

BRIDGE REPLACEMENT - CCS
BRS-C024(57)--60-24

LETTING DATE
02/17/04

CRAWFORD COUNTY

TRAFFIC CONTROL PLAN

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

PERMITS

THIS PROJECT IS COVERED BY U.S. ARMY CORPS OF ENGINEERS' NATIONWIDE PERMIT NO. 14.

DRAWING APPROVAL

ALL SHOP DRAWINGS THAT REQUIRE APPROVAL SHALL BE APPROVED BY SUNDQUIST ENGINEERING, P.C.

ADDRESS: 120 SOUTH MAIN, P.O. BOX 220
DENISON, IOWA 51442-0220
TELEPHONE: (712)263-8118

THESE SHOP DRAWINGS SHALL NOT BE SENT TO IOWA D.O.T. OFFICE OF BRIDGE DESIGN.



Iowa Department of Transportation
Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

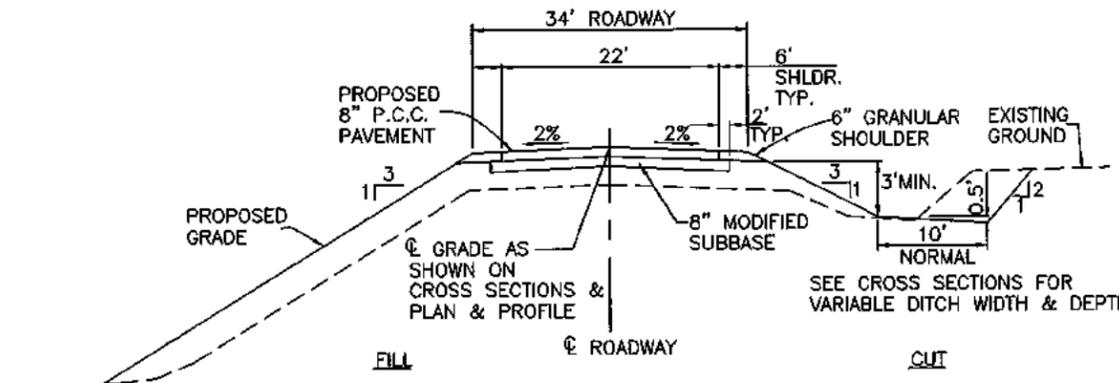
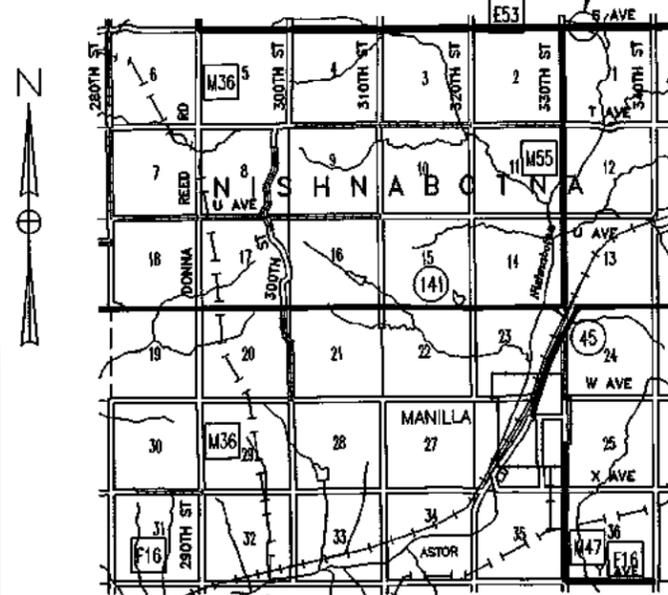
**FARM TO MARKET ROAD SYSTEM
CRAWFORD COUNTY**

PROJECT NO. BRS-C024(57)--60-24
BRIDGE REPLACEMENT - CCS
ON E53 (S AVENUE) OVER
TRIBUTARY TO HOCKET CREEK

SCALES: AS NOTED

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

STA. 10+80
PROPOSED
112'-6" x 30' CCS BRIDGE
SKEW 30° R.A.
B.O.P. STA. 10+02.02
E.O.P. STA. 11+57.98

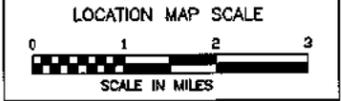


TYPICAL CROSS SECTION
NOT TO SCALE

BURLINGTON NORTHERN R.R. CO. NORTHERN NATURAL GAS COMPANY SHELBY CO. R-38W



SUNDQUIST ENGINEERING, P.C.
CONSULTING ENGINEERS
HIGHWAYS • MUNICIPAL • MAPPING • SURVEYING
120 S. MAIN, P.O. BOX 220, DENISON, IOWA 51442-0220
PHONE: (712)263-8118 FAX: (712)263-2181



Approved
Robert D. Schreiner
Steve Clemens
A. Dean Hargers
Mark Segelbach
John P. Fowler
BOARD OF SUPERVISORS

Approved
[Signature]
CRAWFORD COUNTY ENGINEER DATE

Iowa Department of Transportation
Highway Division
Accepted for Letting
[Signature] 11/26/03
DISTRICT 3 LOCAL SYSTEMS ENGINEER DATE

04-30-02	101-4
DESIGN DATA RURAL	
2000 AADT	200 V.P.D.
2020 AADT	X V.P.D.
201X DHV	X V.P.H.
TRUCKS	X %
TOTAL DESIGN ESALs	



I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.
[Signature] 11/14/03
TROY J. GROTH, P.E. #14450 DATE
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2003.
PAGES OR SHEETS COVERED BY THIS SEAL:
ALL SHEETS

TOTAL SHEETS	17
PROJECT NUMBER	BRS-C024(57)--60-24
R.O.W. PROJECT NUMBER	
PROJECT IDENTIFICATION NUMBER	

INDEX OF SHEETS	
NO.	DESCRIPTION
A1	TITLE SHEET
B1-2	ESTIMATE SHEET, GENERAL NOTES AND ESTIMATE REFERENCE INFORMATION
C1-2	TABULATIONS, TYPICALS
D1	PLAN AND PROFILE SHEET
Q1	SOILS SHEET
U1-4	DETAIL SHEETS
V1	BRIDGE SITUATION PLAN
W1-2	CROSS SECTIONS - ROADWAY
Z1-3	CROSS SECTIONS - CHANNEL

STANDARD BRIDGE PLANS		
STANDARD	ISSUED	REVISED
J30C-87	JUNE, 1987	
J30C-4-87	JUNE, 1987	
J30C-6-87	JUNE, 1987	
J30C-7-87	JUNE, 1987	
J30C-9-87	JUNE, 1987	
J30C-11-87	JUNE, 1987	
J30C-19-87	JUNE, 1987	
J30C-22-87	JUNE, 1987	6-89
P10A	AUGUST, 1988	8-96

MILEAGE SUMMARY		
LOCATION	LIN. FT.	MILES
BOP STA. 10+02.02 TO EOP STA. 11+57.98	155.96	
DEDUCT BRIDGE AT STA. 10+80	115.96	
NET LENGTH OF ROADWAY	40.00	0.008

STANDARD ROAD PLANS					
The following Standard Road Plans shall be considered applicable to construction work on this project.					
NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
RE-2B	04-03-01	RE-68	04-15-03	RH-37D	04-03-01
RE-7	04-15-03	RE-69C	10-29-02	RH-50	10-21-03
RE-12A	10-02-01	RE-76	10-21-03	RH-51	10-21-03
RE-12B	10-02-01	RF-19E	10-03-00	RK-18	10-31-95
RE-47	04-03-01	RF-30A	03-28-95	RL-7	12-03-96
RE-48A	10-21-03	RF-32	03-28-95	RL-14	01-12-99
RE-65A	10-29-02	RH-22	01-12-99	RS-26A	10-28-97

126331

ESTIMATE REFERENCE INFORMATION

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

2102-2710070 EXCAVATION, CLASS 10, ROADWAY AND BORROW
TYPE A COMPACTION WILL BE REQUIRED. REFER TO DRAWING SHEET C2 FOR TABULATION OF EARTHWORK QUANTITIES.

BORROW FROM SUITABLE CLASS 10 CHANNEL AND CLASS 20 EXCAVATION. ADDITIONAL NECESSARY BORROW SHALL BE PROVIDED BY THE CONTRACTOR AND MATERIAL SHALL BE APPROVED BY THE ENGINEER.

NO PAYMENT FOR OVERHAUL WILL BE ALLOWED. ALL AREAS TO RECEIVE NEW EMBANKMENT SHALL BE THOROUGHLY CLEAN OF ALL VEGETATION AND OTHER DEBRIS. EXISTING SURFACES SHALL BE PLOWED, STEPPED OR BENCHED PRIOR TO PLACEMENT OF NEW EMBANKMENT FILLS AS DIRECTED BY THE ENGINEER. SUCH WORK SHALL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THIS ITEM.

QUANTITY INCLUDES EXCAVATION REQUIRED TO INSTALL THE MODIFIED SUBBASE. QUANTITY INCLUDES EARTH SHOULDER FILL AS SHOWN IN DESIGN DETAIL 7110 ON DRAWING SHEET C2.

ANY CLEARING AND GRUBBING NECESSARY TO COMPLETE THE WORK UNDER THIS CONTRACT SHALL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THIS ITEM.

2104-2710020 EXCAVATION, CLASS 10, CHANNEL
EXCESS MATERIAL, UNSUITABLE MATERIAL, AND BROKEN CONCRETE 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.

QUANTITY INCLUDES EXCAVATION REQUIRED TO INSTALL THE SPECIAL REVETMENT FOR BANK STABILIZATION. ITEM INCLUDES PLACEMENT OF 178 CY (132 X 1.35) OF FILL ON THE CHANNEL BANKS.

QUANTITY INCLUDES EXCAVATION REQUIRED TO TRANSITION PROPOSED CHANNEL SLOPES INTO EXISTING SLOPES WITHIN THE LIMITS SHOWN ON DRAWING SHEET V1.

