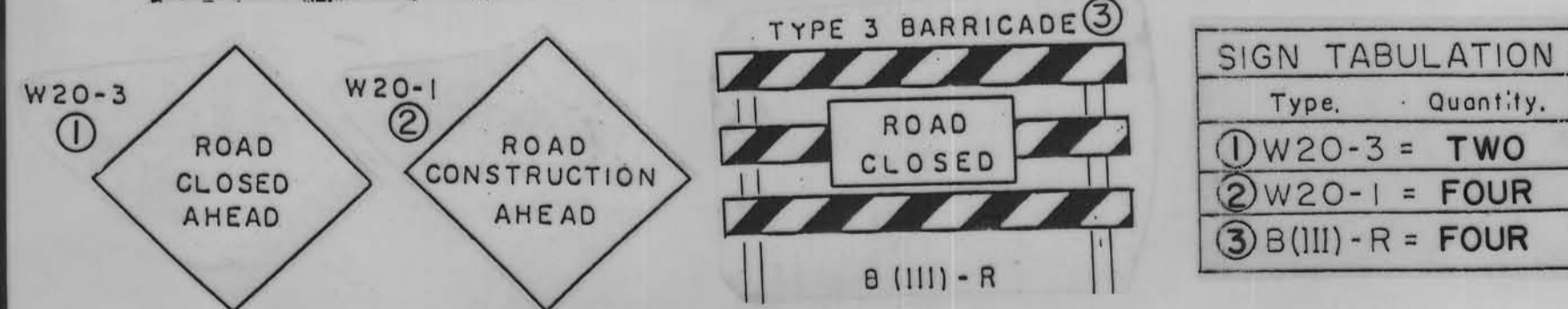
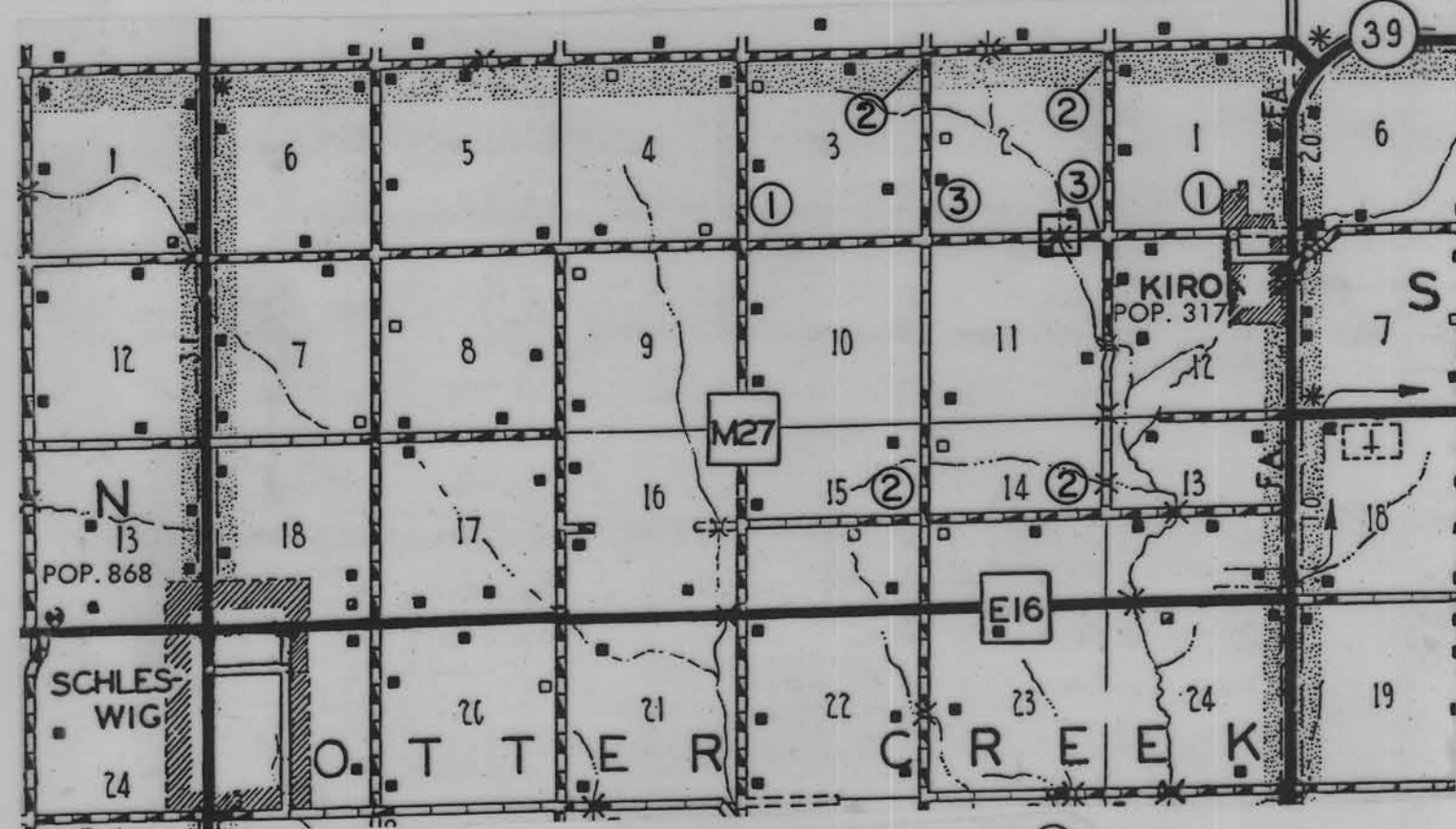


CULVERT

TRAFFIC CONTROL PLAN



Type	Quantity
① W20-3 = TWO	
② W20-1 = FOUR	
③ B(III) - R = FOUR	

IOWA DEPARTMENT OF TRANSPORTATION

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

FARM TO MARKET SYSTEM CRAWFORD COUNTY CULVERT

THE STANDARD SPECIFICATIONS OF THE IOWA DEPARTMENT OF TRANSPORTATION, SERIES OF 1984, PLUS CURRENT SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS, SHALL APPLY TO WORK ON THIS PROJECT.

PROJECT NO. FM-24(17)--55-24  
FHWA NO. 130300

INDEX OF SHEETS

1. TITLE SHEET, ESTIMATE OF QUANTITIES, TRAFFIC CONTROL
2. SITUATION PLAN
3. CULVERT DETAILS
4. CULVERT DETAILS
5. CULVERT DETAILS
6. CULVERT DETAILS
7. CULVERT DETAILS
8. DETAIL SHEET, 520-26

MILEAGE SUMMARY: STA. 248+73.25 TO STA. 249+08.75 = 35.5 LIN. FT. = .0067 MI.

ALL ADVANCED WARNING SIGNS, TYPE III BARRICADES, AND OTHER TRAFFIC CONTROL DEVICES FOR THIS PROJECT SHALL BE LOCATED AT THE BEGINNING AND THE END OF THE PROJECT, AND WHERE THE ROAD FOR CONSTRUCTION INTERSECTS OTHER PUBLIC ROADS, AND SHALL INCLUDE ALL OTHER BARRICADES AND WARNING SIGNS NECESSARY TO PROTECT THE CONTRACTOR'S WORK AND EQUIPMENT. FOR THE PROVIDING FOR THE SAFETY OF THE TRAVELING PUBLIC, ALL SIGNS, BARRICADES, AND OTHER TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" 1978.

