

IOWA  
DEPARTMENT OF TRANSPORTATION  
Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE  
**FARM TO MARKET SYSTEM  
CRAWFORD COUNTY.**  
PROJECT NO. RS-3230(2)-61-24  
TWIN 10'x8'x58'-0" REINF CONC. BOX CULV.  
10'x6'x52'-0" REINF CONC. BOX CULV.



INDEX OF SHEETS	
NO.	DESCRIPTION
1	TITLE PAGE, INCLUDING CONVENTIONAL SIGNS, LOCATION MAP, AND MILEAGE SUMMARY, TRAFFIC CONTROL PLAN.
2	ESTIMATE OF QUANTITIES, TYPICAL CROSS SECTION
3	PLAN AND PROFILE SHEET FOR TWIN 10'x8'x58'-0" AND FOR 10'x6'x52'-0" REINF. CONC. BOX CULVERTS. Des.
4	GENERAL LAYOUT & DETAILS FOR TWIN 10'x8'x58'-0" AND FOR 10'x6'x52'-0" REINF. CONC. BOX CULVERTS.
5	BARREL SECTION AND DETAILS FOR TWIN 10'x8'x58'-0" R.C.B.
6	16'-0" END SECTION DETAILS FOR TWIN 10'x8'x58'-0" R.C.B.
7	26'-0" INTERMEDIATE SECTION DETAILS FOR TWIN 10'x8'x58'-0" REINF. CONC. BOX CULVERT.
8	520-26 SIGNING FOR TEMPORARY ROAD CLOSURES IN RURAL AREAS.

(CROSS SECTIONS AVAILABLE AT COUNTY ENGINEERS OFFICE.)

MILEAGE SUMMARY			
DIV.	LOCATION	LIN. FT.	MILES
	STA. 306+00 TO STA. 335+00	2,900.0	0.549

SCALES AS NOTED  
THE STANDARD SPECIFICATIONS, SERIES OF 1984 OF THE IOWA DEPARTMENT OF TRANSPORTATION, SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT

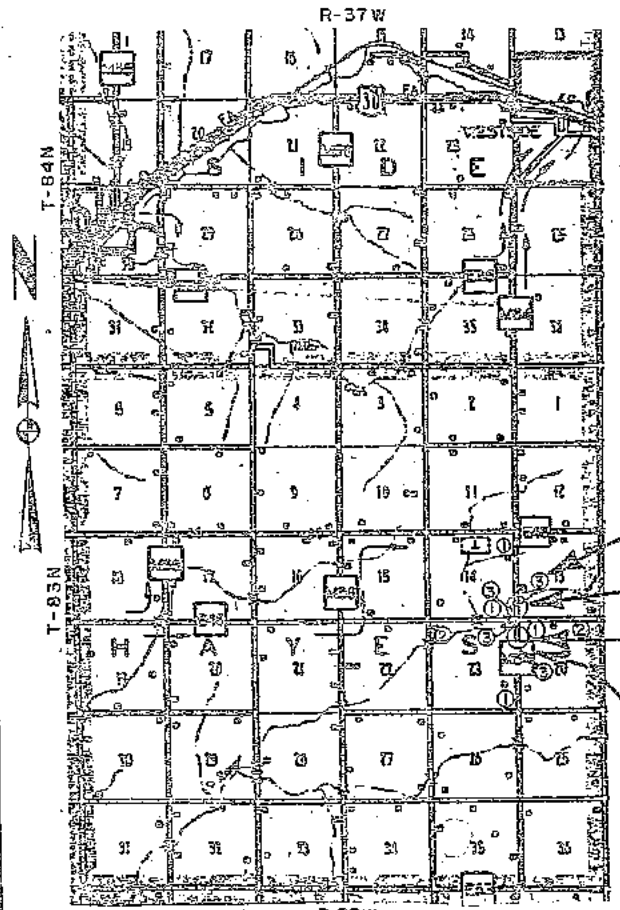
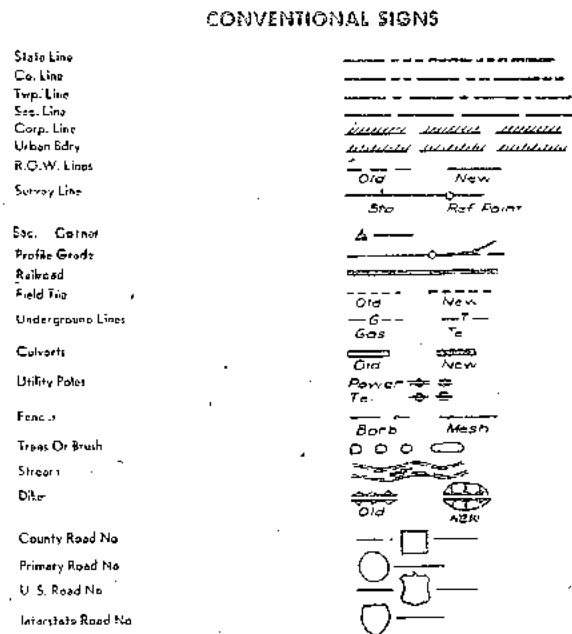
PLUS CURRENT SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS

NOTE: ANY INCONVENIENCE INCURRED BY THE ROAD CONTRACTOR DUE TO ARCHAEOLOGICAL WORK SHALL BE CONSIDERED INCIDENTAL TO CLASS "10" ROADWAY AND BORROW.

ALL ADVANCED WARNING SIGNS, TYPE 111 BARRICADES, AND OTHER TRAFFIC CONTROL DEVICES FOR THIS PROJECT SHALL BE LOCATED AT THE BEGINNING AND 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, AND 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 LOW BID PRICE FOR TRAFFIC CONTROL SHALL INCLUDE THE FURNISHING, PLACING, MAINTENANCE AND 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 1107.06, 1984 STANDARD SPECIFICATIONS. TRAFFIC CONTROL DEVICES, PROCEDURES AND LAYOUTS SHALL BE AS PER PLAN SPECIFICATIONS FOR TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS, SPECIFICATION 979.

STANDARD PLANS					
The following Standard Plans shall be considered applicable to construction work on this project.					
IDENT	DATE	IDENT	DATE	IDENT	DATE
CIO F	5/17/55	RF 7	11/8/74		
TWH 30	May 1983	RF 30 A	4/1/77		
FWH 0	Jan. 1973				
FWH 15	Jan. 1973				
RF 3	12/9/77				

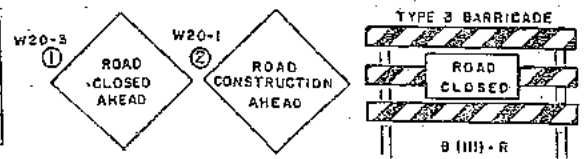
**CRAWFORD COUNTY**  
 PROJECT NO. RS-3230(2)-61-24  
 TWIN 10'x8'x58'-0" REINF. CONC. BOX CULVERT  
 10'x6'x52'-0" REINF. CONC. BOX CULVERT  
 LETTING DATE 5-7-85



STA. 335+00 END OF PROJECT  
 STA. 325+92 @ Twin 10'x8'x58'-0" R.C.B. (30° rt. ahead skew) Design No. 385  
 STA. 316+43 @ 10'x6'x52'-0" R.C.B. (15° lt. ahead skew). Design No. 485  
 STA. 306+00 BEGINNING OF PROJECT



SIGN TABULATION	
Type	Quantity
① W20-3	FOUR
② W20-1	TWO
③ B(III)-R	EIGHT



APPROVED  
*Virgil E. Anderson*  
*Madison P. Adams*  
*LeRoy A. Hansohn*  
*Eileen Hinder*  
 BOARD OF SUPERVISORS

IOWA DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION  
  
DISTRICT LOCAL SYSTEMS ENGINEER DATE

IOWA DEPARTMENT OF TRANSPORTATION  
Highway Division  
IOWA  
AUTHORIZED FOR LISTING  
*Garland* 3-25-85  
DEPUTY CHIEF ENGINEER 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.  
*W. Dale White* 1-15-85  
IOWA REGISTRATION NUMBER 5798 DATE

U.S. DEPT. TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
APPROVED  
DIVISION ENGINEER DATE

