LETTING DATE
02/17/04

BRIDGE REPLACEMENT – CCS

BRS–C024(58)––60–24

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.

## 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(58)––60–24

BRIDGE REPLACEMENT – CCS

*ON E53 (S AVENUE) OVER*

*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.

| | TOTAL SHEETS |
|---|---|
| | 15 |
| PROJECT NUMBER | |
| BRS–C024(58)––60–24 | |
| R.O.W. PROJECT NUMBER | |
| | |
| PROJECT IDENTIFICATION NUMBER | |
| | |

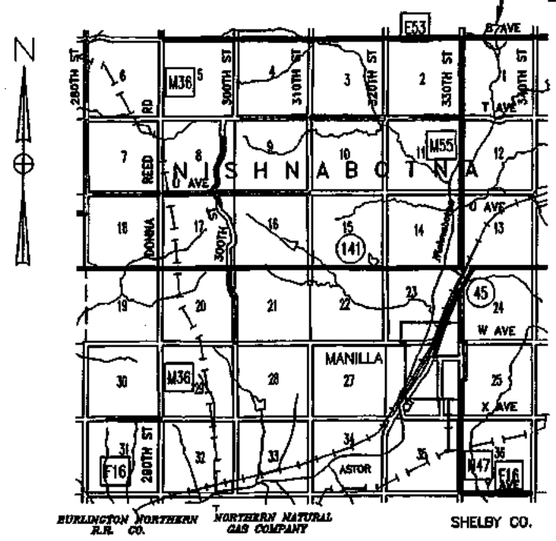
## INDEX OF SHEETS

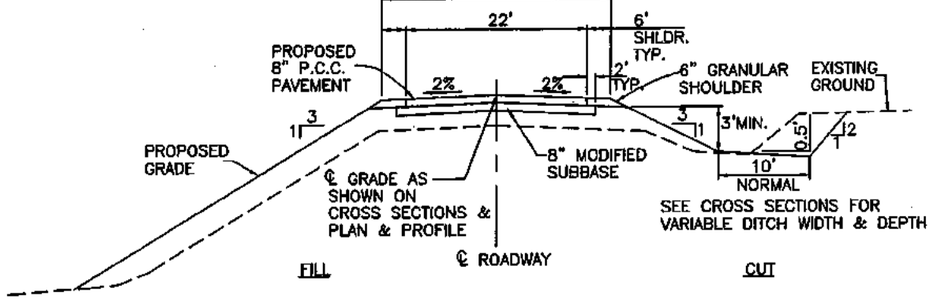


## STANDARD BRIDGE PLANS

| 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–17–87 | JUNE, 1987 | |
| J30C–22–87 | JUNE, 1987 | 6–89 |
| P10A | 8–1–96 | 8–96 |

STA. 23+75.75
PROPOSED
112'–6 x 30' CCS BRIDGE
SKEW 0°
B.O.P. STA. 22+98
E.O.P. STA. 25+05




TYPICAL CROSS SECTION
NOT TO SCALE

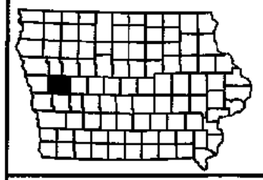
## MILEAGE SUMMARY

| LOCATION | LIN. FT. | MILES |
|---|---|---|
| BOP STA. 22+98 TO EOP STA. 25+05 | 207.00 | 0.0392 |
| DEDUCT BRIDGE AT STA. 23+75.75 | 115.50 | 0.0219 |
| NET LENGTH OF ROADWAY | 91.50 | 0.0173 |

## 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–65A | 10–29––02 | RH–50 | 10–21–03 |
| RE–7 | 04–15–03 | RE–68 | 04–15–03 | RH–51 | 10–21–03 |
| RE–12A | 10–02–01 | RE–69C | 10–29––02 | RK–18 | 10–31–95 |
| RE–12B | 10–02–01 | RE–76 | 10–21–03 | RL–7 | 12–03–96 |
| RE–47 | 04–03–01 | RF–19E | 10––03–00 | RL–14 | 01–12–99 |
| RE–48A | 10–21–03 | RH–22 | 01–12–99 | RS–26A | 10–28–97 |
| | | RH–37D | 04––03–01 | | |



25
K6H

LOCATION MAP SCALE
0 1 2 3
SCALE IN MILES

**Approved**
Robert D. Lohrmann
Steve Wenum
G. Dean Hargis
Mark Seyfert
John L. Crawford
BOARD OF SUPERVISORS

**Approved** 11/18/03
CRAWFORD COUNTY ENGINEER — DATE

Iowa Department of Transportation
**Highway Division**
**Accepted for Letting**
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 | | |

LICENSED PROFESSIONAL ENGINEER — TROY J. GROTH 14450 — IOWA

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.

TROY J. GROTH, P.E. #14450 — 11/14/03 DATE

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2003.

PAGES OR SHEETS COVERED BY THIS SEAL:
ALL SHEETS


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


DESIGN TEAM: TJG/SAS/TKK | ENGLISH | SE PROJECT NO. : 05802 | DATE: 07/03 | FHWA NO. 126340 | CRAWFORD COUNTY | PROJECT NUMBER BRS–C024(58)––60–24 | SHEET NUMBER A1

## 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 106 CY (78 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.

2301-1033080 STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 8 IN.
REFER TO TYPICAL SECTION ON DRAWING SHEET A1 AND STANDARD ROAD PLAN RH-22. 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.

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.

## 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 | 381 | |
| 2 | 2104-2710020 | EXCAVATION, CLASS 10, CHANNEL | CY | 2819 | |
| 3 | 2121-7425010 | GRANULAR SHOULDER, TYPE A | TON | 151 | |
| 4 | 2301-0685100 | BRIDGE APPROACH SECTION | SY | 98 | |
| 5 | 2301-1033080 | STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 8 IN. | SY | 126 | |
| 6 | 2401-6745625 | REMOVAL OF EXISTING BRIDGE | LS | 1 | |
| 7 | 2402-2720000 | EXCAVATION, CLASS 20 | CY | 61 | |
| 8 | 2403-0100010 | STRUCTURAL CONCRETE (BRIDGE) | CY | 240.3 | |
| 9 | 2404-7775000 | REINFORCING STEEL | LB | 30258 | |
| 10 | 2404-7775005 | REINFORCING STEEL, EPOXY COATED | LB | 31510 | |
| 11 | 2414-6424120 | CONCRETE OPEN RAILING | LF | 247 | |
| 12 | 2501-5425042 | PILES, DRIVE STEEL BEARING, HP 10 X 42 | LF | 600 | |
| 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 | 396 | |
| 15 | 2501-5550042 | PILES, FURNISH STEEL BEARING, HP 10 X 42 | LF | 600 | |
| 16 | 2501-5550053 | PILES, FURNISH STEEL BEARING, HP 12 X 53 | LF | 1035 | |
| 17 | 2505-4008100 | REMOVAL OF GUARDRAIL | LF | 278 | |
| 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 | 842 | |
| 22 | 2507-6850053 | REVETMENT, SPECIAL | TON | 796 | |
| 23 | 2510-6745850 | REMOVAL OF PAVEMENT | SY | 396 | |
| 24 | 2518-6910000 | SAFETY CLOSURE | EACH | 2 | |
| 25 | 2527-9263109 | PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED | STA | 8.28 | |
| 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 | 0.5 | |
| 30 | 2601-2636043 | SEEDING AND FERTILIZING (RURAL) | ACRE | 0.5 | |

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 ACORDANCE 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.

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.

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

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.

ESTIMATED PROJECT QUANTITIES
AND GENERAL INFORMATION

## ESTIMATE REFERENCE INFORMATION (CONT.)

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 237 S.Y. OF AN ESTIMATED 12-INCH THICK P.C.C. PAVEMENT WITH A 3-INCH THICK A.C.C. OVERLAY AND 159 S.Y. OF AN ESTIMATED 12-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.

THE COUNTY, THE CONTRACTOR AND ANY SUBCONTRACTORS ARE HEREIN ADVISED THAT AN ATTEMPT WAS MADE TO EVALUATE THE PAINT SYSTEM APPLIED TO THE EXISTING STRUCTURAL STEEL. IT WAS DETERMINED THAT THE STEEL HAD EITHER NEVER BEEN PAINTED OR THAT THE PAINT SYSTEM HAD BEEN COMPLETELY REMOVED AS THERE WAS NO PAINT AVAILABLE FOR A SCRATCH TEST.

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.

**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

| LOCATION NO. | ① DIRECTION OF TRAFFIC | END A=APPROACH T=TRAILING | SIDE O = OUTSIDE M = MEDIAN | STATION | STANDARD ROAD PLAN | Case F or S | ② L2 Feet | LAYOUT LENGTHS STS (18.75') Lin. Ft. | VT Lin. Ft. | VF Lin. Ft. | ET Terminal (37.5') Lin. Ft. | MATERIALS REQUIRED STS Thrie Beam (25.0') Lin. Ft. | STS Transition Section (6.25') Lin. Ft. | (VT)+(VF)+(ET) 'W' BEAM ③ Lin. Ft. | Posts ④ 6"x 8"x 7' with 6"x8" Spacer Blocks (6 or 7) No. | Posts ⑤ 6"x 8"x 6' with 6"x8" Spacer Blocks No. | CRT Posts 6"x 8"x 6' with 6"x8" Spacer Blocks (5) No. | DELINEATORS AND OBJECT MARKERS Type | Delineator Single White D-1W No. | Object Marker Type 2 OM2-3W No. | Object Marker Type 3 OM-3L No. | Object Marker Type 3 OM-3R No. | BID ITEMS Installation of Guardrail (STS)+(VT)+(VF)+(ET) Lin. Ft. | Anchorage and Terminal Systems RE-33B No. | RE-69A No. | RE-69B No. | RE-69C No. | RE-76 No. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | EB | A | – | 23+75.75 | 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 | – | 23+75.75 | 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 | – | 23+75.75 | 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 | – | 23+75.75 | 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 | |

① Lane(s) to which the obstacle is adjacent.
② Applies to Standard Road Plan RE-63 only.
③ Includes (1) special 12.5' section of 'W' Beam, see RE-76.
④ (6) 6"x8"x7' posts required when RE-63 or RE-69C is specified.
⑤ The last two posts of the RE-76 Terminal section are included as part of that bid item.

