21, TOWNSHIP 84N, RANGE 38W

SCALES: As Noted

The Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2001, plus the applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions, shall apply to construction work on this project.

Project Number: BROS-C024(65) -- 5F-24

INDEX OF SHEETS

No.	Description
1.	Title Sheet, Location Map
2.	Estimate Project Quantities and General Information
3.	Plan and Profile
4.	Detail Sheets
5-6.	Cross Sections

MILEAGE SUMMARY

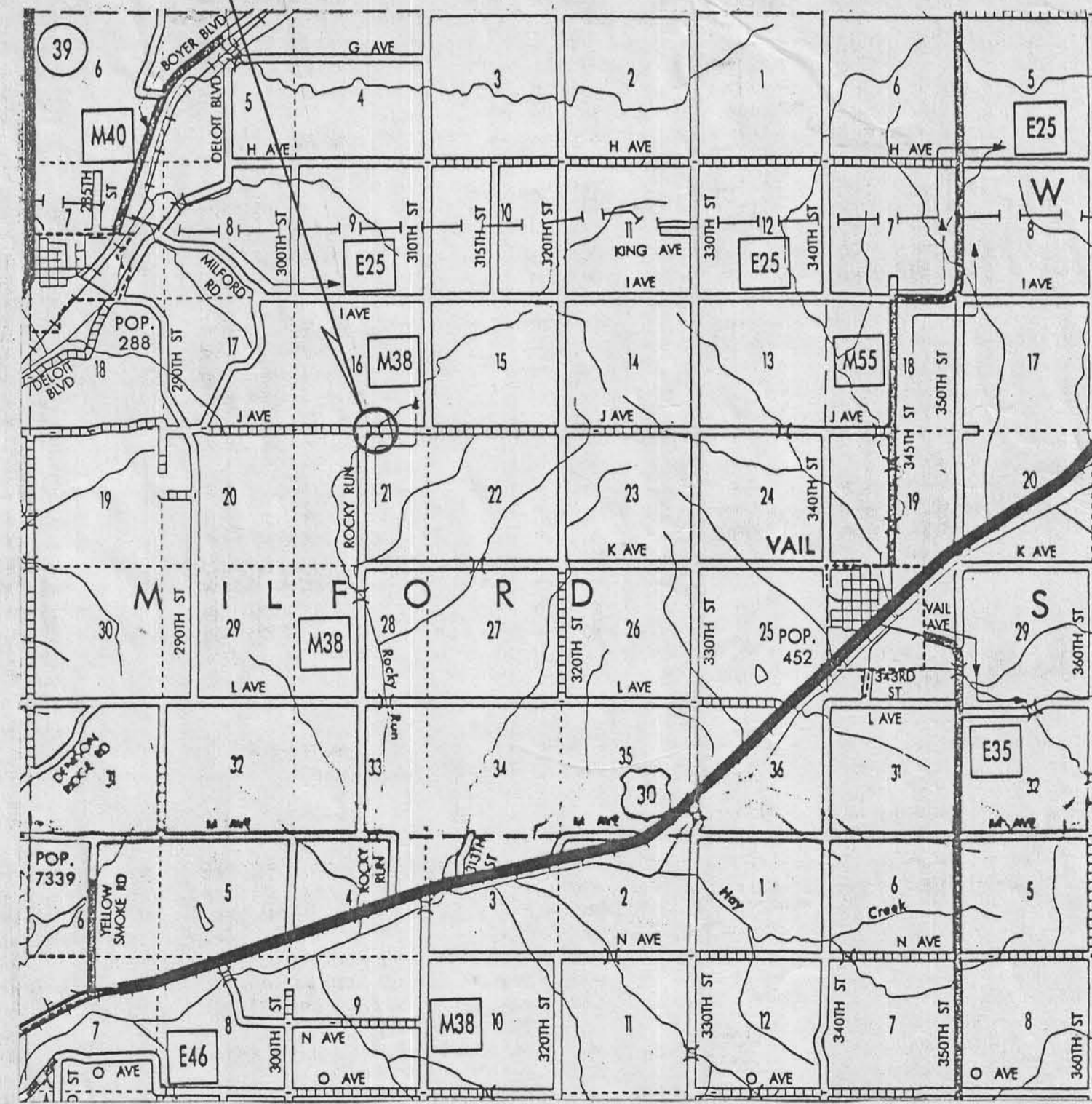
Div.	Location	Lin. Ft.	Miles
	STA. 2+00 to STA. 8+00	600.0	0.1136

ROAD STANDARD PLANS

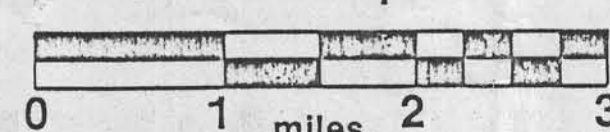
The following Standard Plans shall be considered applicable to construction work on this project.

Identification	Date	Identification	Date	Identification	Date
RF-5	10-03-00	RS-26A	10-28-97		
RF-21	4-15-03				
RF-30A	3-28-95				
RF-32	3-28-95				
RF-33	03-28-95				

STA. 5 + 36 PROPOSED
217" X 142", STRUCTURAL
PLATE PIPE ARCH

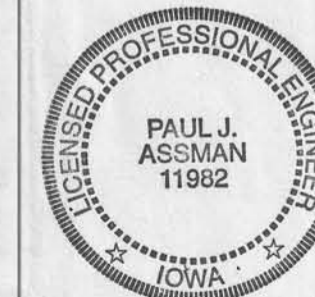


Location Map Scale



Mark Siebart
Steve Allen
D. Dan Higgins
Robert D. Lohmann
John P. Lawler

Approved
Board of Supervisors



Iowa Department of Transportation

HIGHWAY DIVISION

Accepted for Letting

Paul J. Assman 4/30/04
DISTRICT LOCAL SYSTEMS ENG. DATE

I hereby certify that this plan was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly licensed professional engineers under the laws of the State of Iowa.

Paul J. Assman
PAUL J. ASSMAN Date

Pages or sheets covered by this seal 6

My license renewal date is December 31, 2004.

2000 AADT 30-35 V.P.D.

DESIGN No.

Crawford County

Project Number: BROS-C024(65) -- 5F-24 Sheet No. 1 of 6

GENERAL NOTES

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAKE ALL NECESSARY ARRANGEMENTS WITH ADJACENT PROPERTY OCCUPANTS FOR RESTRAINING LIVESTOCK FROM ENTERING THE RIGHT-OF-WAY.

CONTRACTOR IS TO USE DUE CAUTION IN WORKING OVER AND AROUND ALL TILE LINES. BREAKS IN THE TILE LINE DUE TO THE CONTRACTOR'S CARELESSNESS ARE TO BE REPLACED AT HIS EXPENSE WITHOUT COST TO THE COUNTY. ANY TILE LINES BROKEN OR DISTURBED BY CUT LINES WILL BE REPLACED AS DIRECTED BY THE ENGINEER IN CHARGE OF CONSTRUCTION AND AT THE COUNTY'S EXPENSE.

ALL BORROW AREAS, STOCKPILE AREAS, HAUL ROADS AND AREAS FOR MANEUVERING EQUIPMENT ON THIS PROJECT WILL REQUIRE SUBSOIL TILLAGE TO AN AVERAGE DEPTH OF 18 TO 24 INCHES. SUCH TILLAGE SHALL BE ACCOMPLISHED ON MAXIMUM OF THREE FOOT CENTERS. SUCH AREAS SHALL BE DESIGNATED BY THE COUNTY ENGINEER.