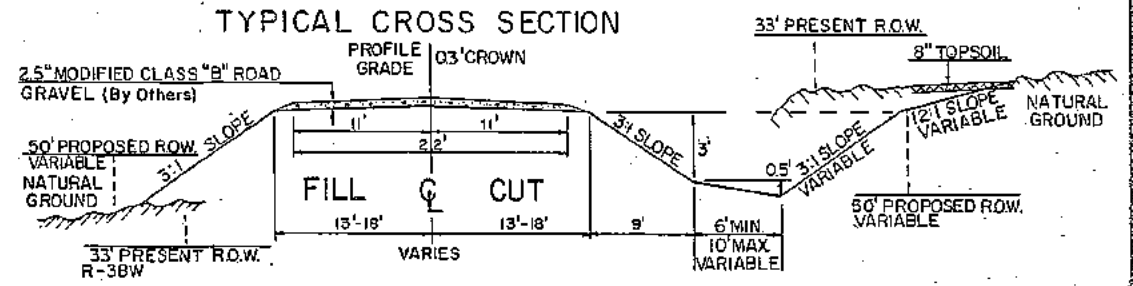
ESTIMATE OF QUANTITIES																
PROJECT NO. RS-3230 (1)--61-24	LOCATION			DESCRIPTION TYPE AND SIZE	CONCRETE	STEEL	CULVERT CORR.	CULVERT CORR.	DIAPHRAM CORR.	CULVERT CONC.	APRONS	CULVERT CORR.	CULVERT CORR.	CULVERT CORR.	EXCAVATION	EXCAVATION
	SEC.	TWP	STATION		STRUCTURAL CLASS "C"	REINFORCING	METAL RDWY. PIPE 24" DIA.	METAL RDWY. PIPE 42" DIA.	METAL TYPE "A" 42" DIA.	RDWY. PIPE 36" DIA.	CONCRETE 36" DIA.	METAL ENT. PIPE 18" DIA.	METAL ENT. PIPE 24" DIA.	METAL ENT. PIPE 42" DIA.	CLASS "20" ROADWAY PIPE	CLASS "10" ROADWAY & BORROW
					CU YDS.	LBS.	LIN. FT.	LIN. FT.	NO.	LIN. FT.	NO.	LIN. FT.	LIN. FT.	LIN. FT.	CU YDS.	CU YDS.
DESIGN NO. 385	BET. 3-14	T-83N R-37W	325 + 92	TWIN 10'X6'X56'-0" REINFORCED CONCRETE BOX CULVERT 30° RT. AHEAD SKEW	207.8	35,766	28.0	28.0	1	—	—	—	—	—	—	—
DESIGN NO. 485	BET. 23-24	T-83N R-37W	316 + 43	10'X6'X52'-0" REINFORCED CONCRETE BOX CULVERT 15° LT. AHEAD SKEW	104.7	12,094	—	—	—	—	—	—	—	—	—	—
<b>TOTAL</b>					<b>312.5</b>	<b>47,860</b>	① 28.0	② 28.0	1	③ 72.0	2	④ 64.0	⑤ 32.0	⑥ 36.0	1,277	⑦ 11,786

ESTIMATE OF QUANTITIES CONTINUED						
PROJECT NO. RS-3230 (1)--61-24	EXCAVATION CLASS "10" CHANNEL	STRIP, SALVAGE AND SPREAD TOPSOIL	GRANULAR BACKFILL	REMOVAL OF EXISTING STRUCTURES	MOBILIZATION	TRAFFIC CONTROL
CU. YDS.	CU. YDS.	TONS	LUMP SUM	% OF ESTIMATE	LUMP SUM	LUMP SUM
DESIGN NO. 385	45	—	177	LUMP SUM	\$1,000.00	LUMP SUM
DESIGN NO. 485	143	—	87	LUMP SUM	\$1,000.00	LUMP SUM
<b>TOTAL</b>	⑧ 188	⑨ 1,373	⑩ 264	LUMP SUM	\$2,000.00	LUMP SUM

**NOTES : RS-3230 (1)--61-24**

- ① 16 GAGE, RIVETED PIPE ONLY, 2' BANDS REQUIRED
- ② 16 GAGE, 3"X1" CORRUGATION, RIVETED PIPE ONLY, 2' BANDS REQUIRED
- ③ 2,000 "D" STRENGTH
- ④ TYPE "A" COMPACTION REQUIRED, NO OVERHAUL ALLOWED.
- ⑤ WASTE DIRT IN OLD CHANNEL.
- ⑥ ON ALL BORROW BEYOND 50' RIGHT OF WAY SALVAGE 8" TOPSOIL AND RESPREAD AFTER GRADING IS COMPLETED.
- ⑦ BID PRICE FOR GRANULAR BACKFILL SHALL BE CONSIDERED FULL PAYMENT FOR ALL MATERIALS AND WORK INCORPORATED WITHIN THE BEDDING AREA. FURNISH AND PLACE CRUSHED STONE AS PER PLANS, PROVISIONS AND SPECIFICATIONS. GRANULAR MATERIAL SHALL BE CLASS "A" CRUSHED STONE AND SHALL MEET THE REQUIREMENTS OF 4120.04, OR CLASS "B" CRUSHED STONE AND SHALL MEET THE REQUIREMENTS OF 4120.05.

NOTE: IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PROVIDE WASTE AREAS OR DISPOSAL SITES FOR EXCESS MATERIAL WHICH IS NOT DESIRABLE TO BE INCORPORATED IN THE WORK INVOLVED ON THIS PROJECT. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES.



Sta. 319+00 R.C.P. to P.I. Sec. 23. Cont. Iron B' deep  
Dist. 0.1714 ft.

SEC. 23

Hydraulic Data: 10'x6' R.C.B.  
Drainage Area = 404 Ac.  
Design Discharge = 402 c.f.s.  
Design High Water = 1396.9  
Slope = 77.35 ft/mi.  
Culvert Waterway Area = 58 sq. ft.  
Design Velocity = 26.67 f.p.s.  
Q<sub>50</sub> = 402 c.f.s. Stage = 1396.9  
Q<sub>100</sub> = 515 c.f.s. Stage = 1397.2  
Q<sub>500</sub> = 870 c.f.s. Stage = 1397.8  
Extreme High Water = 200 c.f.s. Stage = 1396.0

CLARK H. AND  
CLIFFORD A. PETERS

STA. 315+82 FIELD ENT. LT. (DRY)  
Cont. to remove, furnish  
& place 18'x32' c.m.p.,  
20' top, slope to ends  
of pipe.

27'x20'  
I-Beam Bridge  
4'x4' R.C.B.  
under Bridge

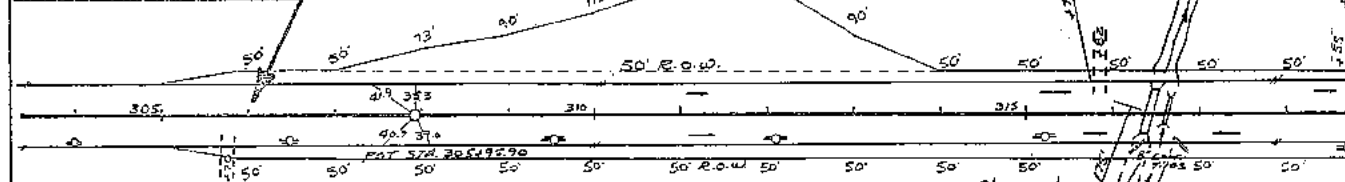
Sta. 318+55 Cont. to Construct  
FIELD ENT. LT. Furnish & place  
18'x32' c.m.p., 20' top, slope  
to ends of pipe.

HAYES TOWNSHIP  
T-83N R-37W  
SEC. 14

Sta. 332+27, Field Ent. LT.  
(24'x24' c.m.p.) Cont. to remove.  
Furnish & place 42'x36' c.m.p.,  
20' top, slope to ends of pipe.

STA. 325+78 @ 16'x22' WOOD BRIDGE WITH CROWN SHEETING  
WOOD FLOOR AND PILING, STEEL CAPS.  
Cont. to remove, salvage wood planks to  
remain property of Crawford Co., stock pile  
neatly within 300' of site, and load on Co.  
trucks at county's convenience, as directed by Co.  
Engineer. Remainder of bridge to be  
junked and disposed of by Cont.  
Disposal site to be provided by Cont.  
with the approval of Co. Engineer.  
At Sta. 325+92.0 (30' Et. Ahead Skew) Construct a  
Twin 10'x8'x58'-0" R.C.B. Class 20 = 719 cu. yds.