REMARKS

*REFER TO SHEET U3 FOR MODIFIED RE-69

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

| ITEM | UNIT | PIERS | SUPER STRUCTURE & ABUTMENTS | TOTAL |
|---|---|---|---|---|
| STRUCTURAL CONCRETE (BRIDGE) | CY | – | 243.9 | 243.9 |
| REINFORCING STEEL | LB | – | 30978 | 30978 |
| REINFORCING STEEL, EPOXY COATED | LB | – | 31782 | 31782 |

## TABULATION OF GRADING FOR GUARDRAIL INSTALLATIONS

107-23 MODIFIED

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

| LOCATION POINT NO. | ① Direction of Traffic | STATION | SIDE | TYPE | DIMENSIONS ② Ⓐ Feet A | Ⓐ Feet T | (BY) Feet A | (BY) Feet T | Ⓩ Feet A | Ⓩ Feet T | CLASS 10 EXCAV. **Cu. Yds. | EMBANK. IN PLACE Cu. Yds. | PIPE Size Inches | PIPE Type | PIPE Length Lin. Ft. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | EB | 22+48 | RT | 2 | 65.6 | | 8 | | 50 | | 115 | | | | | |
| 2 | WB | 22+48 | LT | 2 | | 65.6 | | 8 | | 50 | 50 | | | | | |
| 3 | EB | 25+04 | RT | 2 | | 65.6 | | 8 | | 50 | 95 | | | | | |
| 4 | WB | 25+04 | LT | 2 | 65.6 | | 8 | | 66 | | 61 | | | | | |

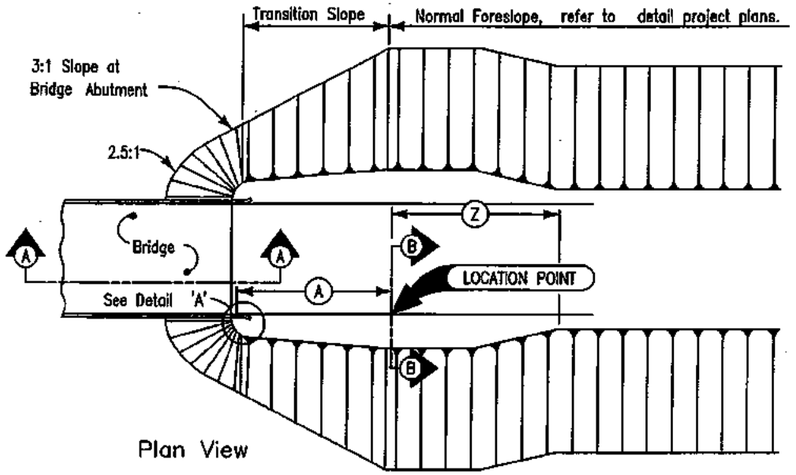
** QUANTITY INCLUDED IN EXCAVATION, CLASS 10, ROADWAY AND BORROW (INCLUDES 35% SHRINKAGE).

## TABULATION OF SAFETY CLOSURES

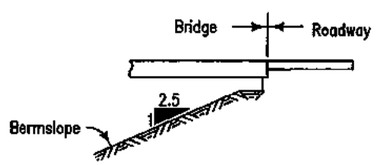
108-13A
10-28-97

Refer to Section 2518 of the St'd. Specifications

| STATION | CLOSURE TYPE Road Qty. | CLOSURE TYPE Hazard Qty. | REMARKS |
|---|---|---|---|
| 26+00 | – | 1 | EAST END |
| 26+50 | 1 | – | EAST END |

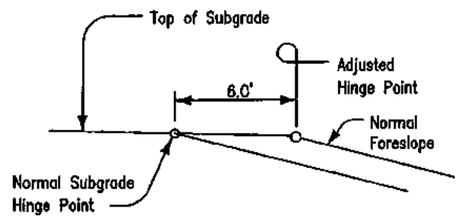



Plan View

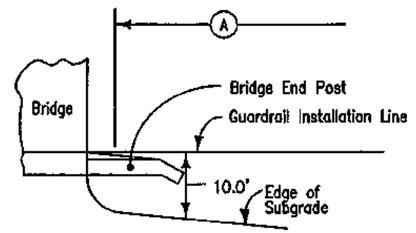



Section A-A

Note:
Refer to tabulation 107-23 for listings of Location Points and Dimensions Ⓐ and Ⓩ.




Section B-B




Detail "A"

FORESLOPE TRANSITION AT BRIDGE

4303
01-12-99

## TABULATION OF BRIDGE APPROACH SECTION

(Refer to Standard Road Plan RF-19E, RK-18)

① Not a bid item

112-6 MODIFIED

| LOCATION Bridge Station | End | APPROACH PAVEMENT ⓣ Thickness Inches | Pay Length Feet | Non-Reinf. Pavement Area Sq.Yds. | Reinforced Pavement Area Sq.Yds. | Fixed or Movable Abutment F or M | SUBDRAIN Perforated Subdrain 4" ① Lin.Ft. | Subdrain Outlet ① Station | Subdrain Outlet ① Side | Porous Backfill ① Cu.Yds. | Granular Compacted Backfill ① Cu.Yds. | Engineering Fabric ① Sq.Yds. | APPROACH SUBGRADE Modified Subbase ① Tons | Polymer Grid ① Sq.Yds. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23+75.75 | W | 8 | 20 | – | 49 | F | 37 | 23+17 | R | 3.5 | 10.0 | 57 | 32 | | |
| 23+75.75 | E | 8 | 20 | 126 | 49 | F | 37 | 24+34 | R | 3.5 | 10.0 | 57 | 97 | | |
| | | | | | | | | | | | | | | | |
| TOTAL | | | | 126 | 98 | | 74 | | | 7.0 | 20.0 | 114 | 129 | | |

## TABULATIONS, TYPICALS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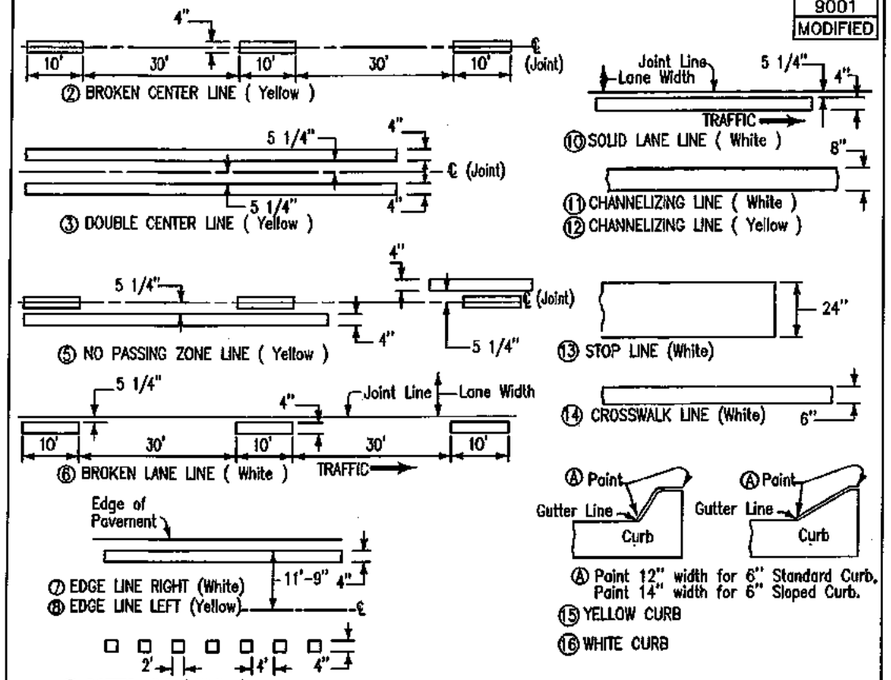
REV.:

9001
MODIFIED




STANDARD TYPES OF
PAVEMENT MARKINGS

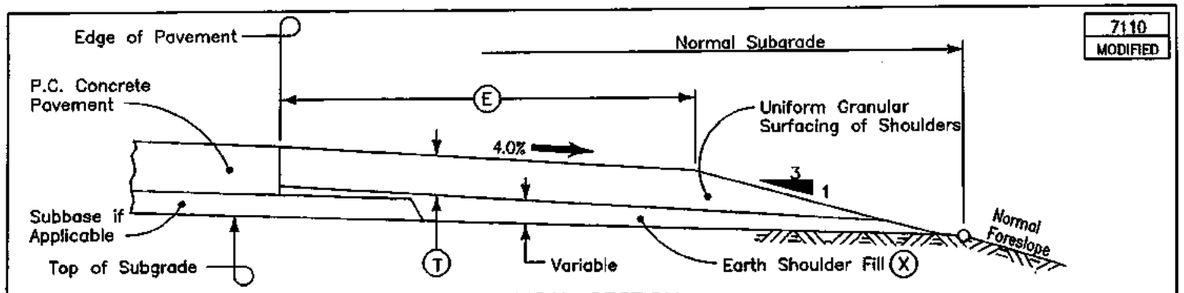
## TABULATION OF PAVEMENT MARKINGS

108–22
MODIFIED

(2) Broken Center Line (Yellow) (3) Double Center Line (Yellow) (5) No-Passing Zone Line (Yellow) (7) EDGE LINE RIGHT (White)

| LOCATION | | | | LENGTH (In Stations) | | | | |
|---|---|---|---|---|---|---|---|---|
| ROAD IDENTIFICATION | STATION TO STATION | SIDE L | SIDE R | (2) | (3) | (5) | (7) | REMARKS |
| | 22+98 – 25+05 | X | X | | 2.070 | | 4.140 | |
| | | | | | | | | |
| | LENGTH SUBTOTALS | | | | 2.070 | | 4.140 | |
| | QUANTITY FACTORS | | | .25 | 2 | 1 | 1 | |
| | TOTALS | | | | 4.140 | | 4.140 | |

7110
MODIFIED




TYPICAL SECTION
TYPE 'A' OR 'B' GRANULAR SHOULDER
Adjacent to PCC Pavement

Note:
Earth Shoulder fill requires approximately (X) cubic yards of excavation, including 35% for shrinkage, per shoulder per station.

| LOCATION | | (E) | (T) | SIDE | (X) |
|---|---|---|---|---|---|
| ROAD IDENTIFICATION | STATION TO STATION | Feet | Inches | | Cu.Yds. |
| E53 | 21+97.87 – 23+14 | 6 | 6 | LT | 6.5 |
| E53 | 21+97.87 – 23+14 | 6 | 6 | RT | 6.5 |
| E53 | 24+37.50 – 25+53.63 | 6 | 6 | LT | 6.5 |
| E53 | 24+37.50 – 25+53.63 | 6 | 6 | RT | 6.5 |

Notes:
Quantities have been determined on the basis of a design weight of 140 lbs. per cubic foot.
See Standard Road Plan RH-370 for construction requirements.

## TABULATION OF EARTHWORK QUANTITES

| STA. | CUT | ADD. CUT | FILL +35% | ADD. FILL | TOTAL CUT | TOTAL FILL+35% | BALANCE |
|---|---|---|---|---|---|---|---|
| 21+97.87 | | | | | | | |
| 23+00 | 31 | | 36 | 165 | 31 | 201 | |
| 23+19.5 | 21 | | 8 | | 21 | 8 | |
| | | | | | | | |
| 24+32 | | | | | | | |
| 25+53.63 | 82 | | 16 | 156 | 82 | 172 | |
| | | | | | | | |
| TOTAL | | | | | 134 | 381 | |

TABULATIONS, TYPICALS

PARCEL NUMBER — PROPERTY OWNER

1. NORBERT & MARY ANN KASPERBAUER TRUSTEES KASPERBAUER TRUST
2. DANIEL SCHECHINGER RITA SCHECHINGER
3. ROGER J. KASPERBAUER PATTY KASPERBAUER

'X' NAILS TOP OF BRACE POSTS — 50.60, 50.00', 52.25', 58.20 — 'X' NAILS TOP OF FE. POSTS

PK NAIL FLUSH

CL CRACK HWY. E53

STA. 21+49
CONTROL POINT #9
ALL DIST. PLUMB CHAINED

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

'X' NAILS TOP FE. POSTS — 58.68, 62.10 — FD LEAD PLUG FLUSH 0.15'

CL CRACK HWY. E53

'X' NAILS SIDE OF FE. POST — 62.85', 65.00' — 'X' NAILS TOP OF FE. POST

STA. 26+30.13
N1/4 1-82-38
ALL DIST. PLUMB CHAINED

0' 50' 100' 150'

B.M. #2A – 60D SPIKE TOP OF WOOD PILING @ NW WINGWALL OF EAST BRIDGE. EL = 393.57

SW1/4 SE1/4
36-83-38

SE1/4 SW1/4
36-83-38

EXIST. R.O.W.