2121-7425010 GRANULAR SHOULDER, TYPE A
SHOULDER MATERIAL MEETING THE REQUIREMENTS OF ARTICLE 4120.02 FOR GRAVEL/LIMESTONE AGGREGATE MIXTURE WILL BE ALLOWED.

MATERIAL FOR EARTH SHOULDER FILL AS DETAILED ON TYPICAL 7110 ON DRAWING SHEET C2 IS INCLUDED IN THE QUANTITY FOR EXCAVATION, CLASS 10, ROADWAY AND BORROW.

2301-0685100 BRIDGE APPROACH SECTION
REFER TO TABULATION ON DRAWING SHEET C1 AND STANDARD ROAD PLAN RK-18. PAVEMENT WIDTH SHALL BE 22 FEET. LENGTH OF TRANSVERSE BARS AND NUMBER OF LONGITUDINAL BARS DETAILED ON STANDARD ROAD PLAN RK-18 SHALL BE ADJUSTED ACCORDINGLY.

PAVEMENT SHALL BE STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE, CLASS C, CLASS 3, DURABILITY, 8 INCHES IN THICKNESS. TRANSVERSE JOINTS SHALL NOT BE SKEWED. LONGITUDINAL GROOVING IN ACCORDANCE WITH ARTICLE 2301.16, C SHALL BE REQUIRED. STANDARD ROAD PLAN RH-50 TYPE 'RT' JOINTS SHALL BE REQUIRED WHERE THE NEW PAVEMENT ABUTS THE EXISTING PAVEMENT.

NATURAL SUBGRADE SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 2109 INCLUDING ARTICLE 2109.04 EXCEPT THAT ALL RECOMPACTION SHALL MEET REQUIREMENTS OF ARTICLE 2107.05. NO PONDING OF WATER SHALL BE ALLOWED DUE TO THE PLACEMENT OF MATERIALS TRIMMED DURING CONSTRUCTION OF NATURAL SUBGRADE.

ESTIMATED PROJECT QUANTITIES

100-1A
07-15-97

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	395	
2	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	2962	
3	2121-7425010	GRANULAR SHOULDER, TYPE A	TON	151	
4	2301-0685100	BRIDGE APPROACH SECTION	SY	98	
5	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1	
6	2402-2720000	EXCAVATION, CLASS 20	CY	70	
7	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	269.5	
8	2404-7775000	REINFORCING STEEL	LB	34176	
9	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	31782	
10	2414-6424120	CONCRETE OPEN RAILING	LF	247.9	
11	2417-1040024	CULVERT, CORRUGATED METAL ENTRANCE PIPE, 24 IN. DIA.	LF	68	
12	2501-5425042	PILES, DRIVE STEEL BEARING, HP 10 X 42	LF	630	
13	2501-5425053	PILES, DRIVE STEEL BEARING, HP 12 X 53	LF	1035	
14	2501-5475053	CONCRETE ENCASEMENT OF STEEL H PILES, HP 12 X 53 (P10A TYPE 3)	LF	378	
15	2501-5550042	PILES, FURNISH STEEL BEARING, HP 10 X 42	LF	630	
16	2501-5550053	PILES, FURNISH STEEL BEARING, HP 12 X 53	LF	1035	
17	2505-4008100	REMOVAL OF GUARDRAIL	LF	280	
18	2505-4008200	INSTALLATION OF GUARDRAIL	LF	275	
19	2505-4021690	GUARDRAIL, END ANCHORAGE, BEAM, RE-69	EACH	4	
20	2505-4021762	GUARDRAIL TERMINAL, BEAM, FLARED, RE-76	EACH	4	
21	2507-3250005	ENGINEERING FABRIC	SY	1017	
22	2507-6850053	REVTMENT, SPECIAL	TON	967	
23	2510-6745850	REMOVAL OF PAVEMENT	SY	264	
24	2518-6910000	SAFETY CLOSURE	EACH	2	
25	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA	6.24	
26	2528-8445110	TRAFFIC CONTROL	LS	1	
27	2529-8200200	PRESSURE RELIEF JOINT, CF	LF	44	
28	2533-4980005	MOBILIZATION	LS	1	
29	2601-2634100	MULCHING	ACRE	0.6	
30	2601-2638043	SEEDING AND FERTILIZING (RURAL)	ACRE	0.6	

2401-6745625 REMOVAL OF EXISTING BRIDGE
THE EXISTING BRIDGE IS A 40' X 20' STEEL I-BEAM BRIDGE. THE LUMP SUM BID FOR "REMOVAL OF EXISTING BRIDGE" SHALL INCLUDE REMOVAL OF THE EXISTING STRUCTURE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS.

2403-0100010 STRUCTURAL CONCRETE (BRIDGE)
REFER TO TABULATION ON DRAWING SHEET C1. ALL STRUCTURAL CONCRETE IS TO BE CLASS C. CLASS D WILL NOT BE ALLOWED. ITEM INCLUDES CERTIFIED PCC PLANT INSPECTION IN ACCORDANCE WITH SECTION 2521.

INCLUDES FURNISHING AND PLACING SUBDRAIN, INCLUDING EXCAVATION, GRANULAR BACKFILL, POROUS BACKFILL, ENGINEERING FABRIC, AND SUBDRAIN OUTLET AT ABUTMENTS.

2404-7775000 REINFORCING STEEL
2404-7775005 REINFORCING STEEL, EPOXY COATED
REFER TO TABULATION ON DRAWING SHEET C1.

2414-6424120 CONCRETE OPEN RAILING
ALL OPEN RAIL CONCRETE SHALL BE CLASS C.

2417-1040024 CULVERT, CORRUGATED METAL ENTRANCE PIPE, 24 IN. DIA.
ALL CORRUGATED METAL PIPE LARGER THAN 12 INCHES IN DIAMETER SHALL BE ANNULAR, RIVETED PIPE. "SPIRAL" PIPE WILL NOT BE ALLOWED FOR PIPE DIAMETERS LARGER THAN 12 INCHES. ALL BANDS SHALL BE 24-INCH BANDS.

2501-5425042 PILES, DRIVE STEEL BEARING, HP 10 X 42
2501-5425053 PILES, DRIVE STEEL BEARING, HP 12 X 53
THE REQUIRED DESIGN BEARING FOR THE HP 10 X 42 ABUTMENT PILES IS 27 TONS. THE REQUIRED DESIGN BEARING FOR THE HP 12 X 53 PIER PILES IS 32 TONS. WAVE EQUATION ANALYSIS WILL BE USED AT THE TIME OF PILE DRIVING TO DETERMINE PILE BEARING. THE CONTRACTOR SHALL SUBMIT ADEQUATE HAMMER INFORMATION SO THAT PROPER ANALYSIS CAN BE PERFORMED.

ESTIMATED PROJECT QUANTITIES AND GENERAL INFORMATION

REV.: 05/04 STRUC. CONC. AND REINF. STEEL QTY'S

ESTIMATE REFERENCE INFORMATION (CONT.)

2505-4008100 REMOVAL OF GUARDRAIL

ITEM INCLUDES REMOVAL OF GUARDRAIL AT ALL FOUR CORNERS AND ALONG BOTH SIDES OF THE EXISTING BRIDGE. ITEM ALSO INCLUDES REMOVAL OF ALL GUARDRAIL POSTS, DELINEATORS AND OBJECT MARKERS.

EXISTING GUARDRAIL SHALL BE SALVAGED TO THE COUNTY AND SHALL BE NEATLY STOCKPILED WITHIN THE PROJECT RIGHT-OF-WAY AND SUBSEQUENTLY LOADED BY CONTRACTOR ONTO COUNTY VEHICLES.

2505-4008200 INSTALLATION OF GUARDRAIL

REFER TO TABULATION ON DRAWING SHEET C1.

2507-6850053 REVETMENT, SPECIAL

THIS ITEM SHALL CONSIST OF FURNISHING AND PLACING REVETMENT STONE, COMPLETE IN PLACE AS SHOWN ON THE DRAWINGS. REFER TO DETAIL SHEET U2.

SPECIAL REVETMENT PLACED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS WILL BE MEASURED IN TONS TO THE NEAREST 0.1 TON. FOR THE QUANTITY OF SPECIAL REVETMENT FURNISHED AND PLACED, THE CONTRACTOR WILL BE PAID THE CONTRACT UNIT PRICE PER TON.

MATERIAL SHALL MEET THE REQUIREMENTS OF ARTICLE 4130 OF THE CURRENT STANDARD SPECIFICATIONS FOR CLASS B REVETMENT ON PRIMARY PROJECTS.

THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVAL OF ALL REMNANTS OF RIPRAP STOCKPILES FROM FARM FIELDS UTILIZED BY CONTRACTOR IN THE PROJECT AREA. THIS WORK WILL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THE PRICE BID FOR THIS ITEM.

UNUSED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.

2510-6745850 REMOVAL OF PAVEMENT

QUANTITY INCLUDES 236 S.Y. OF AN ESTIMATED 10-INCH THICK P.C.C. PAVEMENT WITH 3-INCH THICK A.C.C. OVERLAY AND 28 S.Y. OF AN ESTIMATED 10-INCH THICK P.C.C. PAVEMENT. FULL DEPTH SAW CUTS SHALL BE REQUIRED AT ALL BREAKOUT LINES. ACTUAL LOCATION OF BREAKOUT LINES SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

2518-6910000 SAFETY CLOSURE

REFER TO TABULATION ON DRAWING SHEET C1.

2527-9263110 PAINTED PAVEMENT MARKINGS

REFER TO TABULATION AND DETAILS ON DRAWING SHEET C2.

2529-8200200 PRESSURE RELIEF JOINT, CF

MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH DETAILS ON DRAWING SHEET U4. CONTRACTOR SHALL INSTALL ONE 'CF' JOINT 80 FEET FROM EACH END OF BRIDGE. FINAL LOCATIONS TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

THE LENGTH IN LINEAR FEET OF PRESSURE RELIEF JOINTS INSTALLED WILL BE MEASURED BY THE ENGINEER FROM END TO END OF JOINT. FOR THE NUMBER OF LINEAR FEET OF PRESSURE RELIEF JOINTS SATISFACTORILY INSTALLED, THE CONTRACTOR WILL BE PAID THE CONTRACT UNIT PRICE. THIS PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS, LABOR, AND EQUIPMENT NECESSARY TO COMPLETE THE WORK IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.

