

LETTING DATE
01/20/2016

RCB CULVERT REPLACEMENT - TWIN BOX
BROS-C024(109)--8J-24

CRAWFORD COUNTY

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. TEMPORARY TRAFFIC CONTROL DEVICES FOR THE DETOUR ROUTE WILL BE PROVIDED, INSTALLED, AND MAINTAINED BY THE COUNTY.

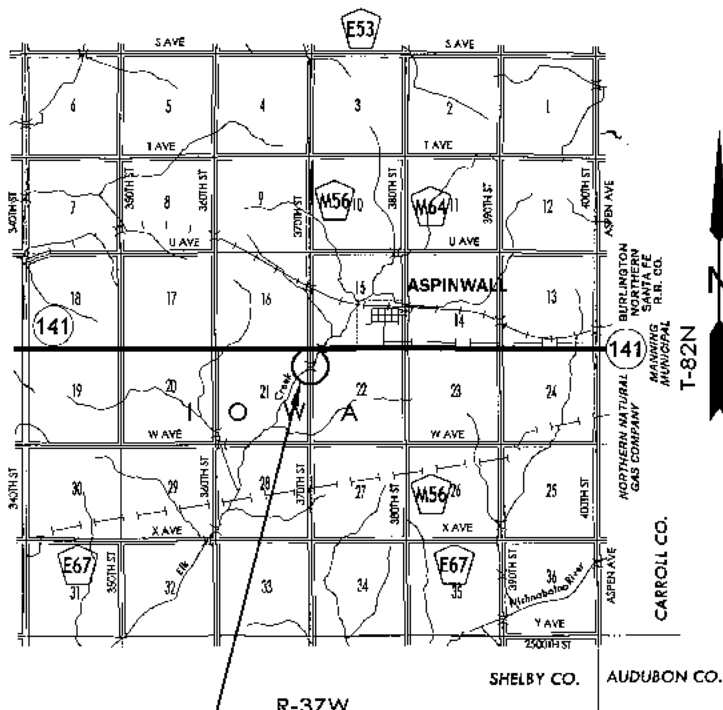
281-1
10-15-13

SECTION 404 PERMIT AND CONDITIONS

Construct this project according to the requirements of U.S. Army Corps of Engineers Nationwide Permit No. 14, Permit No. CEMVR-00-P-2015-750. A copy of this permit is available from the Iowa DOT website (<http://envpermits.iowadot.gov/CMEPortalENV/Home.aspx>). The U.S. Army Corps of Engineers reserves the right to visit the site without prior notice.

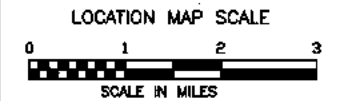
DRAWING APPROVAL

ALL SHOP DRAWINGS THAT REQUIRE APPROVAL SHALL BE APPROVED BY THE CRAWFORD COUNTY ENGINEER.
ADDRESS: 1202 BROADWAY, P.O. BOX 458
DENISON, IOWA 51442-0458
TELEPHONE: (712)263-2449
EMAIL: passman@crawfordcounty.org
THESE SHOP DRAWINGS SHALL NOT BE SENT TO IOWA D.O.T. OFFICE OF BRIDGE DESIGN.



STA. 10+00
PROPOSED TWIN 12'x9'x62' RCB CULVERT
37.5' SKEW RT. AHEAD
B.O.P. STA. 8+25
E.O.P. STA. 11+75

SUNDQUIST ENGINEERING, P.C.
120 S. MAIN, P.O. BOX 220, DENISON, IOWA 51442
PHONE: (712)263-8118 FAX: (712)263-2181
SUNDQUISTENGINEERING.COM



Highway Division

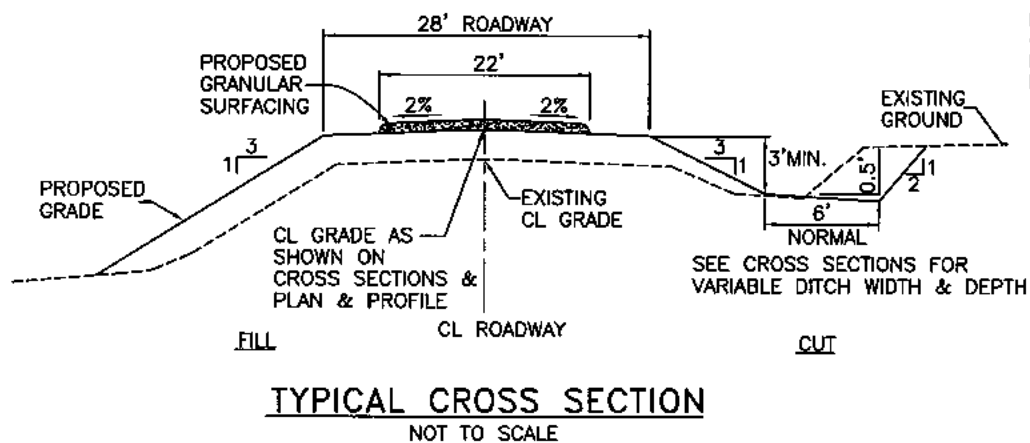
PLANS OF PROPOSED IMPROVEMENTS ON THE

**SECONDARY ROAD SYSTEM
CRAWFORD COUNTY**

PROJECT NO. BROS-C024(109)--8J-24
RCB CULVERT REPLACEMENT - TWIN BOX
ON 370TH STREET 0.2 MILES SOUTH OF IA. 141
OVER ELK CREEK

SCALES: AS NOTED

REFER TO THE PROPOSAL FORM FOR LIST OF APPLICABLE SPECIFICATIONS.



UTILITY CONTACTS

WEST CENTRAL IOWA RURAL WATER
Jean Hargens
Phone: 712-655-2534
Email: wcirwa@pionet.net

MIDAMER-GAS
Glen Nobiling
Phone: 712-792-7045
Email: ggnobiling@midamerican.com

MIDAMER-ELEC
Glen Nobiling
Phone: 712-792-7045
Email: ggnobiling@midamerican.com

TOTAL SHEETS	14
PROJECT NUMBER	BROS-C024(109)--8J-24
R.O.W. PROJECT NUMBER	
PROJECT IDENTIFICATION NUMBER	
FHWA STRUCTURE NO.	126241

INDEX OF SHEETS

NO.	DESCRIPTION
A1	TITLE SHEET
C1	ESTIMATED PROJECT QUANTITIES
C1	STANDARD ROAD PLANS
C1-2	ESTIMATE REFERENCE INFORMATION
C3	TABULATIONS
G1	DETAILS OF REFERENCE INFORMATION
H1	RIGHT-OF-WAY SHEET
Q1	SOILS SHEET
U1	DETAIL SHEET
V1	SITUATION PLAN
V2	SUBDRAIN DETAILS
W1	CROSS SECTIONS - ROADWAY
Z1-3	CROSS SECTIONS - CHANNEL

STANDARD ROAD PLANS

STANDARD ROAD PLANS ARE LISTED ON PLAN SHEET C1.

STANDARD CULVERT PLANS

STANDARD CULVERT PLANS ARE LISTED ON PLAN SHEET C1.

MILEAGE SUMMARY

LOCATION	LIN. FT.	MILES
BOP STA. 8+25 TO EOP STA. 11+75	350.00	
NET LENGTH OF ROADWAY	350.00	0.066

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A1	TROY J. GROTH	PRIMARY SIGNATURE BLOCK
Q1	JED A. MCINERNEY	GEOTECHNICAL DESIGN

Approved

[Signatures]
BOARD OF SUPERVISORS

Approved

[Signature] 10/13/15
CRAWFORD COUNTY ENGINEER DATE

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.
[Signature] 10/15/15
TROY J. GROTH, P.E. #14450 DATE
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2015.
PAGES OR SHEETS COVERED BY THIS SEAL:
A1, C1-3, G1, H1, U1, V1-2, W1, Z1-3

IOWA ONE CALL
CALL BEFORE YOU DIG!
1-800-292-8989
www.iowaonecall.com

04-30-02 101-4

DESIGN DATA RURAL

2012 AADT	80	V.P.D.
2036 AADT	95	V.P.D.
201X DHV	X	V.P.H.
TRUCKS	X	%
TOTAL DESIGN ESALs		

ESTIMATED PROJECT QUANTITIES

100-1A
07-15-97

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QTY.
1	2102-0425071	SPECIAL BACKFILL	CY	65.1	
2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	1953.9	
3	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	2557.1	
4	2107-0425020	COMPACTING BACKFILL ADJACENT TO BRIDGES, CULVERTS OR STRUCTURES	CY	82.7	
5	2113-0001100	SUBGRADE STABILIZATION MATERIAL, POLYMER GRID	SY	361.0	
6	2312-8260051	GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE	TON	220.5	
7	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1.00	
8	2402-2720000	EXCAVATION, CLASS 20	CY	1156	
9	2402-2725005	FOUNDATION TREATMENT MATERIAL	TON	218.200	
10	2403-0100020	STRUCTURAL CONCRETE (RCB CULVERT)	CY	291.5	
11	2404-7775000	REINFORCING STEEL	LB	46465	
12	2417-0225042	APRONS, METAL, 42 IN. DIA.	EACH	1	
13	2417-1461036	REMOVE AND REINSTALL CORRUGATED METAL PIPE CULVERT LESS THAN OR EQUAL TO 36 IN.	LF	59	
14	2501-5775000	PILES, STEEL SHEET	SF	786	
15	2502-8215142	SUBDRAIN, CORRUGATED METAL PIPE, 42 IN. DIA.	LF	36	
16	2507-3250005	ENGINEERING FABRIC	SY	938.3	
17	2507-6800021	REVTMENT, CLASS B	TON	127.1	
18	2518-6910000	SAFETY CLOSURE	EACH	2	
19	2526-8285000	CONSTRUCTION SURVEY	LS	1.00	
20	2528-8445110	TRAFFIC CONTROL	LS	1.00	
21	2533-4980005	MOBILIZATION	LS	1.00	
22	2602-0000020	SILT FENCE	LF	703.1	
23	2602-0000030	SILT FENCE FOR DITCH CHECKS	LF	75.0	
24	2602-0010010	MOBILIZATIONS, EROSION CONTROL	EACH	1	

STANDARD ROAD PLANS

105-4
10-18-11

The following Standard Road Plans apply to construction work on this project.

NUMBER	DATE	TITLE
DR-101	04-21-15	PIPE CULVERT (BEDDING AND BACKFILL)
DR-104	04-21-15	DEPTH OF COVER TABLES FOR CONCRETE AND CORRUGATED PIPE
DR-122	04-21-15	CONSTRUCTION OF TYPE 'C' CONCRETE ADAPTERS FOR PIPE CULVERT CONNECTIONS
DR-203	04-21-15	METAL PIPE APRONS AND BEVELED ENDS
DR-305	04-21-15	SUBDRAIN OUTLETS (STANDARD SUBDRAIN, PRESSURE RELEASE AND SPECIAL)
DR-501	04-21-15	CORRUGATED METAL TYPE "A" DIAPHRAGM
EC-201	04-21-15	SILT FENCE
EW-101	10-20-15	EMBANKMENT AND REBUILDING EMBANKMENTS
EW-110	10-20-15	DITCH BLOCKS AND DIKES
TC-1	04-16-13	WORK NOT AFFECTING TRAFFIC (TWO-LANE OR MULTI-LANE)
TC-252	10-20-15	ROUTES CLOSED TO TRAFFIC

STANDARD CULVERT PLANS

STANDARD	ISSUED	REVISED
TWRCB G1-12	APRIL, 2012	10-12
TWRCB G2-12	APRIL, 2012	07-14
TWRCB 12-9-12	APRIL, 2012	
TWH 30-1-12	APRIL, 2012	
TWH 30-2-12	APRIL, 2012	
TWH 30-3-12	APRIL, 2012	
TWH 30-4-12	APRIL, 2012	
TWH 30-5-12	APRIL, 2012	05-13
TWH 30-6-12	APRIL, 2012	

INDEX OF TABULATIONS

111-25
10-18-11

Tabulation	Tabulation Title	Sheet No.
100-1A	ESTIMATED PROJECT QUANTITIES	C1
100-17	TABULATION OF SILT FENCES	C3
100-18	TABULATION OF SILT FENCES FOR DITCH CHECKS	C3
102-3	ACCESS POINTS AND SAFETY RAMPS	C3
105-4	STANDARD ROAD PLANS	C1
108-13A	SAFETY CLOSURES	C3
111-25	INDEX OF TABULATIONS	C1
	TABULATION OF EARTHWORK QUANTITIES	C3
	PLACEMENT OF QUANTITIES	C3

