



Iowa Department of Transportation  
Highway Division

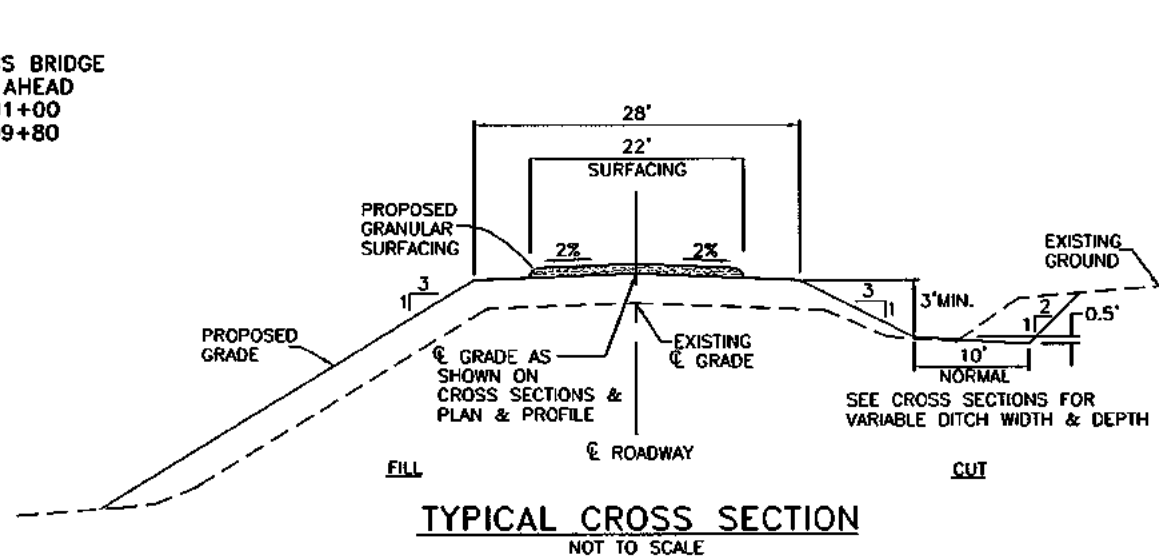
PLANS OF PROPOSED IMPROVEMENTS ON THE

**FARM-TO-MARKET SYSTEM  
CRAWFORD COUNTY**

PROJECT NO. BROS-C024(78)--5F-24  
BRIDGE REPLACEMENT - CCS  
ON COUNTY ROAD M15 (190TH ST.) OVER  
BEAVER 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.



Approved  
*[Signatures]*  
BOARD OF SUPERVISORS

Approved  
*[Signature]*  
CRAWFORD COUNTY ENGINEER  
DATE: 12/19/05

04-30-02 101-4

**DESIGN DATA RURAL**

2000 AADT	40	V.P.D.
2026 AADT	60	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 PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

*[Signature]* 12/15/05  
TROY J. GROTH, P.E. #14450  
DATE

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2005.  
PAGES OR SHEETS COVERED BY THIS SEAL:  
ALL SHEETS

LETTING DATE  
3-21-2006

BRIDGE REPLACEMENT - CCS  
BROS-C024(78)--5F-24

CRAWFORD COUNTY

**TRAFFIC CONTROL PLAN**

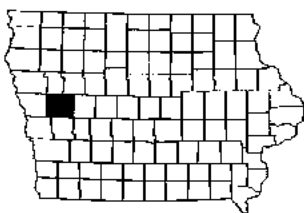
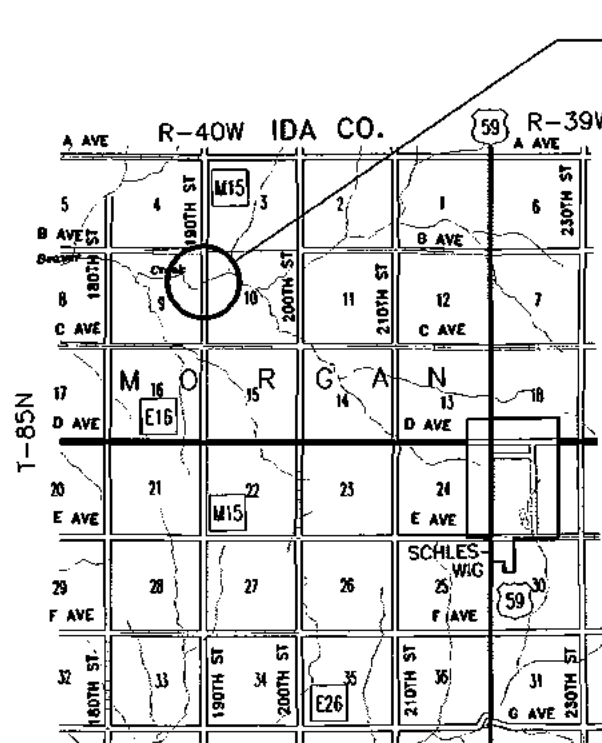
THIS ROAD WILL BE CLOSED TO THROUGH TRAFFIC DURING CONSTRUCTION. LOCAL TRAFFIC TO ADJACENT PROPERTIES WILL BE MAINTAINED AS PROVIDED FOR IN ARTICLE 1107.08 OF THE CURRENT STANDARD SPECIFICATIONS. TRAFFIC CONTROL DEVICES, PROCEDURES, LAYOUTS, SIGNING, AND PAVEMENT MARKINGS INSTALLED WITHIN THE LIMITS 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**

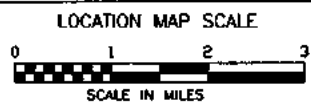
THIS PROJECT IS COVERED BY U.S. ARMY CORPS OF ENGINEERS' NATIONWIDE PERMIT NO. 14.  
THIS PROJECT IS COVERED BY THE IOWA DEPARTMENT OF NATURAL RESOURCES NPDES GENERAL PERMIT NO. 2. THE CONTRACTOR SHALL CARRY OUT THE TERMS AND CONDITIONS OF GENERAL PERMIT NO. 2 AND THE STORM WATER POLLUTION PREVENTION PLAN WHICH IS A PART OF THESE CONTRACT DOCUMENTS. REFER TO SECTION 2502 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL INFORMATION.

**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.



**LOCATION MAP**



**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

TOTAL SHEETS	18
PROJECT NUMBER	BROS-C024(78)--5F-24
R.O.W. PROJECT NUMBER	
PROJECT IDENTIFICATION NUMBER	
FHWA STRUCTURE NO.	130570

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

STANDARD BRIDGE PLANS		
STANDARD	ISSUED	REVISED
J24-87	JANUARY, 1987	
J24-5-87	JANUARY, 1987	
J24-6-87	JANUARY, 1987	
J24-7-87	JANUARY, 1987	
J24-8-87	JANUARY, 1987	
J24-15-87	JANUARY, 1987	
J24-19-87	JANUARY, 1987	6-89
P10A	AUGUST, 1988	8-96

MILEAGE SUMMARY		
LOCATION	LIN. FT.	MILES
BOP STA. 101+00 TO EOP STA. 109+80	880.00	
DEDUCT BRIDGE AT STA. 105+50	128.10	
NET LENGTH OF ROADWAY	751.90	0.142

STANDARD ROAD PLANS					
The following Standard Road Plans shall be considered applicable to construction work on this project.					
NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
RC-16A	04-20-04	RF-5	10-03-00	RL-1A	10-03-00
RC-16B	04-20-04	RF-7	04-15-03	RL-1B	10-03-00
RE-47	10-19-04	RF-30A	10-18-05	RL-4	09-21-99
RE-48A	10-19-04	RF-32	03-28-95	RL-7	12-03-96
				RS-26A	10-18-05



130570

## 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

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

TYPE A COMPACTION WILL BE REQUIRED. REFER TO PLAN SHEET C1 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. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLEARANCES FOR BORROW SITES IN ACCORDANCE WITH ARTICLE 2102.06.

NO PAYMENT FOR OVERHAUL WILL BE ALLOWED. ALL AREAS TO RECEIVE NEW EMBANKMENT SHALL BE THOROUGHLY CLEANED 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.

### 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 579 CY (429 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 PLAN SHEET V1.

### 2312-8260201 GRANULAR SURFACING ON ROAD, CLASS C GRAVEL

MATERIAL SHALL BE SPREAD BY THE CONTRACTOR AND THE CONTRACT UNIT PRICE PER TON SHALL INCLUDE THE COST OF SPREADING GRANULAR SURFACING ON ROADWAY SURFACE. RATE OF APPLICATION SHALL BE 1650 TONS PER MILE.

QUANTITY INCLUDES SURFACING REQUIRED AT POINTS OF ACCESS. REFER TO TABULATION ON PLAN SHEET C1.

### 2401-6745625 REMOVAL OF EXISTING BRIDGE

THE EXISTING BRIDGE IS AN 87'x20' STEEL PONY TRUSS BRIDGE WITH A TIMBER STRINGER APPROACH SPAN, TIMBER DECK, AND TIMBER HIGH ABUTMENTS. THE LUMP SUM BID FOR "REMOVAL OF EXISTING BRIDGE" SHALL INCLUDE REMOVAL OF THE EXISTING STRUCTURE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS.

CONTRACTOR SHALL COORDINATE WITH COUNTY FOR REMOVAL OF TIMBER DECKING PLANK. COUNTY FORCES SHALL REMOVE DECKING. REMAINDER OF STRUCTURE SHALL BE REMOVED BY CONTRACTOR.

