BRIDGE

BROS-9024(34)--5F-24

CRAWFORD COUNTY

Letting Date MAY 3, 1994

5594

110 RRE

DRAWING APPROVAL

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

ADDRESS: 1417 BROADWAY
DENISON, IOWA 51442
TELEPHONE: (712)263-6118

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

SCRAPE SAMPLES FROM 3 LOCATIONS OF THIS BRIDGE WERE TAKEN TO GET AN INDICATION OF THE EXISTENCE OF AND LEVEL OF TOTAL CHROMIUM AND TOTAL LEAD. THE ANALYSIS OF TOTAL CHROMIUM IN THESE SAMPLES WAS 0.577 PARTS PER MILLION (PPM). THE ANALYSIS OF TOTAL LEAD IN THESE SAMPLES WAS 60 PPM. THE ANALYSIS SHOW THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS. THE LEVELS INDICATED BY THESE TESTS COULD CREATE CONDITIONS ABOVE REGULATORY LIMITS FOR HEALTH AND SAFETY REQUIREMENTS. NO OTHER SUBSTANCES WERE ANALYZED. THE BIDDER SHOULD NOT RELY ON THE CONTRACTING AUTHORITY'S TESTING AND ANALYSIS FOR ANY PURPOSE OTHER THAN AS AN INDICATION OF THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS.

IOWA
DEPARTMENT OF TRANSPORTATION

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

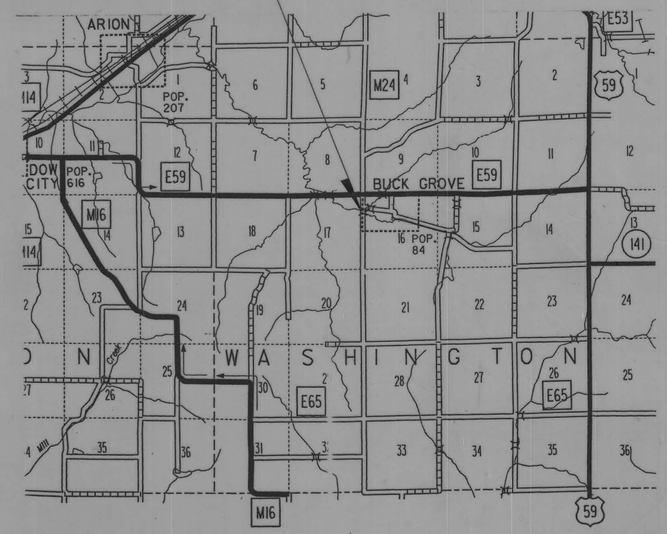
FARM TO MARKET SYSTEM
CRAWFORD COUNTY
BROS-9024(34)--5F-24
BRIDGE

The Standard Specifications, Series of 1992, of the Iowa Department of Transportation Shall Apply to Construction Work on this Project

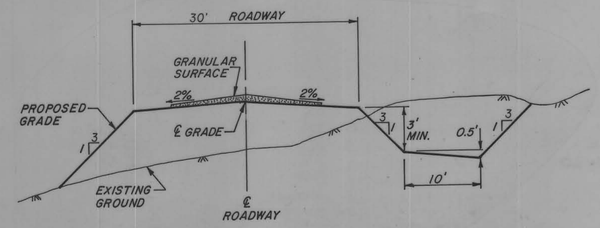
Plus Current Special Provisions and Supplemental Specifications

Scales: As Noted

STA. 214+92.25
DESIGN NO.: **5594**
PROPOSED 112'-6 x 24' CCS BRIDGE
15° SKEW



Location Map Scale
0 1 miles 2 3



TYPICAL CROSS SECTION
NOT TO SCALE

IF ARCHAEOLOGICAL MATERIALS ARE ENCOUNTERED DURING THE CONSTRUCTION PHASE OF THIS PROJECT, THE OFFICE OF PROJECT PLANNING AND/OR THE OFFICE OF LOCAL SYSTEMS (I.D.O.T.) MUST BE CONTACTED IMMEDIATELY SO THE PROPER AUTHORITIES CAN BE NOTIFIED ACCORDING TO THE EXISTING FEDERAL REGULATIONS AND STATE PROCEEDURES, ADDITIONALLY, IT SHOULD BE NOTED THAT FINDINGS AND RECOMMENDATIONS FOR CLEARANCE FOR FURTHER TESTING CANNOT BE CONSIDERED FINAL UNTIL CONCURRENCE IS RECEIVED FROM THE OFFICE OF THE STATE HISTORIC PRESERVATION OFFICER.
OFFICE OF PROJECT PLANNING 515-239-1225
OFFICE OF LOCAL SYSTEMS 515-239-1528

THIS PROJECT IS COVERED BY THE CORPS OF ENGINEERS NATIONWIDE 404 PERMIT #14.

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 THE CURRENT SUPPLEMENTAL SPECIFICATION FOR 'TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS', THE DETAIL SHEET 'SIGNING FOR TEMPORARY ROAD CLOSURE' INCLUDED IN THIS PLAN, AND THE APPROPRIATE STANDARD ROAD PLANS TABULATED.

1988 AADT 70 V.P.D.

-150-

Project Number: BROS-9024(34)--5F-24 FHWA 126670

INDEX OF SHEETS

MILEAGE SUMMARY

Div.	Location	Lin. Ft.	Miles
	B.O.P. STA. 210+00 TO E.O.P. STA. 218+00	800.00	
	DEDUCT FOR BRIDGE @ STA. 214+92.25	112.50	
	NET LENGTH OF ROADWAY IN PROJECT	687.50	
	NET LENGTH OF BRIDGE IN PROJECT	112.50	
	TOTAL LENGTH OF PROJECT	800.00	0.1515

ROAD STANDARD PLANS

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

Identification	Date	Identification	Date	Identification	Date
RE-2A	2-17-87	RE-47	11-10-87	RF-5	3-31-87
RE-2B	10-22-93	RE-48A	6-15-93	RF-7	11-8-74
RE-7	4-28-92	RE-52	10-22-93	RF-30A	1-9-90
RE-12A	10-11-88	RE-65	1-7-92	RF-32	1-9-90
RE-12B	1-9-90	RE-68 RE-69	8-8-89 10-22-93	RL-11	10-11-88

BRIDGE STANDARDS

(May be obtained at Bridge Design Services)

Standard	Date Issued	Latest Revision	Standard	Date Issued	Latest Revision
JZ4-87	JAN., 1987	-	JZ4-15-87	JAN., 1987	-
JZ4-4-87	JAN., 1987	-	JZ4-19-87	JAN., 1987	6-89
JZ4-6-87	JAN., 1987	-	P10A	8-8-88	3-11-91
JZ4-7-87	JAN., 1987	-			
JZ4-8-87	JAN., 1987	-			

Approved
Board of Supervisors

Approved
A. Dale Wright 1-21-94
Crawford County Engineer Date

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly Registered Professional Engineer under the laws of the State of Iowa.
Stephen A. Sundquist P.E.
Date 1-21-94 Reg. No. 5707
My Registration expires December 31, 1994

Iowa Department of Transportation
Highway Division
Authorized for Letting
George T. Sisson 3-9-94
Deputy Chief Engineer Date

U.S. Department of Transportation
Federal Highway Administration
Approved
Division Engineer Date

GENERAL NOTES

ALL CORRUGATED METAL PIPE ON THIS PROJECT SHALL BE RIVETED PIPE. NO "SPIRAL" PIPE WILL BE ALLOWED. ALL BANDS SHALL BE 24" BANDS.