CL SURVEY AND CL ROADWAY

CP#9

STA. 22+98
BEGIN PROJECT

+05 F.ENT.

124+35.75

STA. 25+05
END PROJECT

+37 F.ENT.

PCC

26+30.13

SE CORNER
SW1/4 SW1/4
36-83-38
FOUND PK NAIL
EXIST. R.O.W.

STA. 23+75.75 MAINLINE =
STA. 123+75.75 CHANNEL

N1/4 CORNER
1-82-38
LEAD PLUG

NE CORNER
1-82-38
LEAD PLUG

+84 F.ENT.

+40 60'

TEMPORARY CONSTRUCTION EASEMENT

PI = 122+17.48
Δ=34°26'38"
D=71°02'25"
T=25.00'
L=48.49'
E=3.79'
R=80.65'

PT = 122+40.97

121+92.48

PC = 121+79.24

+10 51', 200'

+40 200'

NE1/4 NW1/4
1-82-38

NW1/4 NE1/4
1-82-38

STA. 21+84
F. ENT. RT.
18"x29' CMP
U.A.C.

STA. 22+05
F. ENT. LT.
18"x55' CMP
U.A.C.

STA. 23+71, 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. CONTRACTOR SHALL CONSTRUCT 112'-6 x 30' CCS BRIDGE. D.A. = 9.9 S.M.

NISHNABOTNA TWP.
T-82N R-38W

STA. 26+37
F. ENT. LT.
24"x78' CMP
U.A.C.

| HORIZONTAL CENTERLINE CONTROL (CHANNEL) | | |
|---|---|---|
| STATION | NORTHING | EASTING |
| 121+78.24 POT | 9808.6791 | 12397.3789 |
| 121+92.48 PC | 9819.5984 | 12389.8900 |
| 122+17.48 PI | 9840.2155 | 12375.7500 |
| 122+40.97 PT | 9865.2155 | 12375.7500 |
| 124+35.75 POT | 10060.0000 | 12375.7500 |

PVI STA. 24+60
EL. = 395.51
V.C. = 200'
M.O. = 0.39'
D.S. = 55+ MPH
K = 127.4

112'-6 CCS BRIDGE

PROPOSED GRADE

-0.34%

1.23%

EXISTING GRADE

+18.50 C& ABUT.

+32.00 C& ABUT.

BOP +98 396.03

396.02

PVC 23+59 395.85

395.78

395.90

EOP +05 396.27

396.22

PVT 25+59 396.74

410 405 400 395 390 385 380 375

16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00

REV:

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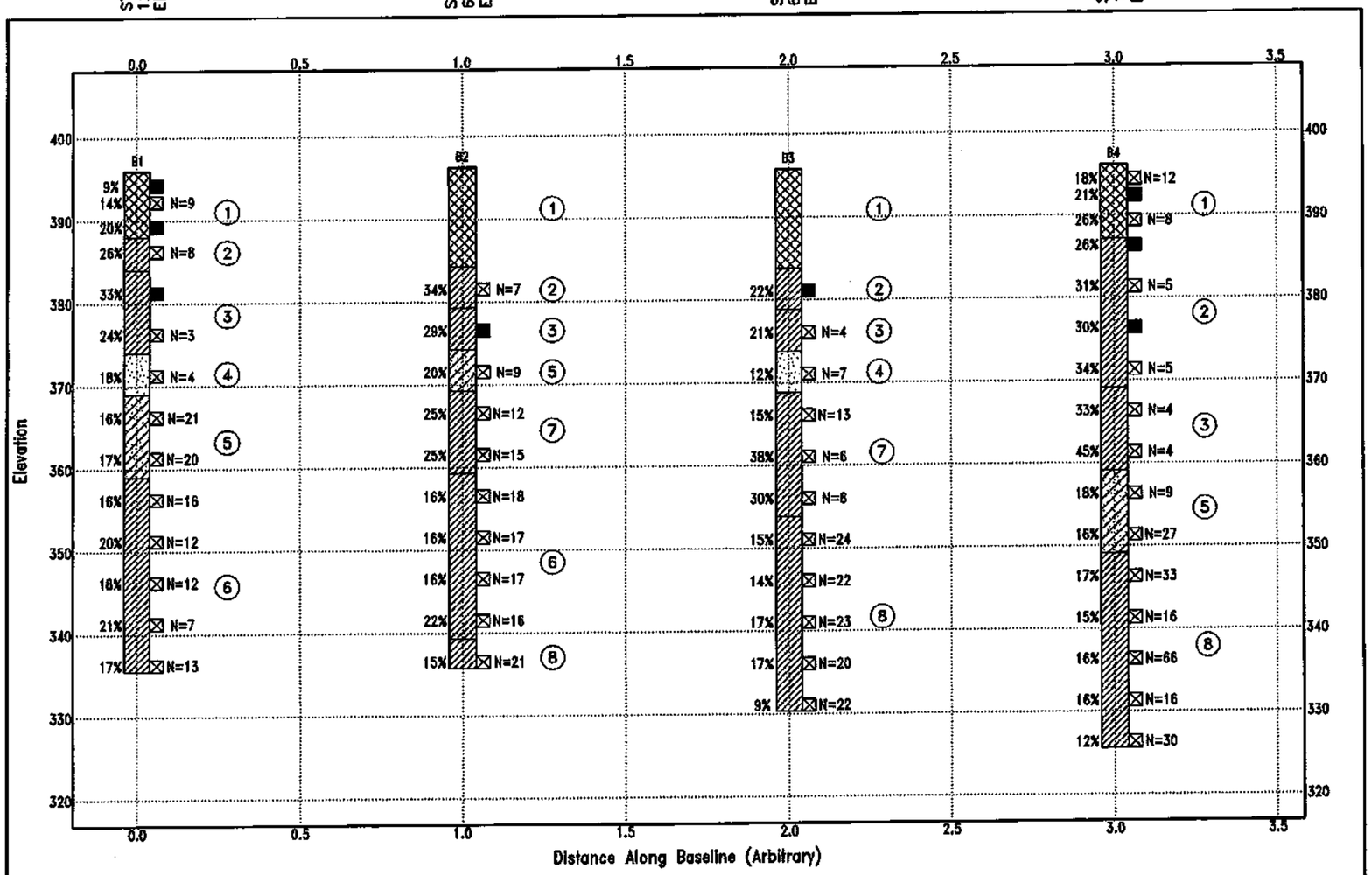
120 S. MAIN, P.O. BOX 220, DENISON, IOWA 51442
PHONE: (712)263-8116 FAX: (712)263-2181

SE PROJECT NO. 05802 | DATE: 10/03 | DRAWN BY: TKK | REVIEWED BY: SAS | APPROVED BY: TJG | DESIGN NO. | FILE NO. | CRAWFORD COUNTY | PROJECT NO. BRS-C024(58)--60-24 | SHEET DI




1. FILL, LEAN CLAY, YELLOW BROWN AND GRAY BROWN
2. STIFF SILTY CLAY, LIGHT GRAY BROWN TO GRAY, ALLUVIUM
3. SOFT SILTY CLAY, LIGHT GRAY, ALLUVIUM
4. GRAVELLY SAND, YELLOW BROWN, ALLUVIUM
5. CLAYEY SAND, LIGHT GRAY, ALLUVIUM
6. FIRM GLACIAL CLAY, GRAY, GLACIAL TILL
7. FIRM SILTY CLAY, LIGHT GRAY, ALLUVIUM
8. 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 25, 27, AND 28, 2003.

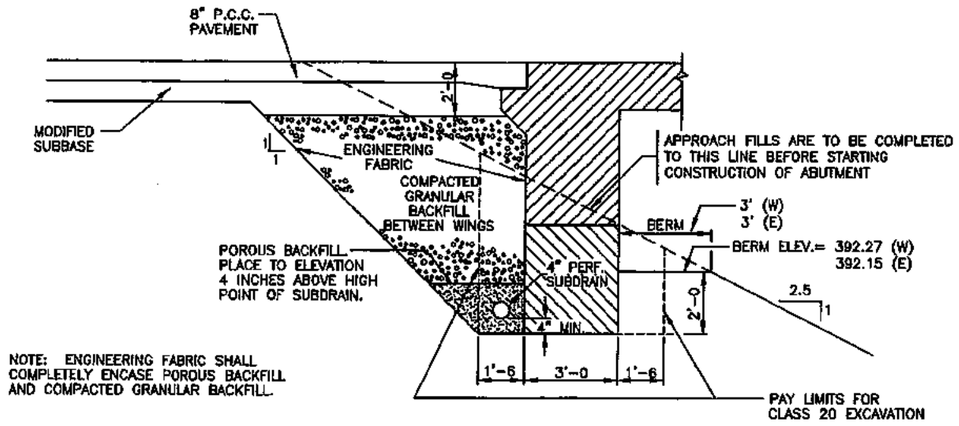
SEE SHEET V1 FOR BORING LOCATIONS.

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

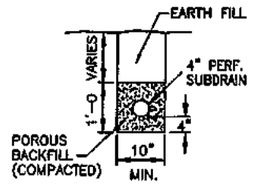
E53 East Bridge
County Road
Crawford County, Iowa

PSI Project Number: 172-35044

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.



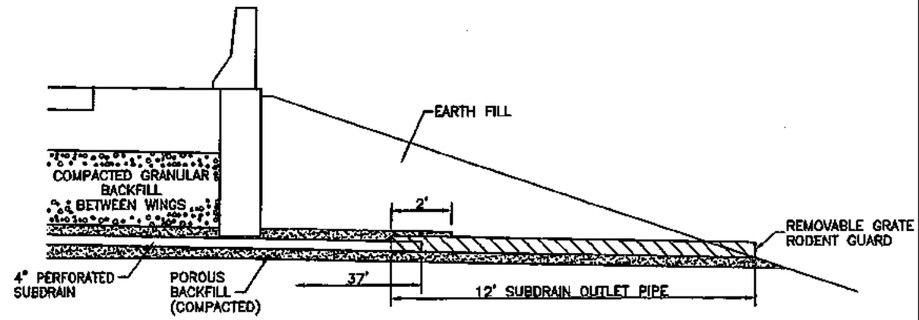

SECTION A-A




SECTION B-B

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.