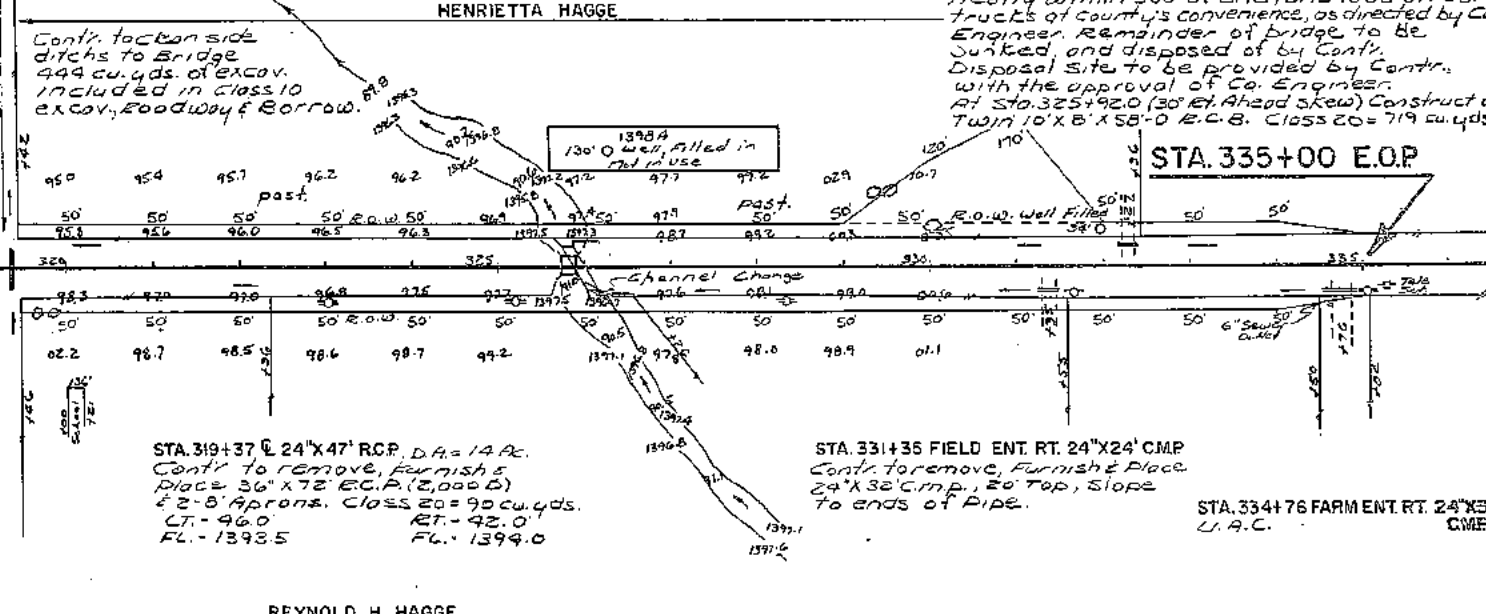
STA. 306+00 B.O.P.



Hydraulic Data: Twin 10'x8' R.C.B.  
Drainage Area = 1,249 Ac.  
Design Discharge = 1,120 c.f.s.  
Design High Water = 1398.8  
Slope = 20.21 ft/mi.  
Culvert Waterway Area = 160 sq. ft.  
Design Velocity = 14.72 f.p.s.  
Q<sub>50</sub> = 1,120 c.f.s. Stage = 1397.9  
Q<sub>100</sub> = 1,411 c.f.s. Stage = 1398.3  
Q<sub>500</sub> = 2,330 c.f.s. Stage = 1399.2  
Extreme High Water = 870 c.f.s. Stage 1397.5

STA. 316+63 @ 5'x5'x32' R.C.B.  
Cont. to remove, and dispose of.  
Disposal Site to be provided by Cont.  
with the approval of Co. Engineer.  
At Sta. 316+93.0 (15' Et. Ahead Skew)  
Construct 10'x6'x52'-0" R.C.B.  
Class 20 = 441 cu. yds.

JOHN D. CONNER



STA. 319+37 @ 24'x47' R.C.P. D.A. = 14 Ac.  
Cont. to remove, furnish &  
place 36'x72' R.C.A. (2,000 lb)  
& 2'-8" Aprons. Class 20 = 90 cu. yds.  
LT. = 46.0 RT. = 42.0  
FL. = 1398.5 RL. = 1399.0

STA. 331+35 FIELD ENT. RT. 24'x24' C.M.P.  
Cont. to remove, furnish & place  
24'x32' c.m.p., 20' top, slope  
to ends of pipe.

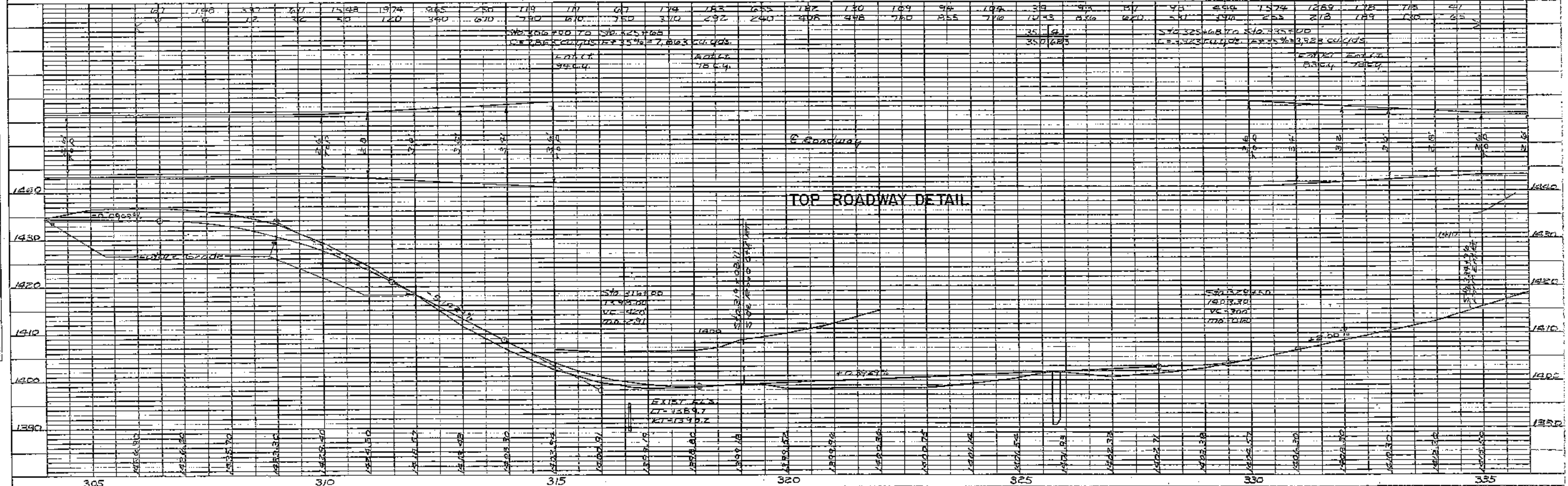
STA. 334+76 FARM ENT. RT. 24'x33'  
C.M.P.

REYNOLD H. HAGGE

SEC. 13

BM #25 SPIKE IN FENCE POST 35' RT. STA. 305+94 ELEV. = 1435.58  
BM #26 SPIKE IN 18" TREE 120' RT. STA. 319+45 ELEV. = 1403.01  
BM #27 SPIKE IN FENCE POST 100' RT. STA. 331+55 ELEV. = 1406.90

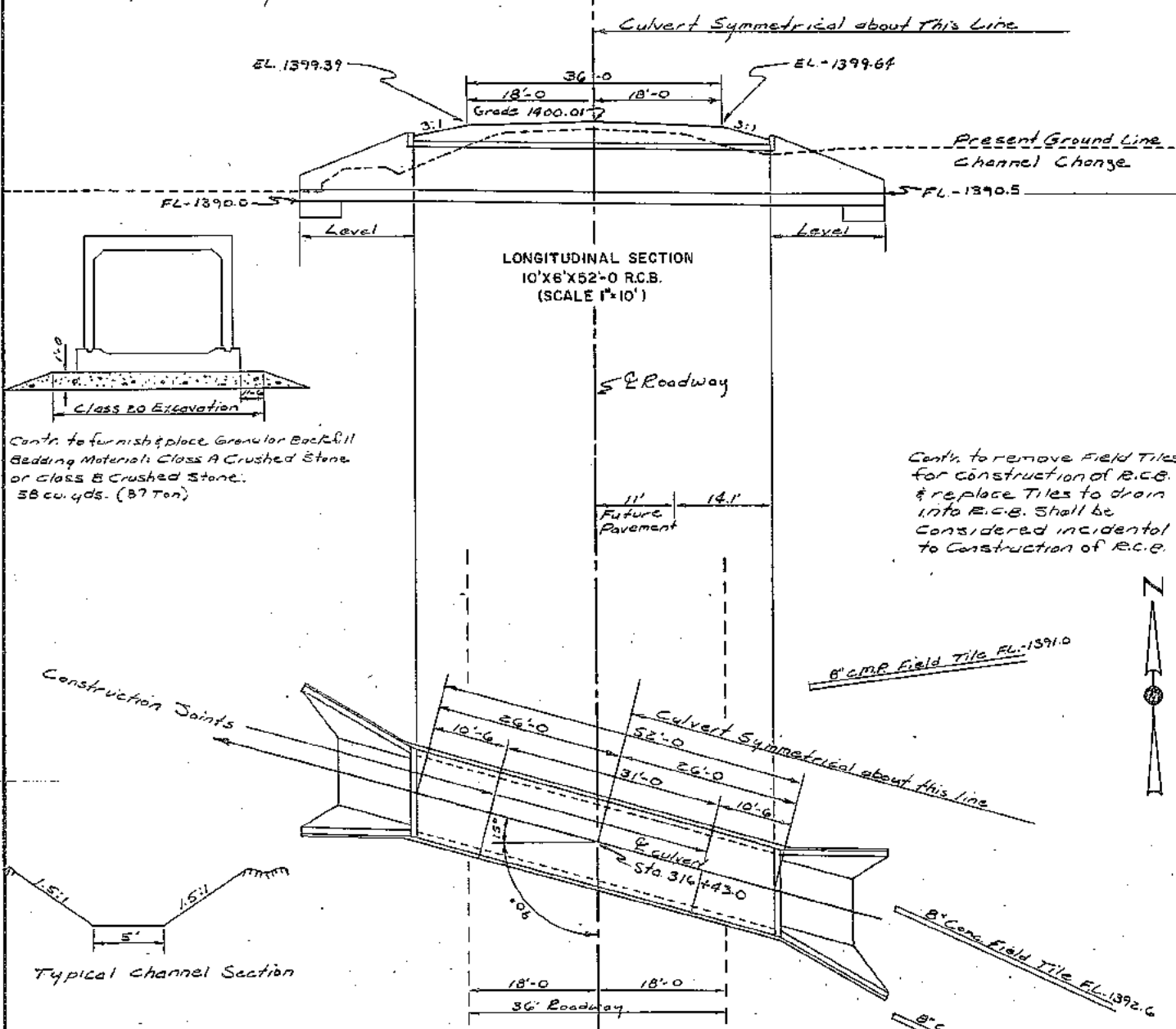
SEC. 24



Use Standard C 10F for Constructing Barrels,  
Standard FWH 0 & FWH 15 for constructing Headwalls.