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.

THE P10A TYPE 3 (HP12X53) FRICTION-BEARING PIER PILES ARE TO BE DRIVEN TO FULL PENETRATION WHERE PRACTICABLE, BUT TO AT LEAST 34 TONS BEARING CAPACITY PER PILE.

THE HP10X42 FRICTION-BEARING ABUTMENT PILES ARE TO BE DRIVEN TO FULL PENETRATION WHERE PRACTICABLE, BUT TO AT LEAST 35 TONS BEARING CAPACITY PER PILE.

THE PIER PILES ARE TO BE P10A (HP12X53). SUPERSTRUCTURE CONCRETE QUANTITY HAS BEEN INCREASED BY 0.7 C.Y. OVER QUANTITY SHOWN ON I.D.O.T. STANDARD J24-4 DUE TO SUBSTITUTION OF P10A TYPE 3 PILING IN INTEGRAL PIER BENTS. THE PILING ENCASEMENTS ARE TO EXTEND DOWN TO THE ELEVATIONS SHOWN ON THE PLANS, SHEET V.01. THE UNIT PRICE BID FOR ENCASEMENT SHALL BE FULL PAYMENT FOR FURNISHING AND PLACING ALL MATERIAL AND WHERE NECESSARY, EXCAVATION.

MONOLITHIC PIER CAPS SHALL BE USED. CAP STEEL IS REQUIRED.

THE DESIGN BEARING FOR THE PIER PILES IS 34 TONS. THE TOTAL DRIVING RESISTANCE FOR THE PILES IS 34 TONS. 7.79 TONS OF THIS DRIVING RESISTANCE IS END BEARING. 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 THE PROPER ANALYSIS CAN BE PERFORMED.

THE DESIGN BEARING FOR THE ABUTMENT PILES IS 35 TONS. THE TOTAL DRIVING RESISTANCE FOR THE PILES IS 35 TONS. 6.2 TONS OF THIS DRIVING RESISTANCE IS END BEARING. 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 THE PROPER ANALYSIS CAN BE PERFORMED.

THE BRIDGE CONTRACTOR SHALL EXCAVATE THE STREAM CHANNEL TO THE LINES AND GRADES SHOWN ON THE LONGITUDINAL SECTION AND SITUATION PLAN ON SHEET V.01. ALL SUCH WORK SHALL BE PAID FOR AS "EXCAVATION, CLASS 10 CHANNEL".

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.

213-3
ALL BORROW AREAS, STOCKPILE AREAS, HAUL ROADS AND AREAS USED FOR MANEUVERING EQUIPMENT ON THIS PROJECT WILL REQUIRE SUBSOIL TILLAGE TO AN AVERAGE DEPTH OF 16 TO 20 INCHES PRIOR TO PLACEMENT OF TOPSOIL AND/OR STABILIZING CROP SEEDING. SUCH TILLAGE SHALL BE ACCOMPLISHED ON MAXIMUM OF THREE FOOT CENTERS AND AT RIGHT ANGLES TO THE FINISHED SLOPE OF THE BORROW.

EQUIPMENT USED TO ACCOMPLISH THE TILLAGE SHALL BE EQUIPPED WITH AN ARROWHEAD-TYPE SHOE SO AS TO PROVIDE LATERAL DISPLACEMENT AND LIMIT THE MOVEMENT OF THE SUBSOIL TO THE SURFACE. IT SHALL BE APPROVED BY THE ENGINEER FOR THE USE INTENDED. THIS WORK WILL BE CONSIDERED INCIDENTAL TO OTHER WORK ON THE PROJECT AND NO PAYMENT WILL BE ALLOWED.

IT IS INTENDED THAT FOLLOWING SUBSOIL TILLAGE, THE AREA REMAINS IN A "LOOSENED" CONDITION. ADDITIONAL COMPACTION OR THE OPERATION OF HEAVY EQUIPMENT, OTHER THAN REQUIRED FOR TOPSOIL PLACEMENT AND SHAPING SHALL NOT BE ALLOWED ON AREAS WHICH HAVE RECEIVED SUBSOIL TILLAGE.

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.

261-1
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.

ESTIMATE REFERENCE INFORMATION

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

ITEM CODE	DESCRIPTION
2102-2710070	INCLUDES 234 C.Y. CUT, 5397 C.Y. FILL+35%, 5163 C.Y. BORROW. TYPE "A" COMPACTION WILL BE REQUIRED. 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 ALL AS DIRECTED BY THE ENGINEER. SUCH WORK SHALL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THIS ITEM. 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 EXCAVATION, ROADWAY AND BORROW. BORROW AREAS WILL BE PROVIDED BY THE COUNTY WITHIN 2000 FEET OF THE BRIDGE SITE. NO SEPARATE PAYMENT FOR OVERHAUL FROM BORROW AREAS SHALL BE MADE.
2104-2710020	SUITABLE CLASS 10 CHANNEL EXCAVATION MAY BE USED FOR ROADWAY BORROW. 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.
2312-8260201	GRANULAR SURFACE SHALL MEET THE REQUIREMENTS OF CLASS "C" GRAVEL IN ACCORDANCE WITH ARTICLE 4120, GRADATION NO. 10 AND SHALL INCLUDE THE COST OF SPREADING GRANULAR SURFACING ON ROADWAY SURFACE.
2401-6745650	INCLUDES 60' x 16' PONY TRUSS BRIDGE WITH TIMBER PILING AND ABUTMENTS AT STA. 215+00. SEE NOTE ON SHEET V.01.
2402-2720000	INCLUDES EXCAVATION NECESSARY TO CONSTRUCT INTEGRAL ABUTMENTS. SUITABLE CLASS 20 EXCAVATION MAY BE USED FOR ROADWAY BORROW. 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 20 EXCAVATION.
2403-0900000	TO BE CLASS "C" STRUCTURAL CONCRETE.
2417-2550018 2417-2550024	TO BE 15° ELBOWS.
2501-5425042 2501-5550042	INCLUDES 4 @ 49' & 4 @ 47'.
2501-5425053 2501-5550053	INCLUDES 8 @ 52' & 8 @ 53'. PIER PILE TO BE P10A TYPE 3 PILING.
2501-5475053	INCLUDES 8 @ 26' & 8 @ 25'. PIER PILE TO BE P10A TYPE 3 PILING.
2507-6800060	INCLUDES FURNISHING AND PLACING OF CLASS E REVETMENT STONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MAXIMUM STONE SIZE SHALL BE 750 POUNDS AND THE MATERIAL SHALL MEET THE FOLLOWING SIZE LIMITATIONS. STONE WT., POUNDS — MINIMUM % LARGER THAN 250 — 80 5 — 90
2528-8445110	INCLUDES ALL ADVANCED WARNING SIGNS, TYPE III BARRICADES AND OTHER TRAFFIC CONTROL DEVICES FOR THIS PROJECT WHICH SHALL BE LOCATED AT THE BEGINNING AND THE END OF THE PROJECT, AND WHERE THE ROAD FOR CONSTRUCTION INTERSECTS OTHER PUBLIC ROADS. ALSO SHALL INCLUDE ALL OTHER BARRICADES AND WARNING SIGNS NECESSARY TO PROTECT THE CONTRACTOR'S WORK AND EQUIPMENT AND THE SAFETY OF THE TRAVELING PUBLIC. ALL SIGNS, BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" 1988. INCLUDES FURNISHING, INSTALLING, MAINTAINING, REPAIRING AND RELOCATING ALL THE SIGNS AND BARRICADES AS SHOWN ON THE TRAFFIC CONTROL PLAN. FULL PAYMENT FOR THIS WORK SHALL BE THE LUMP SUM PRICE IN THE CONTRACT.
2601-2636042	INCLUDES ALL AREAS DISTURBED BY CONSTRUCTION OPERATIONS.