THE LUMP SUM BID PRICE FOR TRAFFIC CONTROL SHALL INCLUDE THE FURNISHING, PLACING, MAINTENANCE, AND THE REMOVAL BY THE CONTRACTOR.

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 STANDARD SPECIFICATIONS SERIES 1984, TRAFFIC CONTROL DEVICES, PROCEDURES AND LAYOUTS SHALL BE AS PER PLAN SPECIFICATIONS FOR TRAFFIC CONTROL FOR STREET AND HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS, SPECIFICATION SS-1037.

TOTAL ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
1.	STRUCTURAL CONCRETE, CLASS "C"	CU. YDS.	376.6
2.	REINFORCING STEEL	LBS.	53,896
3.	CLASS 10 CHANNEL EXCAVATION	CU. YDS.	750
4.	CLASS 20 EXCAVATION	CU. YDS.	1,620
5.	REMOVAL OF EXISTING STRUCTURES	L. S.	LUMP SUM
6.	TRAFFIC CONTROL	L. S.	LUMP SUM
7.	BARRICADES	NO.	2
8.	RIP-RAP, CLASS "E" REVETMENT	TONS	390
9.	ENGINEERING FABRIC	SQ. YDS.	580
10.	TYPE 3 OBJECT MARKERS	NO.	2
11.	STEEL SHEET PILING	SQ. FT.	210
12.	MOBILIZATION	L. S.	LUMP SUM

ITEM NO. ITEM REFERENCE INFORMATION

- 3 CLASS 10 CHANNEL EXCAVATION CONSISTS OF SHAPING AND TRANSITIONS AT ENDS OF CULVERT AND DRAINAGE DITCH RELOCATION. CLEARING AND GRUBBING SHALL BE CONSIDERED INCIDENTAL TO CLASS 10 CHANNEL EXCAVATION. SUITABLE CLASS 10 CHANNEL EXCAVATION SHALL BE USED FOR FILLING AND SHAPING AT THE CULVERT ENDS.
- 8, 9 THE CONTRACTOR IS TO PLACE RIP-RAP ON THE UPSTREAM EMBANKMENTS AS SHOWN AND AS DIRECTED BY THE ENGINEER. PLACE ENGINEERING FABRIC, THEN PLACE RIP-RAP ON FABRIC TO THE LIMITS SHOWN. DESIGN THICKNESS OF RIP-RAP IS 1'-6 UNLESS OTHERWISE NOTED.
- 11 INCLUDES ALL MATERIAL, LABOR AND EQUIPMENT REQUIRED TO PERFORM THE NECESSARY WORK.

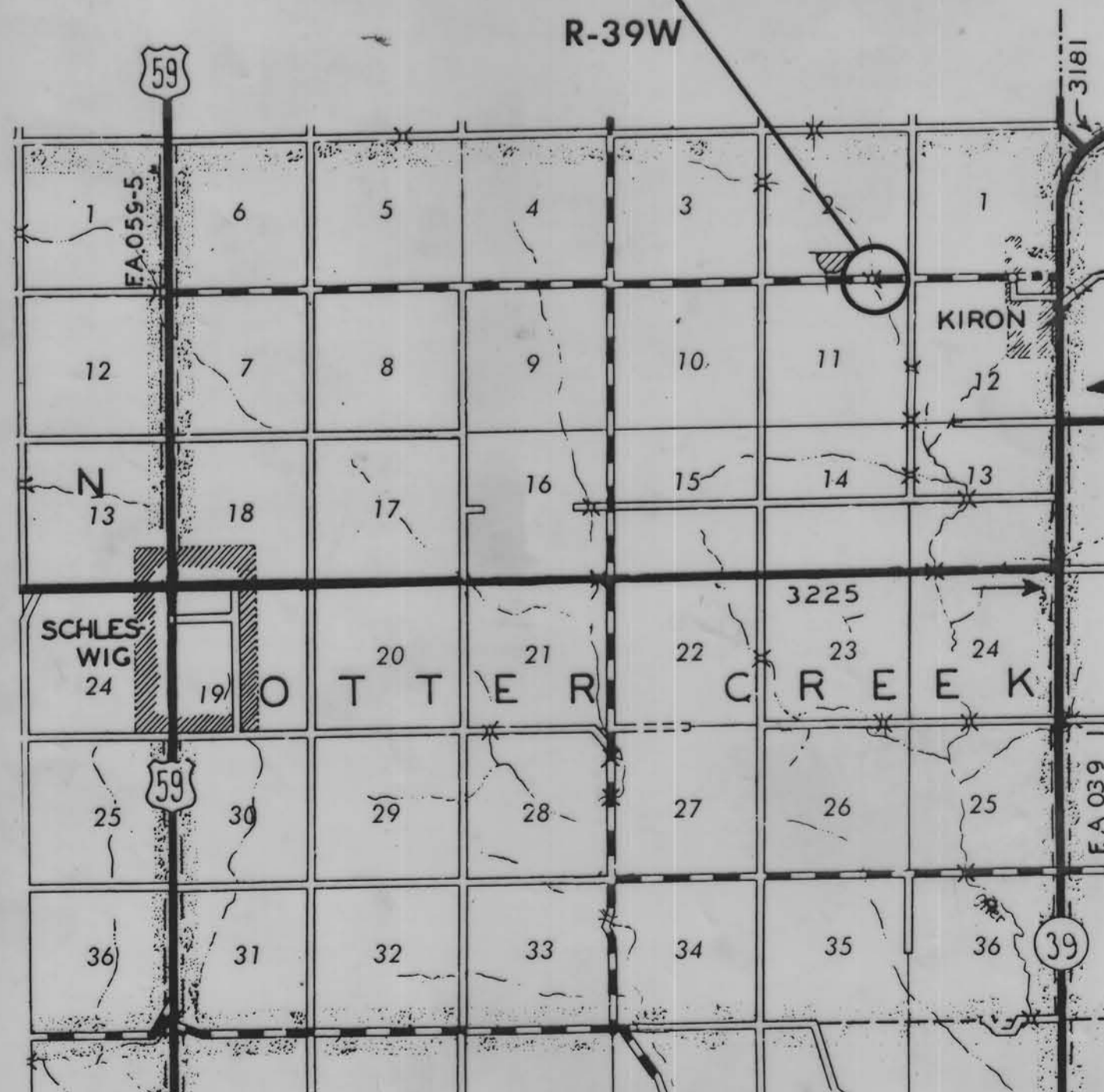
-135-

PROJECT NO. FM - 24(17) -- 55 - 24

CRAWFORD COUNTY

LETTING DATE: April 4, 1989

DESIGN NO. 5687  
STA. 248 + 91.0  
PROPOSED TWIN 16' x 12' x 56'-0  
REINFORCED CONC. BOX CULVERT  
0° SKEW



PROJECT LOCATION  
SCALE 1" = 1 MILE

TRAFFIC COUNT 90 VPD, 1984

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
APPROVED:  
DIVISION ADMINISTRATOR DATE