Add 57 Lbs. to standard reinforcing  
steel quantities for 2-sets of r bars.

The Contractor may submit alternate frost  
trough dimensions for approval. Any additional  
cost due to change in frost trough dimensions  
is to be paid for by the Contractor.



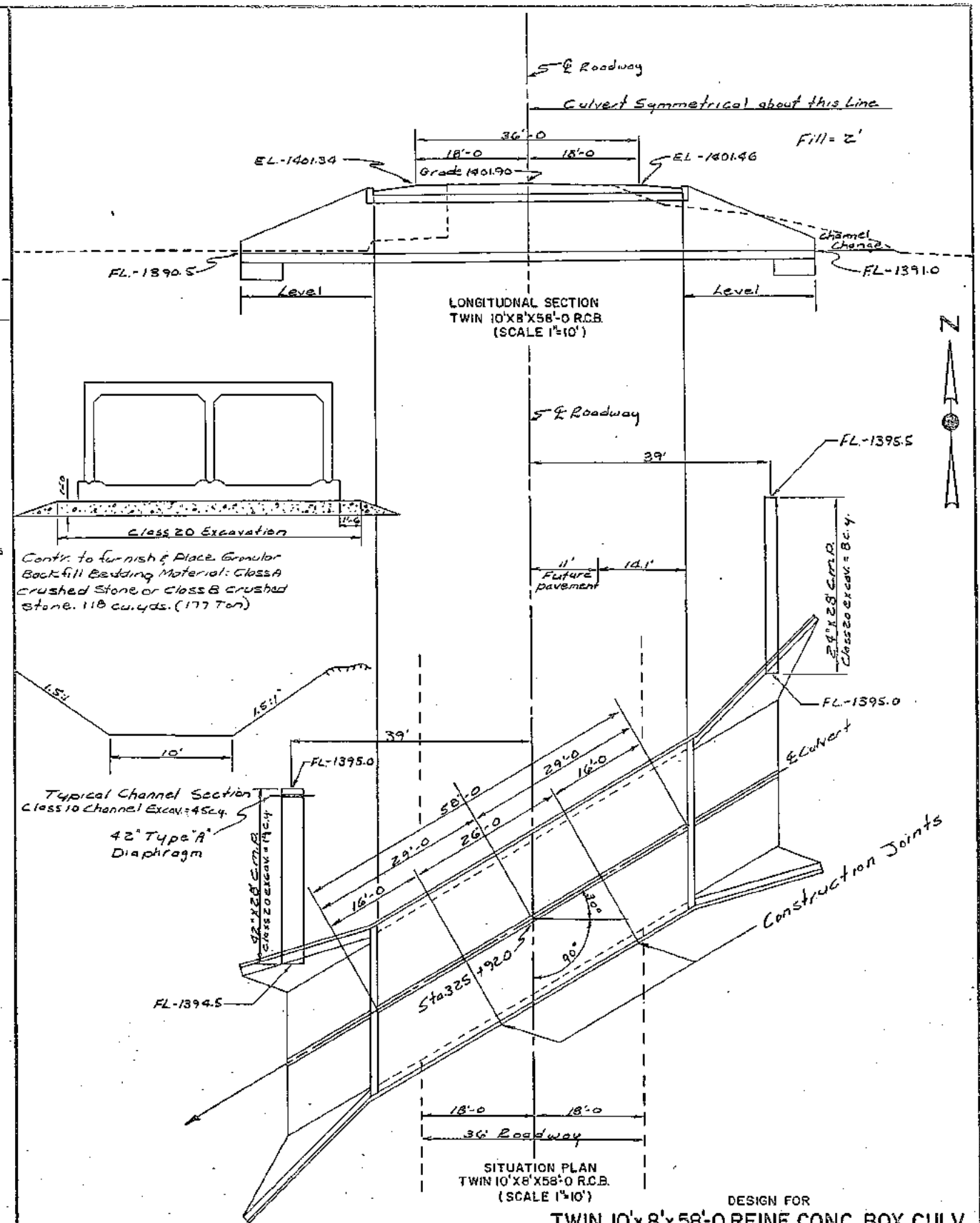
Contr. to furnish & place Granular Backfill  
Bedding Material: Class A Crushed Stone  
or Class B Crushed Stone.  
58 cu. yds. (87 Ton)

Contr. to remove Field Tiles  
for construction of R.C.B.  
& replace Tiles to drain  
into R.C.B. Shall be  
considered incidental  
to construction of R.C.B.

Size Type - 10'x6'x52'-0" R.C.B.
Depth of Fill - 3'-4"
Structural Concrete, Class C - 104.7 cu. y.
Reinforcing steel - 12,094 Lbs.
Granular Backfill - 87 Ton
Excavation Class 20 - 441 cu. yds.
Excavation Class 10 Channel - 143 cu. yds.
Removal of Existing Structure - Lump Sum

SITUATION PLAN  
10'x6'x52'-0" R.C.B.  
(SCALE 1"=10')

DESIGN NO. 485



Contr. to furnish & place Granular  
Backfill Bedding Material: Class A  
Crushed Stone or Class B crushed  
stone. 118 cu. yds. (177 Ton)

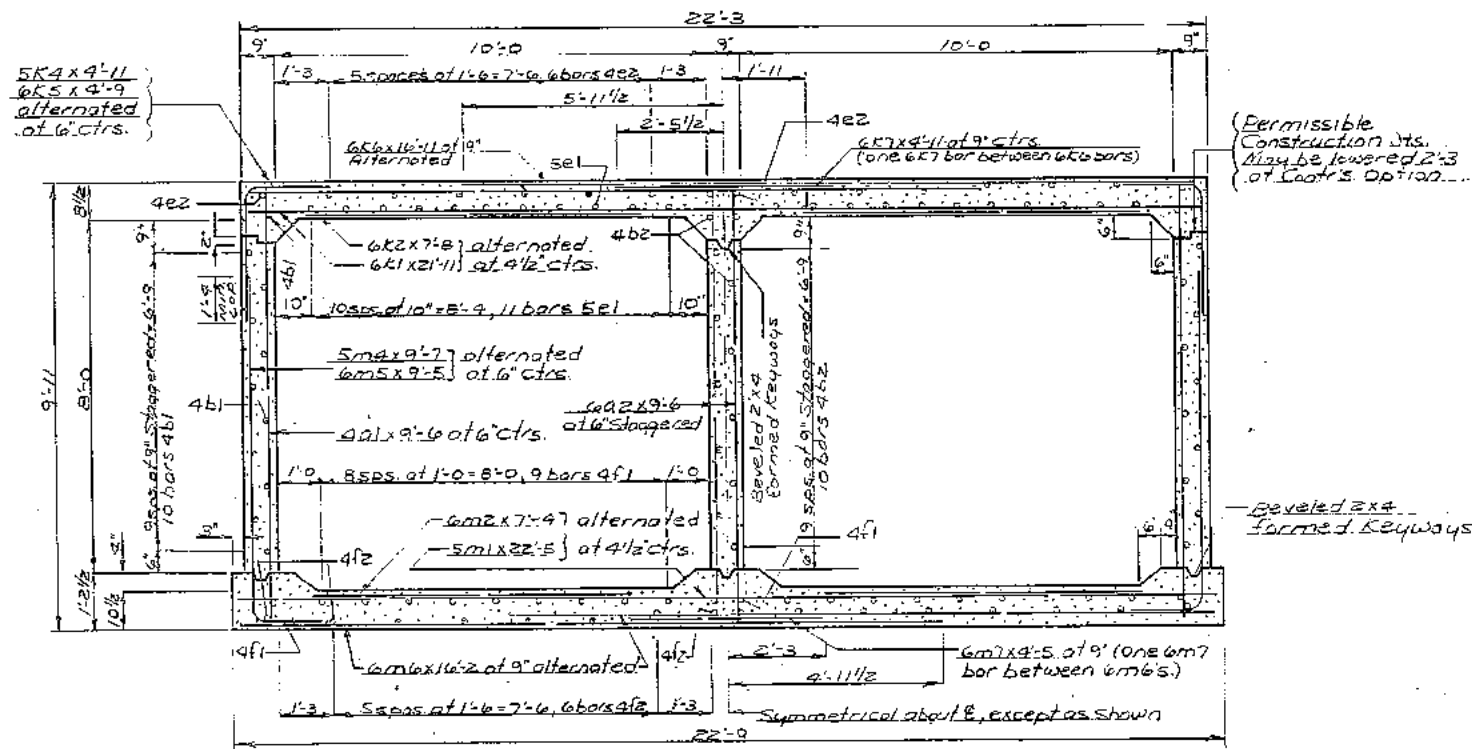
Typical Channel Section  
Class 10 Channel Excav. = 45 cu. y.