### 2403-0100010 STRUCTURAL CONCRETE (BRIDGE)

REFER TO TABULATION ON PLAN SHEET C1. ALL STRUCTURAL CONCRETE SHALL BE CLASS C. CLASS D WILL NOT BE ALLOWED. ITEM INCLUDES CERTIFIED PCC PLANT INSPECTION IN ACCORDANCE WITH SECTION 2521.

NO HEAVY CONSTRUCTION EQUIPMENT WILL BE PERMITTED ON THE NEWLY CONSTRUCTED BRIDGE UNLESS LOADED ON A LEGAL TRAILER.

### 2404-7775005 REINFORCING STEEL, EPOXY COATED

REFER TO TABULATION ON PLAN SHEET C1. REINFORCING STEEL FOR THE ROUNDED END POST SHALL BE AS DETAILED ON PLAN SHEET U1. ALL REINFORCING STEEL, INCLUDING CAP STEEL AND PIER PILE ENCASEMENT STEEL, SHALL BE EPOXY COATED.

### 2414-6424120 CONCRETE OPEN RAILING

ALL OPEN RAIL CONCRETE SHALL BE CLASS C. SEE ROUNDED END POST DETAILS ON PLAN SHEET U1 FOR MODIFICATIONS TO STANDARD BRIDGE PLAN J24-19-87.

### 2417-1040030 CULVERT, CORRUGATED METAL ENTRANCE PIPE, 30 IN. DIA.

### 2417-1040048 CULVERT, CORRUGATED METAL ENTRANCE PIPE, 48 IN. DIA.

### 2502-8215124 SUBDRAIN, CORRUGATED METAL PIPE, 24 IN. DIA.

### 2502-8215130 SUBDRAIN, CORRUGATED METAL PIPE, 30 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. ALL CORRUGATED METAL PIPES 36 INCHES IN DIAMETER OR LARGER SHALL BE FURNISHED WITH 3 IN. X 1 IN. CORRUGATIONS.

### 2501-5425053 PILES, DRIVE STEEL BEARING, HP 12 X 53

THE REQUIRED DESIGN BEARING FOR THE HP 12 X 53 ABUTMENT PILES IS 37 TONS. THE REQUIRED DESIGN BEARING FOR THE HP 12 X 53 P10A TYPE 3 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.

CAST-IN-ONE-PIECE STEEL PILE POINTS ARE REQUIRED FOR ALL PILES. PILE POINTS SHALL BE IN ACCORDANCE WITH ARTICLE 4167.02 AND MATERIALS IM 467.02.

## ESTIMATED PROJECT QUANTITIES

ITEM NUMBER	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	2068	
2	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	909	
3	2312-8260201	GRANULAR SURFACING ON ROAD, CLASS C GRAVEL	TON	261	
4	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1	
5	2402-2720000	EXCAVATION, CLASS 20	CY	58	
6	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	256.4	
7	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	60804	
8	2414-6424120	CONCRETE OPEN RAILING	LF	272.2	
9	2417-0225024	APRONS, METAL, 24 IN. DIA.	EA	1	
10	2417-0225030	APRONS, METAL, 30 IN. DIA.	EA	1	
11	2417-1040030	CULVERT, CORRUGATED METAL ENTRANCE PIPE, 30 IN. DIA.	LF	40	
12	2417-1040048	CULVERT, CORRUGATED METAL ENTRANCE PIPE, 48 IN. DIA.	LF	118	
13	2501-5425053	PILES, DRIVE STEEL BEARING, HP 12 X 53	LF	1470	
14	2501-5475053	CONCRETE ENCASEMENT OF STEEL H PILES, HP 12 X 53 (P10A TYPE 3)	LF	378	
15	2501-5550053	PILES, FURNISH STEEL BEARING, HP 12 X 53	LF	1470	
16	2502-8215124	SUBDRAIN, CORRUGATED METAL PIPE, 24 IN. DIA.	LF	48	
17	2502-8215130	SUBDRAIN, CORRUGATED METAL PIPE, 30 IN. DIA.	LF	50	
18	2507-3250005	ENGINEERING FABRIC	SY	929	
19	2507-6850053	REVTMENT, SPECIAL	TON	404	
20	2507-6875001	RIPRAP, REMOVE AND REPLACE	CY	242	
21	2518-6910000	SAFETY CLOSURE	EACH	4	
22	2524-9100030	OBJECT MARKER, TYPE 3	EACH	4	
23	2528-8445110	TRAFFIC CONTROL	LS	1	
24	2533-4980005	MOBILIZATION	LS	1	
25	2601-2634100	MULCHING	ACRE	1.4	
26	2601-2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	1.4	
27	2602-0000030	SILT FENCE FOR DITCH CHECKS	LF	130	

## ESTIMATED PROJECT QUANTITIES AND GENERAL INFORMATION

## ESTIMATE REFERENCE INFORMATION (CONTINUED)

### 2507-3250005 ENGINEERING FABRIC

MATERIAL TO CONFORM TO IOWA DOT MATERIALS IM 496.01 APPENDIX A, EMBANKMENT EROSION CONTROL (ARTICLE 4196.01, C). MATERIAL SHALL BE JOINED BY OVERLAPPING A MINIMUM OF 18 INCHES. REFER TO DETAILS ON PLAN SHEET U2.

### 2507-6850053 REVETMENT, SPECIAL

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

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

DEWATERING REQUIRED TO INSTALL REVETMENT SHALL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THE PRICE BID FOR THIS ITEM.

RIPRAP WILL NOT BE ALLOWED TO BE DUMPED OVER THE RAILING OF THE NEWLY CONSTRUCTED BRIDGE.

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.

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.

### 2507-6875001 RIPRAP, REMOVE AND REPLACE

ITEM INCLUDES REMOVING EXISTING CHANNEL BANK REVETMENT TO THE EXTENT NECESSARY TO COMPLETE INSTALLATION OF THE PROPOSED IMPROVEMENTS INCLUDING THE BRIDGE BERM AND APPROACH ROADWAY GRADING. REVETMENT SHALL BE STOCKPILED AND REPLACED ON THE PROPOSED CHANNEL SLOPES. REMOVAL AND DISPOSAL OF EXISTING ENGINEERING FABRIC SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM.

THE QUANTITY OF RIPRAP, REMOVE AND REPLACE FOR WHICH PAYMENT WILL BE MADE, WHEN PLACED AS SHOWN IN THE CONTRACT DOCUMENTS, WILL BE THE QUANTITY SHOWN IN THE CONTRACT DOCUMENTS IN CUBIC YARDS.

FOR RIPRAP, REMOVE AND REPLACE THE CONTRACTOR WILL BE PAID THE CONTRACT UNIT PRICE PER CUBIC YARD. THIS PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EQUIPMENT AND LABOR AND FOR PERFORMANCE OF ALL WORK NECESSARY FOR REMOVING AND STOCKPILING THE EXISTING RIPRAP REVETMENT, AND REPLACING THE REVETMENT. THE CONTRACTOR SHALL EXERCISE CARE TO MINIMIZE THE AMOUNT OF SOIL AND DEBRIS IN THE RIPRAP STOCKPILE.

### 2518-6910000 SAFETY CLOSURE

REFER TO TABULATION ON PLAN SHEET C1.

### 2602-0000030 SILT FENCE FOR DITCH CHECKS

REFER TO STANDARD ROAD PLANS RC-16A AND RC-16B AND TABULATION ON PLAN SHEET C2 FOR DETAILS.

QUANTITY INCLUDES SILT FENCE AT CULVERT INLETS AS DETAILED ON PLAN SHEET C2. MAXIMUM SPACING OF STEEL POSTS FOR SILT FENCE AT CULVERT INLETS SHALL BE 5 FEET.

## GENERAL NOTES

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

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

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 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 PROVIDED BY THE OWNER 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.

### 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 21,602 PARTS PER MILLION (PPM). ANALYSIS OF TOTAL CHROMIUM ON THIS SAMPLE WAS 2,321 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

POLLUTION PREVENTION PLAN

110-12A

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 CRAWFORD COUNTY SECONDARY ROAD BRIDGE ON M15 (190TH STREET) OVER BEAVER CREEK.

THIS PPP COVERS APPROXIMATELY 2 ACRES WITH AN ESTIMATED 2 ACRES BEING DISTURBED. THE PORTION OF THE PPP COVERED BY THIS CONTRACT HAS 2 ACRES DISTURBED.

THE PPP IS LOCATED IN AN AREA OF ONE SOIL ASSOCIATION (MARSHALL). THE ESTIMATED AVERAGE NRCS RUNOFF CURVE NUMBER FOR THIS PPP AFTER COMPLETION WILL BE 64.

REFER TO THE PROJECT PLANS 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 BEAVER 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, SOD 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 WILL 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 2602 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 LETDOWN STRUCTURES, SOIL STABILIZATION MATS, AND OTHER APPROPRIATE MEASURES SHALL 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.

POLLUTION PREVENTION PLAN

110-12A

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 OF 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.

PLACEMENT OF QUANTITIES  
125'-0 x 24' CCS BRIDGE

ITEM	UNIT	PIERS	SUPERSTRUCTURE & ABUTMENTS	TOTAL
STRUCTURAL CONCRETE (BRIDGE)	CY	-	256.4	256.4
REINFORCING STEEL, EPOXY COATED	LB	-	60804	60804

POINTS OF ACCESS (RL-7)

102-1  
10-21-03

Refer to Detail Cross-Sections. For Pipe Culvert Details Refer to RF-30A, RF-30B, and RF-30C.