ESTIMATE REFERENCE INFORMATION

100-4A
10-29-02

Item No.	Description
1	<p>SPECIAL BACKFILL REFER TO DETAILS ON PLAN SHEET U1. AGGREGATE TYPE SHALL BE CRUSHED LIMESTONE OR CRUSHED PCC. NO GRAVEL OR RAP WILL BE ALLOWED.</p>
2	<p>EXCAVATION, CLASS 10, ROADWAY AND BORROW INCLUDES 544.8 C.Y. CUT, 1798.5 C.Y. FILL +35% SHRINK, AND 1253.7 C.Y. BORROW. REFER TO TABULATION OF EARTHWORK QUANTITIES ON PLAN SHEET C3. TYPE A COMPACTION WILL BE REQUIRED. BORROW MAY BE OBTAINED FROM SUITABLE CLASS 20 AND CLASS 10 CHANNEL EXCAVATION. CONTRACTOR SHALL PROVIDE ADDITIONAL NECESSARY BORROW. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED.</p> <p>EXISTING SLOPES THAT ARE TO RECEIVE EMBANKMENT, REGARDLESS OF THEIR HEIGHT, SHALL BE PREPARED IN ACCORDANCE WITH ARTICLE 2107.03, C, 2, OF THE STANDARD SPECIFICATIONS.</p> <p>A SUFFICIENT VOLUME OF SOIL HIGH IN ORGANIC CONTENT IS AVAILABLE WITHIN THE EXCAVATION LIMITS OF THE PROJECT. THIS MATERIAL SHALL BE DEPOSITED AS THE FINAL LAYER TO A MINIMUM FINISHED DEPTH OF 4 INCHES ON THE PROPOSED ROADWAY FORESLOPES AND OTHER DISTURBED AREAS TO FACILITATE ESTABLISHMENT OF PERMANENT VEGETATIVE COVER. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THIS BID ITEM.</p> <p>QUANTITY INCLUDES FILL REQUIRED TO CONSTRUCT RELOCATED ENTRANCE AT STA. 10+41. REFER TO TAB. 102-3.</p> <p>ANY CLEARING AND GRUBBING NECESSARY TO COMPLETE THE WORK ON THIS PROJECT SHALL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THIS ITEM.</p> <p>PAYMENT FOR THIS ITEM WILL BE AT PLAN QUANTITY. CROSS SECTIONS WILL NOT BE TAKEN AFTER EXCAVATION FOR THE PURPOSE OF DETERMINING ACTUAL QUANTITIES.</p>
3	<p>EXCAVATION, CLASS 10, CHANNEL INCLUDES 2559.0 C.Y. CUT, 17.7 C.Y. FILL + 35% SHRINK, AND 2541.3 C.Y. WASTE. EXCESS MATERIAL AND UNSUITABLE MATERIAL NOT DESIRABLE TO BE INCORPORATED INTO THE WORK INVOLVED ON THIS PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE HAULED FROM THE SITE. THE COST OF HAULING AND DISPOSING OF THIS MATERIAL SHALL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THE PRICE BID FOR CLASS 10 CHANNEL EXCAVATION. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED.</p> <p>QUANTITY INCLUDES EXCAVATION REQUIRED TO INSTALL REVTMENT. QUANTITY INCLUDES EXCAVATION REQUIRED TO TRANSITION PROPOSED CHANNEL SLOPES INTO EXISTING SLOPES WITHIN THE LIMITS SHOWN ON PLAN SHEET V1.</p> <p>PAYMENT FOR THIS ITEM WILL BE AT PLAN QUANTITY. CROSS SECTIONS WILL NOT BE TAKEN AFTER EXCAVATION FOR THE PURPOSE OF DETERMINING ACTUAL QUANTITIES.</p>
5	<p>SUBGRADE STABILIZATION MATERIAL, POLYMER GRID REFER TO DETAILS ON PLAN SHEET U1.</p>
6	<p>GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE MATERIAL SHALL BE SPREAD BY THE CONTRACTOR AND THE CONTRACT UNIT PRICE PER TON SHALL INCLUDE THE COST OF SPREADING GRANULAR SURFACING ON ROADWAY SURFACE. RATE OF APPLICATION SHALL BE 2330 TONS PER MILE.</p> <p>QUANTITY INCLUDES 66 TONS FOR RELOCATED ENTRANCE AT STA. 10+41 LT. SPREAD AGGREGATE 16 FEET WIDE.</p>
8	<p>EXCAVATION, CLASS 20 EXCAVATION TO THE LIMITS DETAILED ON PLAN SHEET U1 IS FOR PAY QUANTITIES ONLY. EXCESS MATERIAL AND UNSUITABLE SOILS SHALL BE HAULED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR. THE COST OF HAULING AND DISPOSING OF THIS MATERIAL SHALL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THE PRICE BID FOR CLASS 20 EXCAVATION.</p> <p>PRIOR TO CONSTRUCTION OF THE RCB CULVERT, BACKFILL OF THE CLASS 20 EXCAVATION WITH FOUNDATION TREATMENT MATERIAL AND SPECIAL BACKFILL SHALL BE COMPLETED THROUGHOUT THE ENTIRE CROSS SECTION TO AN ELEVATION AT OR ABOVE THE BOTTOM OF THE CULVERT FLOOR.</p> <p>ITEM SHALL INCLUDE ALL WORK IN CONJUNCTION WITH THE REMOVAL OF SURFACE WATER AND GROUND WATER AS NEEDED TO PERFORM THE REQUIRED CONSTRUCTION. THIS WORK SHALL INCLUDE (1) BUILDING AND MAINTAINING ALL NECESSARY TEMPORARY IMPOUNDING WORKS, CHANNELS AND DIVERSIONS, (2) FURNISHING, INSTALLING AND OPERATING ALL NECESSARY PUMPS, PIPING AND OTHER FACILITIES AND EQUIPMENT, AND (3) REMOVING ALL SUCH TEMPORARY WORKS AND EQUIPMENT AFTER THEY HAVE SERVED THEIR PURPOSES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE NATURE AND EXTENT OF DEWATERING REQUIRED TO COMPLETE THE PROPOSED WORK.</p>
9	<p>FOUNDATION TREATMENT MATERIAL REFER TO DETAILS ON PLAN SHEET U1. USE AGGREGATE THAT MEETS THE REQUIREMENTS OF SECTION 4122 FOR MACADAM STONE BASE. REMOVAL OF UNSUITABLE OR UNSTABLE SOIL AND PLACEMENT OF FOUNDATION TREATMENT MATERIAL SHALL BE IN ACCORDANCE WITH ARTICLE 2402.03, C, 3, OF THE STANDARD SPECIFICATIONS.</p> <p>MATERIAL WILL BE MEASURED IN TONS TO THE NEAREST 0.1 TONS. PAYMENT WILL BE AT THE CONTRACT UNIT PRICE PER TON. NO ADJUSTMENT IN UNIT PRICE WILL BE ALLOWED FOR DEVIATION BETWEEN PLAN QUANTITY AND ACTUAL QUANTITY PLACED.</p>
10	<p>STRUCTURAL CONCRETE (RCB CULVERT) REFER TO TABULATION ON PLAN SHEET C3 FOR CONCRETE PLACEMENT QUANTITIES. ITEM INCLUDES CERTIFIED PLANT INSPECTION IN ACCORDANCE WITH SECTION 2521 OF THE STANDARD SPECIFICATIONS.</p> <p>ITEM INCLUDES FURNISHING AND CASTING DUCTILE IRON PIPE INTO WINGWALL. REFER TO DETAILS ON PLAN SHEET V2.</p>

ESTIMATE REFERENCE INFORMATION

100-4A
10-29-02

Item No.		Description
11	2404-777500	<u>REINFORCING STEEL</u> REFER TO TABULATION ON PLAN SHEET C3 FOR STEEL PLACEMENT QUANTITIES.
12	2417-0225042	<u>APRONS, METAL, 42 IN. DIA.</u> FABRICATE FROM SAME GAGE METAL AS CULVERT PIPE.
14	2501-5775000	<u>PILES, STEEL SHEET</u> SHALL BE 5 GAGE STEEL SHEETING WITH A MINIMUM SECTION MODULUS OF 3.3 CUBIC INCHES PER FOOT. REFER TO DETAILS ON PLAN SHEET U1.
15	2502-8215142	<u>SUBDRAIN, CORRUGATED METAL PIPE, 42 IN. DIA.</u> REFER TO DETAILS ON PLAN SHEET V2. ALL CORRUGATED METAL PIPE LARGER THAN 12 INCHES IN DIAMETER SHALL BE ANNULAR, RIVETED PIPE. HELICAL PIPE WILL NOT BE ALLOWED FOR PIPE DIAMETERS LARGER THAN 12 INCHES. ALL BANDS SHALL BE 24-INCH WIDE BANDS. THE METAL SHEET THICKNESS USED TO FABRICATE CORRUGATED METAL PIPES LARGER THAN 12 INCHES IN DIAMETER SHALL BE INCREASED BY ONE GAGE THICKNESS ABOVE THAT REQUIRED BY STANDARD ROAD PLAN DR-104. ALL CORRUGATED METAL PIPES 36 INCHES IN DIAMETER OR LARGER SHALL BE FURNISHED WITH 3 IN. X 1 IN. CORRUGATIONS. USE CLASS 'C' BEDDING & BACKFILL PER STANDARD ROAD PLAN DR-101. BACKFILL WITH SOIL. CONSTRUCT CONCRETE COLLAR WITH MINIMUM WIDTH OF 12 INCHES AND MINIMUM THICKNESS OF 4 INCHES. REFER TO STANDARD ROAD PLAN DR-122 FOR DETAILS OF COLLAR REINFORCING.
16	2507-3250005	<u>ENGINEERING FABRIC</u> ITEM INCLUDES 789.8 S.Y. OF ENGINEERING FABRIC PLACED ON THE BOTTOM, TOP, ENDS AND SIDES OF THE FOUNDATION TREATMENT MATERIAL. REFER TO DETAILS ON PLAN SHEET U1. ENGINEERING FABRIC FOR THIS PURPOSE SHALL BE MIRAFI 500X, GEOTEX 200ST, CONTECH C200, OR APPROVED EQUAL. ITEM INCLUDES 148.5 S.Y. OF ENGINEERING FABRIC PLACED ON THE BOTTOM, ENDS AND SIDES OF CLASS B REVETMENT. REFER TO DETAILS ON PLAN SHEET U1. ENGINEERING FABRIC FOR THIS PURPOSE SHALL BE MATERIAL AS SPECIFIED FOR EMBANKMENT EROSION CONTROL IN ACCORDANCE WITH ARTICLE 4196.01, B, 3, OF THE STANDARD SPECIFICATIONS. MATERIAL SHALL BE JOINED BY OVERLAPPING A MINIMUM OF 18 INCHES. THE QUANTITY OF ENGINEERING FABRIC FOR WHICH PAYMENT WILL BE MADE, WHEN PLACED AS DETAILED IN THE CONTRACT DOCUMENTS, WILL BE THE QUANTITY SHOWN IN THE CONTRACT DOCUMENTS IN SQUARE YARDS. MATERIAL FOR LAPS IS NOT INCLUDED IN THE PLAN QUANTITY.
17	2507-6800021	<u>REVETMENT, CLASS B</u> THIS ITEM SHALL CONSIST OF FURNISHING AND PLACING REVETMENT STONE, COMPLETE IN PLACE AS SHOWN ON THE DRAWINGS. REFER TO DETAILS ON PLAN SHEET U1. DEWATERING REQUIRED TO INSTALL REVETMENT SHALL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THE PRICE BID FOR THIS ITEM. THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVAL OF ALL REMNANTS OF REVETMENT STOCKPILES FROM FARM FIELDS UTILIZED BY CONTRACTOR IN THE PROJECT AREA. THIS WORK SHALL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THE PRICE BID FOR THIS ITEM.
18	2518-6910000	<u>SAFETY CLOSURE</u> REFER TO TAB. 108-13A.
22	2602-0000020	<u>SILT FENCE</u> REFER TO TAB. 100-17.
23	2602-0000030	<u>SILT FENCE FOR DITCH CHECKS</u> REFER TO TAB. 100-18.

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 DURING CONSTRUCTION.

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 CONTRACTOR'S EXPENSE WITHOUT COST TO THE CONTRACTING AUTHORITY. ANY TILE LINES BROKEN OR DISTURBED BY CUT LINES WILL BE REPLACED AS DIRECTED BY THE ENGINEER IN CHARGE OF CONSTRUCTION AND AT THE CONTRACTING AUTHORITY'S EXPENSE.

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.

SEEDING WILL BE ACCOMPLISHED BY THE COUNTY.

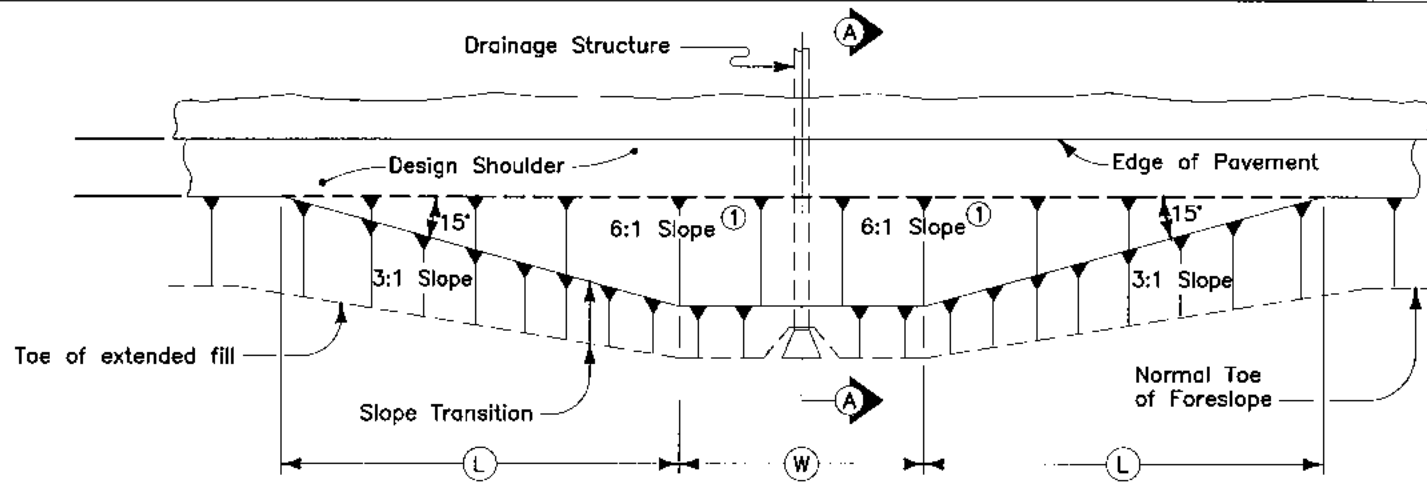
04-15-14 213-3
ALL STOCKPILE AREAS, HAUL ROADS, AND AREAS USED FOR EQUIPMENT ON THIS PROJECT REQUIRE SUBSOIL TILLAGE TO AN AVERAGE DEPTH OF 16 TO 20 INCHES PRIOR TO PLACEMENT OF TOPSOIL AND/OR STABILIZING CROP SEEDING. COMPLETE THIS TILLAGE AT 3 FOOT MAXIMUM CENTERS AND AT RIGHT ANGLES TO THE FINISHED SLOPE.

USE TILLAGE EQUIPMENT EQUIPPED WITH AN ARROWHEAD TYPE SHOE THAT WILL PROVIDE LATERAL DISPLACEMENT AND LIMIT THE MOVEMENT OF THE SUBSOIL TO THE SURFACE. OBTAIN THE ENGINEER'S APPROVAL FOR THE EQUIPMENT. THIS WORK IS INCIDENTAL TO OTHER WORK ON THE PROJECT.