LETTING DATE: MAY 3, 1994

DESIGN NO. 5594
CRAWFORD COUNTY
SECTION 17

FARM TO MARKET ROAD
OVER BUCK CREEK
T82N R39W

STA. 214+92.25
SKEW 15° L.A.
WASHINGTON TWP.

ESTIMATED PROJECT QUANTITIES

CONSTRUCTION USE ONLY	ITEM CODE	ITEM	UNIT	QUANTITIES ESTIMATED 2 ABUTS.	ESTIMATED SUPERST.	ESTIMATED TOTAL	AS BUILT 2 ABUTS.	AS BUILT SUPERST.
	2101-0850002	CLEARING AND GRUBBING	UNITS	-	-	448.4		
	2102-2710070	EXCAVATION, CLASS 10, ROADWAY & BORROW	CY	-	-	5397		
	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	-	-	470		
	2312-8260201	SURFACING, GRANULAR, CLASS C GRAVEL - ON ROAD	TONS	-	-	215		
	2401-6745650	REMOVAL OF EXISTING STRUCTURES	LUMP SUM	-	-	LS		
	2402-2720000	EXCAVATION, CLASS 20	CY	60	-	60		
	2403-0900000	CONCRETE, STRUCTURAL	CY	18.8	198	216.8		
	2404-7775000	STEEL, REINFORCING	LBS	2488	52350	54838		
	2414-6424120	RAIL, CONCRETE, OPEN	LF	-	247.2	247.2		
	2417-0225018	APRONS, METAL, 18 IN. DIA.	ONLY	-	-	2		
	2417-2150018	DIAPHRAGM, CORRUGATED METAL TYPE A, 18 IN.	ONLY	-	-	2		
	2417-2550018	ELBOWS, CORRUGATED METAL PIPE, 18 IN. DIA.	ONLY	-	-	2		
	2501-5425042	PILING, DRIVE STEEL BEARING HP10X42	LF	384	-	384		
	2501-5425053	PILING, DRIVE STEEL BEARING HP12X53	LF	-	840	840		
	2501-5475053	PILING, ENCASE STEEL BEARING HP12X53	LF	-	408	408		
	2501-5550042	PILING, FURNISH STEEL BEARING HP10X42	LF	384	-	384		
	2501-5550053	PILING, FURNISH STEEL BEARING HP12X53	LF	-	840	840		
	2502-8215118	SUBDRAIN, CORRUGATED METAL PIPE, 18 IN. DIA.	LF	-	-	120		
	2505-4020152	GUARDRAIL, END ANCHORAGES, BEAM RE-52	ONLY	-	-	4		
	2505-4020250	GUARDRAIL, FORMED STEEL BEAM	LF	-	-	150		
	2505-4020251	GUARDRAIL, FORMED STEEL THRIE BEAM	LF	-	-	125		
	2505-4020400	GUARDRAIL, POSTS, BEAM	ONLY	-	-	48		
	2505-4021690	GUARDRAIL, END ANCHORAGES, BEAM RE-69	ONLY	-	-	4		
	2507-3250005	FABRIC, ENGINEERING	SY	-	-	778		
	2507-6800060	REVETMENT, CLASS E, RIP RAP	TONS	-	-	447		
	2518-6910000	SAFETY CLOSURE	ONLY	-	-	2		
	2524-9220020	OBJECT MARKER, TYPE 2	ONLY	-	-	8		
	2524-9220030	OBJECT MARKERS, TYPE 3	ONLY	-	-	4		
	2528-8445110	TRAFFIC CONTROL	LUMP SUM	-	-	LS		
	2533-4980005	MOBILIZATION	LUMP SUM	-	-	LS		
	2601-2636042	SEEDING, FERTILIZING AND MULCHING	ACRES	-	-	1.3		

FILE NO.: 54661 DESIGN NO.: 5594 BROS-9024(34)--5F-24

SUNDQUIST ENGINEERING, P.C. · CONSULTING ENGINEERS · DENISON, IOWA
Highways Municipal Drainage Surveying

PROJECT NO.: 30870	DATE: 1/94	REV.:	DESCRIPTION: ESTIMATE OF QUANTITIES & GENERAL INFORMATION
APPROVED BY: SAS	DRAWN BY: TKK		SHEET C.01
CLIENT: CRAWFORD COUNTY			

PROPERTY OWNERS

① & ② DONALD WATJE

③ NANCY CHARLENE BOHM

④ & ⑤ DAVID BISSEN & PEGGY BISSEN

"X" NAILS IN TOP FE. PO. — COR. PO. — FE. PO. — FOUND RED HEAD

E1/4 CORNER
SEC. 17-82-39

"X" NAILS IN TOP FE. PO. — PWR. PO. — I.P. 0.3' DEEP

REF. TO P.O.T.
STA. 210+00

SE1/4 NE1/4
17-82-39

APPROX. 1/4 1/4 LINE

NE1/4 NE1/4
17-82-39

WASHINGTON TWP.
T-82 N R-39 W
SEC. 17

PWR. PO. — "X" NAILS IN FE. PO. — I.P. 0.2' DEEP

REF. TO P.O.T.
STA. 220+00

TEL. BOX — TEL. BOX — "X" NAILS IN COR. PO. — PWR. PO. — FOUND LEAD PLUG — COR. PO. — CRACK PAVEMENT

NE CORNER
SEC. 17-82-39

SCALE 0 100' 200' 300' FEET

P.O.T. STA. 210+00
108.19
HYDRANT

+86.41'; WELL
TOP EL. 102.7

NEED LINE (TYP.)

P.O.T. STA. 220+00

+31 F.ENT.

SURVEY

908.46'

728.0'

E 1/4 CORNER
17-82-39
(FOUND)

STA. 210+00
BEGIN
PROJECT

+74 F.ENT.

STA. 218+00
END
PROJECT

NE CORNER
17-82-39
(FOUND)

④ SW1/4 NW1/4
16-82-39

⑤ NW1/4 NW1/4
16-82-39

BUCK CREEK

STA. 210+95
F. ENT. RT.
18" x 24' RCP.
CONTR. PLACE FILL

STA. 214+05, 56' RT.
CONTR. FURNISH & PLACE
18" x 58' CMP SUBDRAIN
W/1- RF-5 APRON
INCL. 1- TYPE A DIAPHRAGM
& 1- 15° ELBOW
℄ IN = 94.9
OUT = 81.0

STA. 215+00
60' x 16' PONY TRUSS
W/TIMBER ABUTMENTS
& PILING
D.A. = 8.8 S.M. H
CONTR. REM. & SALV.
EXIST. STRUCTURE SEE
NOTE ON SHT. V.01

STA. 214+92.25
PROP. 112'6" x 24'
CCS BRIDGE
15° SKEW

STA. 215+56, 42' RT.
CONTR. FURNISH & PLACE
18" x 62' CMP SUBDRAIN
W/1- RF-5 APRON
INCL. 1- TYPE A DIAPHRAGM
& 1- 15° ELBOW
℄ IN = 96.5
OUT = 82.0

STA. 217+46
F. ENT. RT.
CONTR. PLACE FILL

STA. 218+31
F. ENT. LT.
U.A.C.

