

BRIDGE REPLACEMENT - PPCB
 LETTING DATE: FEBRUARY 17, 2004
 PROJECT NO. BROS-C024(64)--8J-24
 CRAWFORD COUNTY

STANDARD ROAD PLANS					
THE FOLLOWING STANDARD ROAD PLANS SHALL BE CONSIDERED APPLICABLE TO CONSTRUCTION WORK ON THIS PROJECT.					
IDENT.	DATE	IDENT.	DATE	IDENT.	DATE
RC-16A	10-27-98	RE-68	04-15-03	RL-1A	10-03-00
RC-16B	09-21-99	RE-69C	10-29-02	RL-1B	10-03-00
		RE-76	10-21-03	RL-4	09-21-99
RE-26	04-03-01			RL-7	12-03-96
RE-7	04-15-03	RF-5	10-03-00	RL-14	01-12-99
RE-12A	10-02-01	RF-7	04-15-03	RL-16	04-15-03
RE-12B	10-02-01	RF-30A	03-28-95		
RE-47	04-03-01	RF-32	03-28-95	RS-27	10-28-97
RE-48A	10-21-03				
RE-65A	10-29-02				

PROJECT 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.

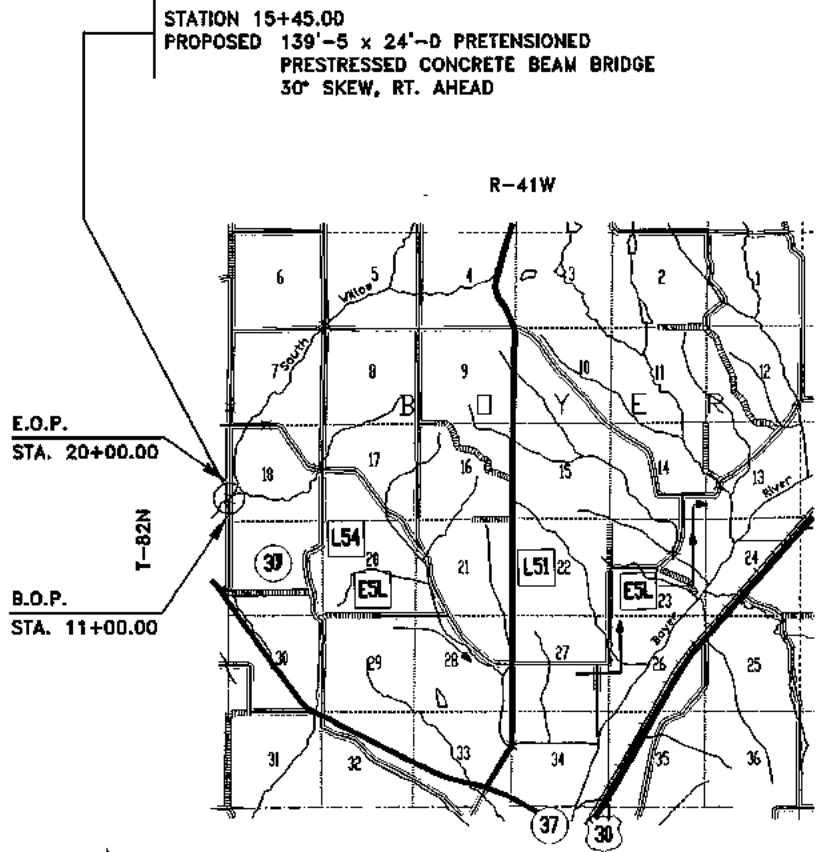
THIS PROJECT (COE #451390) IS COVERED BY U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT #14.

IOWA
 DEPARTMENT OF TRANSPORTATION
Highway Division
 PLANS OF PROPOSED IMPROVEMENT ON THE
 SECONDARY ROADS SYSTEM
CRAWFORD COUNTY
 PROJECT NO. BROS-C024(64)--8J-24
BRIDGE REPLACEMENT - PPCB
 100TH ST. OVER SOUTH WILLOW CREEK APPROXIMATELY
 3.5 MILES WEST AND 3.5 MILES NORTH OF DUNLAP
 ON THE CRAWFORD/MONONA COUNTY LINE.

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2001, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

THIS PROJECT IS COVERED BY THE IOWA DEPARTMENT OF NATURAL RESOURCES NPDES GENERAL PERMIT NO. 2. THE CONTRACTOR SHALL CARRY OUT THE TERMS AND CONDITIONS OF GENERAL PERMIT NO. 2 AND THE STORM WATER POLLUTION PREVENTION PLAN WHICH IS A PART OF THESE CONTRACT DOCUMENTS. REFER TO SECTION 2602 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL INFORMATION.

DIVISION I - BRIDGE
 DIVISION II - GRADING



MILEAGE SUMMARY			
DIV.	LOCATION	LIN.FT.	MILES
	STA. 11+00.00 TO STA. 20+00.00	900.00	0.1705
I	BRIDGE AT STA. 15+45.00	143.46	0.0272
II	TOTAL NET LENGTH OF PROJECT (GRADING)	756.54	0.1433

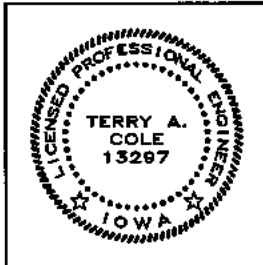
2000, TRAFFIC COUNT = 30 V.P.D.

DRAWING APPROVAL
 ALL SHOP DRAWINGS AND FALSEWORK DRAWINGS THAT REQUIRE APPROVAL SHALL BE SUBMITTED TO AND APPROVED BY THE CONTRACTOR, WHO SHALL THEN SUBMIT THEM TO CALHOUN-BURNS AND ASSOCIATES, INC., FOR REVIEW AND APPROVAL.
 ADDRESS : 1801 FULLER ROAD, P.O. BOX 65859
 WEST DES MOINES, IOWA 50265
 TELEPHONE : (515) 224-4344
 THESE SHOP DRAWINGS SHALL NOT BE SENT TO IOWA D.O.T. OFFICE OF BRIDGES AND STRUCTURES.

PROJECT NO. BROS-C024(64)--8J-24
 FHWA NO. 127130

INDEX OF SHEETS

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8. ABUTMENT DETAILS
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10. SUPERSTRUCTURE DETAILS
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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.
Terry A. Cole DATE: 10/20/03
 TERRY A. COLE, P.E.
 MY LICENSE RENEWAL DATE IS DECEMBER 31, 2004.
 PAGES OR SHEETS COVERED BY THIS SEAL:
 1-2 (DIV I); 3-15 OF 23



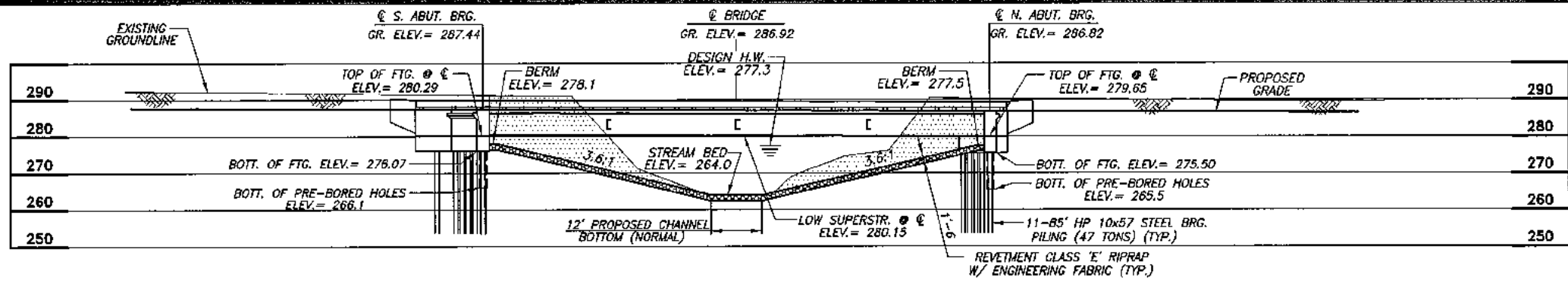
I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.
Steven B. Reneker DATE: 10/20/03
 STEVEN B. RENEKER, P.E.
 MY LICENSE RENEWAL DATE IS DECEMBER 31, 2004.
 PAGES OR SHEETS COVERED BY THIS SEAL:
 2 (DIV II); 16-23

APPROVED
[Signature] DATE: 10/20/03
 CRAWFORD COUNTY ENGINEER

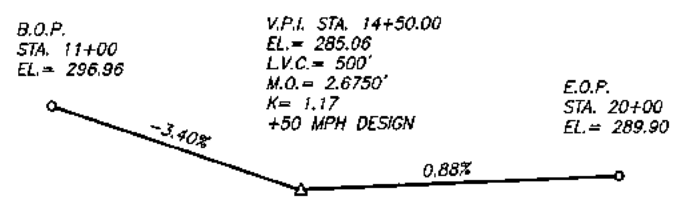
Robert A. Johann
Steve Thomas
Mike Spang
Mark Spang
John C. Lawler
 BOARD OF SUPERVISORS DATE

Iowa Department of Transportation
 Highway Division
 ACCEPTED FOR LETTING
Rita Carter 1/5/04
 DISTRICT LOCAL SYSTEMS ENGINEER DATE

127130

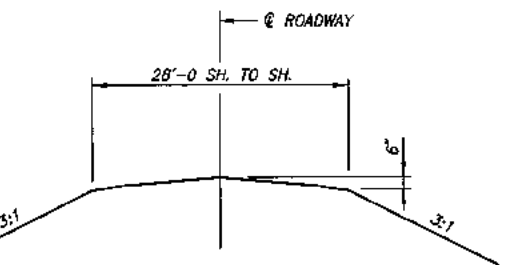


BENCH MARK 1A: RAILROAD SPIKE IN SOUTH GATE POST, SOUTH OF BRIDGE, EAST SIDE OF COUNTY ROAD, STA. 14+19.37, 34.6 RT., ELEV. = 293.84
 BENCH MARK 2A: RAILROAD SPIKE IN POWER POLE, NORTH SIDE OF BRIDGE, WEST SIDE OF COUNTY ROAD, STA. 16+34.08, 43.31' LT., ELEV. = 288.51

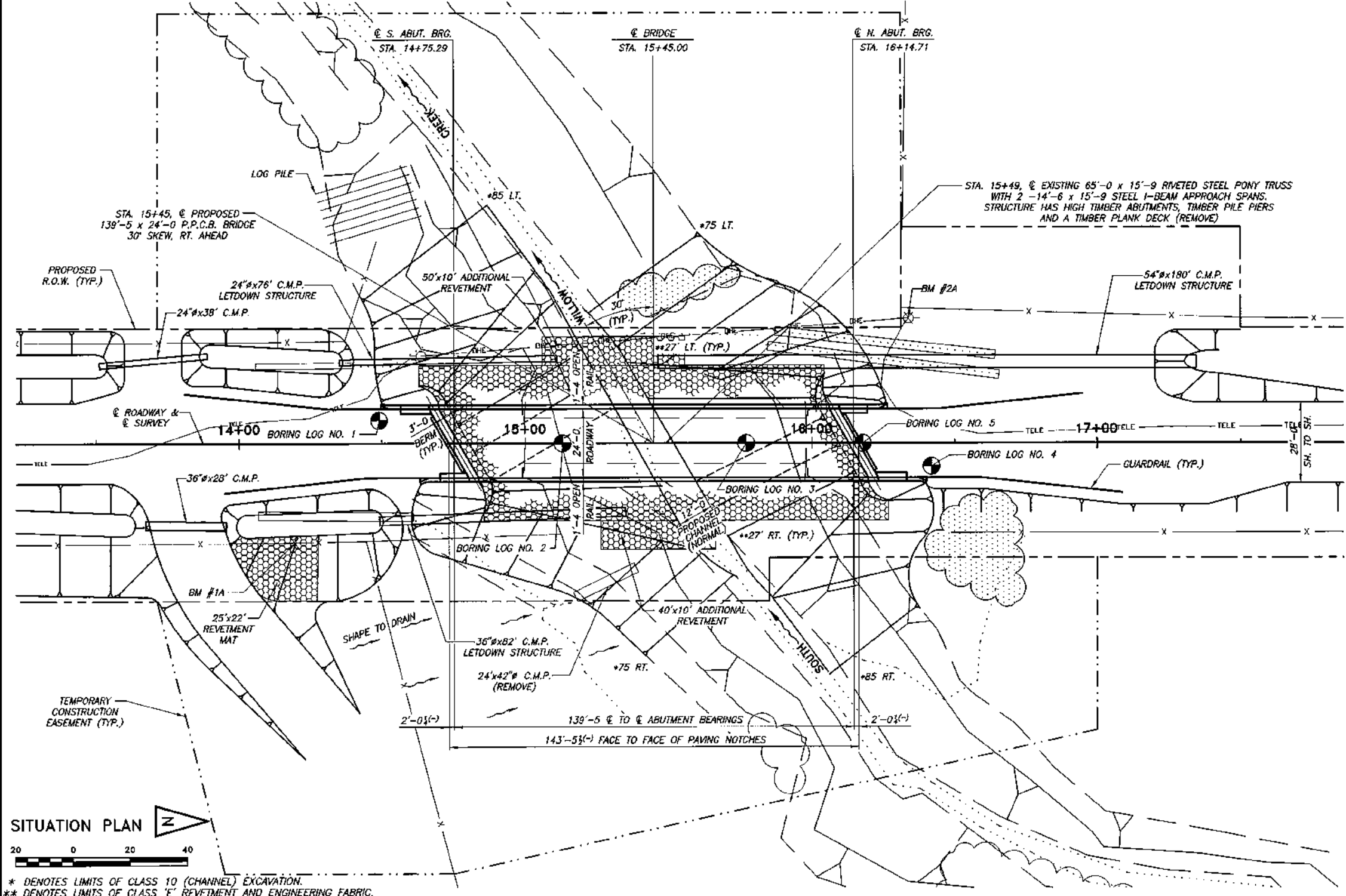


LONGITUDINAL SECTION ALONG ROADWAY

PROPOSED GRADE



TYPICAL APPROACH SECTION



LOCATION

CRAWFORD COUNTY
 T-82N, R-41W
 SECTION 18
 BOYER TOWNSHIP
 OVER SOUTH WILLOW CREEK

HYDRAULIC DATA

DRAINAGE AREA = 8.7 SQ. MI.
 DESIGN DISCHARGE = 3,200 C.F.S.
 DESIGN HIGH WATER ELEV. = 277.3
 MANNING SLOPE = 0.00361 FT./FT.
 BRIDGE WATERWAY AREA = 796 SQ. FT.
 DESIGN VELOCITY = 4.0 F.P.S.
 Q25 = 3,200 C.F.S. STAGE ELEV. = 277.3 (DESIGN)
 Q50 = 4,000 C.F.S. STAGE ELEV. = 278.4
 Q100 = 4,800 C.F.S. STAGE ELEV. = 279.5
 Q500 = 7,000 C.F.S. STAGE ELEV. = 281.8
 EXT. H.W. ELEV. = UNKNOWN

SEE "PLAN AND PROFILE" FOR ADDITIONAL INFORMATION.

139'-5 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
 139'-5 SINGLE SPAN INTEGRAL ABUTMENTS

SITUATION PLAN

STATION 15+45.00 30' SKEW, RT. AHEAD
 CRAWFORD COUNTY, IOWA

* DENOTES LIMITS OF CLASS 10 (CHANNEL) EXCAVATION.
 ** DENOTES LIMITS OF CLASS 'E' REVETMENT AND ENGINEERING FABRIC.

SPECIFICATIONS

DESIGN: AASHTO SERIES OF 1996.

CONSTRUCTION: STANDARD SPECIFICATION OF THE IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION, SERIES OF 2001, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

DESIGN STRESSES

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1996, PLUS INTERIM SPECIFICATIONS.

CONCRETE	SECTION 8	f_c	=	3,500 PSI
REINFORCING STEEL ASTM A615	SECTION 8 GRADE 60	f_s	=	24,000 PSI
PRESTRESSING STEEL	SEE SHEET 12			
PRESTRESSED CONCRETE	SEE SHEET 12			
STRUCTURAL STEEL ASTM A36	SECTION 10	f_s	=	20,000 PSI

GENERAL NOTES

THIS DESIGN IS FOR A 139'-5 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BRIDGE ON 100TH STREET OVER SOUTH WILLOW CREEK IN CRAWFORD COUNTY, IOWA.

THIS BRIDGE IS DESIGNED FOR HS20-44 LOADING PLUS 20 LBS. PER SQ. FT. OF ROADWAY FOR FUTURE WEARING SURFACE.

ACCESS SHALL BE MAINTAINED TO INDIVIDUAL PROPERTIES DURING CONSTRUCTION. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.

THE CONTRACTOR IS RESPONSIBLE FOR CONDUCTING AN INDEPENDENT CHECK OF ALL CONSTRUCTION STAKES PLACED FOR THE PROJECT. THIS INDEPENDENT CHECK SHALL BE SUFFICIENT TO UNDERSTAND THE PLACEMENT AND INTENT OF THE STAKES.

THIS PROJECT IS TO BE BUILT UNDER THE CONDITIONS OF ARMY CORPS OF ENGINEERS 404 PERMIT NUMBER 451390. THIS IS A NATIONWIDE PERMIT AND MAY CONTAIN SPECIAL CONDITIONS. WORK REQUIRED UNDER THIS PERMIT IS CONSIDERED INCIDENTAL TO OTHER WORK. A COPY OF THE PERMIT IS AVAILABLE AT THE COUNTY ENGINEER'S OFFICE. THE ARMY CORPS OF ENGINEERS RESERVES THE RIGHT TO VISIT THE SITE WITHOUT PRIOR NOTICE.

THE CONTRACTOR IS ENCOURAGED TO TAKE FULL ADVANTAGE OF SPECIFICATION 1105.15 - VALUE ENGINEERING INCENTIVE PROPOSAL, A PAMPHLET AND CONCEPTUAL PROPOSAL FORM WILL BE AVAILABLE AT THE PRECONSTRUCTION CONFERENCE.

STANDARD ROAD PLANS ARE AVAILABLE FROM THE IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION, AMES, IOWA.

ARTICLE 2317 REGARDING BRIDGE DECK SMOOTHNESS DOES NOT APPLY TO THIS PROJECT.

UTILITY NOTES

THE CONTRACTOR SHALL VISIT THE CONSTRUCTION SITE TO ENSURE THAT HE IS FAMILIAR WITH THE EXISTING SITE CONDITIONS. THE CONTRACTOR WILL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF ALL UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION. ACCESS SHALL BE AFFORDED TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES.

UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE ARE OTHERS, THE EXISTENCE OF WHICH IS NOT PRESENTLY KNOWN OR SHOWN. SHOULD ANY UTILITIES BE FOUND, THEY SHALL BE PROTECTED IN PLACE AND THE ENGINEER IMMEDIATELY NOTIFIED. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES.

NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR INTERFERENCE, OR DELAY CAUSED BY UTILITY COORDINATION OR RELOCATION WORK.

WASTE AND DISPOSAL NOTES

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 AND SHALL NOT CREATE AN UNSIGHTLY CONDITION WHEN VIEWED FROM PUBLIC HIGHWAYS, UNLESS SPECIFICALLY STATED IN THE PLANS OR APPROVED BY THE ENGINEER.

STREAM CROSSING NOTES

THE CONTRACTOR IS ENCOURAGED TO CONDUCT CONSTRUCTION ACTIVITIES DURING A PERIOD OF LOW FLOW. ANY TEMPORARY CROSSINGS SHALL INCLUDE ENOUGH CULVERTS TO ACCOMMODATE LOW FLOWS AND MUST BE REMOVED AFTER COMPLETION OF WORK ON THIS PROJECT. THE CONTRACTOR IS REQUIRED TO REMOVE ALL FILL-MATERIAL USED AS A TEMPORARY CROSSING TO AN UPLAND, NON-WETLAND SITE, TO SEED ALL DISTURBED AREAS WITH NATIVE GRASSES, AND TO IMPLEMENT APPROPRIATE MEASURES TO INSURE SEDIMENTS ARE NOT INTRODUCED INTO WATERS OF THE UNITED STATES DURING CONSTRUCTION OF THIS PROJECT. IF CLEAN EARTH IS USED AS FILL IN A TEMPORARY CROSSING, THE UPSTREAM FACE SHALL BE ARMORED. THE COST OF INSTALLATION, MAINTENANCE, AND REMOVAL OF TEMPORARY CROSSINGS, INCLUDING CULVERTS, SHALL BE INCIDENTAL TO THE PROJECT.

CULVERTS SHALL BE INSTALLED, AS REQUIRED, IN ANY TEMPORARY CROSSING TO CARRY LOW STREAM FLOWS. THE CONTRACTOR SHALL REMOVE ANY TEMPORARY CROSSINGS PRIOR TO COMPLETION OF THE PROJECT. THE COST OF INSTALLATION, MAINTENANCE AND REMOVAL OF TEMPORARY CROSSING SHALL BE INCIDENTAL TO THE PROJECT.

EQUIPMENT FOR HANDLING AND CONVEYING MATERIALS DURING CONSTRUCTION SHALL BE OPERATED TO PREVENT DUMPING OR SPILLING THE MATERIAL INTO WATERBODIES, STREAMS OR WETLANDS EXCEPT AS APPROVED HEREIN.

CARE SHALL BE TAKEN TO PREVENT ANY PETROLEUM PRODUCTS, CHEMICALS, OR OTHER DELETERIOUS MATERIALS FROM ENTERING WATERBODIES, STREAMS OR WETLANDS.

CONSTRUCTION EQUIPMENT, ACTIVITIES, AND MATERIALS SHALL BE KEPT OUT OF THE STREAMS AND WETLANDS TO THE MAXIMUM EXTENT POSSIBLE.

PILE NOTES

MINIMUM BEARING CAPACITY IS TO BE 47 TONS PER PILE AT ABUTMENTS

ALL PILES ARE TO BE DRIVEN TO FULL PENETRATION, WHERE PRACTICABLE.

SOUNDING AND TEST BORING DATA SHOWN ON PLANS WERE ACCUMULATED FOR DESIGNING AND ESTIMATING PURPOSES. THEIR APPEARANCE ON THE PLAN DOES NOT CONSTITUTE A GUARANTEE THAT CONDITIONS OTHER THAN THOSE INDICATED WILL NOT BE ENCOUNTERED.

CONCRETE AND REINFORCING STEEL NOTES

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 THE SECTION 2404 OF THE STANDARD SPECIFICATIONS.

CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

ALL EXPOSED CORNERS 90 DEGREES OR SHARPER ARE TO BE FILLETED WITH A 3/4" DRESSED AND BEVELED STRIP.

CONCRETE PAVING BLOCKS ARE REQUIRED AND ARE TO REMAIN IN PLACE AFTER CONSTRUCTION.

CONTRACTOR'S WORK AREA

THE CONTRACTOR'S WORK AND MATERIAL STORAGE AREA SHALL BE DEFINED BY THE CONTRACTOR AND NOTED TO THE ENGINEER. THE CONTRACTOR SHALL SHAPE, FERTILIZE, AND SEED THIS CONTRACTOR'S AREA IN ORDER TO RETURN IT TO ITS ORIGINAL CONDITION. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR "NATIVE GRASS SEEDING", FERTILIZING AND "MULCHING" BID ITEMS. AREAS OUTSIDE THE CONTRACTOR'S AREA DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED TO THEIR ORIGINAL CONDITION, AS DETERMINED BY THE ENGINEER. NO ADDITIONAL PAYMENT WILL BE AUTHORIZED FOR THIS WORK.

POLLUTION PREVENTION PLAN

110-12A
10-29-02

ALL CONTRACTORS/SUBCONTRACTORS SHALL CONDUCT THEIR OPERATIONS IN A MANNER THAT MINIMIZES EROSION AND PREVENTS SEDIMENTS FROM LEAVING THE HIGHWAY RIGHT-OF-WAY. THE PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE AND IMPLEMENTATION OF THE POLLUTION PREVENTION PLAN (PPP) FOR THEIR ENTIRE CONTRACT. THIS RESPONSIBILITY SHALL BE FURTHER SHARED WITH SUBCONTRACTORS WHOSE WORK IS A SOURCE OF POTENTIAL POLLUTION AS DEFINED IN THIS PPP.

1. SITE DESCRIPTION

THIS POLLUTION PREVENTION PLAN (PPP) IS FOR THE CONSTRUCTION OF A 139'-5 X 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE AND APPROACH GRADING IN CRAWFORD COUNTY IOWA.

THIS PPP COVERS APPROXIMATELY 3.0 ACRES WITH AN ESTIMATED 3.0 ACRES BEING DISTURBED. THE PORTION OF THE PPP COVERED BY THIS CONTRACT HAS 3.0 ACRES DISTURBED.

THE PPP IS LOCATED IN AN AREA OF MONONA-IDA-HAMBURG SOIL ASSOCIATION. THE ESTIMATED AVERAGE NRCS RUNOFF CURVE NUMBER FOR THIS PPP AFTER COMPLETION WILL BE 62.

REFER TO THE PLAN AND PROFILE SHEETS FOR LOCATIONS OF TYPICAL SLOPES, DITCH GRADES AND MAJOR STRUCTURAL AND NON-STRUCTURAL CONTROLS. A COPY OF THIS PLAN WILL BE ON FILE AT THE PROJECT ENGINEER'S OFFICE. RUNOFF FROM THIS WORK WILL FLOW INTO SOUTH WILLOW CREEK.