STATION	SIDE	W	TYPE	H	SIZE (Inches)	LENGTH		APRON (No.)	SURFACE MATERIAL (Tons)
						LT (Lin. Ft.)	RT (Lin. Ft.)		
104+50	R	30'	C	9.0	48	88	30		16
107+26	L	30'	C	1.0	30	20	20		
109+80	L	U.A.C.	C						10

TABULATION OF EARTHWORK QUANTITIES

STA.	CUT	ADD. CUT	FILL +35%	ADD. FILL	TOTAL CUT	TOTAL FILL+35%	BALANCE
101+00							
101+50	24		32		24	32	
102+00	60		65		60	65	
102+50	97		70		97	70	
103+00	122		108		122	108	
103+50	139		153		139	153	
104+00	191		202		191	202	
104+50	120		256		120	256	
104+87.5	17		169		17	169	
106+12.5							
106+50	78		201		78	201	
107+00	126		194		126	194	
107+50	107		148	90	107	238	
108+00	83		90		83	90	
108+50	60		79		60	79	
109+00	52		106		52	106	
109+50	59		90		59	90	
109+80	20		15		20	15	
TOTAL					1355	2068	

TABULATION OF SAFETY CLOSURES 108-13A  
10-28-97

Refer to Section 2518 of the S'd. Specifications

STATION	CLOSURE TYPE		REMARKS
	Road Qty.	Hazard Qty.	
93+00	1	-	S. END
104+60	-	1	S. END
107+00	-	1	N. END
111+00	1	-	N. END

TABULATION OF DELINEATORS AND OBJECT MARKERS 108-17  
04-28-92

Refer to Standard Plan RE-48A-B \* and RE-29C \*\* Not a Bid Item

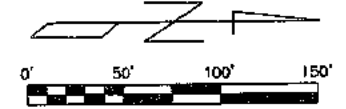
Station	Type*	OBJECT MARKER				REMARKS	
		Single White D-1W Number	Type 2 OM2-3YV Number	Type 3			
				OM-3L Number	OM-3R Number		Offset Brackets **
105+50	1	-	-	1	1	-	SOUTH END
105+50	1	-	-	1	1	-	NORTH END

TABULATIONS, TYPICALS

PARCEL NUMBER PROPERTY OWNER  
 ① NEIL & KIMBERLY KRAGEL  
 ② DELBERT & FRANCES CLAUSEN

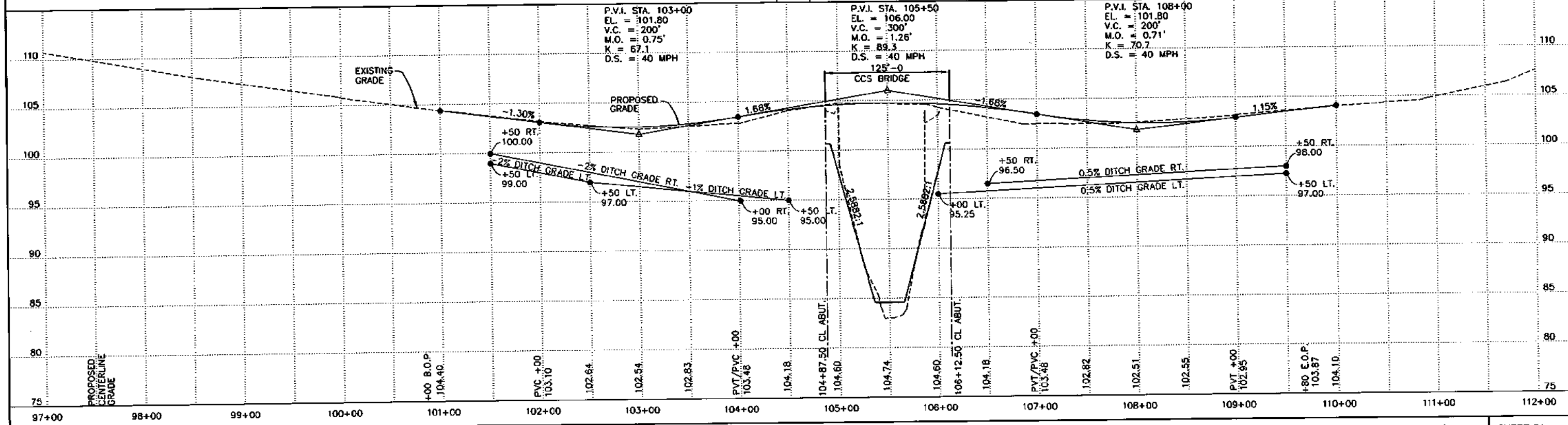
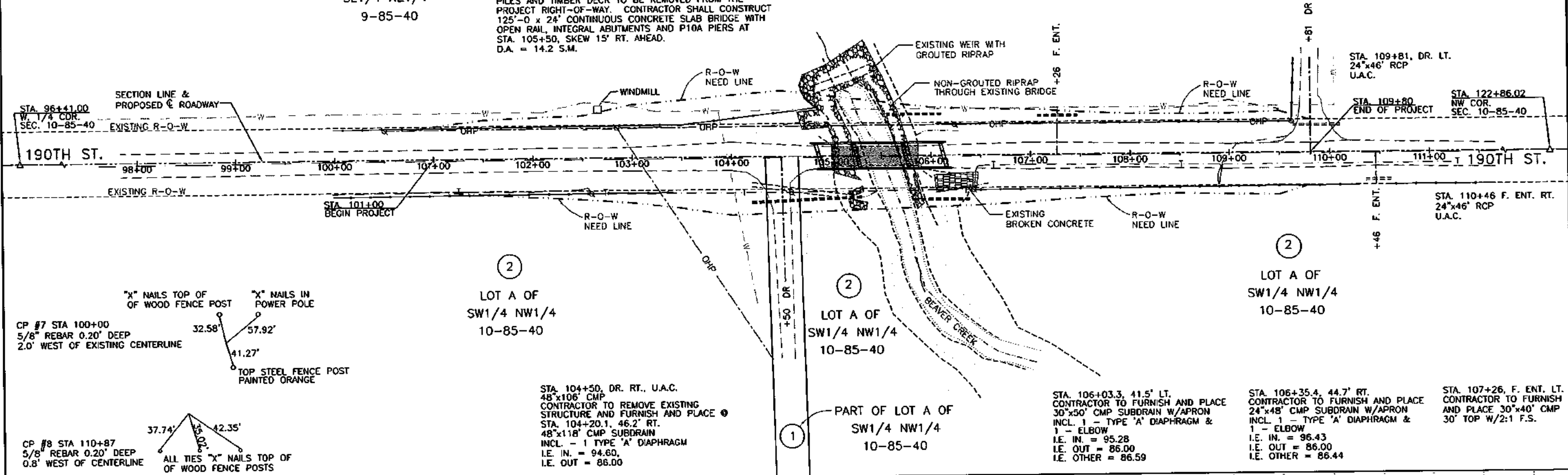
MORGAN TWP.  
 T-85N R-40W

②  
 SE1/4 NE1/4  
 9-85-40



②  
 SE1/4 NE1/4  
 9-85-40

STA. 105+42.78 EXISTING 87' x 20' STEEL PONY TRUSS BRIDGE WITH TIMBER APPROACH SPAN, TIMBER ABUTMENTS, TIMBER TRESTLE PILES AND TIMBER DECK TO BE REMOVED FROM THE PROJECT RIGHT-OF-WAY. CONTRACTOR SHALL CONSTRUCT 125'-0" x 24' CONTINUOUS CONCRETE SLAB BRIDGE WITH OPEN RAIL, INTEGRAL ABUTMENTS AND P10A PIERS AT STA. 105+50, SKEW 15' RT. AHEAD. D.A. = 14.2 S.M.



LOG OF EXPLORATORY BORING												Sheet 1 of 1			
Job Number: G1553		Boring No.: B-1		Project: MORGAN 9/10 BRIDGE		Boring Location: NORTH ABUTMENT		Date Started: 10/11/05		Drill Type: HOLLOW STEM		Date Completed: 10/11/05		Ground Elev.: 104.1	
Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION		USCS	Blow Counts (N)	Moisture Content (%)	Dry Density (pcf)	% Saturation	Hand Penetrometer (TSF)	Uncorr. Comp. Strength (TSF)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Other Tests
			Shelby Tube	Standard Split Spoon											
0-5			FILL, Stiff Silty Clay, Medium Brown, Moist		5-4-8 N=10	20									
5-10			STIFF SILTY CLAY, Dark Brown, Moist to Wet, Alluvium		2-3-4 N=7	20	106	93	4.50	3.60					
10-15			SOFT SILTY CLAY, Yellow Brown, Wet, Loess		1-2-2 N=4	30									
15-20						31	91	100	0.50						
20-25						30									
25-30						33									
30-35			(Rock) COARSE SAND, Medium Brown, Wet, Alluvium (Rock)		3-6-3 N=9										
35-40			FIRM - VERY FIRM GLACIAL CLAY, Dark Gray, Wet, Glacial Till		13-8-8 N=14	15									
40-45						17									
45-50						18									
50-55			GLACIAL MATERIAL, Dark Gray, Wet, Glacial Till		9-25-50 N=75	18									
55-60			GRANULAR MATERIAL, Dark Gray, Wet, Glacial Sand		12-22-27 N=49	14									
60-65						25									
65-70						27									
70-75			END OF BORING AT 71.5 FEET FREE GROUNDWATER WAS ENCOUNTERED AT 15 FEET AT THE TIME OF DRILLING		23-42-33 N=75										