WHERE PUBLIC UTILITY FIXTURES ARE SHOWN AS EXISTING ON THE PLANS OR ENCOUNTERED WITHIN THE CONSTRUCTION AREA, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF THOSE UTILITIES PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. THE CONTRACTOR SHALL AFFORD ACCESS TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS, AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OR DELAY CAUSED BY SUCH WORK.

CONTRACTOR SHALL NOTIFY ONE-CALL (1-800-292-8989) FOR UTILITY LOCATES PRIOR TO COMMENCING WORK.

THE BACKFILLING AND ASSOCIATED EMBANKMENT CONSTRUCTION SHALL BE COMPLETED WITHIN 14 WORKING DAYS AFTER THE CURING PERIOD HAS EXPIRED FOR CONCRETE STRUCTURES.

213-1
IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE WASTE AREAS OR DISPOSAL SITES FOR EXCESS MATERIAL (EXCAVATED MATERIAL OR BROKEN CONCRETE) WHICH IS NOT DESIRABLE TO BE INCORPORATED INTO THE WORK INVOLVED ON THIS PROJECT. THESE AREAS SHALL NOT IMPACT WETLANDS OR "WATERS OF THE U.S." NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES. NO MATERIAL SHALL BE PLACED WITHIN THE RIGHT-OF-WAY, UNLESS SPECIFICALLY STATED IN THE PLANS OR APPROVED BY THE ENGINEER.

213-4
THE CONTRACTOR SHALL APPLY NECESSARY MOISTURE TO THE CONSTRUCTION AREA AND HAUL ROADS TO PREVENT THE SPREAD OF DUST. REFER TO ARTICLE 1107.07 OF THE CURRENT STANDARD SPECIFICATIONS FOR ADDITIONAL DETAILS.

251-1
THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN ACCESS TO INDIVIDUAL PROPERTIES DURING CONSTRUCTION.

RELOCATED ACCESS SHALL BE COMPLETED TO INDIVIDUAL PROPERTIES PRIOR TO REMOVAL OF EXISTING ACCESS.

IF THE PERMANENT ACCESS CANNOT BE COMPLETED PRIOR TO REMOVAL OF THE EXISTING ACCESS, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN AN ALTERNATE ACCESS. TEMPORARY GRANULAR SURFACING WILL BE PAID FOR AS A CONTRACT ITEM OR BY EXTRA WORK.

MULCHING, SEEDING, AND FERTILIZING BY OTHERS.

ESTIMATE OF QUANTITIES :				
REF. NO.	ITEM CODE	DESCRIPTION	UNITS	TOTAL
1	2101-0850002	CLEARING AND GRUBBING	UNITS	173.5
2	2102-0425070	SPECIAL BACKFILL	TON	216.0
3	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	5514.0
4	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	142.0
5	2107-0425020	COMPACTING BACKFILL ADJACENT TO BRIDGES, CULVERTS, OR STRUCTURES	CY	117.0
6	2312-8260051	GRANULAR SURFACING ON ROAD, CLASS 'A' CRUSHED STONE	TON	178.0
7	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1.0
8	2402-2720100	EXCAVATION, CLASS 20, FOR ROADWAY PIPE CULVERTS	CY	1660.0
9	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS)	CY	26.0
10	2404-7775000	REINFORCING STEEL	LB	1866.0
11	2417-0225036	APRONS, METAL, 36 INCH DIA.	EACH	3.0
12	2417-1040024	CULVERT, CORRUGATED METAL, ENTRANCE PIPE, 24 INCH DIA.	LF	28.0
13	2417-1060036	CULVERT, CORRUGATED METAL, ROADWAY PIPE, 36 INCH DIA.	LF	192.0
14	2420-1300217	CULVERT, STRUCTURAL PLATE PIPE ARCH, 217 INCH X 142 INCH	LF	86.9
15	2507-3250005	ENGINEERING FABRIC	SY	194.0
16	2507-6800061	REVTMENT, CLASS E, RIP RAP	TON	146.0
17	2518-6910000	SAFETY CLOSURE	EACH	2.0
18	2528-8445110	TRAFFIC CONTROL	LS	1.0
19	2533-4980005	MOBILIZATION	LS	1.0

ESTIMATE REFERENCE SECTION

DATA LISTED BELOW IS FOR INFORMATIONAL PURPOSES ONLY AND SHALL NOT CONSTITUTE A BASIS FOR ANY EXTRA WORK ORDERS.