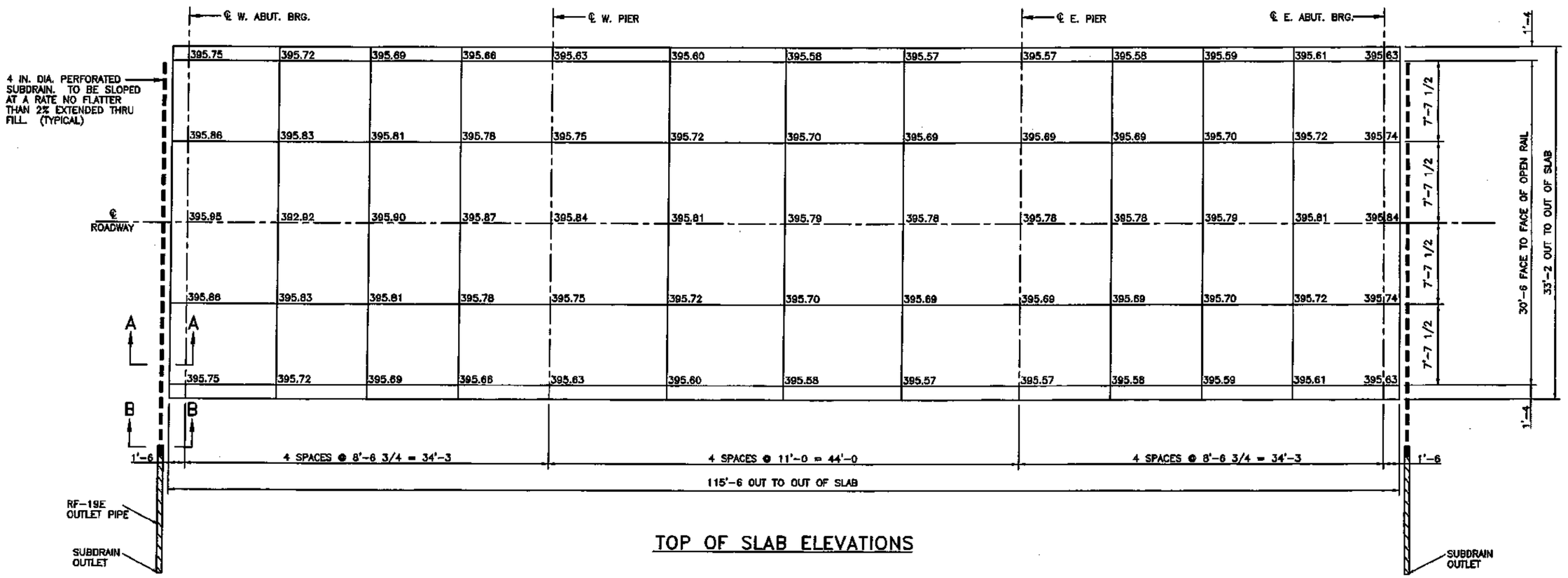
REFER TO STANDARD ROAD PLAN RF-19E FOR ADDITIONAL DETAILS.




TYPICAL SECTION OF SUBDRAIN OUTLET

## SUBDRAIN AND CLASS 20 EXCAVATION DETAILS

NOT TO SCALE




TOP OF SLAB ELEVATIONS

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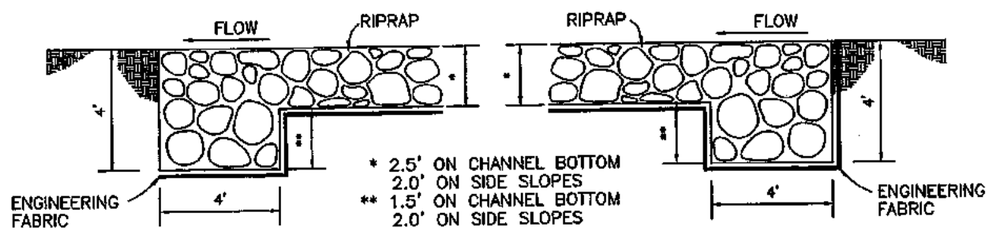
PHONE: (712)263-8118 FAX: (712)263-2181

SE PROJECT NO.: 05802 DATE: 09/03 DRAWN BY: TKK REVIEWED BY: SAS APPROVED BY: TJG DESIGN NO. . FILE NO. . CRAWFORD COUNTY PROJECT NO. BRS-C024(58)--60-24

SHEET U1

REV.:



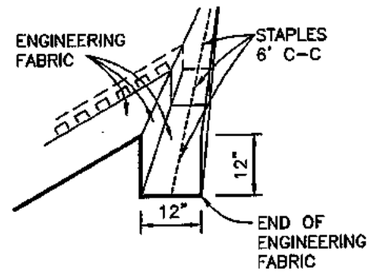

TYPICAL DOWNSTREAM

TYPICAL UPSTREAM

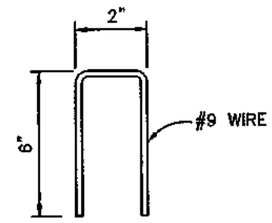
## SECTION A-A

## ROCK-FILLED CUTOFF TRENCH DETAILS

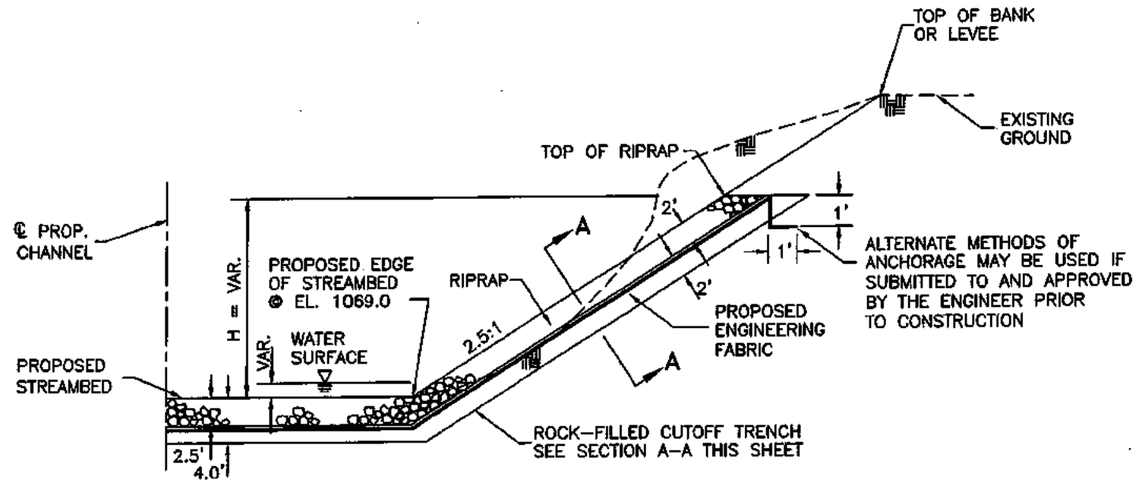
NOT TO SCALE




DETAIL OF TRENCH

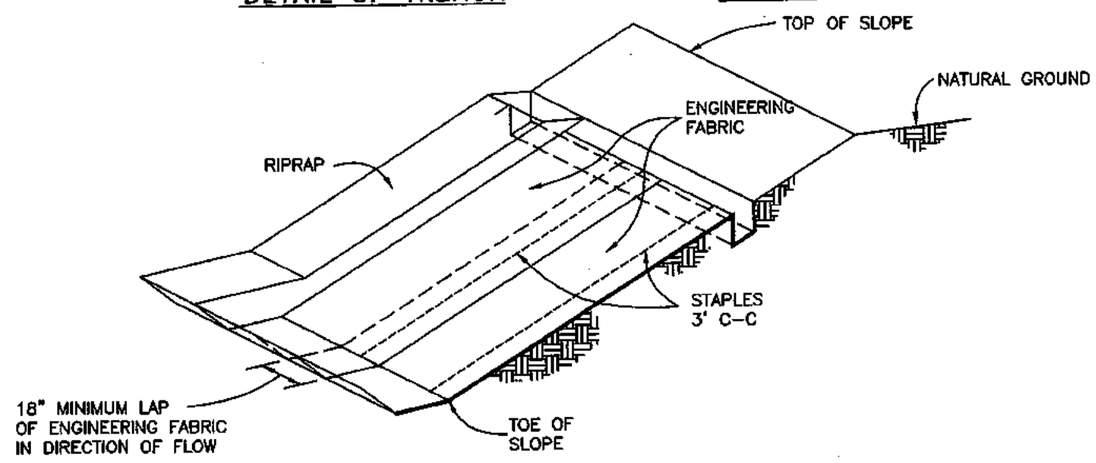



STAPLE




## TYPICAL FULL-CHANNEL BANK STABILIZATION SECTION

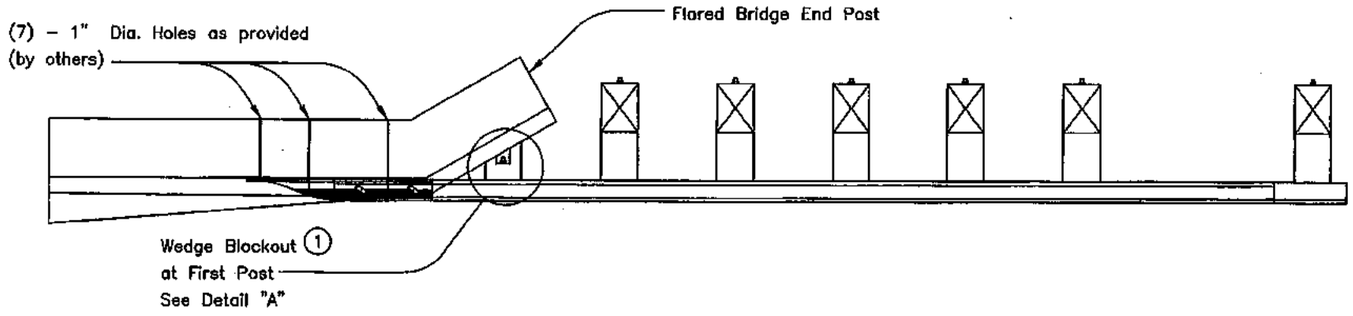
NOT TO SCALE



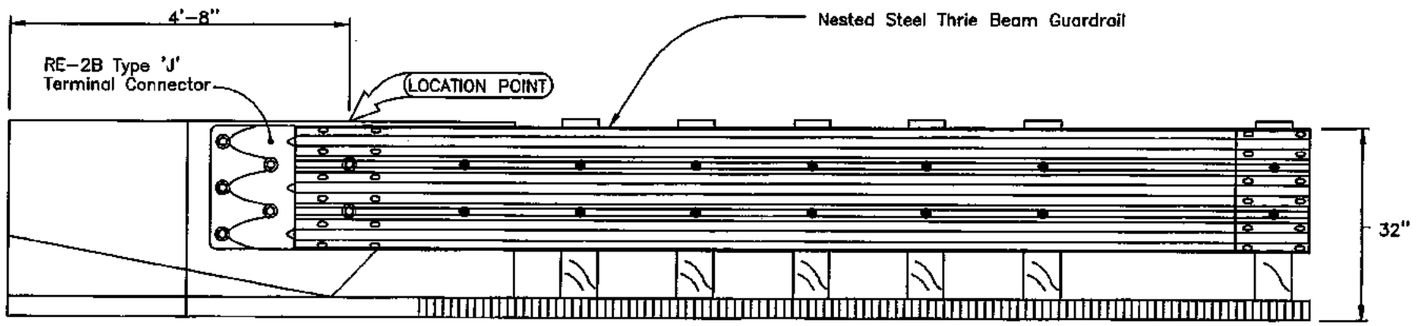

EXCAVATE 12"x12" TRENCH ALONG TOP OF RIPRAP. PLACE END OF ENGINEERING FABRIC STRIPS INTO TRENCH WITH STAPLES AS SHOWN. BACKFILL WITH THE EXCAVATED MATERIAL AND COMPACT. THE ENGINEER MAY PERMIT THE USE OF THE WHEELS OF PNEUMATIC-TIRED EQUIPMENT FOR CONSOLIDATING THE TRENCH BACKFILL MATERIAL.