LONGITUDINAL SECTION  
TWIN 10'x8'x58'-0" R.C.B.  
(SCALE 1"=10')

SITUATION PLAN  
TWIN 10'x8'x58'-0" R.C.B.  
(SCALE 1"=10')

DESIGN NO. 385

DESIGN FOR  
TWIN 10'x8'x58'-0" REIN. CONC. BOX CULV.  
(30° SKEW) DESIGN NO. 385  
AND  
10'x6'x52'-0" REIN. CONC. BOX CULV.  
(15° SKEW) DESIGN NO. 485  
GENERAL LAYOUT & DETAILS  
CRAWFORD COUNTY



CROSS SECTION THRU BARREL

**BARREL GENERAL NOTES:**

THE RC8 CULVERT SECTIONS ARE DESIGNED FOR HS20-44 LIVE LOAD AND EARTH FILLS OF 2 FT. FOR VERTICAL LOADS THE WEIGHT OF EARTH IS ASSUMED AS 140 pcf. FOR LATERAL EARTH LOADS EQUIVALENT FLUID PRESSURE IS ASSUMED AS 36 psf/ft.

METAL BAR CHAIRS SPACED AT NOT OVER 2'-0" C-C IN EITHER DIRECTION ARE TO BE USED TO SUPPORT ALL SLAB AND FLOOR STEEL AS OUTLINED IN THE STANDARD SPECIFICATIONS (ARTICLE 2001.07).

THE CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR EDGE OR END OF REINFORCING BAR TO BE 2" UNLESS OTHERWISE NOTED.

EXCEPT FOR COWEL BARS "1", LONGITUDINAL REINFORCING IS NOT TO EXTEND THRU THE CONSTRUCTION JOINTS.

ALL REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE BEFORE THE CONCRETE IS POURED (ARTICLE 2009.06).

FLOOR OF BARREL IS TO BE FINISHED SMOOTH. SIDES OF FOOTING ARE TO BE FORMED TO INSURE CORRECT LINE AND GRADE.

ALL EXPOSED CORNERS 90° OR SHARPER TO BE FILLETED WITH A 3/8" DRESSED AND BEVELED STRIP.

THE PERMISSIBLE CONSTRUCTION JOINT AT THE TOP OF THE WALLS MAY BE LOWERED 2'-3" AT THE CONTRACTOR'S OPTION.

**GENERAL NOTES:**

The reinforcement supplied for this structure may be grade 40, 50, or 60 reinforcement in accordance with the Standard Specifications. The design stresses for all grades are based on 60 grade reinforcement.

Edge Clearances:  
Top of Floor 2 1/4" to near trans. reinf. bar  
Bottom of Floor 3 1/2" to near trans. reinf. bar

End Clearances:  
Vertical, Top 2"  
Vertical, Bottom 3"  
Transverse 2"

**DESIGN STRESSES:**

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1977.

REINFORCING STEEL IN ACCORDANCE WITH SECTION 1.5, GRADE 60  
CONCRETE IN ACCORDANCE WITH SECTION 1.5,  $f_c=3,500$  PSI.

**SPECIFICATIONS:**

DESIGN: AASHTO SERIES OF 1977  
CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION SPECIFICATION SERIES OF 1964, PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

**ESTIMATE OF REINF 26'-0 INTERMEDIATE SECTION**

BAR	LOCATION	SHAPE	NO.	LENGTH	LINEAR FEET			
					4	5	6	7
4a1	Exterior Walls F.F.V.		104	9'-6"	9880			
4a2	Center Wall Both F.V.		52	9'-6"			4940	
4b1	Walls Both F.H.		22	25'-8"	564.7			
4b2	Center Wall Both F.H.		12	25'-8"	308.0			
5e1	Bottom Slab Longit.		22	25'-8"		564.7		
4e2	Top Slab Longit.		16	25'-8"	410.7			
4f1	Top Floor Longit.		22	25'-8"	564.7			
4f2	Bottom Floor Longit.		16	25'-8"	410.7			
6k1	Bottom Slab Transv.		34	21'-11"			745.2	
6k2	Bottom Slab Transv.		70	7'-8"			536.7	
5k4	Top Slab Corner		52	4'-11"		255.7		
6k5	Top Slab Corner		52	4'-9"			247.0	
6k6	Top Slab Transv.		35	16'-11"			592.1	
6k7	Top Slab Transv.		34	4'-11"			167.2	
5m1	Top Floor Transv.		34	22'-5"		762.2		
6m2	Top Floor Transv.		70	7'-9"			513.3	
5m4	Bottom Floor Corner		52	9'-7"		498.3		
6m5	Bottom Floor Corner		52	9'-5"			489.7	
6m6	Bottom Floor Transv.		34	16'-2"			549.7	
6m7	Bottom Floor Transv.		35	4'-5"			154.6	
5f1	Constr. Dowels		46	2'-10"		130.3		
LENGTH					3246.8	2211.2	2489.5	
WEIGHT					2168.9	2306.3	6743.2	
TOTAL WEIGHT =					11,218.4			

**CONCRETE PLACEMENT 26'-0 INTERMEDIATE SECTION**

SLAB	16.67 CU. YDS.
WALLS	16.47 CU. YDS.
FLOOR	20.65 CU. YDS.
TOTAL	53.79 CU. YDS.

**PLACEMENT QUANTITIES**

LOCATION	CONCRETE IN PARTS CU. YDS.				REINFORCING STEEL (LBS)
	SLAB	WALLS	FLOOR	TOTAL	
TWIN 10' X 8' - 30° SKEW HDWL. (2)	5.20	23.00	59.50	87.80	10,902.0
16'-0 END SECTION (2)	20.52	20.28	25.42	66.22	13,645.4
26'-0 INTERMEDIATE SECTION	16.67	16.47	20.65	53.79	11,218.4
X PARAPET					
TOTAL	42.39	59.75	105.57	207.81	35,765.8

NOTE: STANDARD TWH 30 REQUIRED FOR HEADWALL DETAILS.

DESIGN FOR  
TWIN 10' X 8' X 58'-0 REINF. CONC. BOX CULV.  
(30° SKEW)  
BARREL SECTION & DETAILS  
CRAWFORD COUNTY

Note: Variable Length Bars - One 16'-0" End Section

bars 5e1 leach length

10'-2	13'-0	16'-10	19'-9
10'-8	13'-6	17'-4	20'-2
11'-1	14'-0	17'-10	20'-8
11'-7	14'-6	18'-3	21'-2
12'-1	15'-0	18'-9	
12'-6	16'-4	19'-3	

bars 4f2 leach length

9'-7	13'-0	15'-9	19'-2
10'-5	13'-10	16'-7	20'-1
11'-3	14'-9	17'-6	20'-11
12'-1	15'-6	18'-4	21'-10

bars 6k9 leach length

2'-0	4'-4	5'-10
3'-1	4'-7	7'-0
3'-3	5'-8	7'-2

bars 4e2 leach length

9'-7	13'-0	15'-9	19'-2
10'-5	13'-10	16'-7	20'-1
11'-3	14'-9	17'-6	20'-11
12'-1	15'-6	18'-4	21'-10

bars 6k3 leach length

3'-0	8'-6	12'-3	16'-11
5'-11	9'-4	13'-8	
6'-9	11'-1	14'-10	

bars 6m3 leach length

2'-1	7'-1	9'-11	14'-10
4'-6	7'-4	12'-3	16'-2
4'-9	9'-8	12'-6	

bars 4f1 leach length

9'-7	13'-2	16'-6	19'-11
10'-3	13'-9	17'-0	20'-6
10'-10	14'-4	17'-8	21'-1
11'-5	14'-11	18'-2	21'-9
12'-0	15'-7	18'-9	
12'-7	15'-4	19'-4	

bars 6k8 leach length

2'-6	7'-8	12'-11	18'-1
3'-9	9'-10	14'-2	19'-4
5'-1	10'-3	15'-6	20'-8
6'-5	11'-7	16'-9	

bars 5m8 leach length

2'-1	7'-3	12'-5	17'-8
3'-4	8'-7	13'-9	18'-1
4'-8	9'-10	15'-1	20'-3
5'-11	11'-2	16'-4	21'-6