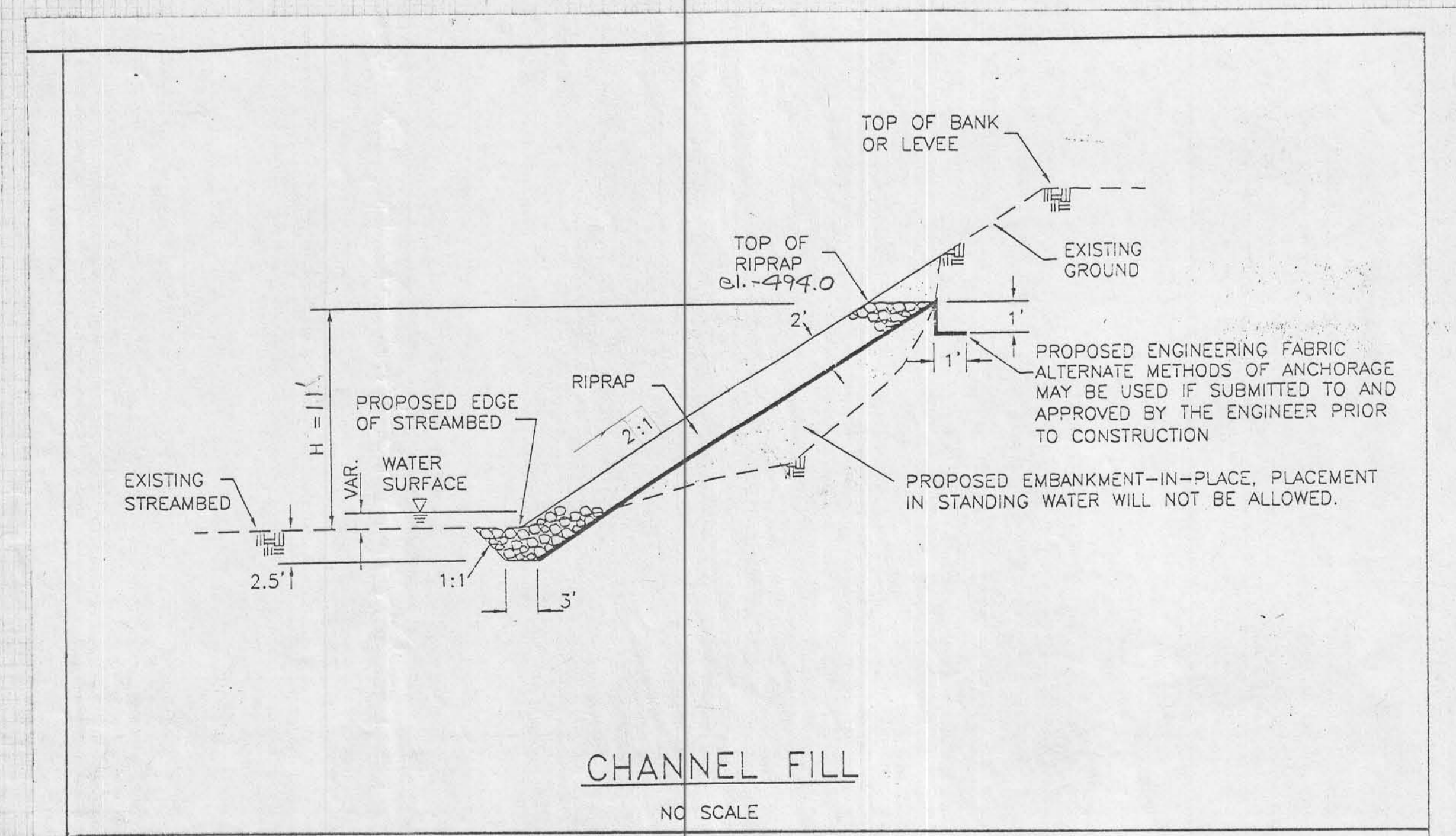
REFERENCE NO.	DESCRIPTION
2	SHALL MEET THE REQUIREMENTS OF I.D.O.T. STANDARD SPECIFICATION 4132.02 CRUSHED STONE OR CRUSHED CONCRETE SPECIAL BACKFILL.
3	5319 CU. YDS. OF BORROW. OFF SITE BORROW IS REQUIRED ON THIS PROJECT. CRAWFORD COUNTY HAS HAD AN ARCHAEOLOGICAL SURVEY COMPLETED ON AN AREA LOCATED APPROXIMATELY 1500 FEET WEST OF THE PROJECT SITE. THIS IS AN OPTIONAL BORROW SITE. COPIES OF THE ARCHAEOLOGICAL SURVEY AND THE STATE HISTORICAL OFFICE APPROVAL LETTER CAN BE OBTAINED AT THE COUNTY ENGINEERS OFFICE. FOR ADDITIONAL INFORMATION REGARDING THE BORROW AREA, CONTACT THE OWNER: JOE THELEN 1851 310 TH ST. DENISON, IOWA 51442 TEL. 712.263.3019
4 & 8	SUITABLE CLASS 10 CHANNEL AND CLASS 20 EXCAVATION TO BE USED AS EMBANKMENT MATERIAL. SEE SHEETS 2 AND 3. UNSUITABLE MATERIAL SHALL BE WASTED ON SITE AS DIRECTED BY THE ENGINEER.
6	SHALL MEET THE REQUIREMENTS OF I.D.O.T. STANDARD SPECIFICATION 4120.04.
7	INCLUDES REMOVAL AND DISPOSAL OF EXISTING 29' x 26.6' STEEL I-BEAM BRIDGE, WITH CONCRETE ABUTMENTS AT STA. 5+32. CONTRACTOR SHALL DISPOSE OF BROKEN CONCRETE ON SITE AS DIRECTED BY COUNTY ENGINEER. ALL REINFORCING STEEL SHALL BE TRIMMED SO THAT PROTRUSIONS ARE LESS THAN 1/4 INCH. THE STEEL I-BEAMS SHALL REMAIN THE PROPERTY OF THE COUNTY AND THE CONTRACTOR SHALL CAREFULLY REMOVE AND NEATLY STACK THESE ITEMS WITHIN THE RIGHT-OF-WAY. A SCRAPE SAMPLE WAS TAKEN FROM ONE AREA OF THIS BRIDGE TO GET AN INDICATION OF THE EXISTENCE OF THE LEVEL OF TOTAL CHROMIUM AND TOTAL LEAD. ANALYSIS OF TOTAL LEAD ON THIS SAMPLE WAS 3808 PPM. ANALYSIS OF TOTAL CHROMIUM ON THIS SAMPLE WAS 447 PPM. THESE ANALYSES SHOW THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS. LEVELS INDICATED BY THESE TESTS COULD CREATE CONDITIONS ABOVE REGULATORY LIMITS FOR HEALTH AND SAFETY REQUIREMENTS. NO OTHER CONSTITUENTS WERE ANALYZED. THE BIDDER SHOULD NOT RELY ON THE CONTRACTING AUTHORITY'S TESTING AND ANALYSIS FOR ANY OTHER PURPOSE OTHER THAN AS AN INDICATION OF THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS.
9	CLASS "C" STRUCTURAL CONCRETE REQUIRED.
12 & 13	ALL CORRUGATED METAL PIPE ON THIS PROJECT SHALL BE RIVITED PIPE. NO SPIRAL PIPE WILL BE ALLOWED.
13	UNIT PRICE BID FOR THIS ITEM SHALL INCLUDE FURNISHING, FABRICATING, AND INSTALLING THE 7 DEGREE ELBOW.

- 14 THIS ITEM SHALL INCLUDE FURNISHING AND INSTALLING THE 217" X 142" STRUCTURAL PLATE PIPE AS SHOWN. MATERIAL REQUIREMENTS, CONSTRUCTION REQUIREMENTS, METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE AS SPECIFIED IN SECTION 2420 OF THE REFERENCE SPECIFICATIONS.

8 GAGE PLATES REQUIRED.

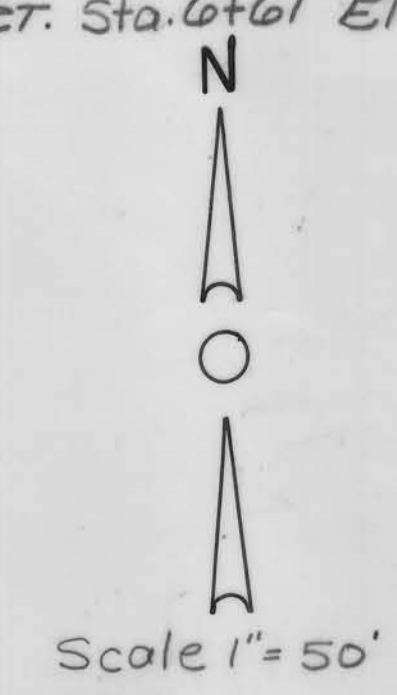
UNIT PRICE BID FOR THIS ITEM SHALL INCLUDE FURNISHING, FABRICATING, AND INSTALLING THE 36" DIA. TEE SECTION.

UNIT PRICE BID FOR THIS ITEM SHALL INCLUDE DIVERTING THE SURFACE WATER AND DEWATERING THE SITE AS NEEDED FOR CONSTRUCTION.
- 15 MATERIAL TO CONFORM TO IOWA D.O.T. MATERIALS LM. 496.01 APPENDIX A. EMBANKMENT EROSION CONTROL (SPECIFICATION 4196.01C)



BM No. 1 SPK in fence Post, 98' RT. Sta. 6+61 Elev. - 499.33

MILFORD TOWNSHIP
SEC. 16
T-84N R-38W



Sta. 3+80, D.A. = 14 AC., Contr. To furnish and Place 36" x 70' C.M.P. and 2-36" R.F-5 Metal pipe Aprons. LT. - 37.25 RT. - 43.25 FL. - 493.5 FL. - 491.5 Class 20 Excav. = 45 c.y. 20° RT. Ahead Skew. Fill = 4'

Sta. 3+95 Farm Ent. LT. 24' x 32' C.M.P. Remove. Construct dry entrance, 24' Top. 3:1 Slopes.

Note:
Existing R.O.W. 33' each side of & entire Proj. Dash Line is Proposed R.O.W.