APPROVED  
H. Dale Wight 1-12-89  
COUNTY ENGINEER DATE

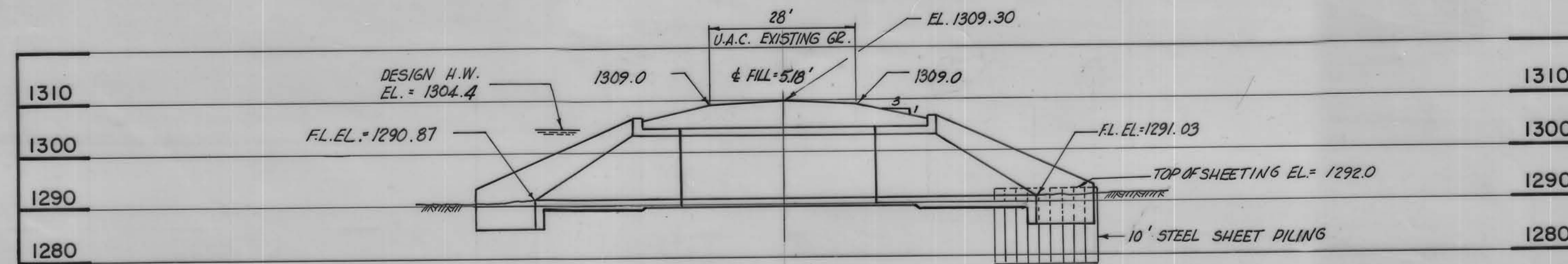
Don Jensen  
Le Roy A. Hansohn  
Vigil E. Anderson  
John P. Lawler  
Eileen Heiden  
BOARD OF SUPERVISORS DATE

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 REGISTERED PROFESSIONAL ENGINEERS UNDER THE LAWS OF THE STATE OF IOWA.  
Milton Clemenson  
IOWA REGISTRATION NUMBER 9511 DATE 3-25-87

DEPARTMENT OF TRANSPORTATION  
IOWA  
Highway Division  
AUTHORIZED FOR LETTING  
2-1-89  
DEPUTY CHIEF ENGINEER DATE

IOWA DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION  
AUTHORIZED FOR LETTING  
DISTRICT LOCAL SYSTEMS ENGR. DATE

SHEET 1 OF 8



SECTION THROUGH CULVERT

**SPECIFICATIONS**

DESIGN: AASHTO SERIES OF 1983  
 CONSTRUCTION: STANDARD SPECIFICATIONS OF THE IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION, SERIES OF 1984, PLUS CURRENT SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS.

**DESIGN STRESSES**

DESIGN STRESSES FOR THE FOLLOWING MATERIAL ARE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1983.

CONCRETE	SECTION 8 f'c = 3,500, PSI
REINFORCING STEEL	SECTION 8
ASTM A615	GRADE 60, f's = 24,000 PSI

**GENERAL NOTES**

THIS CULVERT IS DESIGNED FOR HS20-44 LOADING AND 5.0 FT. OF FILL. VERTICAL EARTH LOAD IS ASSUMED AS 140 P.C.F. AND LATERAL EARTH LOADS AS AN EQUIVALENT FLUID PRESSURE OF 36 PSF/FT.  
 THE EXISTING BRIDGE IS A 23' x 19' STEEL I-BEAM BRIDGE WITH REINFORCED CONCRETE DECK & HIGH REINFORCED CONCRETE ABUTMENTS.  
 THE LUMP SUM BID FOR "REMOVAL OF EXISTING STRUCTURES" SHALL INCLUDE THE REMOVAL AND DISPOSAL OF THE EXISTING SUPERSTRUCTURE AND SUBSTRUCTURE IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS, EXCEPT STEEL I-BEAMS SHALL REMAIN THE PROPERTY OF THE COUNTY AND SHALL BE SALVAGED AND NEATLY STOCKPILED AT THE COUNTY MAINTENANCE YARD. ALL OTHER COMPONENTS OF THE BRIDGE SHALL BECOME PROPERTY OF THE CONTRACTOR.  
 THE CULVERT FLOOR SHALL BE FINISHED SMOOTH. SIDES OF THE FOOTING SHALL BE FORMED TO ENSURE CORRECT LINE AND GRADE. ALL EXPOSED CORNERS OF 90° OR SHARPER SHALL BE FILLETED WITH A 3/4" DRESSED AND BEVELED STRIP. UNLESS OTHERWISE SHOWN, ALL CONSTRUCTION JOINTS SHALL BE FORMED WITH BEVELED PLANKS.  
 ALL REINFORCING STEEL SHALL BE SECURELY WIRED IN PLACE BEFORE CONCRETE IS PLACED. BAR CHAIRS SPACED AT NOT MORE THAN 3'-0" CENTERS IN EITHER DIRECTION SHALL BE USED TO SUPPORT ALL REINFORCING IN ACCORDANCE WITH SECTION 2404 OF THE STANDARD SPECIFICATIONS.  
 CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR SHALL BE 2" UNLESS OTHERWISE SHOWN. LONGITUDINAL REINFORCING SHALL NOT EXTEND THROUGH CONSTRUCTION JOINT, EXCEPT FOR 5x1 SLAB DOWEL BARS.  
 THE REINFORCING STEEL SHALL BE GRADE 60 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.  
 THE PERMISSIBLE CONSTRUCTION JOINT AT THE TOP OF THE WALLS MAY BE LOWERED 3'-2" AT THE CONTRACTOR'S OPTION.  
 CLASS 10 CHANNEL EXCAVATION CONSISTS OF SHAPING AND TRANSITIONS AT ENDS OF THE CULVERT AND EXCAVATION REQUIRED FOR DITCH RELOCATION. SUITABLE CLASS 10 CHANNEL EXCAVATION AND CLASS 20 EXCAVATION MAY BE USED FOR EARTH SHOULDERS AND AS FILL FOR THE CULVERT BACKFILL AND THE FLATTENED FORESLOPES.  
 CLEARING AND GRUBBING SHALL BE CONSIDERED INCIDENTAL TO CLASS 10 CHANNEL EXCAVATION.  
 THE CONTRACTOR SHALL SUBMIT A PLAN FOR TEMPORARY STREAM DIVERSION PRIOR TO CONSTRUCTION OF THE CULVERT. THIS PLAN IS TO BE REVIEWED AND APPROVED BY THE ENGINEER IN CHARGE OF CONSTRUCTION.  
 TYPE 3 OBJECT MARKERS AS SHOWN IN RE-47 STANDARD ROAD PLANS ARE TO BE PLACED AT STA. 248+72 AND STA. 249+10. PROVIDE TWO OM-3L AND TWO OM-3R. RE-47 STANDARD ROAD PLANS MAY BE OBTAINED FROM THE OFFICE OF ROAD DESIGN SERVICES.