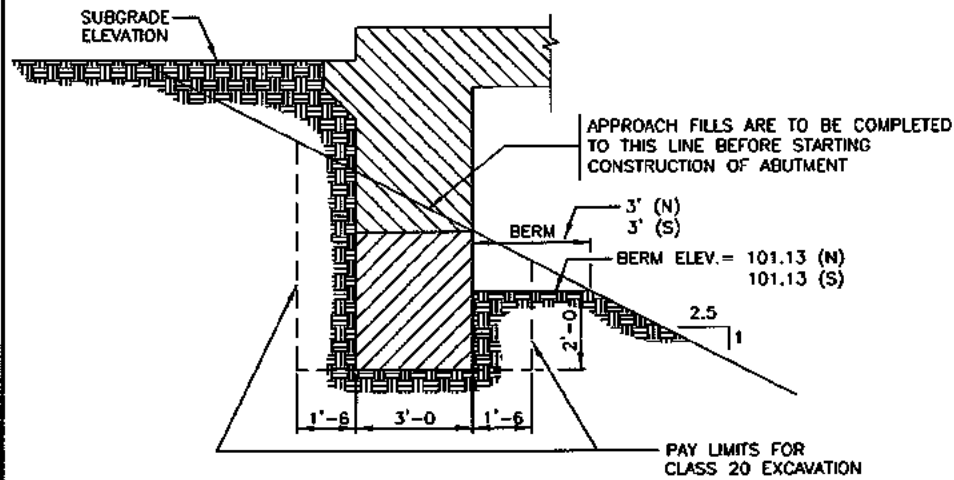
LOG OF EXPLORATORY BORING												Sheet 1 of 1			
Job Number: G1553		Boring No.: B-2		Project: MORGAN 9/10 BRIDGE		Boring Location: NORTH PIER		Date Started: 10/11/05		Drill Type: HOLLOW STEM		Date Completed: 10/11/05		Ground Elev.: 104.8	
Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION		USCS	Blow Counts (N)	Moisture Content (%)	Dry Density (pcf)	% Saturation	Hand Penetrometer (TSF)	Uncorr. Comp. Strength (TSF)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Other Tests
			Shelby Tube	Standard Split Spoon											
0-5			FILL, Stiff Silty Clay, Medium Brown, Moist		8-8-6 N=14	5									
5-10			SOFT SILTY CLAY, Dark Brown, Moist to Wet, Alluvium		4-3-2 N=5	16									
10-15						25									
15-20						6									
20-25			SILTY SAND, Gray, Wet		1-1-2 N=3	26									
25-30			GRANULAR MATERIAL, Medium Brown, Wet (Rock 33' to 37')		1-1-4 N=5	39									
30-35						17									
35-40			GLACIAL MATERIAL, Gray, Wet, Glacial Till		2-6-27 N=33	17									
40-45						19									
45-50			GRANULAR MATERIAL, Medium Brown, Wet		17-24-30 N=54	19									
50-55			VERY FIRM GLACIAL CLAY, Gray, Wet, Glacial Till		7-8-10 N=18	20									
55-60						18									
60-65						18									
65-70						18									
70-75			END OF BORING AT 61.5 FEET FREE GROUNDWATER WAS ENCOUNTERED AT 20 FEET AT THE TIME OF DRILLING		30-30-25 N=55										

LOG OF EXPLORATORY BORING												Sheet 1 of 1			
Job Number: G1553		Boring No.: B-3		Project: MORGAN 9/10 BRIDGE		Boring Location: SOUTH ABUTMENT		Date Started: 10/12/05		Drill Type: HOLLOW STEM		Date Completed: 10/12/05		Ground Elev.: 104.9	
Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION		USCS	Blow Counts (N)	Moisture Content (%)	Dry Density (pcf)	% Saturation	Hand Penetrometer (TSF)	Uncorr. Comp. Strength (TSF)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Other Tests
			Shelby Tube	Standard Split Spoon											
0-5			FILL, Stiff Silty Clay, Dark Brown, Moist		1-4-3 N=9	21									
5-10						20	104	89	4.50						
10-15			SOFT SILTY CLAY, Dark Brown, Moist, Topsoil		2-2-3 N=5	24									
15-20			SOFT SILTY CLAY, Dark Brown, Moist to Wet, Alluvium		2-2-2 N=4	29									
20-25			SOFT SILTY CLAY, Gray Brown, Wet, Peorian Loess			31	90	100	2.25	0.50					
25-30			SILTY SAND, Medium Brown, Wet		1-1-2 N=3	26									
30-35						28									
35-40			(Rock) GRANULAR MATERIAL, Medium Brown, Wet (Rock)		3-200 N=200										
40-45			FIRM - VERY FIRM GLACIAL CLAY, Gray, Wet, Glacial Till		4-8-8 N=16	18									
45-50			COARSE SAND, Medium Brown, Wet		9-10-10 N=20	25									
50-55			VERY FIRM GLACIAL CLAY, Gray, Wet, Glacial Till		5-8-12 N=20	19									
55-60						20									
60-65			(Rock)		7-8-15 N=23	17									
65-70						22									
70-75						20									
75-80			END OF BORING AT 76.5 FEET FREE GROUNDWATER WAS ENCOUNTERED AT 15 FEET AT THE TIME OF DRILLING		4-7-10 N=17	21									

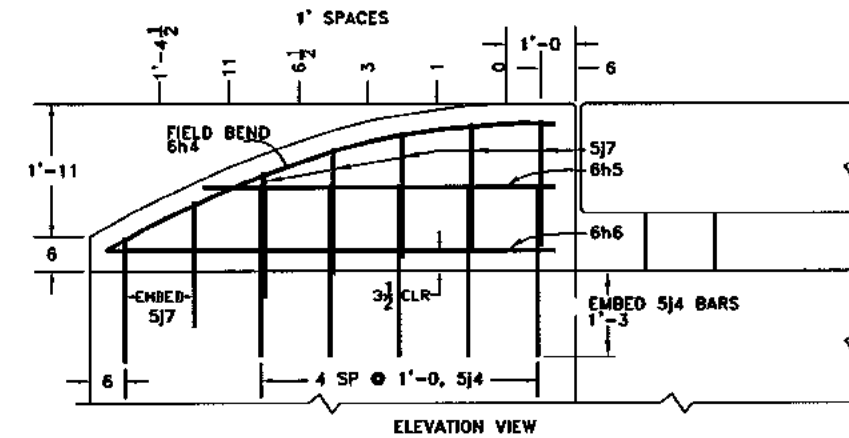
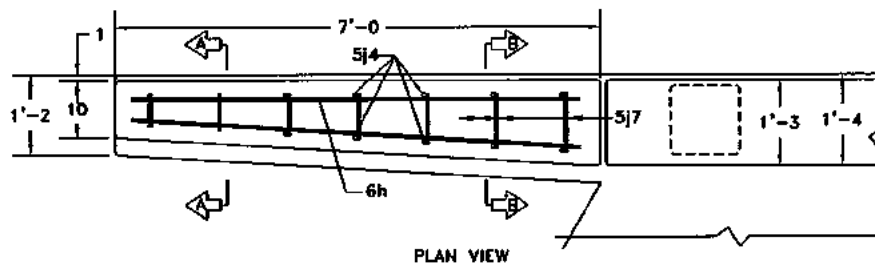
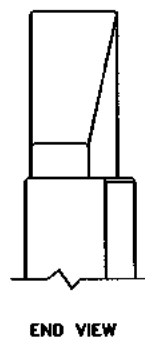
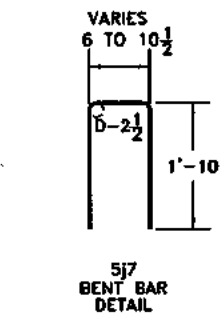
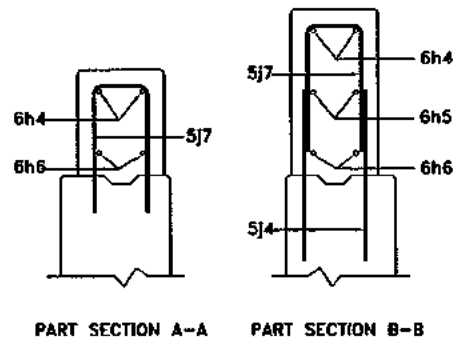
GEOTECHNICAL INFORMATION PROVIDED HERewith IS THE SOLE RESPONSIBILITY OF CERTIFIED TESTING SERVICES, INC., WHOSE GEOTECHNICAL REPORT DATED OCTOBER 26, 2005, COMPLETE WITH THE LICENSED ENGINEER'S SEAL AND CERTIFICATION, IS AVAILABLE FOR VIEWING.

**SOUNDING DATA**  
 NOTE: THESE SOUNDINGS WERE MADE FOR DESIGN PURPOSES AND ARE NOT GUARANTEED FOR CONSTRUCTION.  
 SOUNDINGS WERE TAKEN ON OCTOBER 11 AND 12, 2005.  
 SEE SHEET V1 FOR BORING LOCATIONS.