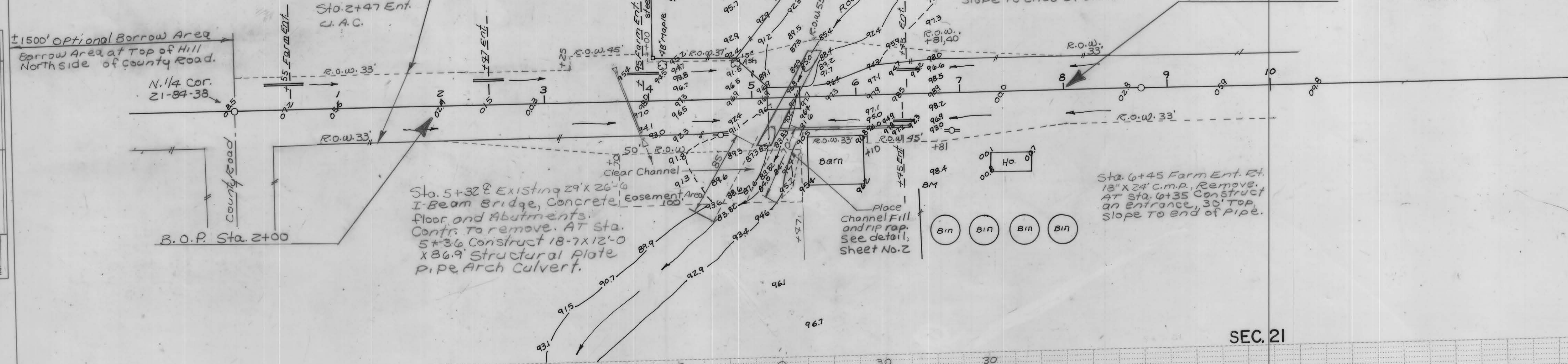
Sta. 6+45 Field Ent. LT. 36" x 20' C.M.P. Remove. F & P 24" x 28' C.M.P. 20' Top Slope to ends of C.M.P.

Sta. 6+45 Farm Ent. Rt. 18" x 24' C.M.P. Remove. AT Sta. 6+35 Construct an Entrance, 30' Top. Slope to end of Pipe.

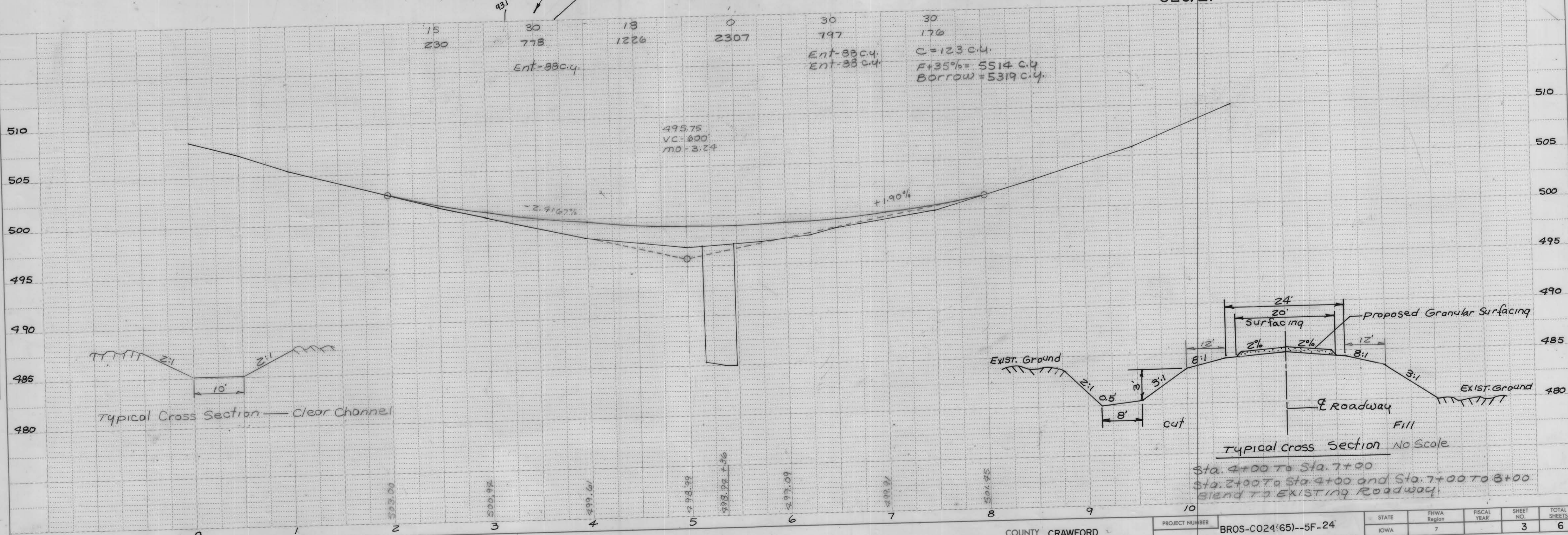
Sta. 5+32 Existing 29' x 26'-6" I-Beam Bridge, Concrete Floor and Abutments. Contr. to remove. AT Sta. 5+36 Construct 18-7 x 12-0 x 86.9' Structural Plate pipe Arch Culvert.