POTENTIAL SOURCES OF POLLUTION:

SITE SOURCES OF POLLUTION GENERATED AS A RESULT OF THIS WORK RELATE TO SILTS AND SEDIMENT WHICH MAY BE TRANSPORTED AS A RESULT OF A STORM EVENT. HOWEVER, THIS PPP PROVIDES CONVEYANCE FOR OTHER (NON-PROJECT RELATED) OPERATIONS. THESE OTHER OPERATIONS HAVE STORM WATER RUNOFF, THE REGULATION OF WHICH IS BEYOND THE CONTROL OF THIS PPP. POTENTIALLY THIS RUNOFF CAN CONTAIN VARIOUS POLLUTANTS RELATED TO SITE-SPECIFIC LAND USES. EXAMPLES ARE:

RURAL AGRICULTURAL ACTIVITIES:

RUNOFF FROM AGRICULTURAL LAND USE CAN POTENTIALLY CONTAIN CHEMICALS INCLUDING HERBICIDES, PESTICIDES, FUNGICIDES AND FERTILIZERS.

COMMERCIAL AND INDUSTRIAL ACTIVITIES:

RUNOFF FROM COMMERCIAL AND INDUSTRIAL LAND USE MAY CONTAIN CONSTITUENTS ASSOCIATED WITH THE SPECIFIC OPERATION. SUCH OPERATIONS ARE SUBJECT TO POTENTIAL LEAKS AND SPILLS WHICH COULD BE COMMINGLED WITH RUN-OFF FROM THE FACILITY. POLLUTANTS ASSOCIATED WITH COMMERCIAL AND INDUSTRIAL ACTIVITIES ARE NOT READILY AVAILABLE SINCE THEY ARE TYPICALLY PROPRIETARY.

2. CONTROLS

AT LOCATIONS WHERE RUNOFF CAN MOVE OFFSITE, SILT FENCE SHALL BE PLACED ALONG THE PERIMETER OF THE AREAS TO BE DISTURBED PRIOR TO BEGINNING GRADING, EXCAVATION OR CLEARING AND GRUBBING OPERATIONS. VEGETATION IN AREAS NOT NEEDED FOR CONSTRUCTION SHALL BE PRESERVED. AS AREAS REACH THEIR FINAL GRADE, ADDITIONAL SILT FENCES, SILT BASINS, INTERCEPTING DITCHES, SOO FLUMES, LETDOWNS, BRIDGE END DRAINS, AND EARTH DIKES SHALL BE INSTALLED AS SPECIFIED IN THE PLANS AND/OR AS REQUIRED BY THE PROJECT ENGINEER. THIS MAY INCLUDE USING SILT FENCE AS DITCH CHECKS AND TO PROTECT INTAKES. TEMPORARY STABILIZING SEEDING SHALL BE COMPLETED AS THE DISTURBED AREAS ARE CONSTRUCTED. IF CONSTRUCTION ACTIVITY IS NOT PLANNED TO OCCUR IN A DISTURBED AREA FOR AT LEAST 21 DAYS, THE AREA SHALL BE STABILIZED BY TEMPORARY SEEDING OR MULCHING WITHIN 14 DAYS. OTHER STABILIZING METHODS SHALL BE USED OUTSIDE THE SEEDING TIME PERIOD.

THIS WORK SHALL BE DONE IN ACCORDANCE WITH SECTION 2002 OF THE STANDARD SPECIFICATIONS. IF THE WORK INVOLVED IS NOT APPLICABLE TO ANY CONTRACT ITEMS, THE WORK SHALL BE PAID FOR ACCORDING TO ARTICLE 1109.03 PARAGRAPH B.

AS THE WORK PROGRESSES, ADDITIONAL EROSION CONTROL ITEMS MAY BE REQUIRED AS DETERMINED BY THE ENGINEER AFTER FIELD INVESTIGATION. THESE MAY BE ITEMS SUCH AS SILT BASINS, SILT DIKES, AND OTHER APPROPRIATE MEASURES TO BE INSTALLED BY CONTRACTOR, AS DIRECTED BY THE ENGINEER. THE CONTRACTOR WILL COMPLETE THE CONSTRUCTION WITH THE ESTABLISHMENT OF PERMANENT PERENNIAL VEGETATION OF ALL DISTURBED AREAS.

3. OTHER CONTROLS

CONTRACTOR DISPOSAL OF UNUSED CONSTRUCTION MATERIALS AND CONSTRUCTION MATERIAL WASTES SHALL COMPLY WITH APPLICABLE STATE AND LOCAL WASTE DISPOSAL, SANITARY SEWER, OR SEPTIC SYSTEM REGULATIONS. IN THE EVENT OF A CONFLICT WITH OTHER GOVERNMENTAL LAWS, RULES AND REGULATIONS, THE MORE RESTRICTIVE LAWS, RULES OR REGULATIONS SHALL APPLY.

APPROVED STATE OR LOCAL PLANS:

DURING THE COURSE OF THIS CONSTRUCTION, IT IS POSSIBLE THAT SITUATIONS WILL ARISE WHERE UNKNOWN MATERIALS WILL BE ENCOUNTERED. WHEN SUCH SITUATIONS ARE ENCOUNTERED, THEY WILL BE HANDLED ACCORDING TO ALL FEDERAL, STATE, AND LOCAL REGULATIONS IN EFFECT AT THE TIME.

4. MAINTENANCE

THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL TEMPORARY EROSION CONTROL MEASURES IN PROPER WORKING ORDER, INCLUDING CLEANING, REPAIRING, OR REPLACING THEM THROUGHOUT THE CONTRACT PERIOD. CLEANING OF SILT CONTROL DEVICES SHALL BEGIN WHEN THE FEATURES HAVE LOST 50% OF THEIR CAPACITY.

5. INSPECTIONS

INSPECTIONS SHALL BE MADE JOINTLY BY THE CONTRACTOR AND THE CONTRACTING AUTHORITY EVERY SEVEN CALENDAR DAYS AND AFTER EACH RAIN EVENT THAT IS ONE HALF INCH OR GREATER. THE CONTRACTOR SHALL IMMEDIATELY BEGIN CORRECTIVE ACTION ON ALL DEFICIENCIES FOUND. THE FINDINGS OF THIS INSPECTION SHALL BE RECORDED IN THE PROJECT DIARY. THIS PPP MAY BE REVISED BASED ON THE FINDINGS OF THE INSPECTION. THE CONTRACTOR SHALL IMPLEMENT ALL REVISIONS. ALL CORRECTIVE ACTIONS SHALL BE COMPLETED WITHIN 3 CALENDAR DAYS OF THE INSPECTION.

6. NON-STORM DISCHARGES

THIS INCLUDES SUBSURFACE DRAINS (I.E. LONGITUDINAL AND STANDARD SUBDRAINS), SLOPE DRAINS AND BRIDGE END DRAINS. THE VELOCITY OF THE DISCHARGE FROM THESE FEATURES MAY BE CONTROLLED BY THE USE OF PATIO BLOCKS, CLASS A STONE OR EROSION STONE.



**Remember to
Call Before You Dig!
1-800-292-8989**

Request Utility Locate 48 Hours In Advance

139'-5 x 24'-0 PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE

139'-5 SINGLE SPAN INTEGRAL ABUTMENTS

GENERAL NOTES & POLLUTION PREVENTION PLAN

STATION 15+45.00

30' SKEW, RT. AHEAD

CRAWFORD COUNTY,

IOWA

BENCH MARK 1A: RAILROAD SPIKE IN SOUTH GATE POST, SOUTH OF BRIDGE, EAST SIDE OF COUNTY ROAD, STA. 14+19.37, 34.6 RT., ELEV.= 293.84
 BENCH MARK 2A: RAILROAD SPIKE IN POWER POLE, NORTH SIDE OF BRIDGE, WEST SIDE OF COUNTY ROAD, STA. 16+34.08, 43.31' LT., ELEV.= 288.51

BORING LOG NO. 1		STATION 14+49.8' LT		Project No.: 031232							
Project: Bridge Over South Willow Creek Section 16, T21N, R41W Boyer Twp., Crawford Co., Iowa		Client: Calhoun-Burns and Associates, Inc. 1801 Fuller Road West Des Moines, Iowa 50265		Date Drilled: 5-22-03 Drilling Method: 4" CFA Drilling Depth: 85							
Surface Elevation: 291.3'	Benchmark: BM 1A = 293.84'										
Elevation ft.	Depth ft.	Sample No.	Type	SPT blf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level Depth Elevation ft.
280	0							5" CRUSHED ROCK SURFACING		CL-ML	42
	1	1	ST	26.1	95	3120		Brown and dark brown mixed silty clay, trace sand and gravel, damp FILL (Firm Silty Clay)		CL-ML	290.88
	2	2	ST	25.8	94	3830				CL-ML	286.3
	3	3	ST	30.4	91	980		Dark brown silty clay, moist Brown below 7'		CL-ML	290.88
	4	4	ST	31.3	89	790		Light gray-brown and very moist below 13.5'		CL-ML	290.88
	5	5	ST	30.0	89	2100		Moisture seepage near 16'		CL-ML	290.88
	6	6	ST	28.5	89	1370		COHESIVE ALLUVIUM (Soft Silty Clay)		CL-ML	262.3
								Gray silty clay, very moist to wet		CL-ML	262.3
								COHESIVE ALLUVIUM (Soft Silty Clay)		CL-ML	262.3
								Brown and gray coarse sand and gravel, saturated		GP	51
								GRANULAR ALLUVIUM (Gravelly Sand)		GP	240.3
								Dark gray sandy lean to fat clay, trace gravel, moist		CL-CH	234.3
								GLACIAL TILL (Very Firm Sandy Glacial Clay)		CL-CH	234.3
								End of Boring			85
											206.3

BORING LOG NO. 2		STATION 15+13 CL		Project No.: 031232							
Project: Bridge Over South Willow Creek Section 16, T21N, R41W Boyer Twp., Crawford Co., Iowa		Client: Calhoun-Burns and Associates, Inc. 1801 Fuller Road West Des Moines, Iowa 50265		Date Drilled: 5-21-03 Drilling Method: HSA Drilling Depth: 86.5							
Surface Elevation: 292.9'	Benchmark: BM 1A = 293.84'										
Elevation ft.	Depth ft.	Sample No.	Type	SPT blf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level Depth Elevation ft.
280	0							WOOD BRIDGE DECK			25
								BRIDGE DECK TO GROUND			290.65
								Brown-light gray silty clay, very moist		CL-ML	16.5
								COHESIVE ALLUVIUM (Soft Silty Clay)		CL-ML	274.4
								Gray silty clay, very moist		CL-ML	25
								COHESIVE ALLUVIUM (Soft Silty Clay)		CL-ML	265.9
								Brown and gray coarse sand and gravel, saturated		GP	47
								GRANULAR ALLUVIUM (Gravelly Sand)		GP	243.9
								Dark gray sandy lean to fat clay, trace gravel, moist		CL-CH	57
								GLACIAL TILL (Very Firm Sandy Glacial Clay)		CL-CH	233.9
								End of Boring			86.5
											204.4

BORING LOG NO. 3		STATION 15+77 CL		Project No.: 031232							
Project: Bridge Over South Willow Creek Section 16, T21N, R41W Boyer Twp., Crawford Co., Iowa		Client: Calhoun-Burns and Associates, Inc. 1801 Fuller Road West Des Moines, Iowa 50265		Date Drilled: 5-22-03 Drilling Method: 4" CFA Drilling Depth: 85							
Surface Elevation: 290.7'	Benchmark: BM 1A = 293.84'										
Elevation ft.	Depth ft.	Sample No.	Type	SPT blf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level Depth Elevation ft.
280	0							WOOD BRIDGE DECK			25
								BRIDGE DECK TO GROUND			290.45
								Brown-light gray silty clay, very moist to wet		CL-ML	15
								COHESIVE ALLUVIUM (Soft Silty Clay)		CL-ML	275.7
								Gray silty clay, very moist to wet		CL-ML	24
								Silty fine sand seams near 32'		CL-ML	266.7
								COHESIVE ALLUVIUM (Soft Silty Clay)		CL-ML	47
								Brown and gray coarse sand and gravel, saturated		GP	243.7
								GRANULAR ALLUVIUM (Gravelly Sand)		GP	56.5
								Dark gray sandy lean to fat clay, trace gravel, moist		CL-CH	234.2
								GLACIAL TILL (Very Firm Sandy Glacial Clay)		CL-CH	234.2
								End of Boring			85
											205.7

BORING LOG NO. 5		STATION 16+18 CL		Project No.: 031232							
Project: Bridge Over South Willow Creek Section 16, T21N, R41W Boyer Twp., Crawford Co., Iowa		Client: Calhoun-Burns and Associates, Inc. 1801 Fuller Road West Des Moines, Iowa 50265		Date Drilled: 5-22-03 Drilling Method: 4" CFA Drilling Depth: 25.5							
Surface Elevation: 289.6'	Benchmark: BM 1A = 293.84'										
Elevation ft.	Depth ft.	Sample No.	Type	SPT blf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level Depth Elevation ft.
280	0							4" CRUSHED ROCK SURFACING		CL-ML	33
								Brown silty clay, moist POSSIBLE FILL (Firm Silty Clay)		CL-ML	289.27
								Brown lean to fat clay, moist		CL-CH	14.5
								Gray silty clay, very moist below 17'		CL-CH	275.1
								COHESIVE ALLUVIUM (Soft Silty Clay)		CL-ML	25.5
								End of Boring			264.1

BORING LOG NO. 4		STATION 16+42.8' RT		Project No.: 031232							
Project: Bridge Over South Willow Creek Section 16, T21N, R41W Boyer Twp., Crawford Co., Iowa		Client: Calhoun-Burns and Associates, Inc. 1801 Fuller Road West Des Moines, Iowa 50265		Date Drilled: 5-21-03 Drilling Method: HSA Drilling Depth: 86							
Surface Elevation: 289.6'	Benchmark: BM 1A = 293.84'										
Elevation ft.	Depth ft.	Sample No.	Type	SPT blf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level Depth Elevation ft.
280	0							4" CRUSHED ROCK SURFACING		CL-ML	33
								Brown silty clay, moist POSSIBLE FILL (Firm Silty Clay)		CL-ML	289.27
								Brown lean to fat clay, moist to very moist		CL-CH	14.5
								Gray silty clay, very moist below 17'		CL-CH	275.1
								Clay content decreasing below 25'		CL-ML	25.5
								COHESIVE ALLUVIUM (Soft Silty Clay)		CL-ML	264.1
								Gray coarse sand and gravel, saturated		GP	45
								GRANULAR ALLUVIUM (Gravelly Sand)		GP	244.6
								Gray very sandy lean clay, trace gravel, moist		CL-CH	53.5
								Dark gray sandy lean to fat clay, trace gravel, moist below 56.5'		CL-CH	236.1
								GLACIAL TILL (Very Firm Sandy Glacial Clay)		CL-CH	236.1
								End of Boring			86
											203.6

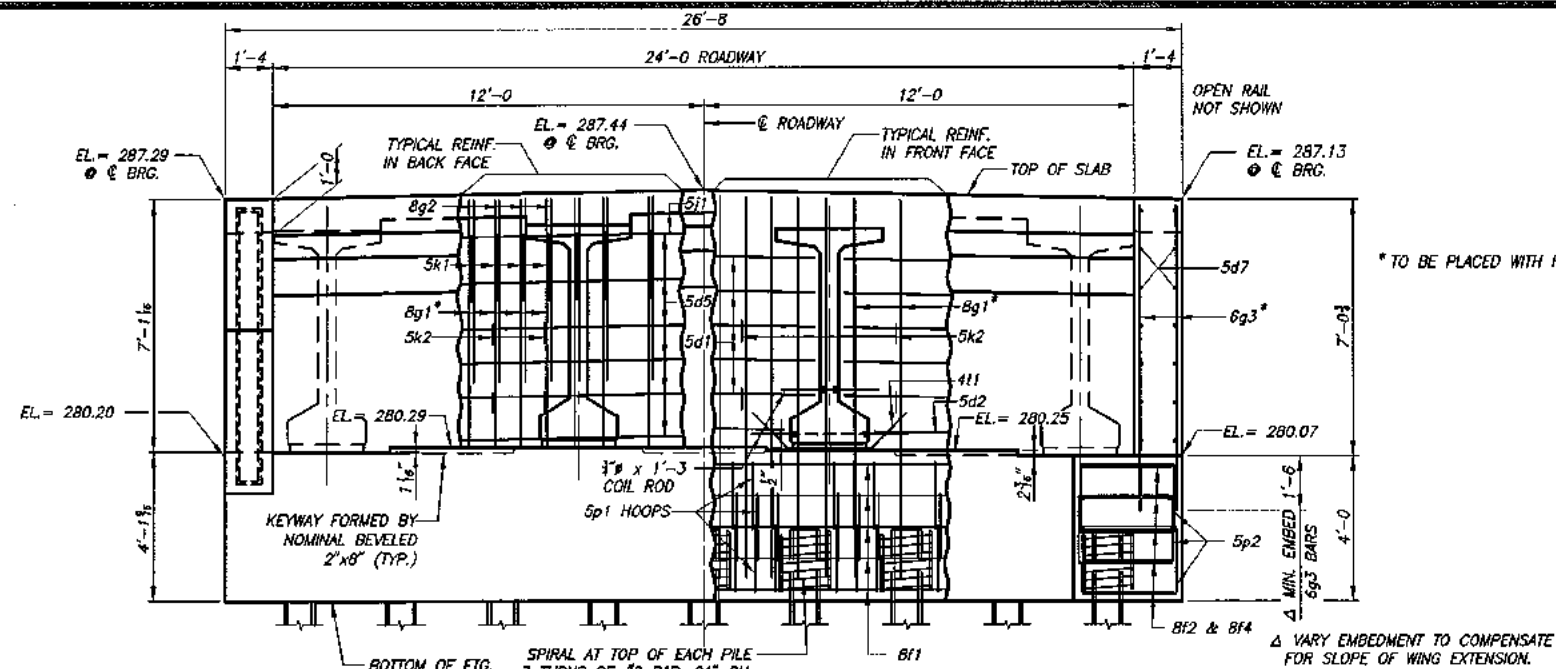
SOUNDING DATA
 (SEE "SITUATION PLAN", SHEET 3 FOR BORING LOCATIONS)

GEOTECHNICAL INFORMATION PROVIDED HEREWITH IS THE SOLE RESPONSIBILITY OF ALLENDER BUTZKE ENGINEERS, INC., WHOSE GEOTECHNICAL REPORT DATED 09-03-03, COMPLETE WITH THE LICENSED ENGINEER'S SEAL AND CERTIFICATION, IS AVAILABLE FOR VIEWING.

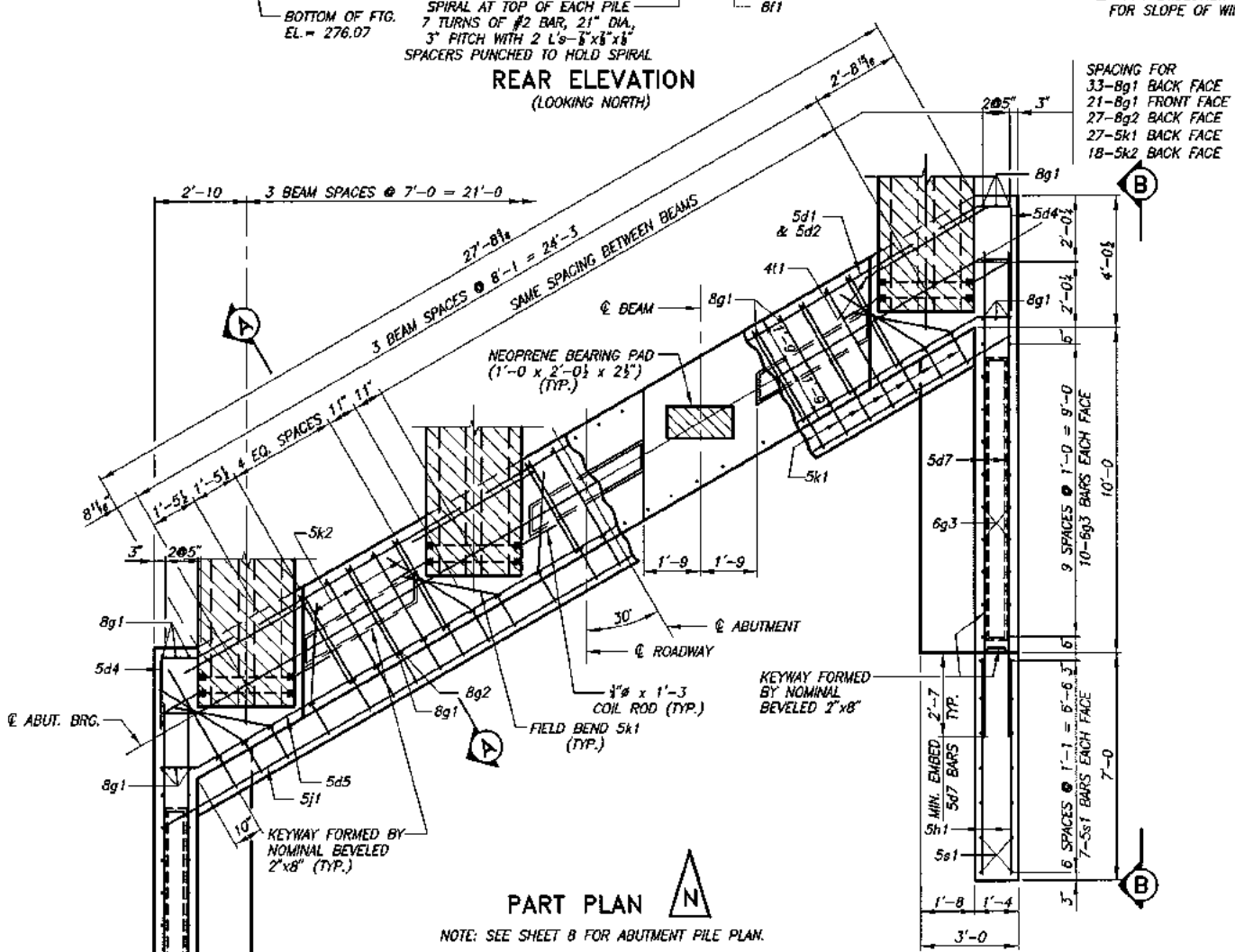
139'-5 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
 139'-5 SINGLE SPAN INTEGRAL ABUTMENTS

SOUNDING DATA

STATION 15+45.00 30' SKEW, RT. AHEAD
 CRAWFORD COUNTY, IOWA

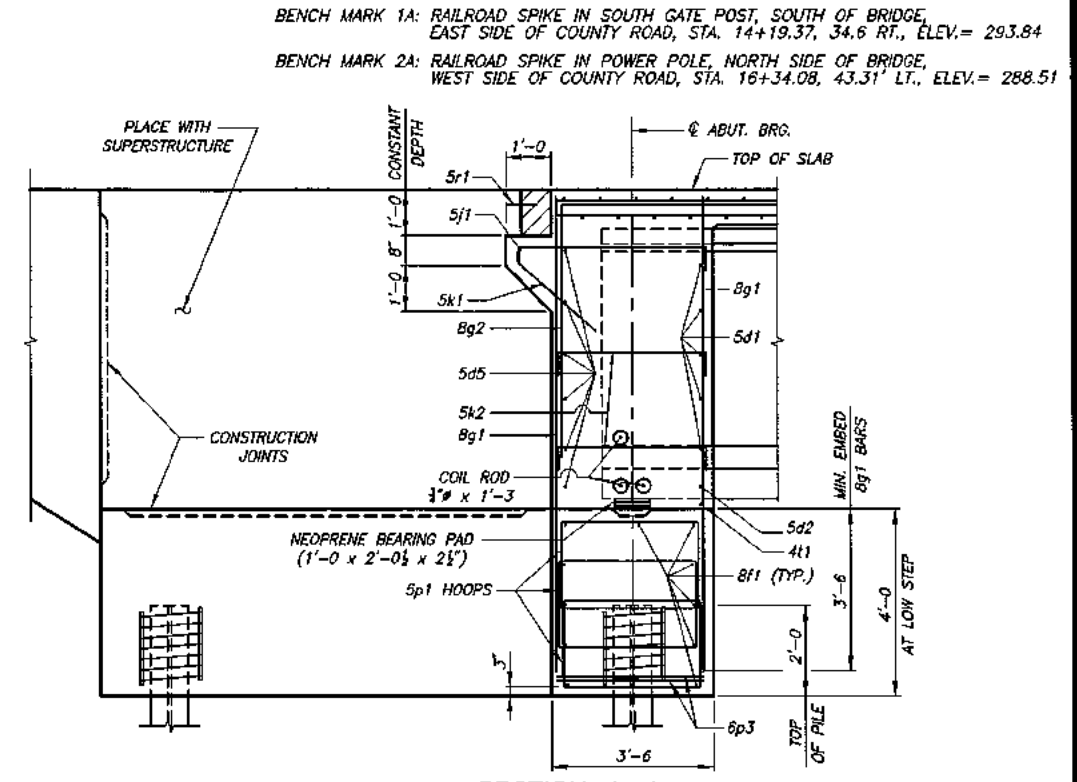


REAR ELEVATION
(LOOKING NORTH)

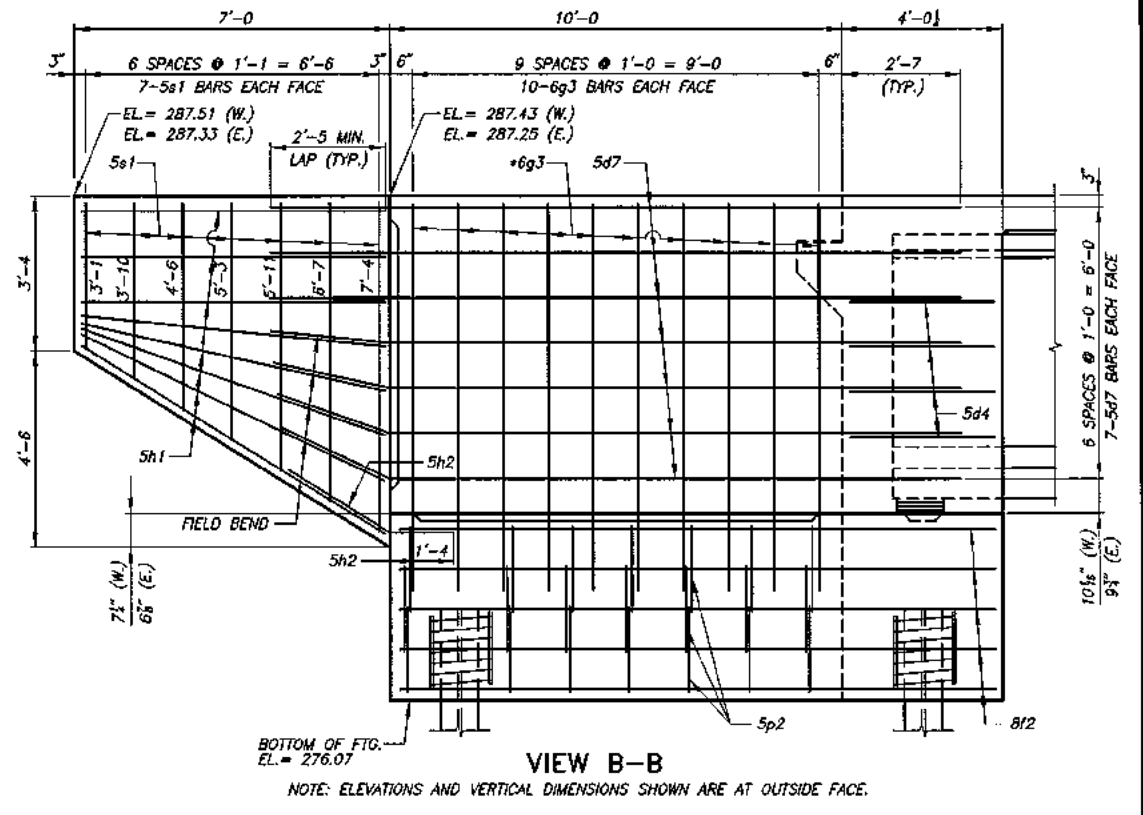


PART PLAN

NOTE: SEE SHEET 8 FOR ABUTMENT PILE PLAN.