**LOCATION**

CRAWFORD COUNTY  
 T-85N, R-39W  
 SECTIONS 2 AND 11  
 OTTER CREEK TOWNSHIP  
 OVER OTTER CREEK

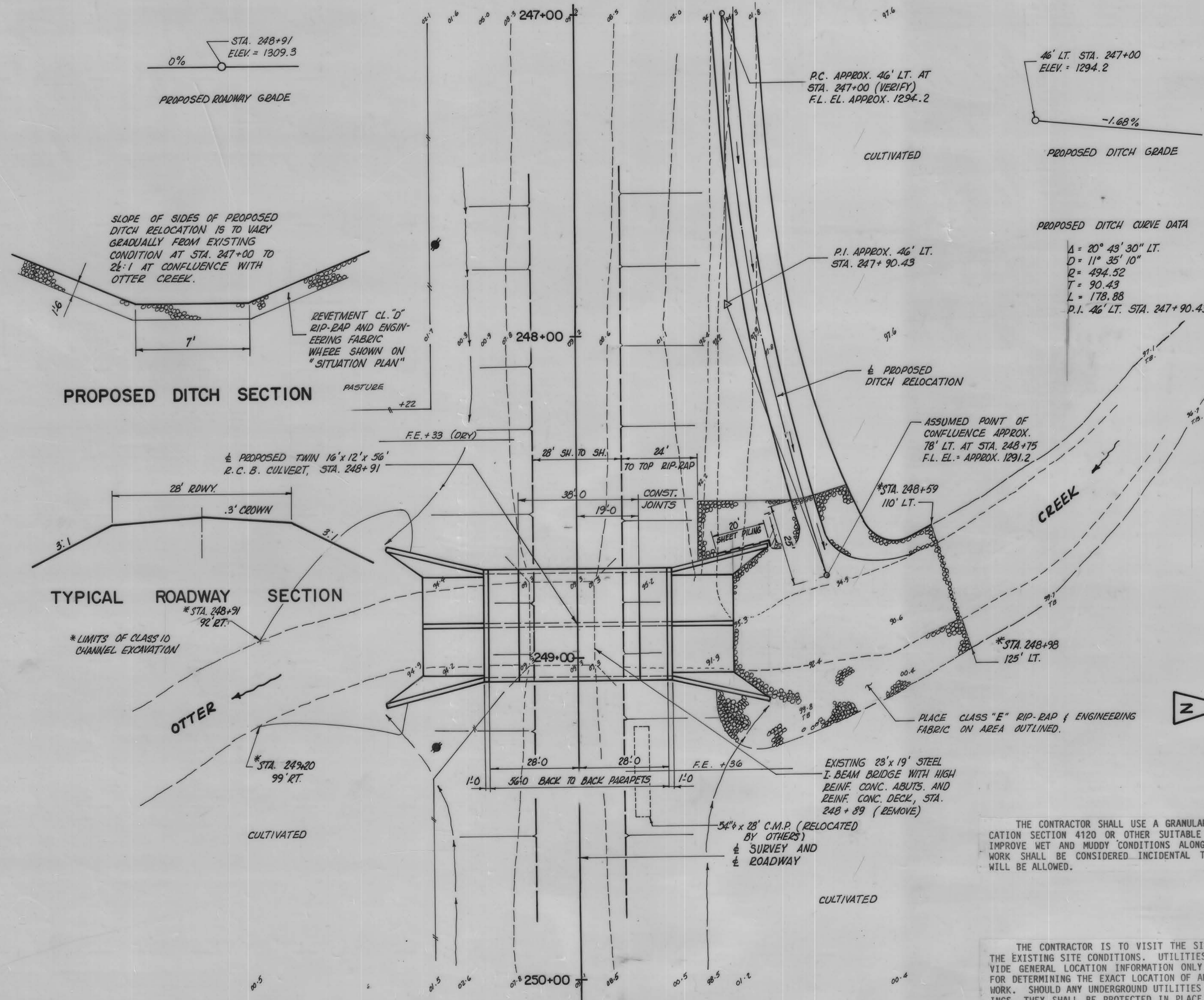
**HYDRAULIC DATA**

DESIGN AREA	9.0 SQ. MI. (HILLY)
DESIGN DISCHARGE	4130 C.F.S.
DESIGN H.W. ELEV.	1304.4
SLOPE (BARREL)	0.0016 FT./FT.
Q25	= 3260 C.F.S. STAGE EL. = 1301.4
Q50	= 4130 C.F.S. STAGE EL. = 1301.9
Q100	= 5100 C.F.S. STAGE EL. = 1302.2
Q500	= 8120 C.F.S. STAGE EL. = 1303.2
EXT. H.W. ELEV.	UNKNOWN

**TWIN 16' x 12' x 56'-0 REINFORCED CONCRETE BOX CULVERT**

**SITUATION PLAN**

STATION 248 + 91.0 0° SKEW  
 CRAWFORD COUNTY, IOWA

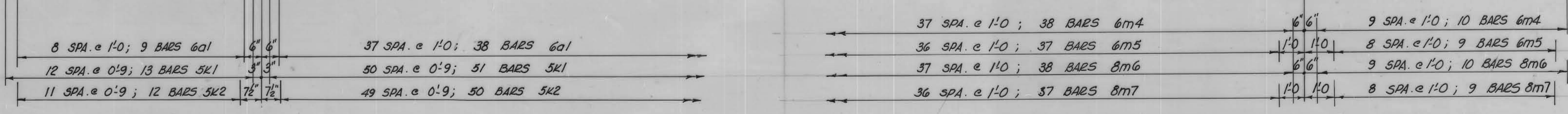
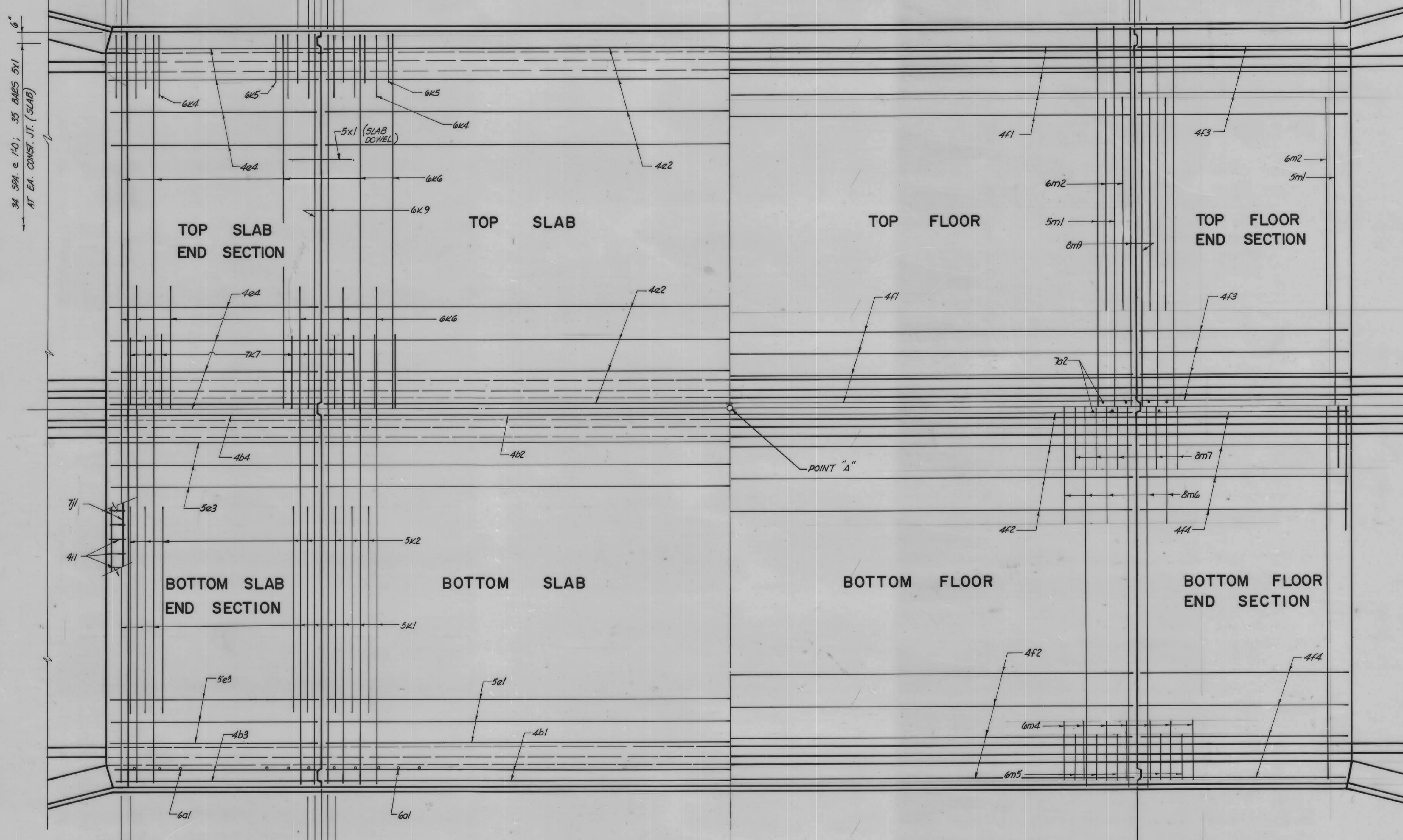
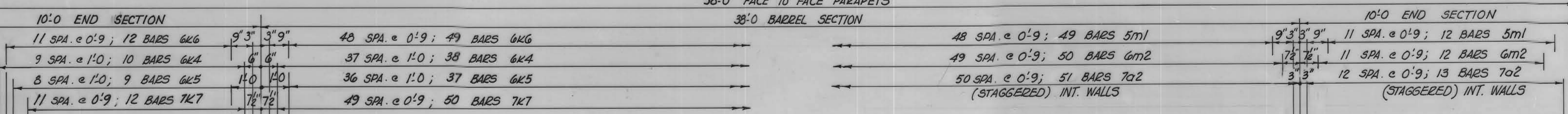