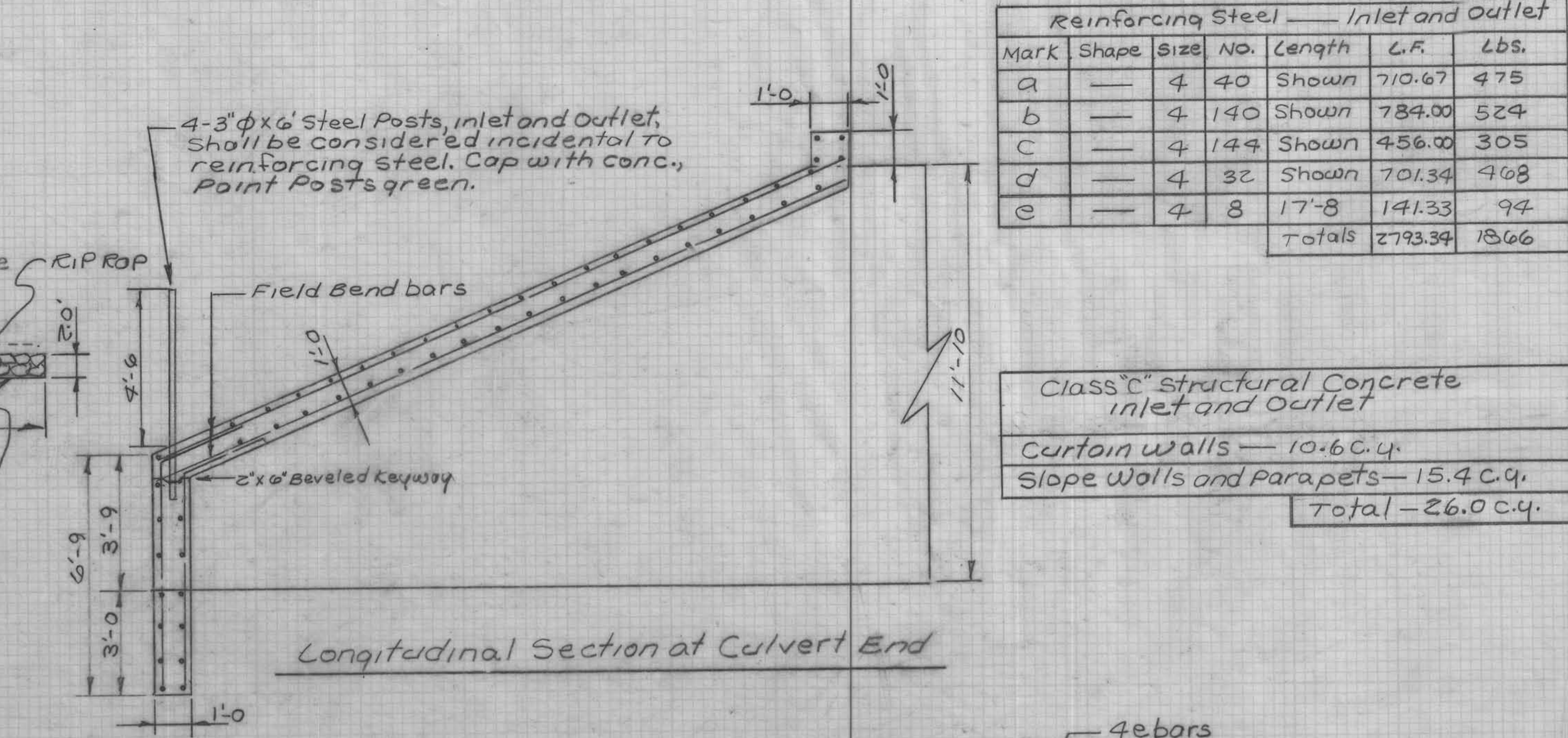
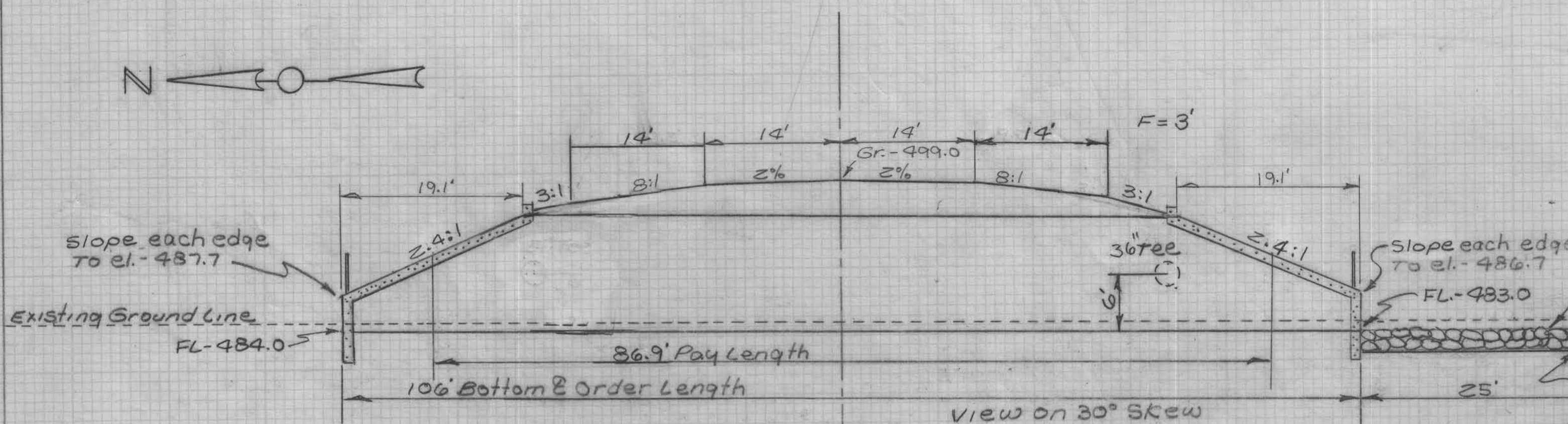
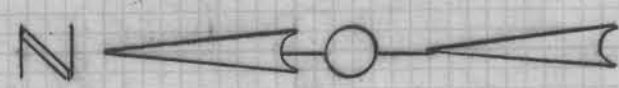
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DATE	
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NO.	
PROFILE	



SEC. 21





Reinforcing Steel — Inlet and Outlet						
Mark	Shape	Size	No.	Length	L.F.	Lbs.
a	—	4	40	Shown	710.67	475
b	—	4	140	Shown	784.00	524
c	—	4	144	Shown	456.00	305
d	—	4	32	Shown	701.34	468
e	—	4	8	17'-8"	141.33	94
Totals					2793.34	1866