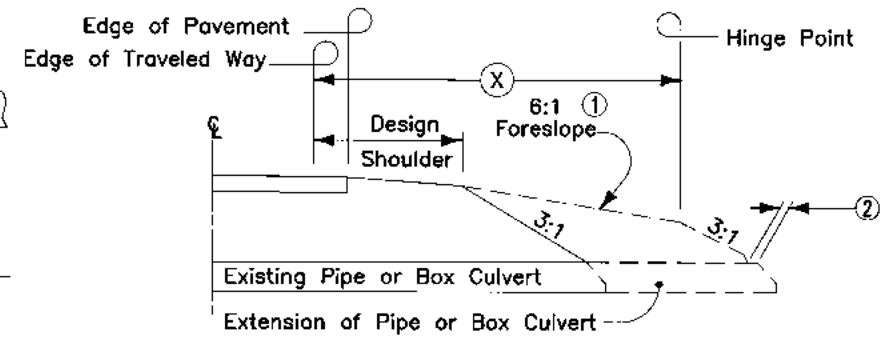
FOLLOWING THE SUBSOIL TILLAGE, THE AREA IS TO REMAIN IN A "LOOSENEED" CONDITION. ADDITIONAL COMPACTION OR THE OPERATION OF HEAVY EQUIPMENT, OTHER THAN REQUIRED FOR TOPSOIL PLACEMENT AND SHAPING, WILL NOT BE ALLOWED ON AREAS WHICH HAVE BEEN RECEIVED SUBSOIL TILLAGE.

10-21-14 232-10
DISPOSE OF ALL WOOD MATERIAL GENERATED AS A RESULT OF CLEARING AND/OR GRUBBING ACCORDING TO THE IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP'S EMERALD ASH BORER (EAB) QUARANTINE ORDER. FOR MORE INFORMATION REFER TO http://www.iowatrepesta.com/eab_regulations.html.

09-27-94 271-9
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 72,200 PARTS PER MILLION (PPM). ANALYSIS OF TOTAL CHROMIUM ON THIS SAMPLE WAS 1,130 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 PURPOSE OTHER THAN AS AN INDICATION OF THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS.



PLAN VIEW



SECTION A-A

Notes:
At locations where an extended or newly constructed drainage structure extends beyond the normal foreslope cover, the foreslope shall be flattened as indicated so as to cover the structure. Minimum earth cover is 6".

- ① 6:1 Maximum - Slope may be flatter.
- ② 6" Minimum for pipe installations or to top of headwall on R.C.B.
- Ⓜ = Pipe or R.C.B. width plus 20 feet each side.
- ⓧ = Clear Zone.

STRUCTURE LOCATION		Ⓜ	Ⓛ	ⓧ
STATION	SIDE	FEET	FEET	FEET
10+00	L & R	70.6	11.2	6

DETAILS OF BARNROOF FORESLOPE AT DRAINAGE STRUCTURE

STA.	CUT	ADD. CUT	FILL +35%	ADD. FILL	TOTAL CUT	TOTAL FILL+35%	BALANCE
8+25							
9+00	78.2		30.6		78.2	30.6	
9+63.28	207.1		362.1		207.1	362.1	
9+93.92	78.4		580.2		78.4	580.2	
10+00	6.0		162.0		6.0	162.0	
10+04.97	7.6		129.5		7.6	129.5	
10+35.61	57.9		431.9		57.9	431.9	
11+00	85.6		84.2	155.4	85.6	239.6	
11+75	24.0		18.0		24.0	18.0	
TOTAL					544.8	1953.9	

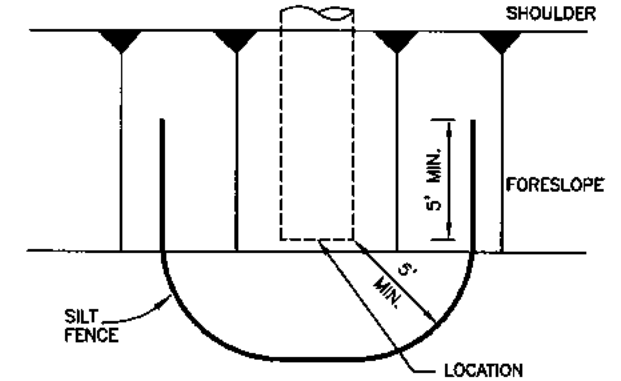
Location		Side	Length LF	Remarks
Begin Station	End Station			
8+25	10+65	L	300.6	
9+64	11+75	R	281.9	
TOTAL			562.5	TABULATED QUANTITY
TOTAL +25%			703.1	BID QUANTITY

Location Station		Side	Length LF	Remarks
9+00				
9+64		R	30	CULVERT INLET
TOTAL			50	TABULATED QUANTITY
TOTAL +50%			75	BID QUANTITY

LOCATION	CONCRETE C.Y.				STEEL LBS.
	SLAB	FLOOR	WALLS	TOTAL	
INLET HEADWALL, 30° SKEW	3.1	*48.2	16.7	68.0	8500
INLET BARREL SECTION, 12'-0"	10.4	11.1	8.6	30.1	5666
BARREL SECTION, 38'-0"	32.9	35.2	27.2	95.3	17943
OUTLET BARREL SECTION, 12'-0"	10.4	11.1	8.6	30.1	5666
OUTLET HEADWALL, 30° SKEW	3.1	*48.2	16.7	68.0	8500
5r1 DOWEL BARS (2 SETS REQ'D @ 95 LBS.)					190
TOTAL	59.9	153.8	77.8	291.5	46465

*INCLUDES 0.2 CY FOR APRON AND FLOOR THICKNESS TRANSITION.
NOTE: FOR GENERAL INFORMATION, NOTES, SPECIFICATIONS & DESIGN STRESSES REFER TO IOWA D.O.T. HIGHWAY DIVISION STANDARD TWRCB-G1-12.
FOR DETAILS AND NOTES NOT SHOWN REFER TO STANDARD CULVERT PLANS LISTED ON PLAN SHEET C1.

STATION	CLOSURE TYPE		REMARKS
	Road Qty.	Hazard Qty.	
9+30	-	1	SOUTH END
10+70	-	1	NORTH END
TOTAL		2	

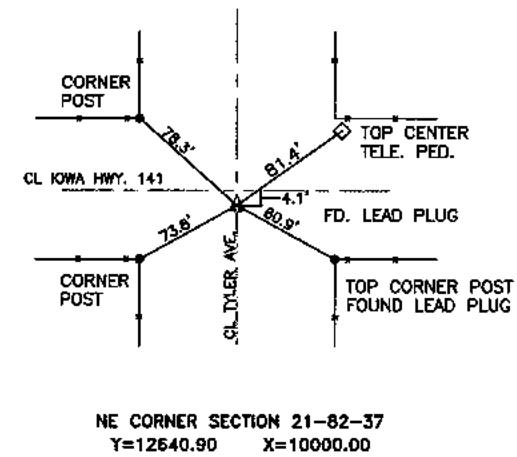
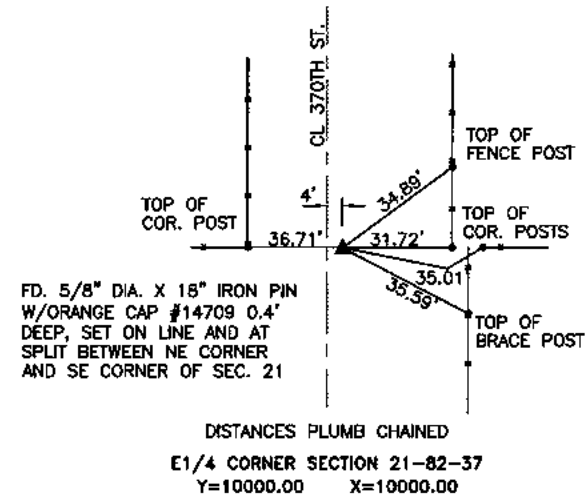
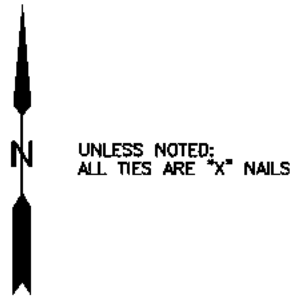


DETAILS OF SILT FENCE AT CULVERT INLETS
NO SCALE

Station	Side	Type A, B, C, Safety Ramp, or Predetermined*	① ②			Pipe Culvert ③				Driveway Surfacing Material TON	Remarks	
			Ⓜ	Ⓟ	Ⓠ	Ⓡ	Size IN	Pipe Length LF	Lt. LF			Rt. LF
10+41	L	C	20		15	1.8	24	59	30.0	29.9	66	
TOTAL											66	

GENERAL INFORMATION
THIS SURVEY IS IN ENGLISH UNITS.

BENCH MARKS	ELEVATION
BM#1 STA. 9+35.58, 31.00' LT. NAIL IN POWER POLE	468.21
BM#2 STA. 11+72.78, 31.17' LT. NAIL IN POWER POLE	468.39



ALIGNMENT COORDINATES

101-16
10-20-09

Name	Location	Point on Tangent		Begin Spiral		Begin Curve		Simple Curve PI or Master PI of SCS			End Curve		End Spiral			
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
370TH ST.		4+00.00	11074.72	9993.51												
370TH ST.		16+00.00	12274.72	9989.86												
F. ENT.	10+41, LT.						0+00.00	11572.65	9808.34	0+19.83	11584.98	9823.86	0+39.39	11601.13	9835.36	
F. ENT.	10+41, LT.						1+48.91	11690.38	9898.85	1+79.75	11715.50	9916.93	2+05.88	11715.59	9947.56	
F. ENT.	10+41, LT.	2+35.88	11715.68	9977.56												

DETAILS OF REFERENCE INFORMATION

All References Plumb Distances
(unless otherwise noted)

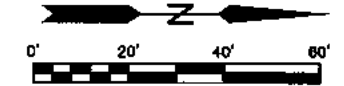
REV.:

PARCEL NUMBER PROPERTY OWNER
 ① RENZE LAND LIMITED PARTNERSHIP
 ② GARY & BONNIE WITT

IOWA TWP.
 T-82N R-37W

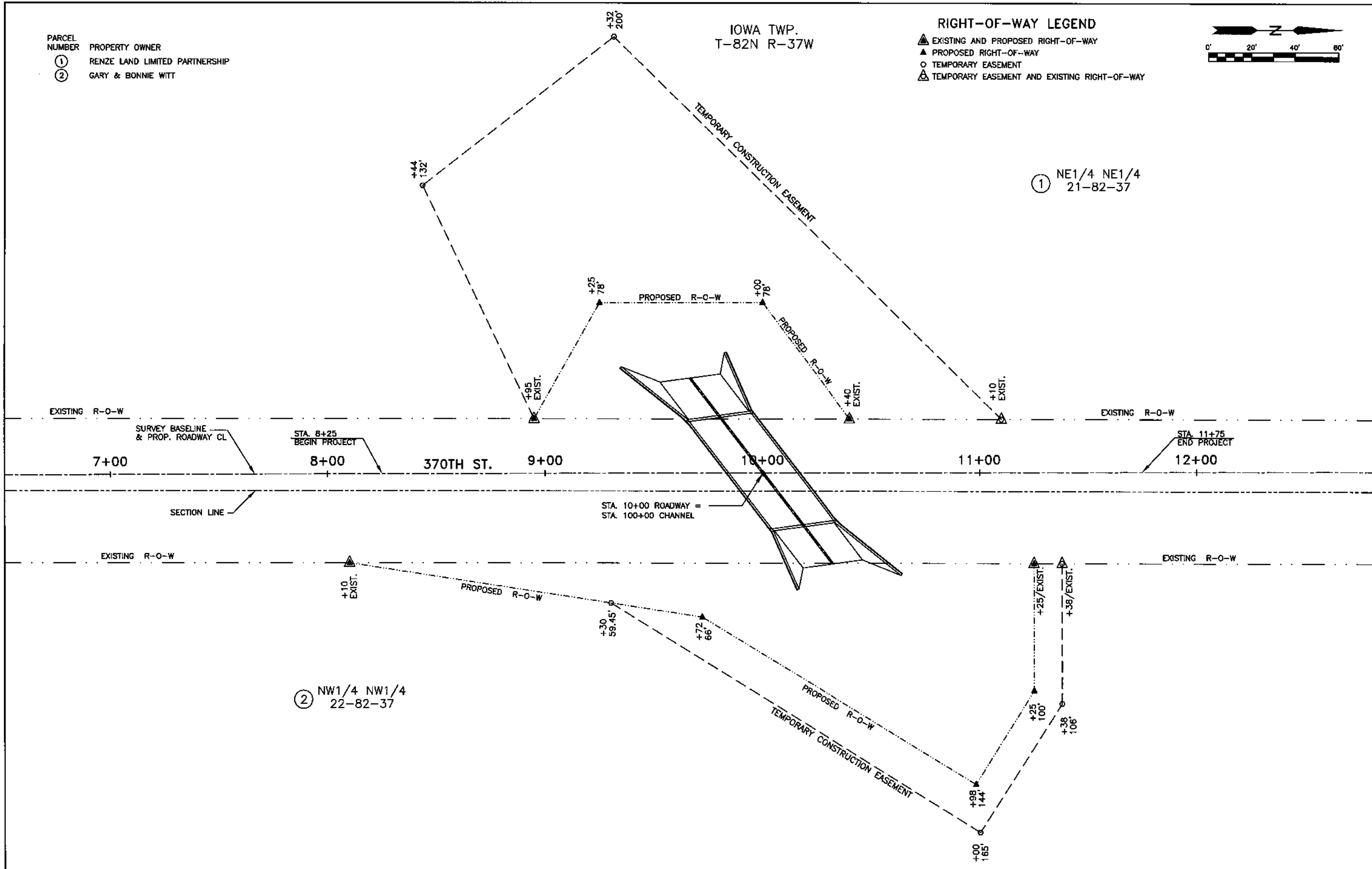
RIGHT-OF-WAY LEGEND

- ▲ EXISTING AND PROPOSED RIGHT-OF-WAY
- ▲ PROPOSED RIGHT-OF-WAY
- TEMPORARY EASEMENT
- △ TEMPORARY EASEMENT AND EXISTING RIGHT-OF-WAY