GENERAL NOTES

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

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

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

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

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

CONSTRUCTION STAKING SHALL BE IN ACCORDANCE WITH ARTICLE 1105.06 OF THE CURRENT STANDARD SPECIFICATIONS.

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 AND TO IMPLEMENT APPROPRIATE MEASURES TO INSURE SEDIMENTS ARE NOT INTRODUCED INTO WATERS OF THE UNITED STATES DURING CONSTRUCTION OF THIS PROJECT. THE COST OF INSTALLATION, MAINTENANCE AND REMOVAL OF TEMPORARY CROSSINGS, INCLUDING CULVERTS, SHALL BE INCIDENTAL TO THE PROJECT.

212-1
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.

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

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

213-7

UNLESS OTHERWISE DIRECTED OR AUTHORIZED, ALL HOT MIX ASPHALT AND OTHER BITUMINOUS MATERIALS WHICH ARE NOT SPECIFICALLY ADDRESSED OR DESCRIBED IN THE CONTRACT DOCUMENTS SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

THE CONTRACTOR, IN ACCORDANCE WITH CURRENT RULES AND REGULATIONS OF THE IOWA DEPARTMENT OF NATURAL RESOURCES, MAY:

1. WITH THE APPROVAL OF THE ENGINEER, BLEND OR OTHERWISE PROCESS THE MATERIAL FOR USE WITH SHOULDER OR SPECIAL BACKFILL AGGREGATE, FOR USE ON THE PROJECT.
2. WITH THE APPROVAL OF THE ENGINEER, PLACE WITH MATERIAL IN AREAS DESIGNATED BY THE ENGINEER AS SOIL AGGREGATE SUBBASE WITHOUT EXTRA CHARGE.
3. REMOVE THE MATERIAL FROM THE PROJECT AND STOCKPILE FOR THE CONTRACTOR'S FUTURE USE.

221-4

IN ORDER TO AVOID ANY UNNECESSARY SURFACE BREAKS OR PREMATURE SPALLING, THE CONTRACTOR IS CAUTIONED TO EXERCISE EXTREME CARE WHEN PERFORMING ANY OF THE NECESSARY SAW CUTTING OPERATIONS FOR THE PROPOSED PAVEMENT REMOVAL.

251-1

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

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

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

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 LESS THAN 0.2 PARTS PER MILLION (PPM). ANALYSIS OF TOTAL CHROMIUM ON THIS SAMPLE WAS 43 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.

ESTIMATED PROJECT QUANTITIES AND GENERAL INFORMATION

TABULATION OF STEEL BEAM GUARDRAIL AT BRIDGE END POST, CONCRETE BARRIER AND RAILROAD SIGNALS
Refer to Standard Road Plans RE-48A-B, RE-63, RE-65A and RE-65B

108-8A
10-21-03

NO.	LOCATION			STANDARD ROAD PLAN	Case	LAYOUT LENGTHS				MATERIALS REQUIRED				DELINEATORS AND OBJECT MARKERS				BID ITEMS					REMARKS						
	DIRECTION OF TRAFFIC	END	SIDE			STATION	L2	STS (18.75')	VT	VF	ET Terminal (37.5')	Thrie Beam (25.0')	Transition Section (6.25')	VT + VF + ET 'W' BEAM	Posts ④ 6"x 8"x 7' with 6"x8" Spacer Blocks (6 or 7)	Posts ⑤ 6"x 8"x 6' with 6"x8" Spacer Blocks	CRT Posts 6"x 8"x 6' with 5"x8" Spacer Blocks (5)	Delineator		Object Marker		Installation of Guardrail		Anchorage and Terminal Systems					
																		Type	Single White D-1W	Type 2 OM2-3W	Type 3 OM-3L	Type 3 OM-3R		STS + VT + VF + ET	RE-33B	RE-69A	RE-69B	RE-69C	RE-76
1	EB	A	-	10+80	RE-65A	F	-	18.75	0	12.5	37.5	25.0	6.25	50.0	6	3	5	2	-	2	-	1	68.75	-	-	-	1*	1	*REFER TO SHEET U3 FOR MODIFIED RE-69
2	EB	T	-	10+80	RE-65A	F	-	18.75	0	12.5	37.5	25.0	6.25	50.0	6	3	5	2	-	2	1	-	68.75	-	-	-	1*	1	
3	WB	A	-	10+80	RE-65A	F	-	18.75	0	12.5	37.5	25.0	6.25	50.0	6	3	5	2	-	2	-	1	68.75	-	-	-	1*	1	
4	WB	T	-	10+80	RE-65A	F	-	18.75	0	12.5	37.5	25.0	6.25	50.0	6	3	5	2	-	2	1	-	68.75	-	-	-	1*	1	

PLACEMENT OF QUANTITIES
112'-6 x 30' CCS BRIDGE

ITEM	UNIT	PIERS	SUPERSTRUCTURE & ABUTMENTS	TOTAL
STRUCTURAL CONCRETE (BRIDGE)	CY	-	269.5	269.5
REINFORCING STEEL	LB	-	34176	34176
REINFORCING STEEL, EPOXY COATED	LB	-	31782	31782

TABULATION OF GRADING FOR GUARDRAIL INSTALLATIONS

① Lane(s) to which the installation is adjacent. ② Refer to Standard Road Plans RL-12, RL-14, and Typical 4303 or 4306.

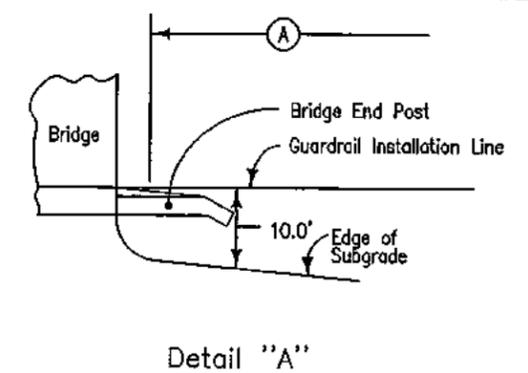
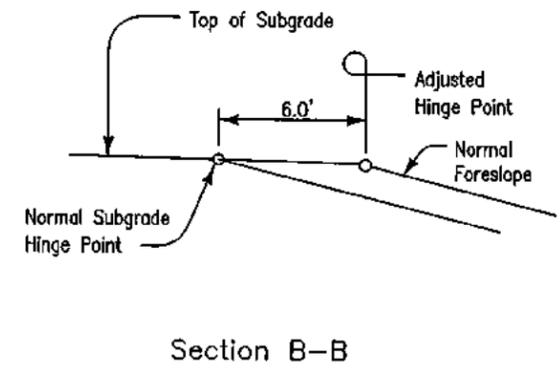
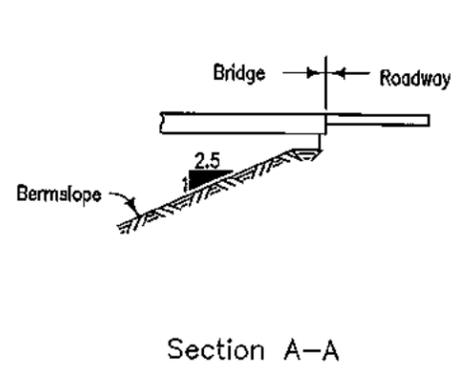
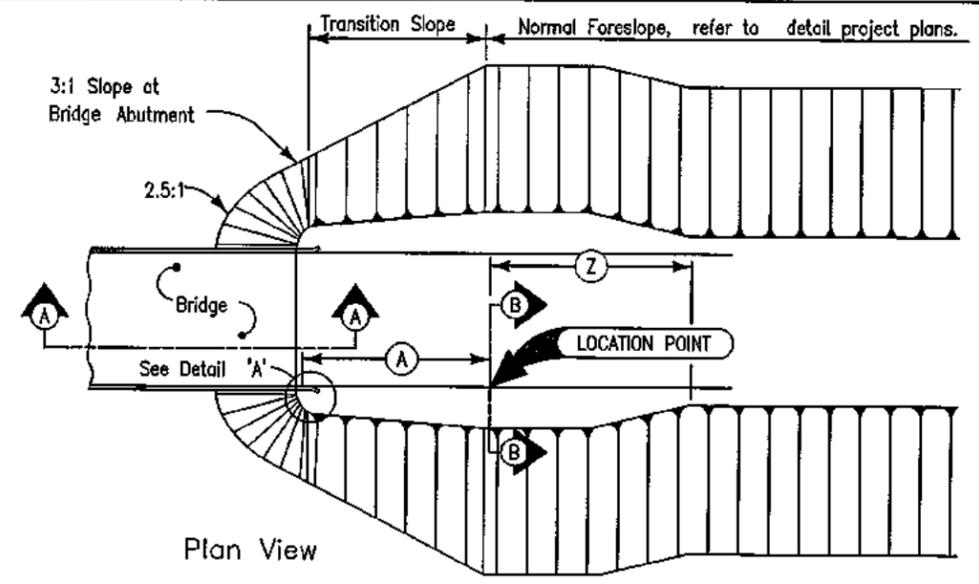
NO.	Direction of Traffic	LOCATION POINT		TYPE	DIMENSIONS ②						CLASS 10 EXCAV. **Cu. Yds.	EMBANK. IN PLACE Cu. Yds.	PIPE			REMARKS
		STATION	SIDE		A		B		Z				Size Inches	Type	Length Lin. Ft.	
					Feet	Feet	Feet	Feet	Feet	Feet						
1	EB	9+61.07	RT	2	65.6	8	50	113								
2	WB	9+43.75	LT	2	65.6	8	50	70								
3	EB	12+16.25	RT	2	65.6	8	50	38								
4	WB	11+98.93	LT	2	65.6	8	66	46								