Class "C" structural Concrete
inlet and Outlet

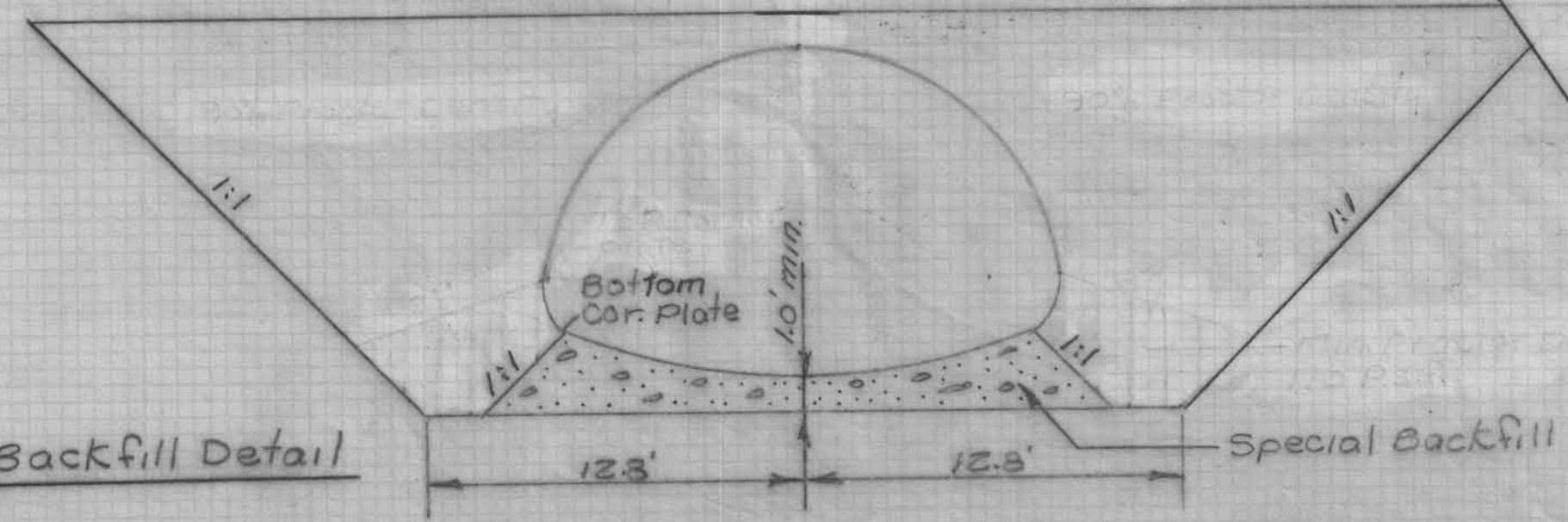
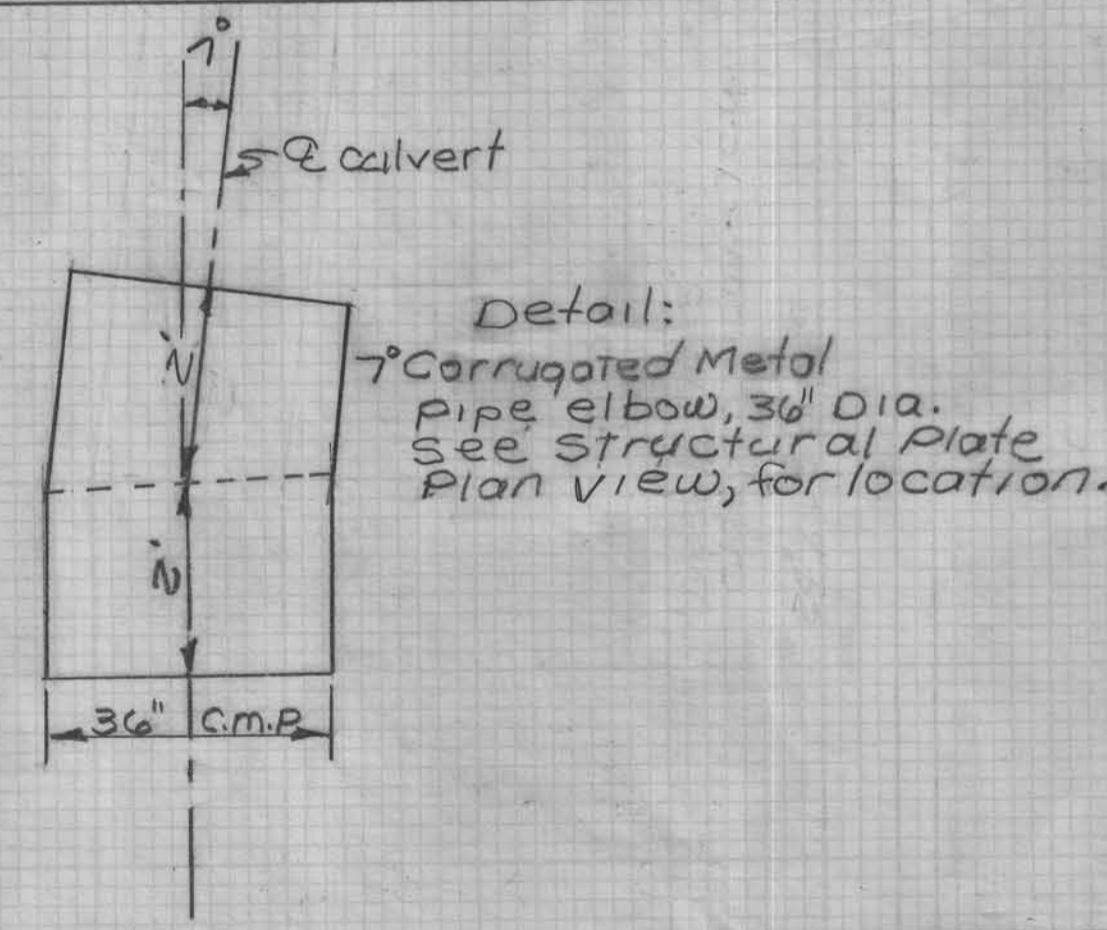
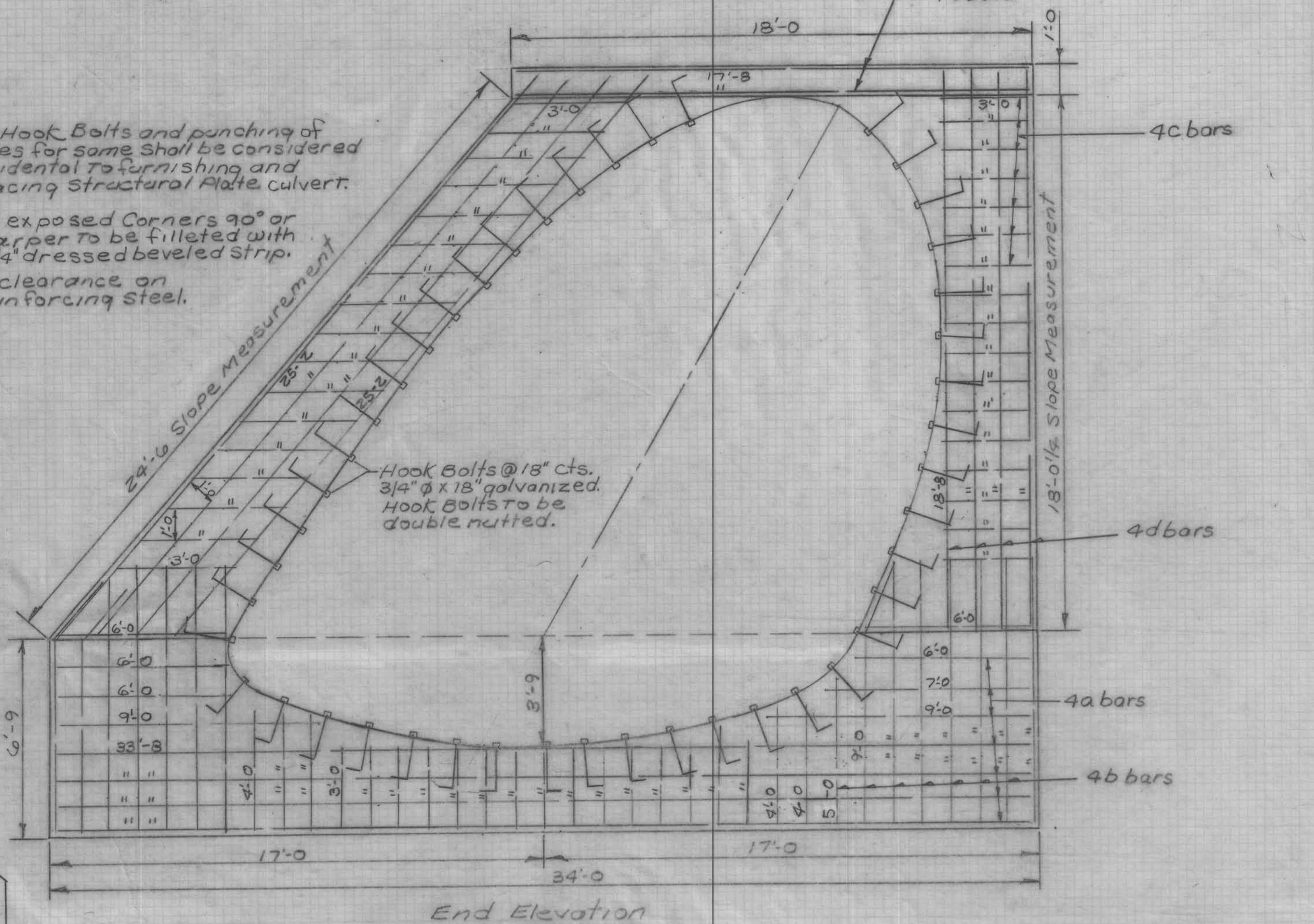
Curtain walls — 10.6 c.y.
Slope Walls and Parapets — 15.4 c.y.
Total — 26.0 c.y.