① NE1/4 NE1/4
 21-82-37

② NW1/4 NW1/4
 22-82-37



LOG OF EXPLORATORY BORING Sheet 1 of 1

Job Number: G44335 Boring No.: B-1
 Project: 370th Street Bridge Replacement Boring Location: Crawford County, IA
 Date Started: 7/6/15 Drill Type: Hollow Stem
 Date Completed: 7/6/15 Ground Elev.: 471.9

Depth in Feet	Graphic Log	Sample Type	USCS	Blow Counts SPT (N) Blows/Feet	Moisture Content, %	Dry Density (pcf)	% Saturation	Hard Penetrometer (TSF)	Unclassified Comp. Strength (TSF)	Liquid Limit %	Plastic Limit %	Plasticity Index %	Resistivity Ohm-M
0-12				4-7-7 N= 14	25								
				4-3-3 N= 6	4								
				4-3-3 N= 6	5								
			CL	4-1-2 N= 3	37								
				2-3-3 N= 6	39								
						37	8'	93	0.50	0.50			
			SP-SM	4-5-6 N= 11									
			CL	4-3-3 N= 6	13								
			SP-SM	4-9-8 N= 17									
				7-13-16 N= 29									
			CL	8-13-10 N= 23	17								

LOG OF BORING: G44335.GPJ, CERTIFIED TESTING, 7/6/15

LOG OF EXPLORATORY BORING Sheet 1 of 1

Job Number: G44335 Boring No.: B-2
 Project: 370th Street Bridge Replacement Boring Location: Crawford County, IA
 Date Started: 7/6/15 Drill Type: Hollow Stem
 Date Completed: 7/6/15 Ground Elev.: 471.8

Depth in Feet	Graphic Log	Sample Type	USCS	Blow Counts SPT (N) Blows/Feet	Moisture Content, %	Dry Density (pcf)	% Saturation	Hard Penetrometer (TSF)	Unclassified Comp. Strength (TSF)	Liquid Limit %	Plastic Limit %	Plasticity Index %	Resistivity Ohm-M
0-18				4-4-5 N= 9	8								
				6-2-3 N= 5	6								
				4-2-1 N= 3	6								
				4-3-3 N= 6	29								
			CL		34	85	97	0.50					
				1-1-2 N= 3	35								
			CL		21	107	100	0.50					
			SC										
				8-8-7 N= 15									
				8-16-13 N= 29									
				4-7-10 N= 17									
				12-30-16 N= 46	20								

LOG OF BORING: G44335.GPJ, CERTIFIED TESTING, 7/6/15


SOUNDING DATA

NOTE: THESE SOUNDINGS WERE MADE FOR DESIGN PURPOSES AND ARE NOT GUARANTEED FOR CONSTRUCTION.

SOUNDINGS WERE TAKEN ON JULY 6, 2015.

SEE SHEET V1 FOR BORING LOCATIONS.

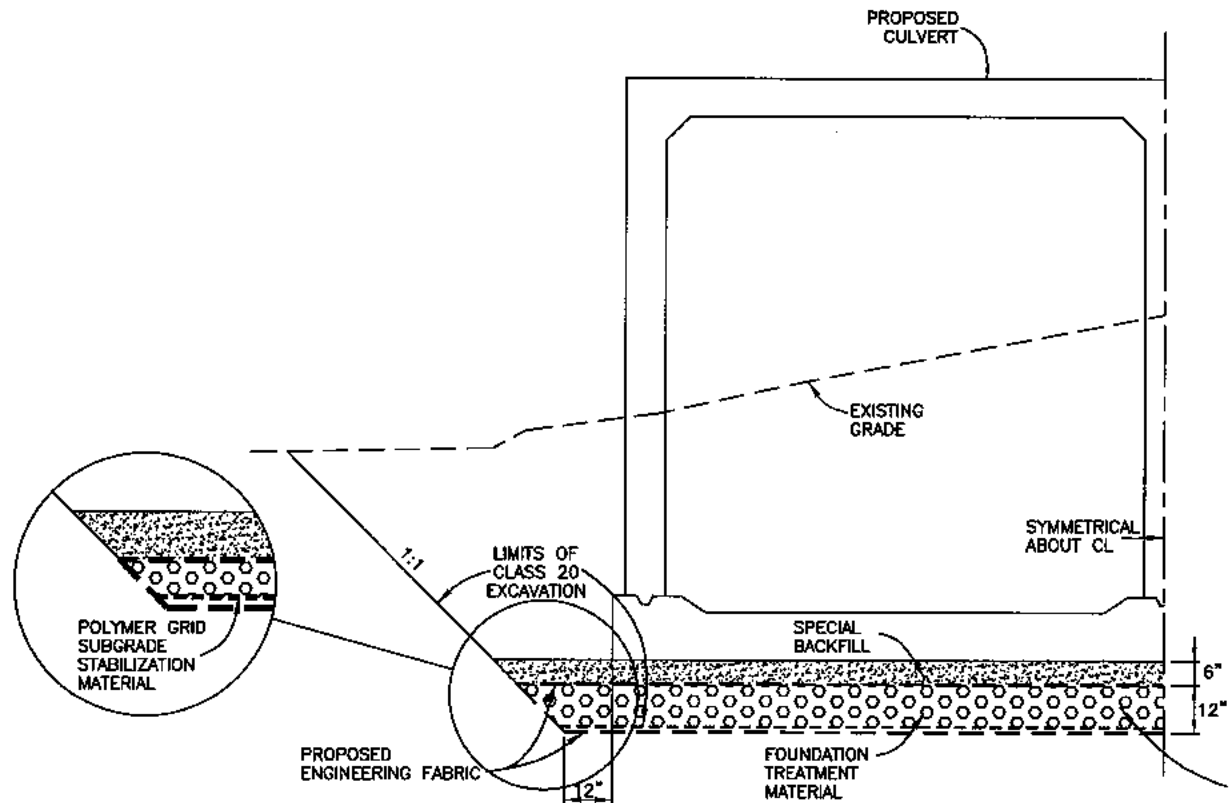
GEOTECHNICAL INFORMATION PROVIDED HERewith IS THE SOLE RESPONSIBILITY OF CERTIFIED TESTING SERVICES, INC., WHOSE GEOTECHNICAL REPORT DATED JULY 9, 2015, COMPLETE WITH THE LICENSED ENGINEER'S SEAL AND CERTIFICATION, IS AVAILABLE FOR VIEWING.



I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

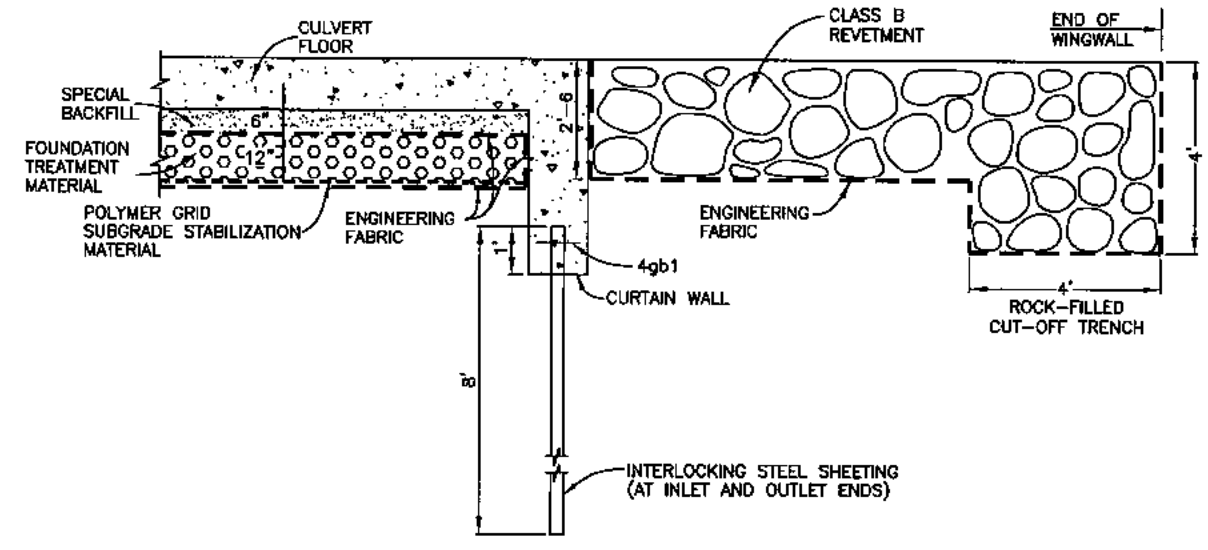
Jed A. McInerney 7-25-2015
 JED A. MCINERNEY, P.E. #22886 DATE

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2016.
 PAGES OR SHEETS COVERED BY THIS SEAL:
 Q1 _____



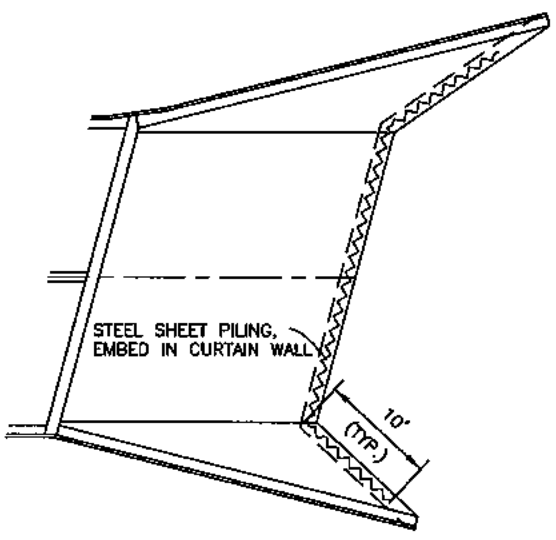
CLASS 20 EXCAVATION & FOUNDATION TYPICAL SECTION
NOT TO SCALE

MINIMUM DEPTH OF FOUNDATION TREATMENT MATERIAL SHALL BE 12 INCHES. ACTUAL DEPTH REQUIRED WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

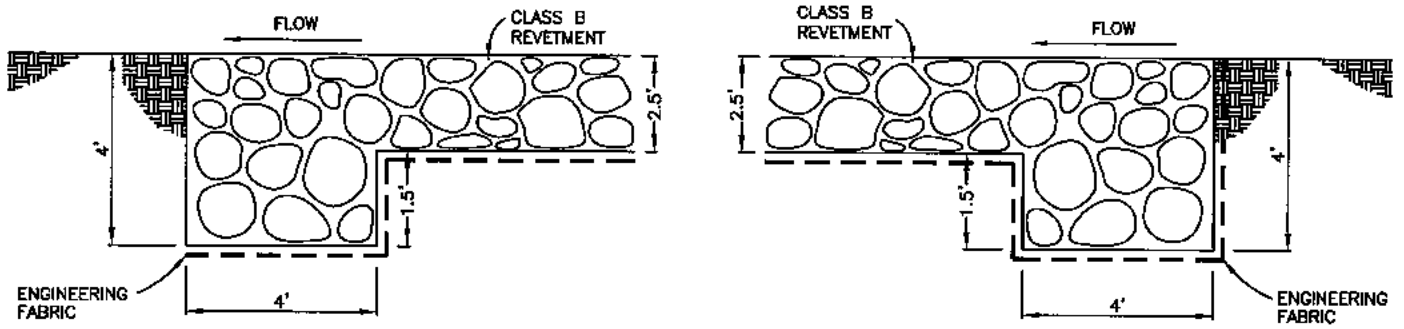


SECTION AT HEADWALL CURTAIN WALL
NOT TO SCALE

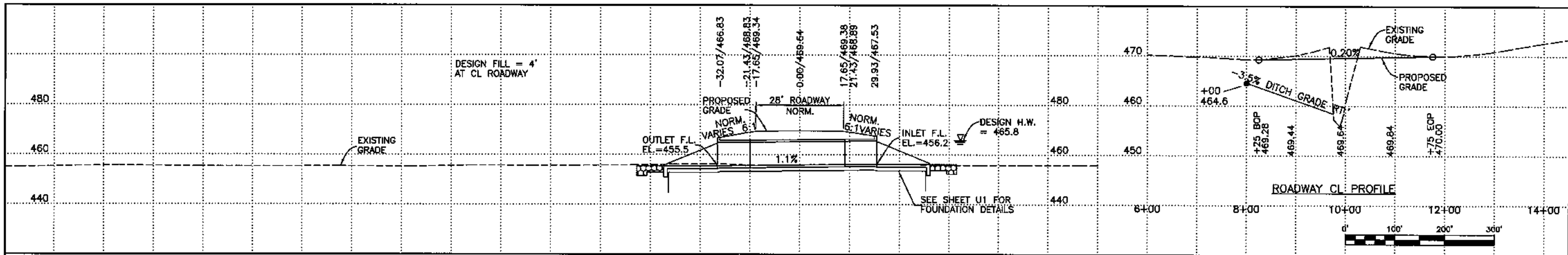
NOTE:
A HOLE LOCATED 3 INCHES DOWN FROM THE TOP AND ON THE VERTICAL CENTERLINE OF THE STEEL SHEETING IS TO BE PUNCHED OR FIELD CUT IN EACH PIECE OF SHEETING AND IS TO BE LARGE ENOUGH TO ACCOMMODATE A 4gb1 BAR. LENGTH OF 4gb1 BARS SHALL BE 8 INCHES. THIS WORK TO BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THE PRICE BID FOR PILES, STEEL SHEET.



STEEL SHEET PILE AT CURTAIN WALL
NOT TO SCALE



ROCK-FILLED CUTOFF TRENCH DETAILS
NOT TO SCALE



PARCEL NUMBER PROPERTY OWNER

(A)	RENZE LAND LIMITED PARTNERSHIP
(B)	GARY & BONNIE WITT

STA. 9+98, EXISTING 62'x20' STEEL BEAM BRIDGE W/CONCRETE DECK, STEEL AND TIMBER TRESTLE PILES AND TIMBER ABUTMENTS TO BE REMOVED FROM THE PROJECT RIGHT-OF-WAY. CONTRACTOR SHALL CONSTRUCT AT STA. 10+00, TWIN 12'x9'x62' RCB CULVERT, SKEW 37.5' RT. AHEAD, WITH 30' FLARED WING HEADWALLS.
D.A. = 7.63 SQ. MI.