TABULATION OF SAFETY CLOSURES

Refer to Section 2518 of the S'd. Specifications

STATION	CLOSURE TYPE		REMARKS
	Road Qty.	Hazard Qty.	
8+00	1	-	WEST END
8+50	-	1	WEST END

** QUANTITY INCLUDED IN EXCAVATION, CLASS 10, ROADWAY AND BORROW (INCLUDES 35% SHRINKAGE).



FORESLOPE TRANSITION AT BRIDGE

TABULATION OF BRIDGE APPROACH SECTION

(Refer to Standard Road Plan RF-19E, RK-1B)

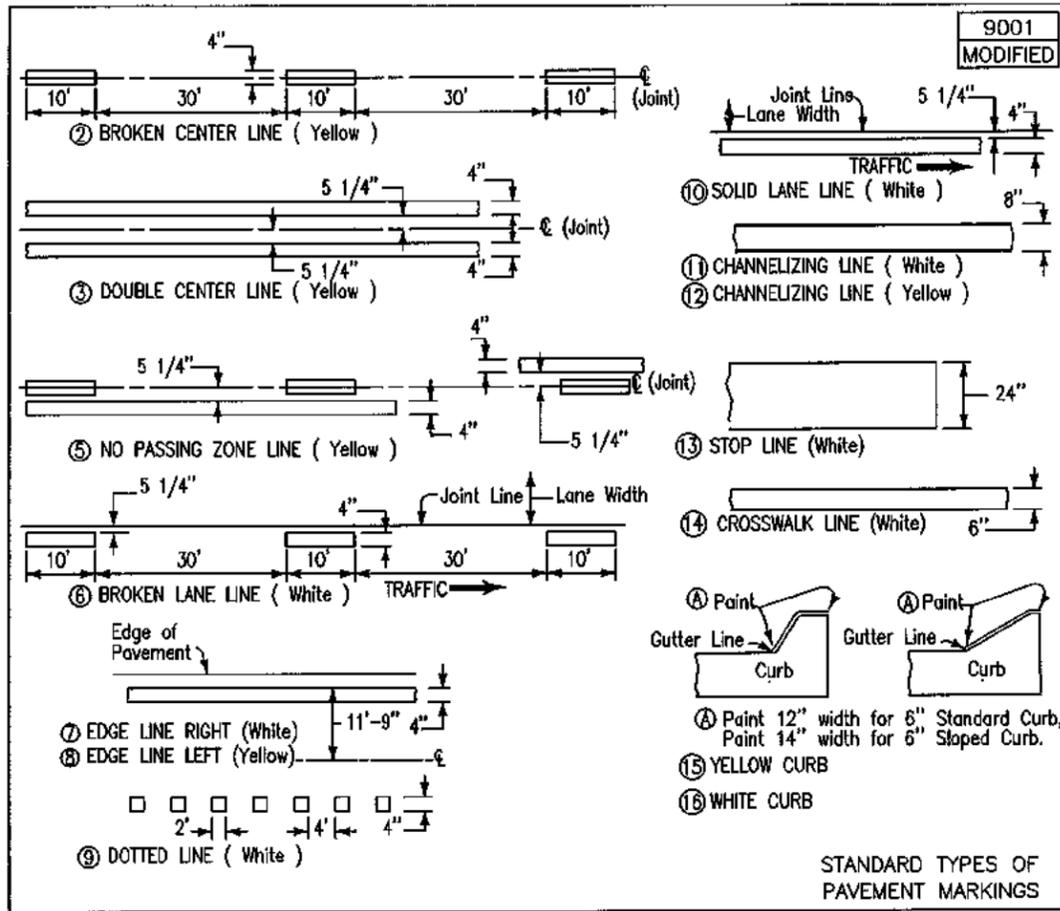
112-6
MODIFIED

① Not a bid item

LOCATION		APPROACH PAVEMENT				Fixed or Movable Abutment	SUBDRAIN				APPROACH SUBGRADE		REMARKS		
Bridge Station	End	Thickness (T) Inches	Pay Length Feet	Non-Reinf. Pavement Area Sq.Yds.	Reinforced Pavement Area Sq.Yds.		Perforated Subdrain 4" ① Lin.Ft.	Subdrain Outlet ①		Porous Backfill ① Cu.Yds.	Granular Compacted Backfill ① Cu.Yds.	Engineering Fabric ① Sq.Yds.		Modified Subbase ① Tons	Polymer Grid ① Sq.Yds.
								Station	Side						
10+80	W	8	20	-	49	42	10+21	R	4.0	11.5	65	33			
10+80	E	8	20	-	49	42	11+39	R	4.0	11.5	65	33			
TOTAL					98	84			8.0	23.0	130	66			

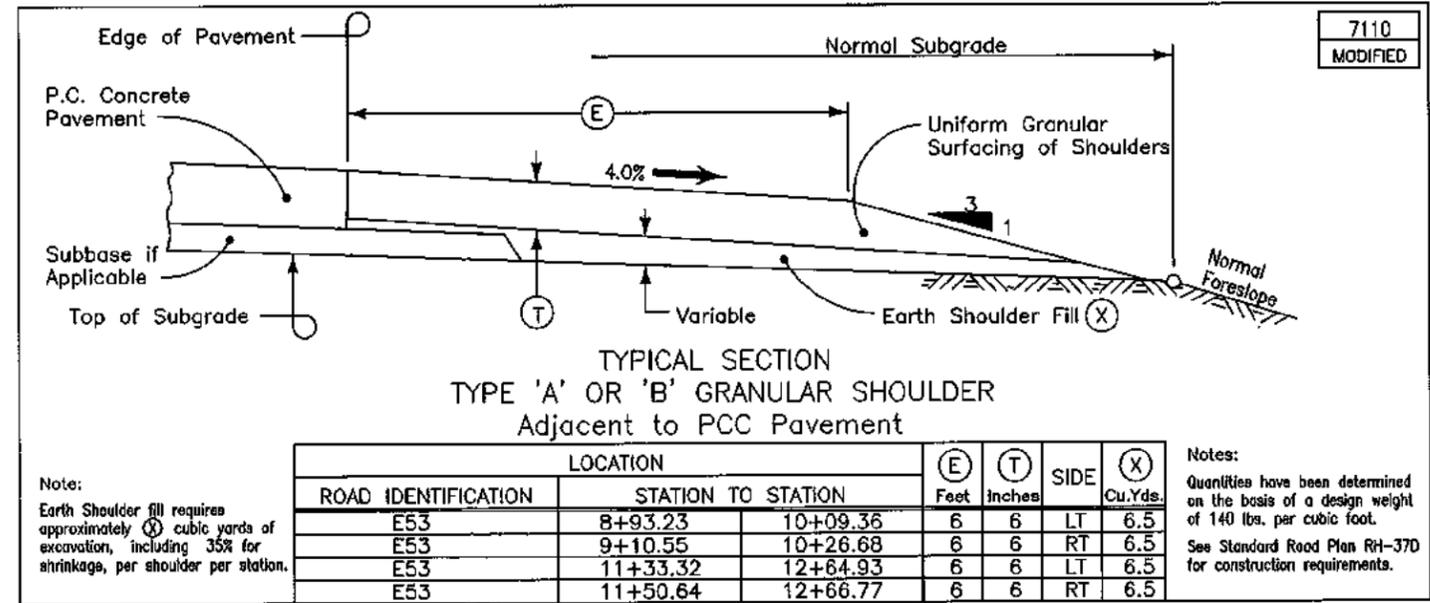
TABULATIONS, TYPICALS

REV.: 05/04 STRUC. CONC. AND REINF. STEEL QTY'S

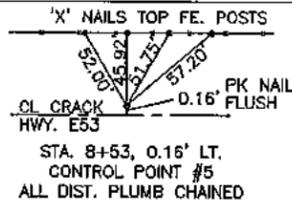


TABULATION OF EARTHWORK QUANTITIES							
STA.	CUT	ADD. CUT	FILL +35%	ADD. FILL	TOTAL CUT	TOTAL FILL+35%	BALANCE
10+02.02							
10+23.75	30		19	183	30	202	
11+36.25							
11+57.98	30		19	174	30	193	
TOTAL					60	395	

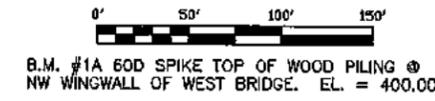
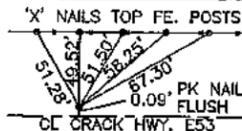
TABULATION OF PAVEMENT MARKINGS								108-22 MODIFIED
ROAD IDENTIFICATION	LOCATION		LENGTH (In Stations)				REMARKS	
	STATION TO STATION	SIDE	(2)	(3)	(5)	(7)		
	10+02.02 - 11+57.98	L R		1.560		3.120		
	LENGTH SUBTOTALS			1.560		3.120		
	QUANTITY FACTORS		.25	2	1	1		
	TOTALS			3.120		3.120		



- PARCEL NUMBER PROPERTY OWNER
- NORBERT & MARY ANN KASPERBAUER TRUSTEES OF NORBERT KASPERBAUER TRUST AND TRUSTEES OF MARY ANN KASPERBAUER TRUST
 - ROGER J. KASPERBAUER PATTY KASPERBAUER
 - STEVEN LYLE & CAROLYN JOY VOLLSTEDT
 - DANIEL SCHECHINGER RITA SCHECHINGER



EAST BOYER TWP.
T-83N R-38W



1

SW1/4 SW1/4
36-83-38

2

SE1/4 SW1/4
36-83-38

NW1/4 NW1/4
1-82-38

3

4

NE1/4 NW1/4
1-82-38

STA. 8+45
F. ENT. RT.
24'x34' CMP
U.A.C.