bars 6m9 leach length

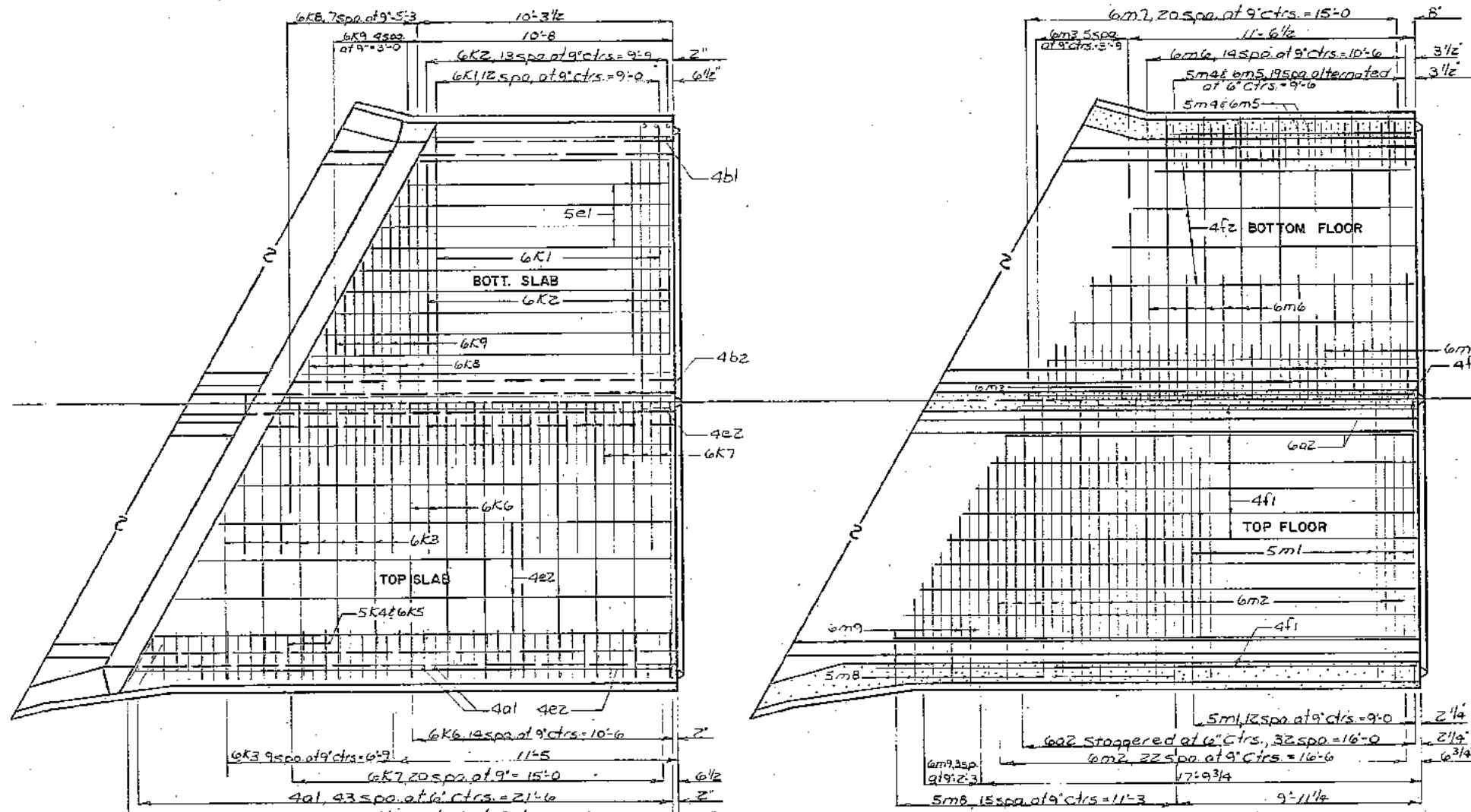
2'-3	3'-6	4'-10	6'-2
2'-5	3'-8	5'-0	6'-3

ESTIMATE OF REINF STEEL 16'-0" END SECTION

BAR	LOCATION	SHAPE	NO.	LENGTH	LINEAR FEET			
					4	5	6	7
4a1	Exterior Wall F.F.V.		64	9'-6	608.0			
6a2	Center Wall both F.V.		33	9'-6			313.5	
4b1	Walls Both F.H. (Long Side)		11	240.5				
4b1	Walls Both F.H. (Short Side)		11	104.2				
4b2	Center Wall Both F.H.		12	188.0				
5e1	Bottom Slab Longit.		22	Listed		344.4		
4e2	Top Slab Longit.		16	Listed	250.6			
4f1	Top Floor Longit.		22	Listed	344.8			
4f2	Bottom Floor Longit.		16	Listed	250.6			
6k1	Top Slab Transv.		13	21'-11			284.9	
6k2	Bottom Slab Transv.		37	7'-8			283.7	
6k3	Top Slab Transv.		10	Listed			102.3	
5k4	Top Slab Corner		7	33	4'-11		162.3	
6k5	Top Slab Corner		7	32	4'-9		152.0	
6k6	Top Slab Transv.		15	16'-11			253.8	
6k7	Top Slab Transv.		21	4'-11			103.3	
6k8	Bottom Slab Transv.		15	Listed			174.5	
6k9	Bottom Slab Transv.		9	Listed			42.9	
5m1	Top Floor Transv.		13	22'-5			291.4	
6m2	Top Floor Transv.		37	7'-4			271.3	
6m3	Bottom Floor Transv.		11	Listed			101.1	
5m4	Bottom Floor Corner		33	9'-7			316.2	
6m5	Bottom Floor Corner		32	9'-5			301.3	
6m6	Bottom Floor Transv.		15	16'-2			242.5	
6m7	Bottom Floor Transv.		21	4'-5			92.8	
5m8	Top Floor Transv.		16	Listed			188.8	
6m9	Top Floor Transv.		8	Listed			34.1	
					LENGTH	1986.7	1303.1	2754.0
					WEIGHT	1327.1	1359.1	4136.5
					TOTAL WEIGHT	= 6,822.7		

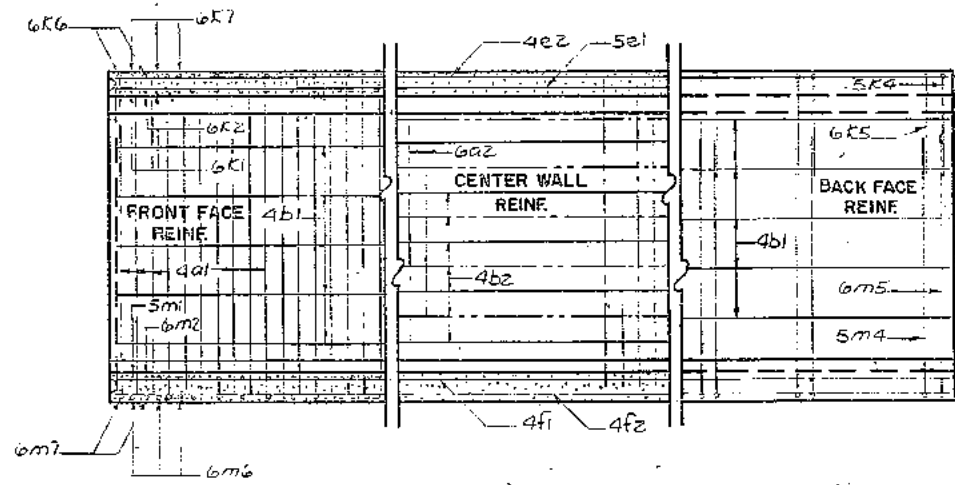
CONCRETE PLACEMENT 16'-0" END SECTION

SLAB	10.26 CU. YDS.
WALLS	10.14 CU. YDS.
FLOOR	12.71 CU. YDS.
TOTAL	33.11 CU. YDS.

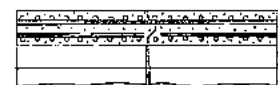


PLAN VIEW 16'-0" END SECTION (30° SKEW)

DESIGN FOR  
TWIN 10'x8 x58'-0" REINF CONC. BOX CULV.  
(30° SKEW)  
16'-0" END SECTION DETAILS  
CRAWFORD COUNTY



LONGITUDINAL SECTION ELEVATION

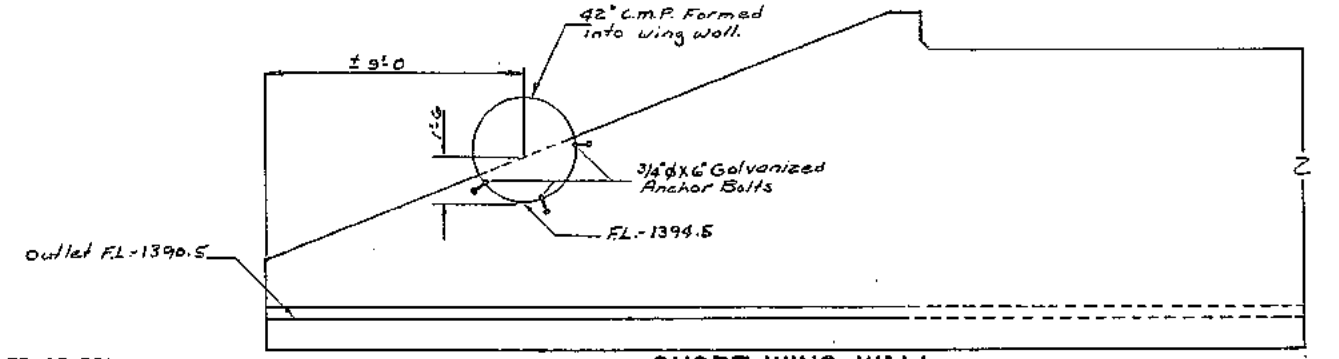


2-sets dowel bars  
4# bars, to be located  
near top slab. 5" x  
2'-10" at 1'-0" c.c.