(A) NE1/4 NE1/4
21-82-37

- REMOVE EXISTING BROKEN CONCRETE. MATERIAL MAY BE DISPOSED ON SITE AS DIRECTED BY THE ENGINEER.
- REMOVE TILE AS REQUIRED TO CONSTRUCT CHANNEL SLOPE. INSTALL STANDARD SUBDRAIN OUTLET SHOWN IN DR-305. WORK SHALL BE INCIDENTAL TO EXCAVATION, CLASS 10, CHANNEL.
- FIELD VERIFY DEPTH OF WATERLINE AND ALLOW ENGINEER TO WITNESS DEPTH PRIOR TO INSTALLATION OF CMP SUBDRAIN.
- RELOCATED ENTRANCE SHALL BE COMPLETED PRIOR TO REMOVAL OF EXISTING ENTRANCE TO FACILITATE AN ALL-WEATHER SURFACE AT ALL TIMES.

(3) PRIVATE WATER LINE (SCOTT RENZE)

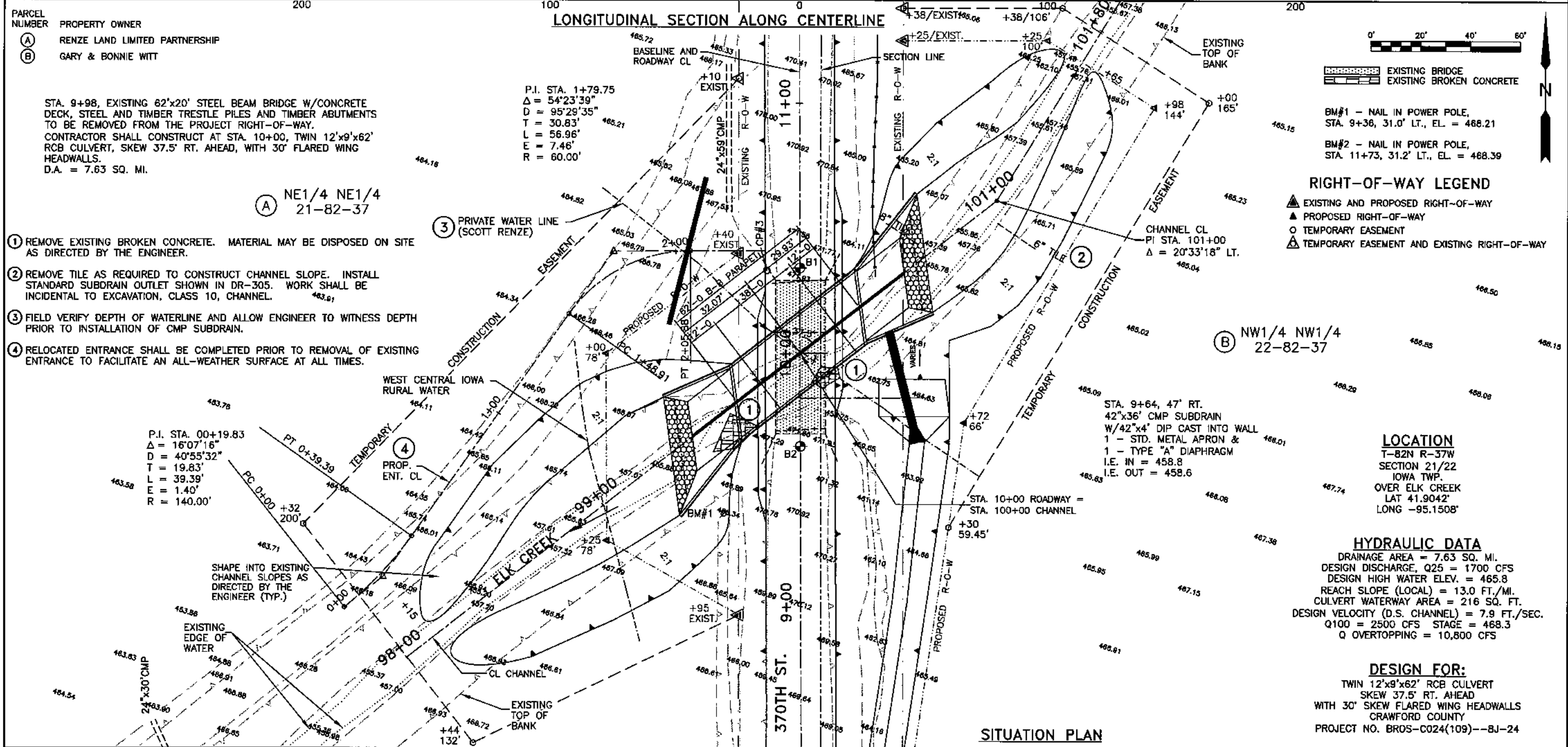
(B) NW1/4 NW1/4
22-82-37

EXISTING BRIDGE
EXISTING BROKEN CONCRETE

BM#1 - NAIL IN POWER POLE, STA. 9+36, 31.0' LT., EL. = 468.21
BM#2 - NAIL IN POWER POLE, STA. 11+73, 31.2' LT., EL. = 468.39

RIGHT-OF-WAY LEGEND

- ▲ EXISTING AND PROPOSED RIGHT-OF-WAY
- ▲ PROPOSED RIGHT-OF-WAY
- TEMPORARY EASEMENT
- △ TEMPORARY EASEMENT AND EXISTING RIGHT-OF-WAY

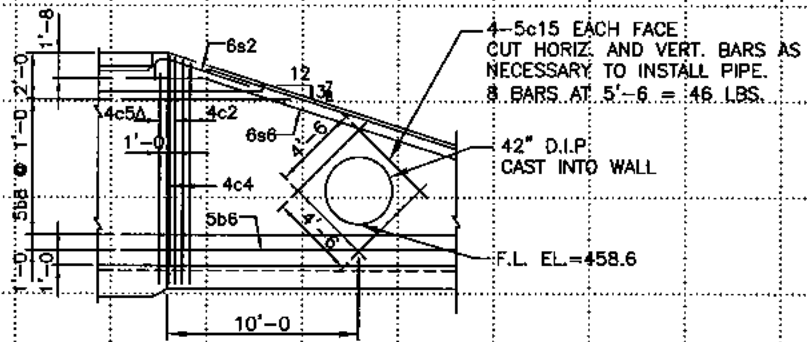


SITUATION PLAN

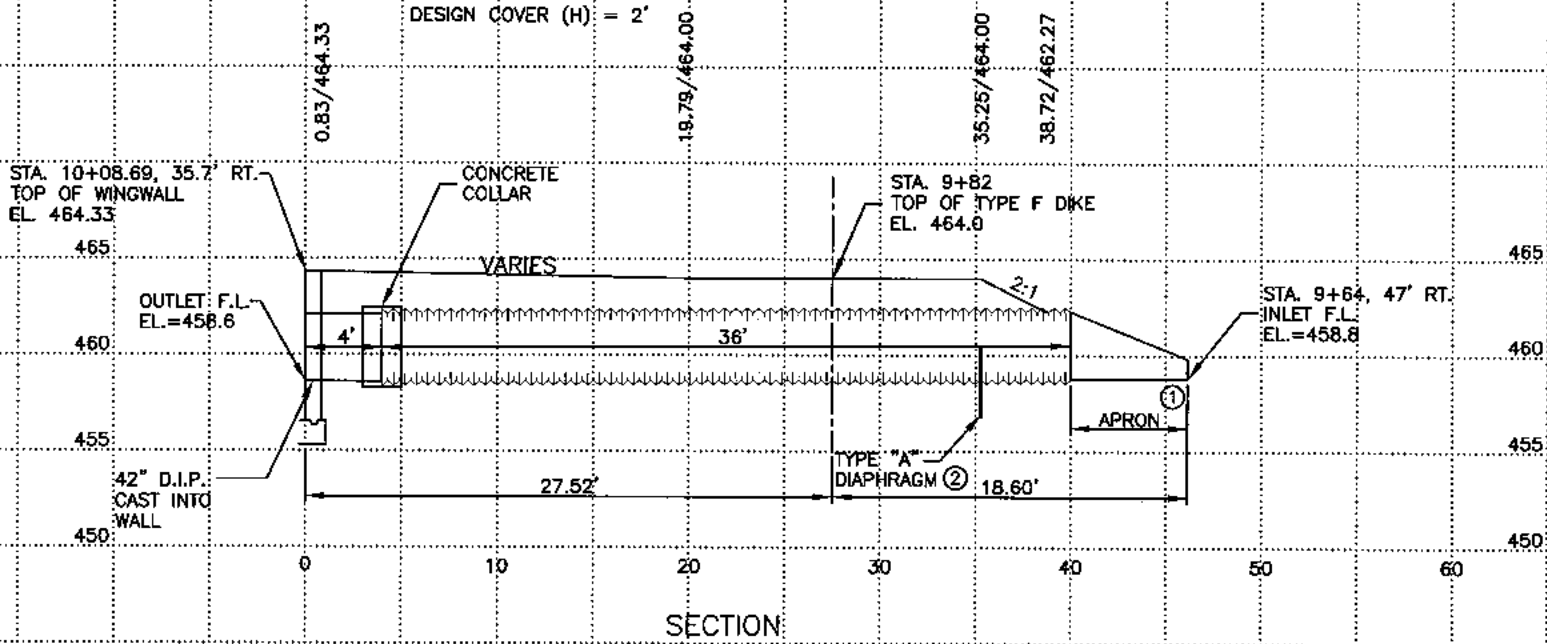
LOCATION
T-82N R-37W
SECTION 21/22
IOWA TWP.
OVER ELK CREEK
LAT 41.9042°
LONG -95.1508°

HYDRAULIC DATA
DRAINAGE AREA = 7.63 SQ. MI.
DESIGN DISCHARGE, Q25 = 1700 CFS
DESIGN HIGH WATER ELEV. = 465.8
REACH SLOPE (LOCAL) = 13.0 FT./MI.
CULVERT WATERWAY AREA = 216 SQ. FT.
DESIGN VELOCITY (D.S. CHANNEL) = 7.9 FT./SEC.
Q100 = 2500 CFS STAGE = 468.3
Q OVERTOPPING = 10,800 CFS

DESIGN FOR:
TWIN 12'x9'x62' RCB CULVERT
SKEW 37.5' RT. AHEAD
WITH 30' SKEW FLARED WING HEADWALLS
CRAWFORD COUNTY
PROJECT NO. BROS-C024(109)--8J-24



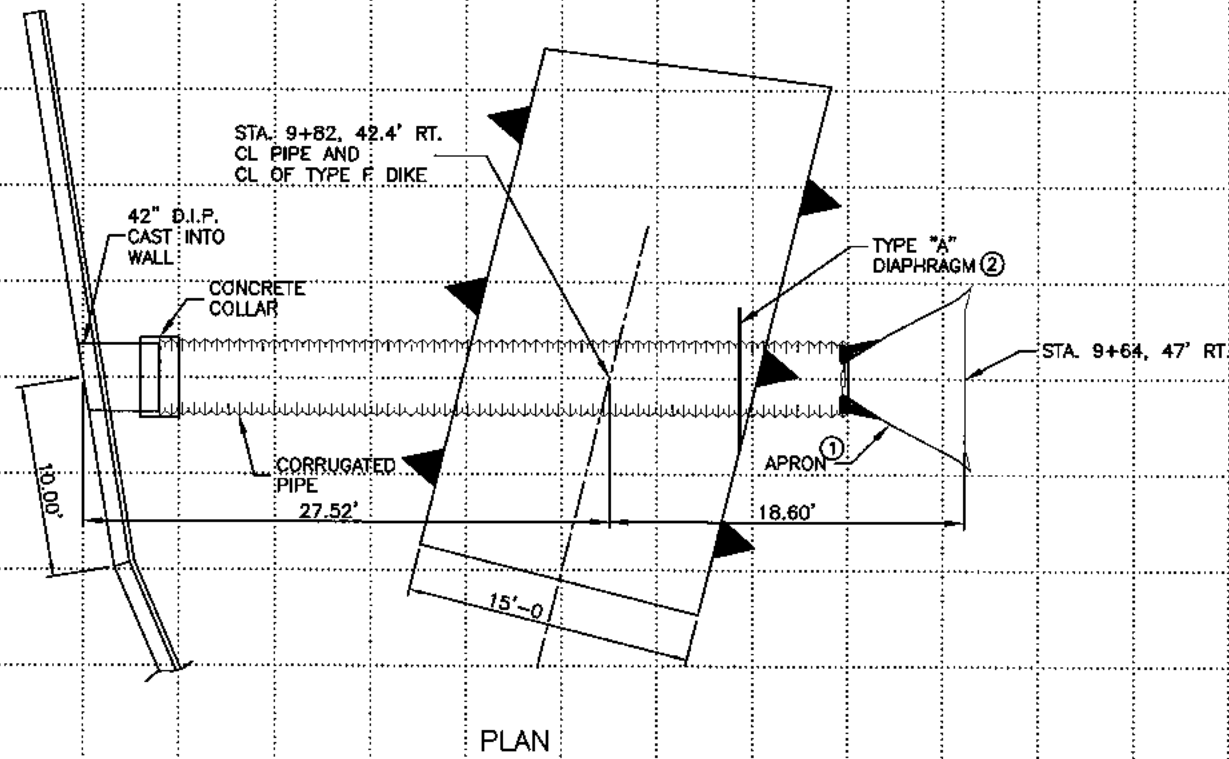
DETAIL OF SUPPLEMENTAL REINFORCING FOR INSTALLING CMP LETDOWN THROUGH CULVERT HEADWALL.