**CLASS 20 EXCAVATION DETAIL**  
NOT TO SCALE

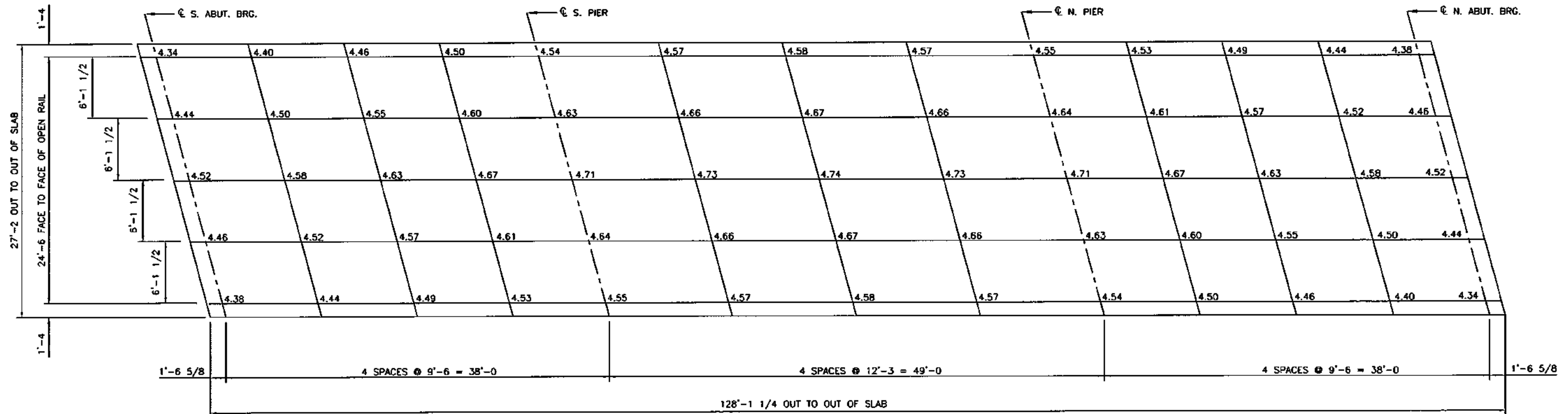


**OPEN RAIL ROUNDED END POST DETAILS**  
NOT TO SCALE

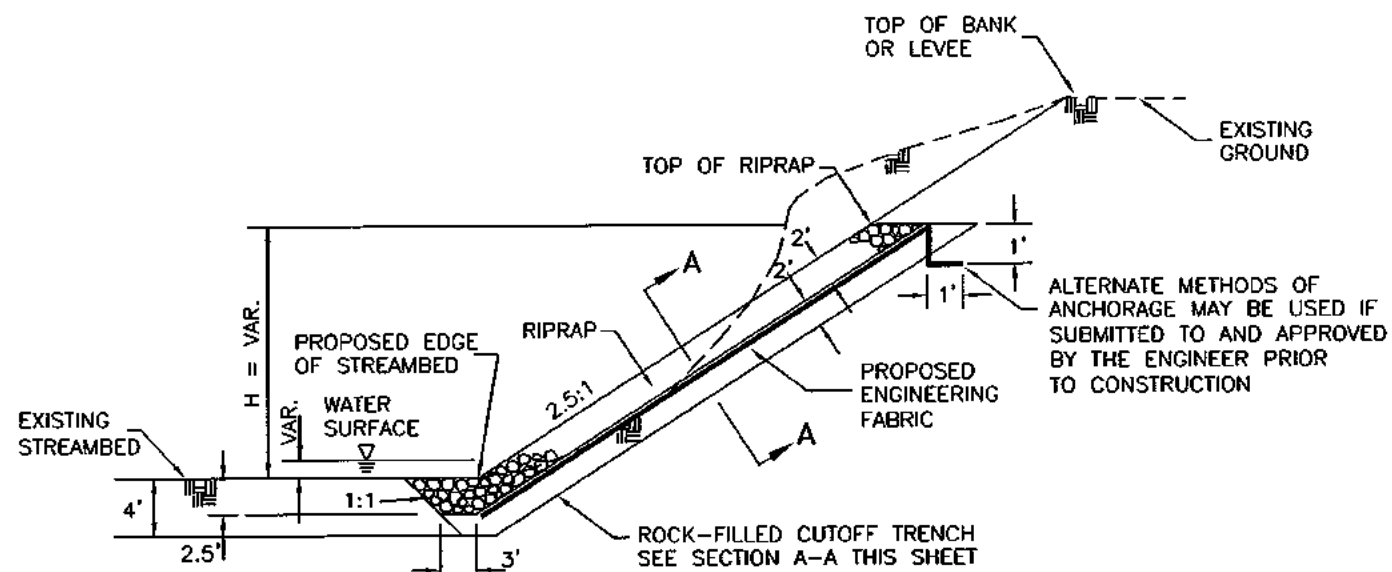
REINF. BAR LIST - ONE SPECIAL END SECTION				
BAR LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5j4 ANCH. TO SLAB		10	2'-6	26
5j7 VERTICAL		7	4'-2 TO 4'-6 1/2	32
6h4 LONGITUDINAL		2	7'-1	21
6h5 LONGITUDINAL		2	5'-1	15
6h6 LONGITUDINAL		2	6'-8	20
TOTAL - ONE END SECTION				114
TOTAL - ONE BRIDGE				456

TOTAL CONCRETE PER END SECT. 0.5 CY  
TOTAL CONCRETE (x4) 2.0 CY

NOTE:  
SPECIAL BRIDGE END SECTION AS DETAILED ON THIS SHEET SHALL BE USED INSTEAD OF END SECTION SHOWN ON STD. SH. J24-19-87.