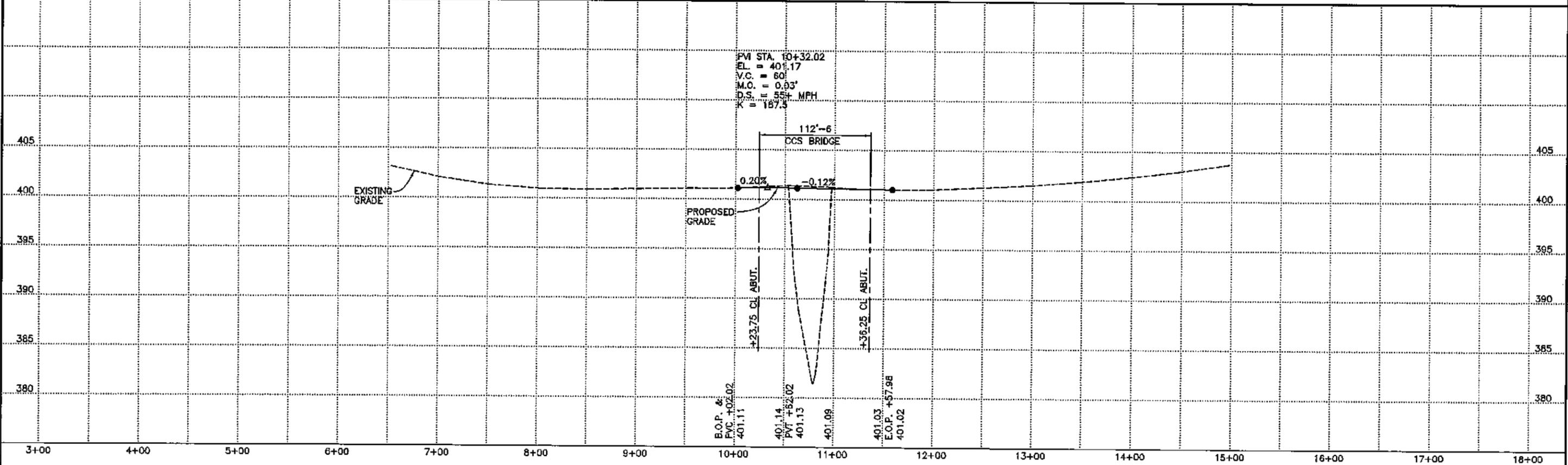
STA. 10+75, EXISTING 40' x 20' STEEL I-BEAM BRIDGE, TIMBER HIGH ABUTMENTS AND TIMBER PILE W/CONC. DECK TO BE REMOVED FROM THE PROJECT RIGHT OF WAY. CONTRACTOR SHALL CONSTRUCT 112'-8 x 30' CCS BRIDGE. SKEW 30° RT. AHEAD. D.A. = 3.2 S.M.

NISHNABOTNA TWP.
T-82N R-38W

STA. 12+00
F. ENT. LT.
24'x56' CMP
CONTR. TO REMOVE EXIST. STRUCTURE FURNISH AND PLACE @ STA. 12+17 24'x68' CMP 36' TOP W/8:1 F.S.

STA. 12+82
F. ENT. RT.
U.A.C.

REV: 05/04 F. ENT. CULV. LENGTH AND S.S. RATIO

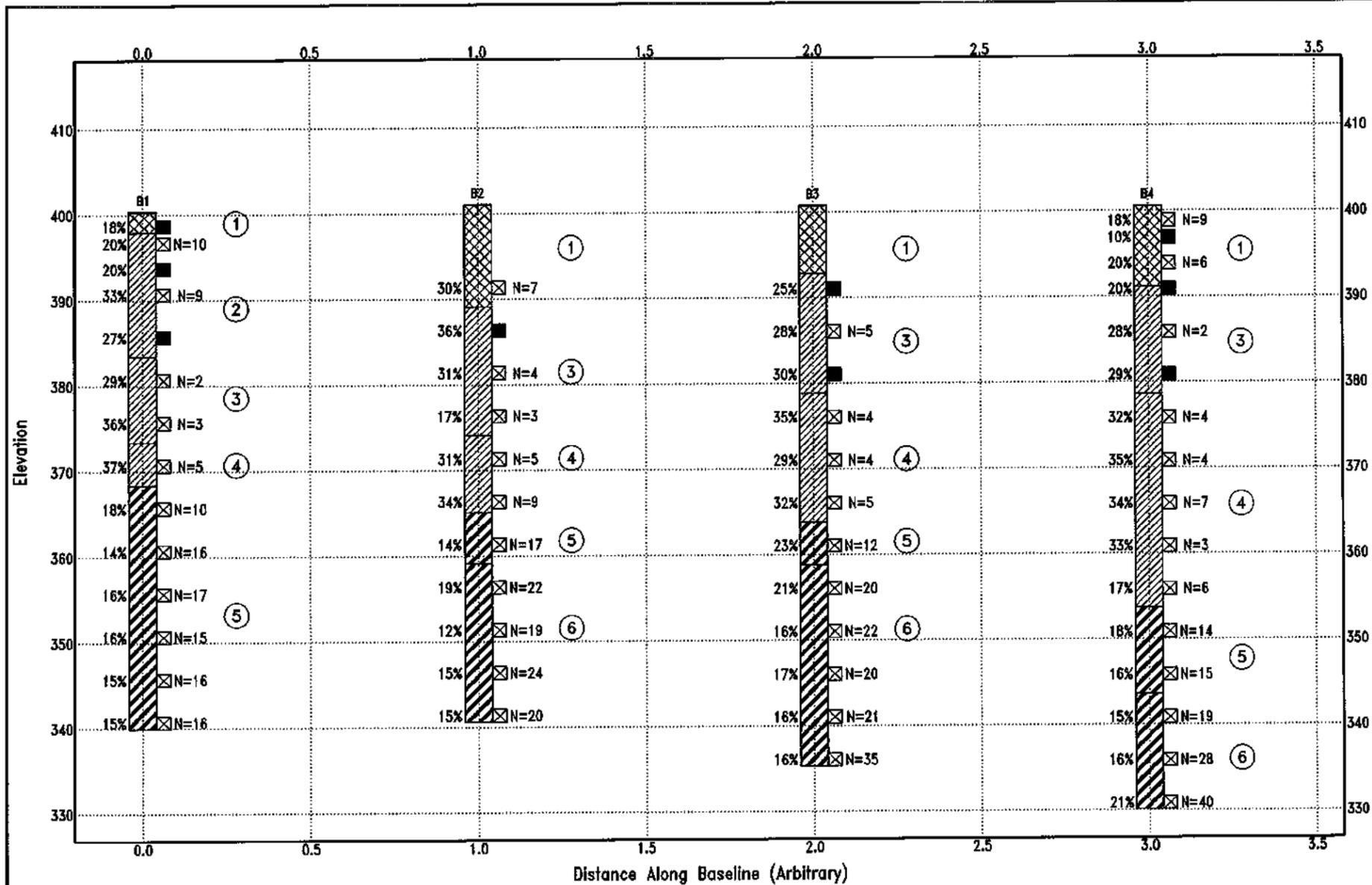


STA. 9+86.5
14' LT.
EL. 400.4

STA. 10+51.5
6' RT.
EL. 401.1

STA. 11+0.5
6' LT.
EL. 400.8

STA. 11+76.5
13' RT.
EL. 400.6



- ① FILL, LEAN CLAY, GRAY BROWN AND GRAY
- ② FIRM SILTY CLAY, GRAY TO LIGHT GRAY, ALLUVIUM
- ③ SOFT SILTY CLAY, GRAY TO LIGHT GRAY, ALLUVIUM
- ④ STIFF SILTY CLAY, GRAY, ALLUVIUM
- ⑤ FIRM TO VERY FIRM, GLACIAL CLAY, GRAY, GLACIAL TILL
- ⑥ VERY FIRM GLACIAL CLAY, GRAY, GLACIAL TILL

- SAMPLE TYPES:**
- Auger Cutting
 - Split-Spoon
 - Rock Core
 - Shelby Tube
 - Hand Auger
- WATER LEVELS:**
- During Drilling
 - End of Day

SOUNDING DATA

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

SOUNDINGS WERE TAKEN ON AUGUST 19, 21, AND 22, 2003.

SEE SHEET V1 FOR BORING LOCATIONS.



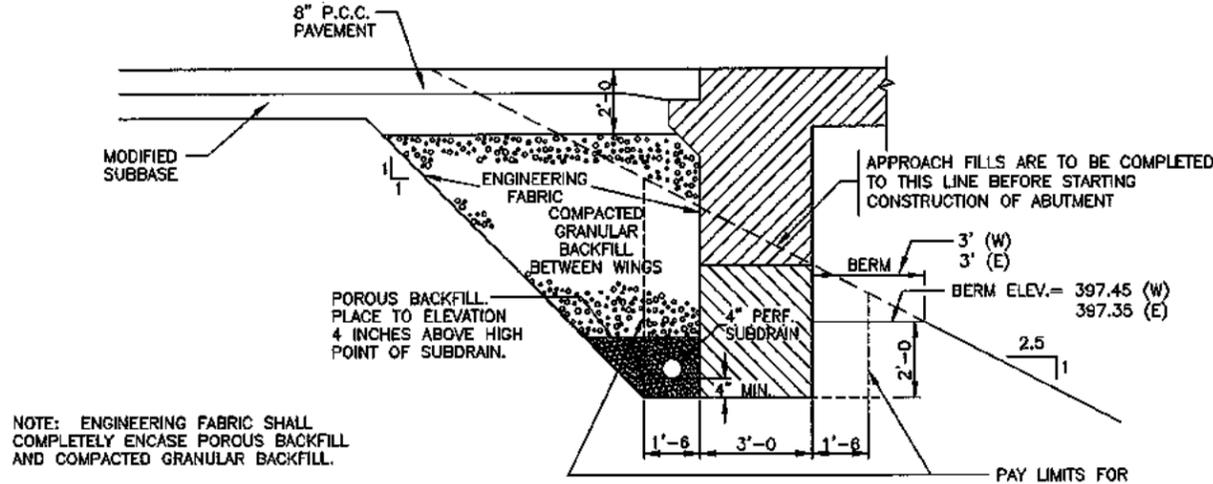
Professional Service Industries
2917 Douglas Street
Omaha, Nebraska 68131
Telephone: 402 341-5181
Fax: 402 341-1526

E53 West Bridge Replacement
Crawford County, Iowa

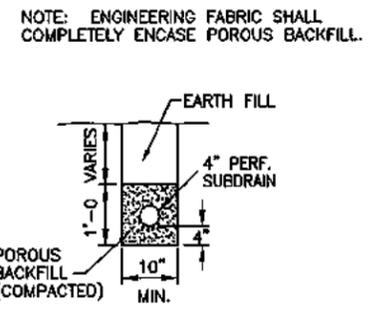
PSI Project Number: 172-35043

GEOTECHNICAL INFORMATION PROVIDED HERewith IS THE SOLE RESPONSIBILITY OF PROFESSIONAL SERVICE INDUSTRIES, INC., WHOSE GEOTECHNICAL REPORT DATED SEPTEMBER 19, 2003, COMPLETE WITH THE LICENSED ENGINEER'S SEAL AND CERTIFICATION, IS AVAILABLE FOR VIEWING.