SECTION

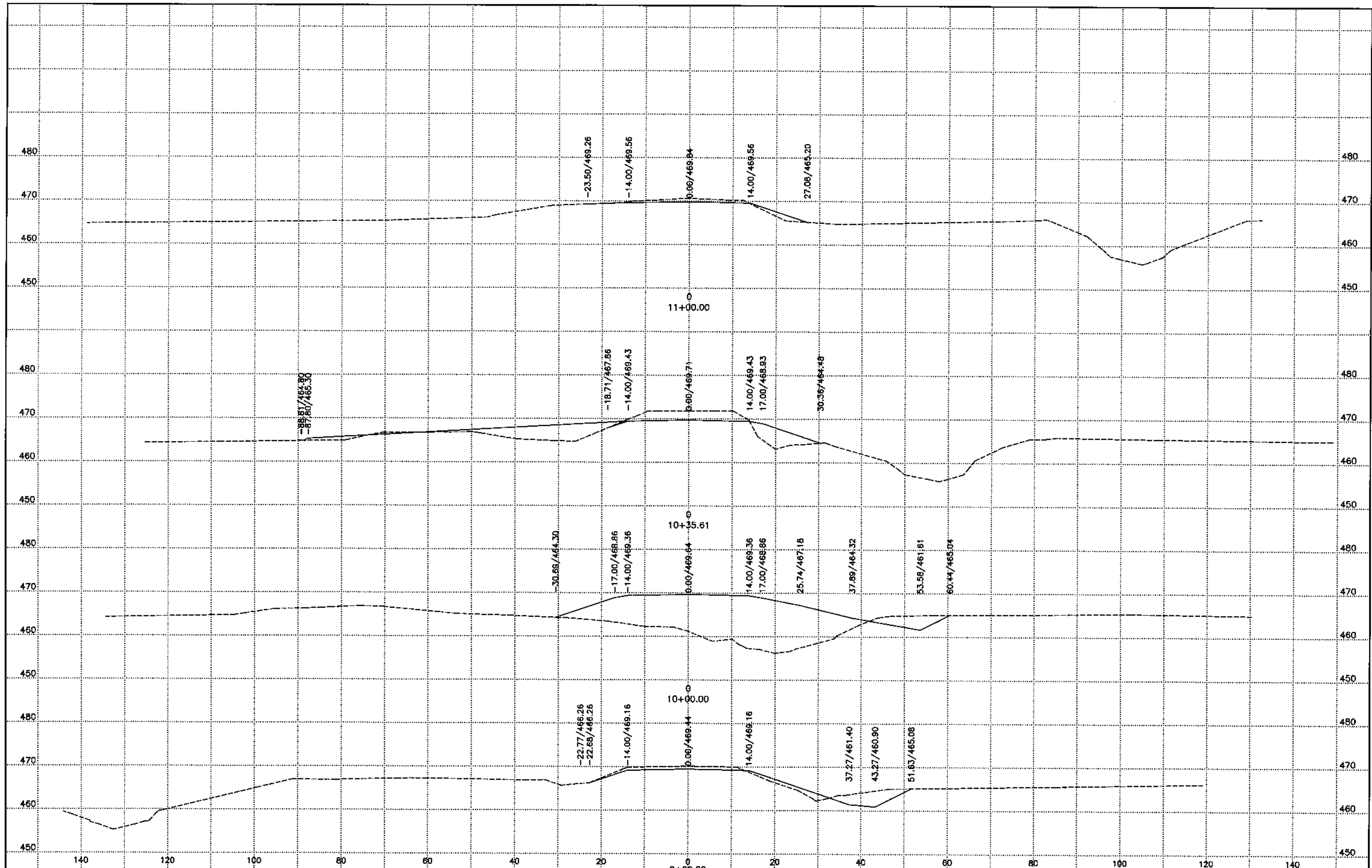
CONNECT D.I.P. TO C.M.P. PER SUPPLIER RECOMMENDATION (PROVIDE CONCRETE COLLAR)

- NOTES:
- STANDARD TYPE JOINT COUPLINGS ARE REQUIRED (SEE MATERIALS I.M. 441)
 - ① SEE STANDARD ROAD PLAN DR-203.
 - ② SEE STANDARD ROAD PLAN DR-501.

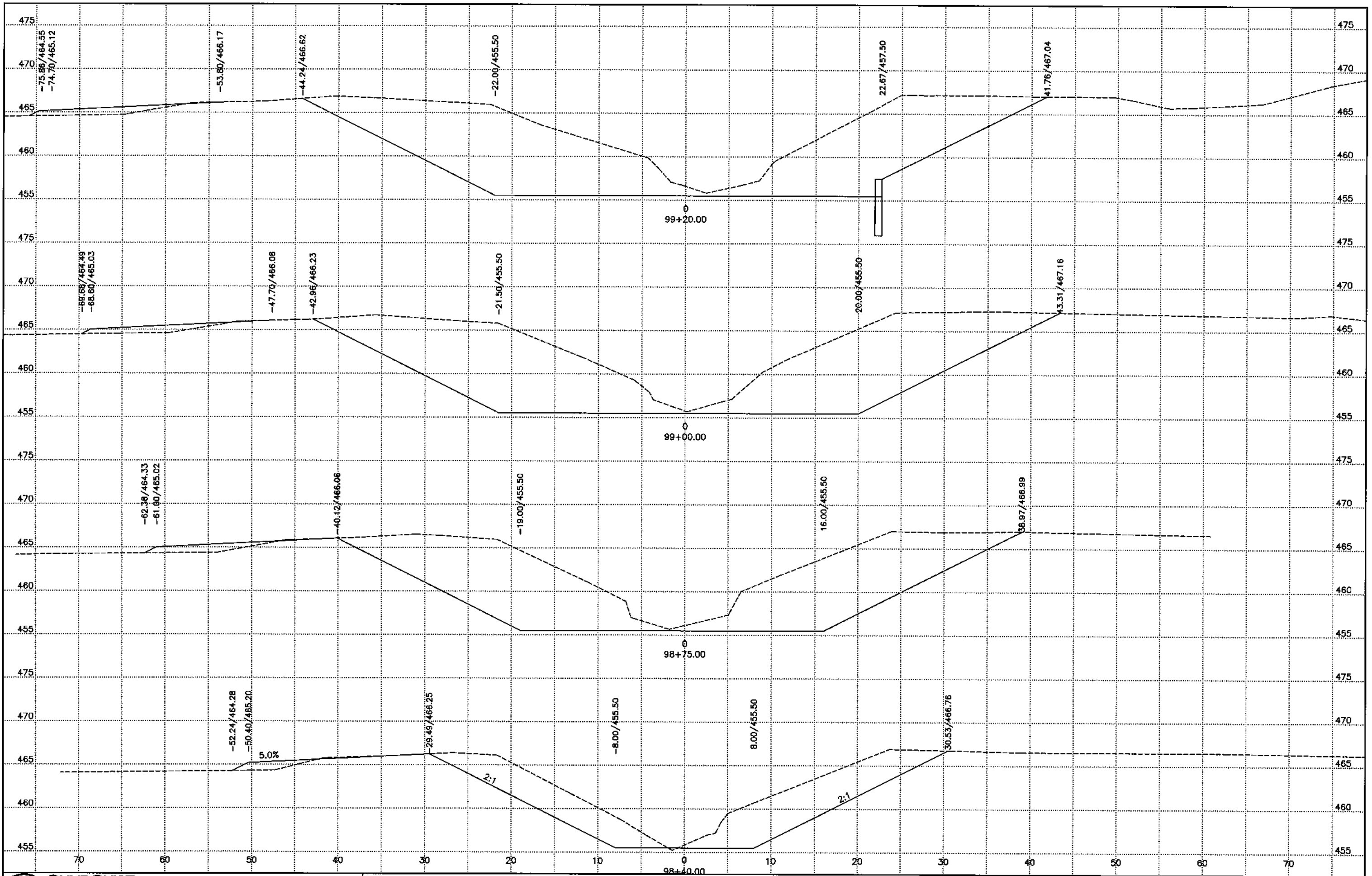


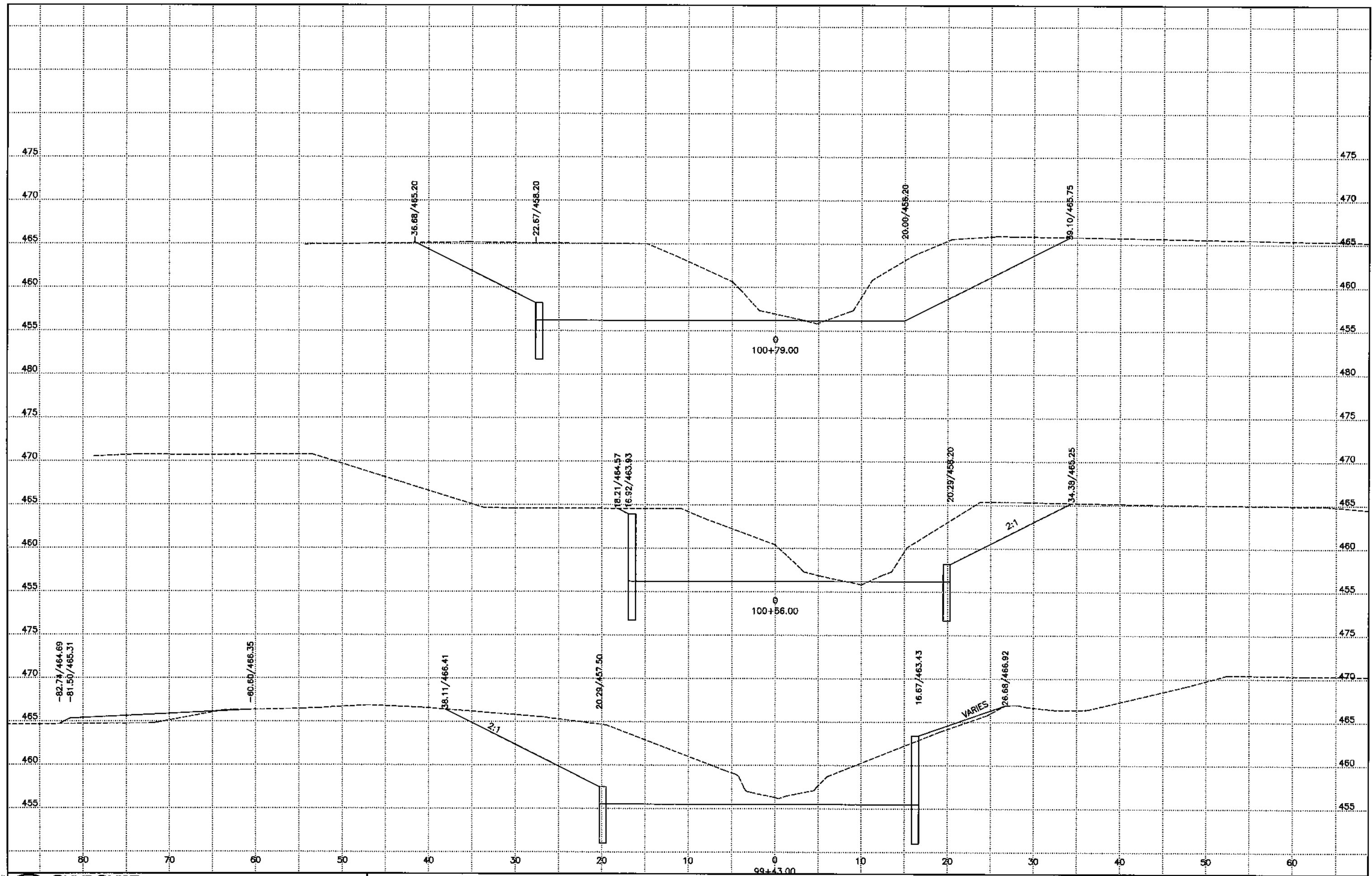
PLAN

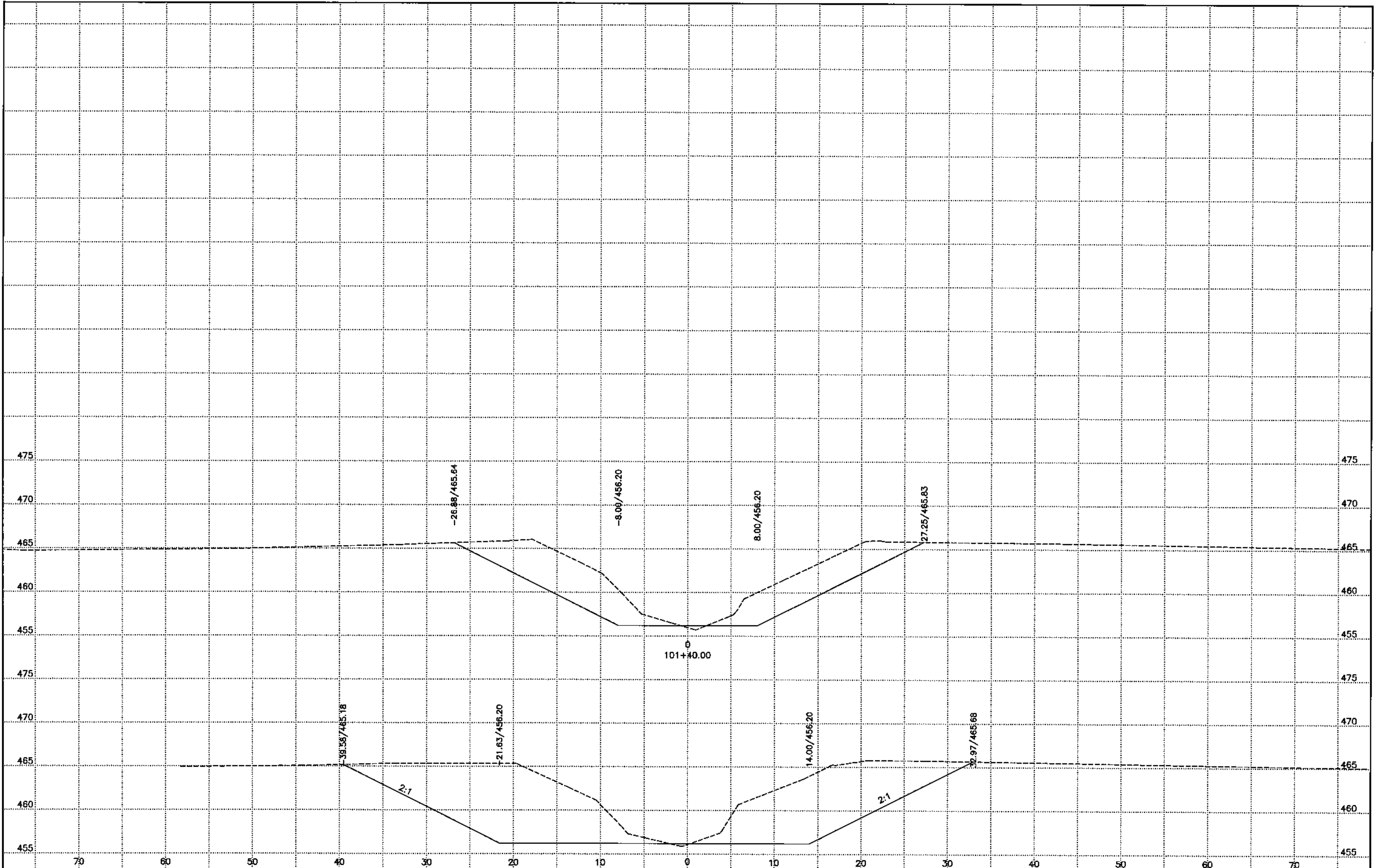
CORRUGATED PIPE LETDOWN STRUCTURE



REV.