B.M. #1 - 60d SPK. IN PWR. PO. @ STA. 213+68, 28' LT.
ELEV. = 100.0

B.M. #2 - 60d SPK. IN PWR. PO. @ STA. 217+67, 30' LT.
ELEV. = 101.35

59	59	0	46	21		19	27	3
78	489	1069	1231	395		159	274	106

F. ENT.
2.5 C.Y.

CUT = 185 C.Y.
ROADWAY FILL+35% = 4429 C.Y.
GUARDRAIL FILL+35% = 135 C.Y.
BORROW = 4379 C.Y.

F. ENT.
30 C.Y.

CUT = 49 C.Y.
ROADWAY F+35% = 758 C.Y.
GUARDRAIL F+35% = 78 C.Y.
BORROW = 784 C.Y.

TOTAL CUT = 234 C.Y.
ROADWAY FILL+35% = 5187 C.Y.
GUARDRAIL FILL+35% = 210 C.Y.
TOTAL FILL+35% = 5397 C.Y.
* TOTAL BORROW = 5163 C.Y.

* SEE ESTIMATE REFERENCE INFORMATION NOTE 2102-2710070

EXIST. GRADE

-7.066%

PROPOSED GRADE

+0.16%

+36 ℄ ABUT.

+48.5 ℄ ABUT.

V.P.I. STA. 213+50
EL. = 100.90
V.C. = 700'
M.O. = 6.71'
D.S. = 48+ MPH
K = 0.91

125.63	119.11	113.69	109.36	106.13	105.23	103.35	102.95	103.00	103.60

140 130 120 110 100 90 80 70

205 210 215 220 25

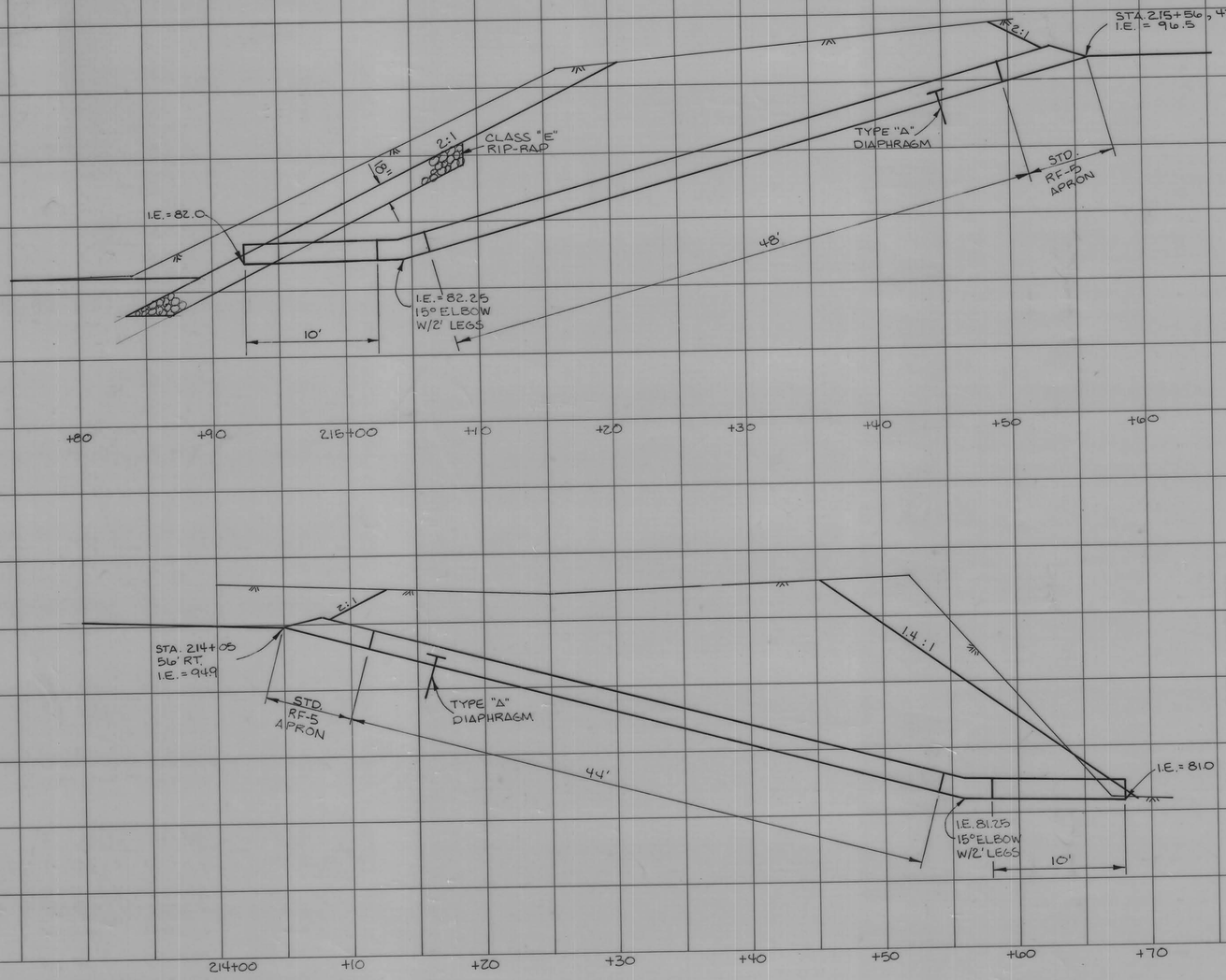
+36 +48.5

PLAN — SURVEYED, PLOTTED, ALIGNMENT CHECKED, R/T OF WAY CHECKED — NOTE BOOK — NO. — BY — DATE

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, B.M. NOTED, STRUCTURE NOTATNS CHKD. — NOTE BOOK — NO. — BY — DATE

FILE NO.: 54661 DESIGN NO. 5594 CRAWFORD COUNTY

PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
SE NO.: 30870 PROJ. NO.: BROS-9024(34)--5F-24	IA				D.01



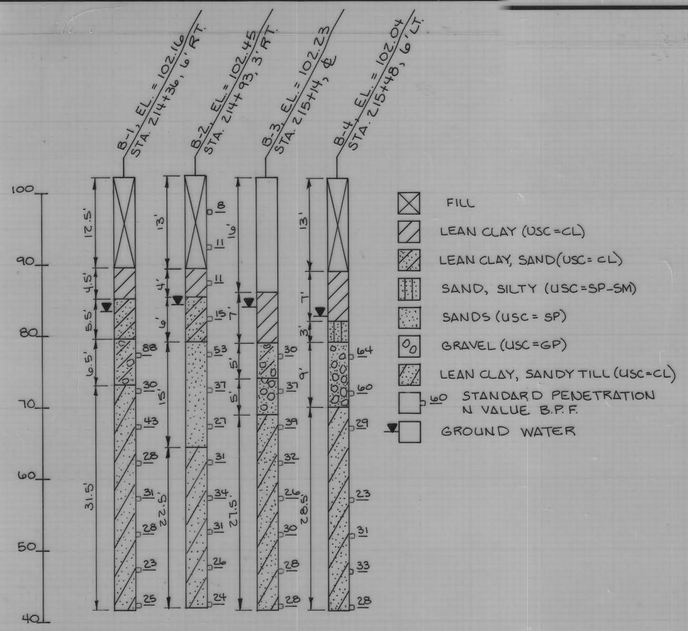
STA. 215+56, 42' RT.
CONTRACTOR FURNISH & PLACE
18" x 42' CMP SUBDRAIN
INCL. 1- STD. RF-5 APRON
1- 15° ELBOW &
1- TYPE "A" DIAPHRAGM