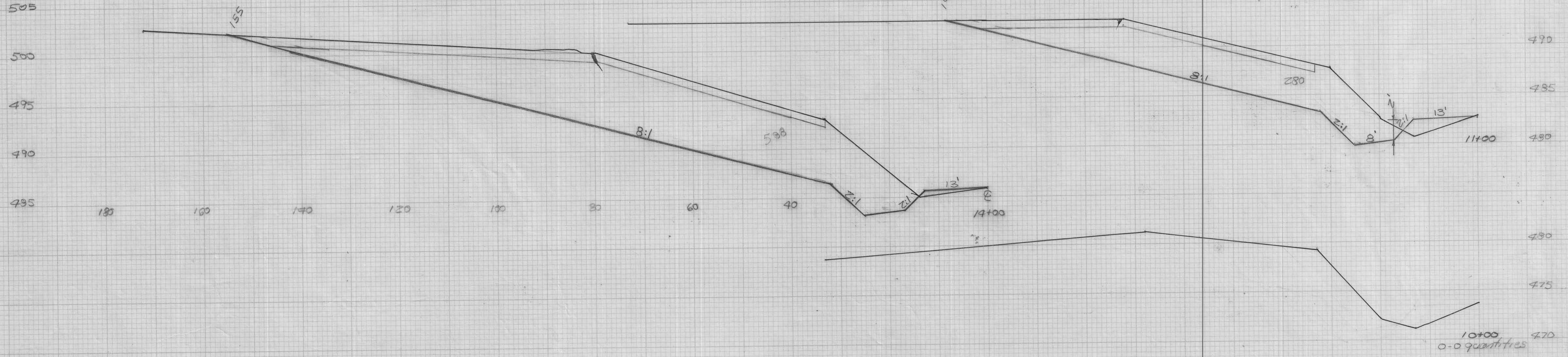
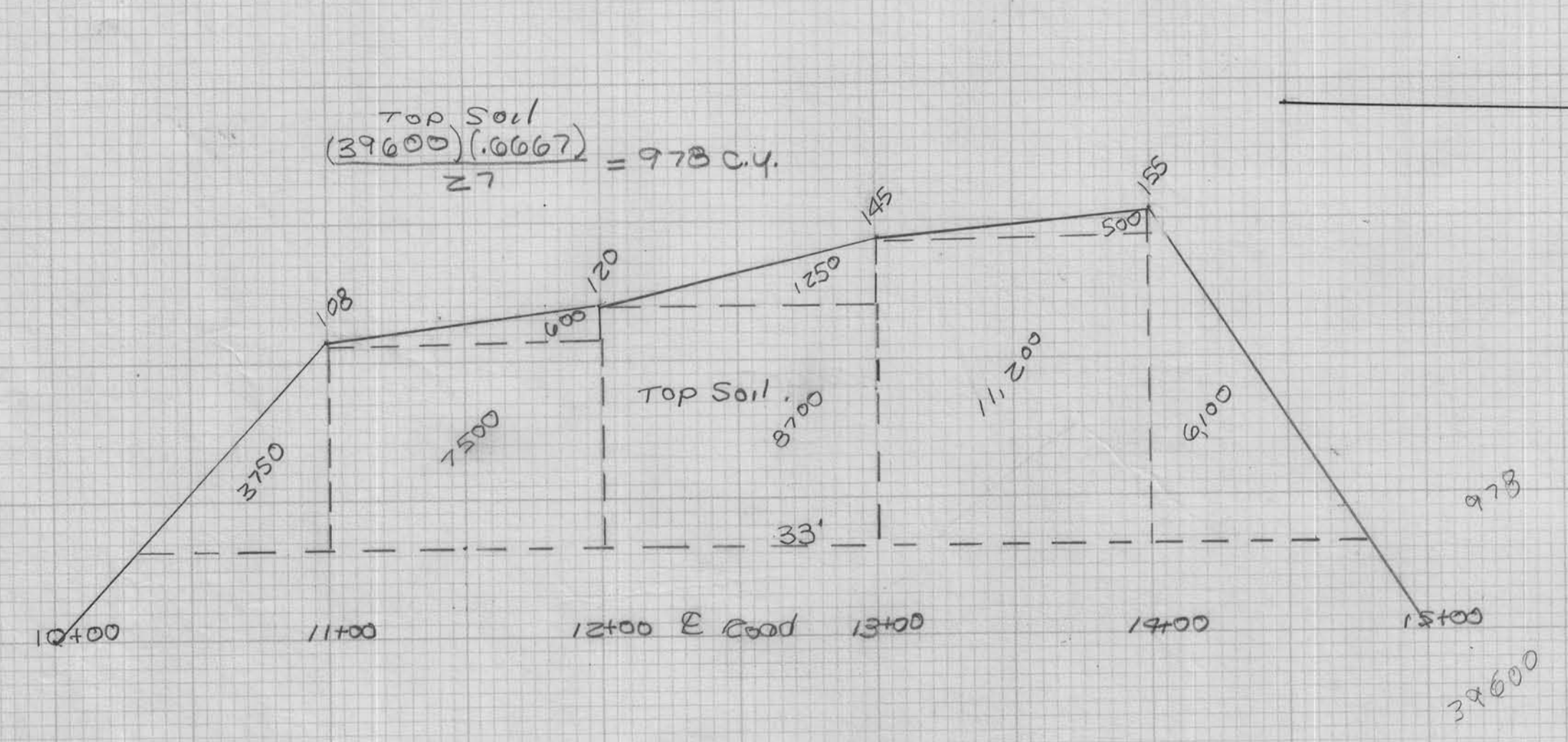
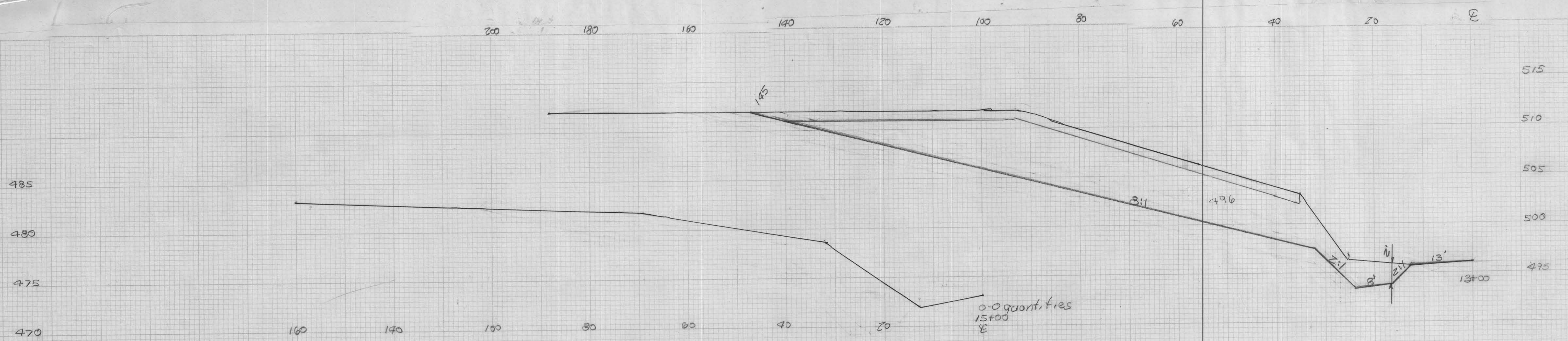
90° Hook Bolts and punching of holes for same shall be considered incidental to furnishing and placing structural plate culvert.

All exposed corners 90° or sharper to be filleted with a 3/4" dressed beveled strip.

2" clearance on reinforcing steel.