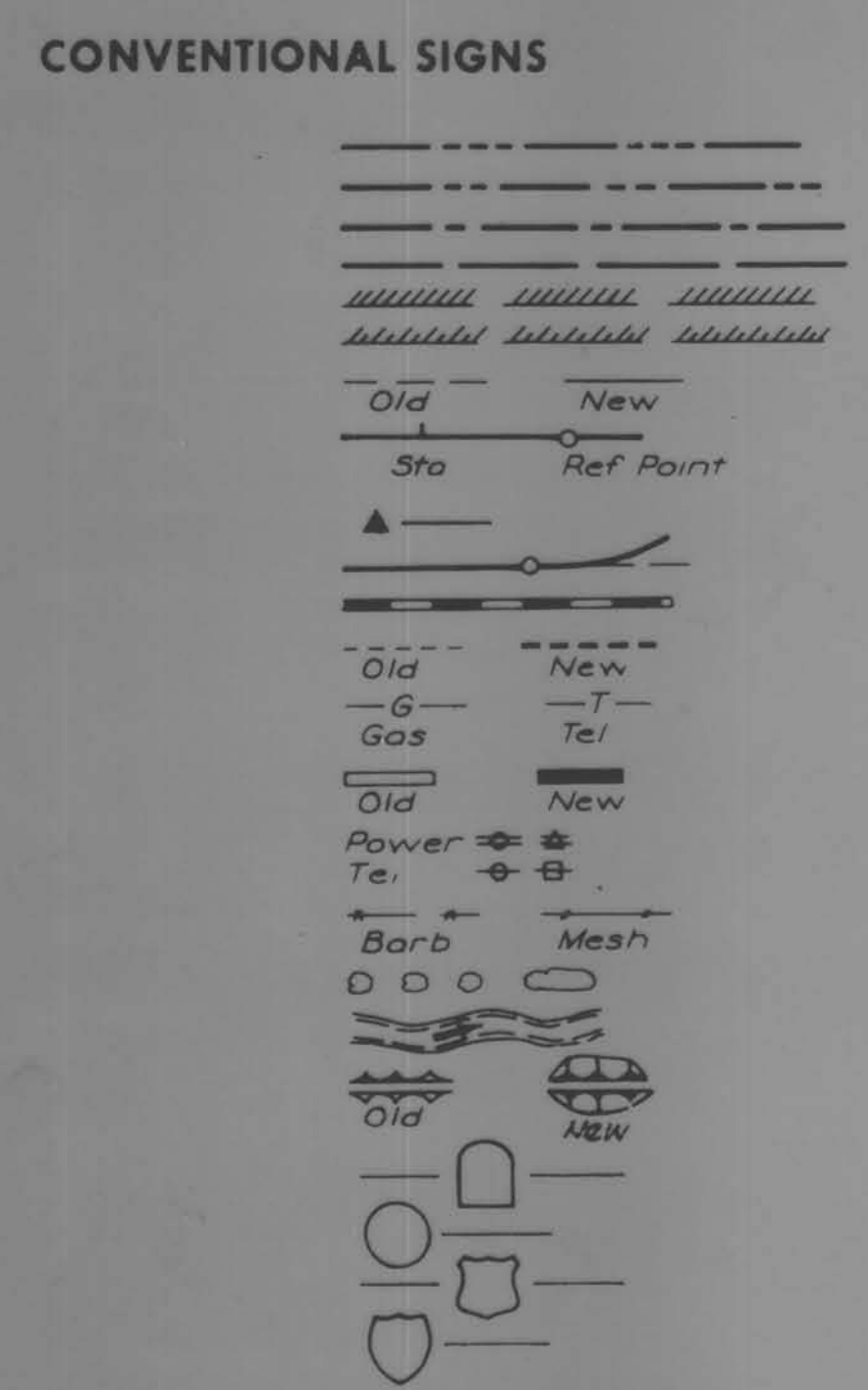


REV:

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	8	1972	1	2
PROJECT NUMBER				
L 71-3				

LETTING DATE

- State Line
- Co. Line
- Twp. Line
- Sec. Line
- Corp. Line
- Urban Bdry
- R.O.W. Lines
- Survey Line
- Sec. Corner
- Profile Grade
- Railroad
- Field Tile
- Underground Lines
- Culverts
- Utility Poles
- Fences
- Trees Or Brush
- Stream
- Dike
- County Road No.
- Primary Road No.
- U. S. Road No.
- Interstate Road No.



**STATE OF IOWA
STATE HIGHWAY COMMISSION**

PLANS OF PROPOSED IMPROVEMENT
ON THE
SECONDARY ROAD SYSTEM

CRAWFORD COUNTY

40'x20' I-BEAM BRIDGE WITH
20'x20' I-BEAM APPROACH
PROJECT NO. L71-3

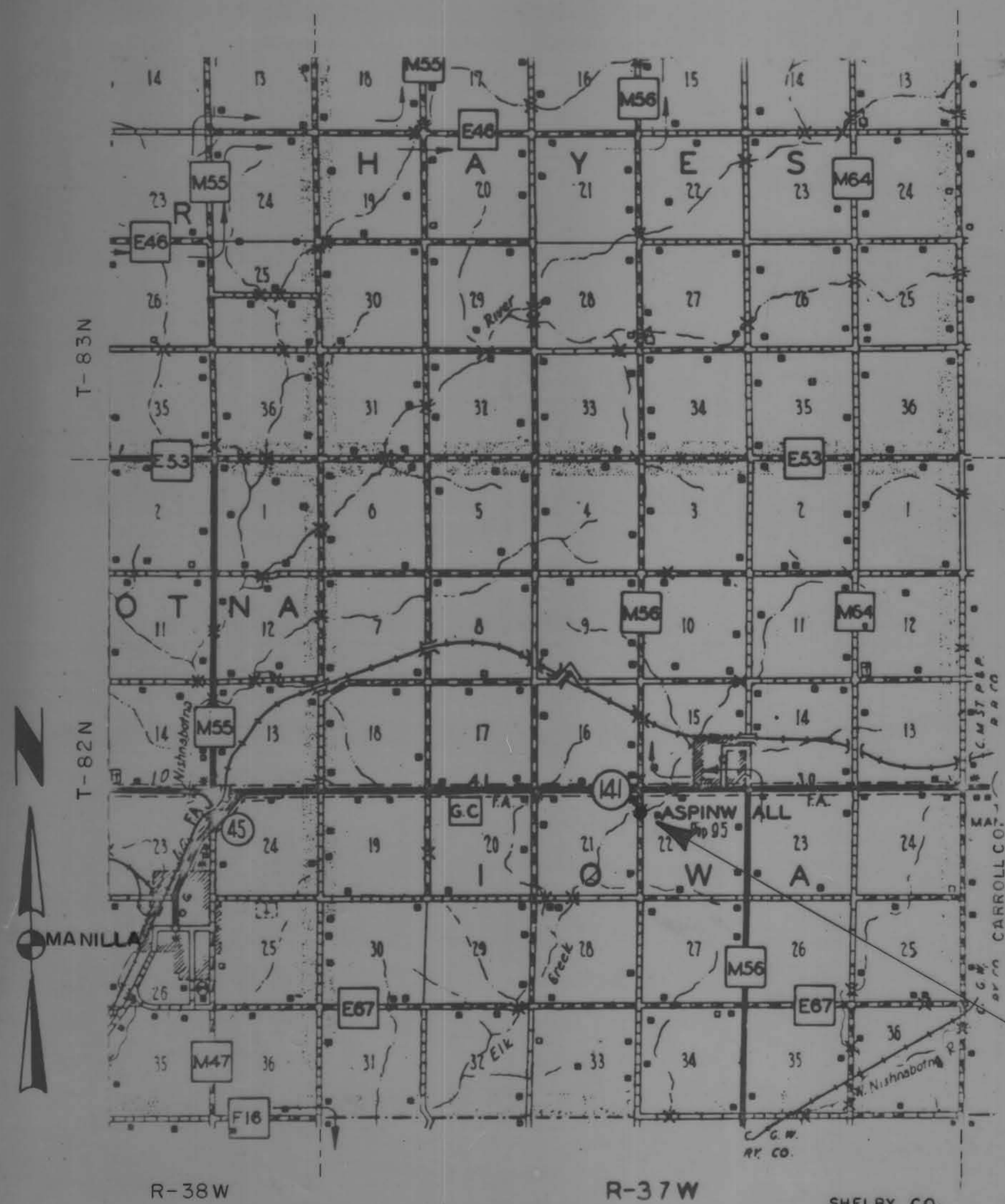
THE IOWA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS
FOR CONSTRUCTION WORK, SERIES OF 1972 SHALL
APPLY TO WORK ON THIS PROJECT, PLUS
CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

INDEX OF SHEETS

SHEET NO.	ITEM
1	TITLE SHEET AND ESTIMATE OF QUANTITIES, MILEAGE SUMMARY
2	DETAILS

MILEAGE SUMMARY

61'-8" = 0.01168 MILE



PROJECT NO. L71-3		STA. 25+95.33				
SEC. 21-22		IOWA TOWNSHIP				
40'x20' I-BEAM BRIDGE WITH 20'x20' I-BEAM APPROACH						
IN LETTING OF	ESTIMATE OF QUANTITIES					
	ITEM NO.	ITEM	ABUTMENTS	PIER	TOTALS	
	1	STRUCTURAL CONCRETE	---	CLASS "C" 5.38 CU.YDS.	CLASS "D" 24.71 CU.YDS.	30.09 CU.YDS.
	2	REINFORCING STEEL	---	689 LBS.	3852 LBS.	4541 LBS.
	3	TREATED TRESTLE PILING 18@35' AND 8@20'	580 LF.	210 LF.	---	790 LF.
	4	CREOSOTED LUMBER	4284 MFBM	---	---	4,284 MFBM
	5	EXCAV. CLASS 10 CHANNEL	---	---	---	140 CU.YDS.
	6	EXCAV. CLASS 20	45 CU.YDS.	---	---	45 CU.YDS.
	7	EXCAV. CLASS 21	15 CU.YDS.	---	---	15 CU.YDS.
* 8	ERECT STEEL CAPS & I-BEAMS	---	---	---	LUMP SUM	

* TO BE DELIVERED TO SITE BY COUNTY.

APPROVED
John Willbraundt

Barth Tuller

Ed Stalle

Clarence D. Hammer

Merrill Arnold
BOARD OF SUPERVISORS

APPROVED
ASSISTANT DISTRICT ENGINEER
SECONDARY ROADS
IOWA HIGHWAY COMMISSION

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.
H. Dale Winkler Aug 31, 1972
IOWA REGISTRATION NUMBER 5798 DATE

APPROVED
DEPUTY CHIEF ENGINEER
IOWA HIGHWAY COMMISSION

(1971) TRAFFIC COUNT 57 V.P.D.

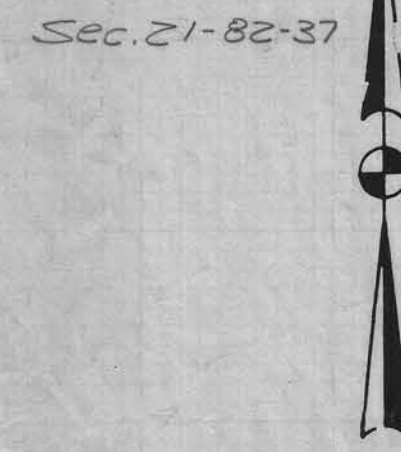
CRAWFORD COUNTY

PROJECT NO. L 71-3

SHEET NO. 1

Sta. 25+90.38 49'x16' pony truss, with 3-16'x16' approaches. To be removed by others.

DA = 8.05 Sq. mi.
QSD = 2141 C.F.S.
Design Q @ Elev. 452.00 = 2210 C.F.S.



Bridge located between Secs 21 & 22, T-82N, R-37W, Iowa township, Crawford County, Iowa, over Elk Creek.
All nuts, bolts, washers and toothed rings furnished by County.

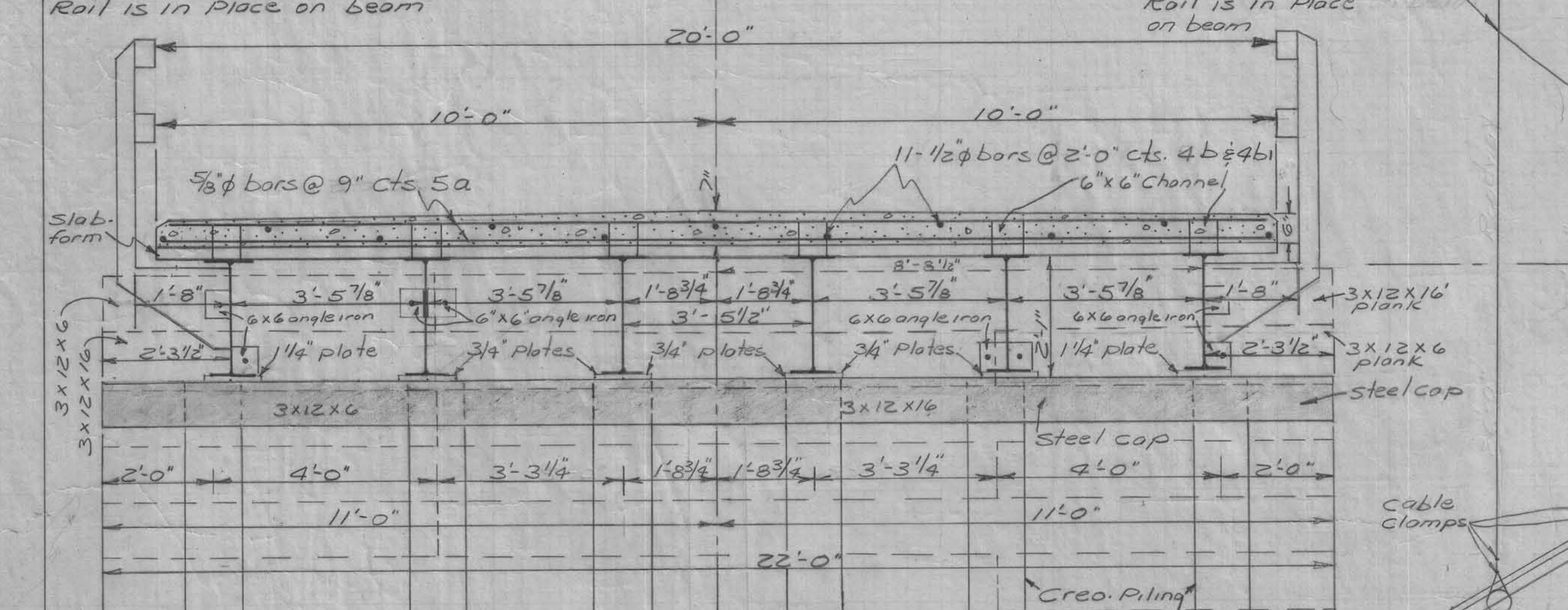
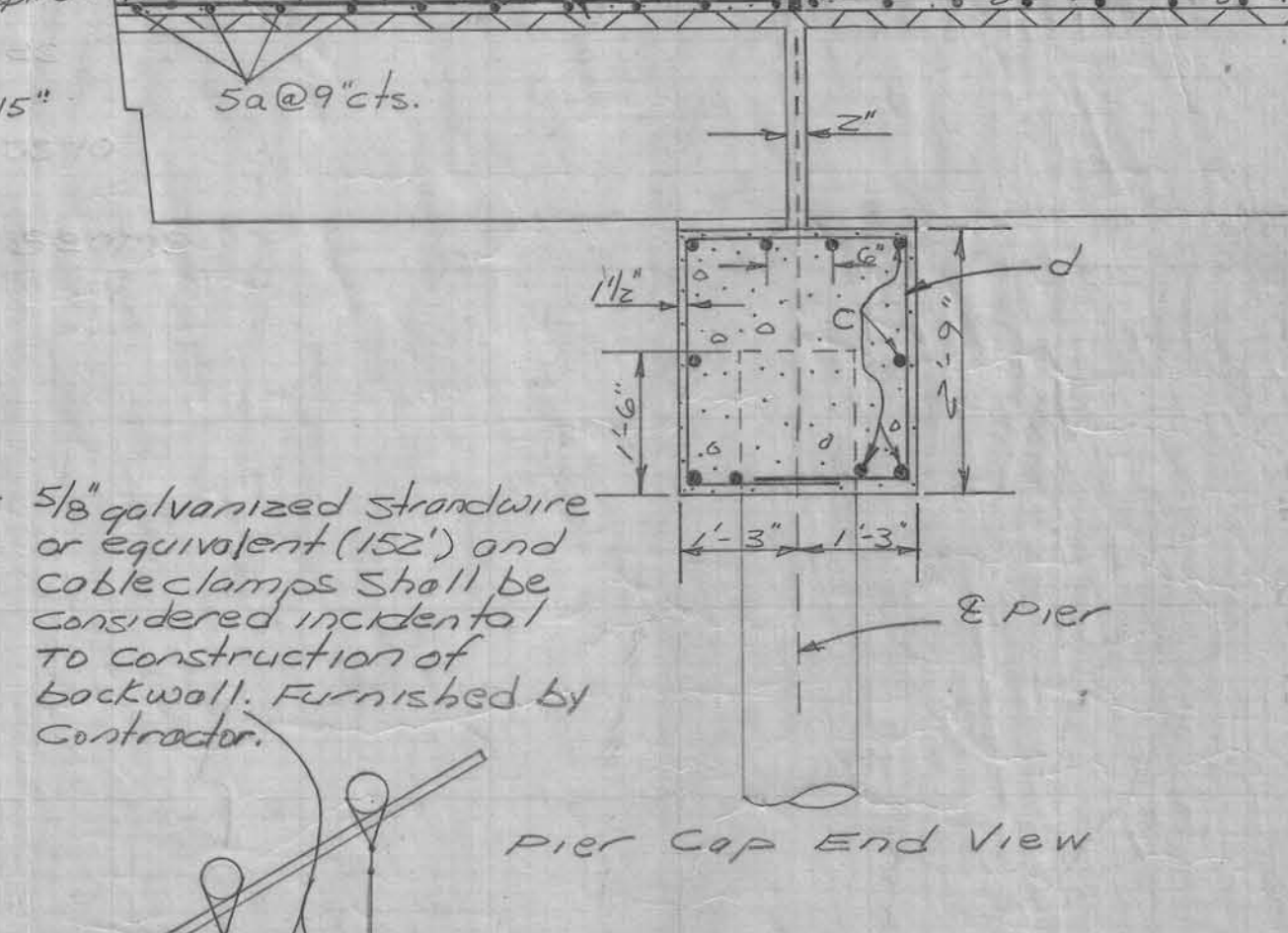
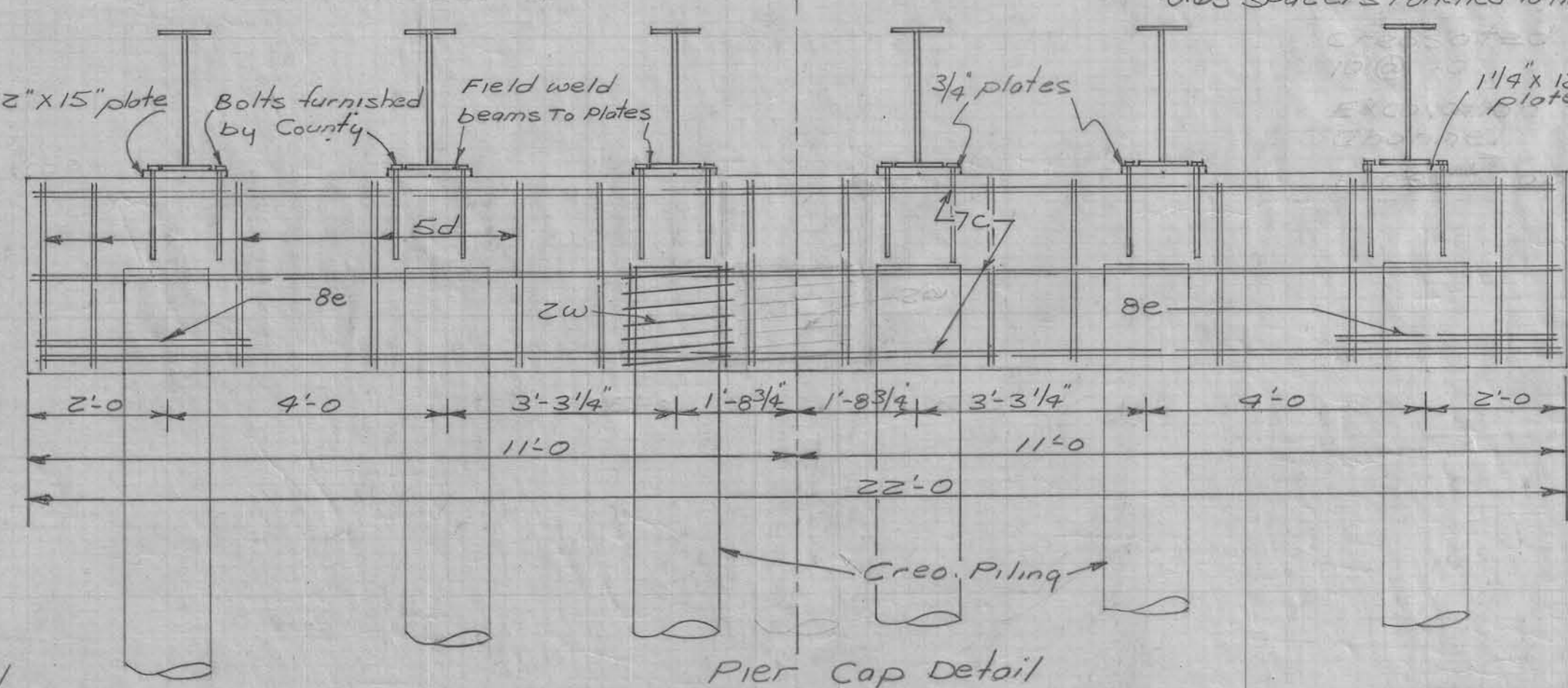
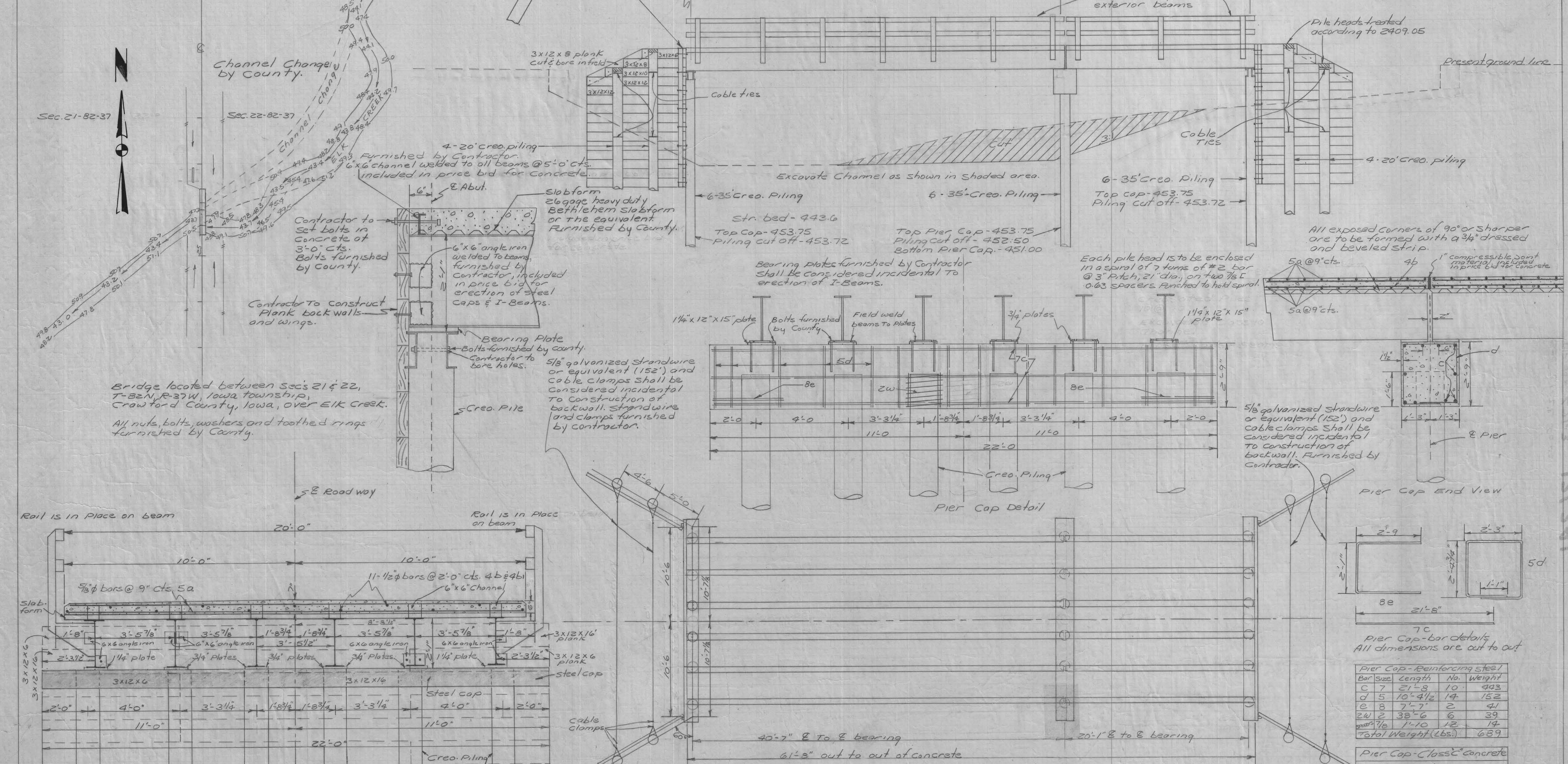
Reinforcing steel - Deck		
Bar Size	Length	No. Wt.
a	5 19'-8"	166 3425
b	4 40'-8"	11 299
b1	4 20'-2"	11 148
Total Weight (lbs) 3852		

Class "D" Concrete - Deck
24.71 Cu. Yds.

B.M. #3 SPK in fence Post 130' Rt. Sta. 24+69 Elev. - 453.17

ITEM	SIZE	No.
Backing Plank	3x12x16	30
Backing Plank	3x12x6	30
Wing Plank	3x12x12	48
Wing Plank	3x12x10	4
Wing Plank	3x12x8	8
Wing Plank	3x12x6	4
Nailler	6x6x16	4
Cresotated Lumber FBM 4284		

Bridge Contractor to backfill to an elevation of 454.50.



Pier Cap - Reinforcing Steel			
Bar Size	Length	No.	Weight
c	7 21'-8"	10	443
d	5 10'-4 1/2"	14	152
e	8 7'-7"	2	41
2d	2 38'-6"	6	39
2e	1'-10"	12	14
Total Weight (lbs.) 689			

Pier Cap - Class "C" Concrete
5.38 cu. yds.

I-Beams furnished by County
4-24' x 91' WF I-Beams @ 99# interior
2-24' x 91' WF I-Beams @ 74# exterior
4-24' x 20' 6" WF I-Beams @ 99# interior
2-24' x 20' 6" WF I-Beams @ 74# exterior
All beams to be delivered to site by county, from county yard at Aspinwall.
1971 Traffic 57 V.P.D.

Field weld plates to cap and beams to plates.
Backing plank may be spliced with joints staggered as shown. Each plank is to be fastened to each pile with 2-50# galvanized nails. All lumber shall be creosoted.

Bottom transverse steel supported by 2" chairs
Top transverse steel supported by 4 1/2" chairs, furnished by Contractor.
Steel caps to be delivered to bridge site by County.

Design For
40'-0" x 20'-0" I-Beam Bridge with 20'-0" x 20'-0" Approach, wood Piling - Concrete Floor