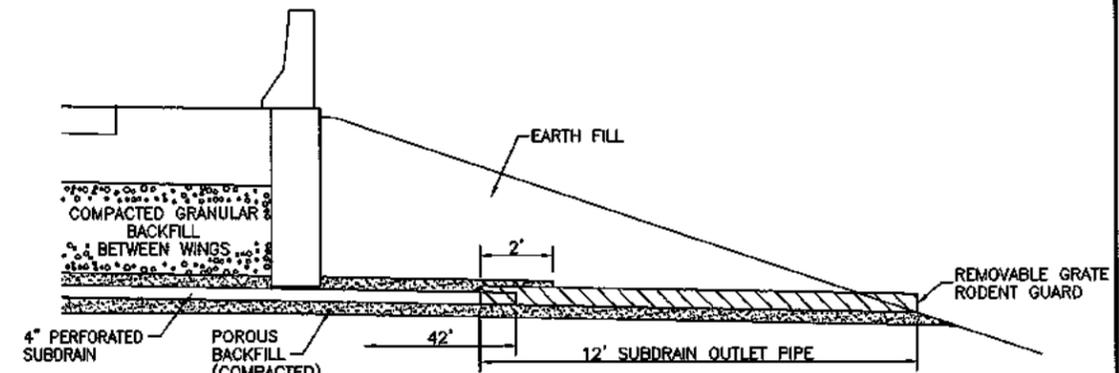
SUBDRAIN NOTES:
 THE COST OF FURNISHING AND PLACING SUBDRAIN, INCLUDING EXCAVATION, GRANULAR BACKFILL, POROUS BACKFILL, ENGINEERING FABRIC, AND SUBDRAIN OUTLET IS TO BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE (BRIDGE)". NO EXTRA PAYMENT WILL BE MADE.
 REFER TO STANDARD ROAD PLAN RF-19E FOR ADDITIONAL DETAILS.



SECTION A-A



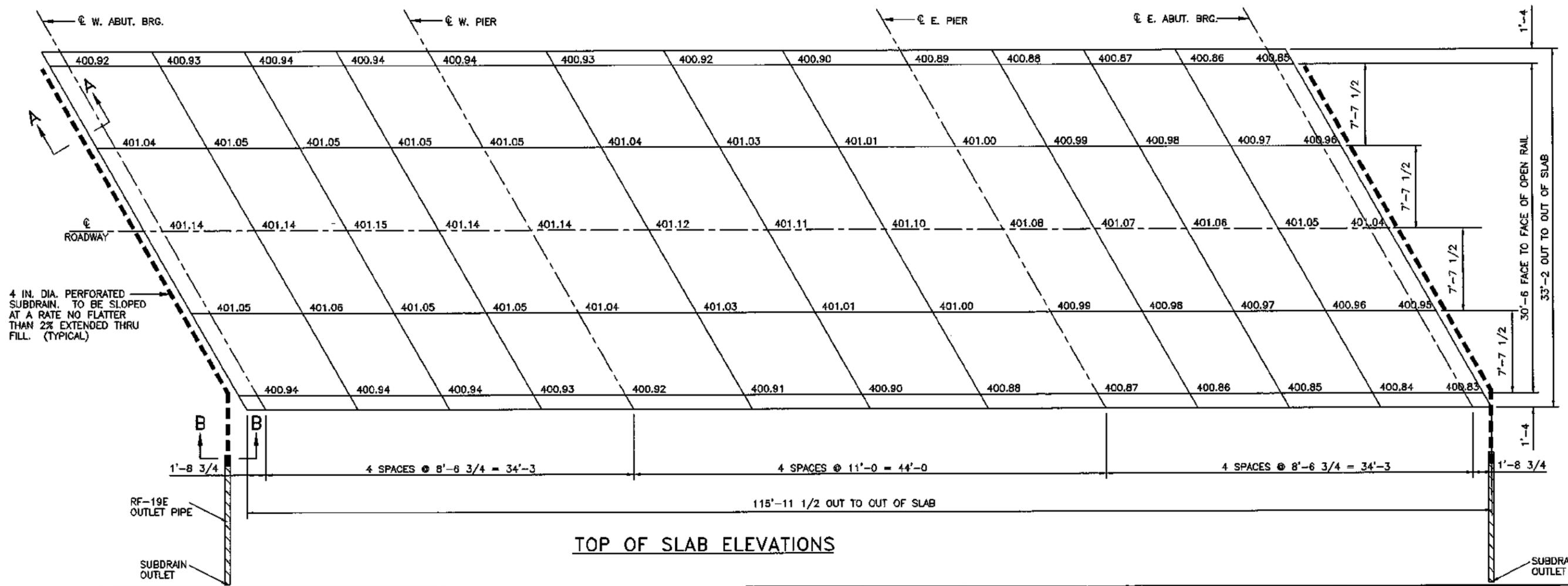
SECTION B-B



TYPICAL SECTION OF SUBDRAIN OUTLET

SUBDRAIN AND CLASS 20 EXCAVATION DETAILS

NOT TO SCALE



TOP OF SLAB ELEVATIONS

GENERAL NOTES:

This plan illustrates the method of attaching thrie beam guard-rail to a flared bridge endpost or a flared concrete barrier end-post.

Horizontal and vertical alignment of the guardrail in the area immediately adjacent to the connection shall be adjusted to a smoothly curved line with no abrupt changes.