STA. 214+05, 56' RT.
CONTRACTOR FURNISH & PLACE
18" x 58' CMP SUBDRAIN
INCL. 1- STD. RF-5 APRON,
1- 15° ELBOW &
1- TYPE "A" DIAPHRAGM

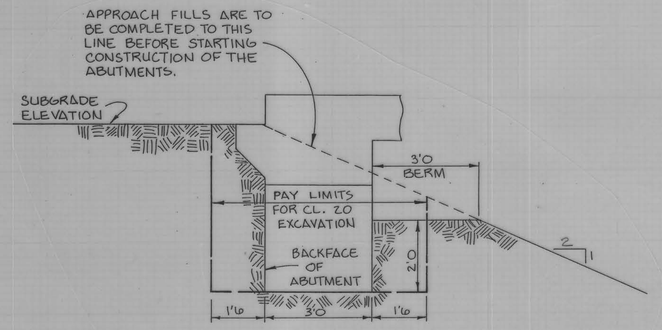
FILE NO.: 54661 DESIGN NO. 5594 PROJ. NO.: BROS-9024(34)--5F-24

SUNDQUIST ENGINEERING, P.C. · CONSULTING ENGINEERS · DENISON, IOWA
Highways Municipal Drainage Surveying

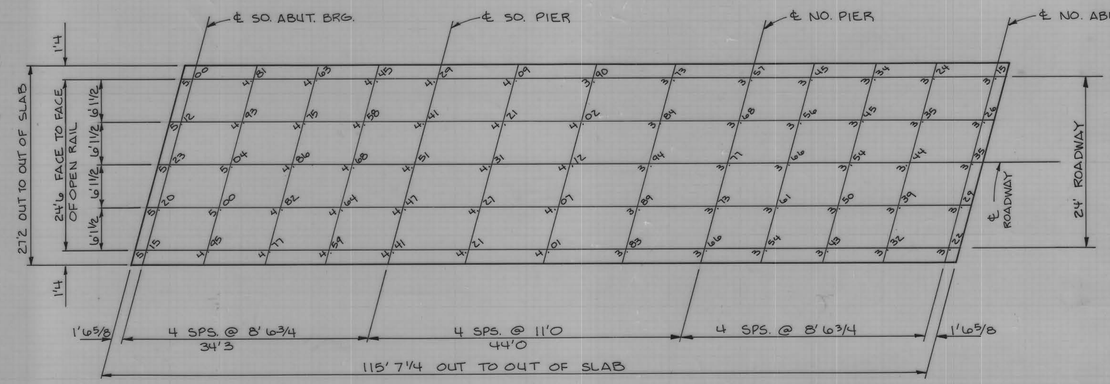
PROJECT NO.: 30870	DATE: 1/94	REV.:	DESCRIPTION: SUBDRAIN DETAILS	SHEET U.01
APPROVED BY: SAS	DRAWN BY: TKK			
CLIENT: CRAWFORD COUNTY				



SOUNDING DATA
NOVEMBER 4 & 5, 1992



CLASS 20 EXCAVATION DETAIL



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

TABULATION OF GRADING FOR GUARDRAIL INSTALLATIONS
*Refer to Standard Road Plan RL-11 or Typicals 4303 and 4306

LOCATION POINT			DIMENSIONS *					PIPE			
NO.	STATION	TYPE	A / T	Y	Z	CLASS 10 EXCAV.	EMBANK. IN PLACE	Size	Type	Length	REMARKS
			Lin.Ft.	Lin.Ft.	Lin.Ft.	Cu. Yds.* *	Cu. Yds.	Inches		Lin.Ft.	
1	214+92.25	2	56.25	5	19	70	–	–	–	–	S. END, RT. SIDE
2	214+92.25	2	56.25	5	19	65	–	–	–	–	S. END, LT. SIDE
3	214+92.25	2	56.25	5	19	40	–	–	–	–	N. END, RT. SIDE
4	214+92.25	2	56.25	5	19	35	–	–	–	–	N. END, LT. SIDE

* * INCLUDES 35% SHRINKAGE

TABULATION OF STEEL BEAM GUARDRAIL FOR STANDARD ROAD PLANS RE-63, RE-65
*Includes 2 -12.5' Thrie Beam Sections and 1 - 6.25' "W" to Thrie Beam Transition Section

LOCATION				FORMED STEEL BEAM GUARDRAIL						BEAM GUARDRAIL POSTS						
				A	H	T				With 8" x 8" Spacer Blocks		Without Spacer Blocks	POST & ADAPTOR	ANCHOR SYSTEM		
NO.	STATION	STANDARD ROAD PLAN	CASE	"W" Beam	STS * Thrie Beam 31.25'	Thrie Beam	STS * Thrie Beam 31.25'	"W" Beam	TOTAL "W" BEAM	TOTAL THRIE BEAM	10"x10"x6'	8"x8"x6'	6"x8"x6'	RE-37	Type	No.	REMARKS
				Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	No.	No.	No.	No.			
	214+92.25	RE-65	U	37.5				37.5	75.0			10	4	–	RE-52	2	RT.
					31.25	–	31.25			62.5	6	4		–	RE-69	2	RT.
		RE-65	U	37.5				37.5	75.0			10	4	–	RE-52	2	LT.
					31.25	–	31.25			62.5	6	4		–	RE-69	2	LT.

TABULATION OF SAFETY CLOSURES

REFER TO SECTION 2518 OF THE STANDARD SPECIFICATIONS

NO.	STATION	REMARKS
1	210+00	SOUTH END
2	218+00	NORTH END

TABULATION OF DELINEATORS AND OBJECT MARKERS
Refer to Standard Plan RE-48A-B and RE-29C ** Not a Bid Item

LOCATION		DELINEATOR	OBJECT MARKER				
				Type 3			
Station	Type *	Single White D-1W	Type 2 OM2-3YV	OM-3L	OM-3R	Offset Brackets * *	REMARKS
		Number	Number	Number	Number	Number	
214+92.25	1	7	4	1	1	–	SOUTH END
214+92.25	1	7	4	1	1	–	NORTH END

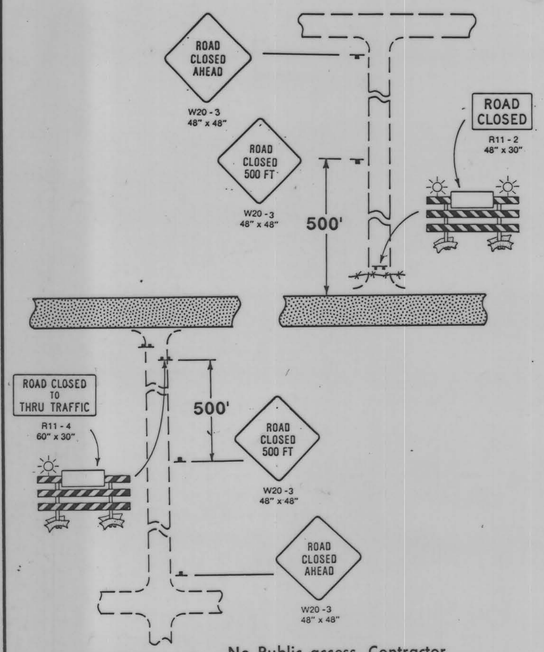
FILE NO.: 54661 DESIGN NO. 5594 PROJ. NO.: BROS-9024(34)--5F-24

SUNDQUIST ENGINEERING, P.C. · CONSULTING ENGINEERS · DENISON, IOWA
Highways Municipal Drainage Surveying