## DETAILS OF PLACEMENT OF ENGINEERING FABRIC

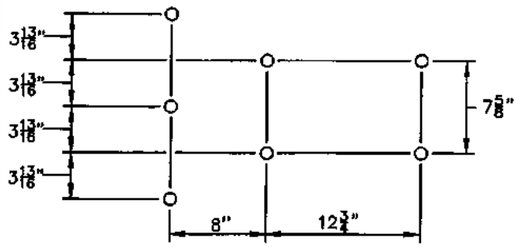
NOT TO SCALE




TYPICAL PLAN

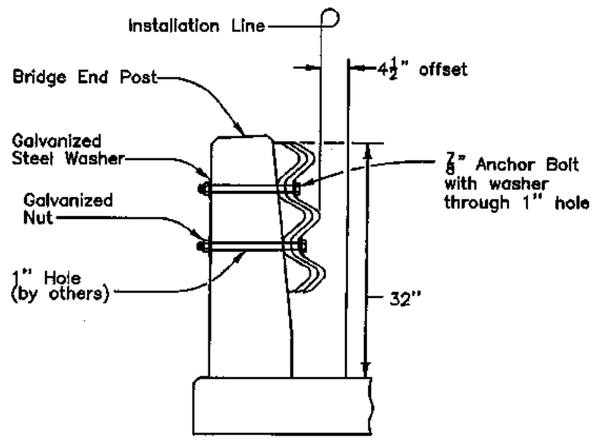



TYPICAL ELEVATION

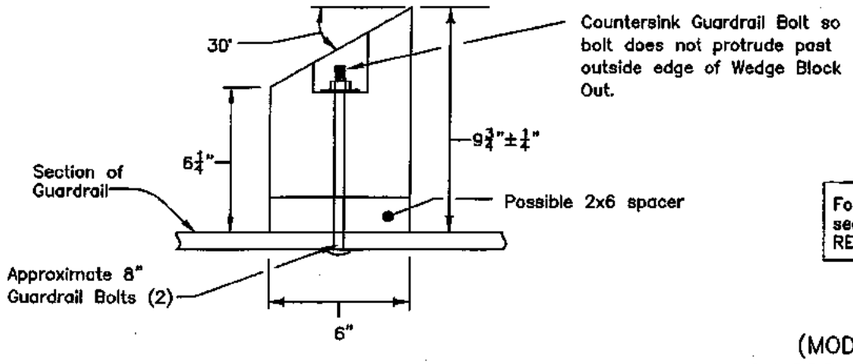



BOLT PATTERN

For RE–2B Type "J" Terminal Section




SECTION A–A




DETAIL "A"

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 require–ments 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 de–tailed hereon.

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.

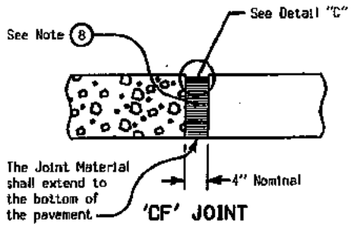
(1) First post shown on RE–68 is skipped. Only the wedge blockout is installed at this location.

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

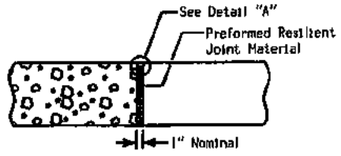
# (MODIFIED RE–69) GUARDRAIL INSTALLATION CONNECTION TO FLARED BRIDGE ENDPOST OR CONCRETE BARRIER

REV.:

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

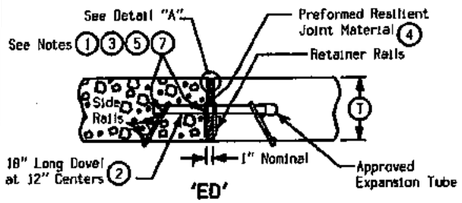



'CF' JOINT



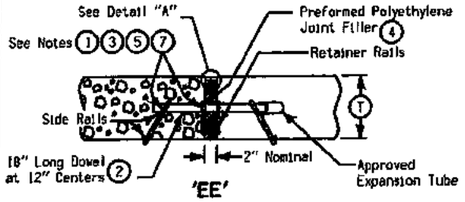

'E'

1" EXPANSION JOINT



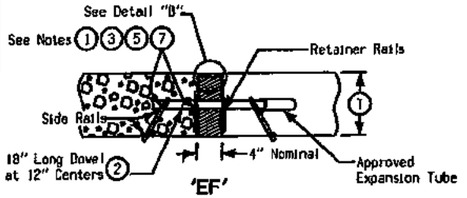

'ED'

1" DOWELED EXPANSION JOINT



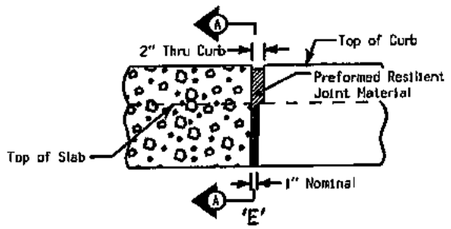

'EE'

2" DOWELED EXPANSION JOINT




'EF'

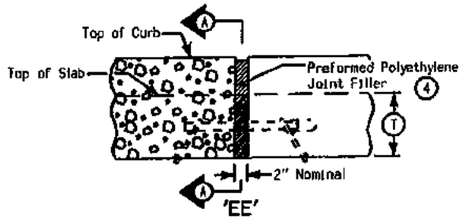
4" DOWELED EXPANSION JOINT




'E'

JOINT IN CURB

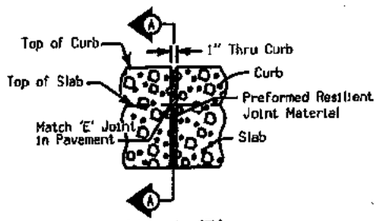
(View at Back of Curb)




'EE'

JOINT IN CURB

(View at Back of Curb)



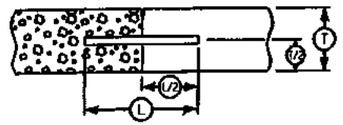

Match 'E'

'ES'

JOINT IN CURB

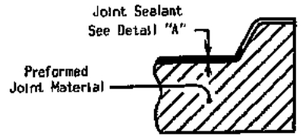
(View at Back of Curb)

| BAR SIZE TABLE | | | |
|---|---|---|---|
| (T) | <8" | 8" and <10" | =10" or >10" |
| DOWEL SIZE | ¾" | 1¼" | 1½" |

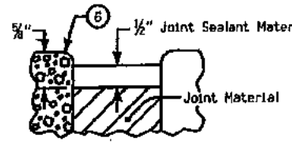



TYPICAL DOWEL PLACEMENT

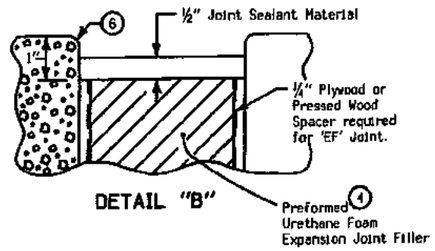
Applies to all joints unless otherwise detailed.



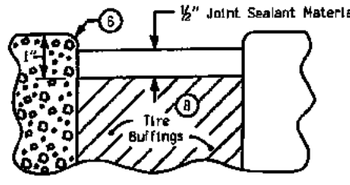

SECTION A-A




DETAIL "A"




DETAIL "B"




DETAIL "C"

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-58.

(6) Edge with 1/4" tool for length of joint indicated in formed; edging not required when cut with diamond blade saw.

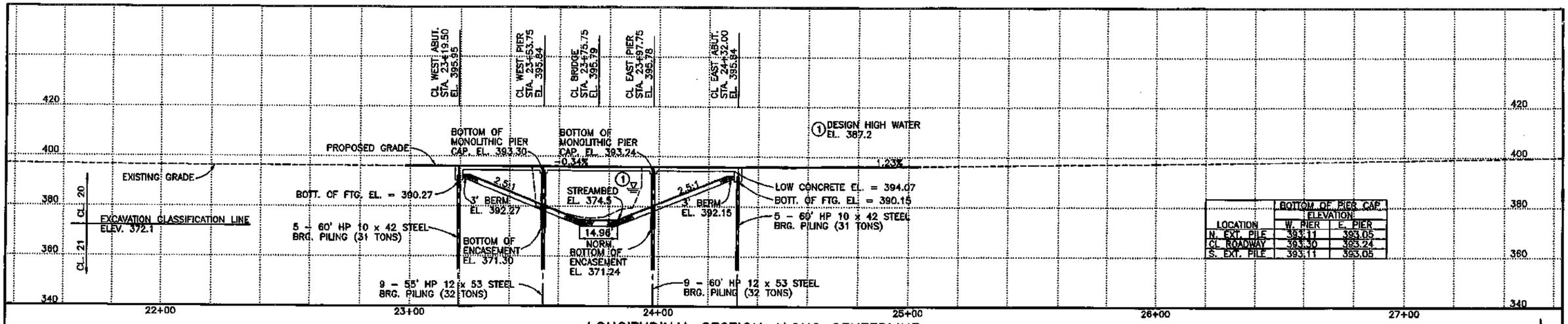
(7) Weld side opposite Expansion Tube.

(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)

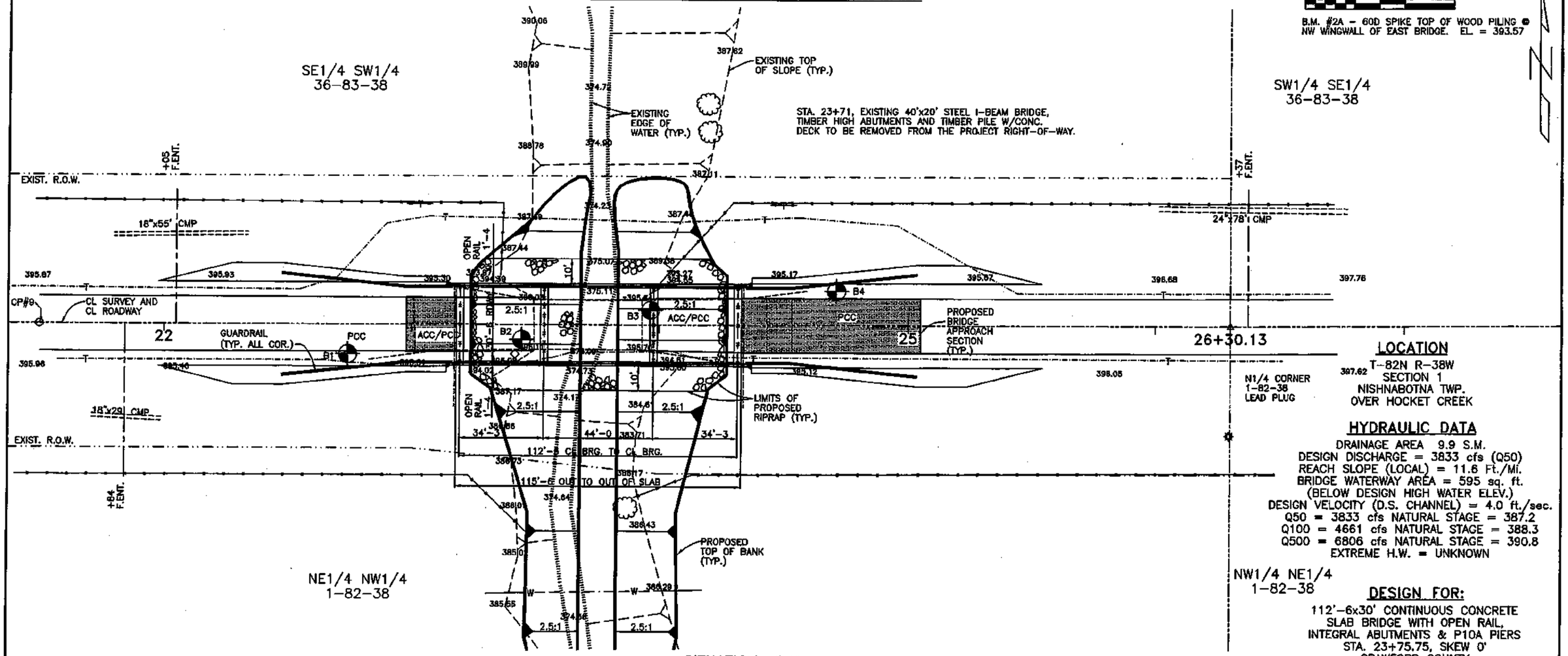



| LOCATION | BOTTOM OF PIER CAP ELEVATION: W. PIER | E. PIER |
|---|---|---|
| N. EXT. PILE | 393.11 | 393.05 |
| CL ROADWAY | 393.30 | 393.24 |
| S. EXT. PILE | 393.11 | 393.05 |