SECTION A-A

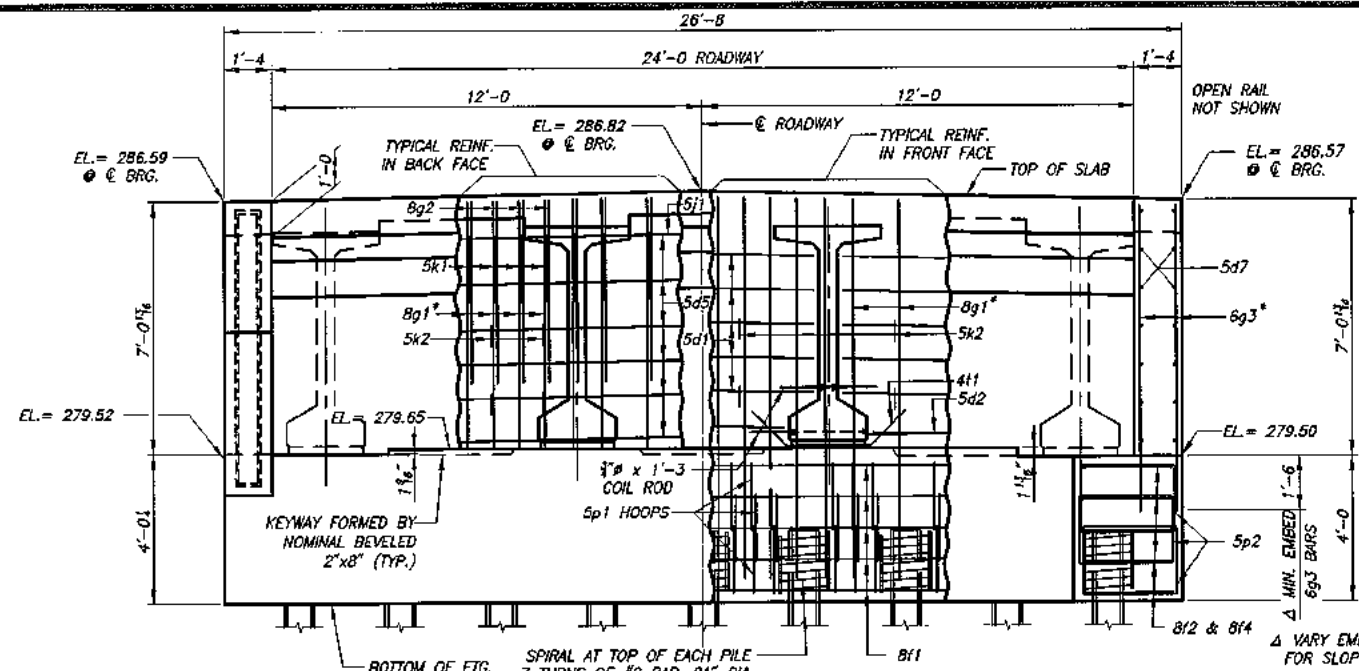


VIEW B-B

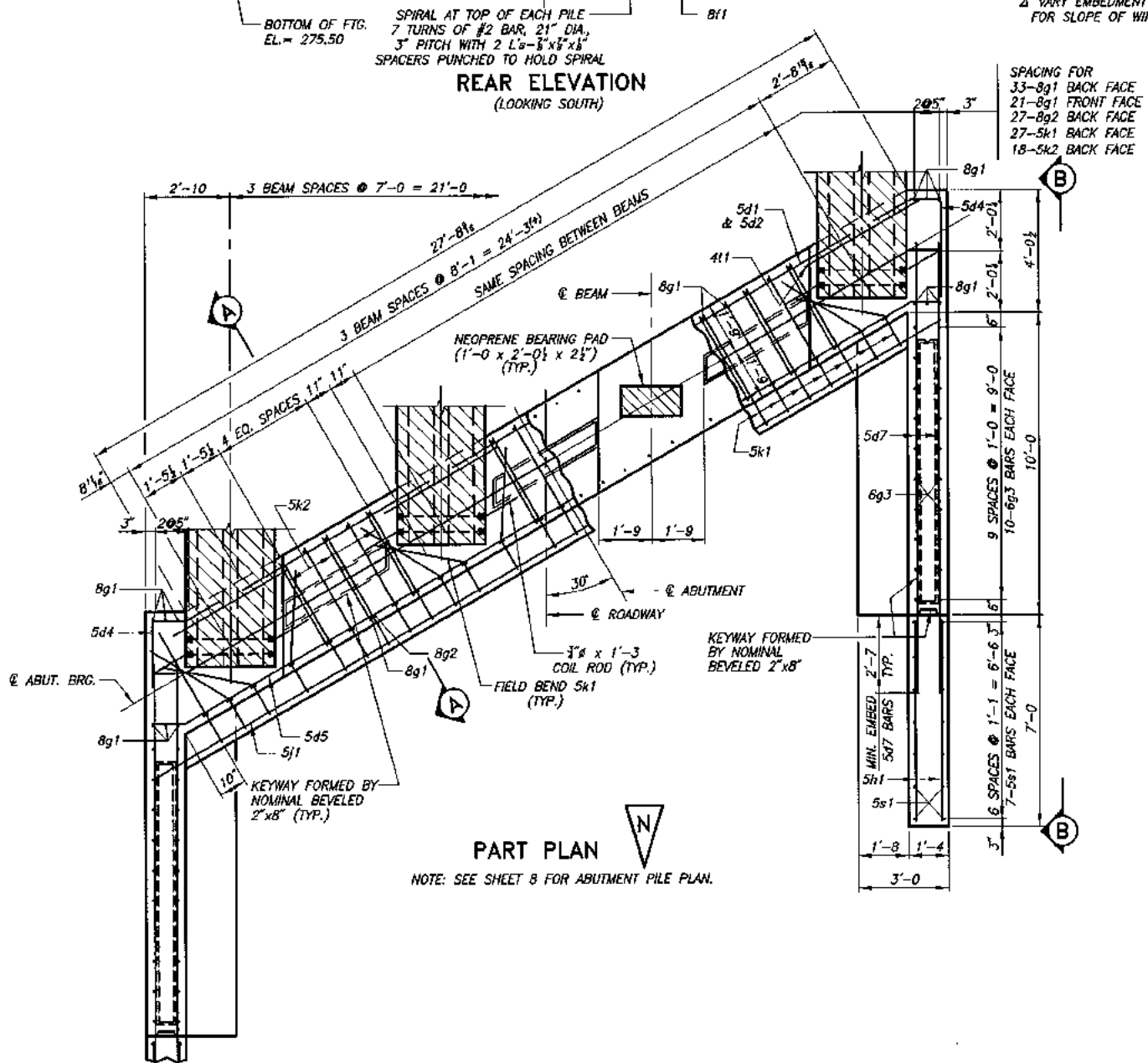
NOTE: ELEVATIONS AND VERTICAL DIMENSIONS SHOWN ARE AT OUTSIDE FACE.

BENCH MARK 1A: RAILROAD SPIKE IN SOUTH GATE POST, SOUTH OF BRIDGE, EAST SIDE OF COUNTY ROAD, STA. 14+19.37, 34.6 RT., ELEV. = 293.84
BENCH MARK 2A: RAILROAD SPIKE IN POWER POLE, NORTH SIDE OF BRIDGE, WEST SIDE OF COUNTY ROAD, STA. 16+34.08, 43.31' LT., ELEV. = 288.51

139'-5 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
139'-5 SINGLE SPAN INTEGRAL ABUTMENTS
SOUTH ABUTMENT DETAILS
STATION 15+45.00 30' SKEW, RT. AHEAD
CRAWFORD COUNTY, IOWA



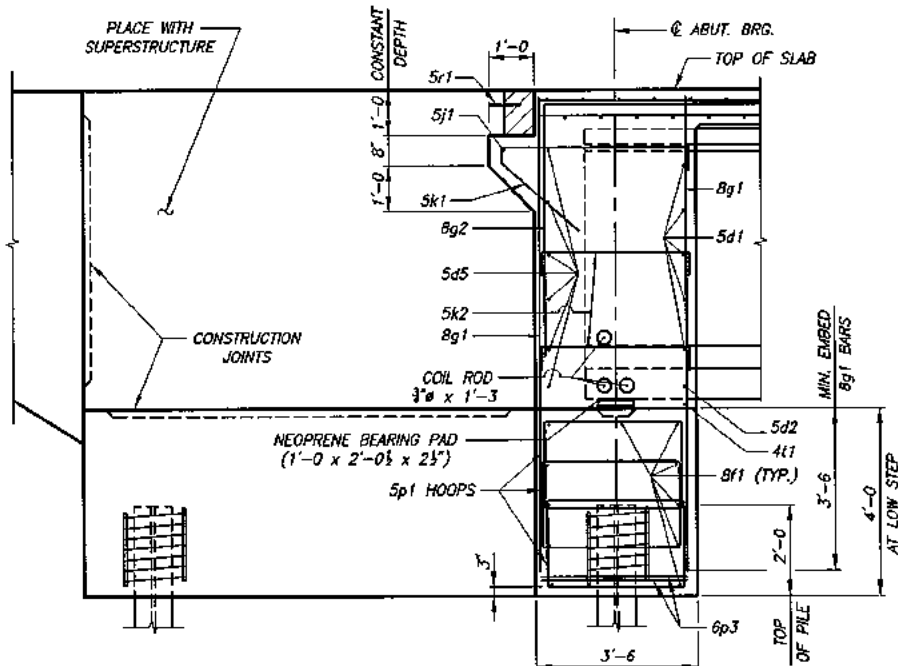
REAR ELEVATION
(LOOKING SOUTH)



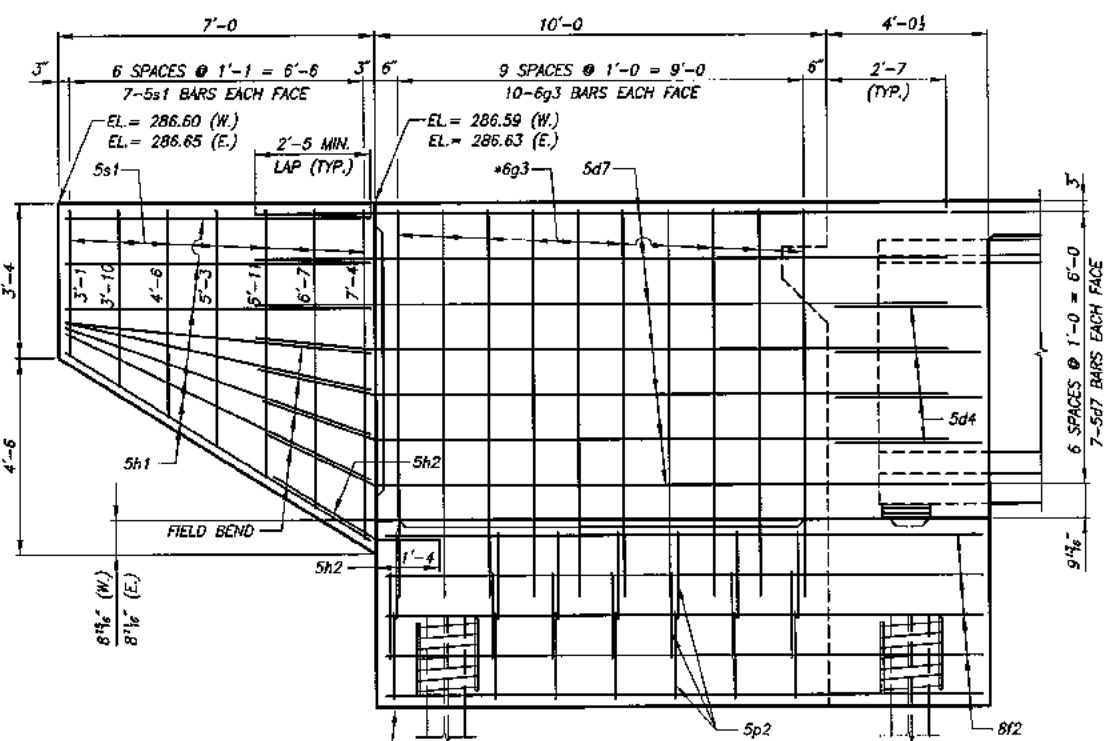
PART PLAN

NOTE: SEE SHEET 8 FOR ABUTMENT PILE PLAN.

BENCH MARK 1A: RAILROAD SPIKE IN SOUTH GATE POST, SOUTH OF BRIDGE, EAST SIDE OF COUNTY ROAD, STA. 14+19.37, 34.6 RT., ELEV. = 293.84
 BENCH MARK 2A: RAILROAD SPIKE IN POWER POLE, NORTH SIDE OF BRIDGE, WEST SIDE OF COUNTY ROAD, STA. 16+34.08, 43.31' LT., ELEV. = 288.51



SECTION A-A



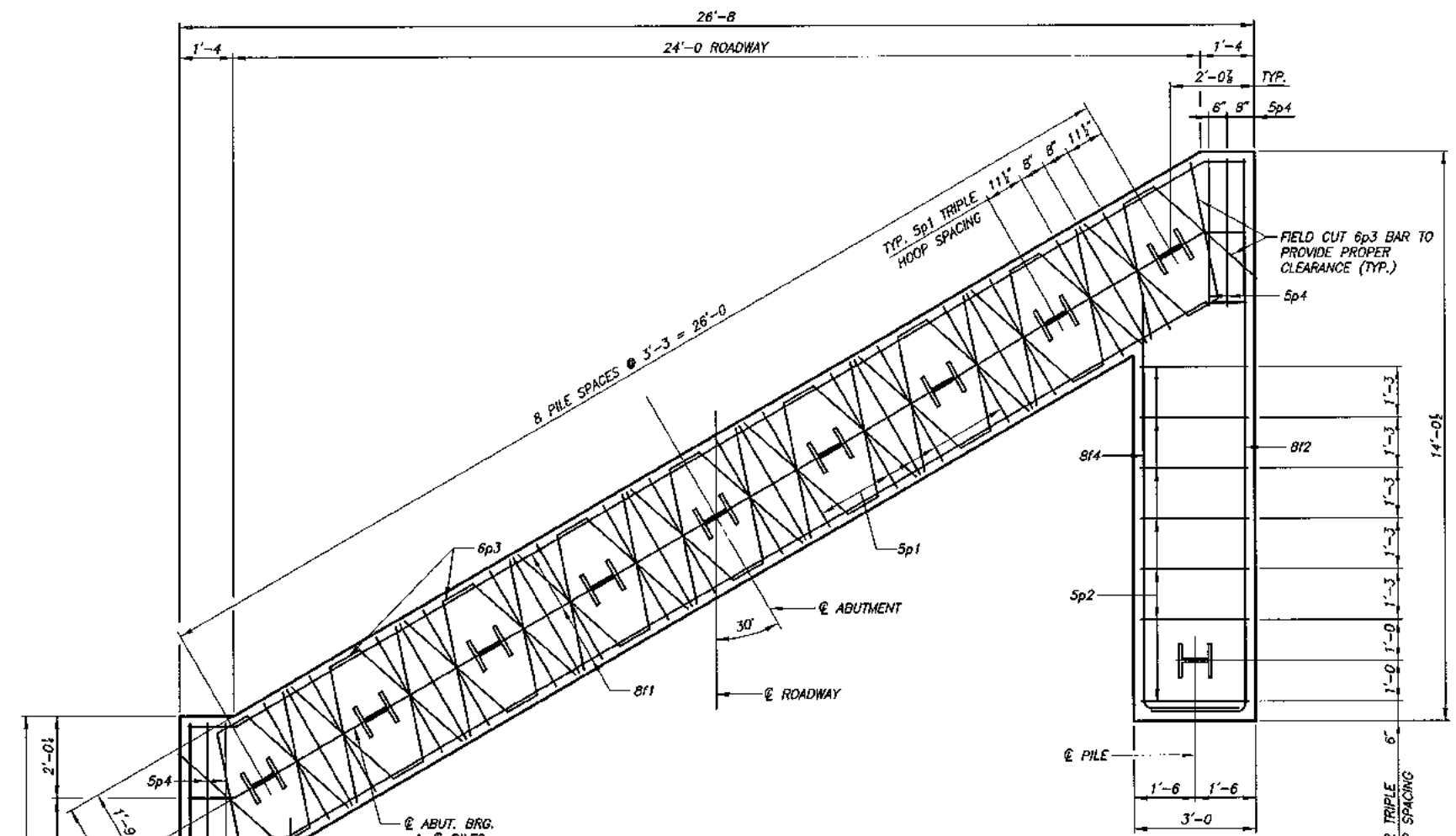
VIEW B-B

NOTE: ELEVATIONS AND VERTICAL DIMENSIONS SHOWN ARE AT OUTSIDE FACE.

139'-5 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
 139'-5 SINGLE SPAN INTEGRAL ABUTMENTS

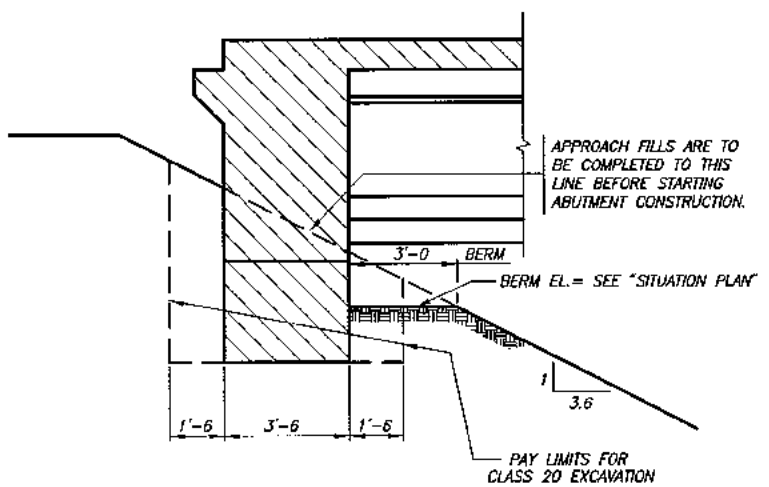
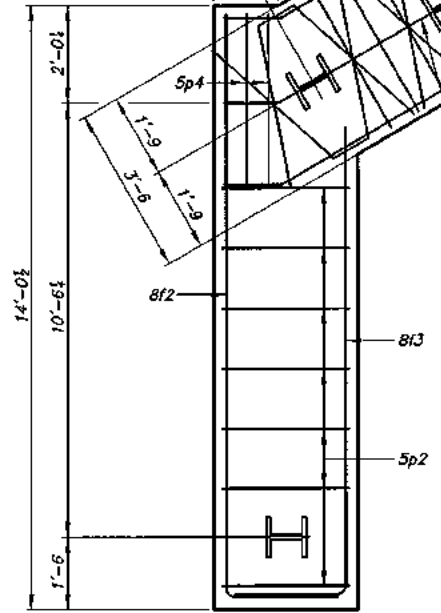
NORTH ABUTMENT DETAILS

STATION 15+45.00 30' SKEW, RT. AHEAD
 CRAWFORD COUNTY, IOWA



ABUTMENT FOOTING PLAN

NOTE: 11-HP10x57 STEEL BEARING PILING REQUIRED IN EACH ABUTMENT. SEE SHEETS 6 AND 7 FOR ABUTMENT DETAILS.



ABUTMENT EXCAVATION DETAIL

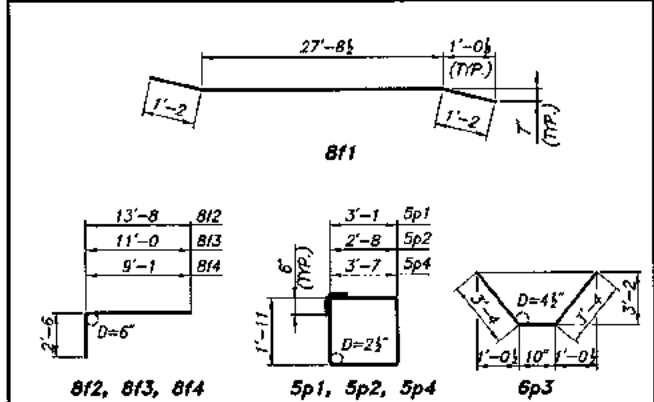
ABUTMENT NOTES

ALL EXPOSED CORNERS 90 DEGREES OR SHARPER ARE TO BE FILLETED WITH 3/4" DRESSED AND BEVELED STRIP.
 REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE BEFORE CONCRETE IS POURED.
 MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.
 CONSTRUCTION JOINT KEYWAYS ARE TO BE FORMED WITH BEVELED 2"x8"s, UNLESS OTHERWISE NOTED.
 HP10x57 STEEL BEARING PILING SHALL BE DRIVEN TO FULL PENETRATION, IF PRACTICABLE, AND NOT LESS THAN 47 TONS BEARING VALUE PER PILE.

REINFORCING BAR LIST - ONE ABUTMENT

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
Bf1	ABUT. FOOTING, LONGITUDINAL	—	11	30'-1	884
Bf2	ABUT. EXTENSION, LONGITUDINAL	—	10	16'-2	432
Bf3	ABUT. EXTENSION, LONGITUDINAL	—	5	13'-6	180
Bf4	ABUT. EXTENSION, LONGITUDINAL	—	5	11'-7	155
8g1	ABUT. VERTICAL, BOTH FACES	—	54	10'-6	1,514
6g3	ABUT. DIAPHRAGM, WING EXT., VERT.	—	40	8'-4	501
5h1	ABUT. WING, HORIZONTAL	—	32	6'-8	223
5h2	ABUT. TO WING, DOWELS	—	4	3'-11	16
5p1	ABUT. HOOPS	□	72	11'-0	826
5p2	ABUT. EXTENSION, HOOPS	□	42	10'-2	446
6p3	ABUT. BOTTOM, AT PILES	—	18	7'-6	203
5p4	ABUT. HOOPS, ENDS	□	12	12'-0	150
5a1	WING, VERTICAL	—	28	SHOWN	152
	PILE SPIRAL - #2 BAR	—	11	35'-6	71
	SPIRAL SPACERS - L 1x2x1	—	22	1'-10	28
TOTAL (LBS.)					5,781

BENT BAR DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER.

CONCRETE PLACEMENT QUANT.-TWO ABUTS.