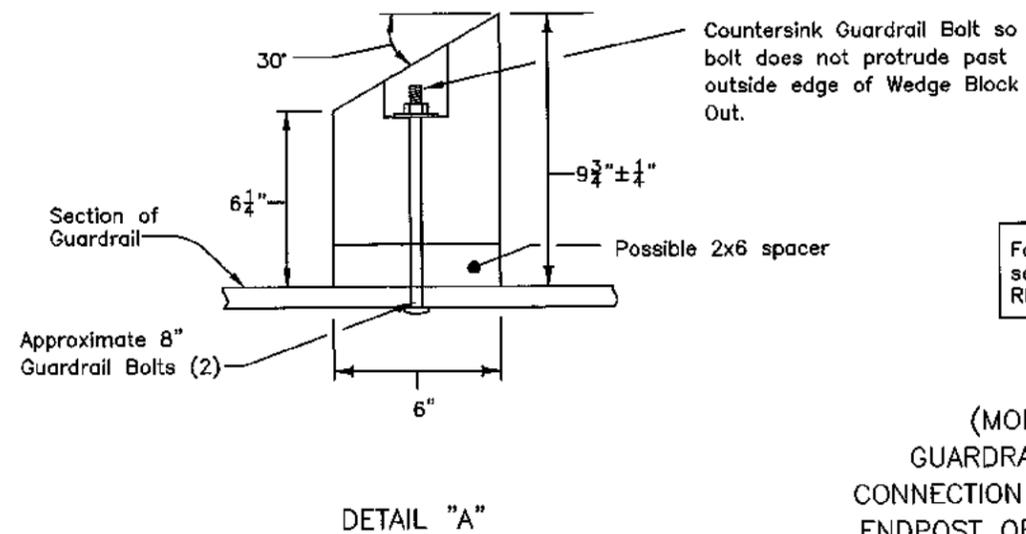
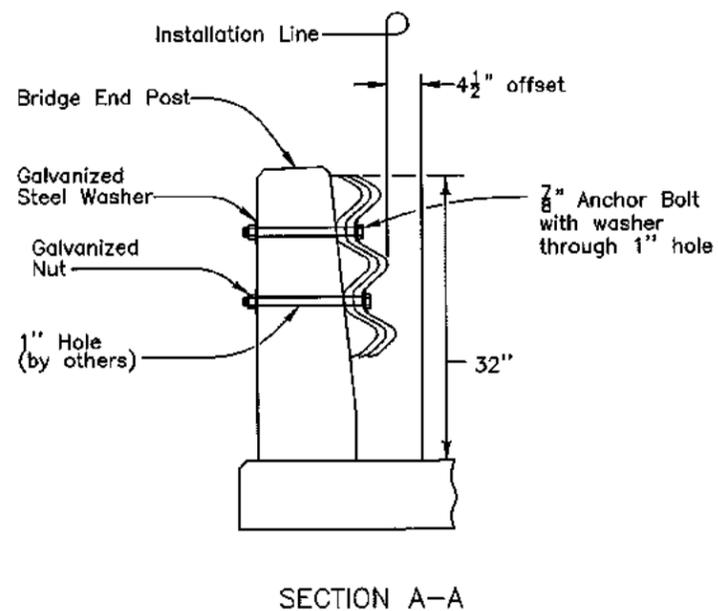
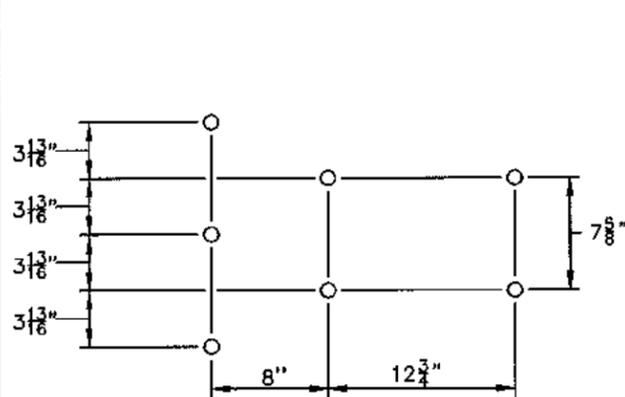
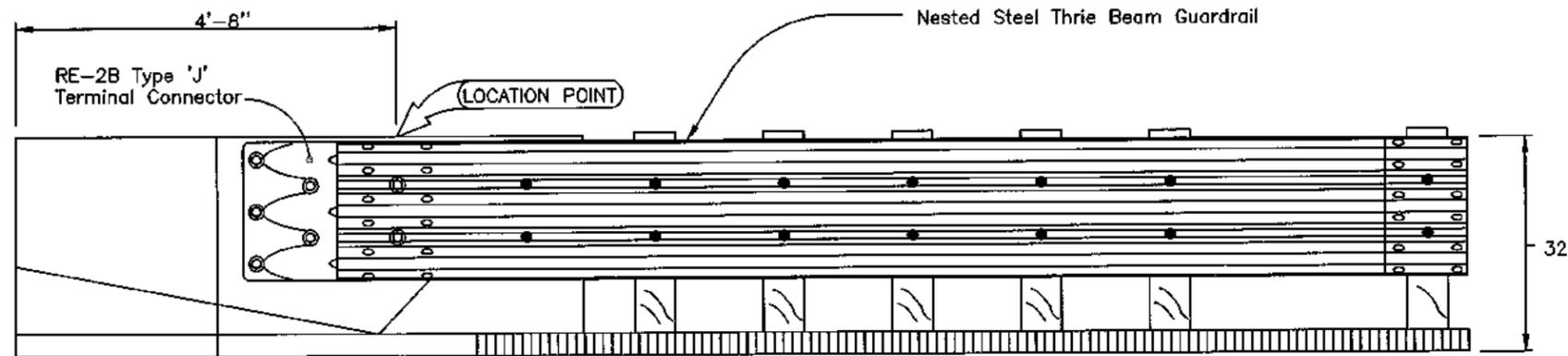
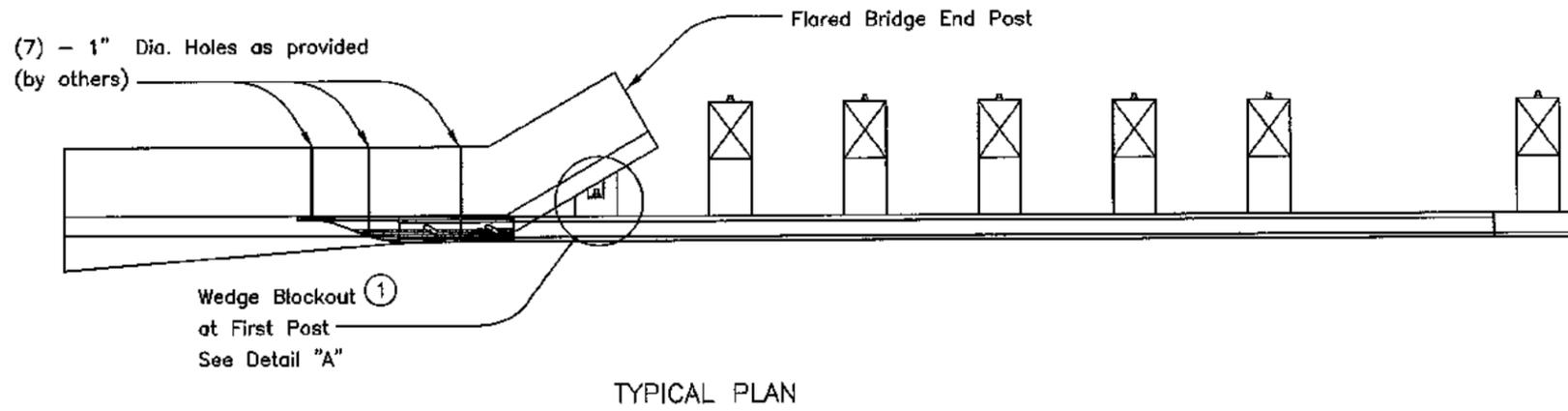
The anchor bolts shall conform to requirements of ASTM F-1554, Grade 55, threaded full length, and be galvanized. Threads may be chased after galvanizing. Washers shall conform to requirements of ASTM F-436 and be galvanized. Nuts shall conform to requirements of ASTM A-563 DH and be galvanized. These materials shall be galvanized in compliance with ASTM A-153, Class C.

The price bid for "Guardrail, End Anchorages, Beam, RE-69" each shall be considered full compensation for furnishing all materials listed below and the construction of the end anchorage as detailed herein.

LIST OF MATERIALS FOR THE RE-69 END ANCHORAGE:

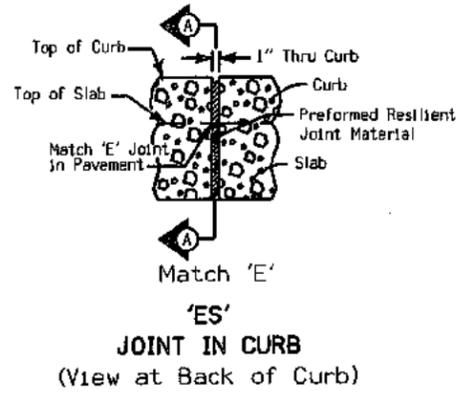
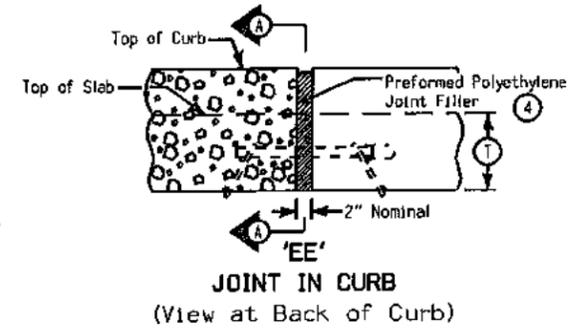
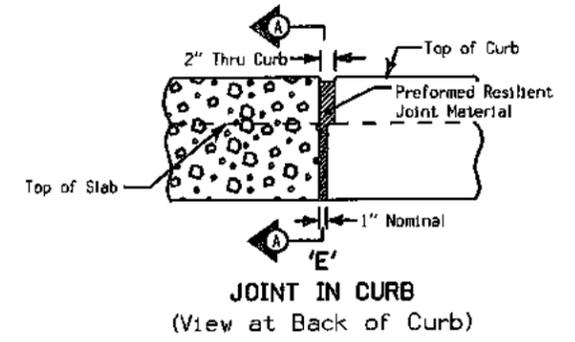
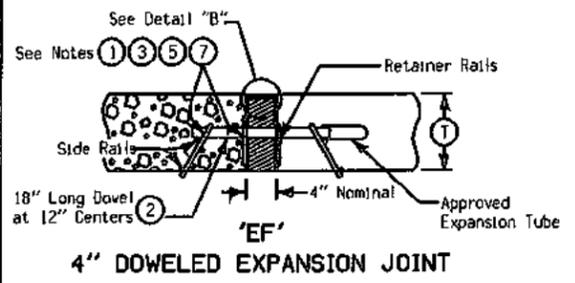
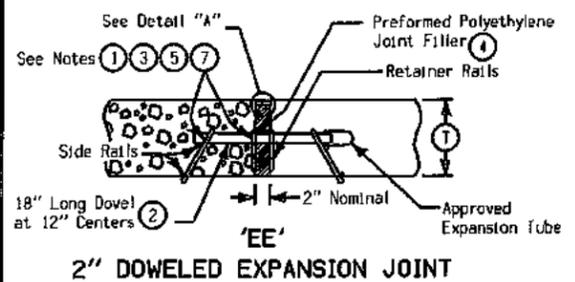
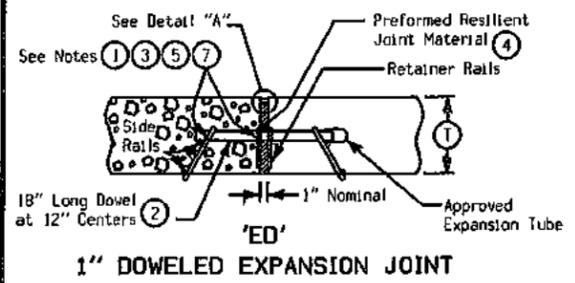
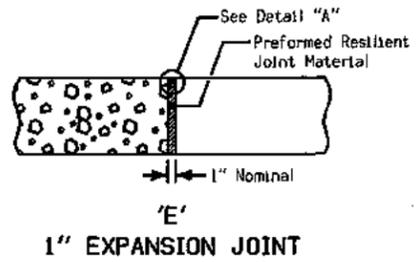
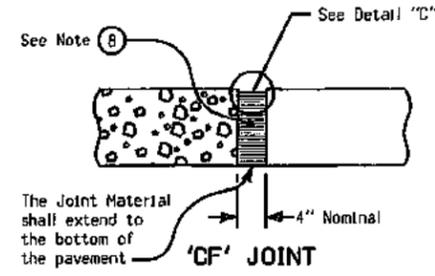
- (1) - RE-2B Type 'J' Terminal Connector.
- (7) - Approved 7/8" x Sufficient length H.S. Hex Bolts.
- (7) - Approved 7/8" H.S. Hex Nuts.
- (14) - Approved 15/16" I.D., 2-1/4" O.D., 5/32" Thick Washers.

① First post shown on RE-68 is skipped. Only the wedge blockout is installed at this location.

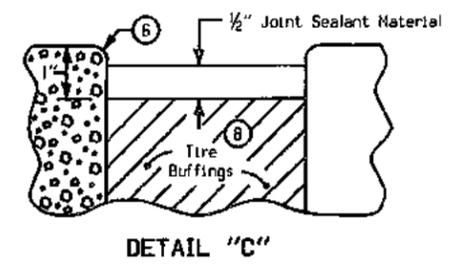
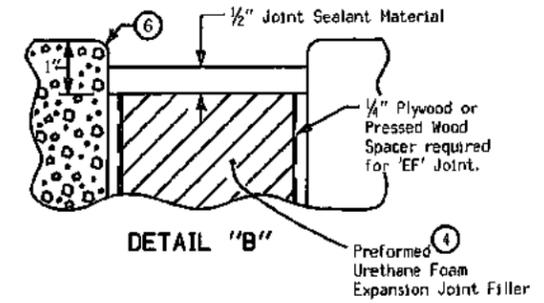
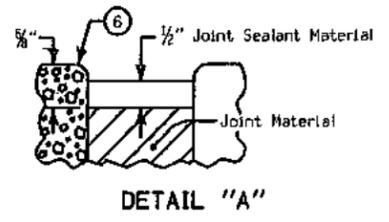
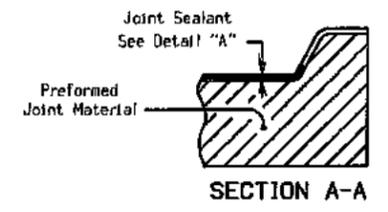
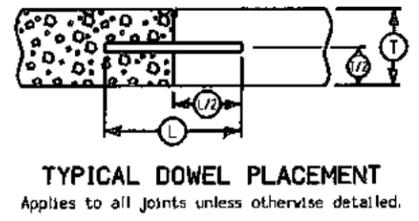


For additional information see Standard Road Plan RE-2B and RE-68.

(MODIFIED RE-69)
GUARDRAIL INSTALLATION
CONNECTION TO FLARED BRIDGE
ENDPOST OR CONCRETE BARRIER



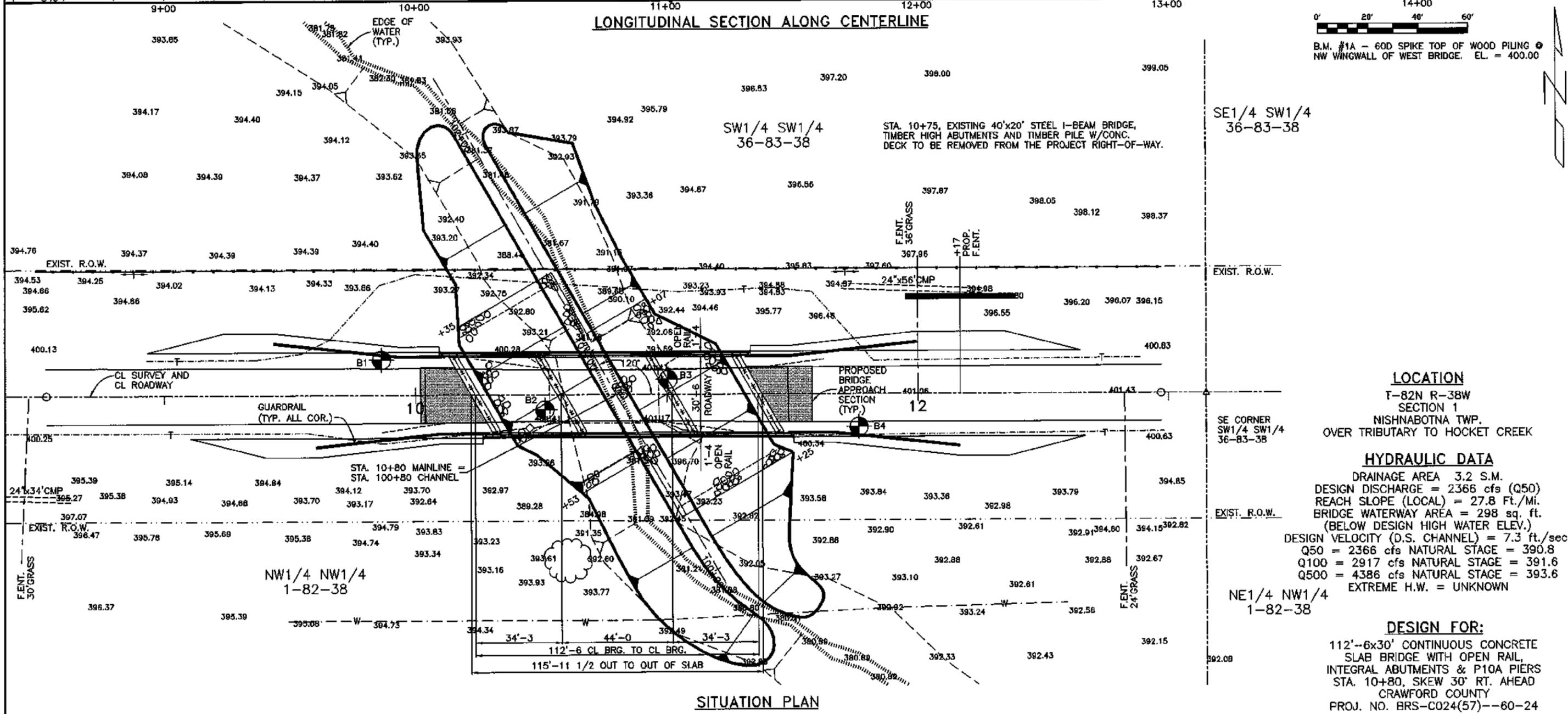
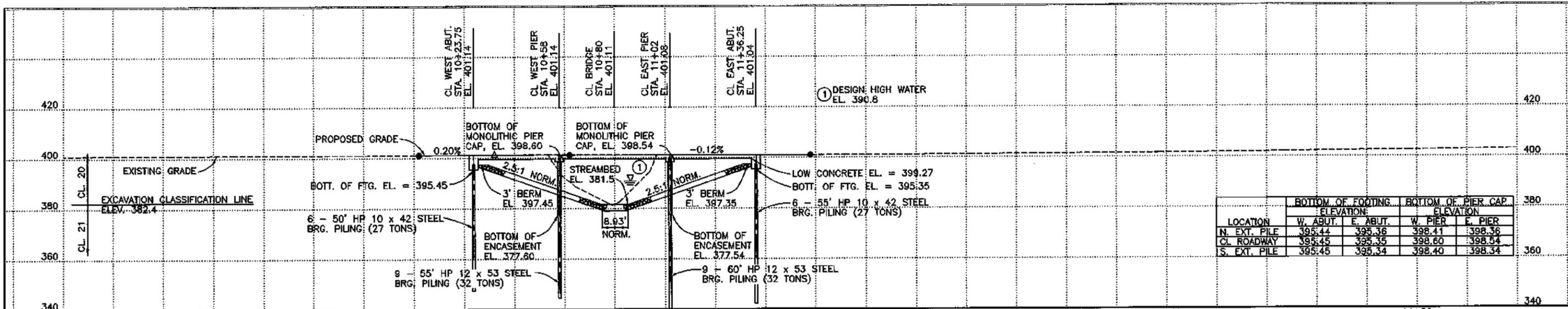
BAR SIZE TABLE			
(1)	< 8"	8" and < 10"	≥ 10" or > 10"
DOWEL SIZE	3/8"	1/4"	1/2"



GENERAL NOTES:
All preformed joint material shall be installed perpendicular to the pavement surface and care shall be exercised throughout the construction of the pavement to ensure that such joint material remains in proper position upon completion of paving operation.

- (1) The free moving ends of dowel support assembly shall be placed alternately across joints.
- (2) Refer to Bar Size Table.
- (3) The free end of dowel bar shall be coated prior to placement of second slab to prevent bond with that portion of pavement.
- (4) Holes for Joint Material shall be predrilled or preformed for appropriate dowel size.
- (5) Bars in Transverse Joints shall be placed according to Standard Road Plan RH-5B.
- (6) Edge with 1/4" tool for length of joint indicated in formed; edging not required when cut with diamond blade saw.
- (7) Weld side opposite Expansion Tube.
- (8) Joint material shall consist of clean, dry tire buffings. Tire buffings can be obtained from tire retread preparation operations. Joint material is to be placed loose and struck off level in joint. Any compacted material shall be removed and replaced with loose material. Sealer used with this joint material shall be hot poured joint sealer meeting the requirements of Article 4136.02A of the Standard Specifications.

Modified RH-52 JOINTS (EXPANSION)



SE1/4 SW1/4
36-83-38

STA. 10+75, EXISTING 40'x20' STEEL I-BEAM BRIDGE,
TIMBER HIGH ABUTMENTS AND TIMBER PILE W/CONC.
DECK TO BE REMOVED FROM THE PROJECT RIGHT-OF-WAY.

0' 20' 40' 60'
B.M. #1A - 60D SPIKE TOP OF WOOD PILING @
NW WINGWALL OF WEST BRIDGE. EL. = 400.00

LOCATION
T-82N R-38W
SECTION 1
NISHNABOTNA TWP.
OVER TRIBUTARY TO HOCKETT CREEK

HYDRAULIC DATA
DRAINAGE AREA 3.2 S.M.
DESIGN DISCHARGE = 2366 cfs (Q50)
REACH SLOPE (LOCAL) = 27.8 Ft./Mi.
BRIDGE WATERWAY AREA = 298 sq. ft.
(BELOW DESIGN HIGH WATER ELEV.)
DESIGN VELOCITY (D.S. CHANNEL) = 7.3 ft./sec.
Q50 = 2366 cfs NATURAL STAGE = 390.8
Q100 = 2917 cfs NATURAL STAGE = 391.6
Q500 = 4386 cfs NATURAL STAGE = 393.6
EXTREME H.W. = UNKNOWN

DESIGN FOR:
112'-6x30' CONTINUOUS CONCRETE
SLAB BRIDGE WITH OPEN RAIL,
INTEGRAL ABUTMENTS & P10A PIERS
STA. 10+80, SKEW 30° RT. AHEAD
CRAWFORD COUNTY
PROJ. NO. BRS-C024(57)--60-24