SITUATION PLAN  
 SCALE 1" = 20'

THE CONTRACTOR SHALL USE A GRANULAR SURFACING MATERIAL LISTED IN SPECIFICATION SECTION 4120 OR OTHER SUITABLE MATERIAL APPROVED BY THE ENGINEER TO IMPROVE WET AND MUDDY CONDITIONS ALONG THE BOTTOM OF THE EXCAVATION. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO STRUCTURAL CONCRETE AND NO PAYMENT WILL BE ALLOWED.

THE CONTRACTOR IS TO VISIT THE SITE TO ENSURE THAT HE IS FAMILIAR WITH THE EXISTING SITE CONDITIONS. UTILITIES ARE INDICATED ON THE DRAWINGS TO PROVIDE GENERAL LOCATION INFORMATION ONLY. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. SHOULD ANY UNDERGROUND UTILITIES BE FOUND DIFFERENT THAN SHOWN ON DRAWINGS, THEY SHALL BE PROTECTED IN PLACE AND THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

58'-0" FACE TO FACE PARAPETS  
38'-0" BARREL SECTION



PLAN  
 CULVERT IS SYMMETRICAL BY 180° ROTATION ABOUT POINT "A"

TWIN 16' x 12' x 56'-0" REINFORCED CONCRETE BOX CULVERT

CULVERT DETAILS

STATION 248+91.0

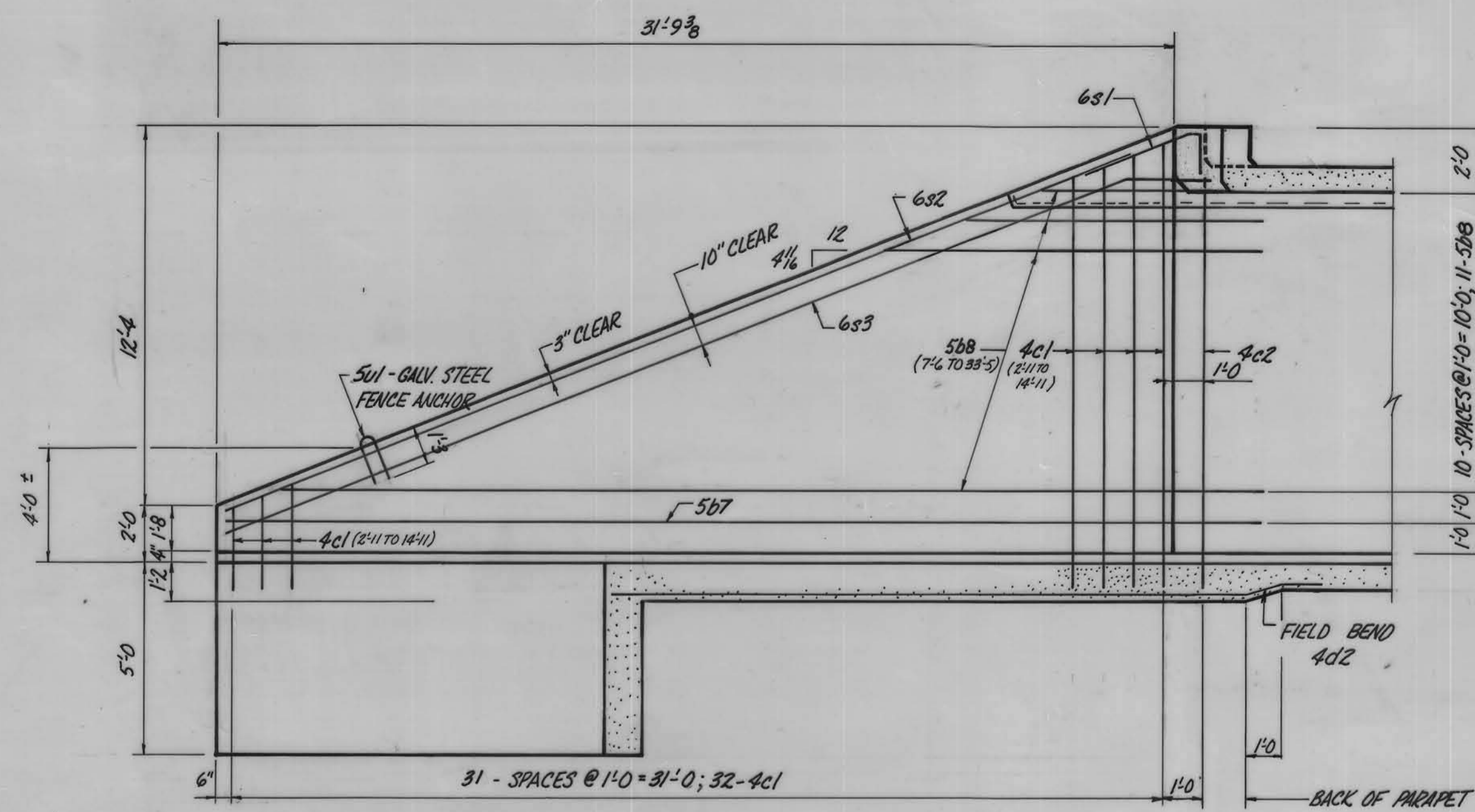
CRAWFORD COUNTY,

0° SKEW

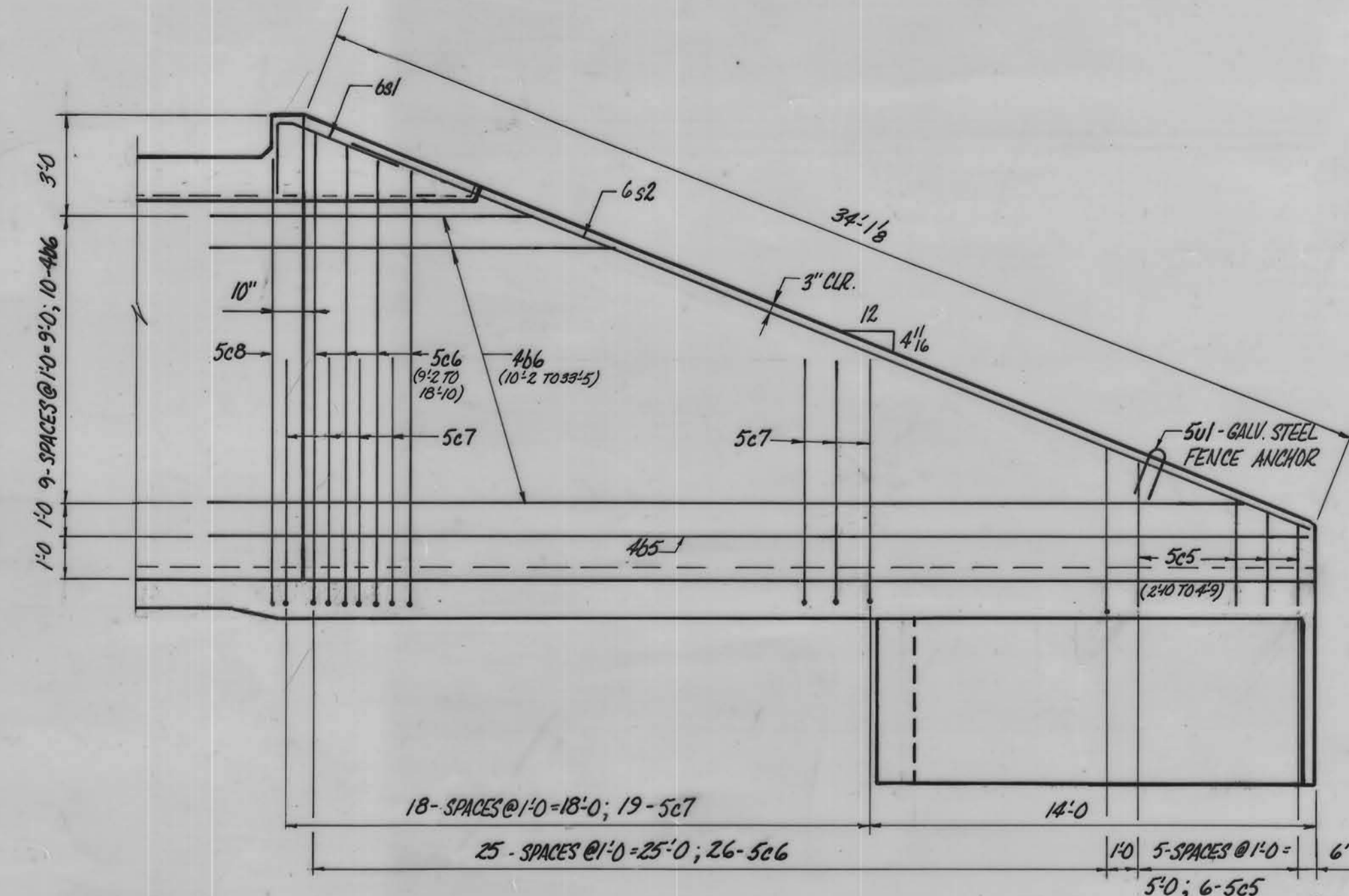
IOWA

SHEET 3 OF 8

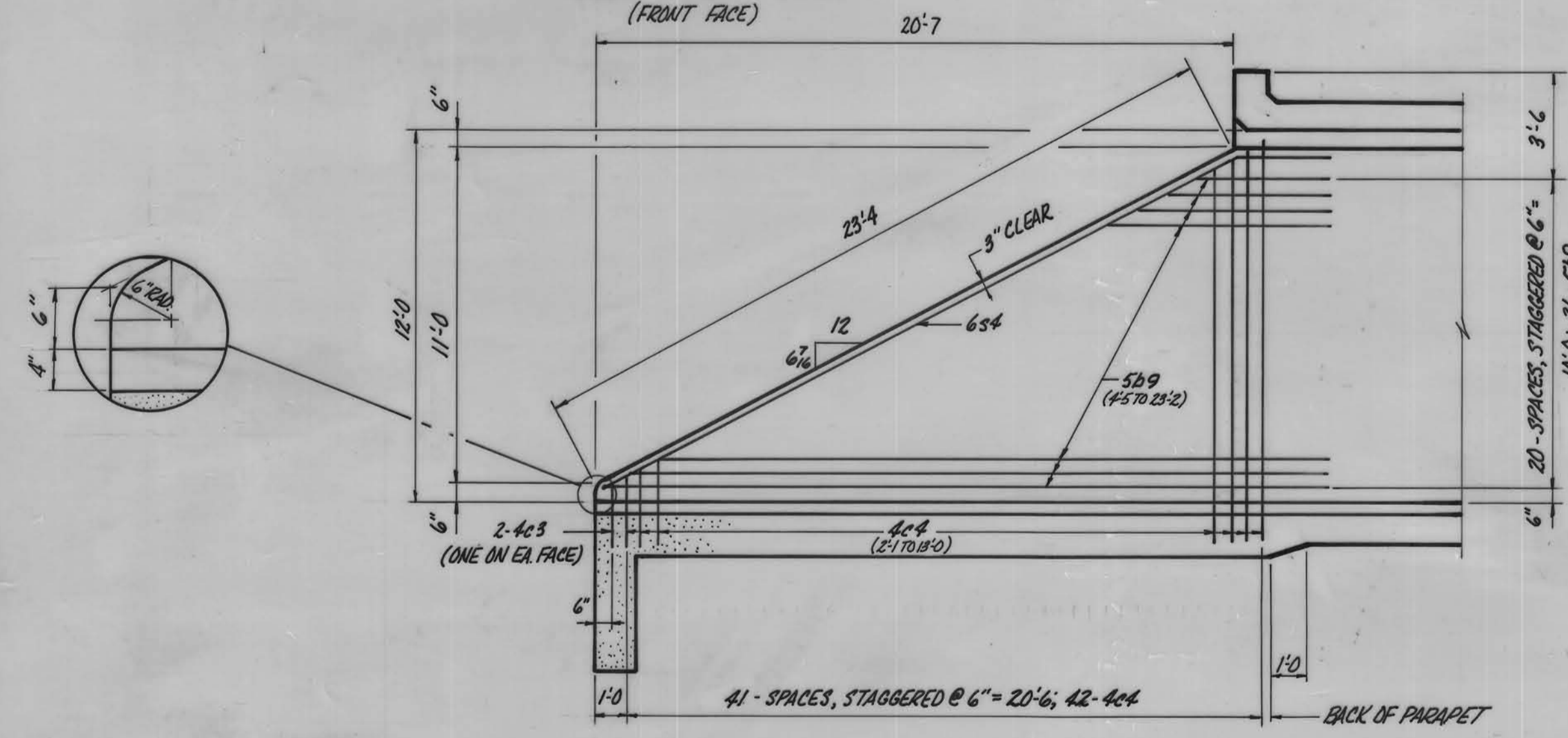




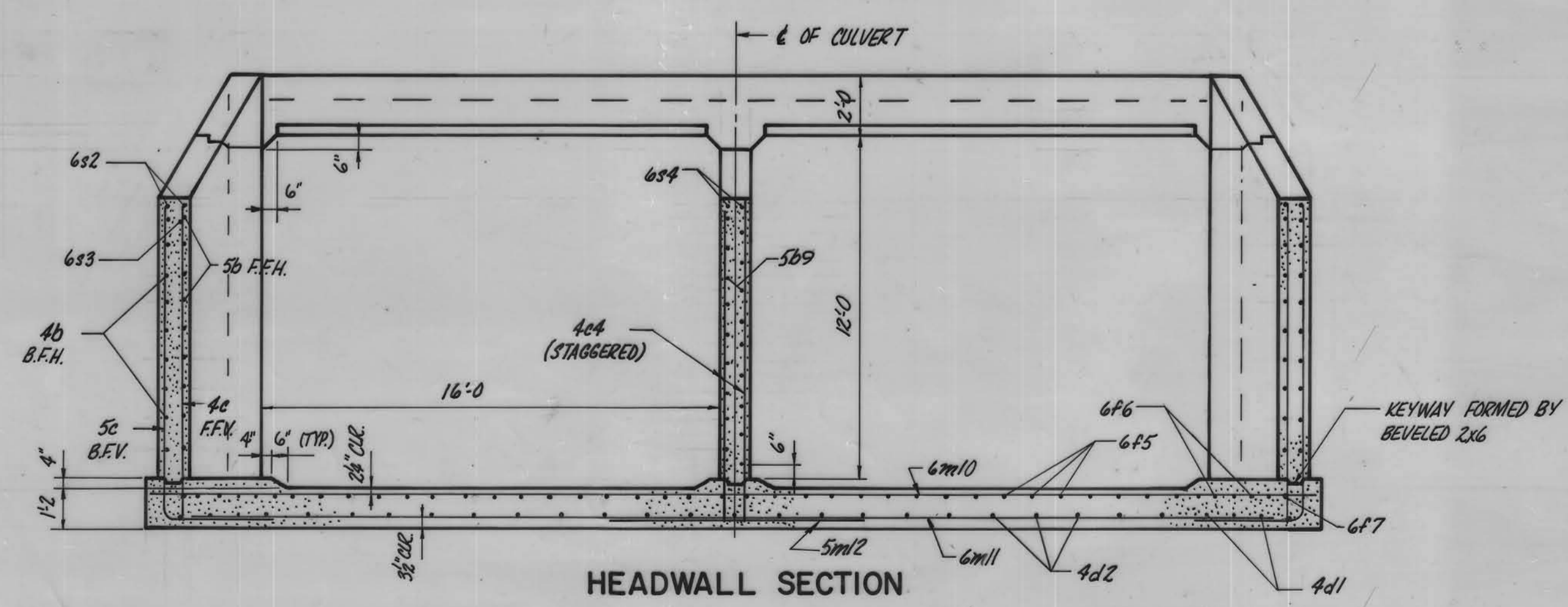
PART VIEW A-A  
(FRONT FACE)



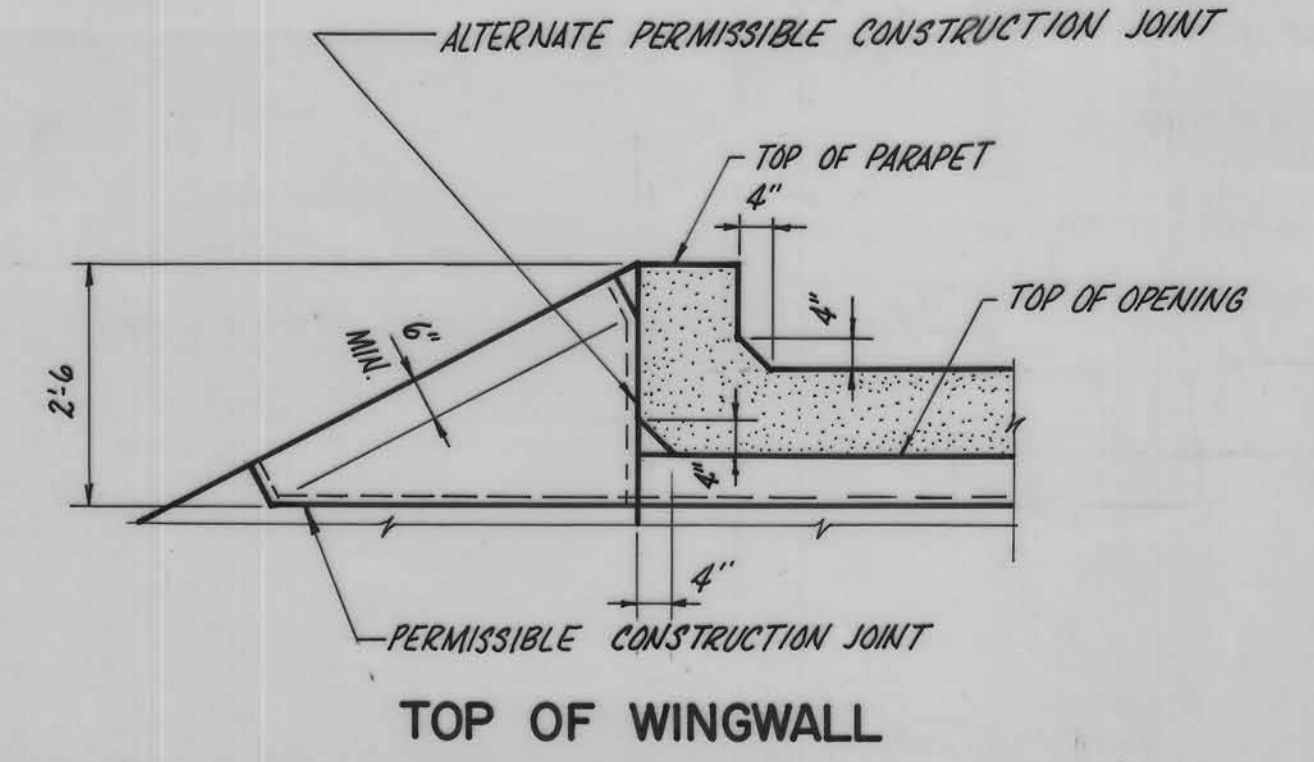
PART VIEW B-B  
(BACK FACE)