PROJECT NO.: 30870	DATE: 1/94	REV.:	DESCRIPTION: MISCELLANEOUS DETAILS
APPROVED BY: SAS	DRAWN BY: TKK		SHEET U.02
CLIENT: CRAWFORD COUNTY			

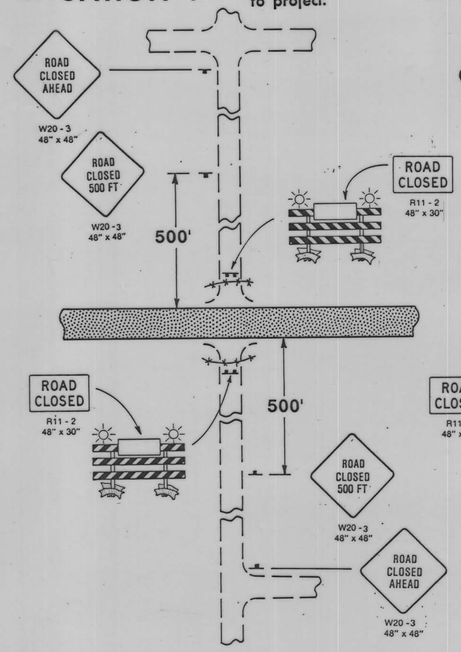
SITUATION 2

No Access to project.



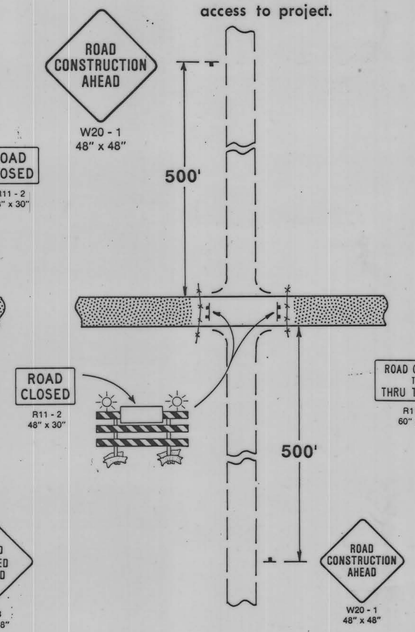
SITUATION 4

No Access to project.



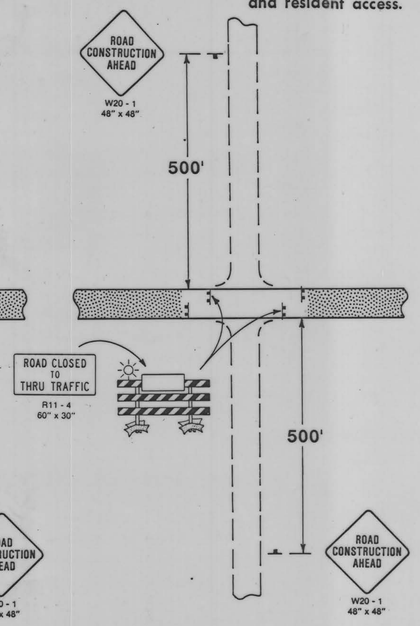
SITUATION 5

Public cross-traffic maintained. No access to project.



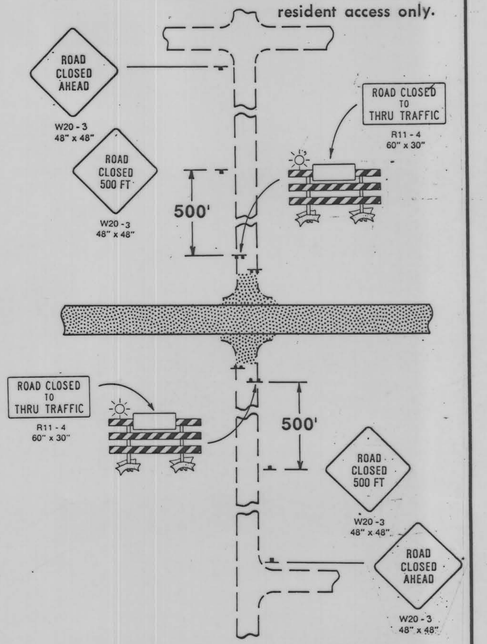
SITUATION 6

Public cross-traffic maintained. Contractor and resident access.



SITUATION 7

No Public access. Contractor and resident access only.

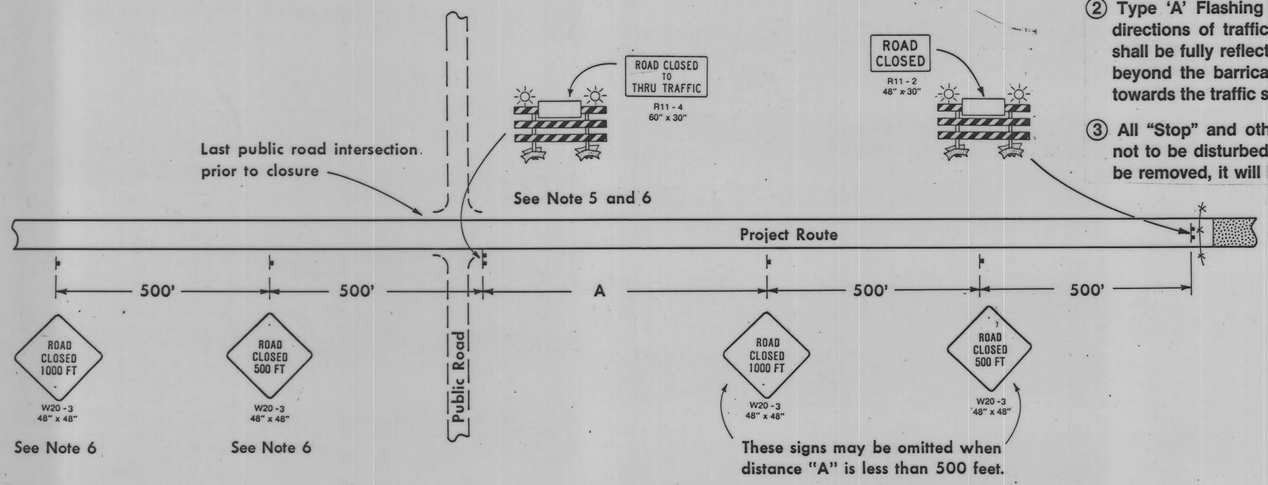


SITUATION 3

No Public access. Contractor and resident access only.

SITUATION 1

Project Route closure.



GENERAL NOTES:

1. Situation 1 illustrates traffic control necessary to close the project route. SITUATION 2 through 7 are for signing of sideroads based on existing agreements and field conditions and will be selected by the engineer in charge of construction.
2. Type 'A' Flashing Warning Lights shall be visible to both directions of traffic. The backside of the type III barricades shall be fully reflectorized unless there is no access permitted beyond the barricade. Strips shall be properly sloped down towards the traffic side.
3. All "Stop" and other regulatory signs on the sideroads are not to be disturbed. If a "Stop" or other regulatory sign must be removed, it will be relocated by the Contracting Authority.
4. This layout does not include safety closures as may be required by Section 2518 of the Standard Specifications.
5. In Situation 1, when distance "A" is less than 500 feet, the barricade should be placed in the middle of the traffic lane approaching the work area. In this case, Note 2 shall apply. The barricade may be omitted if the distance to the work area is less than 250 feet.
6. In Situation 1, if the intersection is the point of detour these two signs and barricade will become the responsibility of the contracting authority and may be modified by the contracting authority to fit detour signing.

LEGEND

- Traffic Sign
- Type III Barricade (Type "A" Low Intensity Flashing Warning Light Required for Nighttime Use)
- Type "A" Low Intensity Flashing Warning Light
- Work Area
- Slat Fence Barricade or Orange Plastic Safety Fence

Iowa Department of Transportation
Highway Division

DETAIL SHEET 520-26

NO.	DATE
3	06-15-93

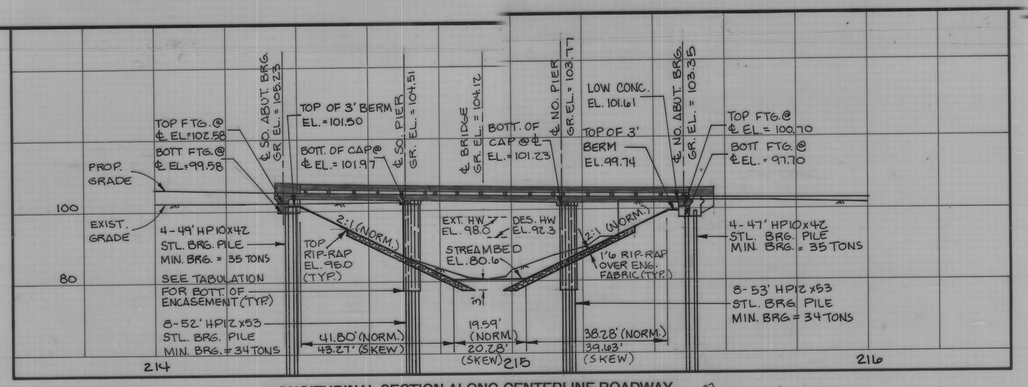
REVISION: Revise note 4. Change barricades to safety closure.

SIGNING FOR TEMPORARY ROAD CLOSURES IN RURAL AREAS (PROJECT ROUTE CLOSED TO TRAFFIC)

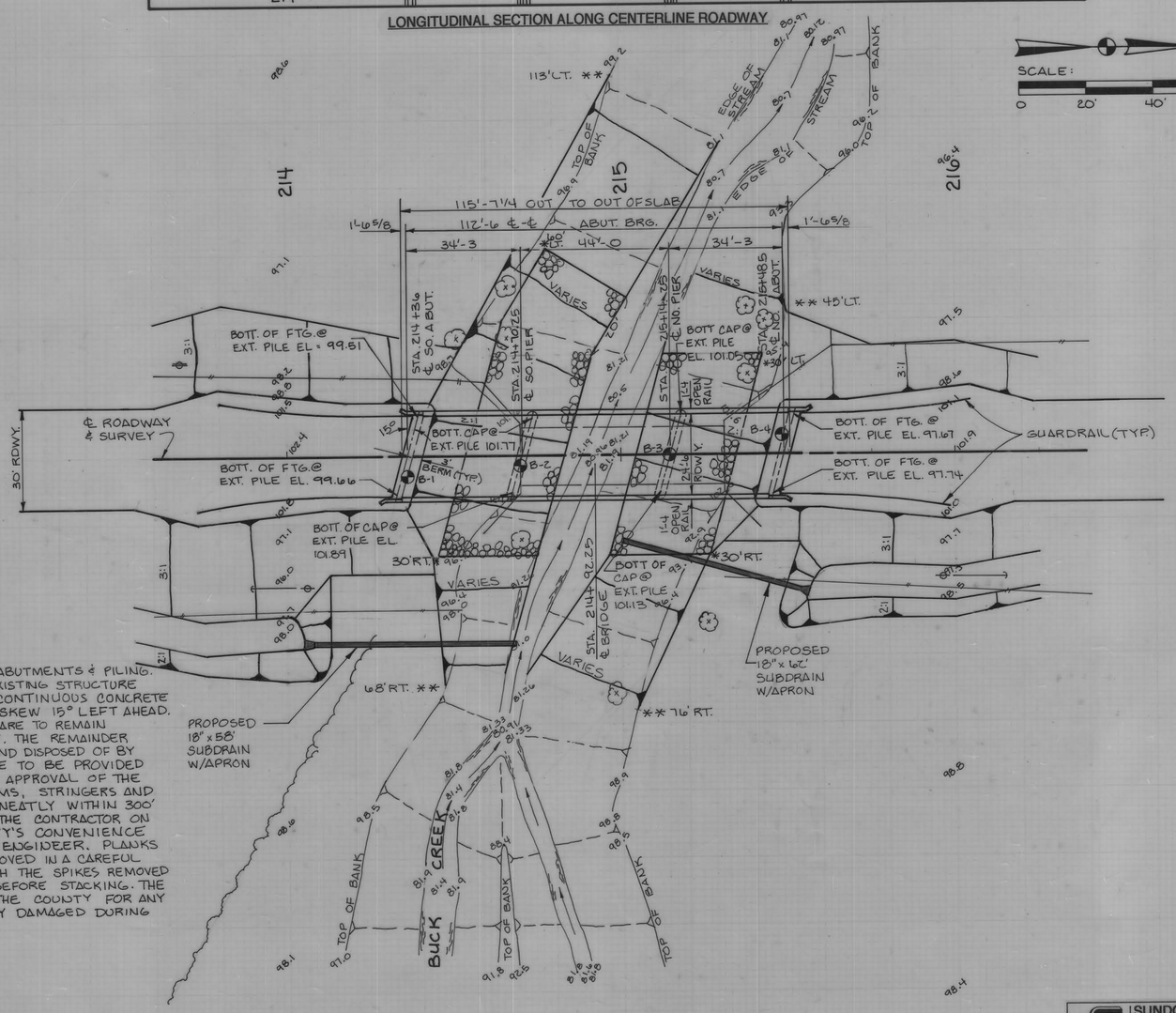
STATE OF IOWA	FHWA REGION 7	FISCAL YEAR		Crawford COUNTY	PROJECT NUMBER BROS-9024(34)--SF-24	SHEET NUMBER U.03	TOTAL SHEETS

B.M. #1 - 60d SPK. IN PWR. PO. @ STA. 213+68, 28' LT. EL. = 100.00

BOTTOM OF ENCASEMENT		
LOCATION	ELEVATION	
	SOUTH PIER	NORTH PIER
WEST PILE	75.77	76.05
PILE	75.83	76.11
PILE	75.90	76.17
PILE	75.95	76.21
PILE	75.99	76.23
PILE	75.95	76.21
PILE	75.92	76.17
EAST PILE	75.89	76.13



LONGITUDINAL SECTION ALONG CENTERLINE ROADWAY



SCALE: FEET
0 20' 40' 60'

STA. 215+00
60' x 16' PONY TRUSS W/TIMBER ABUTMENTS & PILING. CONTRACTOR REMOVE & SALVAGE EXISTING STRUCTURE AND CONSTRUCT NEW 112'6 x 24' CONTINUOUS CONCRETE SLAB BRIDGE @ STA. 214+92.25, SKEW 15° LEFT AHEAD. THE I-BEAMS, STRINGERS & PLANK ARE TO REMAIN PROPERTY OF CRAWFORD COUNTY. THE REMAINDER OF THE BRIDGE TO BE JUNKED AND DISPOSED OF BY THE CONTRACTOR. DISPOSAL SITE TO BE PROVIDED BY THE CONTRACTOR, WITH THE APPROVAL OF THE COUNTY ENGINEER. THE I-BEAMS, STRINGERS AND PLANK SHALL BE STOCKPILED NEATLY WITHIN 300' OF THE SITE AND LOADED BY THE CONTRACTOR ON COUNTY TRUCKS AT THE COUNTY'S CONVENIENCE AS DIRECTED BY THE COUNTY ENGINEER. PLANKS AND STRINGERS SHALL BE REMOVED IN A CAREFUL WORKMANSHIP LIKE MANNER WITH THE SPIKES REMOVED FROM THE PLANKS & STRINGERS BEFORE STACKING. THE CONTRACTOR SHALL REIMBURSE THE COUNTY FOR ANY PLANKS & STRINGERS WILLFULLY DAMAGED DURING THEIR REMOVAL.