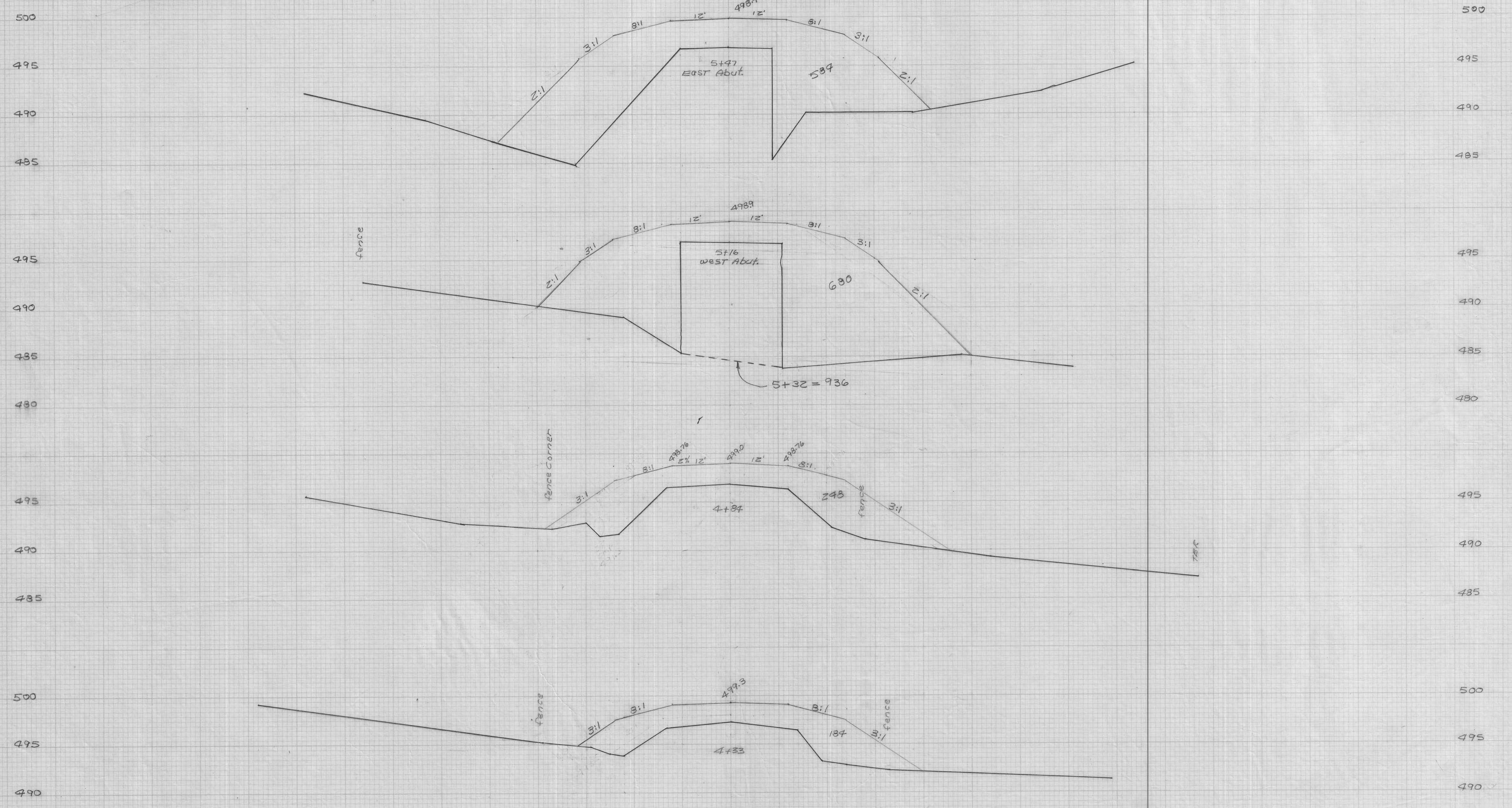


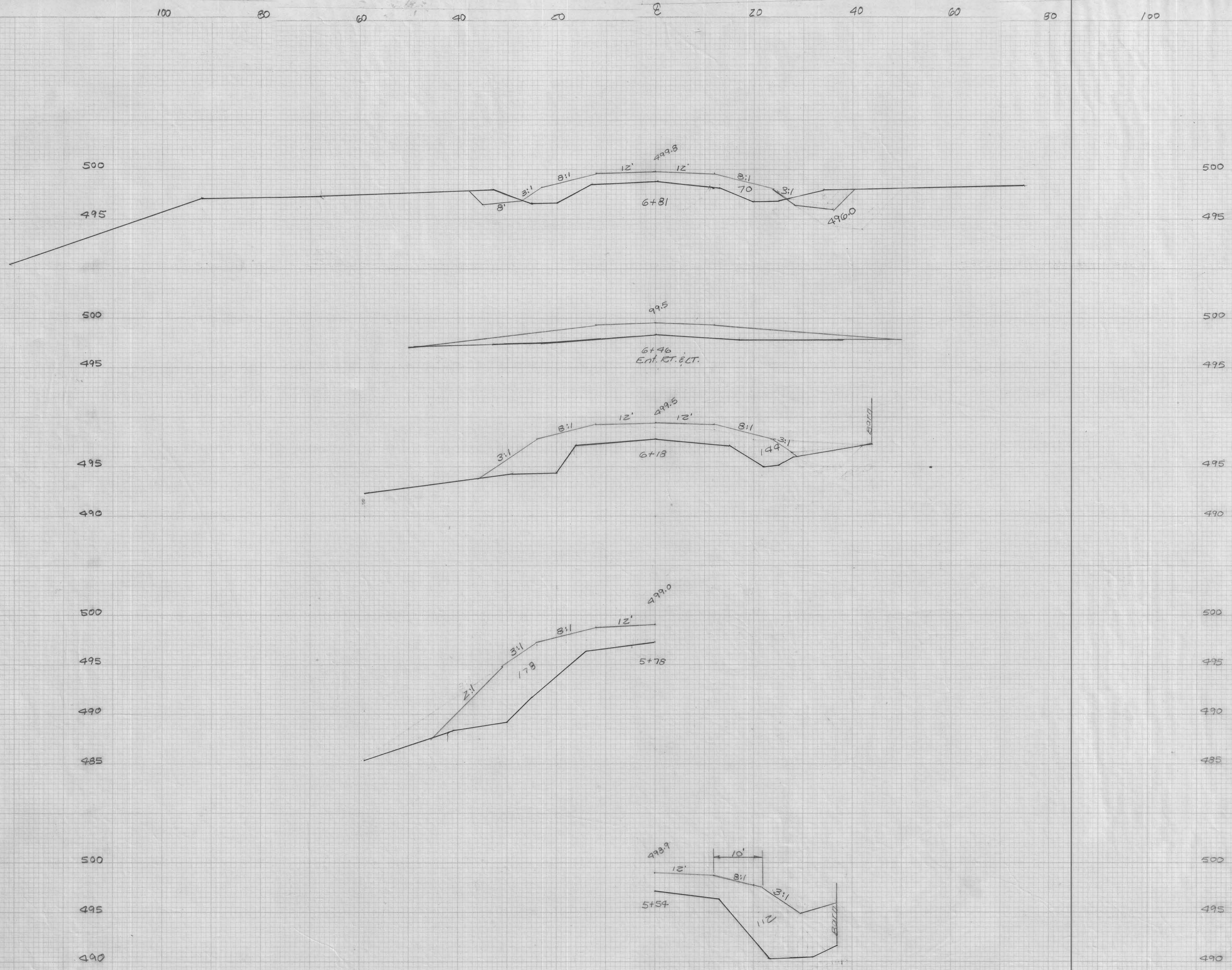
Design For
217" x 142" x 87'-0" Structural Plate Pipe Arch Culvert
Between Sections 16 and 21 Milford Township
T-84N, R-38W



Borrow Cross Sections Crawford County Project No. BR05-C024(65)--5F-24

100 80 60 40 20 E 20 40 60 80 100





158821
 100' X 150' X 100' X 100'
 100' X 150' X 100' X 100'
 100' X 150' X 100' X 100'