LOCATION	UNIT	QUANTITY
FOOTING AND STEPS (25.6 S., 25.3 N.)	CU.YDS.	50.9
WINGS 4 @ 1.92	CU.YDS.	7.7
TOTAL	CU.YDS.	58.6

ESTIMATED QUANTITIES - TWO ABUTMENTS

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE (BRIDGE)	CU.YDS.	58.6
REINFORCING STEEL	LBS.	11,562
HP10 x 57 STEEL FURNISH (22 @ 85')	LIN.FT.	1,870
BEARING PILING DRIVE (22 @ 85')	LIN.FT.	1,870
PREBORED HOLES (22 @ 10')	LIN.FT.	220
EXCAVATION, CLASS 20	CU.YDS.	110

139'-5 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

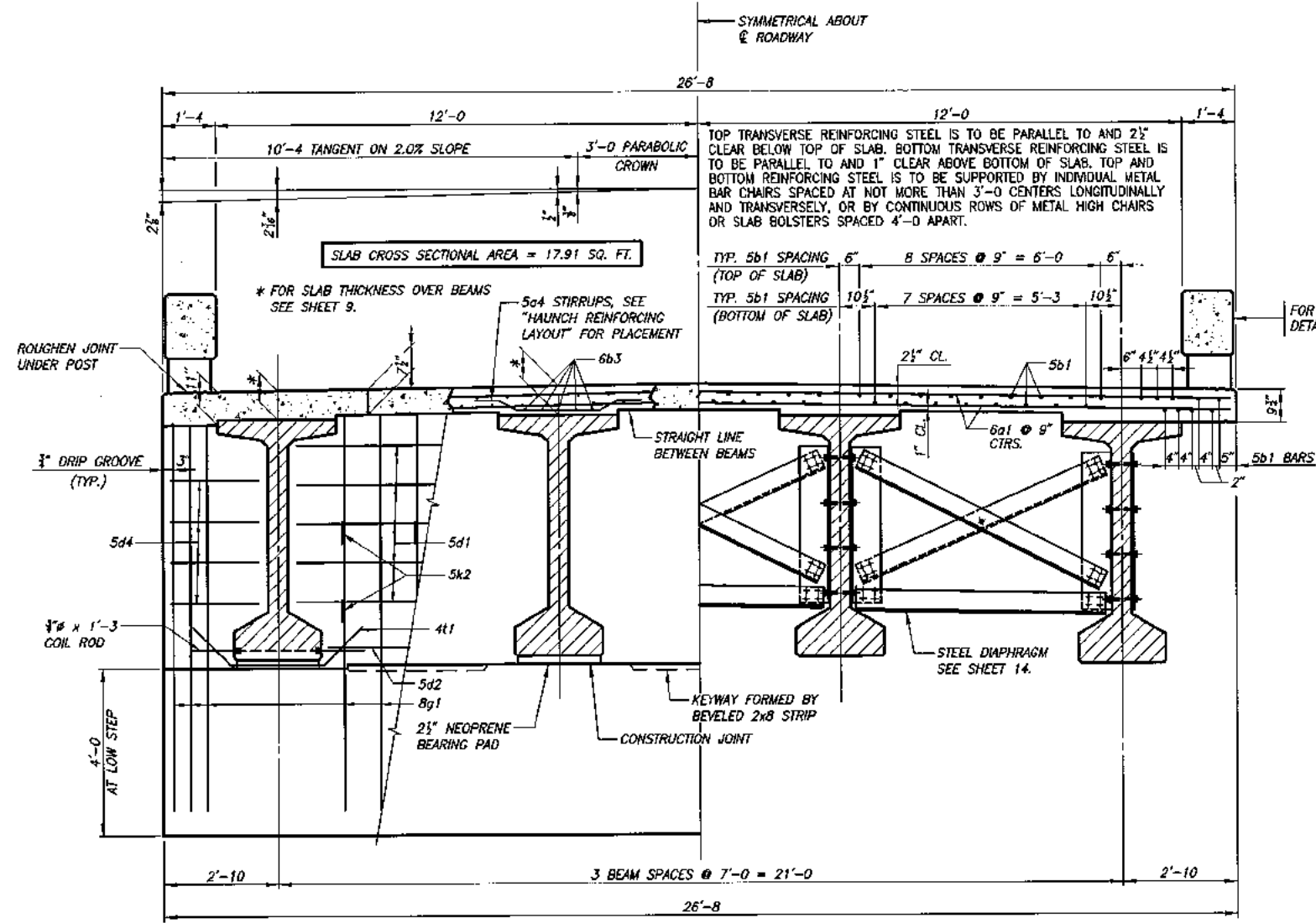
139'-5 SINGLE SPAN INTEGRAL ABUTMENTS

ABUTMENT DETAILS

STATION 15+45.00 30' SKEW, RT. AHEAD
 CRAWFORD COUNTY, IOWA

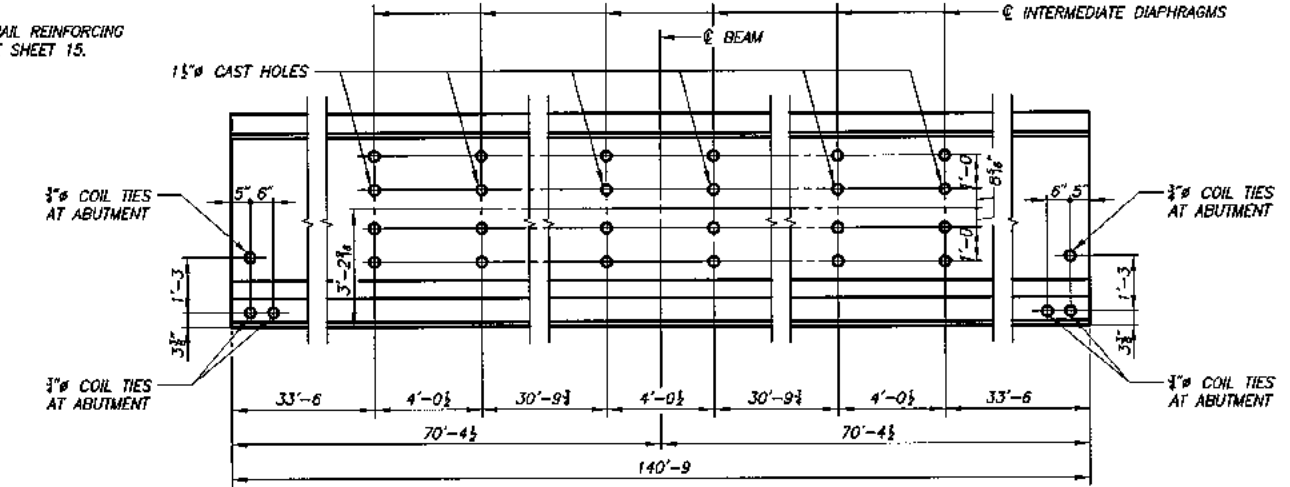
SUPERSTRUCTURE NOTES

THIS BRIDGE IS DESIGNED FOR HS20-44 LOADING PLUS 20 LBS. PER SQ. FT. OF ROADWAY FOR FUTURE WEARING SURFACE.
 SLAB THICKNESS INCLUDES 1" INTEGRAL WEARING SURFACE.
 ALL EXPOSED CORNERS OF 90° OR SHARPER ARE TO BE FORMED WITH 3/4" DRESSED AND BEVELED STRIP. CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR SHALL BE 2" UNLESS OTHERWISE NOTED OR SHOWN. ALL REINFORCING BARS ARE TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS PLACED.
 ALL BEAMS ARE TO BE SET VERTICAL.
 FORMS FOR THE SLAB AND RAILS ARE TO BE SUPPORTED BY THE PRESTRESSED BEAMS.
 ALL REINFORCING STEEL IS TO BE GRADE 60, EXCEPT FOR PRESTRESSED BEAMS.
 COIL RODS AND COIL TIES ARE INCIDENTAL TO THE COST OF BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BT140.
 THE ABUTMENT DIAPHRAGM CONCRETE IS TO BE PLACED MONOLITHICALLY WITH THE FLOOR SLAB.
 COST OF BEARING MATERIAL AT ABUTMENTS SHALL BE INCLUDED IN THE PRICE BID FOR "BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BT140".
 THE COST OF INTERMEDIATE DIAPHRAGMS IS INCLUDED IN THE PRICE BID FOR "STRUCTURAL STEEL".

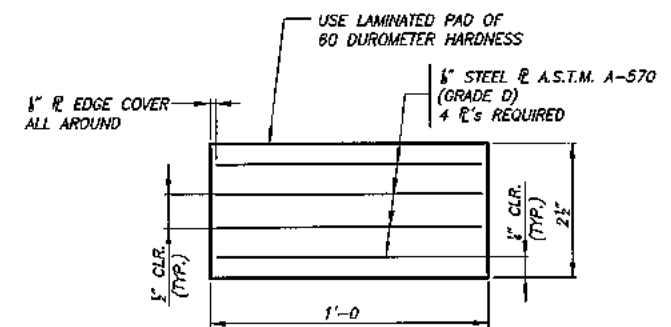


HALF SECTION NEAR ABUTMENT

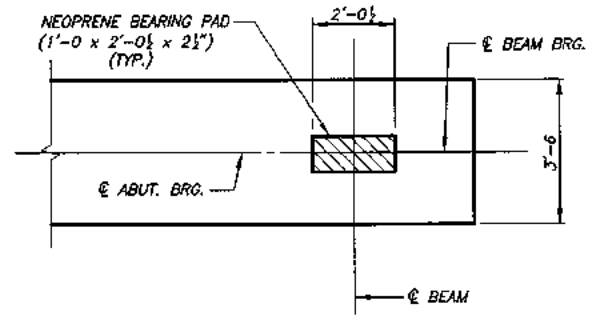
HALF SECTION NEAR MID SPAN



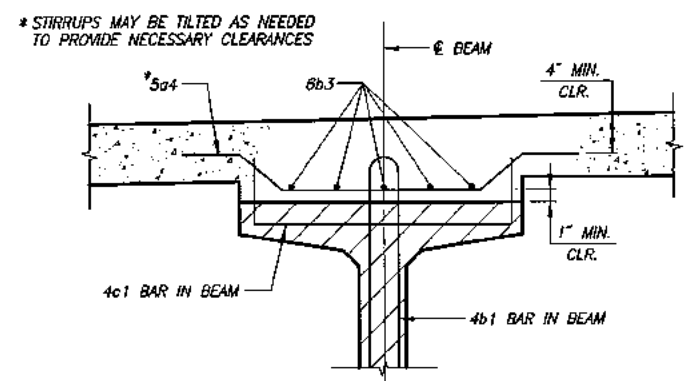
BT140
 BEAM COIL TIE AND
 BOLT HOLE LOCATIONS



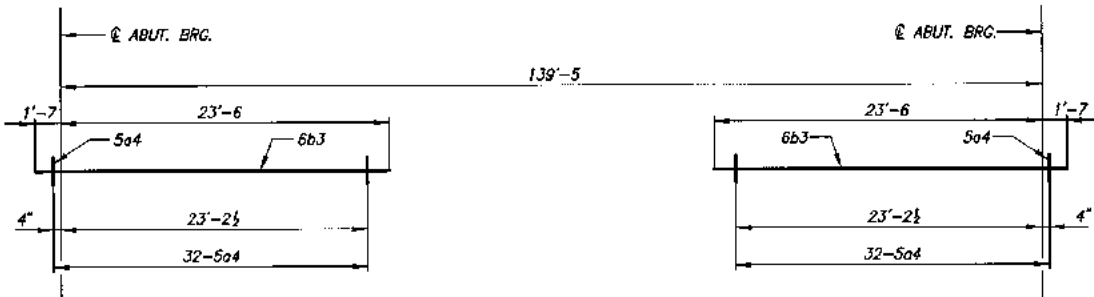
NEOPRENE BEARING PAD
 ELEVATION
 REQUIRED AT BOTH ABUTMENTS
 (8 TOTAL)



PART PLAN AT ABUTMENT



SECTION THRU SLAB HAUNCH
 TYPICAL EACH BEAM LINE WHERE HAUNCH EXCEEDS 2 1/2".
 SEE "HAUNCH REINFORCING LAYOUT" FOR PLACEMENT LOCATIONS.



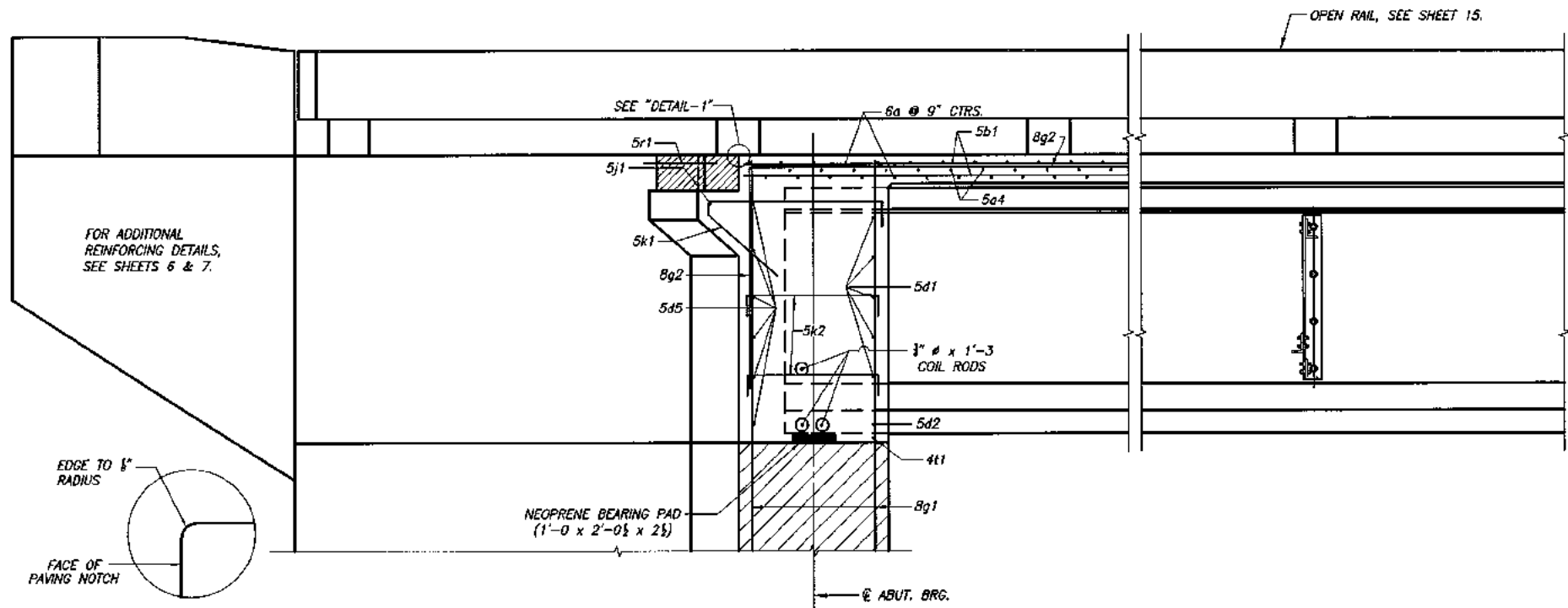
HAUNCH REINFORCING LAYOUT
 (TYPICAL EACH BEAM)

NOTE: 1-5a4 BAR IS TO BE PLACED ADJACENT TO EACH #4 BEAM TIE BAR (4b1 BARS OF BEAMS) THAT EXTEND FROM THE BEAMS INTO SLAB IN THE AREA SHOWN.

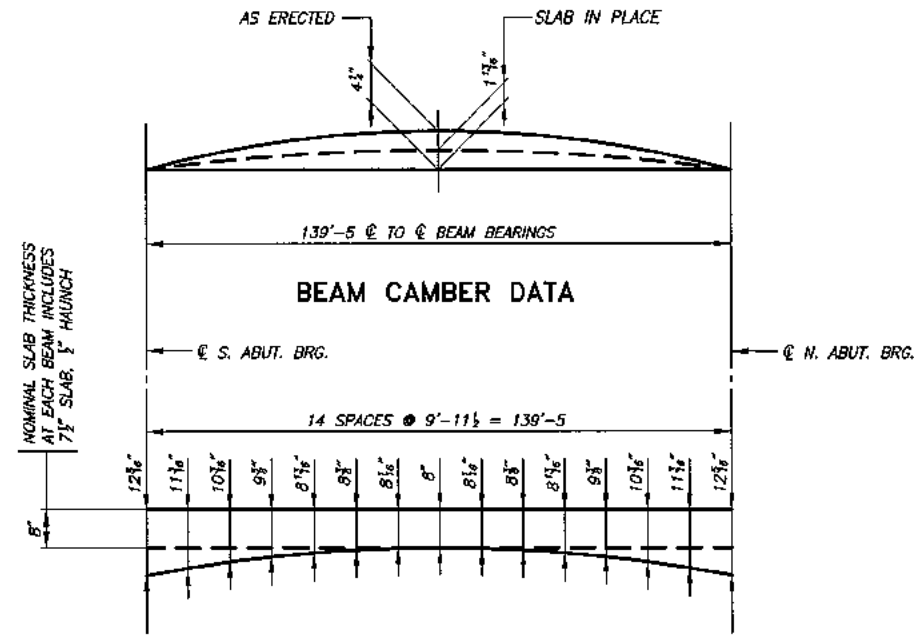
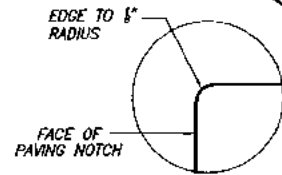
139'-5 x 24'-0 PRETENSIONED PRESTRESSED
 CONCRETE BEAM BRIDGE
 139'-5 SINGLE SPAN INTEGRAL ABUTMENTS

SUPERSTRUCTURE DETAILS

STATION 15+45.00 30° SKEW, RT. AHEAD
 CRAWFORD COUNTY, IOWA

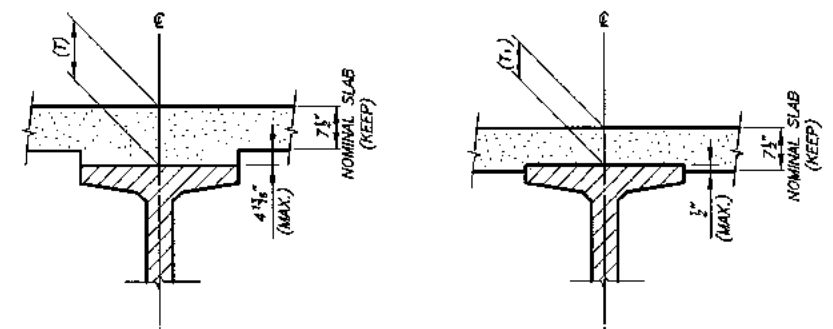


FOR ADDITIONAL REINFORCING DETAILS, SEE SHEETS 6 & 7.



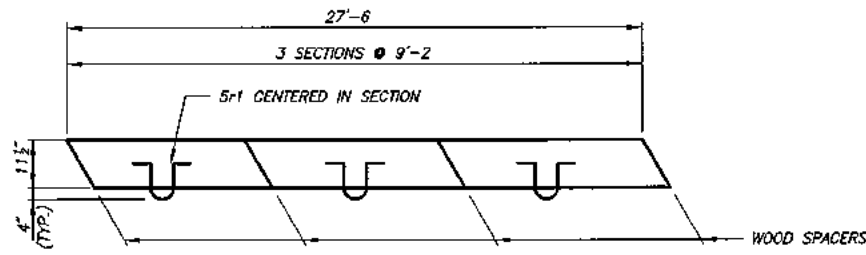
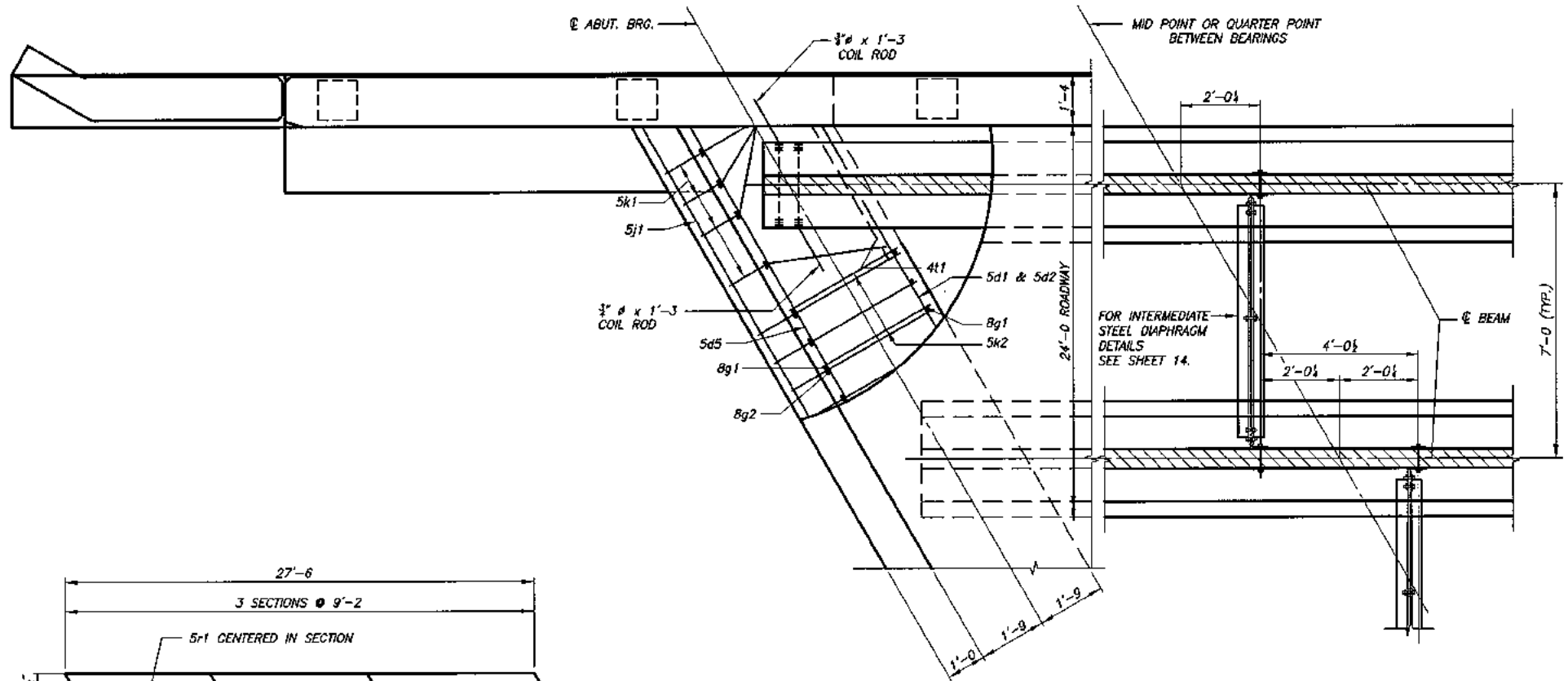
SLAB THICKNESS AT BEAM (T)

NOTE: HAUNCH THICKNESSES ARE SHOWN FOR ESTIMATING ONLY AND ARE NOT GUARANTEED FOR CONSTRUCTION.



SLAB THICKNESS DETAILS

NOTE: THE SLAB THICKNESS (T) AT BEAMS IS BASED ON THE ANTICIPATED BEAM CAMBER REMAINING AFTER PLACING THE SLAB, BUT IS NOT GUARANTEED FOR CONSTRUCTION. IF BEAM IS UNDER CAMBERED, INCREASE SLAB THICKNESS (T) AT BEAMS TO COMPENSATE. IF BEAM IS OVER CAMBERED, THE SLAB THICKNESS (T) MAY BE DECREASED A MAXIMUM OF 1/2" EMBEDMENT AT THE BEAM (T1). IF MORE THAN 1/2" EMBEDMENT IS REQUIRED, OR IF THE HAUNCH EXCEEDS 4 1/2", THE GRADE LINE IS TO BE REVISED. THE ABOVE DIAGRAMS DO NOT APPLY TO THE CANTILEVERED SLAB SIDE OF THE EXTERIOR BEAM.



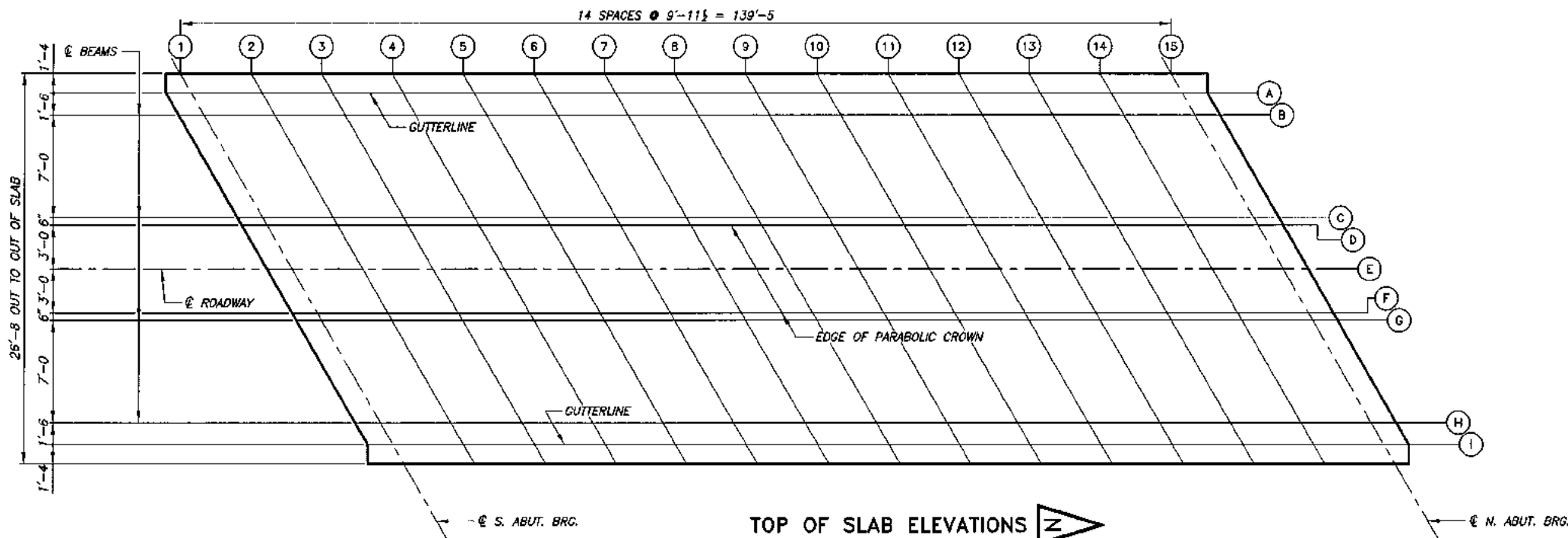
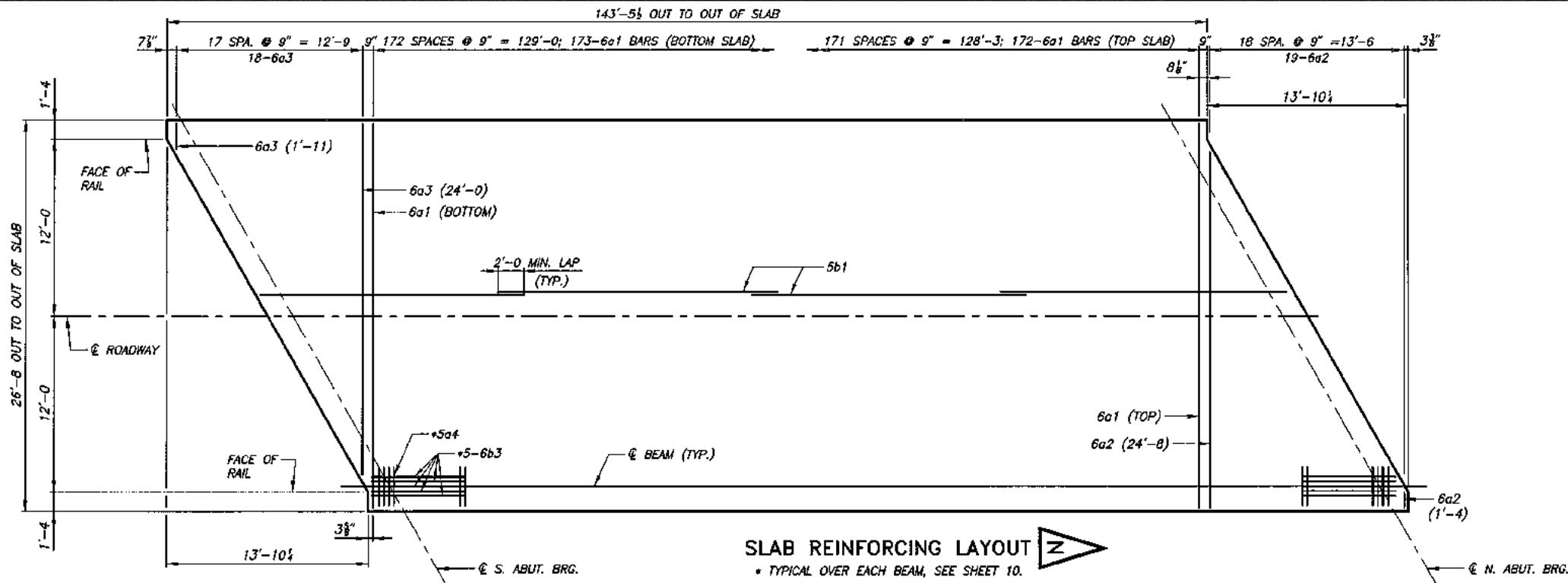
PLAN OF TEMPORARY PAVING BLOCK

NOTE: LINE PAVING NOTCH WITH TAR PAPER BEFORE PLACING THE TEMPORARY PAVING BLOCK.