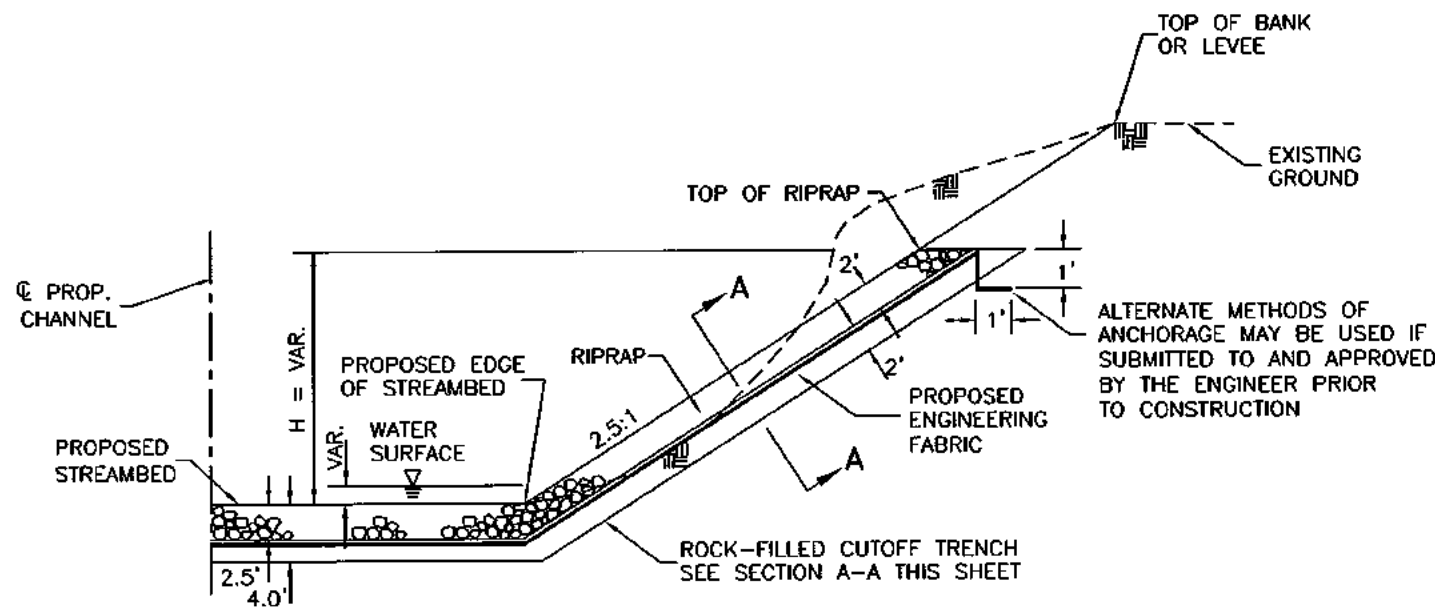


**TOP OF SLAB ELEVATIONS**  
(ADD 100' TO ABOVE ELEVATIONS)



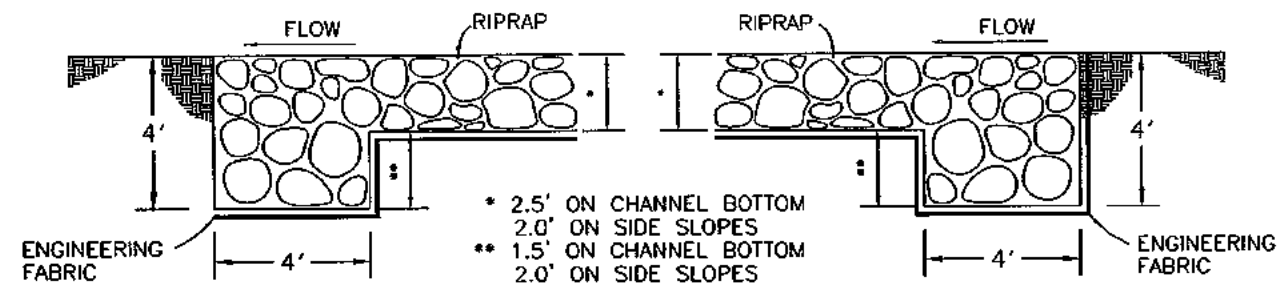
**TYPICAL HALF-CHANNEL BANK STABILIZATION SECTION**

NOT TO SCALE  
FOR TOP OF RIPRAP ELEVATIONS SEE CHANNEL CROSS SECTIONS



**TYPICAL FULL-CHANNEL BANK STABILIZATION SECTION**

NOT TO SCALE  
FOR TOP OF RIPRAP ELEVATIONS SEE CHANNEL CROSS SECTIONS

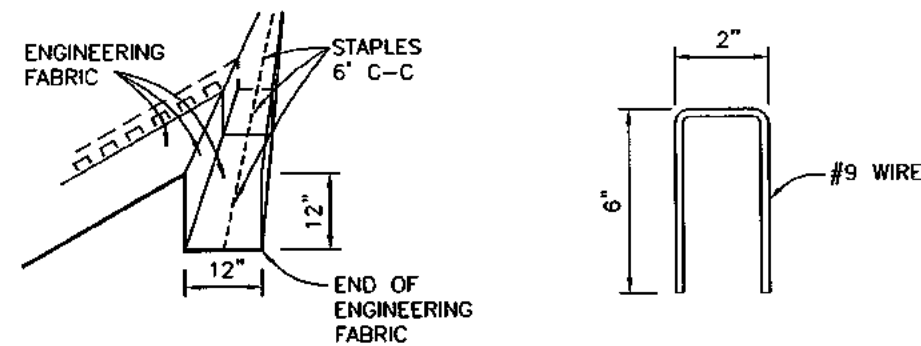


TYPICAL DOWNSTREAM

TYPICAL UPSTREAM

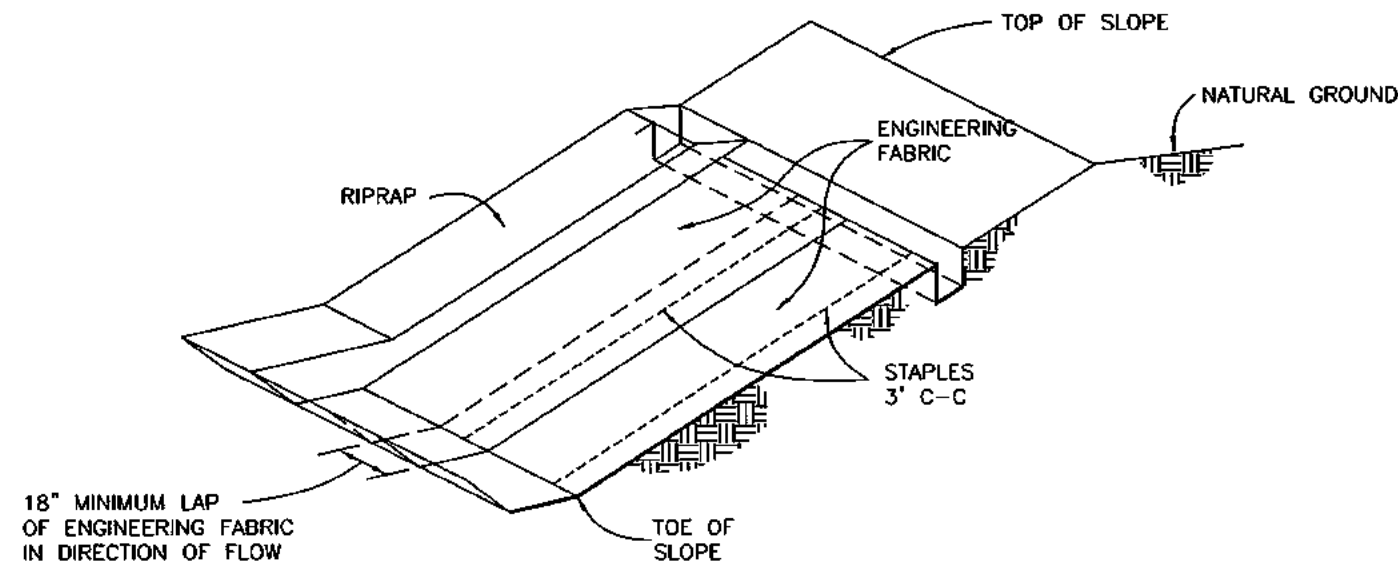
**SECTION A-A  
ROCK-FILLED CUTOFF TRENCH DETAILS**

NOT TO SCALE



DETAIL OF TRENCH

STAPLE



**DETAILS OF PLACEMENT OF ENGINEERING FABRIC**

NOT TO SCALE

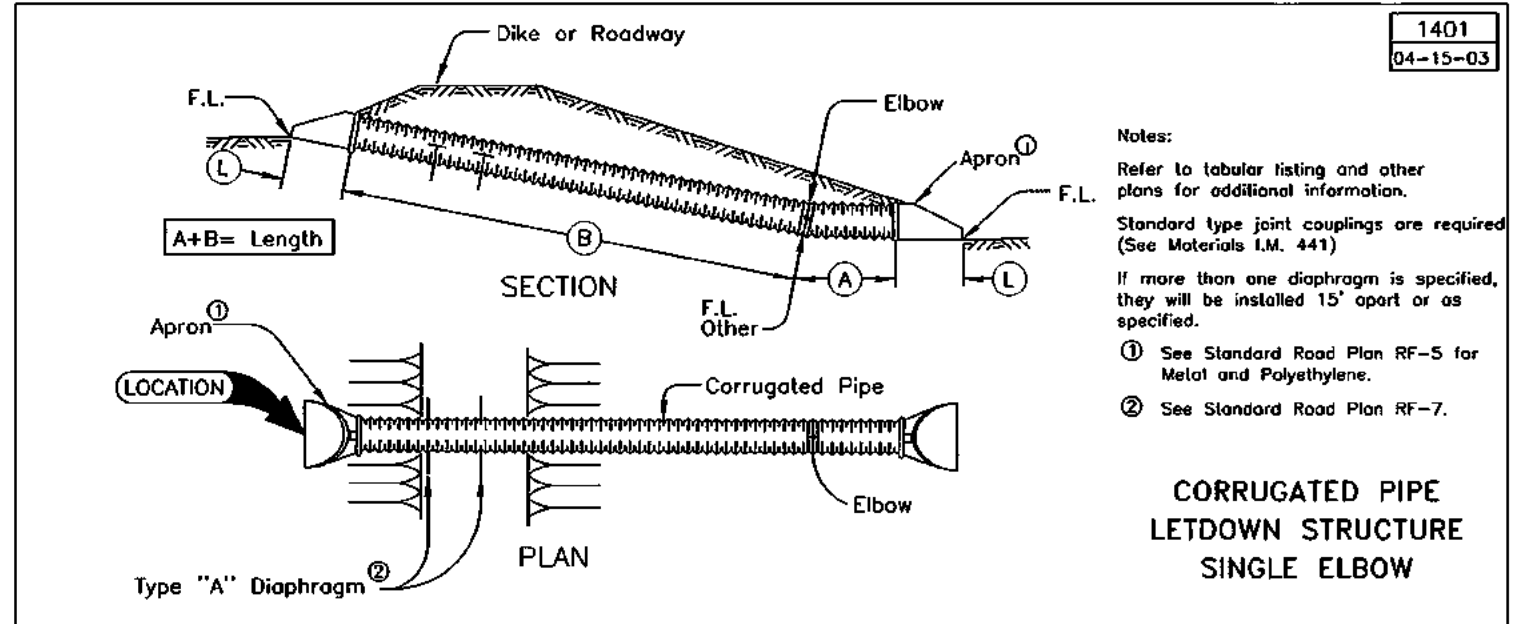
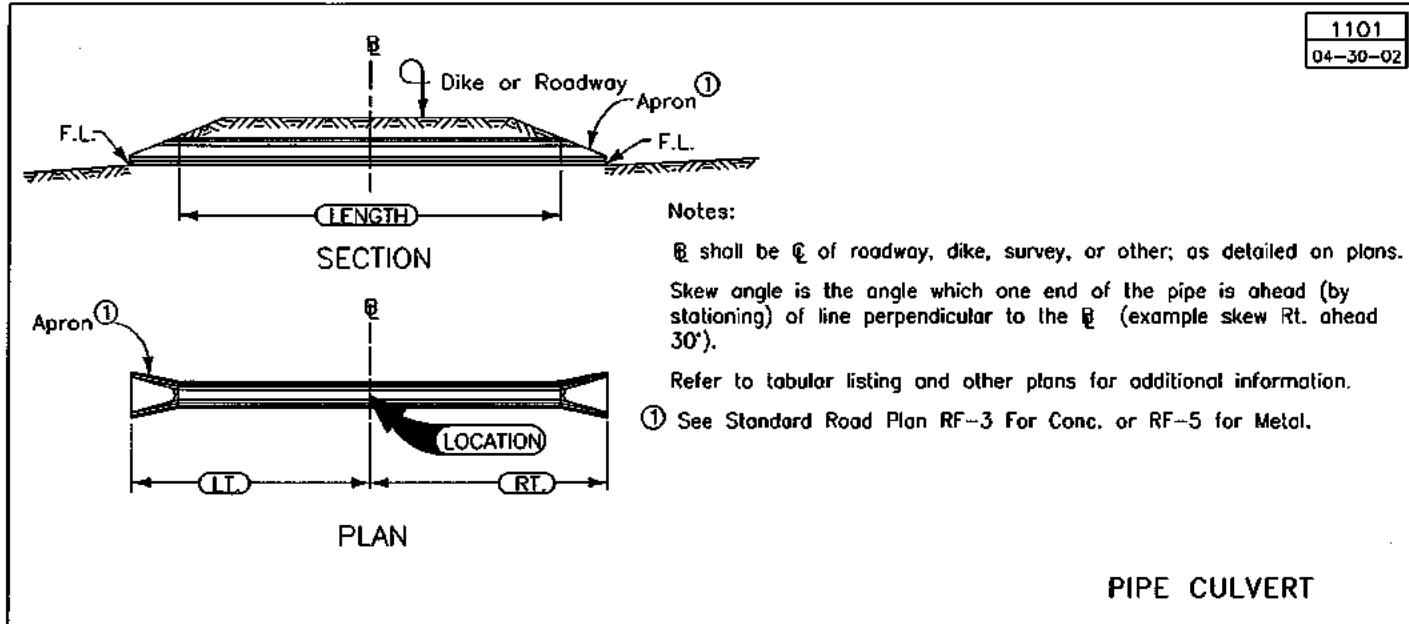