## LONGITUDINAL SECTION ALONG CENTERLINE

0' 20' 40' 60'

B.M. #2A - 60D SPIKE TOP OF WOOD PILING @ NW WINGWALL OF EAST BRIDGE. EL. = 393.57




## SITUATION PLAN

## LOCATION

T-82N R-38W
SECTION 1
NISHNABOTNA TWP.
OVER HOCKET CREEK

## HYDRAULIC DATA

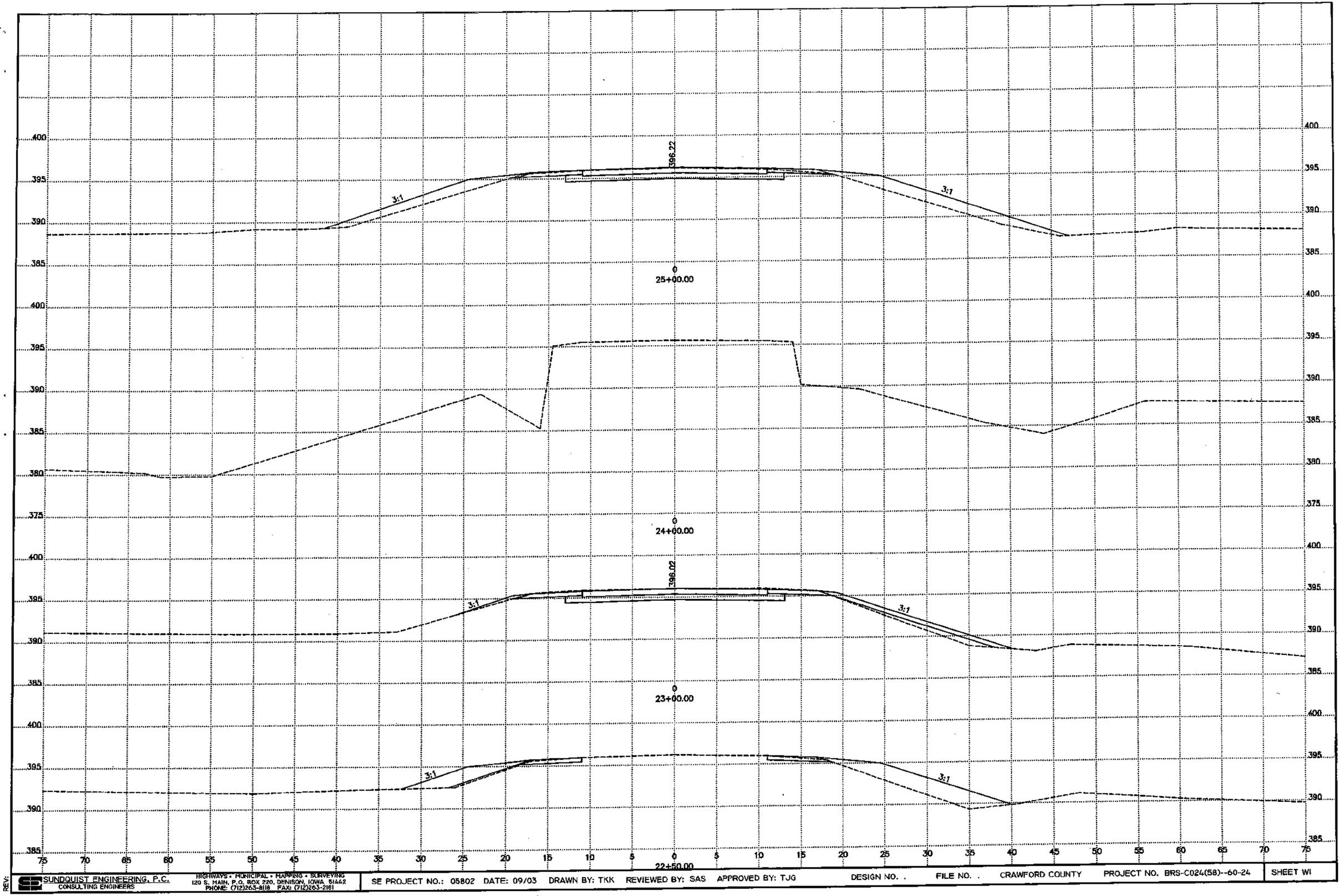
DRAINAGE AREA 9.9 S.M.
DESIGN DISCHARGE = 3833 cfs (Q50)
REACH SLOPE (LOCAL) = 11.6 Ft./Mi.
BRIDGE WATERWAY AREA = 595 sq. ft.
(BELOW DESIGN HIGH WATER ELEV.)
DESIGN VELOCITY (D.S. CHANNEL) = 4.0 ft./sec.
Q50 = 3833 cfs NATURAL STAGE = 387.2
Q100 = 4661 cfs NATURAL STAGE = 388.3
Q500 = 6806 cfs NATURAL STAGE = 390.8
EXTREME H.W. = UNKNOWN

## DESIGN FOR:

112'-6x30' CONTINUOUS CONCRETE SLAB BRIDGE WITH OPEN RAIL, INTEGRAL ABUTMENTS & P10A PIERS
STA. 23+75.75, SKEW 0'
CRAWFORD COUNTY
PROJ. NO. BRS-C024(58)--60-24

REV.:

SUNDQUIST ENGINEERING, P.C.
CONSULTING ENGINEERS
HIGHWAYS • MUNICIPAL MAPPING SURVEYING
120 S. MAIN, P.O. BOX 220, DENISON, IOWA 51442
PHONE: (712)263-5118 FAX: (712)263-2161

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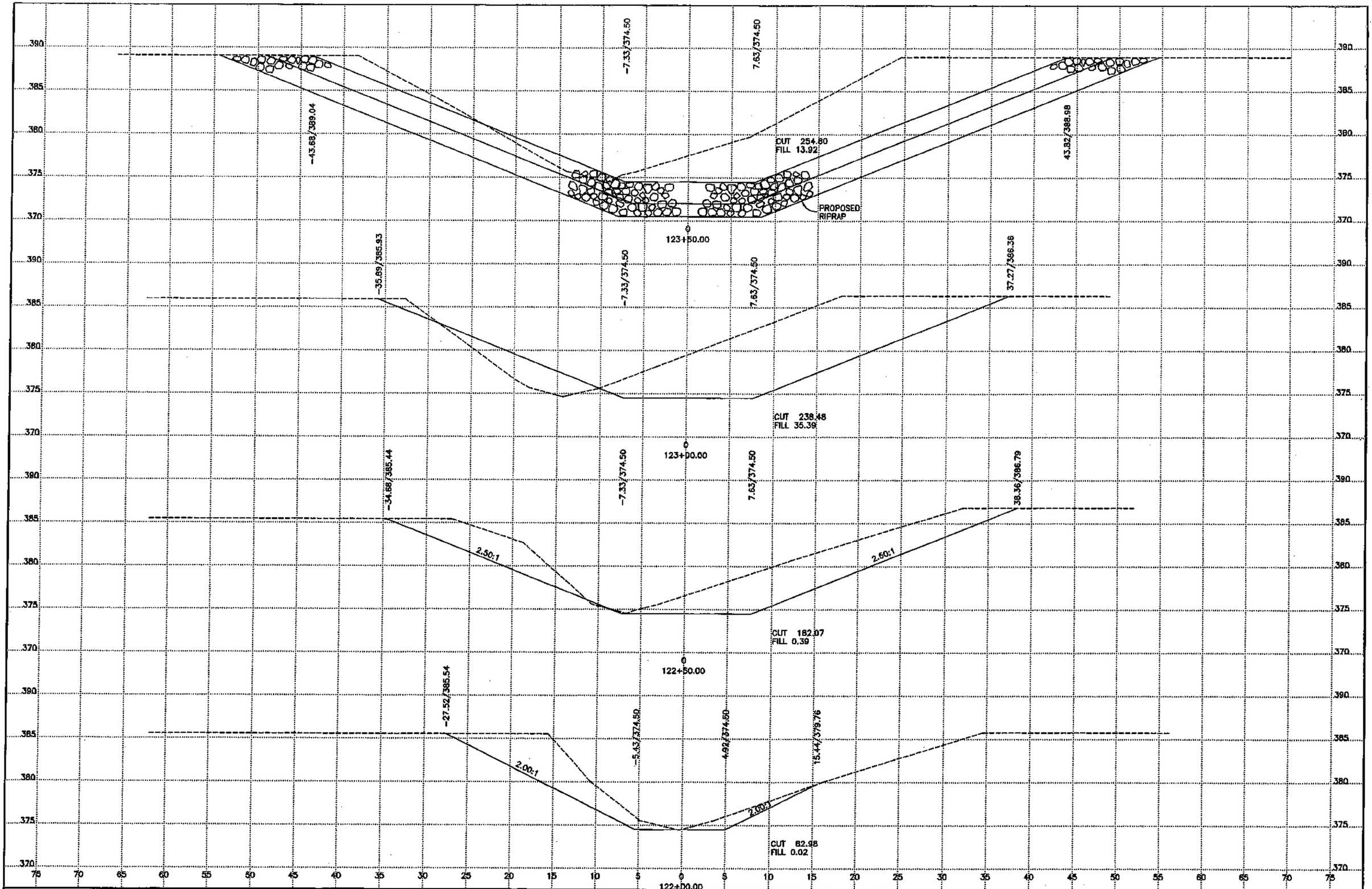
120 S. MAIN, P.O. BOX 220, DENISON, IOWA 51442
PHONE: (712)263-8118 FAX: (712)263-2161

SE PROJECT NO.: 05802 DATE: 09/03 DRAWN BY: TKK REVIEWED BY: SAS APPROVED BY: TJG DESIGN NO. . FILE NO. . CRAWFORD COUNTY PROJECT NO. BRS-C024(58)--60-24

SHEET WI




REV:

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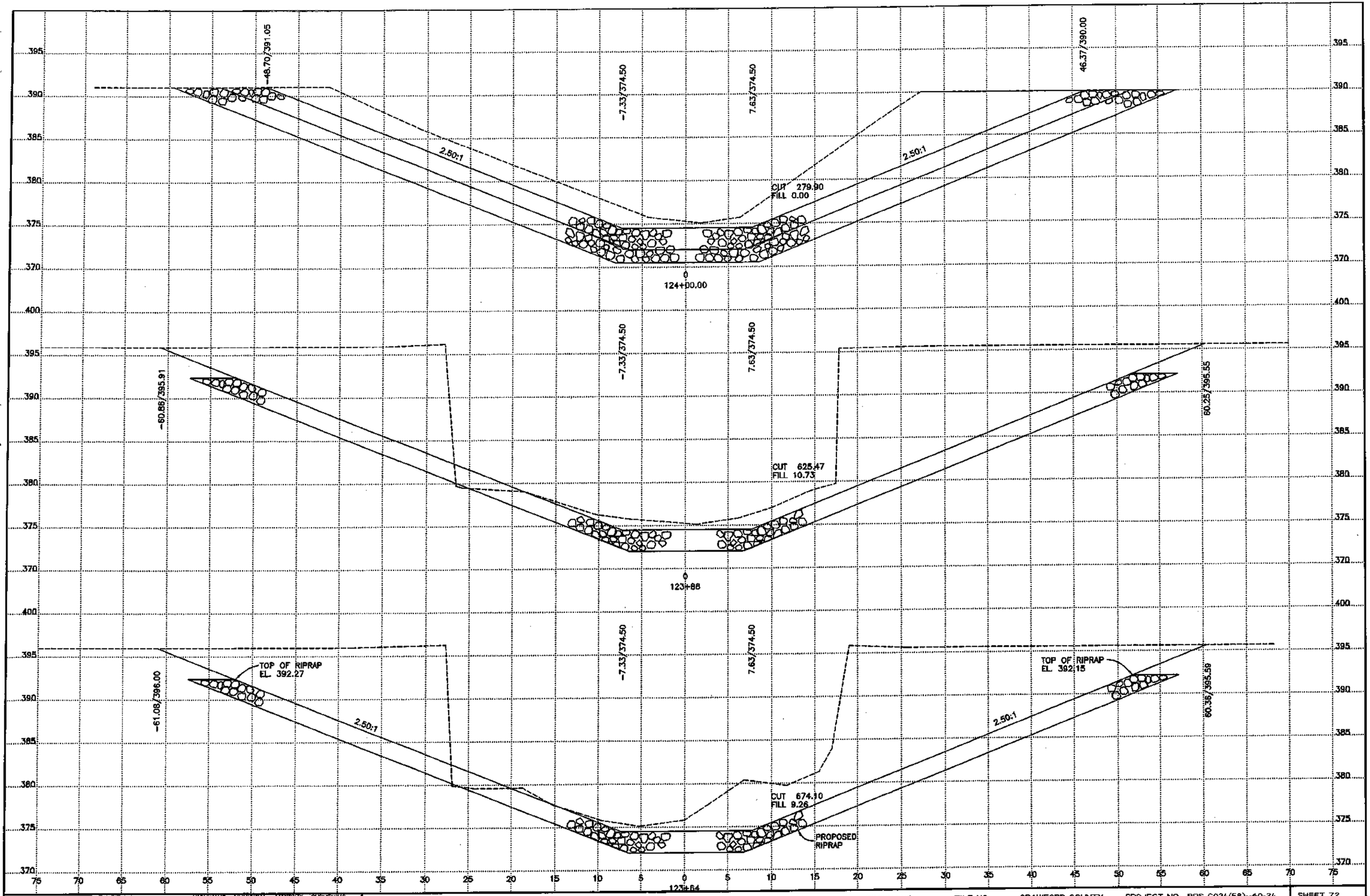
120 S. MAIN, P.O. BOX 220, DENISON, IOWA 51442
PHONE: (712)263-8118 FAX: (712)263-2191

SE PROJECT NO.: 05802 DATE: 09/03 DRAWN BY: TKK REVIEWED BY: SAS APPROVED BY: TJG DESIGN NO. . FILE NO. . CRAWFORD COUNTY PROJECT NO. BRS-C024(58)--60-24

SHEET 21




REV:

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120 S. MAIN, P.O. BOX 220, DENISON, IOWA 51442
PHONE: (712)263-8110 FAX: (712)265-2181

SE PROJECT NO.: 05802 DATE: 09/03 DRAWN BY: TKK REVIEWED BY: SAS APPROVED BY: TJG DESIGN NO. . FILE NO. . CRAWFORD COUNTY PROJECT NO. BRS-C024(58)--60-24

SHEET Z2

| Project Number: LB28-13N | CRAWFORD COUNTY DAY LABOR PROJECT SHEET | Date: July 21, 2011 |
|---|---|---|
| Location: 100511n Page 1 | Section: 12 & 13 | Township: Nish nabotna |
| Description of Work: Replace old bridge with new 24'x32' I beam bridge. | | FHWA No: 126430 |
| For the month of: May | | Bridge Type: I-beam |

| Employee | Hours worked per day | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Total Hours | Hourly Rate | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | | | |
| Terry Lally | | | | | | | | | | | | 6 | 8 | | | 8 | 8 | 8 | 8 | | | | | | | | | | | | 5 | 51 | $ 39.66 | $2,022.66 |
| Dan Blunk | | | | | | | | | | | | 6 | 8 | | | 8 | 8 | 8 | 8 | | | | | | | | | | | | 5 | 51 | $ 33.33 | $1,699.83 |
| Howard Clark | | | | | | | | | | | | 6 | 8 | | | 8 | 8 | 8 | 8 | | | | | | | | | | | | 5 | 51 | $ 31.07 | $1,584.57 |
| Kenny Miller | | | | | | | | | | | | 6 | 8 | | | 8 | 8 | 8 | 8 | | | | | | | | | | | | 5 | 51 | $ 29.43 | $1,500.93 |
| Tim Beery | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $19.01 | $0.00 |
| Zack Wolf | | | | | | | | | | | | 6 | 8 | | | 8 | 8 | 8 | 8 | | | | | | | | | | | | 5 | 51 | $19.01 | $969.51 |
| Mike Rothe | | | | | | | | | | | | 6 | 8 | | | 8 | 8 | 8 | 8 | | | | | | | | | | | | 5 | 51 | $19.01 | $969.51 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ - | $0.00 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ - | $0.00 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ - | $0.00 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ - | $0.00 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Labor Cost: | | $8,747.01 |

| Equipment | Hours worked per day | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Total Hours | Hourly Rate | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | | | |
| #83 Cat Excavater | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ 83.90 | $0.00 |
| #73 Link Belt Crane | | | | | | | | | | | | | | | | | 7 | | 7 | | | | | | | | | | | | | 14 | $117.97 | $1,651.58 |
| #103 Tele-Crane | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $107.68 | $0.00 |
| #75 IH Dozer | | | | | | | | | | | | | | | | 4 | | 3 | | | | | | | | | | | | | | 7 | $ 51.45 | $360.15 |
| #59 J. D. Dozer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ 33.58 | $0.00 |
| #32 J.D. crawler | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ 33.58 | $0.00 |
| #97 air comp. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ 10.00 | $0.00 |
| #63 Welder | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 2 | $ 10.00 | $20.00 |
| #18 Tool Truck | | | | | | | | | | | | 2 | 2 | | | 2 | 2 | 2 | 2 | | | | | | | | | | | | 2 | 14 | $ 6.94 | $97.16 |
| #68 Cat Excavater | | | | | | | | | | | | | 7 | | | 7 | 7 | 7 | 6 | | | | | | | | | | | | 5 | 39 | $ 83.90 | $3,272.10 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ - | $0.00 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ - | $0.00 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Equipment Costs: | | $5,400.99 |

| No. of pieces | Size | Materials List<br>Description of materials used | Sockpile location or purchased from | New/ Used | No. Units | * Units | Unit Cost | Total Costs |
|---|---|---|---|---|---|---|---|---|
| 10 | 16" | 32' I beams | stock | used | 10 | each | $ 240.00 | $ 2,400.00 |
| 32 | lbs. | 5/32 welding rods | stock | | 32 | lbs. | $ 5.99 | $ 191.68 |
| | | | | | 0 | | $ - | $ - |
| | | | | | 0 | | $ - | $ - |
| | | | | | 0 | | $ - | $ - |
| | | | | | 0 | | $ - | $ - |
| | | | | | 0 | | $ - | $ - |
| | | | | | 0 | | $ - | $ - |
| | | | | | 0 | | $ - | $ - |
| | | | | | | | Material Costs (page 1): | $ 2,591.68 |

| | |
|---|---|
| Total Labor Costs: | $8,747.01 |
| Materials (page 1): $ 2,591.68 | |
| Materials (page 2): $ 21,173.52 | |
| Total Material Cost: | $23,765.20 |
| Equipment Costs: | $5,400.99 |
| Total Costs: | $37,913.20 |

| Crawford County Secondary Roads Material List | | | | Project No.: | | | | |
|---|---|---|---|---|---|---|---|---|
| No. Pieces | Size | Description of Materials Used: | Stockpile Location or Direct Purchase From | New or Used | No. Units | Units *(see below) | Unit Cost | Total Cost |
| | 10"x10" | 40' Steel H@42 lb./ft. | Denison | new | 0 | lin. Ft.. | $ 8.50 | $0.00 |
| 12 | 10"x10" | 50' Steel H@42 lb/ft | Denison | new | 600 | lin. Ft.. | $ 11.35 | $6,810.00 |
| | 10" | 40' channel @15.3 lbs./ft. | Denison | new | 0 | lin. Ft.. | $ 3.13 | $0.00 |
| | 12" | 40' channel @15.3 lbs./ft. | Denison | new | 0 | lin. Ft.. | $ 4.90 | $0.00 |
| | 1/2"x14" | 10' steel plates | Denison | new | 0 | lin. Ft.. | $ 6.43 | $0.00 |
| 2 | 25' | Steel Caps | | | 2 | each | $ 565.40 | $1,130.80 |
| 32 | 30 1/2" | Diaphragms | | | 32 | each | $ 31.04 | $993.28 |
| | 38 1/2" | | | | 0 | each | $ 37.43 | $0.00 |
| 12 | 85lb. | rail posts | | | 12 | each | $ 8.50 | $102.00 |
| | straight 20' | 7 ga.sheet piling | Denison | new | 0 | each | $ 123.22 | $0.00 |
| | 45degree | sheet piling | Denison | new | 0 | each | $ 151.40 | $0.00 |
| | 90degree | sheet piling | Denison | new | 0 | each | $ 139.80 | $0.00 |
| | | | | | 0 | | | $0.00 |
| 2 | 13' | gaurdrail | | used | 26 | lin. Ft.. | $ 1.00 | $26.00 |
| 2 | 26' | gaurdrail | | | 52 | lin.ft. | $ 1.00 | $52.00 |
| | 25' | W-beam gaurdrail | | new | 0 | lin. Ft.. | $ 4.95 | $0.00 |
| 4 | 2' | gaurdrail terminal ends | | new | 4 | each | $ 24.95 | $99.80 |
| | 1/4" | 2 1/2"x2 1/2" angle 20' | Denison | new | 0 | lin. Ft.. | $ 0.78 | $0.00 |
| | 3/8" | 3"x3" angle 20' | Denison | new | 0 | lin. Ft.. | $ 1.35 | $0.00 |
| | | | | | 0 | | | $0.00 |
| 230' | 1/2" | wire cable | Denison | new | 230 | lin. Ft.. | $ 0.68 | $156.40 |
| 8 | 1/2" | cable clamps | Denison | new | 8 | each | $ 1.91 | $15.28 |
| | | | | | 0 | | | $0.00 |
| | 1/2" | 20' rebar | Denison | new | 0 | lin. Ft.. | $ 0.16 | $0.00 |
| | 5/8" | 20' rebar | Denison | new | 0 | lin. Ft.. | $ 0.24 | $0.00 |
| | 5/8" | 20" rebar with Epoxy | Denison | new | 0 | each | $ 0.27 | $0.00 |
| | | | | | 0 | | | $0.00 |
| | | | | | | | Total Materials (page three) : | $9,385.56 |

| Project Number: LB28-13N | CRAWFORD COUNTY DAY LABOR PROJECT SHEET | Date: |
|---|---|---|
| Location: 100511n Page 2 | Section: 12 & 13 | Township: Nishnabotna |
| Description of Work: Replace old bridge with new 24'x32' I beam bridge. | | FHWA No: 126430 |
| For the month of: June | | Bridge Type: I-beam |