139'-5 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
 139'-5 SINGLE SPAN INTEGRAL ABUTMENTS

SUPERSTRUCTURE DETAILS

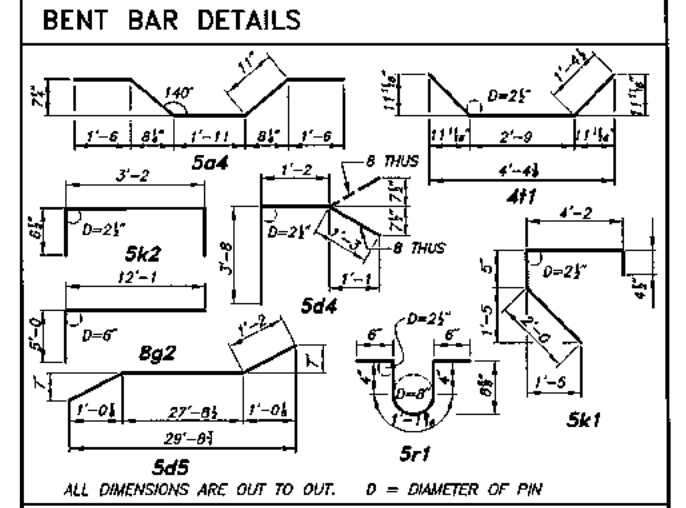
STATION 15+45.00 30' SKEW, RT. AHEAD
 CRAWFORD COUNTY, IOWA



LOCATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	LOCATION
A	287.31	287.20	287.11	287.02	286.94	286.87	286.80	286.75	286.70	286.66	286.63	286.61	286.60	286.60	286.60	A
B	287.33	287.22	287.13	287.04	286.96	286.89	286.83	286.77	286.73	286.69	286.66	286.64	286.63	286.63	286.63	B
C	287.42	287.32	287.23	287.15	287.07	287.00	286.94	286.89	286.85	286.82	286.79	286.78	286.77	286.77	286.78	C
D	287.40	287.30	287.21	287.13	287.05	286.99	286.93	286.89	286.85	286.82	286.80	286.78	286.78	286.78	286.79	D
E	287.44	287.34	287.25	287.17	287.10	287.03	286.97	286.92	286.88	286.85	286.83	286.81	286.81	286.81	286.82	E
F	287.40	287.30	287.21	287.13	287.05	286.99	286.93	286.89	286.85	286.82	286.80	286.78	286.78	286.78	286.79	F
G	287.38	287.28	287.20	287.11	287.04	286.98	286.92	286.88	286.84	286.81	286.79	286.77	286.77	286.77	286.78	G
H	287.20	287.11	287.02	286.94	286.87	286.81	286.76	286.72	286.68	286.66	286.64	286.63	286.63	286.64	286.65	H
I	287.15	287.07	286.98	286.91	286.84	286.78	286.73	286.69	286.65	286.63	286.61	286.60	286.60	286.61	286.62	I

BENCH MARK 1A: RAILROAD SPIKE IN SOUTH GATE POST, SOUTH OF BRIDGE, EAST SIDE OF COUNTY ROAD, STA. 14+19.37, 34.6 RT., ELEV. = 293.84
 BENCH MARK 2A: RAILROAD SPIKE IN POWER POLE, NORTH SIDE OF BRIDGE, WEST SIDE OF COUNTY ROAD, STA. 16+34.08, 43.31' LT., ELEV. = 288.51

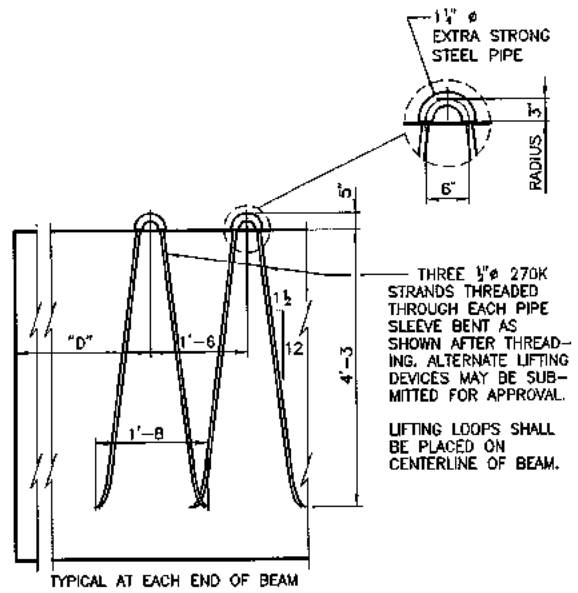
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a1	SLAB, TRANSVERSE, TOP & BOIT.	—	345	26'-4"	13,645
6a2	SLAB, TRANSVERSE, TOP	—	38	VARIES	742
6a3	SLAB, TRANSVERSE, BOTTOM	—	36	VARIES	701
5a4	SLAB, HAUNCH, TRANSVERSE	~	256	6'-9"	1,802
5b1	SLAB, LONGIT., TOP & BOTTOM	—	276	37'-4"	10,747
6b3	SLAB, HAUNCH, LONGITUDINAL	—	40	25'-1"	1,507
5d1	ABUT. DIAPHRAGM, LONGITUDINAL	—	30	7'-1"	222
5d2	ABUT. DIAPHRAGM, LONGITUDINAL	—	6	5'-2"	32
5d4	ABUTMENT DIAPHRAGM, ENDS	~	16	6'-1"	102
5d5	ABUT. DIAPHRAGM, LONGITUDINAL	—	12	30'-1"	377
5d7	ABUT. DIAPH. WING EXT., LONGIT.	—	56	15'-2"	886
8g2	ABUTMENT, VERTICAL, BACK FACE	—	54	17'-1"	2,463
5j1	PAVING NOTCH, LONGITUDINAL	—	2	30'-4"	63
5k1	PAVING NOTCH, TRANSVERSE	~	54	7'-0"	394
5k2	ABUTMENT TIES	—	36	4'-3"	160
5r1	PAVING BLOCK, LIFTING LOOP	~	6	2'-10"	18
4t1	ABUT., DIAPH., HORIZ., FRONT FACE	~	8	5'-6"	29
OPEN RAIL, SEE SHEET 15.					9,678
TOTAL (LBS.)					43,568



LOCATION	QUANTITY
SLAB AND DIAPHRAGMS	151.6
WING EXTENSIONS (4 @ 3.5 CU. YDS.)	14.0
PAVING BLOCKS (2 @ 0.98)	2.0
TOTAL (CU. YDS.)	167.6

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE (BRIDGE)	CU. YDS.	167.6
REINFORCING STEEL	LBS.	43,568
BEAMS, PRET. PREST. CONC. - BT140	EACH	4
STRUCTURAL STEEL	LBS.	4,330

139'-5 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
 139'-5 SINGLE SPAN INTEGRAL ABUTMENTS
 SUPERSTRUCTURE DETAILS
 STATION 15+45.00 30° SKEW, RT. AHEAD
 CRAWFORD COUNTY, IOWA

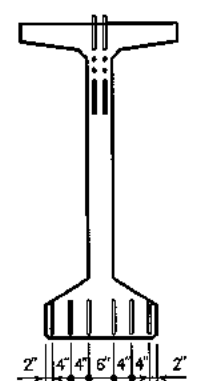


THREE 3/8" 270K STRANDS THREADED THROUGH EACH PIPE SLEEVE BENT AS SHOWN AFTER THREADING. ALTERNATE LIFTING DEVICES MAY BE SUBMITTED FOR APPROVAL.

LIFTING LOOPS SHALL BE PLACED ON CENTERLINE OF BEAM.

LIFTING LOOP DETAIL

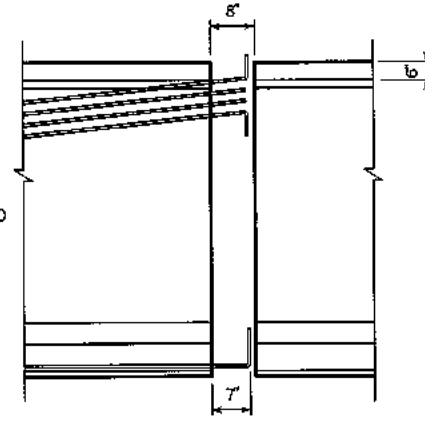
"D" = 3'-11" FOR BT120
 "D" = 4'-1" FOR BT125
 "D" = 4'-4" FOR BT130
 "D" = 6'-0" FOR BT135
 "D" = 8'-6" FOR BT140



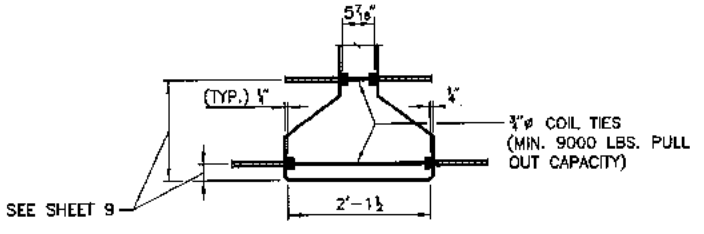
THE TOP AND BOTTOM ROWS OF THE TOP DEFLECTED STRANDS ARE TO BE CUT WITH 1'-6" PROJECTIONS WHICH ARE TO BE SHOP BENT AS SHOWN. THE REMAINING TOP DEFLECTED STRANDS ARE TO BE CUT WITH 0'-7" PROJECTIONS.

SIX BOTTOM STRANDS ARE TO BE CUT WITH 1'-6" PROJECTIONS WHICH ARE TO BE SHOP BENT AS SHOWN. THE REMAINING BOTTOM STRANDS ARE TO BE CUT OFF REASONABLY FLUSH WITH THE CONCRETE.

STRAND PROJECTION AT BEAM ENDS WHEN EMBEDDED IN CONCRETE END DIAPHRAGMS



NUMBER AND EXACT LOCATION OF COIL TIES TO BE AS DETAILED ON SPECIFIC BRIDGE DESIGN.



COIL TIE DETAIL

SPECIFICATIONS:

CONSTRUCTION: STANDARD SPECIFICATIONS OF THE IOWA DEPARTMENT OF TRANSPORTATION, CURRENT SERIES, WITH CURRENT APPLICABLE SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS.

DESIGN: A.A.S.H.T.O., SERIES OF 1992, WITH MINOR MODIFICATIONS.

MATERIAL SPECIFICATIONS, COARSE AGGREGATE: COARSE AGGREGATE USED IN THE CONCRETE FOR THE BEAMS SHALL MEET CLASS III DURABILITY REQUIREMENTS PER SECTION 4115.04 OF THE IOWA DOT STANDARD SPECIFICATIONS.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE TO BE IN ACCORDANCE WITH A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1992:

REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60.

CONCRETE IN ACCORDANCE WITH SECTION 9, $f_c = 7500$ PSI.

PRESTRESSING STEEL IN ACCORDANCE WITH SECTION 9, $f_s = 270,000$ PSI.

BT BEAM DATA

BEAM	SPAN LENGTH @ BEARING	OVERALL BEAM LENGTH (L)	STRAND SIZE, DIA. (IN.)	NO. OF STRANDS		TOTAL INITIAL PRESTRESS KIPS ③	HOLD DOWN FORCE-KIPS	CAMBER (IN.)		DEFLECTION (IN.) Δ_D				PERMISSIBLE MAX. SPACING		WEIGHT (TONS)	CONCRETE (C.Y.)	REINFORCING STEEL-(LBS.)	
				STRAIGHT	DEFLECTED			AT RELEASE	AFTER LOSSES	IMMEDIATE ① (ELASTIC) Δ_{E1}		TIME ② (PLASTIC) Δ_{E2}		HS20 LOADING	CONC. STEEL DIAPH.				STEEL DIAPH.
										CONC. DIAPH.	STEEL DIAPH.	CONC. DIAPH.	STEEL DIAPH.						
BT120	119'-9"	121'-1"	1/2"	24	10	1149.8	33.6	1.38	2.37	1.42	0.38			7'-6"	49.7	24.8	2899		
BT125	124'-8"	126'-0"	1/2"	26	12	1265.1	37.2	1.61	2.81	1.65	0.41			7'-6"	51.7	25.5	2896		
BT130	129'-7"	130'-11"	1/2"	28	12	1352.7	35.9	1.79	3.11	1.91	0.46			7'-6"	53.8	26.5	3095		
BT135	134'-6"	135'-10"	1/2"	32	12	1488.0	34.8	2.15	3.78	2.20	0.55			7'-6"	55.8	27.5	3224		
BT140	139'-5"	140'-9"	1/2"	34	14	1623.2	37.4	2.43	4.24	2.52	0.63	0.56		7'-6"	57.8	28.5	3321		

- ① DEFLECTIONS AT MID-SPAN DUE TO WEIGHT OF SLAB AND DIAPHRAGM. THE DEFLECTIONS SHOWN ARE FOR A SLAB AND HAUNCH WEIGHT OF 775 LBS./FT. (8" SLAB, 1" HAUNCH AND 7'-6" BEAM SPACING) AND THREE CONCRETE DIAPHRAGMS (4345 LBS. EACH) AT 1/2 OF SPAN AND AT EACH 1/4 POINT. FOR DIFFERENT SLAB AND DIAPHRAGM WEIGHTS, DEFLECTIONS WILL BE DIRECTLY PROPORTIONAL.
- ② DEFLECTIONS DUE TO THE COMBINED EFFECT OF CREEP DUE TO WEIGHT OF SLAB AND SHRINKAGE OF SLAB.
- TOTAL BEAM DEFLECTIONS AT 1/2 OF SPAN, Δ_D , DUE TO WEIGHT OF SLAB AND DIAPHRAGMS FOR DETAILING PURPOSE:
- (A) $\Delta_D = \Delta_1 + \Delta_2$ FOR SIMPLE SPAN.
- (B) $\Delta_D = \Delta_1 + \frac{1}{2} \Delta_2$ FOR END SPANS OF CONTINUOUS BRIDGE.
- (C) $\Delta_D = \Delta_1 + \frac{1}{4} \Delta_2$ FOR INTERIOR SPANS OF CONTINUOUS BRIDGE.
- ③ TOTAL INITIAL PRESTRESS IS BASED ON 75% f_s AND $A_s = 0.167$ SQ. IN.

NOTES:

THESE BEAMS ARE DESIGNED FOR AASHTO LIVE LOADS AS INDICATED IN ABOVE TABLE WITH AN ALLOWANCE OF 20 LBS. PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE.

HOLD DOWN POINTS FOR DEFLECTED STRANDS MAY BE MOVED TOWARD ENDS OF BEAM A DISTANCE OF 0.05 L MAXIMUM AT PRODUCER'S OPTION.

ALL PRESTRESSING STRANDS SHALL BE 1/2" DIAMETER (NOMINAL STEEL AREA = 0.167 IN²) AND CONFORM TO ASTM A418 GRADE 270 LOW RELAXATION STRANDS. MINIMUM STRAND BREAKING STRENGTH SHALL BE 45,100 LBS.

TOPS OF BEAMS ARE TO BE STRUCK OFF LEVEL AND INTENTIONALLY ROUGHENED TRANSVERSELY TO A FULL AMPLITUDE OF APPROXIMATELY 1/8 INCH.

BEARINGS SHALL BE AS DETAILED ON OTHER DESIGN SHEETS.

BEAMS TO BE USED IN BRIDGES MADE CONTINUOUS BY THE POURED IN PLACE FLOOR, ARE TO BE AT LEAST 28 DAYS OLD BEFORE THE FLOOR IS PLACED UNLESS A SHORTER CURING TIME IS APPROVED BY THE BRIDGE ENGINEER.

THE PORTIONS OF THE PRESTRESSED BEAMS THAT ARE TO BE EMBEDDED IN THE ABUTMENT AND PIER DIAPHRAGMS SHALL BE ROUGHENED FOR A DISTANCE OF 10" FROM THE BEAM END BY SANDBLASTING OR OTHER APPROVED METHODS TO PROVIDE SUITABLE BOND BETWEEN THE BEAM AND THE DIAPHRAGM IN ACCORDANCE WITH ARTICLE 2403.14 OF THE SPECIFICATIONS.

UNLESS OTHERWISE NOTED ALL BEAMS ARE TO BE INCREASED IN LENGTH BY .0005L TO COMPENSATE FOR ELASTIC SHORTENING, CREEP AND SHRINKAGE.

FOR TRANSPORTING, THE OVERHANG AT EITHER END SHALL NOT EXCEED 16 FEET.

THE CONTRACTOR SHALL ASSURE THE LATERAL STABILITY OF THE BEAMS DURING HANDLING, TRANSPORTING AND ERECTION BY PROVIDING TEMPORARY BRACING AS NEEDED.

NOTES:

IF THE STEEL DIAPHRAGM OPTION IS ALLOWED AND USED, HOLES MUST BE CAST IN THE WEB TO ACCOMMODATE THE STEEL DIAPHRAGM ATTACHMENTS AS DETAILED ON THE "STEEL DIAPHRAGM DETAILS", SHEET 14, AND "BEAM COIL TIE AND BOLT HOLE LOCATIONS" DETAIL, SHEET 9.

IF SOLE PLATE IS REQUIRED FOR BEARING, SOLE PLATE IS TO BE SET IN FORMS WHEN BEAM IS CAST AND FORMED OUT BELOW TO EXCLUDE CONCRETE AS DETAILED ON SHEET 13.

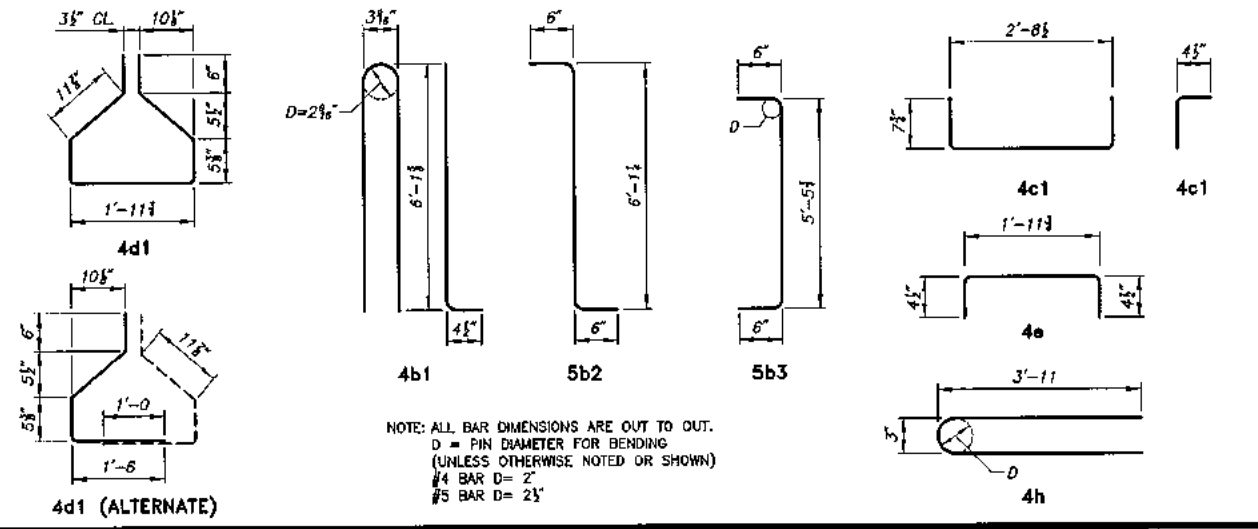
MINIMUM CONCRETE f_c (AT 28 DAYS) SHALL BE 7500 PSI. MINIMUM f_{ci} AT RELEASE SHALL BE 6000 PSI.

FOUR 1/2" DIAMETER STRANDS STRESSED TO NOT MORE THAN 4,000 LBS. EACH MAY BE USED IN LIEU OF BARS 5a1 AND 5a2 IN THE TOP FLANGE.

* 5b2 AND 5b3 BARS TO BE USED IN PAIRS

REINFORCING BAR LIST

BEAM	BT120	BT125	BT130	BT135	BT140							
BAR SHAPE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
5a1	12	40'-0"	12	40'-0"	12	40'-0"	12	40'-0"	12	40'-0"		
5a2	12	23'-8"	12	26'-2"	12	28'-7"	12	31'-1"	12	33'-6"		
4b1	97	13'-2"	101	13'-2"	105	13'-2"	111	13'-2"	115	13'-2"		
*5b2	20	7'-1"	20	7'-1"	20	7'-1"	20	7'-1"	20	7'-1"		
*5b3	20	6'-6"	20	6'-8"	20	6'-6"	20	6'-6"	20	8'-6"		
4c1	107	4'-9"	111	4'-9"	115	4'-9"	121	4'-9"	125	4'-9"		
4c2	60	2'-8"	62	2'-8"	64	2'-8"	66	2'-8"	68	2'-8"		
4d1	109	5'-10"	113	5'-10"	117	5'-10"	123	5'-10"	127	5'-10"		
4e	22	2'-9"	22	2'-9"	22	2'-9"	22	2'-9"	22	2'-9"		
4h	10	8'-0"	10	8'-0"	10	8'-0"	10	8'-0"	10	8'-0"		



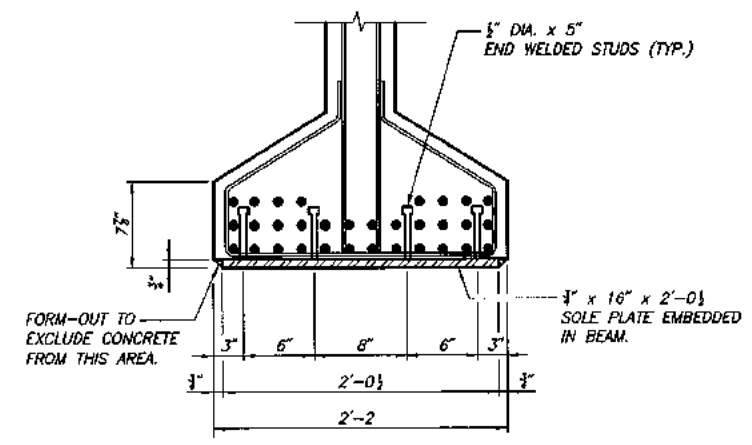
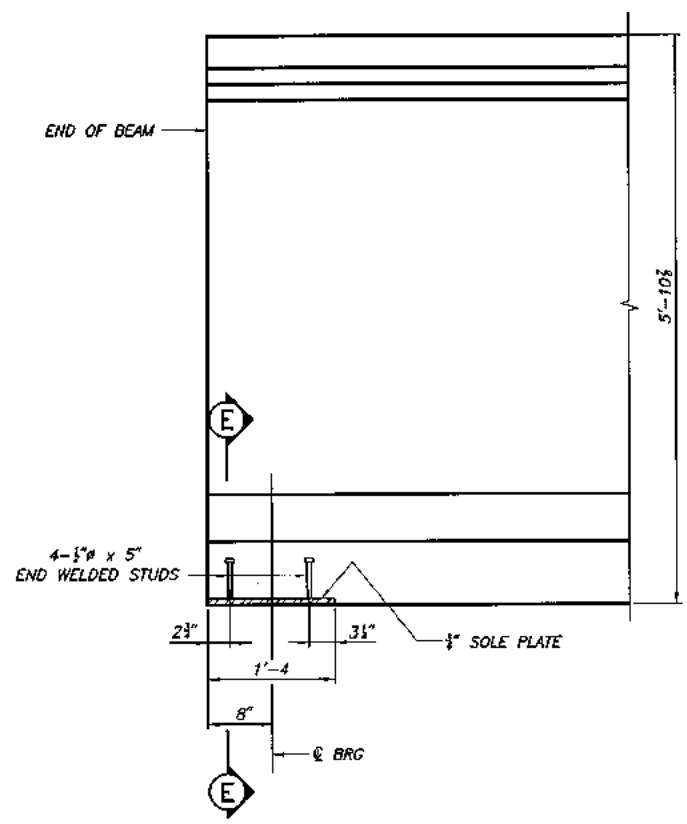
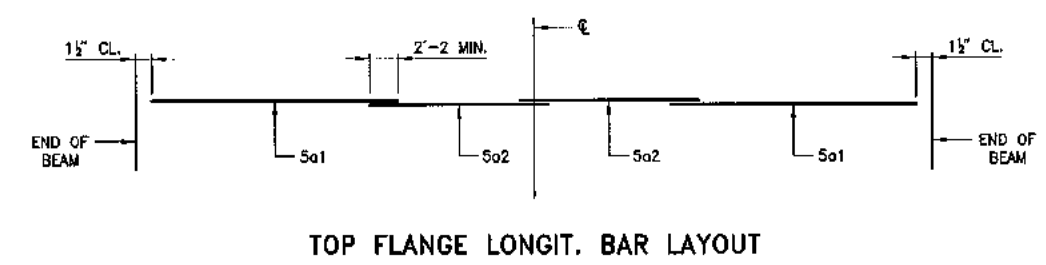
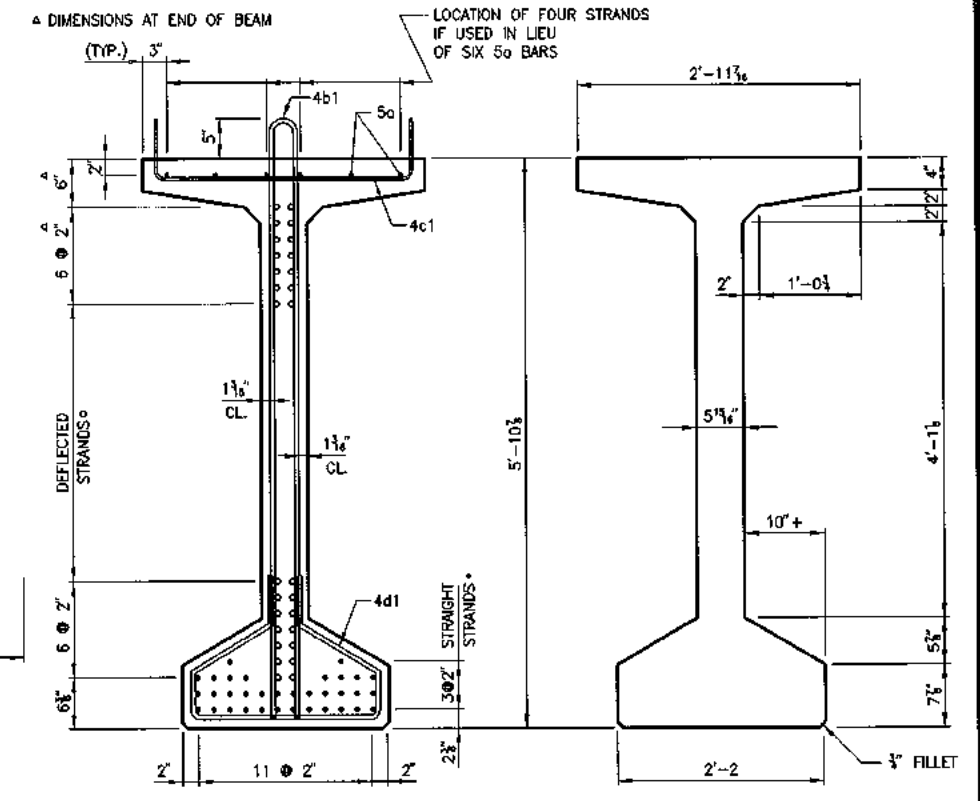
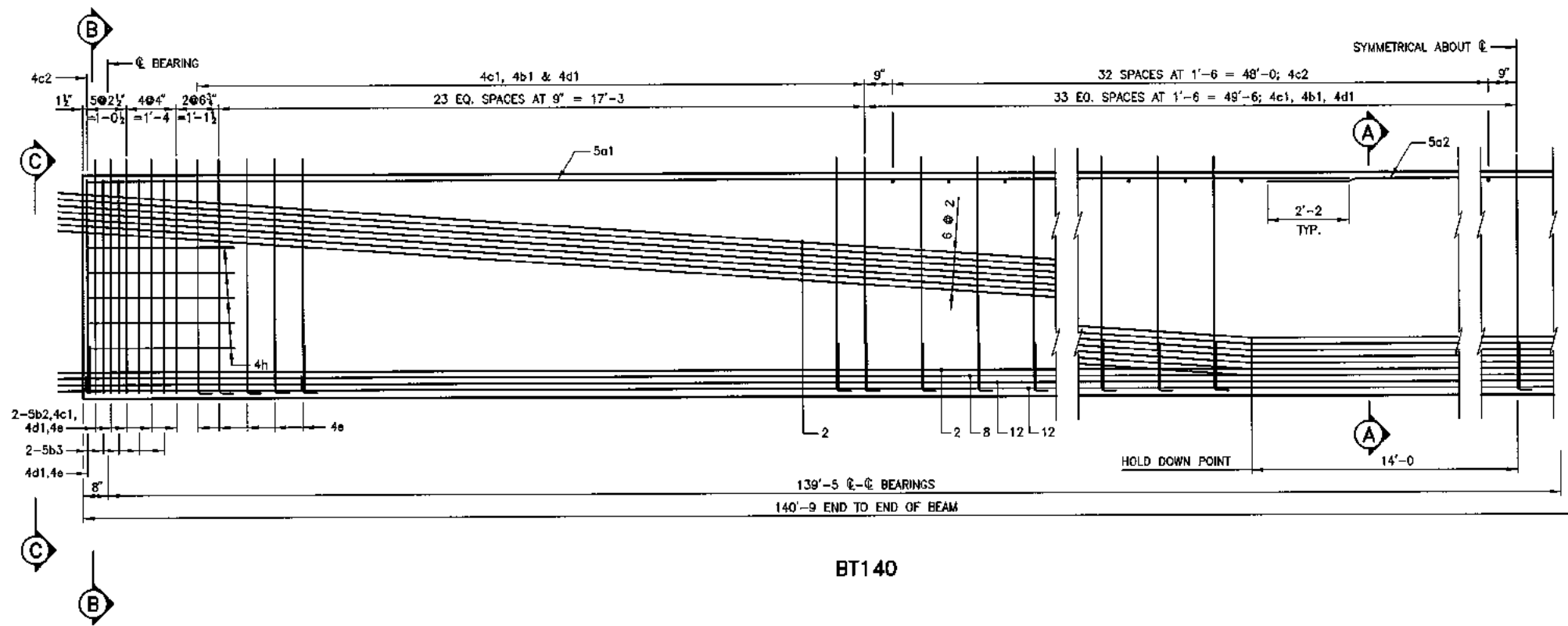
139'-5 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

139'-5 SINGLE SPAN INTEGRAL ABUTMENTS

BEAM DETAILS

STATION 15+45.00
 CRAWFORD COUNTY, IOWA

30' SKEW, RT. AHEAD



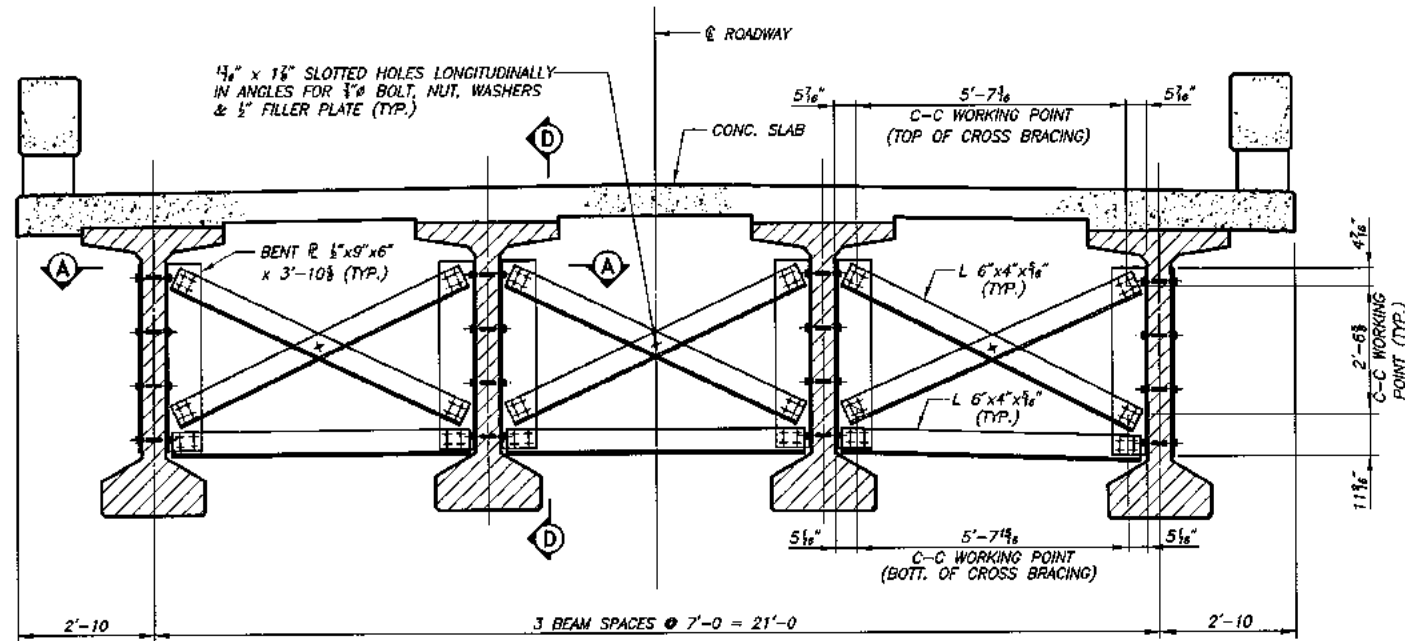
AREA = 788.33 IN²
 \bar{y}_b = 33.56 IN
 I = 533,012 IN⁴

BEAM SECTION PROPERTIES

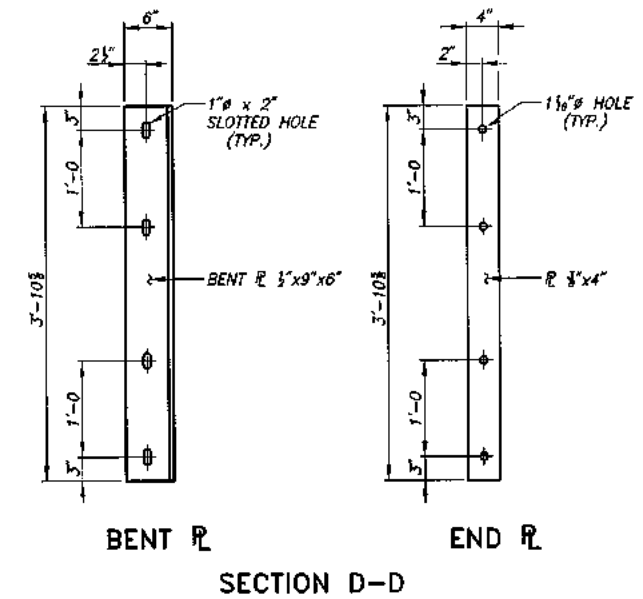
139'-5 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
 139'-5 SINGLE SPAN INTEGRAL ABUTMENTS

BEAM DETAILS

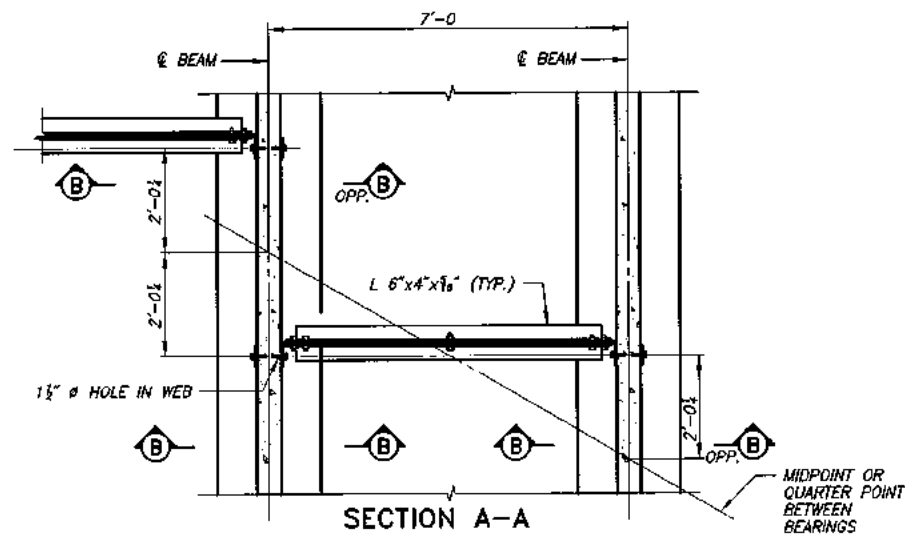
STATION 15+45.00 CRAWFORD COUNTY, IOWA
 30° SKEW, RT. AHEAD IOWA



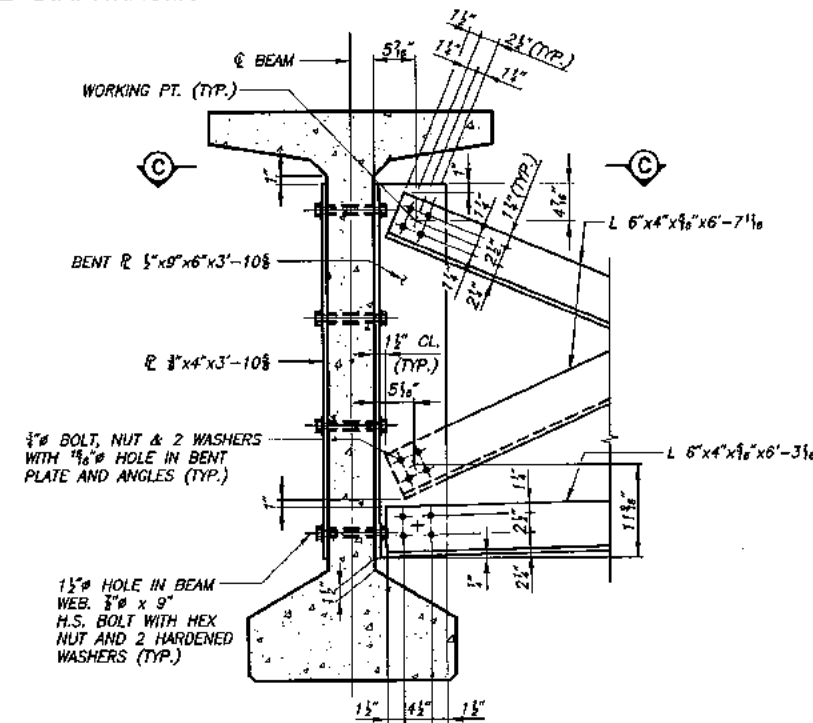
SECTION SHOWING INTERMEDIATE DIAPHRAGMS
(LOOKING NORTH)



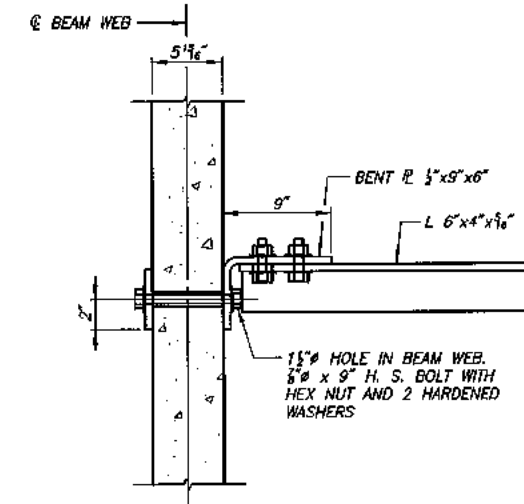
BENT PL END PL
SECTION D-D



SECTION A-A



SECTION B-B



SECTION C-C
LOWER CROSS BRACE AND
STRUT NOT SHOWN

NOTES

ALL DIAPHRAGM MATERIALS, INCLUDING BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

SHOP DRAWINGS SHOWING LAYOUT AND CONNECTION DETAILS OF THE DIAPHRAGMS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

THE 1 1/2" HOLES SHALL BE CAST INTO THE WEB WITH APPROVED SLEEVES. DRILLING IS NOT ALLOWED.

ALL BOLTS SHALL CONFORM TO ASTM A-325.

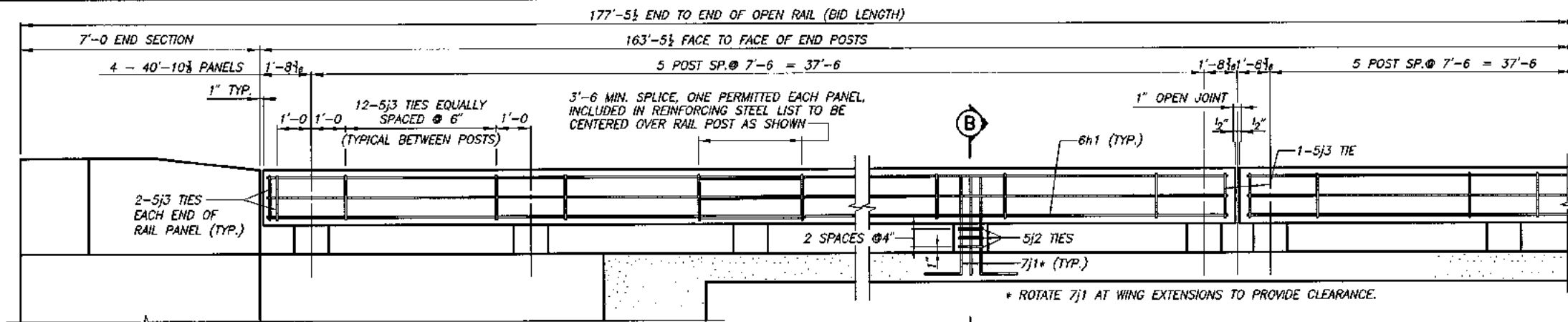
DIAPHRAGMS TO BE AT MIDSPAN AND 1/4 POINTS.

139'-5 x 24'-0 PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE
139'-5 SINGLE SPAN INTEGRAL ABUTMENTS

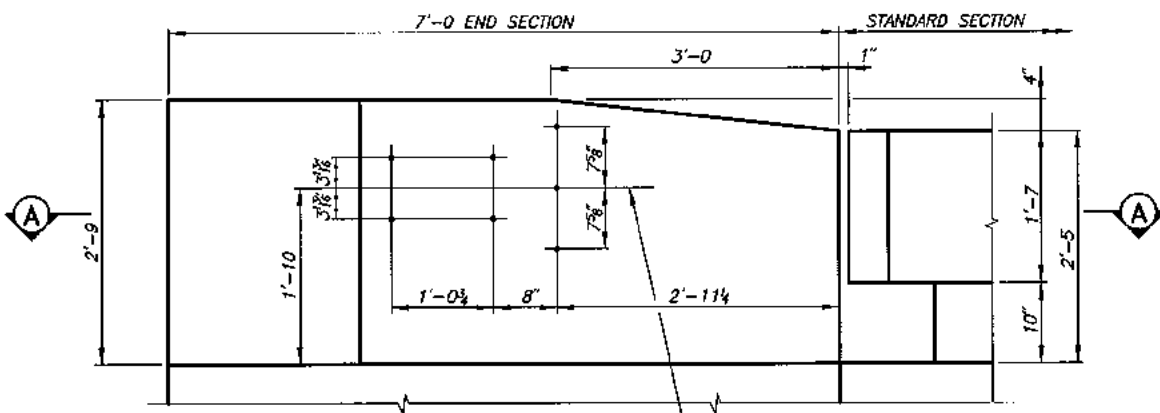
STEEL DIAPHRAGM DETAILS

STATION 15+45.00
CRAWFORD COUNTY,

30' SKEW, RT. AHEAD
IOWA

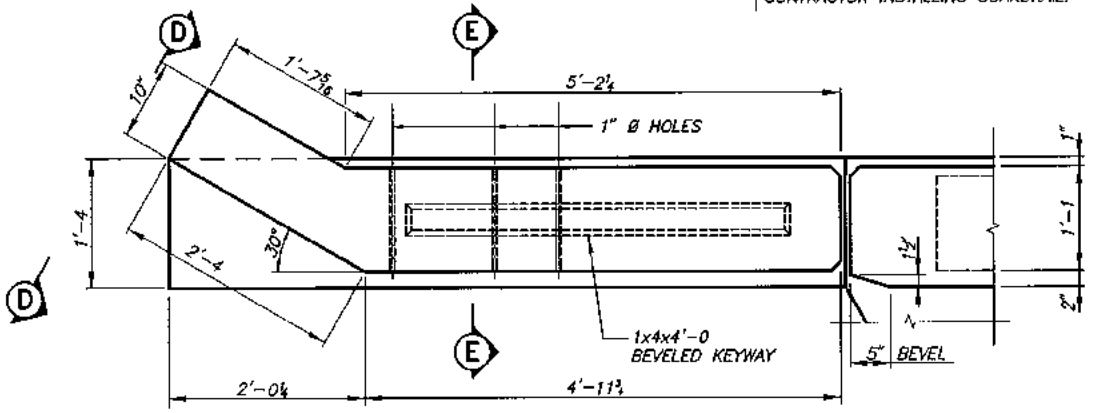


ELEVATION OF OPEN RAIL

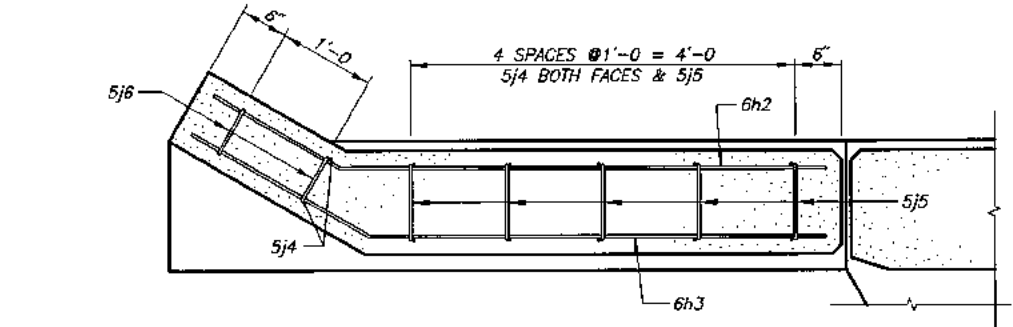


PART ELEVATION VIEW

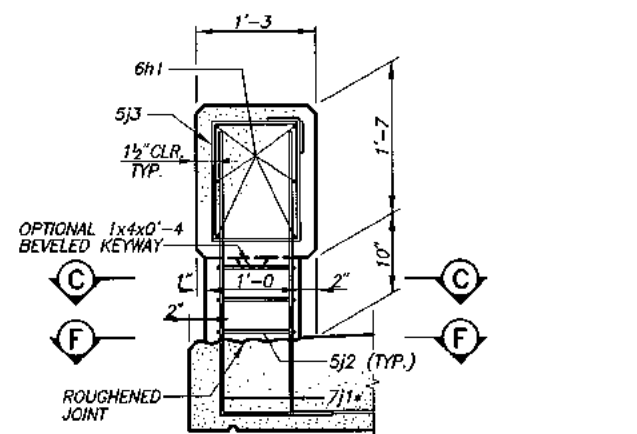
HOLES FOR 7/8" Ø BOLTS ARE TO BE FORMED WITH 1" Ø (NOMINAL I.D.) PLASTIC CONDUIT SLEEVES. THE SLEEVES SHALL BE SECURELY FIXED IN EXACT LOCATION AS SHOWN BEFORE CONCRETE IS POURED. COST OF SLEEVES TO BE INCLUDED IN PRICE BID FOR "STRUCTURAL CONCRETE (BRIDGE)". BOLTS AND WASHERS TO BE FURNISHED BY CONTRACTOR INSTALLING GUARDRAIL.



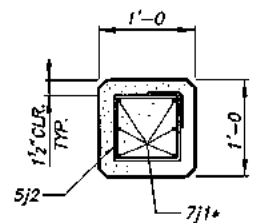
PART PLAN VIEW



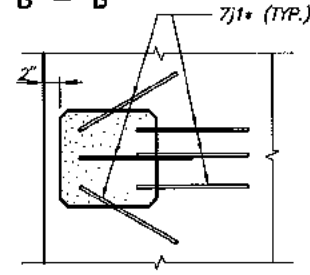
PART PLAN A - A



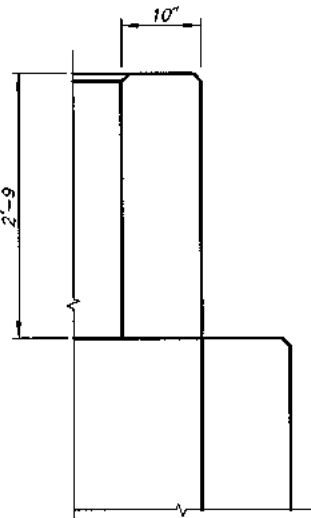
PART SECTION B - B



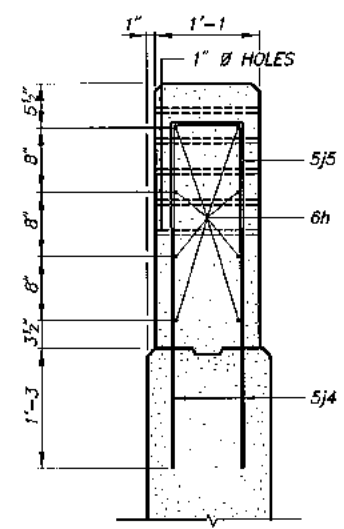
PART PLAN C - C



PART PLAN F - F



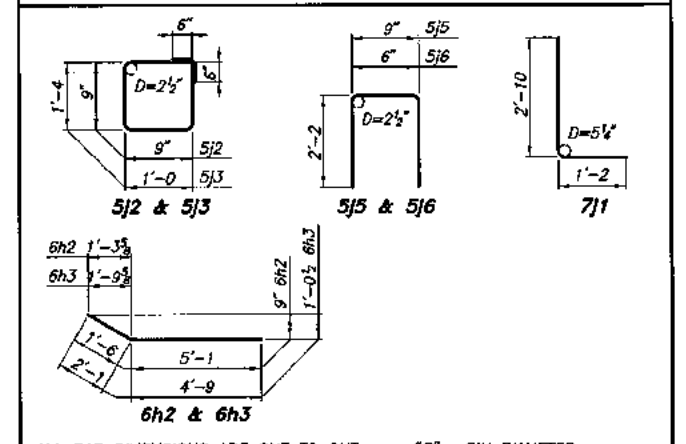
END VIEW D - D



PART SECTION E - E

REINFORCING BAR LIST - TWO RAILS							
SECTION	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	
STANDARD SECTION	7j1	RAIL POST, VERTICAL	U	288	4'-0"	2,355	
	5j2	RAIL POST, TIES	U	144	4'-0"	601	
	5j3	RAIL, TIES	U	500	5'-8"	2,957	
	Δ6h1	RAIL, LONGITUDINAL	U	48	44'-0"	3,172	
Δ LENGTH INCLUDES LAP SPLICE							
4 END SECTIONS	5j4	ANCHOR TO SLAB	U	48	2'-6"	125	
	5j5	VERTICAL	U	20	5'-1"	106	
	5j6	VERTICAL	U	8	4'-10"	40	
	6h2	LONGITUDINAL	U	16	6'-7"	158	
	6h3	LONGITUDINAL	U	16	6'-10"	164	
INCLUDE WITH SUPERSTRUCTURE REINFORCING						TOTAL (LBS.)	9,678

REINFORCING BAR LIST - TWO RAILS



BENT BAR DETAILS

CONCRETE PLACEMENT SUMMARY		
SECTION		TOTAL
STANDARD SECTION	8 @ 3.17 C.Y.	25.4
END SECTIONS	4 @ 0.70 C.Y.	2.8
TOTAL (C.Y.)		28.2

CONCRETE OPEN RAIL QUANTITIES		
ITEM	UNIT	QUANTITY
CONCRETE OPEN RAILING	L.F.	354.92

OPEN RAIL NOTES

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

ALL OPEN RAIL CONCRETE IS TO BE CLASS D.

THE CONCRETE OPEN RAIL IS TO BE BID ON A LINEAL FOOT BASIS MEASURED FROM END TO END OF RAIL. THE NUMBER OF LINEAL FEET OF OPEN RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT. PRICE BID FOR CONCRETE OPEN RAIL SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EXCLUDING REINFORCING STEEL, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS.

ALL OPEN RAIL REINFORCING STEEL IS TO BE INCLUDED WITH THE SUPERSTRUCTURE REINFORCING STEEL.

ALL EXPOSED CORNERS OF 90° OR SHARPER ARE TO BE FILLETED WITH A 3/4" DRESSED AND BEVELED STRIP.

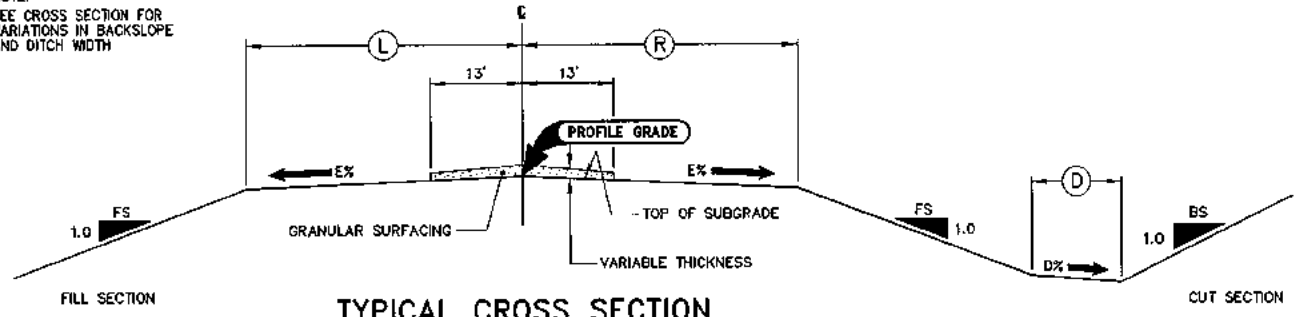
ALL REINFORCING STEEL IS TO BE GRADE 60.

139'-5 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
 139'-5 SINGLE SPAN INTEGRAL ABUTMENTS

OPEN RAIL DETAILS

STATION 15+45.00 30' SKEW, RT. AHEAD
 CRAWFORD COUNTY, IOWA

NOTE:
SEE CROSS SECTION FOR
VARIATIONS IN BACKSLOPE
AND DITCH WIDTH



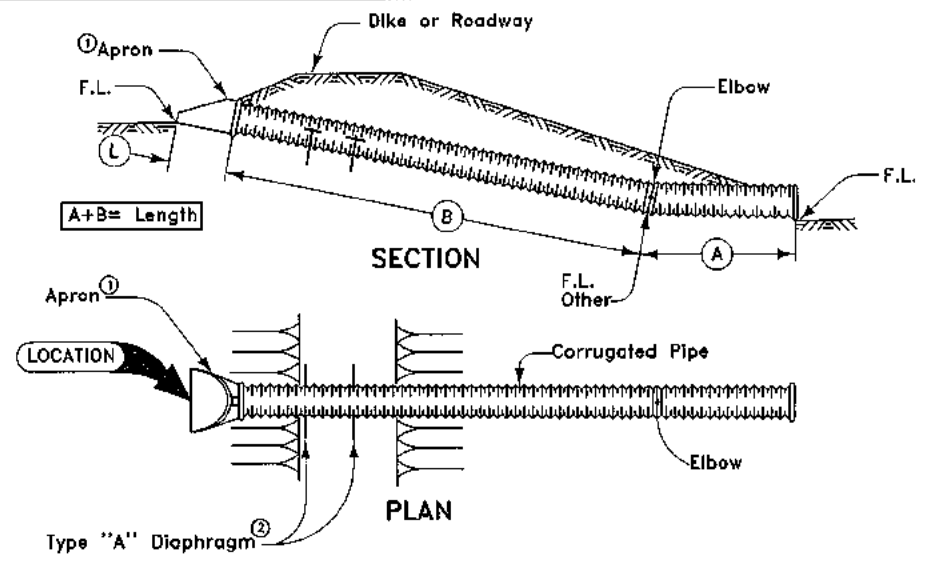
TYPICAL CROSS SECTION

LOCATION		L	R	EX	FS	D%	BS	D
ROAD IDENT.	STATION TO STATION							
MAIN LINE	11+00 12+00			TRANSITION FROM EXISTING				
MAIN LINE	12+00 BRIDGE	14	14	3.57	3	2	+3	8
MAIN LINE	BRIDGE 19+00	14	14	3.57	3	2	+3	8
MAIN LINE	19+00 20+00			TRANSITION TO EXISTING				

NOTE:
NORMAL SECTIONS SHOWN MAY BE MODIFIED
APPROPRIATELY IN AREAS OF SUPERELEVATION
CURVES OR OTHER LOCATIONS SPECIFICALLY
DESIGNATED BY THE ENGINEER.

*UNLESS NOTED OTHERWISE, SEE CROSS SECTIONS FOR VARIATIONS.

1401
MODIFIED

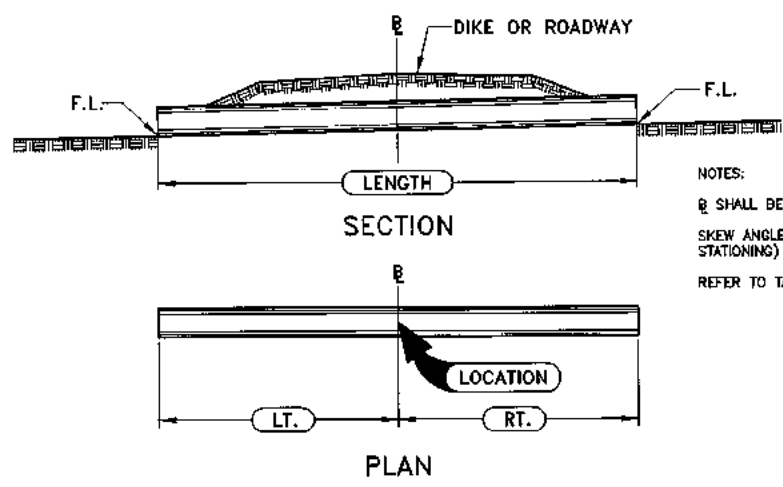


Notes:
Refer to tabular listing and other
plans for additional information.
Standard type joint couplings are required.
(See Materials I.M. 441)
If more than one diaphragm is specified,
they will be installed 15' apart or as
specified.

- ① See Standard Road Plan RF-5 for Metal and Polyethylene.
- ② See Standard Road Plan RF-7.

CORRUGATED PIPE
LETDOWN STRUCTURE
SINGLE ELBOW

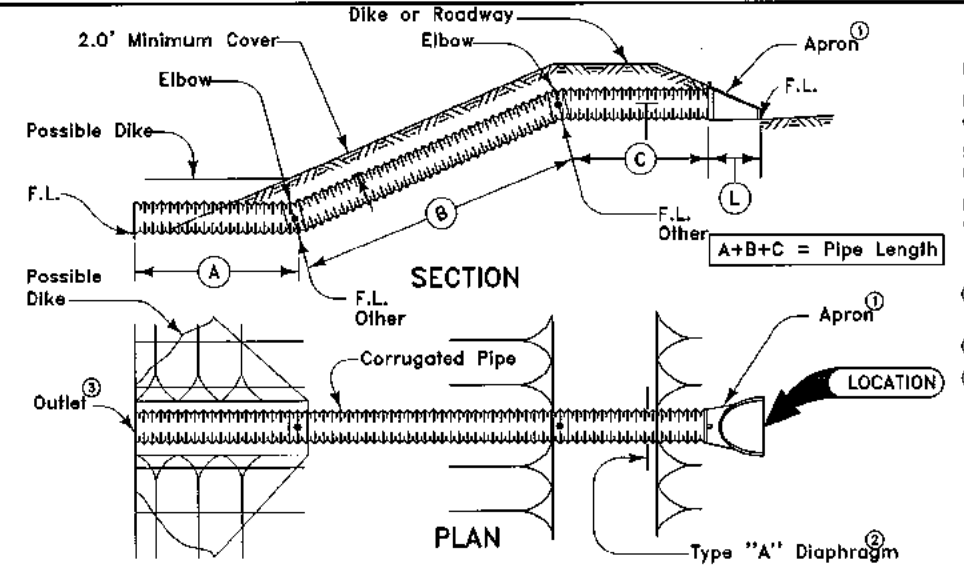
1101
MODIFIED



NOTES:
R SHALL BE Q OF ROADWAY, DIKE, SURVEY, OR OTHER; AS DETAILED ON PLANS.
SKEW ANGLE IS THE ANGLE WHICH ONE END OF THE PIPE IS AHEAD (BY STATIONING) OF LINE PERPENDICULAR TO THE R (EXAMPLE SKEW RT. AHEAD 30°).
REFER TO TABULAR LISTING AND OTHER PLANS FOR ADDITIONAL INFORMATION.

PIPE CULVERT

1403
04-15-03



Notes:
Refer to tabular listing and other plans for additional information.
Standard type joint couplings are required.
(See Materials I.M. 441)
If more than one diaphragm is specified, they will be installed 15' apart or as specified.

- ① See Standard Road Plan RF-5 for Metal and Polyethylene.
- ② See Standard Road Plan RF-7.
- ③ Connection to outlet, if required, shall be incidental.

CORRUGATED PIPE
LETDOWN STRUCTURE
DOUBLE ELBOW

GRADING NOTES

PLAN AND PROFILE SHEETS INCLUDED IN THE PROJECT ARE FOR PURPOSE OF ALIGNMENT, LOCATION AND SPECIAL DIRECTION FOR THE WORK TO BE PERFORMED UNDER THIS CONTRACT. IRRELEVANT DATA ON THESE SHEETS IS NOT TO BE CONSIDERED A PART OF THIS CONTRACT. 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, AN ALTERNATE ACCESS SHALL BE PROVIDED AND MAINTAINED. THIS WORK WILL BE CONSIDERED INCIDENTAL TO THE PROJECT.
SOUNDING AND TEST BORING DATA SHOWN ON PLANS WERE ACCUMULATED FOR DESIGNING AND ESTIMATING PURPOSES. THEIR APPEARANCE ON THE PLAN DOES NOT CONSTITUTE A GUARANTEE THAT CONDITIONS OTHER THAN THOSE INDICATED WILL NOT BE ENCOUNTERED.
STANDARD ROAD PLANS ARE AVAILABLE FROM THE IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION, AMES, IOWA.

REMOVALS

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 AND SHALL NOT CREATE AN UNSIGHTLY CONDITION WHEN VIEWED FROM PUBLIC HIGHWAYS, UNLESS SPECIFICALLY STATED IN THE PLANS OR APPROVED BY THE ENGINEER.
EXCEPT WHERE NOTED OTHERWISE ON THE PLANS, ALL ENTRANCE AND ROADWAY CULVERTS SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR AS PART OF "EXCAVATION, CLASS 10, ROADWAY AND BORROW".

UTILITY NOTES

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 CONSTRUCTION. ACCESS SHALL BE AFFORDED TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES. UNDERGROUND FACILITIES, STRUCTURES, AND THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT'S POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS NOT PRESENTLY KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND AVOID DAMAGE THERETO. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR INTERFERENCE, OR DELAY CAUSED BY SUCH WORK.

EXCAVATION AND BORROW

DUE CAUTION IS TO BE USED 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 OWNER. ANY TILE LINES BROKEN OR DISTURBED BY OUR CUT LINES WILL BE REPLACED AS DIRECTED BY THE ENGINEER IN CHARGE OF CONSTRUCTION AND AT THE OWNER'S EXPENSE.
ALL PROPOSED FIELD ENTRANCES SHALL BE CONSTRUCTED WITH A 20' TOP AND 3:1 SLOPES, UNLESS NOTED OTHERWISE.

139'-5 x 24'-0 PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE
139'-5 SINGLE SPAN INTEGRAL ABUTMENTS

TYPICAL SECTIONS AND GRADING NOTES

STATION 15+45.00 30' SKEW, RT. AHEAD
CRAWFORD COUNTY, IOWA

TABULATION OF STEEL BEAM GUARDRAIL AT BRIDGE END POST, CONCRETE BARRIER AND RAILROAD SIGNALS

108-BA
10-21-03

Refer to Standard Road Plan RE-48A-B, RE-53, RE-55A and RE-55B

NO.	LOCATION			STANDARD ROAD PLAN	CASE	L2	LAYOUT LENGTHS				MATERIALS REQUIRED					DELINEATORS AND OBJECT MARKERS			BID ITEMS					REMARKS						
	DIRECTION OF TRAFFIC	End	Side				STATION	F or S	Feet	STS (18.75')	VT	VF	ET Terminal (37.5')	STS		Posts ④ 6"x 8"x 7' with 6"x 8" Spacer Blocks (6 or 7)	Posts ⑤ 6"x 8"x 6' with 6" x 8" Spacer Blocks	CRT Posts 6"x 8"x 6' with 6" x 8" Spacer Blocks (5)	Delineator Type	Object Marker			Installation of Guardrail		Anchorage and Terminal Systems					
														Thrie Beam (24.0')	Transition Section (6.25')					W Beam ③	Type 1	Type 2	Type 3		STS + VT + VF + ET	RE-33B	RE-59A	RE-69B	RE-69C	RE-76
1	S.	T	O	15+45.00	RE-65A	F	-	18.75	-	12.5	37.5	25.0	6.25	50.0	7A	3	5	1	-	2	1	-	68.75	-	-	-	1	1	SOUTH END, LT.	
2	N.	A	O	15+45.00	RE-65A	F	-	18.75	-	12.5	37.5	25.0	6.25	50.0	7A	3	5	1	-	2	-	1	68.75	-	-	-	1	1	SOUTH END, RT.	
3	S.	A	O	15+45.00	RE-65A	F	-	18.75	-	12.5	37.5	25.0	6.25	50.0	7A	3	5	1	-	2	-	1	68.75	-	-	-	1	1	NORTH END, LT.	
4	N.	T	O	15+45.00	RE-65A	F	-	18.75	-	12.5	37.5	25.0	6.25	50.0	7A	3	5	1	-	2	1	-	68.75	-	-	-	1	1	NORTH END, RT.	

* NOT A BID ITEM Δ TOTAL INCLUDES WEDGE BLOCKOUT AT END POST.

DRAINAGE STRUCTURE BY ROAD CONTRACTOR

104-3
MODIFIED

* NOT A BID ITEM

LOCATION	TYPE	SIZE	KIND OF PIPE	LENGTH NEW CONSTR.	BEDDING CLASS	DESIGN COVER (H)	CAMBER FT.	APRON NO.		ELBOW RF-13	DIAPHRAGM RF-7*	TEE SECTION* RF-21	"D" SECTION RF-13*	REDUCER*	ADAPTORS * RF-2		CONNECTED PIPE JOINT * RF-14	FLOW LINE ELEVATIONS			DIMENSIONS Lin.Ft.			SKEW AHEAD		DIKE			CLASS 20	EMBANKMENT IN PLACE	REMARKS				
								Inlet	Outlet						Type	No.		Type	Inlet	Outlet	Other	A	B	C	Lt.	Rt.	Lt.	Location Station				Top Elevation	Type	Cu. Yds.	Cu. Yds.
								DEGREES							Rt.	Location Station		Top Elevation	Type	Cu. Yds.	Cu. Yds.														
14+35	1401	24	CMP	76	-	2.0'	-	1	-	1	2	-	-	-	-	-	-	284.4	267.0	267.5	24	52	NA	0	0	LT.	14+44	286.8	EARTH	-	-	S.W., 18' ELBOW			
14+50	1401	36	CMP	82	-	2.0'	-	1	-	1	2	-	-	-	-	-	-	284.2	267.0	267.5	30	52	NA	0	0	RT.	14+59	286.5	EARTH	-	-	S.E., 18' ELBOW			
17+35	1403	54	CMP	180	-	2.0'	-	1	-	2	1	-	-	-	-	-	-	279.5	265.0	278.5/265.5	24	48	108	0	0	LT.	16+70	286.0	EARTH	-	-	N.W., 2-16.5' ELBOWS			

TABULATION OF GRADING FOR GUARDRAIL INSTALLATIONS

107-23
04-27-99

No.	DIRECTION OF TRAFFIC	Station	SIDE	TYPE	DIMENSIONS ②				CLASS 10 EXCAV. Δ	EMBANK. IN PLACE	PIPE Size	PIPE Type	PIPE Length	REMARKS
					①		②							
					Feet	Feet	Feet	Feet						
1	S.	13+83.21	LT.	2	-	7.17	-	46.8	23	-	-	-	S. END, LT.	
2	N.	13+97.07	RT.	2	7.17	-	46.8	-	30	-	-	-	S. END, RT.	
3	S.	16+92.93	LT.	2	7.17	-	46.8	-	-	-	-	-	N. END, LT.	
4	N.	17+06.79	RT.	2	-	7.17	-	46.8	-	-	-	-	N. END, RT.	

Δ INCLUDES 35% FOR SHRINKAGE

POINTS OF ACCESS (RL-7)

102-1
10-21-03

STATION	SIDE	W	TYPE	H	SIZE (INCHES)	LENGTH		APRON (NO.)	SURFACE MATERIAL (TONS)
						LT.	RT.		
						(LIN.FT.)	(LIN.FT.)		
13+70	LT.	20	C	1.1	24	15	15	-	-
13+80	RT.	25	C	1.0	36	20	18	-	-
17+10	LT.	20	C	1.0	54	**	**	1	-

** C.M.P. LETDOWN STRUCTURE. SEE TABULATION "104-3, MODIFIED"

TABULATION OF SAFETY CLOSURES

108-13A
10-28-97

STATION	CLOSURE TYPE		REMARKS
	Road Qty.	Hazard Qty.	
	Refer to Section 2518 of the Standard Specifications		
9+50	1	-	SOUTH END
14+00	-	1	SOUTH END
16+50	-	1	NORTH END
21+50	1	-	NORTH END

TABULATION OF SILT FENCES

100-17
11-10-83

STATION TO STATION	SIDE	LIN.FT.	REMARKS
16+50	19+00	RT.	250
TOTAL		250	

TABULATION OF SILT FENCES FOR DITCH CHECKS

100-18
11-10-83

LOCATION STATION	SIDE	LIN. FT.	LOCATION STATION	SIDE	LIN. FT.
11+50	LT.	18	11+50	RT.	18
13+25	LT.	18	13+25	RT.	18
17+50	LT.	18			

SUMMARY OF EARTHWORK

STATION	AREAS IN SQ. FT.		VOLUMES IN CU. YDS.			
	CUT	FILL	CUT	ADD'L CUT	FILL	ADD'L FILL
11+00	0	0	213	-2,767*	0	0
12+00	115	0	694	0	0	0
13+00	260	0	799	0	0	0
13+70	357	0	130	0	47	63
13+80	348	0	247	65	88	119
14+00	319	0	580	70	39	53
14+50	307	0	0	204	0	0
BRIDGE	0	0	0	109	0	0
16+40	128	0	227	0	0	0
17+00	76	0	22	0	261	352
17+10	43	0	122	0	0	0
18+00	30	0	78	25	34	34
19+00	12	14	23	-161*	25	34
20+00	0	0				
TOTAL			3,135	-2,480	50	435

* WASTE

TRAFFIC CONTROL PLAN

THE PROJECT ROUTE WILL BE CLOSED TO TRAFFIC. 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.

PLASTIC SAFETY FENCE SHALL BE PLACED ON BOTH SIDES OF THE BRIDGE SITE. IN ADDITION, A TYPE III BARRICADE SHALL BE PLACED IN ADVANCE OF THE PLASTIC SAFETY FENCE. A "ROAD CLOSED" SIGN (R-11-2, 48" x 30") SHALL BE PLACED ON EACH TYPE III BARRICADE ALONG WITH TWO TYPE "A" LOW INTENSITY FLASHING WARNING LIGHTS.

THE CRAWFORD COUNTY MAINTENANCE SHALL SALVAGE ALL ROAD MARKERS AFTER ROAD IS CLOSED.

THE BID ITEM "TRAFFIC CONTROL" SHALL INCLUDE THE COST FOR ALL TRAFFIC CONTROL MEASURES REQUIRED OF THE CONTRACTOR EXCEPT FOR THOSE WHICH ARE SEPARATE BID ITEMS OR ARE INCIDENTAL TO OTHER BID ITEMS.

THE GUARDRAIL INSTALLATION MUST BE COMPLETED BEFORE THE ROAD IS OPENED TO TRAFFIC.

ALL CONTRACTOR FURNISHED TRAFFIC CONTROL SIGNS USED ON THIS PROJECT SHALL BE SHEETED WITH ENCAPSULATED LENS SHEETING.

TYPE 'C' STEADY BURN WARNING LIGHTS ARE NOT REQUIRED FOR VERTICAL PANELS, BARRICADES, AND DRUMS WHEN THESE TRAFFIC CONTROL DEVICES ARE SHEETED WITH ENCAPSULATED LENS SHEETING.