DRAINAGE STRUCTURES

104-3  
MODIFIED

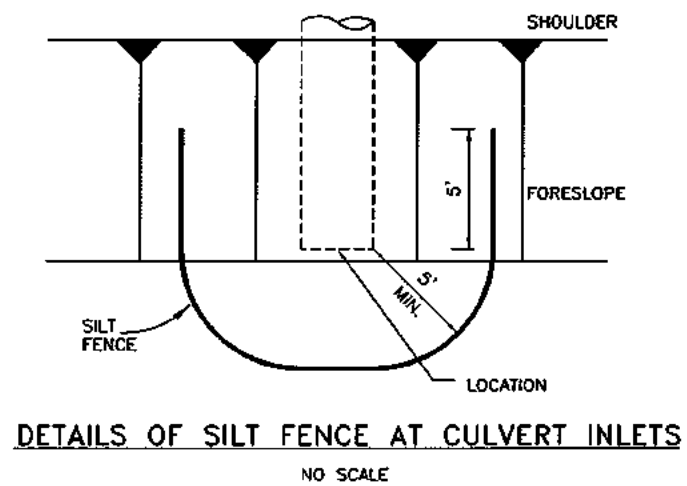
\* Not a bid item

LOCATION	TYPE	SIZE Inches	KIND OF PIPE	LENGTH NEW CONST. Lin. Ft.	BEDDING CLASS	DESIGN COVER (H)	CAMBER FL.	APRON NO.		ELBOW* No.	DIAPHRAGM* RF-7 No.	TEE SECTION* RF-21 No.	ADAPTORS* RF-2 Type No.	CONNECTED PIPE JOINT* RF-14 Type	FLOW LINE ELEVATIONS			DIMENSIONS Lin. Ft.				SKEW AHEAD		DIKE				CLASS 20 Cu. Yds.	REMARKS
								Inlet	Outlet						LI	RI	Other	Total		Extensions		Degrees		Rt. Lt.	Location Station	Top Elevation	Type		
																		LI	RI	LI	RI	LI	RI						
104+20.1	1101	48	CMP	118	C	8.0					1				86.00	94.60		87.84	29.85					RT.	104+50	103.9	F	-	DRIVE @ 104+50
106+03.3	1401	30	CMP	50	C	-		1		1					86.00	95.28	86.59	A=14	B=36					LT.	105+89	98.8	F	-	
106+35.4	1401	24	CMP	48	C	-		1		1				96.43	86.00	86.44	A=12	B=36					RT.	106+22	99.0	F	-		

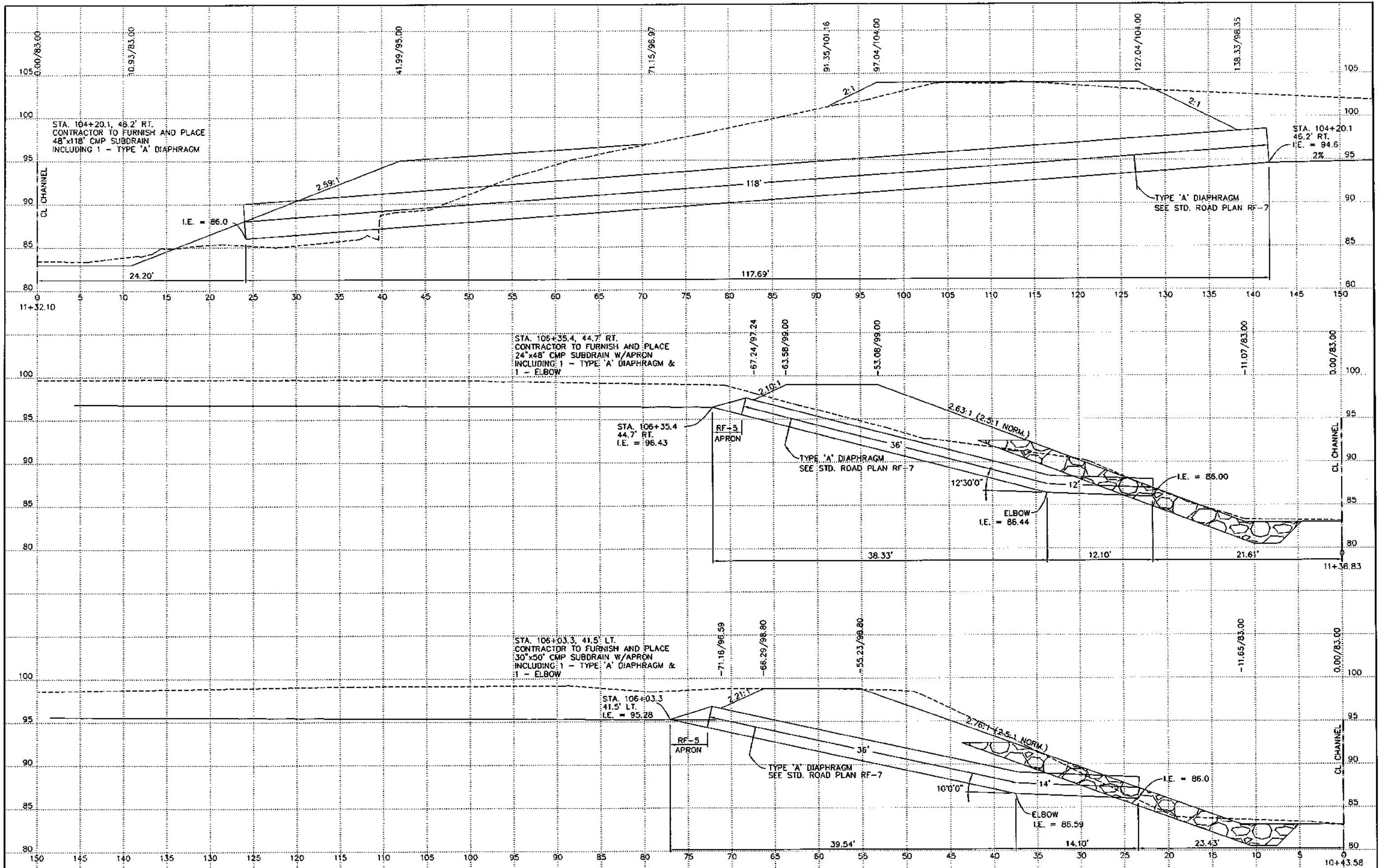


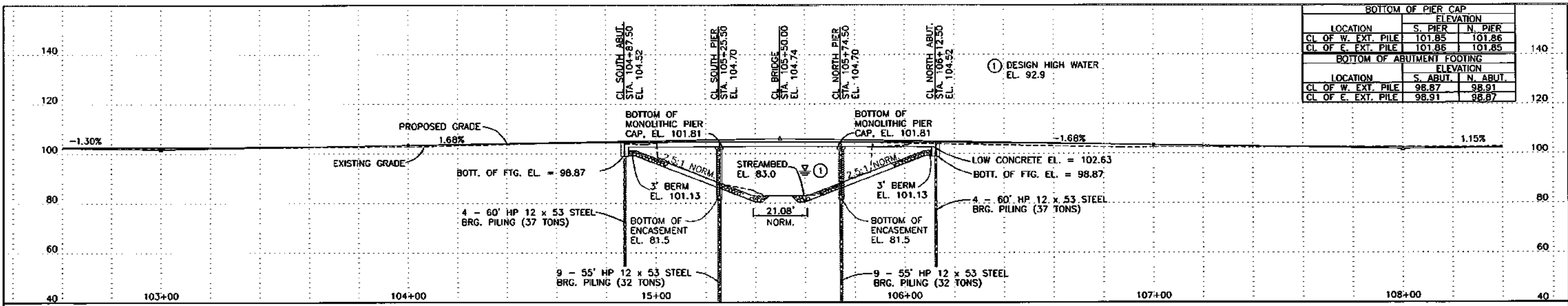
TABULATION OF EROSION CONTROL FEATURES

LOCATION		SPECIAL DITCH CONTROL	FOR DITCH CHECK			REMARKS
STATION TO STATION (EXACT LOCATION TO BE DETERMINED BY THE ENGINEER)	SIDE	WOOD EXCELSIOR MAT (Squares)	NO.	SPACING (Ft.)	SILT FENCE (Lin. Ft.)	
102+50	L	-	1	-	20	
103+00	R	-	1	-	20	
104+20.1	R	-	1	-	30	CULVERT INLET
106+03.3	L	-	1	-	30	CULVERT INLET
106+35.4	R	-	1	-	30	CULVERT INLET