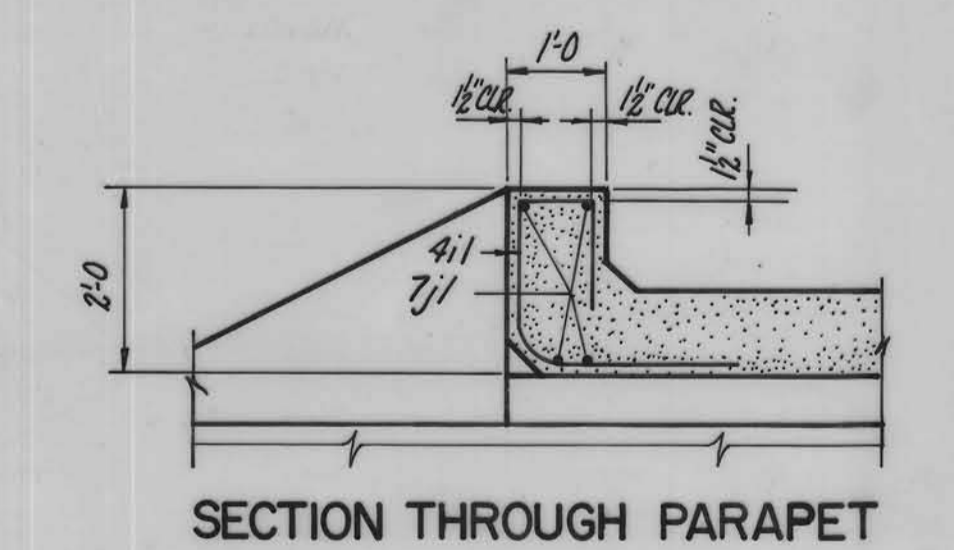
PART VIEW C-C



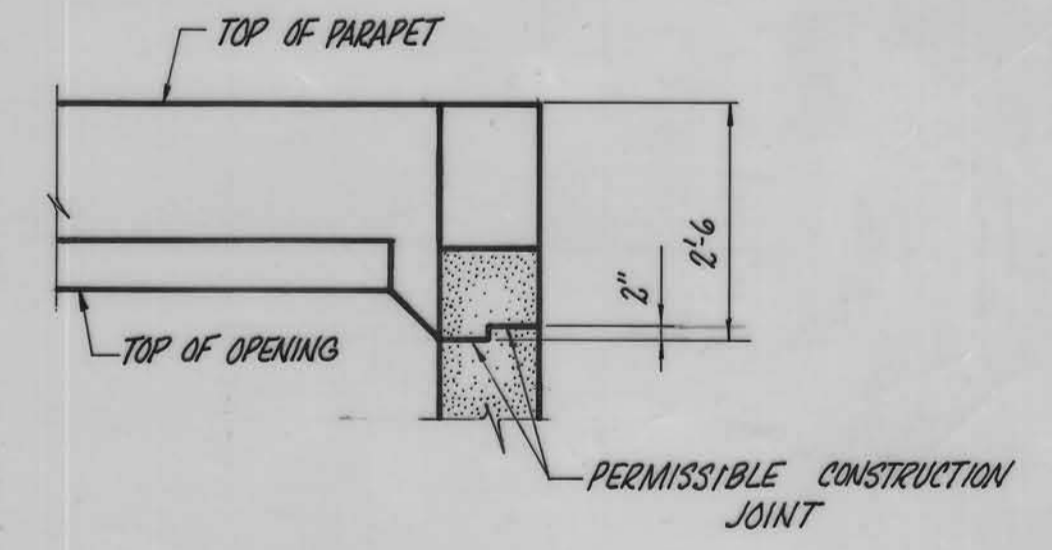
HEADWALL SECTION



TOP OF WINGWALL



SECTION THROUGH PARAPET



SECTION THROUGH WINGWALL

TWIN 16' x 12' x 56'-0 REINFORCED CONCRETE BOX CULVERT

CULVERT DETAILS

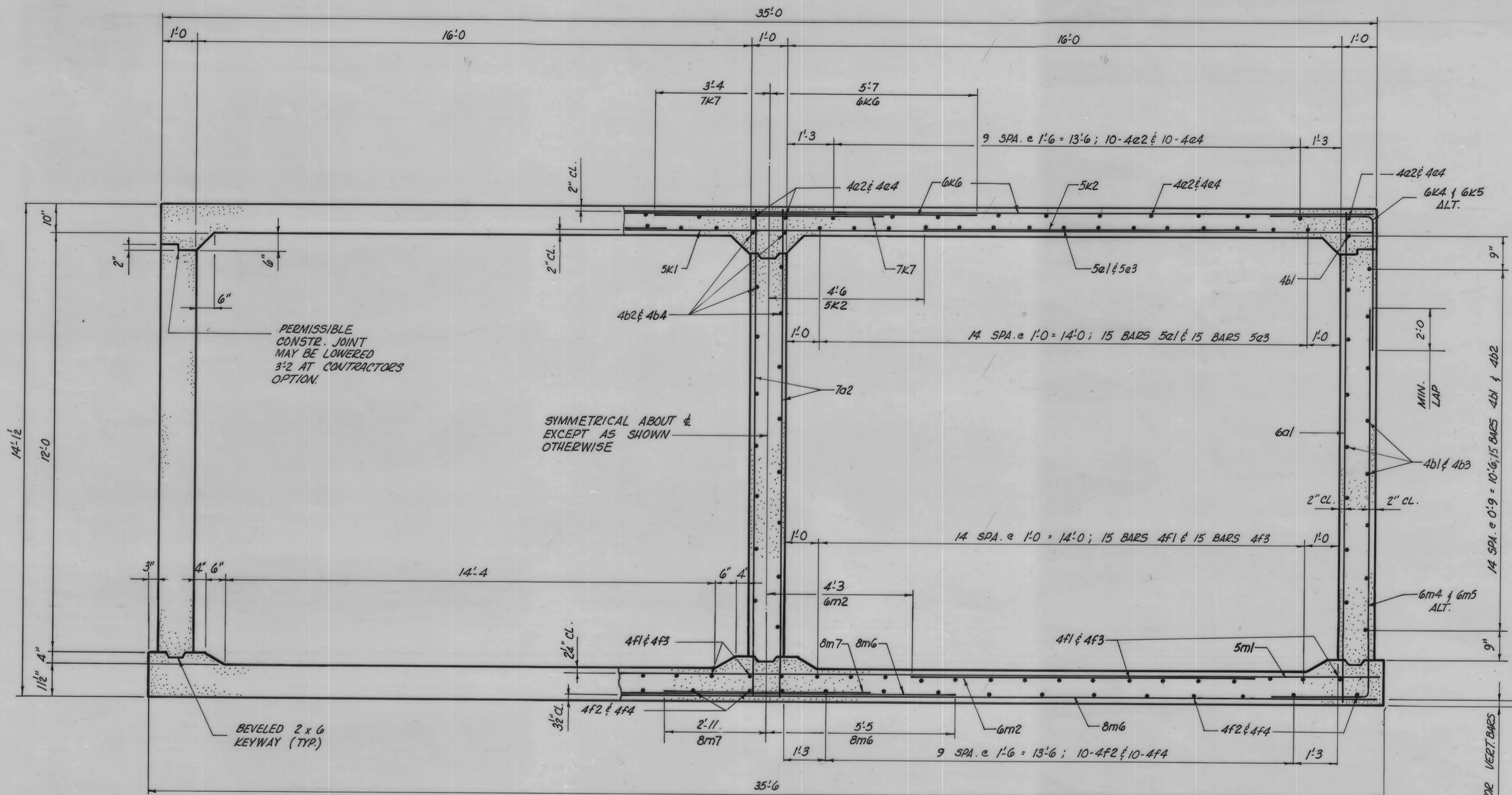
STATION 248 + 91.0

0° SKEW

CRAWFORD COUNTY,

IOWA

SHEET 5 OF 8



BARREL SECTION

TWIN 16' x 12' x 56'-0 REINFORCED CONCRETE BOX CULVERT

CULVERT DETAILS

STATION 248 + 91.0

0° SKEW

CRAWFORD COUNTY,

IOWA

SHEET 6 OF 8