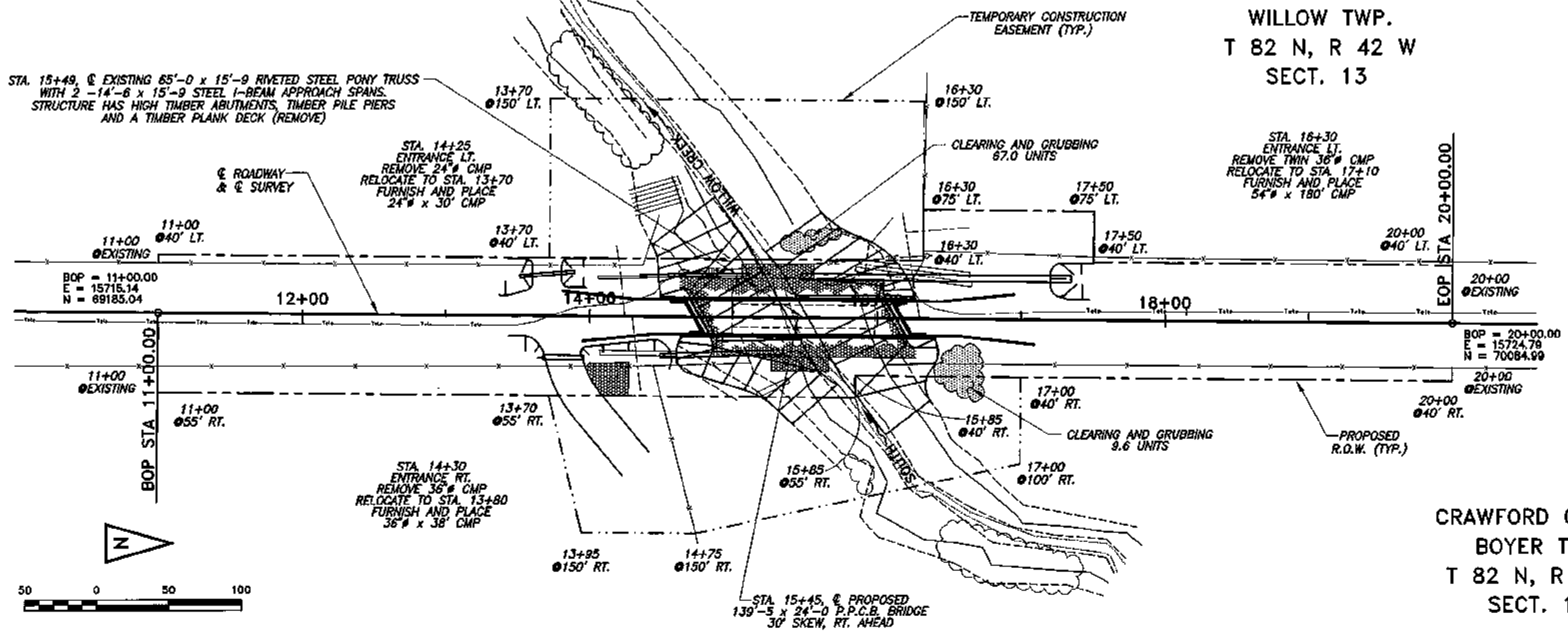
139'-5 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
139'-5 SINGLE SPAN INTEGRAL ABUTMENTS

TABULATIONS

STATION 15+45.00 30' SKEW, RT. AHEAD
CRAWFORD COUNTY, IOWA

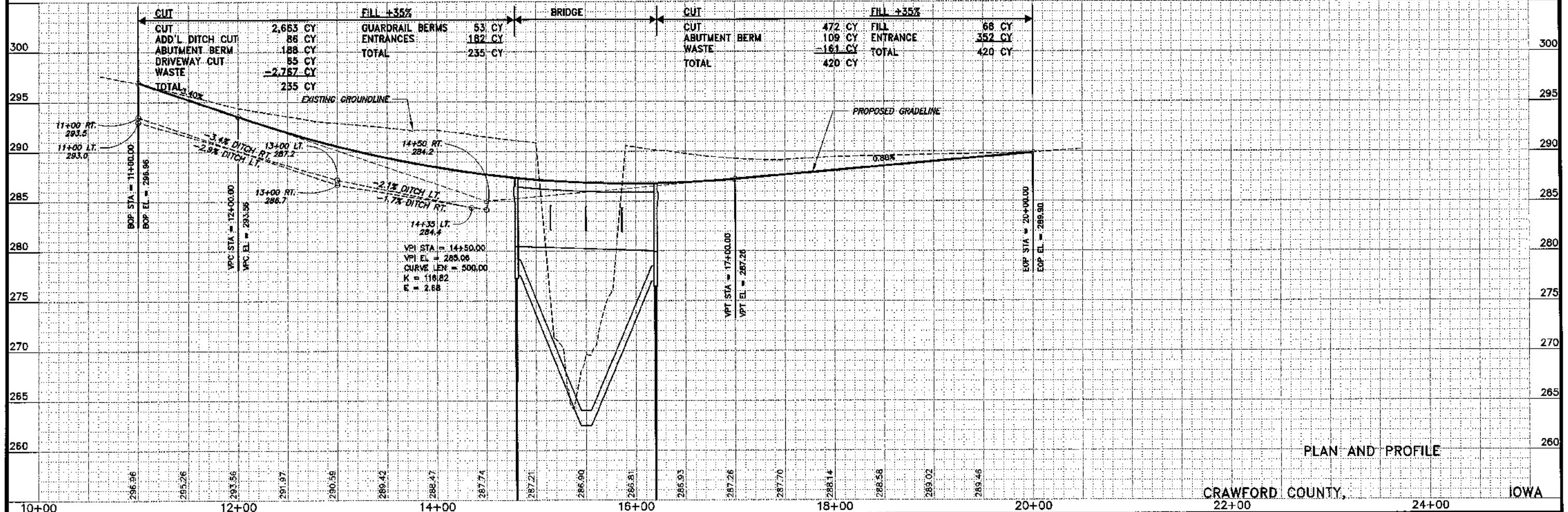
MONONA COUNTY
WILLOW TWP.
T 82 N, R 42 W
SECT. 13

BENCH MARK 1A: RAILROAD SPIKE IN SOUTH GATE POST, SOUTH OF BRIDGE,
EAST SIDE OF COUNTY ROAD, STA. 14+19.37, 34.6 RT., ELEV.= 293.84
BENCH MARK 2A: RAILROAD SPIKE IN POWER POLE, NORTH SIDE OF BRIDGE,
WEST SIDE OF COUNTY ROAD, STA. 16+34.08, 43.31' LT., ELEV.= 288.51



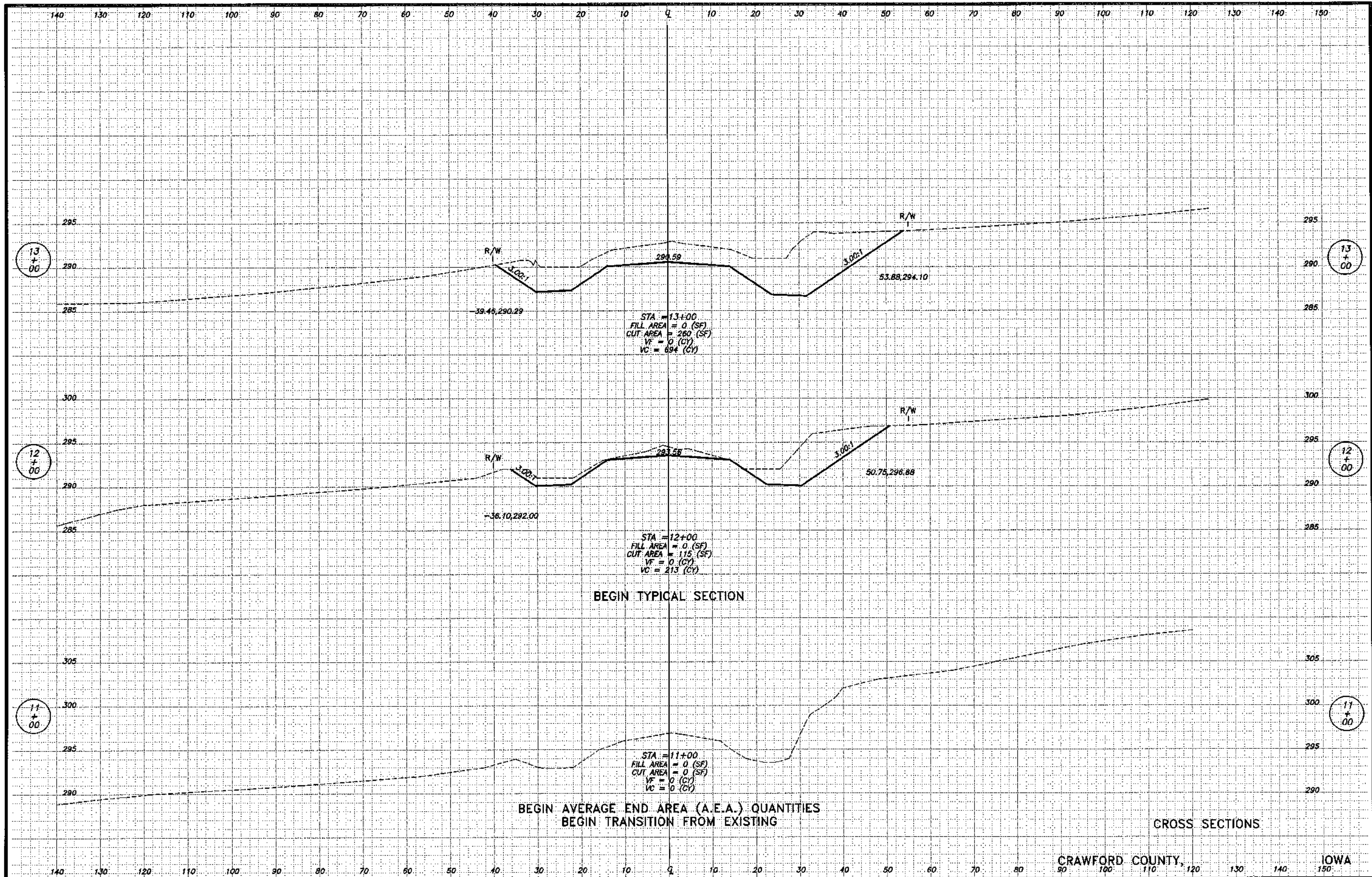
CRAWFORD COUNTY
BOYER TWP.
T 82 N, R 41 W
SECT. 18

SEE "SITUATION PLAN" FOR
ADDITIONAL INFORMATION.



PLAN AND PROFILE

CRAWFORD COUNTY, IOWA

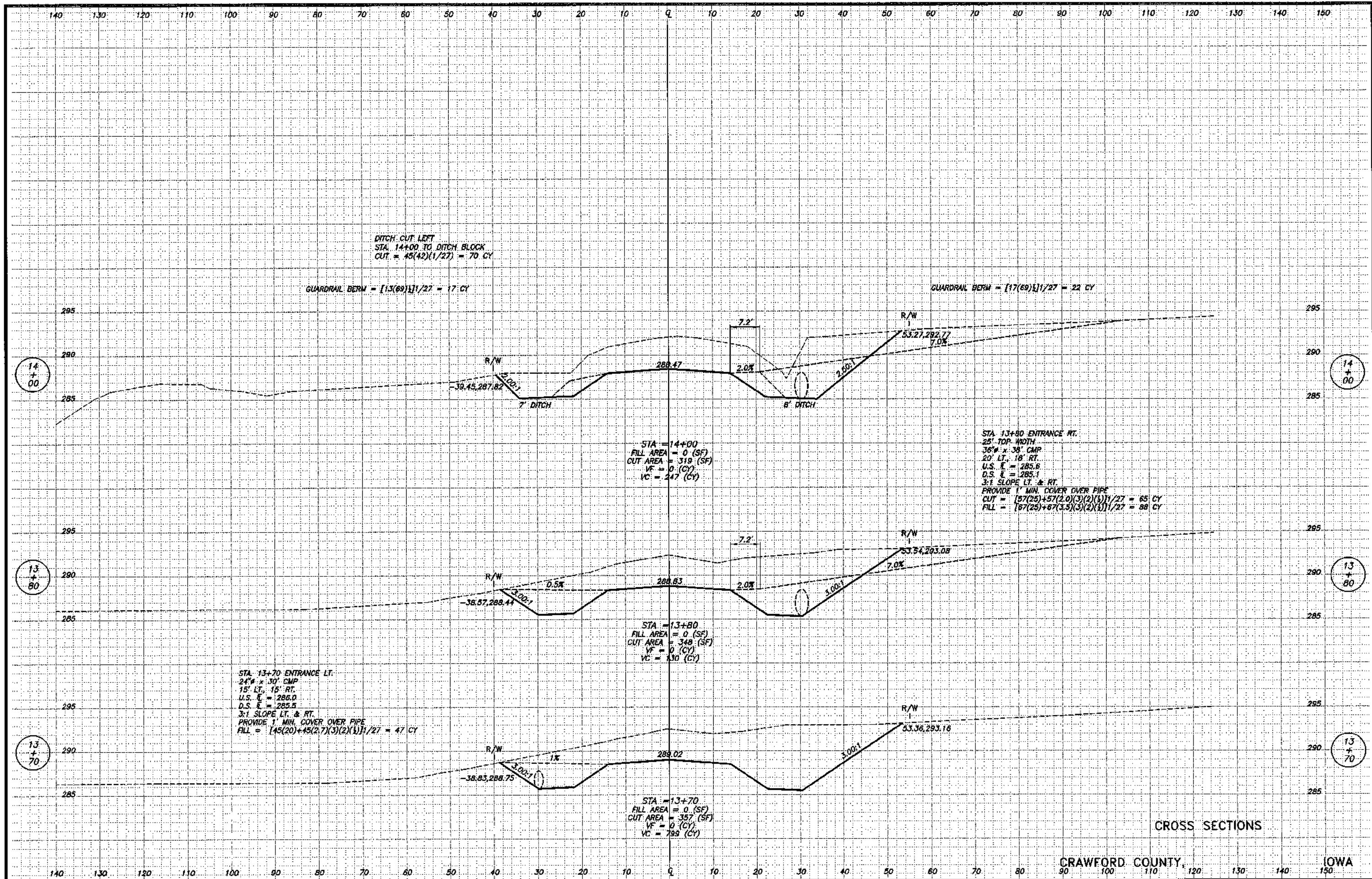


BEGIN TYPICAL SECTION

BEGIN AVERAGE END AREA (A.E.A.) QUANTITIES
BEGIN TRANSITION FROM EXISTING

CROSS SECTIONS

CRAWFORD COUNTY, IOWA



DITCH CUT LEFT
 STA. 14+00 TO DITCH BLOCK
 CUT = $45(42)(1/27) = 70$ CY

GUARDRAIL BERM = $[13(69)](1/27) = 17$ CY

GUARDRAIL BERM = $[17(69)](1/27) = 22$ CY

STA = 14+00
 FILL AREA = 0 (SF)
 CUT AREA = 319 (SF)
 VF = 0 (CY)
 VC = 247 (CY)

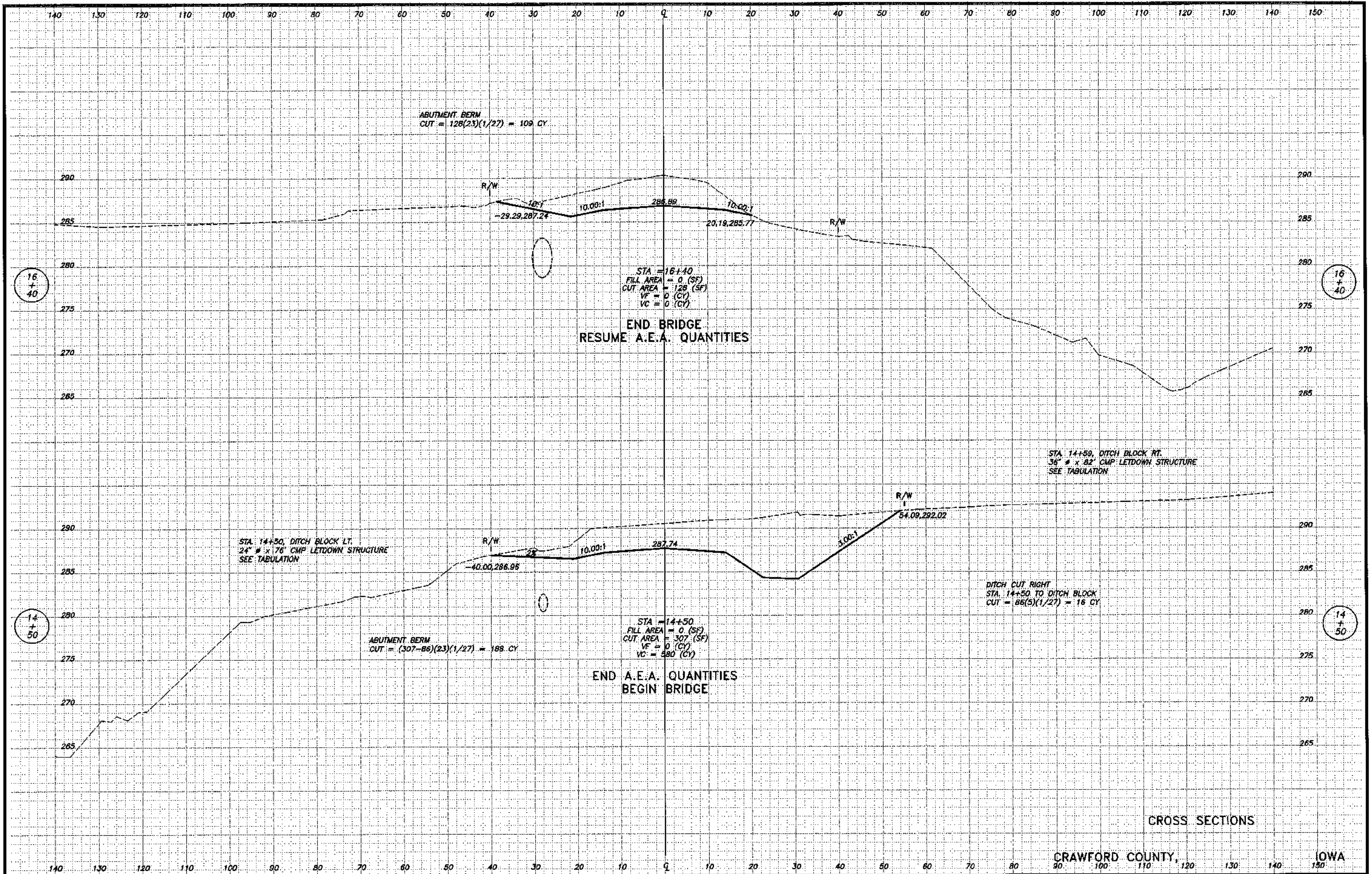
STA 13+80 ENTRANCE RT.
 25' TOP WIDTH
 36" x 36" CMP
 20' LT., 18' RT.
 U.S. E = 285.8
 D.S. E = 285.1
 3:1 SLOPE LT. & RT.
 PROVIDE 1' MIN. COVER OVER PIPE
 CUT = $[57(25)+57(2.0)(3)(2)(1)](1/27) = 65$ CY
 FILL = $[67(25)+67(3.5)(3)(2)(1)](1/27) = 88$ CY

STA = 13+80
 FILL AREA = 0 (SF)
 CUT AREA = 348 (SF)
 VF = 0 (CY)
 VC = 130 (CY)

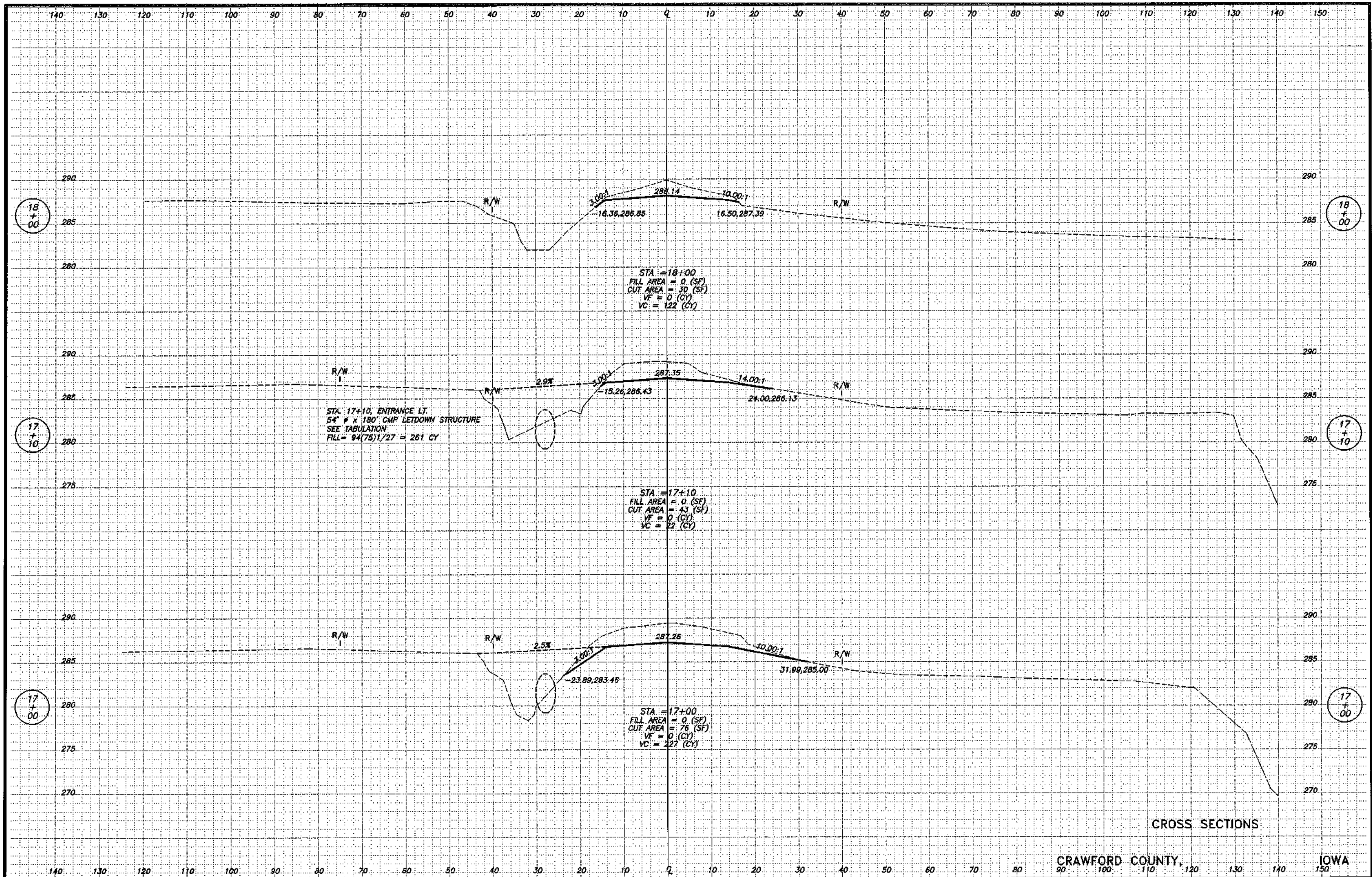
STA 13+70 ENTRANCE LT.
 24" x 30" CMP
 15' LT., 15' RT.
 U.S. E = 286.0
 D.S. E = 285.5
 3:1 SLOPE LT. & RT.
 PROVIDE 1' MIN. COVER OVER PIPE
 FILL = $[45(20)+45(2.7)(3)(2)(1)](1/27) = 47$ CY

STA = 13+70
 FILL AREA = 0 (SF)
 CUT AREA = 357 (SF)
 VF = 0 (CY)
 VC = 799 (CY)

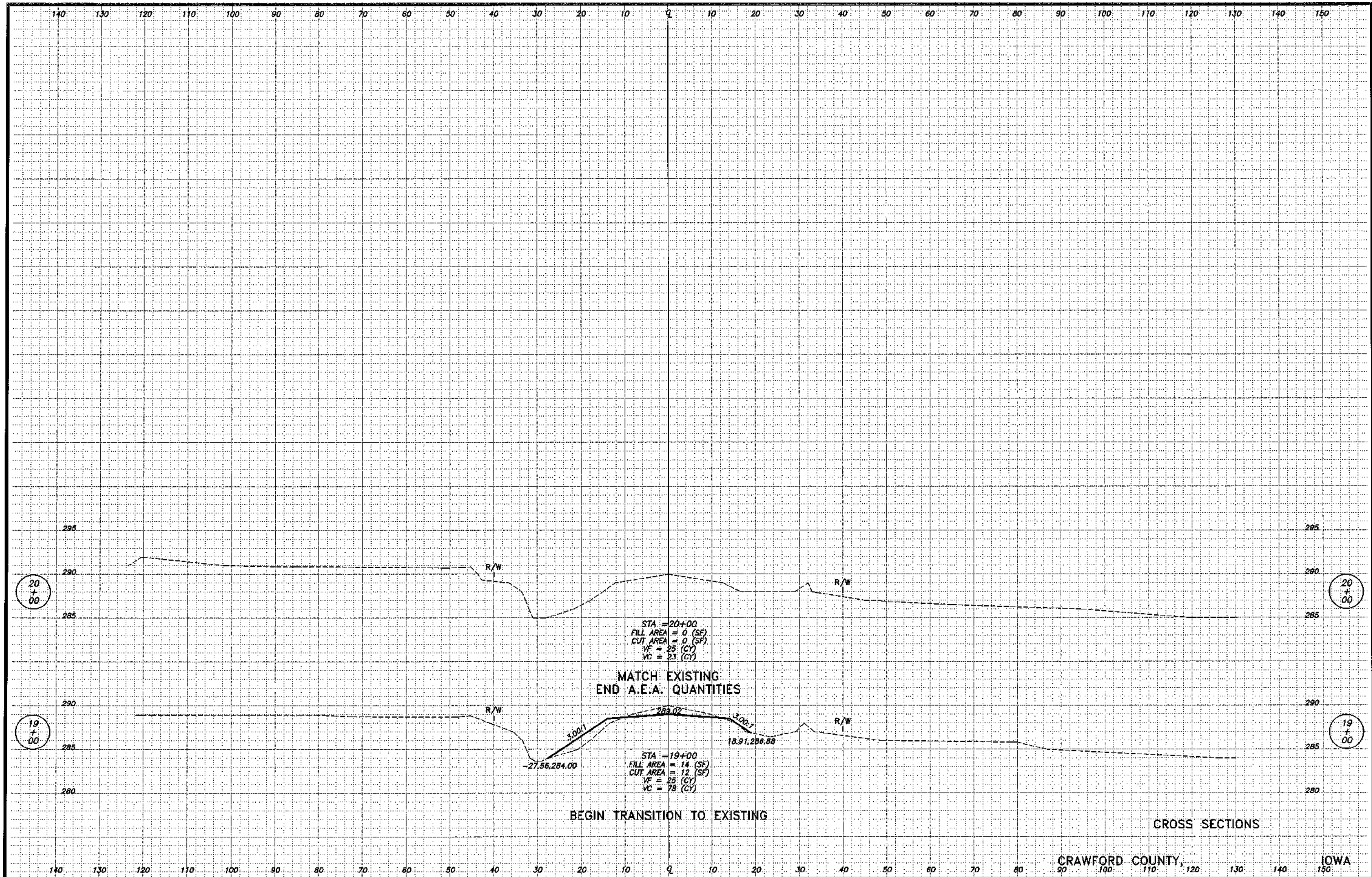
CROSS SECTIONS



CROSS SECTIONS



CROSS SECTIONS



STA = 20+00
 FILL AREA = 0 (SF)
 CUT AREA = 0 (SF)
 VF = 25 (CY)
 VC = 23 (CY)

**MATCH EXISTING
END A.E.A. QUANTITIES**

STA = 19+00
 FILL AREA = 14 (SF)
 CUT AREA = 12 (SF)
 VF = 25 (CY)
 VC = 78 (CY)

BEGIN TRANSITION TO EXISTING

CROSS SECTIONS

CRAWFORD COUNTY, IOWA