| Employee | Hours worked per day | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Total Hours | Hourly Rate | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | | | |
| Terry Lally | 8 | | | | | | | | | | | | 8 | 8 | 8 | 8 | 8 | | | | | | 8 | | | | | | | | | 56 | $ 39.66 | $2,220.96 |
| Dan Blunk | 8 | | | | | | | | | | | | 8 | 8 | 8 | 8 | 8 | | | | | | 8 | | | | | | | | | 56 | $ 33.33 | $1,866.48 |
| Howard Clark | 8 | | | | | | | | | | | | 8 | 8 | 8 | 8 | 8 | | | | | | 8 | | | | | | | | | 56 | $ 31.07 | $1,739.92 |
| Kenny Miller | 8 | | | | | | | | | | | | 8 | 8 | 8 | 8 | 8 | | | | | | 8 | | | | | | | | | 56 | $ 29.43 | $1,648.08 |
| Beery Tim | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ 26.24 | $0.00 |
| Zack Wolf | 8 | | | | | | | | | | | | 8 | 8 | 8 | 8 | 8 | | | | | | 8 | | | | | | | | | 56 | $ 19.01 | $1,064.56 |
| Mike Rothe | 8 | | | | | | | | | | | | 8 | 8 | 8 | 8 | 8 | | | | | | 8 | | | | | | | | | 56 | $ 16.30 | $912.80 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ - | $0.00 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ - | $0.00 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ - | $0.00 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ - | $0.00 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Labor Cost: | | $9,452.80 |

| Equipment | Hours worked per day | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Total Hours | Hourly Rate | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | | | |
| #83 Cat Excavater | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ 83.90 | $0.00 |
| #73 Link Belt Crane | | | | | | | | | | | | | | 2 | 2 | | | | | | | | | | | | | | | | | 4 | $ 117.97 | $471.88 |
| #103 Tele-Crane | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ 107.68 | $0.00 |
| #75 IH Dozer | | | | | | | | | | | | | | | 4 | 4 | | | | | | | 4 | | | | | | | | | 12 | $ 51.45 | $617.40 |
| #59 J. D. Dozer | | | | | | | | | | | | | | | 2 | 4 | | | | | | | 3 | | | | | | | | | 9 | $ 33.58 | $302.22 |
| #32 J.D. crawler | | | | | | | | | | | | | | | 2 | 3 | | | | | | | | | | | | | | | | 5 | $ 33.58 | $167.90 |
| #97 air comp. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ 10.00 | $0.00 |
| #63 Welder | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 6 | $ 10.00 | $60.00 |
| #18 Tool Truck | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | $ 6.94 | $13.88 |
| #68 Cat Excavater | 2 | | | | | | | | | | | | | 2 | 2 | 2 | | | | | | | 2 | | | | | | | | | 10 | $ 83.90 | $839.00 |
| | | | | | | | | | | | | | | 4 | 7 | 7 | | | | | | | 6 | | | | | | | | | 24 | $ - | $0.00 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | $ - | $0.00 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Equipment Costs: | | $2,472.28 |

| No. of pieces | Size | Materials List<br>Description of materials used | Sockpile location or purchased from | New/ Used | No. Units | * Units | Unit Cost | Total Costs |
|---|---|---|---|---|---|---|---|---|
| | | | | | 0 | | $ - | $ - |
| | | | | | 0 | | $ - | $ - |
| | | | | | 0 | | $ - | $ - |
| | | | | | 0 | | $ - | $ - |
| | | | | | 0 | | $ - | $ - |
| | | | | | 0 | | $ - | $ - |
| | | | | | 0 | | $ - | $ - |
| | | | | | 0 | | $ - | $ - |
| | | | | | 0 | | $ - | $ - |
| | | | | | | | Material Costs (page 1): | $ - |

| | |
|---|---|
| Total Labor Costs: | $9,452.80 |
| Materials (page 1): $ | - |
| Materials (page 2): $ | 9,620.84 |
| Total Material Cost: | $9,620.84 |
| Equipment Costs: | $2,472.28 |
| Total Costs: | $21,545.92 |

| Crawford County Secondary Roads Material List | | | | Project No.: | | | | |
|---|---|---|---|---|---|---|---|---|
| No. Pieces | Size | Description of Materials Used: | Stockpile Location or Direct Purchase From | New or Used | **No. Units** | Units *(see below) | **Unit Cost** | Total Cost |
| | 3"x12" | 16' Plank | Denison | new | 0 | ln.ft. | $ 3.44 | $0.00 |
| | 3"x12" | 18' Plank | Denison | new | 0 | ln.ft. | $ 3.44 | $0.00 |
| | 3"x12" | 20' Plank | Denison | new | 0 | ln.ft. | $ 3.44 | $0.00 |
| 25 | 3"x12" | 22' Plank | Denison | new | 550 | lln.ft. | $ 3.60 | $1,980.00 |
| 12 | 3"x12" | 24' plank | Denison | new | 300 | ln.ft. | $ 3.60 | $1,080.00 |
| 90 | 3"x12" | 16' plank | | used | 1440 | ln.ft. | $ 2.25 | $3,240.00 |
| 14 | 3"x12" | 24' plank | | used | 336 | ln.lnft. | $ 2.25 | $756.00 |
| 14 | 4"x16" | 24' bottom deck | | | 336 | ln.ft.. | $ 2.50 | $840.00 |
| | | | | | 0 | | $ - | $0.00 |
| | 10"x10" | Wood Cap | | | 0 | ln.ft. | $ 9.17 | $0.00 |
| | 12"x12" | Wood Cap | | | 0 | ln.ft. | $ 13.20 | $0.00 |
| | | | | | 0 | | $ - | $0.00 |
| | 4"x6" | 12' nailer | | | 0 | each | $ 26.05 | $0.00 |
| 4 | 4"x6" | 16' nailer | | | 4 | each | $ 29.33 | $117.32 |
| | | | | | 0 | | $ - | $0.00 |
| | 2"x4" | any length | | | 0 | ln.ft. | $ 0.28 | $0.00 |
| | 2"x6" | any length | | | | ln.ft. | $ 0.39 | $0.00 |
| | 1/2" | 4'x8' plywood | | | 0 | each | $ 11.05 | $0.00 |
| | 3/4" | 4'x8' plywood | | | 0 | each | $ - | $0.00 |
| | | | | | 0 | | $ - | $0.00 |
| | 25' | wood piling | | | 0 | each | $ 173.91 | $0.00 |
| 8 | 30' | wood piling | | | 8 | each | $ 200.94 | $1,607.52 |
| | 35' | wood piling | | | 0 | each | $ 236.25 | $0.00 |
| | 40' | wood piling | | | 0 | each | $ 296.37 | $0.00 |
| | | | | | 0 | | $ - | $0.00 |
| | 8"x8" | 40'steel@36lb./ft. | | | 0 | ln. ft. | $ 10.61 | $0.00 |
| | 8"x8" | 50'steel @36lb./ft | | | 0 | ln. ft. | $ - | $0.00 |
| | | | | | | | **Total Materials (page two) :** | **$9,620.84** |

| Crawford County Secondary Roads Material List | | | | Project No.: | | | | |
|---|---|---|---|---|---|---|---|---|
| No. Pieces | Size | Description of Materials Used: | Stockpile Location or Direct Purchase From | New or Used | No. Units | Units *(see below) | Unit Cost | Total Cost |
| 210' | 12' | felt fabric | Denison | | 210 | lin ft. | $ 0.72 | $151.20 |
| | 12' | mesh fabric | Denison | | 0 | lin. | $ 2.00 | $0.00 |
| | box | 1"x6"x6" fabric staples | Denison | | 0 | each | $ 21.70 | $0.00 |
| | | | | | 0 | | | $0.00 |
| | 8d | nails | Denison | | 0 | lb. | $ 0.80 | $0.00 |
| | 16d | nails | Denison | | 0 | lb. | $ 0.69 | $0.00 |
| | 16d | double head nails | Denison | | 0 | lb. | $ 0.69 | $0.00 |
| 40 | 60d | ringshank spikes | Denison | | 40 | lbs. | $ 1.35 | $54.00 |
| | | | | | 0 | | | $0.00 |
| | 3/4" | anchor bolts | Denison | | 0 | each | $ 2.80 | $0.00 |
| | 1/2" | maellable washers | Denison | | 0 | each | $ 0.94 | $0.00 |
| 48 | 3/4" | maellable washers | Denison | | 48 | each | $ 0.94 | $45.12 |
| | 1/2" | flat washers | Denison | | 0 | each | | $0.00 |
| 44 | 3/4" | flat washers | Denison | | 44 | each | | $0.00 |
| | | | | | 0 | | | $0.00 |
| 196 | 3/4" | 2 1/2" bolts | Denison | | 196 | each | $ 0.70 | $137.20 |
| | 3/4" | 3" bolts | Denison | | 0 | each | $ 0.80 | $0.00 |
| 24 | 1/2" | 9" bolts | Denison | | 24 | each | $ 1.05 | $25.20 |
| | 1/2" | 10" bolts | Denison | | 0 | each | $ 0.98 | $0.00 |
| | 1/2" | 11" bolts | Denison | | 0 | each | $ 1.05 | $0.00 |
| | 1/2" | 12" bolts | Denison | | 0 | each | $ 1.84 | $0.00 |
| | 7/8" | 2 1/2" bolts | Denison | | 0 | each | $ 0.86 | $0.00 |
| | 3/4" | 8" bolt | Denison | | 0 | each | $ 1.10 | $0.00 |
| | 3/4" | 9"bolt | Denison | | 0 | each | $2.60 | $0.00 |
| | 3/4" | 10" bolt | Denison | | 0 | each | $ 1.25 | $0.00 |
| | 3/4" | 11' | Denison | | 0 | each | $ 1.45 | $0.00 |
| | 3/4" | 12" bolts | Denison | | 0 | each | $ 1.93 | $0.00 |
| | | | | | | | **Total Materials (page four) :** | **$412.72** |

# Crawford County Day Labor Bridge Construction

Prepared By: Paul J. Assman Date: 6/18/11

Township: Richmond Twp Section: 13 E911 Rd.: U Ave

FHWA No.: 126431 Date Reconstructed: Spring 2011

Describe Work: Replace bridge with steel beam timber deck bridge

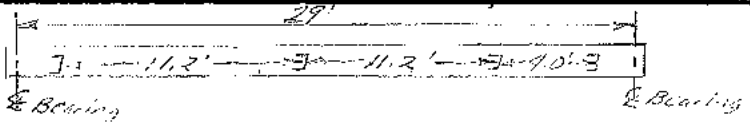
| Bridge Length: 29'-6" Bearing 30' out to out | Bridge Width: 24' | Open Depth: |
|---|---|---|
| **Beam Info.** | **Deck Info.** | **Diaphragm Info.** |
| Beam Type: (W) S | Deck Type: Timber | # Bolts per Angle: 3 |
| Beam Spacing: 31" C-C | Top: 3"x12" Longitudinal | Bolt Size: 3/4" |
| Beam Depth: 16" | Bottom: 4"x6" Transverse | Diaphragm Length: |
| Flange: Width 7" Thickness 1/2" | Spacing on Bottom: 29" C-C | Diaphragm Size: 12" channel |
| Web Thickness: 1/4" | | |

Deck X-secton With Beam Spacing

Used steel beams

10 beams @ 31" spacing

X-section With Diaphragm Spacing




Substructure Comments: 6 HP 10x42 50' long each abut

Comments: