BRIDGE REPLACEMENT – PPCB

BROS-C024(54)--5F-24

LETTING DATE JULY 24, 2001

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 AND LAYOUTS SHALL BE AS PER PART VI OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) REVISION 3, DATED SEPTEMBER 3, 1993.

PERMITS

THIS PROJECT IS COVERED BY THE FOLLOWING CORPS OF ENGINEERS (COE) AND IOWA DEPARTMENT OF NATURAL RESOURCES (IDNR) FLOOD PLAIN DEVELOPMENT PERMITS.
COE PERMIT: NWP NO. 14
IDNR PERMIT NO. FP972001-125

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

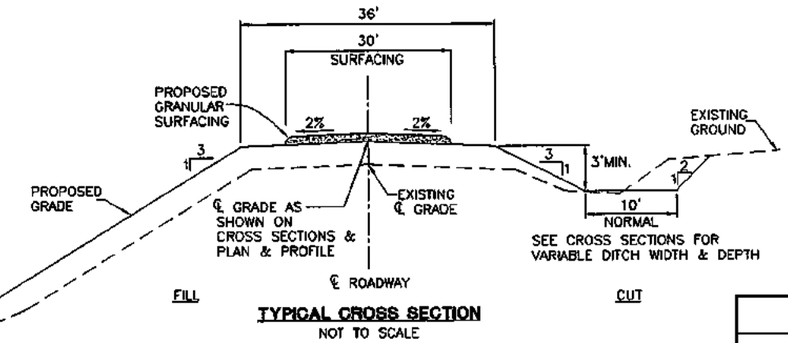
CRAWFORD COUNTY

BRIDGE REPLACEMENT – PPCB

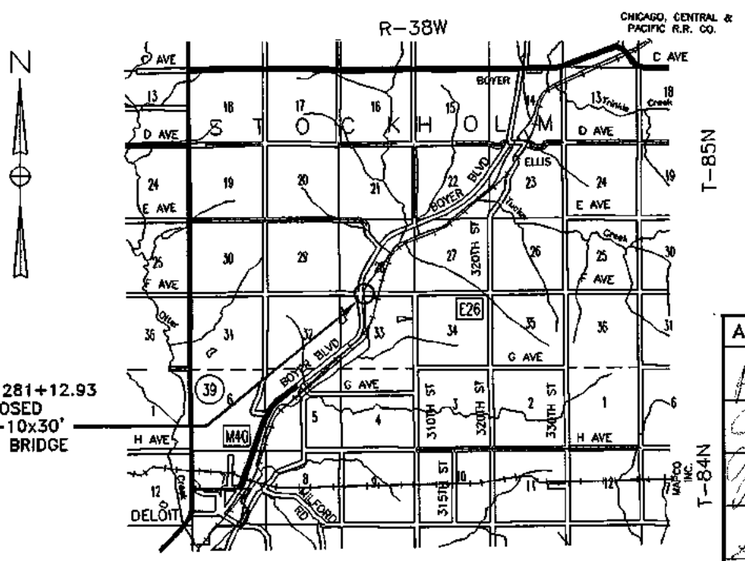
ON E26 (F AVENUE) OVER THE BOYER RIVER

SCALES: AS NOTED

The Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, series of 1997, plus current supplemental specifications and special provisions shall apply to construction work on this project.



TYPICAL CROSS SECTION
NOT TO SCALE



-150-

	TOTAL SHEETS
	17
PROJECT NUMBER	
BROS-C024(54)--5F-24	
R.O.W. PROJECT NUMBER	
PROJECT IDENTIFICATION NUMBER	

INDEX OF SHEETS

NO.	DESCRIPTION
A1	TITLE SHEET
B1	ESTIMATE SHEET
C1-2	TABULATIONS
D1	PLAN AND PROFILE SHEET
V1	BRIDGE SITUATION PLAN
V2-3	DETAIL SHEETS
W1-5	CROSS SECTIONS – MAINLINE
Z1-4	CROSS SECTIONS – CHANNEL

STANDARD BRIDGE PLANS

STANDARD	ISSUED	REVISED
H30-0-94	JANUARY, 1994	
H30-1-94	JANUARY, 1994	
H30-3-94	JANUARY, 1994	8-4-97
H30-4-94	JANUARY, 1994	
H30-16-94	JANUARY, 1994	
H30-20-94	JANUARY, 1994	
H30-22-94	JANUARY, 1994	
H30-27-94	JANUARY, 1994	
H30-34-94	JANUARY, 1994	

MILEAGE SUMMARY

LOCATION	LIN. FT.	MILES
BOP STA. 278+28.5 TO EOP STA. 289+00	1071.50	0.2029
DEDUCT BRIDGE AT STA. 281+12.93	191.83	0.0363
NET LENGTH OF ROADWAY	879.67	0.1666

STANDARD ROAD PLANS

The following Standard Plans shall be considered applicable to construction work on this project.

Identification	Date	Identification	Date	Identification	Date
RE-2B	04-03-01	RE-65A	04-03-01	RF-32	03-28-95
RE-7	10-03-00	RE-68	10-03-00	RL-3	10-31-95
RE12A	04-27-99	RE-69A	10-03-00	RL-7	12-03-96
RE-12B	04-03-01	RE-76	04-03-01	RL-14	01-12-99
RE-47	04-03-01	RF-7	09-21-99	RS-26A	10-28-97
RE-48A	04-03-01	RF-30A	03-28-95		

Approved
Robert K. Tohmann
John P. Lawler
Mark Sydebart
A. Dean Bergman
BOARD OF SUPERVISORS

Approved
5/14/01
Crawford County Engineer Date

Iowa Department of Transportation
Highway Division
Accepted for Letting 5/14/01
Secondary Roads Engineer Date

DESIGN DATA RURAL

1996 AADT	45	V.P.D.
2020 AADT	90	V.P.D.
201X DHV	X	V.P.H.
TRUCKS	X	%
ESALs per day	X	
DESIGN SPEED	50	M.P.H.

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 4/25/01 DATE

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2001.

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

LOCATION MAP SCALE
0 1 2 3
SCALE IN MILES

331/KGH

DESIGN TEAM: TJG/SAS/TKK | ENGLISH | FHWA #130260 | CRAWFORD COUNTY | PROJECT NUMBER BROS-C024(54)--5F-24 | SHEET NUMBER A1

130261

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.

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FOLLOWING CONSIDERATION IN REGARD TO REMOVAL AND REPLACEMENT OF TOPSOIL IN BORROW AREAS: QUANTITIES ESTIMATED FOR TOPSOIL ARE CALCULATED ON THE BASIS OF A UNIFORM REMOVAL OF TOPSOIL TO A DEPTH OF 8 INCHES. THE MATERIAL REMOVED IS TO BE SPREAD UNIFORMLY TO A MINIMUM DEPTH OF 6 INCHES OVER THE BORROW AREA UPON COMPLETION OF EXCAVATION WORK.

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.

ANY INCONVENIENCE OR DELAY INCURRED BY THE CONTRACTOR DUE TO ARCHAEOLOGICAL WORK SHALL BE CONSIDERED INCIDENTAL TO "CLASS 10 EXCAVATION, ROADWAY AND BORROW".

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 0.235 PARTS PER MILLION (PPM). ANALYSIS OF TOTAL CHROMIUM ON THIS SAMPLE WAS 146 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 OWNER'S TESTING AND ANALYSIS FOR ANY PURPOSE OTHER THAN AS AN INDICATION OF THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS.

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. 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 OR APPROVED BY THE ENGINEER.

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.

ESTIMATE REFERENCE INFORMATION

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

2101-0850001 CLEARING AND GRUBBING
INCLUDES REMOVAL AND DISPOSAL OF TREES, DOWN TIMBER, LOGS, DRIFTS, DEBRIS AND OTHER OBSTRUCTIONS (EXCLUDING OPEN DUMP REFUSE) LYING WITHIN THE PROPOSED RIGHT-OF-WAY, EXCLUSIVE OF THE EXISTING TRAVELED ROADWAY, AND WITHIN THE MANDATORY BORROW AREA.

2102-2710070 EXCAVATION, CLASS 10, ROADWAY AND BORROW
TYPE A COMPACTION WILL BE REQUIRED. BORROW FROM SUITABLE CLASS 10 CHANNEL AND CLASS 20 EXCAVATION. ADDITIONAL NECESSARY BORROW SHALL BE OBTAINED FROM THE MANDATORY BORROW AREA. BORROW AREA TOPSOIL SHALL BE STRIPPED, NECESSARY BORROW MATERIAL REMOVED, AND TOPSOIL RESPREAD. BORROW AREA SHALL BE LEFT UNIFORMLY SHAPED AND UNIFORMLY SLOPED.

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. SEE SHEET D1 FOR EXCAVATION CLASS 10 BALANCE.

2104-2710020 EXCAVATION, CLASS 10, CHANNEL
EXCESS MATERIAL AND UNSUITABLE MATERIAL SHALL BE HAULED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR. THE COST OF HAULING AND DISPOSING OF THIS MATERIAL SHALL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THE PRICE BID FOR CLASS 10 CHANNEL EXCAVATION. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED.

INCLUDES PLACEMENT OF 804 CY (1.35 x 595) OF FILL IN THE CHANNEL AS SHOWN ON THE CHANNEL CROSS SECTIONS.

2105-8425015 TOPSOIL, STRIP, SALVAGE AND SPREAD
INCLUDES BORROW AREAS ONLY.

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.

2401-6745825 REMOVAL OF EXISTING BRIDGE
THE EXISTING BRIDGE IS A 90'x15' PONY TRUSS. THE LUMP SUM BID FOR "REMOVAL OF EXISTING BRIDGE" SHALL INCLUDE REMOVAL OF THE EXISTING STRUCTURE IN ACCORDANCE WITH ARTICLE 2401 OF THE CURRENT STANDARD SPECIFICATIONS. ANY MATERIAL NOT DESIGNATED AS SALVAGEABLE FOR THE COUNTY SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE BY HIM. ANY MATERIAL CONSIDERED REUSABLE BY THE COUNTY SHALL BE REMOVED BY THE CONTRACTOR AND RETAINED BY THE COUNTY. MATERIALS TO BE SALVAGED BY THE COUNTY SHALL BE STACKED NEATLY WITHIN THE RIGHT-OF-WAY BY THE CONTRACTOR. THE EXISTING STRUCTURE SHALL BE REMOVED TO AN ELEVATION AT LEAST 1 FOOT BELOW FINISHED GROUNDLINE AND TO THE EXTENT THAT IT WILL NOT INTERFERE WITH THE NEW CONSTRUCTION.

2403-0100010 STRUCTURAL CONCRETE (BRIDGE)
ALL STRUCTURAL CONCRETE IS TO BE CLASS C. CLASS D WILL NOT BE ALLOWED. ITEM INCLUDES CERTIFIED PCC PLANT INSPECTION IN ACORDANCE WITH ARTICLE 2521 OF THE CURRENT STANDARD SPECIFICATIONS.

2404-7775000 REINFORCING STEEL
2404-7775005 REINFORCING STEEL, EPOXY COATED
REFER TO MODIFIED REINFORCING BAR LIST ON PLAN SHEET C2 FOR MODIFICATIONS TO STANDARD BRIDGE PLAN H30-3-94. ALL OTHER REINFORCING DETAILS SHALL BE AS SHOWN ON THE STANDARD BRIDGE PLANS.

2501-5425042 PILES, DRIVE STEEL BEARING, HP 10 X 42
2501-5425063 PILES, DRIVE STEEL BEARING, HP 12 X 63
2501-5550042 PILES, FURNISH STEEL BEARING, HP 10 X 42
2501-5550063 PILES, FURNISH STEEL BEARING, HP 12 X 63
THE REQUIRED DESIGN BEARING FOR THE HP 10 X 42 ABUTMENT PILES IS 34 TON. THE REQUIRED DESIGN BEARING FOR THE HP 12 X 63 PIER PILES IS 55 TON. 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 IN ACCORDANCE WITH ARTICLE 4167.02 OF THE CURRENT STANDARD SPECIFICATIONS AND MATERIALS IM 467.02.

THE 7-PILE STEEL H-PILE FOOTING PLAN AS DETAILED ON STANDARD BRIDGE PLAN H30-4-94 SHALL BE USED FOR THE ABUTMENTS ON THIS BRIDGE.

2502-8215124 SUBDRAIN, CORRUGATED METAL PIPE, 24 IN. DIA.
ALL CORRUGATED METAL PIPE SHALL BE RIVETED PIPE WITH ANNULAR CORRUGATIONS. NO "SPIRAL" PIPE WILL BE ALLOWED. ALL BANDS SHALL BE 24 IN. WIDE.

2507-3250005 ENGINEERING FABRIC
FABRIC SHALL CONFORM WITH MATERIALS IM 496.01 APPENDIX A, EMBANKMENT EROSION CONTROL AND ARTICLE 4196.01.C OF THE CURRENT STANDARD SPECIFICATIONS.

ESTIMATED PROJECT QUANTITIES

ITEM NUMBER	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	2101-0850001	CLEARING AND GRUBBING	ACRE	4	
2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	16237	
3	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	5833	
4	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	468	
5	2312-8260201	GRANULAR SURFACING ON ROAD, CLASS C GRAVEL	TON	275	
6	2401-6745525	REMOVAL OF EXISTING BRIDGE	LS	1	
7	2402-2720000	EXCAVATION, CLASS 20	CY	252	
8	2402-2721000	EXCAVATION, CLASS 21	CY	286	
9	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	431.2	
10	2404-7775000	REINFORCING STEEL	LB	26832	
11	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	62717	
12	2407-0580259	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, LXB59	EACH	10	
13	2407-0580267	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, LXB67	EACH	5	
14	2408-7800000	STRUCTURAL STEEL	LB	3210	
15	2414-6424120	CONCRETE OPEN RAILING	LF	411.7	
16	2417-2150024	DIAPHRAGM, CORRUGATED METAL, TYPE A, 24 IN.	EACH	1	
17	2501-5425042	PILES, DRIVE STEEL BEARING, HP 10 X 42	LF	882	
18	2501-5425063	PILES, DRIVE STEEL BEARING, HP 12 X 63	LF	1060	
19	2501-5550042	PILES, FURNISH STEEL BEARING, HP 10 X 42	LF	882	
20	2501-5550063	PILES, FURNISH STEEL BEARING, HP 12 X 63	LF	1060	
21	2501-6335010	PREBORED HOLES	LF	112	
22	2502-8215124	SUBDRAIN, CORRUGATED METAL PIPE, 24 IN. DIA.	LF	192	
23	2505-4008200	INSTALLATION OF GUARDRAIL	LF	275	
24	2505-4021690	GUARDRAIL, END ANCHORAGE, BEAM, RE-69	EACH	4	
25	2505-4021761	GUARDRAIL TERMINAL, BEAM, RE-76	EACH	4	
26	2507-3250005	ENGINEERING FABRIC	SY	1919	
27	2507-6850053	REVETMENT, SPECIAL	TON	1977	
28	2518-6910000	SAFETY CLOSURE	EACH	4	
29	2528-8445110	TRAFFIC CONTROL	LS	1	
30	2533-4980005	MOBILIZATION	LS	1	
31	2599-9999010	REMOVAL OF EXISTING CONCRETE REVETMENT	LS	1	
32	2601-2634100	MULCHING	ACRE	3.9	
33	2601-2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	3.9	

2507-6850053 REVETMENT, SPECIAL
THIS ITEM SHALL CONSIST OF FURNISHING AND PLACING REVETMENT STONE, COMPLETE IN PLACE AS SHOWN ON THE DRAWINGS.

SPECIAL REVETMENT WILL BE MEASURED IN TONS TO THE NEAREST 0.1 TON. 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.

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

THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVAL OF ALL REMNANTS OF 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.

2599-9999010 REMOVAL OF EXISTING CONCRETE REVETMENT
ITEM INCLUDES REMOVAL OF EXISTING CONCRETE REVETMENT ENCOUNTERED DURING EXCAVATION ALONG THE CHANNEL BANKS. REMOVED MATERIAL SHALL BE DISPOSED OF WITHIN THE PROJECT LIMITS AT A LOCATION TO BE DETERMINED BY THE ENGINEER OR, AT THE CONTRACTOR'S OPTION, THE EXISTING CONCRETE REVETMENT SHALL BE REMOVED FROM THE PROJECT.

FOR REMOVAL OF EXISTING CONCRETE REVETMENT, THE CONTRACTOR WILL BE PAID THE LUMP SUM CONTRACT PRICE. THIS PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EQUIPMENT AND LABOR AND FOR PERFORMANCE OF ALL WORK NECESSARY FOR REMOVAL AND DISPOSAL OF THE EXISTING CONCRETE REVETMENT AND FOR ANY BACKFILLING MADE NECESSARY BY THIS OPERATION.

REV.:

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

Refer to Standard Road Plans RE-63, RE-65A and RE-65B

108-8A
04-03-01

NO.	① DIRECTION OF TRAFFIC	END A=APPROACH T=TRAILING	SIDE OUTSIDE MEDIAN O M	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.	CRT Posts 6"x 8"x 6' with 6"x8" Spacer Blocks (5) No.	Posts ④ 10"x 10"x 6' with 8"x8" Spacer Blocks (3) No.	Posts ⑤ 8"x 8"x 6' with 8"x8" Spacer Blocks 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-76 No.	REMARKS
1	E	A	–	281+12.93	RE-65A	F	–	18.75	–	12.5	37.5	25.0	6.25	50.0	5	3	5	68.75	–	1	–	1	
2	W	T	–	281+12.93	RE-65A	F	–	18.75	–	12.5	37.5	25.0	6.25	50.0	5	3	5	68.75	–	1	–	1	
3	E	T	–	281+12.93	RE-65A	F	–	18.75	–	12.5	37.5	25.0	6.25	50.0	5	3	5	68.75	–	1	–	1	
4	W	A	–	281+12.93	RE-65A	F	–	18.75	–	12.5	37.5	25.0	6.25	50.0	5	3	5	68.75	–	1	–	1	

① Lane(s) to which the obstacle is adjacent.
② Applies to Standard Road Plan RE-63 only.
③ Includes (2) special 12.5' sections of 'W' Beam, see Standard Road Plan RE-76.
④ (4) 10"x10"x6' post required when Standard Road Plan RE-63 is specified.
⑤ The last two posts of the RE-76 Terminal section are included as part of that bid item.

REMARKS

TABULATION OF DELINEATORS AND OBJECT MARKERS

Refer to Standard Plan RE-48A-B *and RE-29C

108-17
04-28-98

LOCATION Station	Type*	DELINEATOR Single White D-1W Number	OBJECT MARKER Type 2 OM2-3YV Number	Type 3 OM-3L Number	Type 3 OM-3R Number	REMARKS
281+12.93	1	–	4	1	1	WEST END
281+12.93	1	–	4	1	1	EAST END

TABULATION OF WING DIKES

Refer to Standard Road Plan RL-3

107-22
06-25-76

LOCATION STATION	TOP ELEVATION	LENGTH (Feet)	BRIDGE SKEW	EARTHWORK (Cubic Yards)
280+13.01	1206.11	60	0°	646
282+12.85	1206.11	60	0°	956

TABULATION OF GRADING FOR GUARDRAIL INSTALLATIONS

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

107-23
MODIFIED

NO.	① Direction of Traffic	STATION	SIDE	TYPE	DIMENSIONS ② (A) Feet A	(A) Feet T	(BY) Feet A	(BY) Feet T	(Z) Feet A	(Z) Feet T	CLASS 10 EXCAV. * *Cu. Yds.	EMBANK. IN PLACE Cu. Yds.	PIPE Size Inches	PIPE Type	PIPE Length Lin. Ft.	REMARKS
1	E	279+43.89	RT	1	68.75		7		57		145					WEST END
2	W	279+43.89	LT	1		68.75		7		57	134					WEST END
3	E	282+81.97	RT	1		68.75		7		57	120					EAST END
4	W	282+81.97	LT	1	68.75		7		57		120					EAST END

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

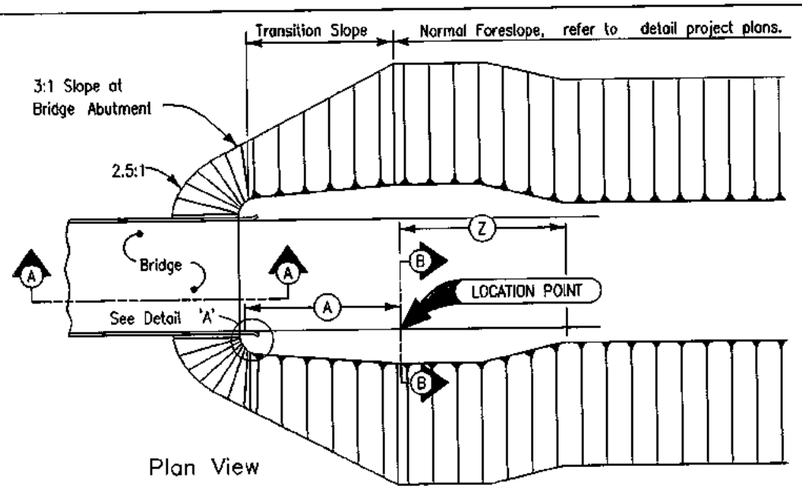
TABULATION OF SAFETY CLOSURES

108-13A
10-28-97

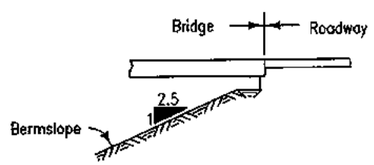
Refer to Section 2518 of the St'd. Specifications

STATION	CLOSURE TYPE Road Qty.	CLOSURE TYPE Hazard Qty.	REMARKS
279+00	1	–	WEST END
279+50	–	1	WEST END
282+50	–	1	EAST END
289+50	1	–	EAST END

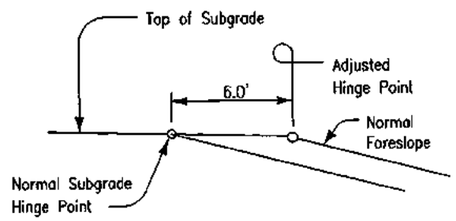
4303
01-12-99



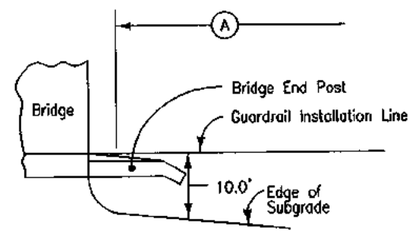
Plan View



Section A-A



Section B-B



Detail "A"

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

FORESLOPE TRANSITION AT BRIDGE

REV.:

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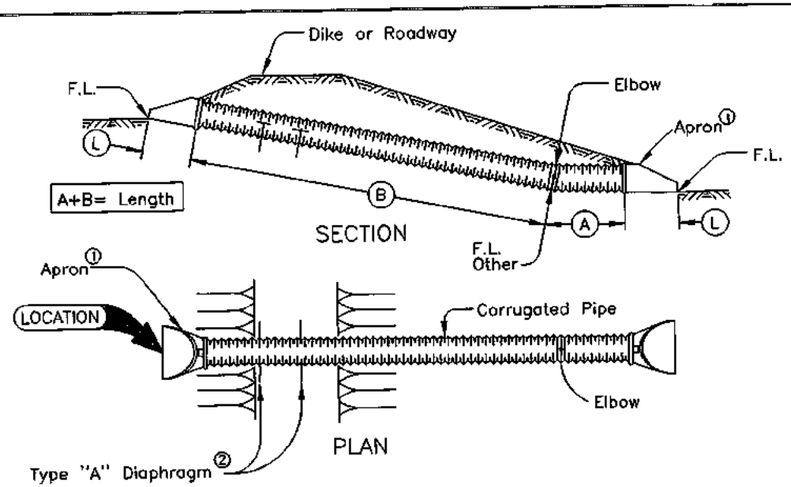
120 S. MAIN, P.O. BOX 220, DENISON, IOWA 51442
PHONE: (712)263-8118 FAX: (712)263-2181

1401
10-03-00



Notes:

Refer to tabular listing and other plans for additional information.

Positive type joint couplings are required.

If more than one diaphragm is specified, they will be installed 15' apart or as specified. (See Materials I.M. 441)

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

② See Standard Road Plan RF-7.

CORRUGATED PIPE
LETDOWN STRUCTURE
SINGLE ELBOW

DRAINAGE STRUCTURE BY ROAD CONTRACTOR

*Not a bid item

104-3
MODIFIED

LOCATION	TYPE	SIZE Inches	KIND OF PIPE	LENGTH NEW CONST. Lin. Ft.	BEDDING CLASS	DESIGN COVER (ft)	FLOW LINE ELEVATIONS Lt.	Rt.	Other	REMARKS
282+25.62, 73.1' LT.	1401	24	CMP	192	C	–	(W)1185.8	(E)1193.2	–	INCLUDES 1 – TYPE A DIAPHRAGM
										OMIT ELBOW & APRONS

MODIFIED REINFORCING BAR LIST

	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
Δ	5p1	ABUTMENT HOOPS		104	10'-8	1157
		PILE SPIRAL NO. 2 BAR		14	38'-6	90
		L 7/8 x 7/8 x 1/8 x 0.70 SPIRAL SPACER		28	1'-10	36
					②	①
	*SUB TOTAL	W/ STEEL H-PILES			51,928	53,900

GENERAL DATA

NO. OF STEEL H-PILES FOR TWO ABUTMENTS (HP 10 x 42) AND DESIGN BEARING REQUIRED PER PILE		14 34 F
REINFORCING STEEL (W/STEEL H-PILES) ③		1972
REINFORCING STEEL-EPOXY COATED (W/STEEL H-PILES)	W/OPEN RAIL	62,717

F=FRICTION PILING

NOTES:

Δ WHEN THIS SYMBOL PRECEDES A BAR DESIGNATION IN THE ABOVE TABLE, IT DENOTES AN EPOXY COATED BAR. THESE BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS OF THE IOWA DEPARTMENT OF TRANSPORTATION.

① DENOTES THE WEIGHT OF REINFORCING STEEL, INCLUDING EPOXY COATED REINFORCING BARS.

② DENOTES THE WEIGHT OF EPOXY COATED REINFORCING BARS.

③ DENOTES THE WEIGHT OF REINFORCING STEEL, WITHOUT EPOXY COATED REINFORCING BARS.

REV.:

PARCEL NUMBER — PROPERTY OWNER

1. FRED RIGGLEMAN TRUST ETAL
2. SCHMITZS ENTERPRISES INC.

STOCKHOLM TWP.
T-85N R-38W

911 ROUTE SIGN

CL CO. RD.

SET I.P. 2" DEEP

BRIDGE

TOP FIBER OPTIC MARKER

P.O.T. STA. 278+66.53
ALL DIST. SLOPE CHAINED

SW1/4 SW1/4
28-85-38 (1)

STA. 82+99.03
Δ=31°00'00"
D=12°01'27"
T=132.15'
L=257.81'
E=17.98'
R=476.50'

SHAPE INTO EXISTING CHANNEL SLOPES AS DIRECTED BY THE ENGINEER (TYP.)

TEMPORARY CONSTRUCTION EASEMENT

SE1/4 SW1/4
28-85-38 (2)

STA. 269+98.07
S1/4 CORNER
SECTION 28-85-38
FD. I.P. CAP #8893

"X" NAIL IN PWR. PO.

CL CO. ROAD

I.P. 2" DEEP

"X" NAIL IN COR. POST

WEST RAIL

1" UP NO. SIDE OF FIBER OPTIC MARKER

S1/4 CORNER
SEC. 28-85-38
ALL DIST. SLOPE CHAINED

270 275 280 285 290

NEEDLINE

MANDATORY BORROW AREA

PROP. R.O.W.

SEC. LINE

APPROX. 1/4 1/4 LINE

1/4 LINE

F. ENT.

EXIST.

C.C.&P. RAILROAD

STA. 264+05.60
SW CORNER
SECTION 28-85-38
FD. I.P. CAP #8893

STA. 278+28.5
B.O.P.

CL SURVEY AND CL ROADWAY

STA. 289+00
E.O.P.

"X" NAIL IN PWR. PO.

"X" NAIL IN BRACE PO.

"X" NAIL IN COR. POST

BASE OF GTE OPTICAL CABLE MARKER

CL CO. ROAD

I.P. 2" DEEP

3' UP NO. SIDE GTE OPTICAL CABLE MARKER

SW CORNER
SEC. 28-85-38
ALL DIST. SLOPE CHAINED

NW1/4 NW1/4
33-85-38 (1)

STA. 280+00 MAINLINE =
STA. 80+00 CHANNEL

NE1/4 NW1/4
33-85-38 (1)

BOYER RIVER

STA. 281+13.18, 3.5' RT., CL EXISTING 90.0' x 15.1' STEEL PONY TRUSS BRIDGE, TIMBER HIGH ABUTMENTS WITH STEEL TRESTLE PILES AND TIMBER DECK TO BE REMOVED FROM THE PROJECT RIGHT OF WAY. CONTRACTOR SHALL CONSTRUCT 188'-10 x 30' PPCB BRIDGE AT STA. 281+12.93
D.A. = 277 S.M.

STA. 282+25.62, 73.1' LT.
CONTR. TO FURNISH AND PLACE 24"x192' CMP SUBDRAIN INCL. 1 STD. RF-7 TYPE 'A' DIAPHRAGM

STA. 289+84,
F. ENT. RT.
18"x24' RCP
U.A.C.

STA. 290+78
F. ENT. LT.
U.A.C.

BM#1 – EAST RIVET HEAD, NORTH SIDE OF SOUTH TRUSS, SE COR. BRIDGE. EL. = 1205.22

BM#2 – R.R. SPIKE IN POWER POLE, STA. 283+89.30, 29.8 FT. LT. EL. = 1202.47

CUT	17	0	0		1160	1640	1516	1342	1117	912	422	
FILL	957	3062 GRDRAIL 279	612 WING DIKE 646		1979 WING DIKE 956	1616 GRDRAIL 240	1081	615	290	166	76	

TOTAL CUT = 17 CY
TOTAL FILL + 35% = 7177 CY
BORROW = 7160 CY

TOTAL CUT = 8110 CY
TOTAL FILL + 35% = 9060 CY
BORROW = 950 CY

+28.5 SHLDR. CO. ROAD

PROPOSED GRADE

188'-10 PPCB BRIDGE

EXISTING GRADE

-2.00%

LOW CONC. EL. 1207.61

VPI STA. 286+60
EL. = 1203.02
V.C. = 280'
M.O. = 0.73'
DS = 55+ M.P.H.
K = 133.5

0.10%

0.5% DITCH GRADE LT. & RT.

+00, EXISTING
EL. 1198.84 LT.
EL. 1199.26 RT.

+00, LT. & RT.
EL. 1192.50

+00, LT. & RT.
EL. 1195.50

+18.51 CL ABUT.

+07.35 CL ABUT.

B.O.P. 278+28.5 1219.65
1218.22
1216.22 +18.51, 1215.84
+07.35, 1212.07
1210.22
1208.22
1206.22 PVC 285+20, 1205.82
1205.25
1204.45
1203.85
1203.43
1203.20
PVT 288+00 1203.15
E.O.P. 289+00 1203.25

1240 1230 1220 1210 1200 1190 1180

277+00 280+00 285+00 290+00

REV:

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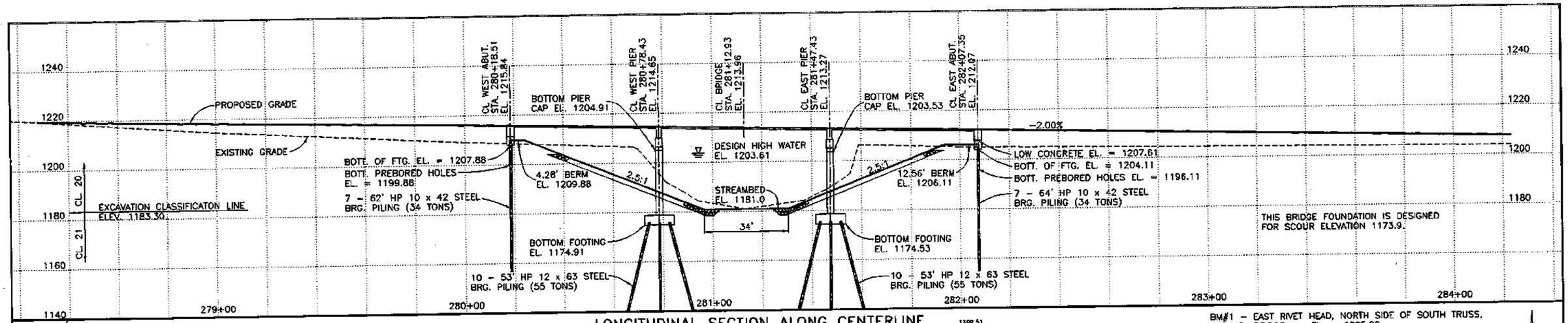
PHONE: (712)263-8118 FAX: (712)263-2181

SE PROJECT NO. 02400 | DATE: 01/01 | DRAWN BY: TKK | REVIEWED BY: SAS | APPROVED BY: TJG | DESIGN NO. | FILE NO. | CRAWFORD COUNTY | PROJECT NO. BROS-C024(54)--5F-24 | SHEET 01

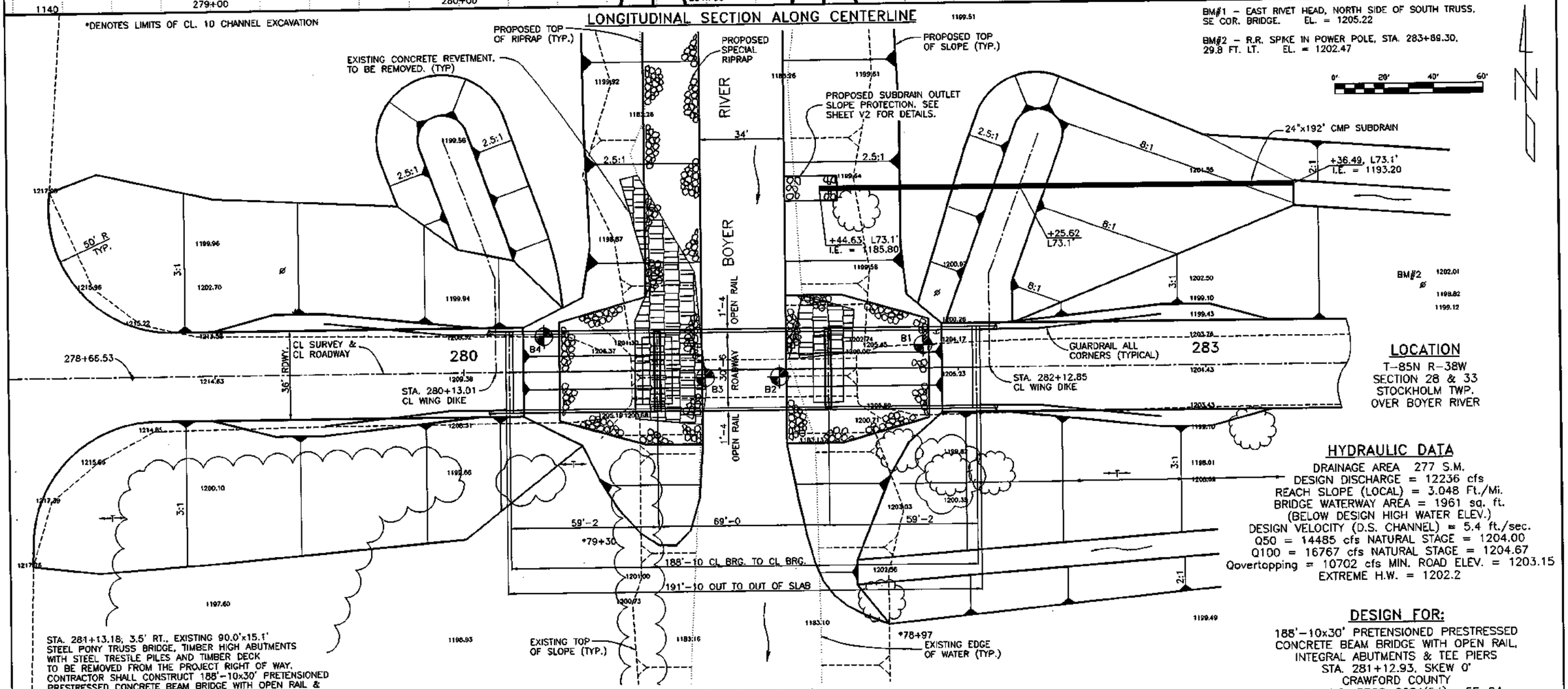


LONGITUDINAL SECTION ALONG CENTERLINE

*DENOTES LIMITS OF CL. 10 CHANNEL EXCAVATION

BM#1 - EAST RIVET HEAD, NORTH SIDE OF SOUTH TRUSS, SE COR. BRIDGE. EL. = 1205.22

BM#2 - R.R. SPIKE IN POWER POLE, STA. 283+88.30, 29.8 FT. LT. EL. = 1202.47



STA. 281+13.18, 3.5' RT., EXISTING 90.0'x15.1' STEEL PONY TRUSS BRIDGE, TIMBER HIGH ABUTMENTS WITH STEEL TRESTLE PILES AND TIMBER DECK TO BE REMOVED FROM THE PROJECT RIGHT OF WAY. CONTRACTOR SHALL CONSTRUCT 188'-10x30' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE WITH OPEN RAIL & TEE PIERS. GUARDRAIL TO BE INSTALLED AT ALL CORNERS OF THE BRIDGE. D.A. = 277 S.M.

SITUATION PLAN

LOCATION

T-85N R-38W
SECTION 28 & 33
STOCKHOLM TWP.
OVER BOYER RIVER

HYDRAULIC DATA

DRAINAGE AREA 277 S.M.
DESIGN DISCHARGE = 12236 cfs
REACH SLOPE (LOCAL) = 3.048 Ft./Mi.
BRIDGE WATERWAY AREA = 1961 sq. ft.
(BELOW DESIGN HIGH WATER ELEV.)
DESIGN VELOCITY (D.S. CHANNEL) = 5.4 ft./sec.
Q50 = 14485 cfs NATURAL STAGE = 1204.00
Q100 = 16767 cfs NATURAL STAGE = 1204.67
Qovertopping = 10702 cfs MIN. ROAD ELEV. = 1203.15
EXTREME H.W. = 1202.2

DESIGN FOR:

188'-10x30' PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE WITH OPEN RAIL,
INTEGRAL ABUTMENTS & TEE PIERS
STA. 281+12.93, SKEW 0°
CRAWFORD COUNTY
PROJ. NO. BROS-C024(54)--5F-24

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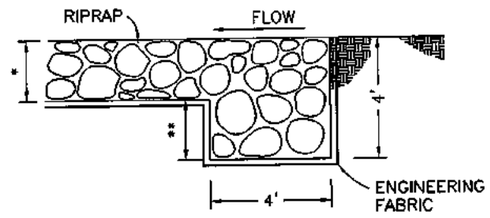
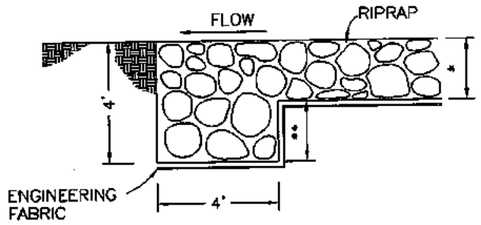
PHONE: (712)263-8118 FAX: (712)263-2181

SE PROJECT NO.: 02400 DATE: 09/00 DRAWN BY: TKK REVIEWED BY: SAS APPROVED BY: TJG DESIGN NO. . FILE NO. . CRAWFORD COUNTY PROJECT NO. BROS-C024(54)--5F-24 SHEET V1

REV.:



TYPICAL UPSTREAM



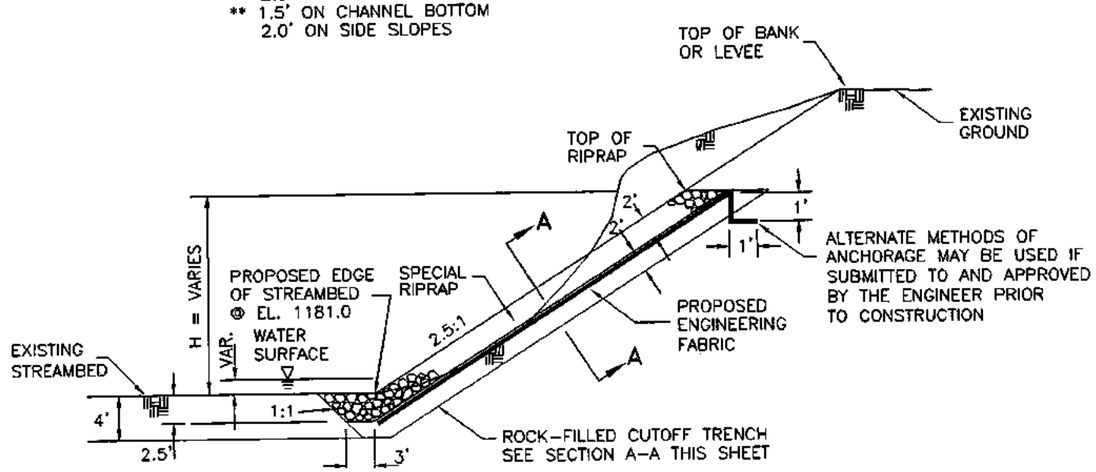
TYPICAL DOWNSTREAM

SECTION A-A

ROCK-FILLED CUTOFF TRENCH DETAILS

NOT TO SCALE

* 2.5' ON CHANNEL BOTTOM
2.0' ON SIDE SLOPES
** 1.5' ON CHANNEL BOTTOM
2.0' ON SIDE SLOPES

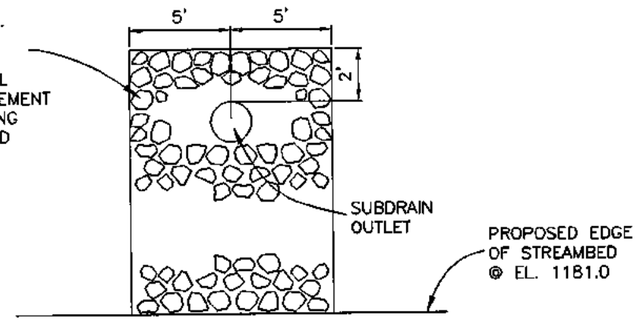


TYPICAL BANK STABILIZATION SECTION

NOT TO SCALE

FOR H DIMENSION SEE CHANNEL CROSS SECTIONS

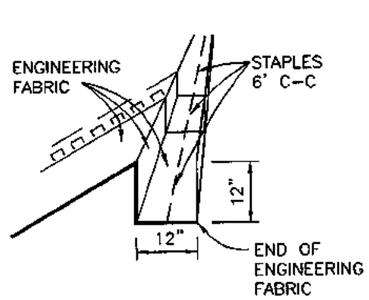
PROPOSED SPECIAL RIPRAP. REFER TO TYPICAL BANK STABILIZATION SECTION ON THIS SHEET FOR ADDITIONAL DETAILS CONCERNING PLACEMENT OF RIPRAP AND ENGINEERING FABRIC. OMIT ROCK-FILLED CUTOFF TRENCH.



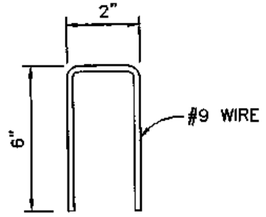
SUBDRAIN OUTLET SLOPE PROTECTION

NOT TO SCALE

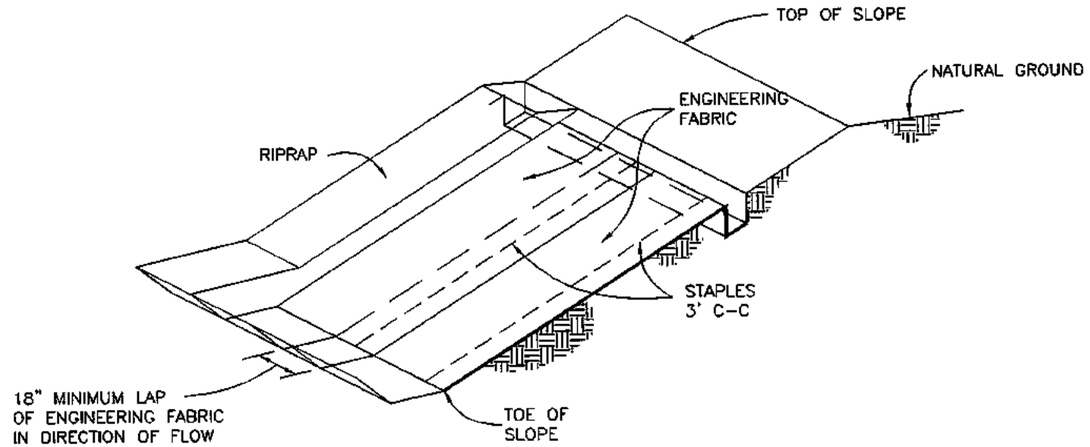
STA. 281+44.63, 73.1' LT.



DETAIL OF TRENCH



STAPLE



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

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

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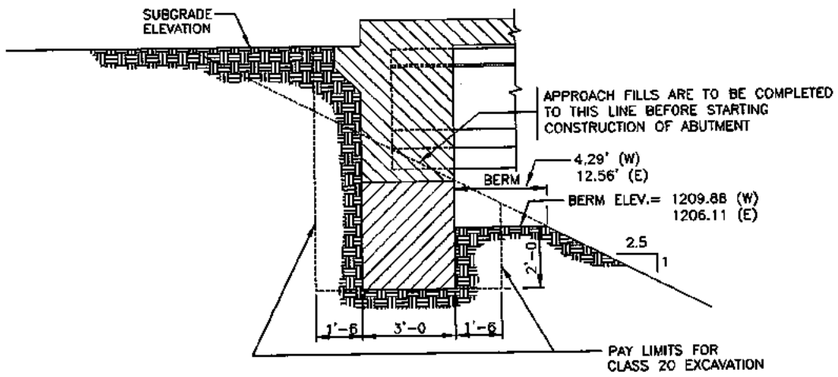
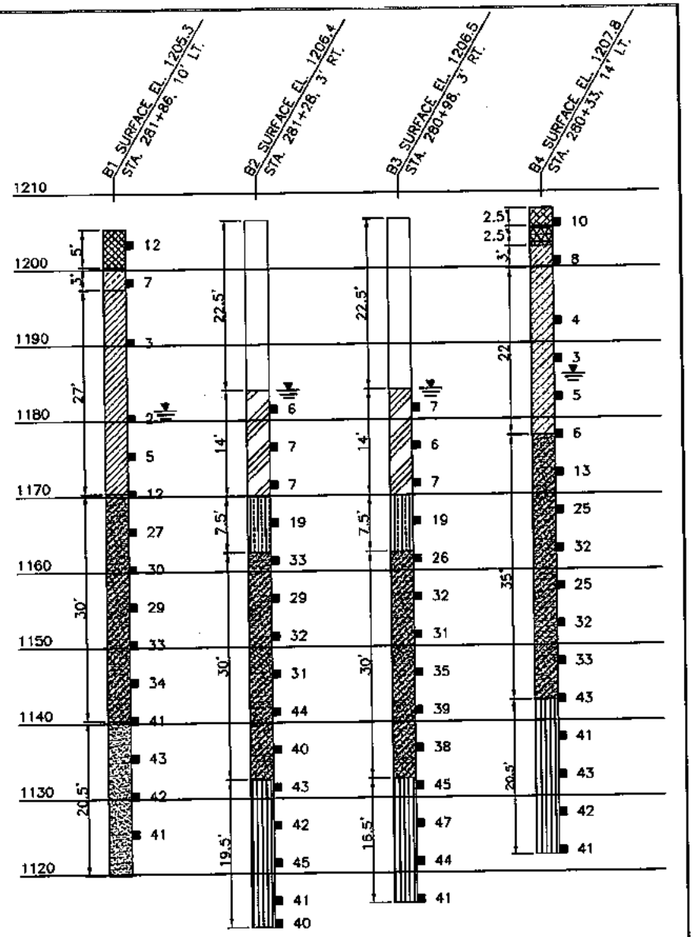


CLASS 20 EXCAVATION DETAIL

NOT TO SCALE

- FILL, FIRM SILTY CLAY, GRAY BROWN AND GRAY
- FILL, SILTY CLAY, YELLOW BROWN AND GRAY BROWN
- FILL, SILTY CLAY WITH SAND, GRAY BROWN AND GRAY
- SILTY CLAY, DARK GRAY, FIRM, ALLUVIUM
- SILTY CLAY, GRAY BROWN, SOFT, ALLUVIUM
- GRAVELLY SAND, YELLOW BROWN, ALLUVIUM
- GRANULAR MATERIAL, MEDIUM TO FINE GRAINED, YELLOW BROWN
- SILTY CLAY, LIGHT GRAY, FIRM, ALLUVIUM
- FINE SAND, YELLOW BROWN, ALLUVIUM
- GRANULAR MATERIAL, YELLOW BROWN, ALLUVIUM
- SILTY CLAY, GRAY, SOFT, ALLUVIUM
- GROUND WATER @ DRILLING
- ■ 41 BLOW COUNT

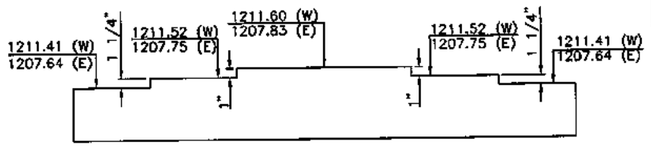


SOUNDING DATA

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

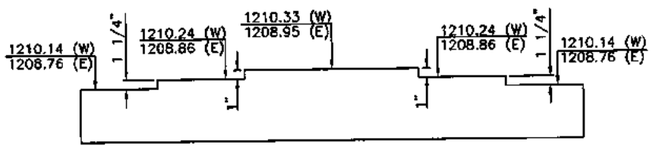
B1 AND B4 SOUNDINGS WERE TAKEN ON FEBRUARY 19, 2001.
B2 AND B3 SOUNDINGS WERE TAKEN ON MARCH 6, 2001.

SEE SHEET V1 FOR BORING LOCATIONS



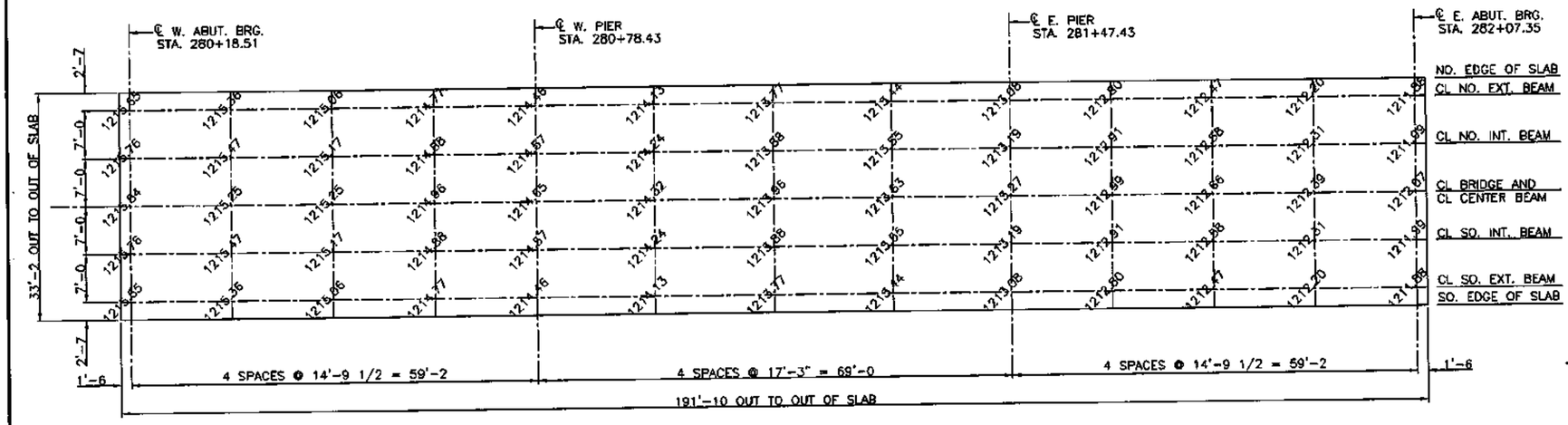
ABUTMENT STEP DIAGRAM

NOT TO SCALE



PIER STEP DIAGRAM

NOT TO SCALE



TOP OF SLAB ELEVATIONS

NOT TO SCALE

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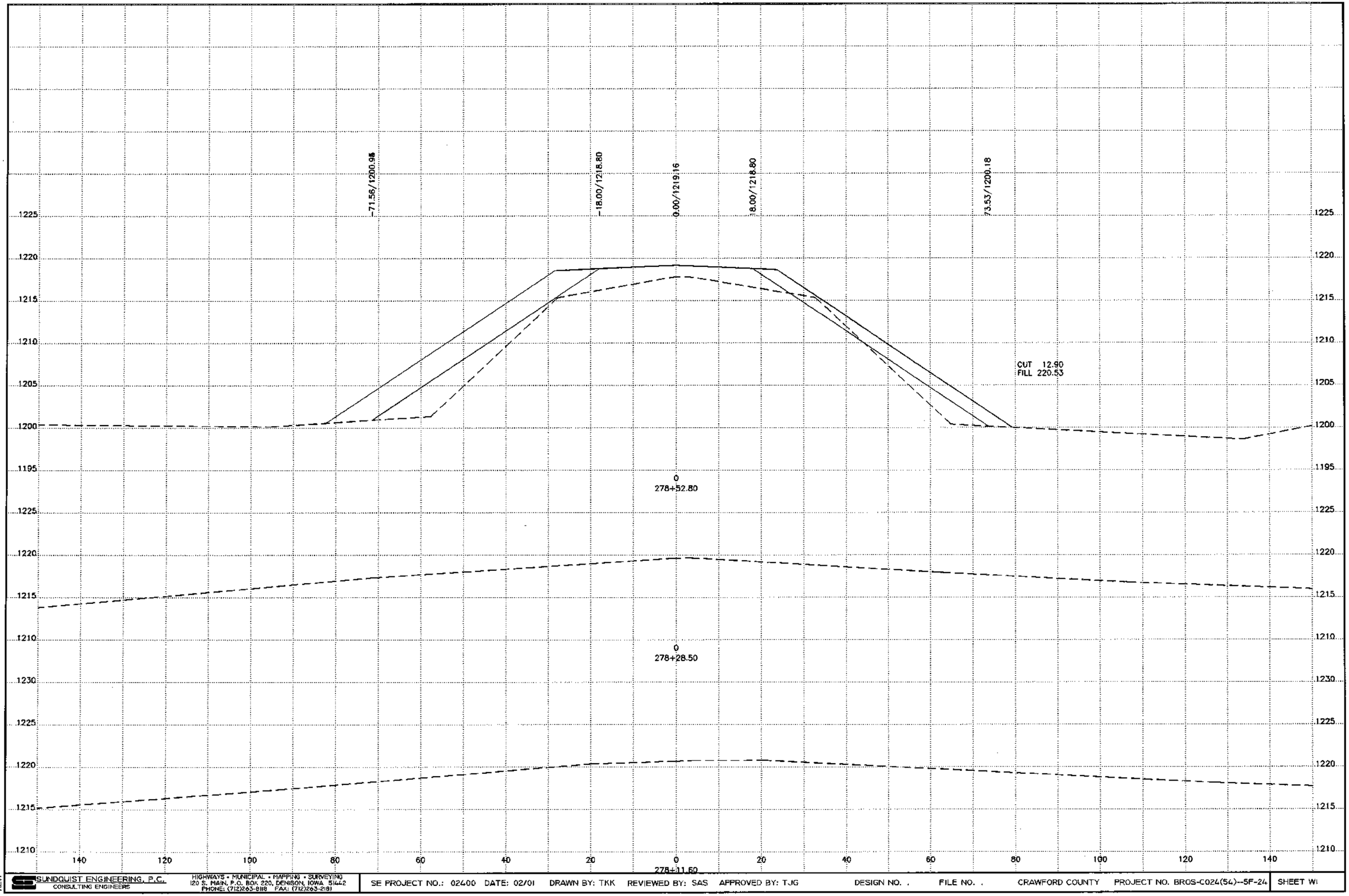

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CL W. ABUT. 280+18.51

-66.40/1199.72

-18.00/1215.86

0.00/1216.22

18.00/1215.86

67.45/1199.37

STA. 280+13.01
CL WING DIKE

2.50:1

CUT 0.00
FILL 892.58

-71.72/1199.95

-18.00/1217.86

0
280+00.00

0.00/1218.22

18.00/1217.86

76.07/1198.50

CUT 0.00
FILL 761.01

0
279+00.00

1225 1220 1215 1210 1205 1200 1195 1190

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

REV:

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-85.72/1201.65
-69.41/1193.50
-59.41/1194.00
-35.60/1201.99
-18.00/1207.86
0.00/1208.22
18.00/1207.86
43.03/1199.51
59.46/1194.00
69.46/1193.50
83.52/1200.53
CUT 432.95
FILL 359.81
0
284+00.00
-93.11/1201.11
-76.89/1193.00
-66.89/1193.50
-40.46/1202.36
-18.00/1209.86
0.00/1210.22
18.00/1209.86
46.47/1200.37
66.93/1193.50
76.93/1193.00
90.46/1199.77
CUT 452.69
FILL 513.66
0
283+00.00
-51.12/1200.82
-18.00/1211.86
0.00/1212.22
18.00/1211.86
52.67/1200.30
74.42/1193.00
84.42/1192.50
100.59/1200.59
STA. 282+12.85
CL WING DIKE
2.50:1
CL E. ABUT. 282+07.35
CUT 223.53
FILL 640.04
0
282+00.00
140 120 100 80 60 40 20 0 20 40 60 80 100 120 140
1215 1210 1205 1200 1195 1190 1220

REV:

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CONSULTING ENGINEERS
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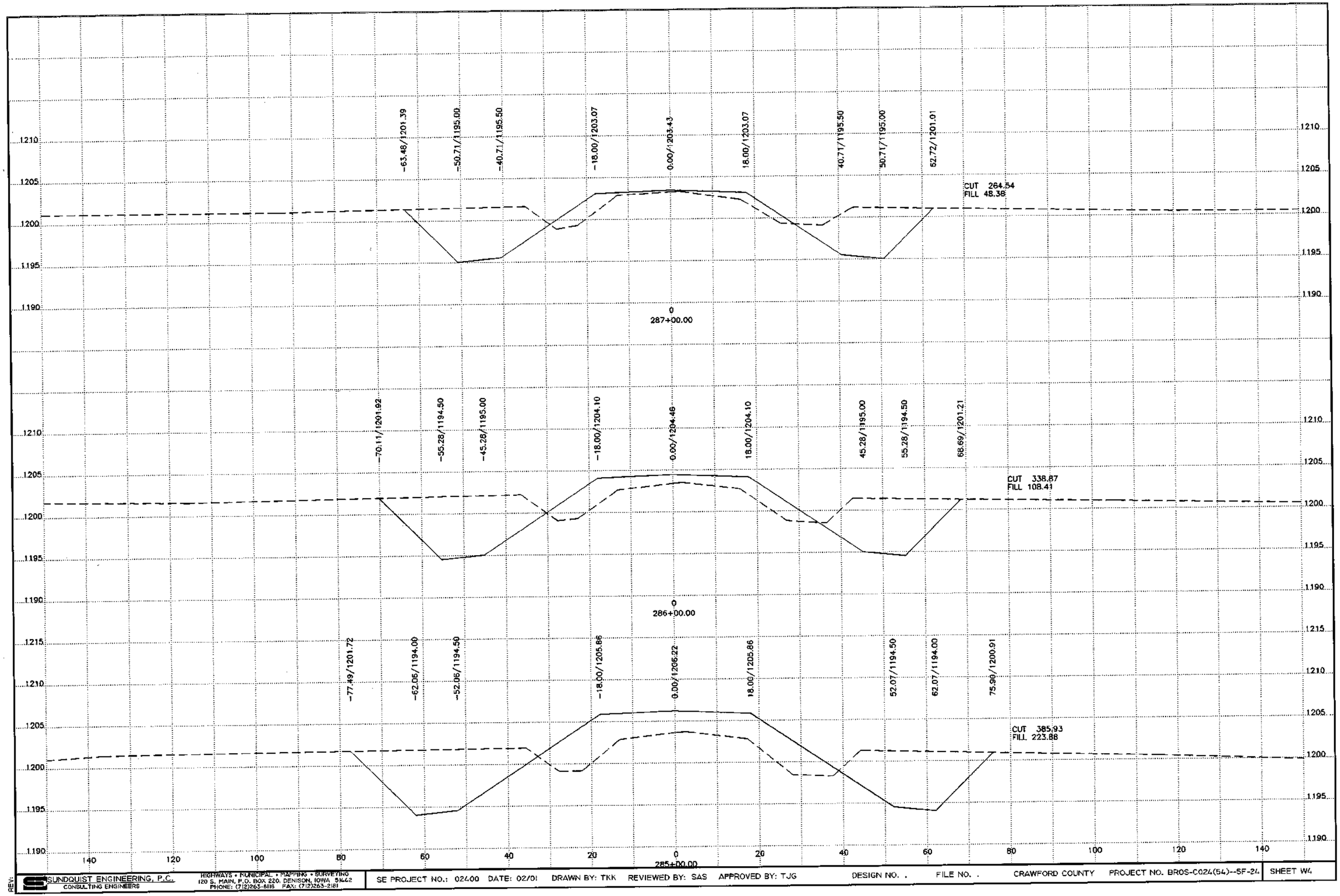
SE PROJECT NO.: 02400 DATE: 02/01 DRAWN BY: TKK REVIEWED BY: SAS APPROVED BY: TJG DESIGN NO. . FILE NO. . CRAWFORD COUNTY PROJECT NO. BROS-C024(54)--5F-24 SHEET W3



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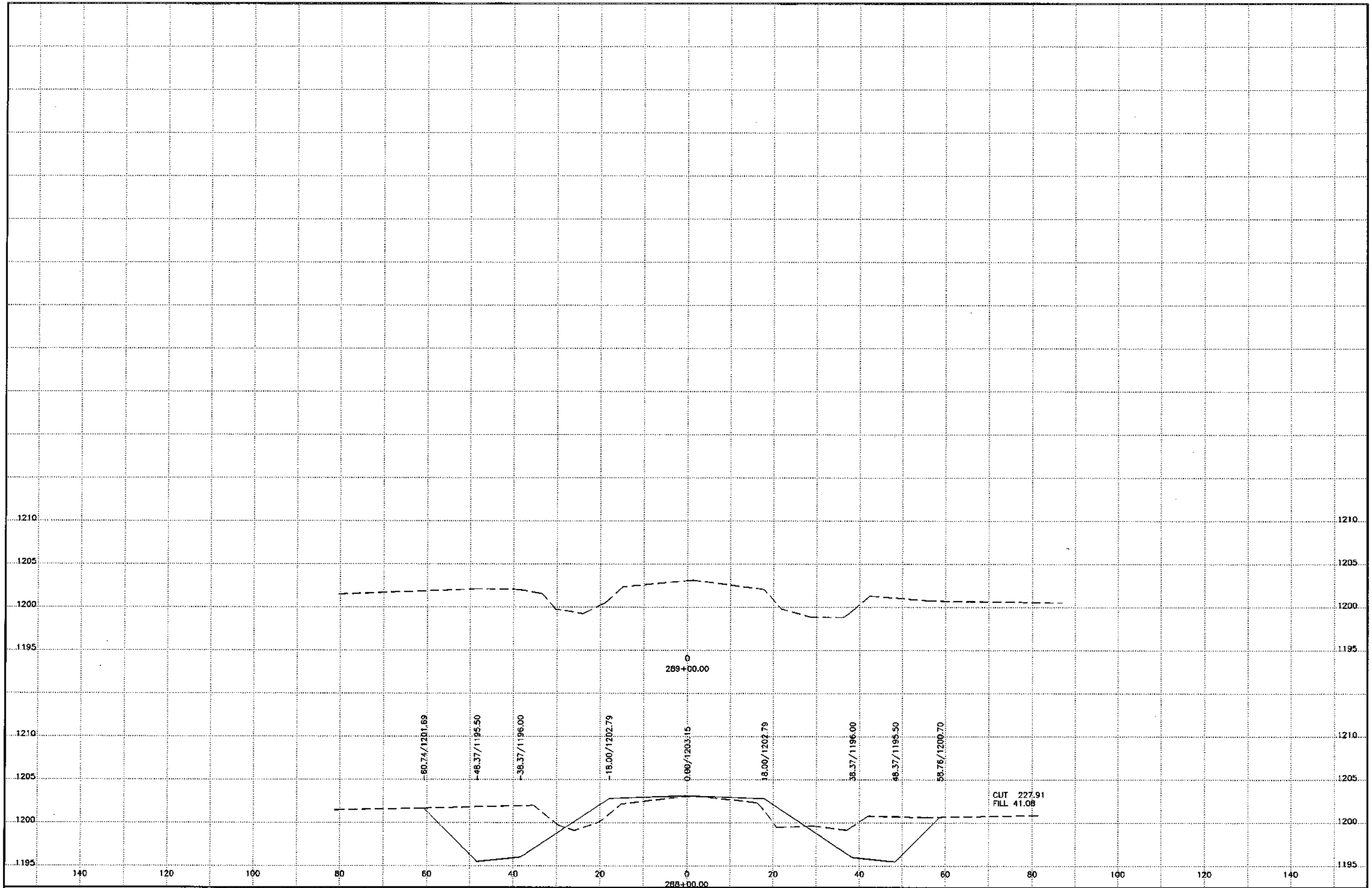
SHEET W4



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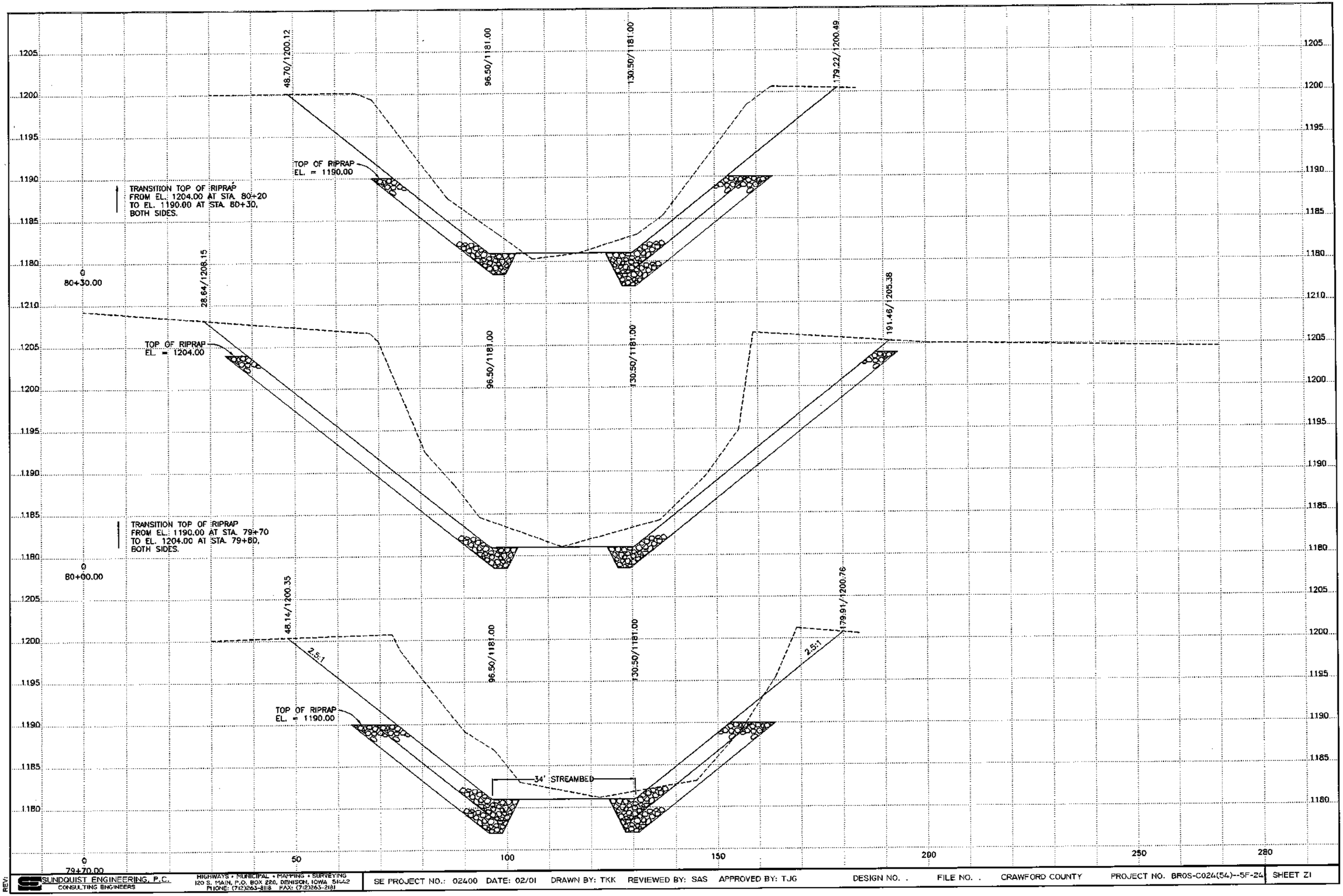

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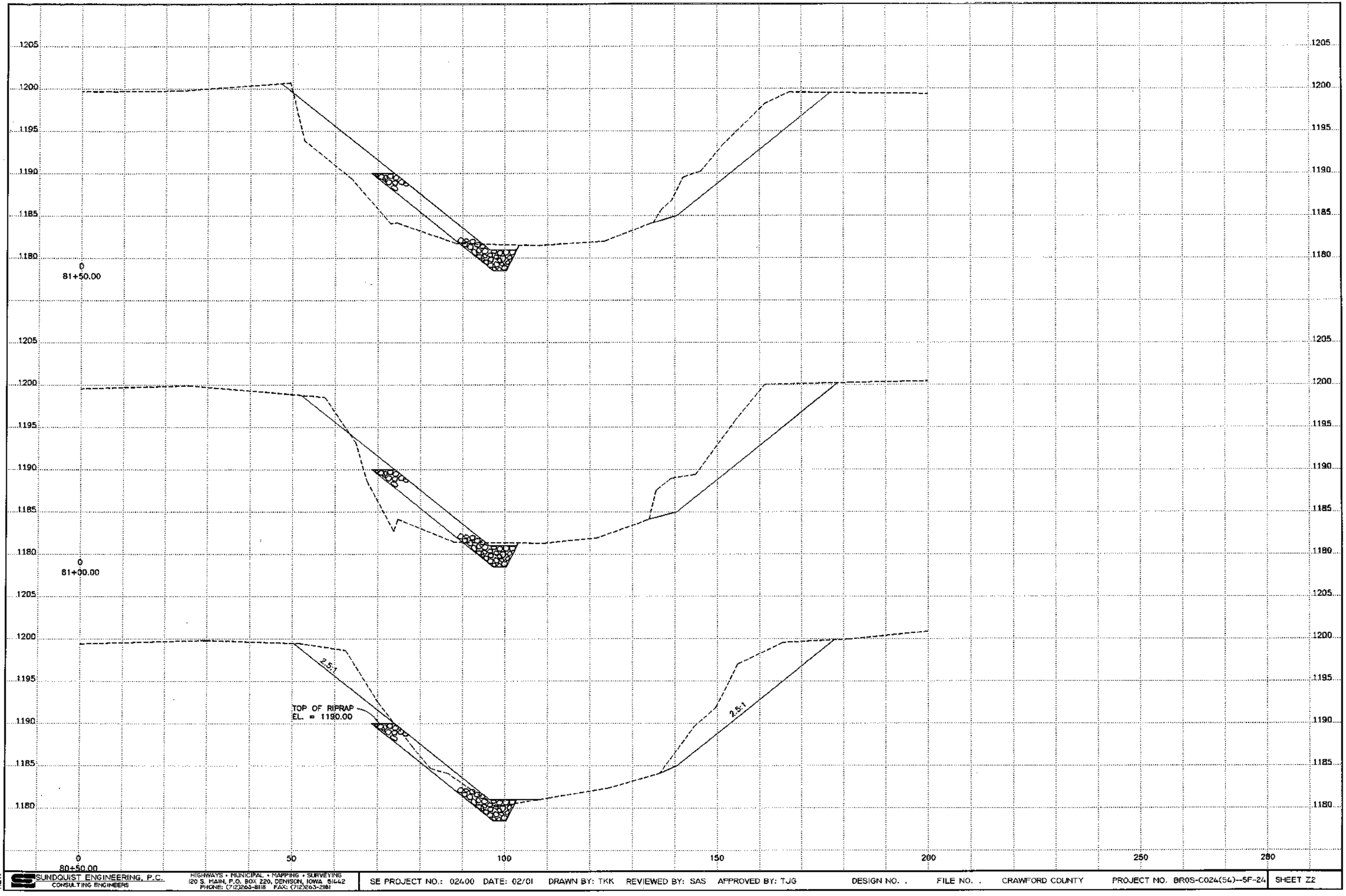

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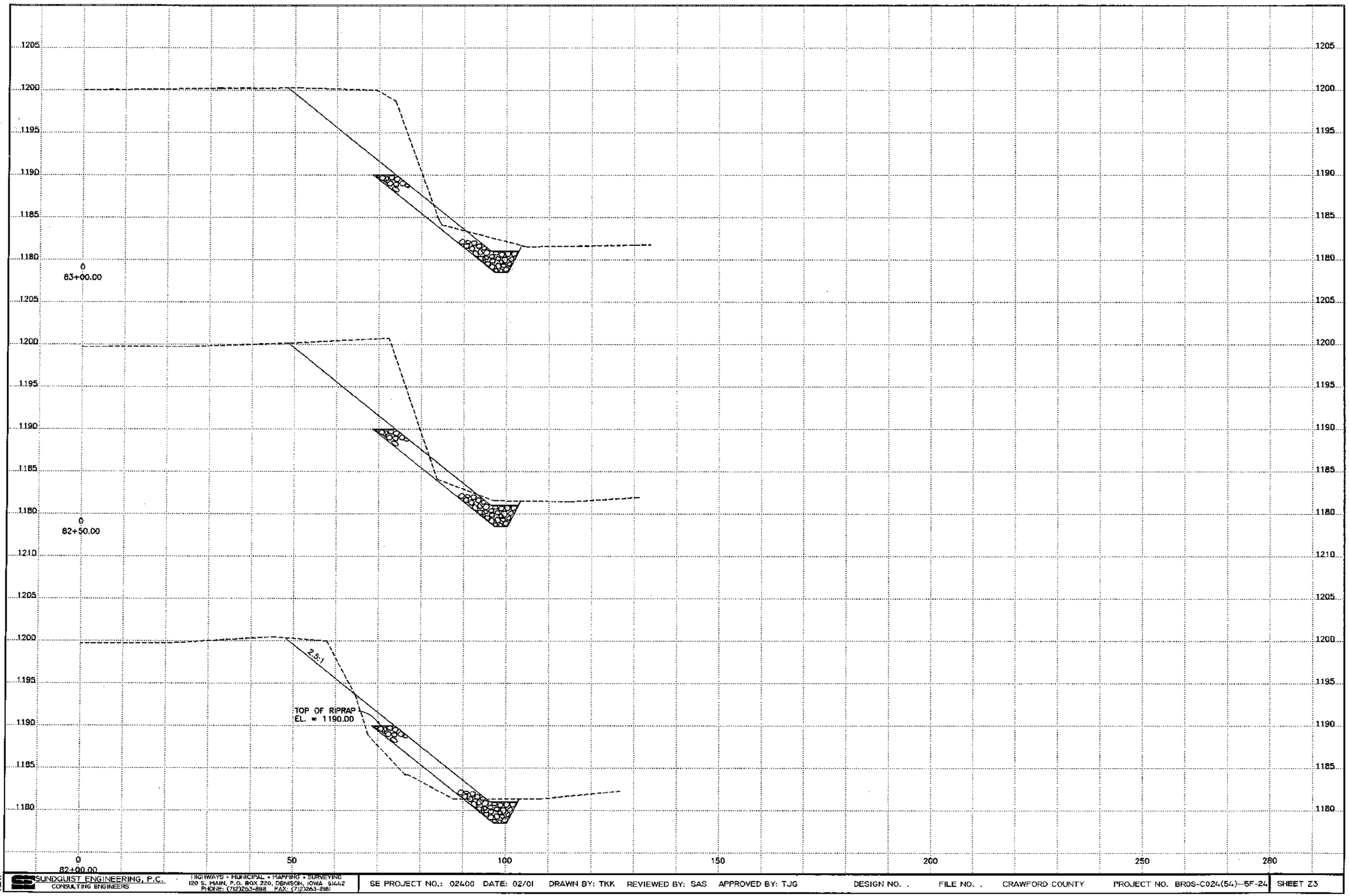

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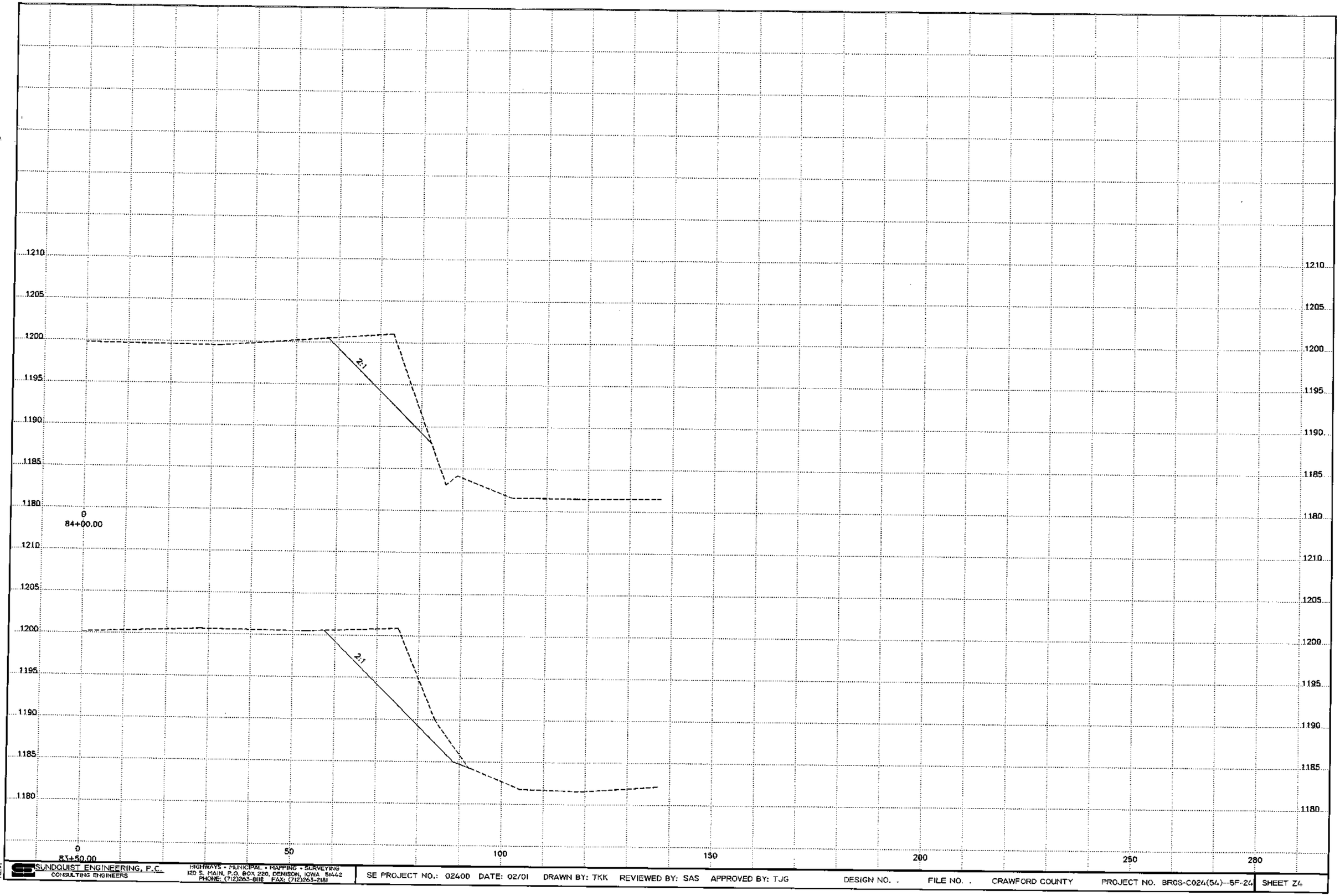

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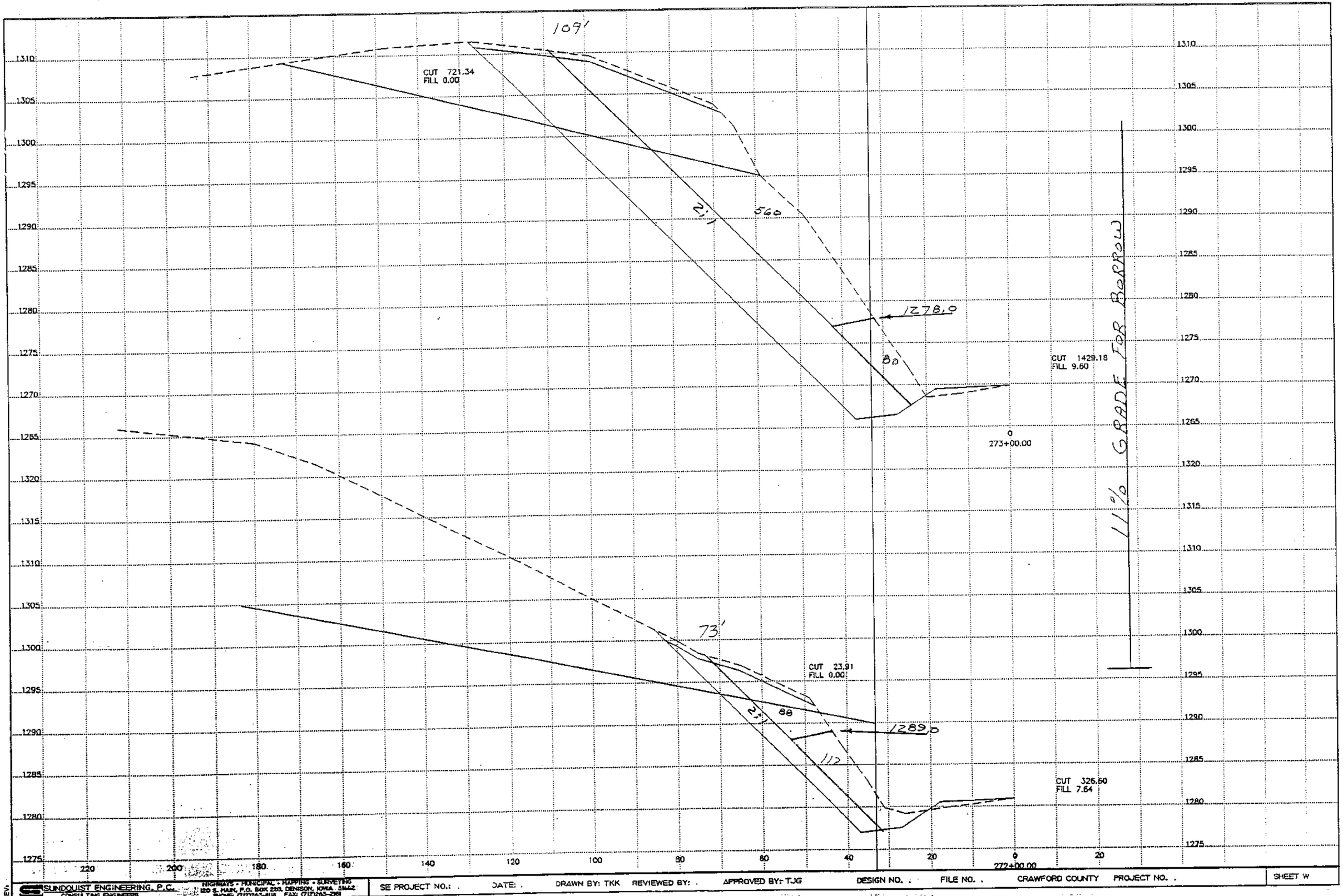

REV.

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SHEET W

66'

160

2:1

1256.0

96

0
275+00.00

GRADE FOR BORROW

2%

78'

CUT 631.05
FILL 0.00

900

2:1

1267.0

96

CUT 1162.85
FILL 7.98

0
274+00.00

1275 1270 1265 1260 1255 1250 1245 1300 1295 1290 1285 1280 1275 1270 1265 1260 1255

220 200 180 160 140 120 100 80 60 40 20 0 20

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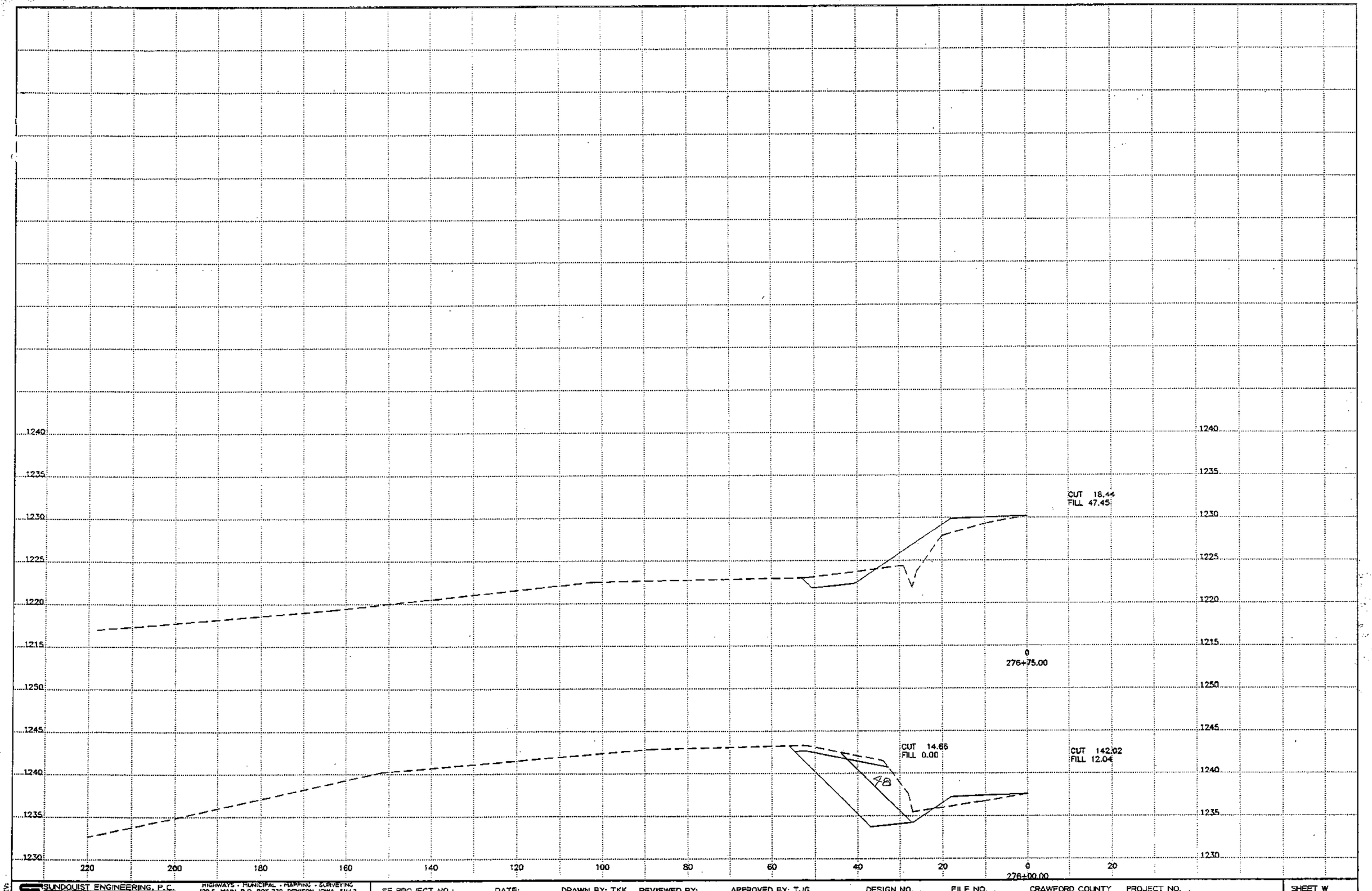
SHEET W



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SHEET W