TABULATIONS, TYPICALS

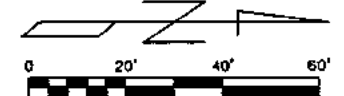




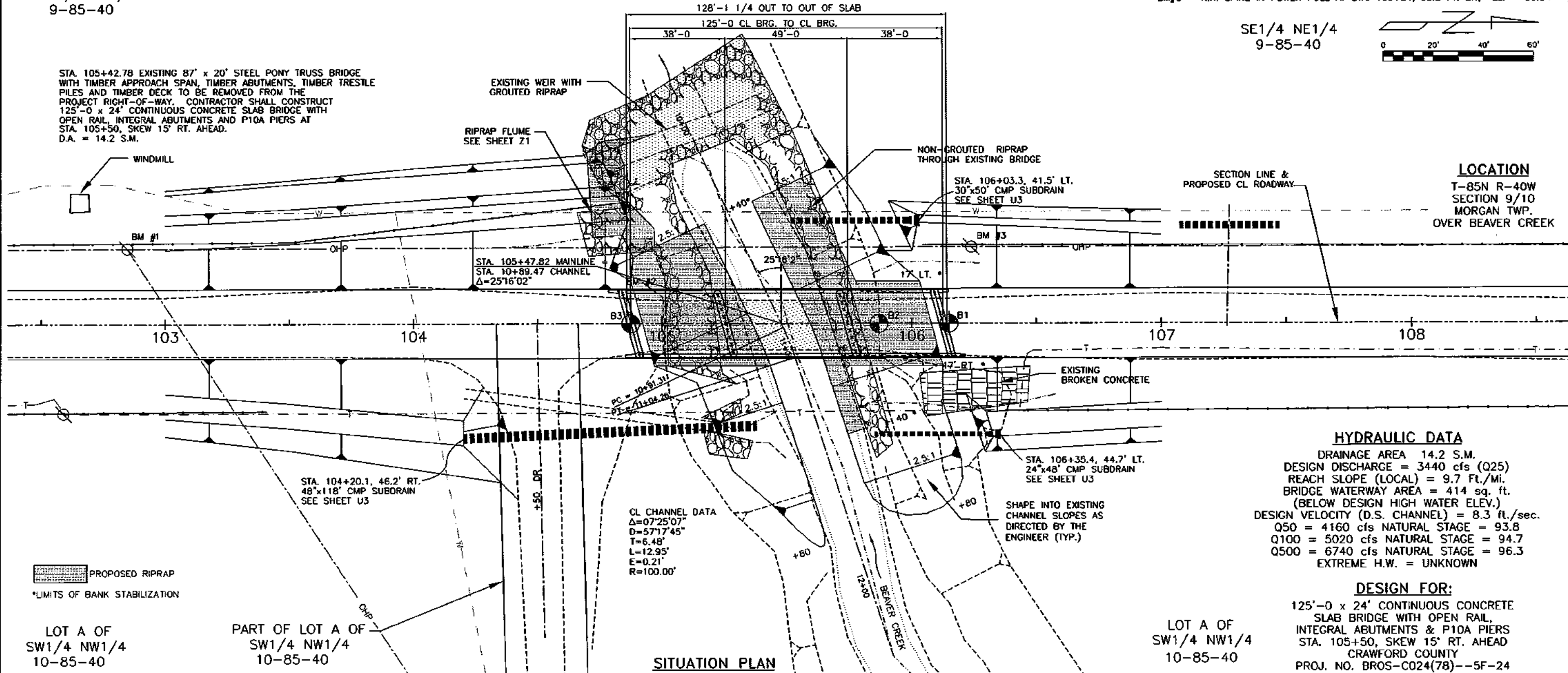
BM#1 - R.R. SPIKE IN POWER POLE AT STA. 102+85, 30.4 FT. LT., EL. = 100.00  
 BM#2 - 600 SPIKE IN WING POST AT STA. 105+00, 10.5 FT. LT., EL. = 104.95  
 BM#3 - R.R. SPIKE IN POWER POLE AT STA. 106+24, 30.8 FT. LT., EL. = 99.54

SE1/4 NE1/4  
9-85-40

SE1/4 NE1/4  
9-85-40



STA. 105+42.78 EXISTING 87' x 20' STEEL PONY TRUSS BRIDGE WITH TIMBER APPROACH SPAN, TIMBER ABUTMENTS, TIMBER TRESTLE PILES AND TIMBER DECK TO BE REMOVED FROM THE PROJECT RIGHT-OF-WAY. CONTRACTOR SHALL CONSTRUCT 125'-0 x 24' CONTINUOUS CONCRETE SLAB BRIDGE WITH OPEN RAIL, INTEGRAL ABUTMENTS AND P10A PIERS AT STA. 105+50, SKEW 15' RT. AHEAD. D.A. = 14.2 S.M.



**HYDRAULIC DATA**

DRAINAGE AREA 14.2 S.M.

DESIGN DISCHARGE = 3440 cfs (Q25)

REACH SLOPE (LOCAL) = 9.7 Ft./Mi.

BRIDGE WATERWAY AREA = 414 sq. ft. (BELOW DESIGN HIGH WATER ELEV.)

DESIGN VELOCITY (D.S. CHANNEL) = 8.3 ft./sec.

Q50 = 4160 cfs NATURAL STAGE = 93.8

Q100 = 5020 cfs NATURAL STAGE = 94.7

Q500 = 6740 cfs NATURAL STAGE = 96.3

EXTREME H.W. = UNKNOWN

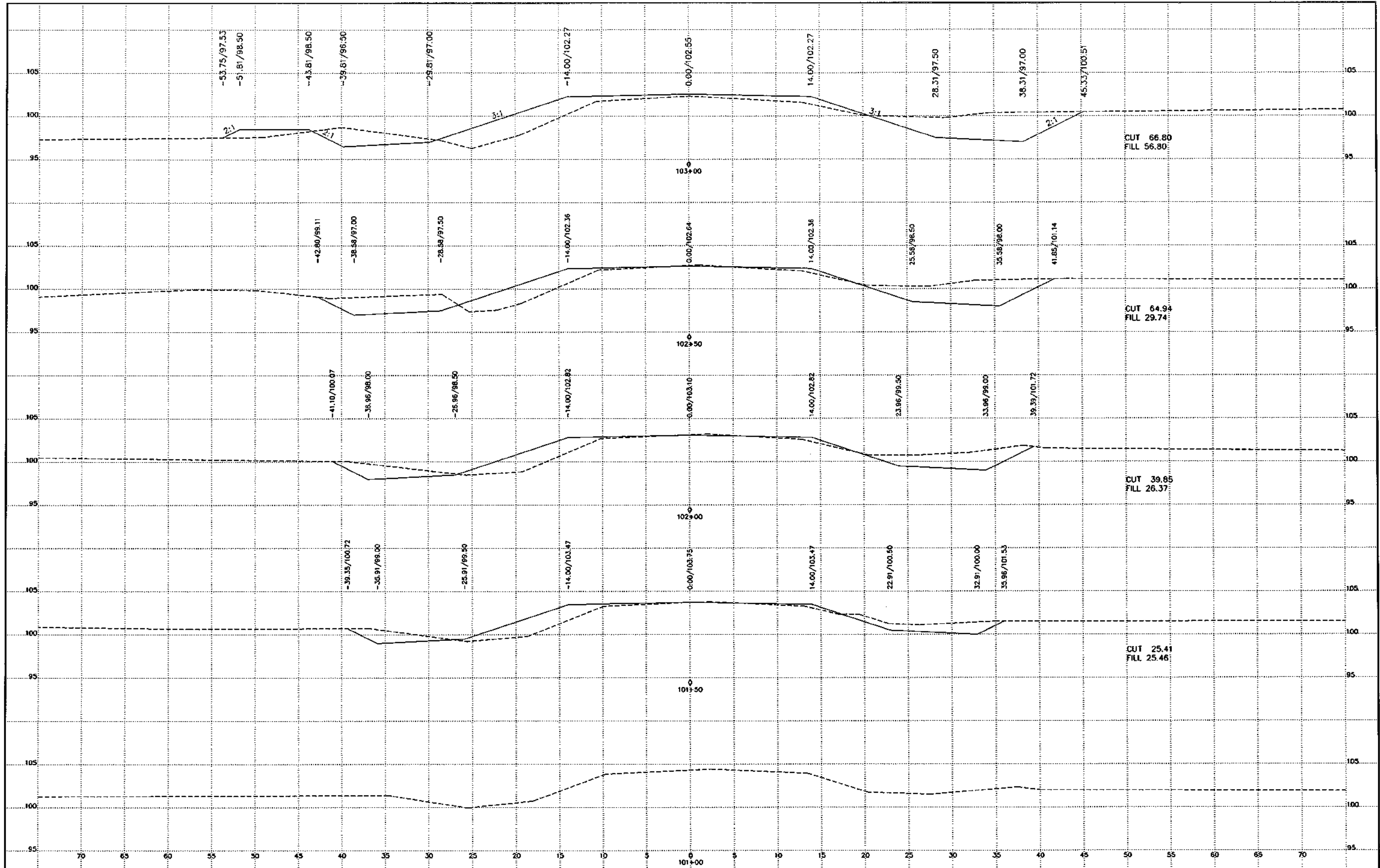
**DESIGN FOR:**

125'-0 x 24' CONTINUOUS CONCRETE SLAB BRIDGE WITH OPEN RAIL, INTEGRAL ABUTMENTS & P10A PIERS

STA. 105+50, SKEW 15' RT. AHEAD

CRAWFORD COUNTY

PROJ. NO. BROS-C024(78)-5F-24



CUT 66.80  
FILL 56.80

CUT 64.94  
FILL 29.74

CUT 39.85  
FILL 26.37

CUT 25.41  
FILL 25.46