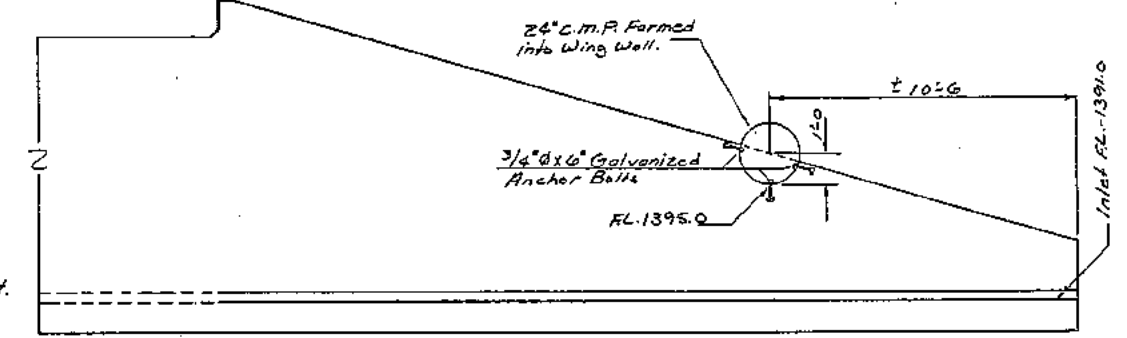
CONCRETE QUANTITIES PER FT. OF BBL.

SLAB	0.6412
WALLS	0.6335
FLOOR	0.7942
TOTAL	2.0689

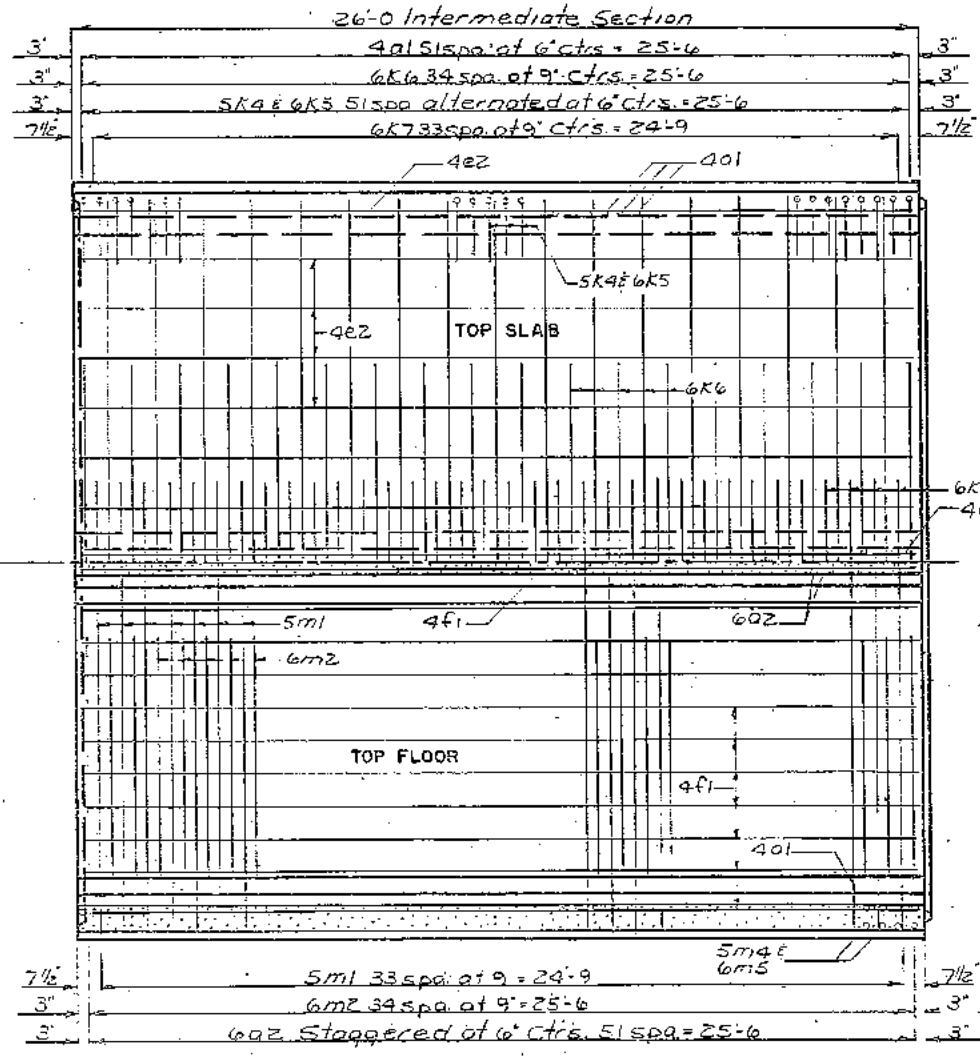
Note:  
Furnishing & placing 6-3/4" x 6"  
Anchor Bolts shall be considered  
incidental to furnishing &  
placing corr. metal pipe culvert.



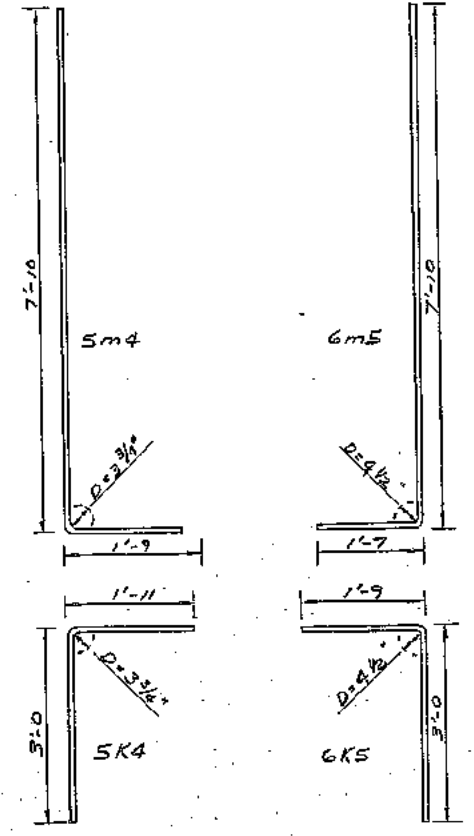
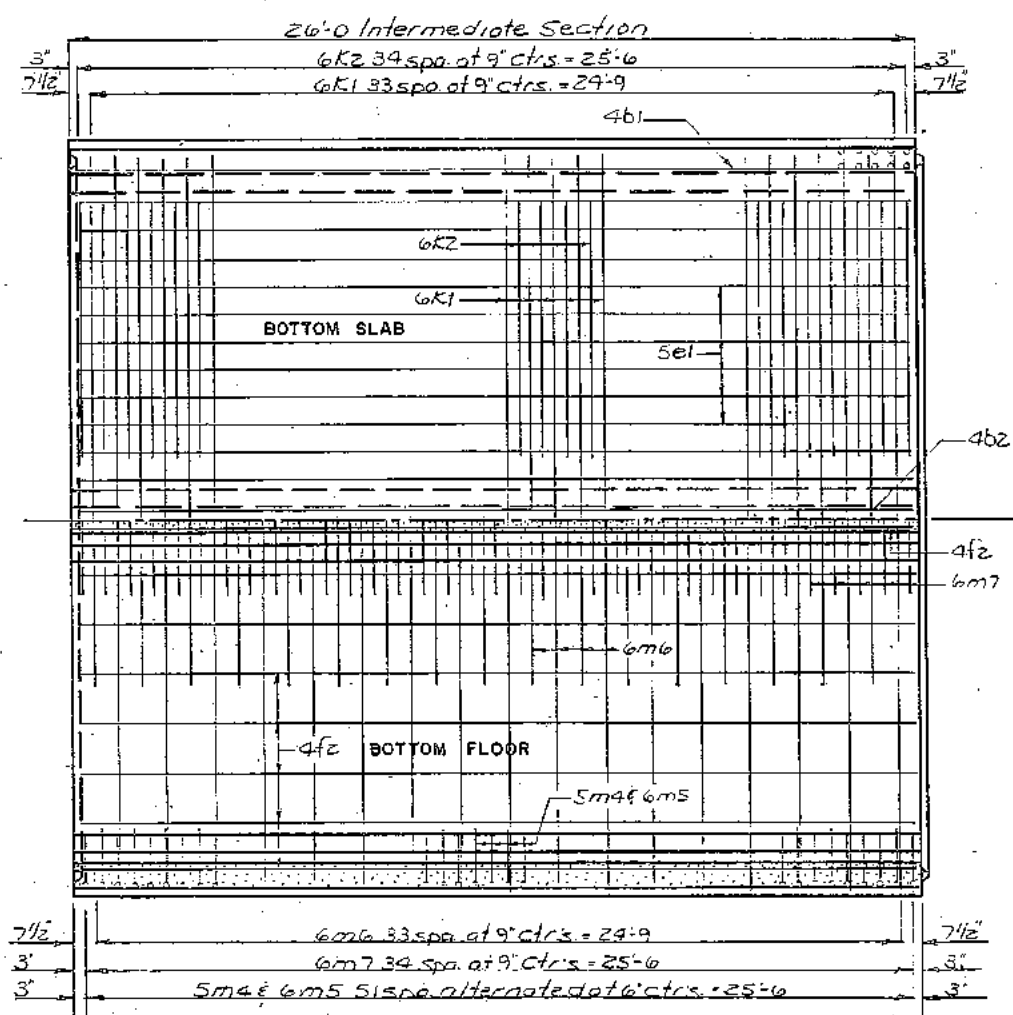
SHORT WING WALL



LONG WING WALL



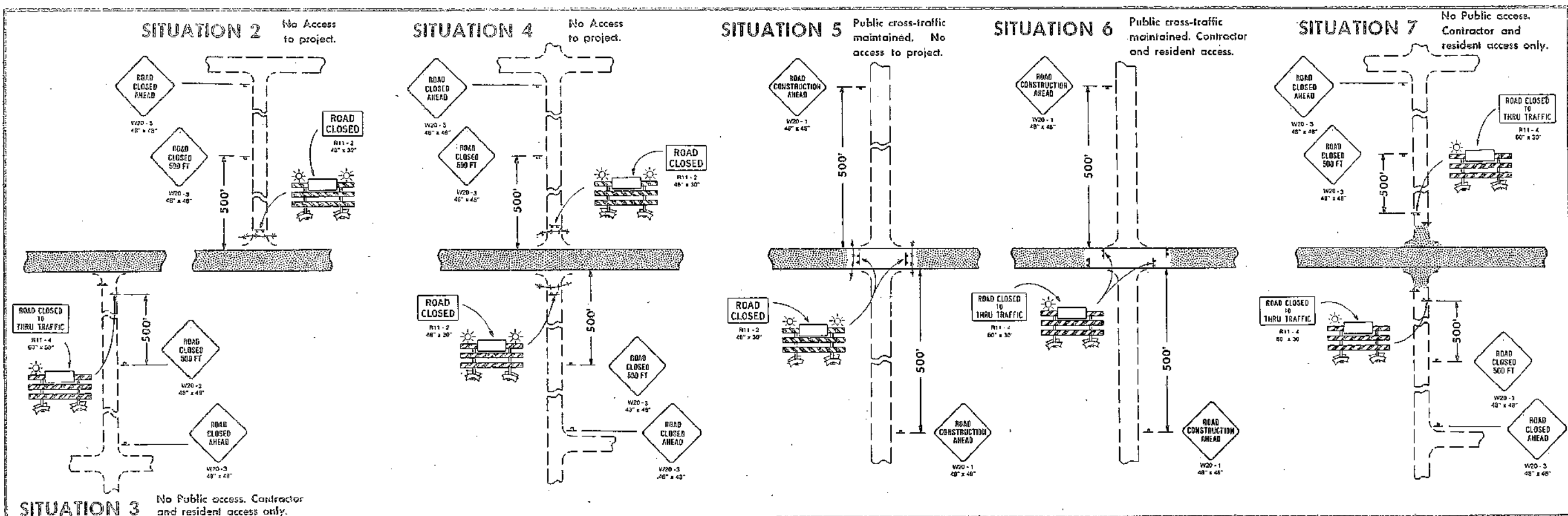
PLAN VIEW



BENT BAR DETAILS

DESIGN FOR  
TWIN 10'x8'x58'-0" REIN. CONC. BOX CULV.  
(30° SKEW)  
26'-0" INTERMEDIATE SECTION DETAILS  
CRAWFORD COUNTY



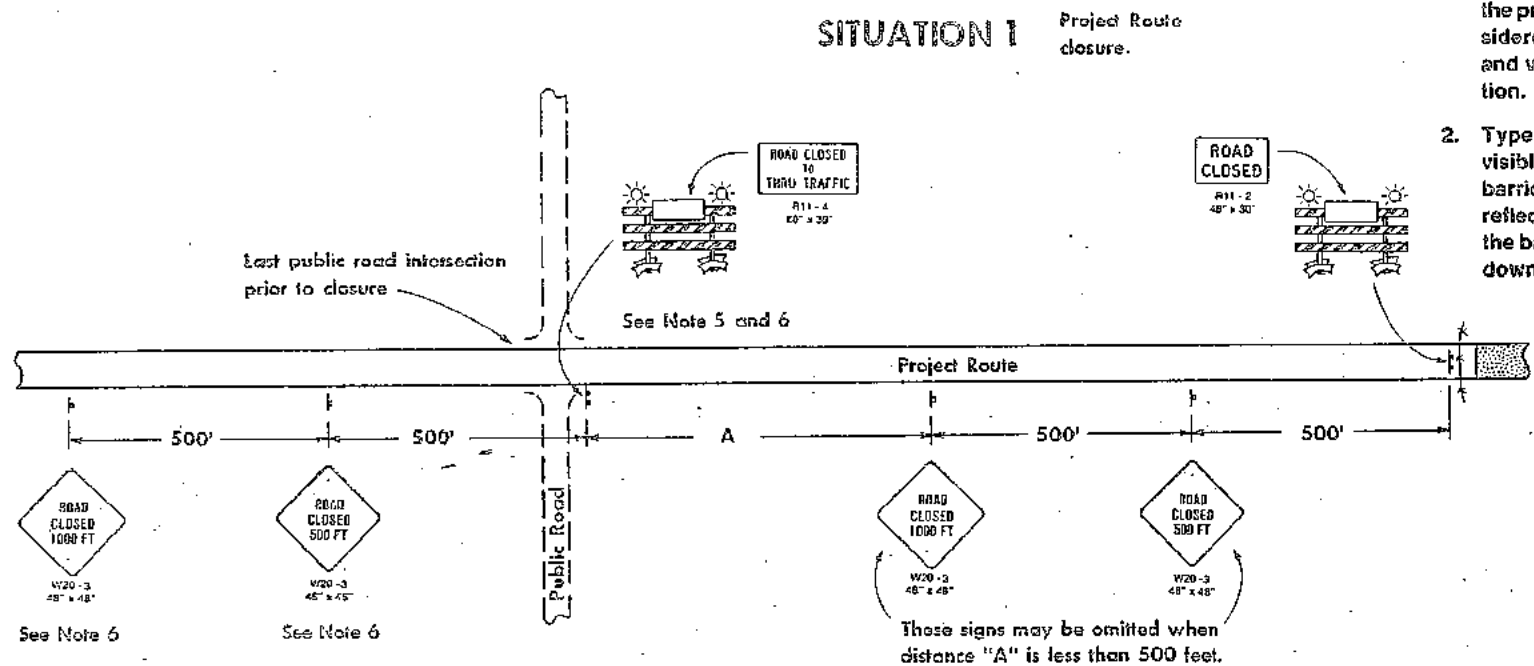


**GENERAL NOTES**

- SITUATION 1** illustrates traffic control necessary to close the project route. **SITUATIONS 2 through 7** are for signing of sideroads based on existing agreements and field conditions and will be selected by the engineer in charge of construction.
- Type "A" Low Intensity Flashing Warning Lights shall be visible to both directions of traffic. The back side of the barricade shall be reflectorized by a minimum of six yellow reflectors, one at each end of each rail, or at least one rail on the barricade will show reflectorized stripes properly sloped down toward the traffic side.
- All "Stop" and other regulatory signs on the sideroads are not to be disturbed. If a "Stop" or other regulatory sign must be removed, it will be relocated by the Contracting Authority.
- This layout does not include all barricades as may be required by Section 2518 of the Standard Specifications.
- In Situation 1, when distance "A" is less than 500 feet the barricade should be placed in the middle of the traffic lane approaching the work area. In this case, Note 2 shall apply. The barricade may be omitted if the distance to the work area is less than 400 feet.
- In Situation 1, if the intersection is the point of detour these two signs and barricade will become the responsibility of the contracting authority and may be modified by the contracting authority to fit detour signing.

**LEGEND**

- Traffic Sign
- Type III Barricade (Type "A" Low Intensity Flashing Warning Light Required for Nighttime Use)
- Type "A" Low Intensity Flashing Warning Light
- Work Area
- Slat Fence Barricade or Orange Plastic Safety Fence



**DETAIL SHEET** **520-26**

Revision Date 1-23-85

**SIGNING FOR TEMPORARY ROAD CLOSURES IN RURAL AREAS**  
(PROJECT ROUTE CLOSED TO TRAFFIC)