* DENOTES LIMITS OF RIP-RAP & ENGINEERING FABRIC

** DENOTES LIMITS OF CL. 10 CHANNEL EXCAVATION

SITUATION PLAN

HYDRAULIC DATA

Drainage Area 8.8 Sq. Mi.
Design Discharge 2660 cfs
Design High Water 92.3
Reach Slope (Local) 21.0 ft/mi.
Bridge Waterway Area 400 ft²
Design Velocity 6.6 fps
Q25 2660 cfs Stage 92.3
Q50 3230 cfs Stage 93.2
Q100 3895 cfs Stage 94.2
Q500 5230 cfs Stage 96.0
Extreme High Water 10104 cfs
Stage 98.0 Date: June 1990

LOCATION
NEAR NE CORNER
T-82N R-39W
SEC. 17
WASHINGTON TWP.
OVER BUCK CREEK

DESIGN FOR:
112'-6 x 24' CONTINUOUS
CONCRETE SLAB BRIDGE
INTEGRAL ABUTMENTS P10A PIERS
OPEN RAILS
STA. 214+92.25 SKEW 15°
CRAWFORD COUNTY
FILE NO.: 54661 DESIGN NO.: 5594
PROJECT NO.: BROS-9024(34)-5F-24

SUNDQUIST ENGINEERING, P.C. · CONSULTING ENGINEERS · DENISON, IOWA
Highways Municipal Drainage Surveying

PROJECT NO.: 30870	DATE:	REV.:	DESCRIPTION: SITUATION PLAN	SHEET V.01
APPROVED BY: SAS	DRAWN BY: TKK			
CLIENT: · CRAWFORD COUNTY				

	SF		CY	
	C	F	C	F
213+00	0	355	0	1069
212+00	222		0	489
211+00	32	42	59	78
210+94 F.E. RT.		FILL = 25 CY		
210+00	0	0		

FILE NO.: 54661 DESIGN NO.: 5594
PROJECT NO.: BROS-9024(34)-5F-24
SHEET W.01

SF CY
C F C F

100
95
90
85
80

214+50

STA 214+36
℄ ABUTMENT

TB

℄ DITCH

40

FULL 11' 0 101

.67' 105.49 .67'

TOP = 101.67

FULL AHEAD 11'

100
95

214+25

TB

0 247

FULL 12' BACK

21 264

90

3' 105.83 106.13 2'

100

43'

214+00

67'

95.0

45 301

95
90

27 289

5' 106.83 5'

100

214+00 D 355

96.0

14 323

95
90

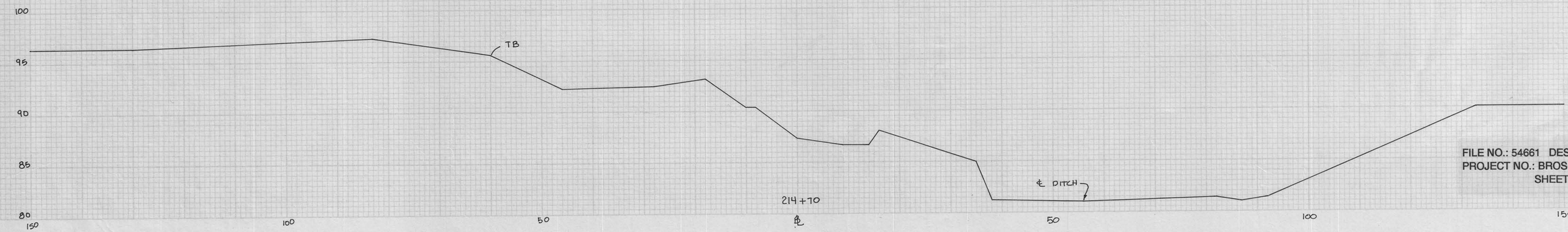
213+75

19 942

150 100 50 ℄ 50 100 150

FILE NO.: 54661 DESIGN NO.: 5594
PROJECT NO.: BROS-9024(34)-5F-24
SHEET W.02

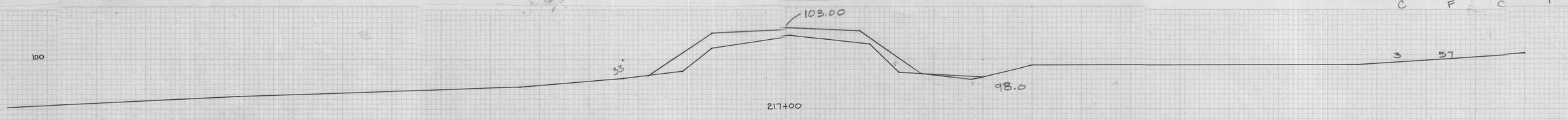
W.02



FILE NO.: 54661 DESIGN NO.: 5594
PROJECT NO.: BROS-9024(34)-5F-24
SHEET W.03

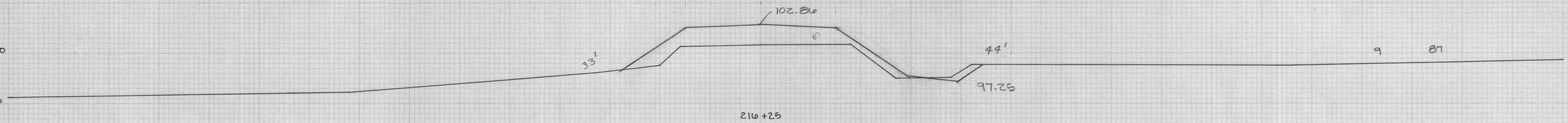
SF CY

C F C F



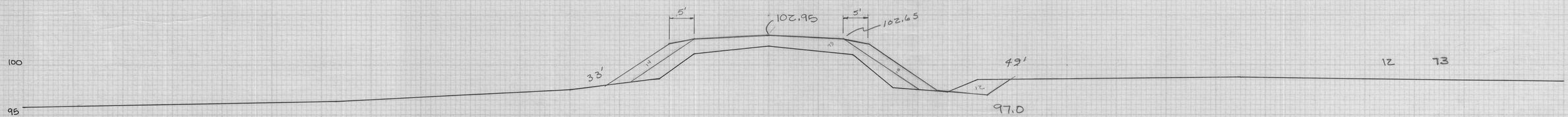
217+00

17 200



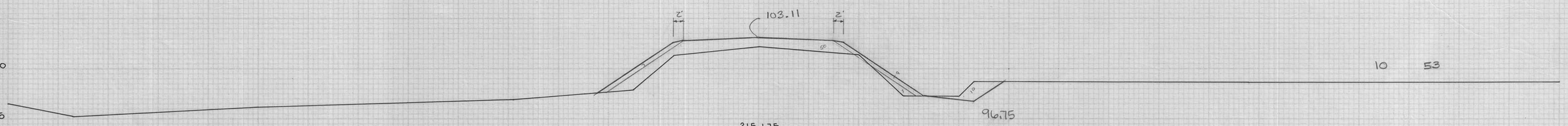
216+25

10 74



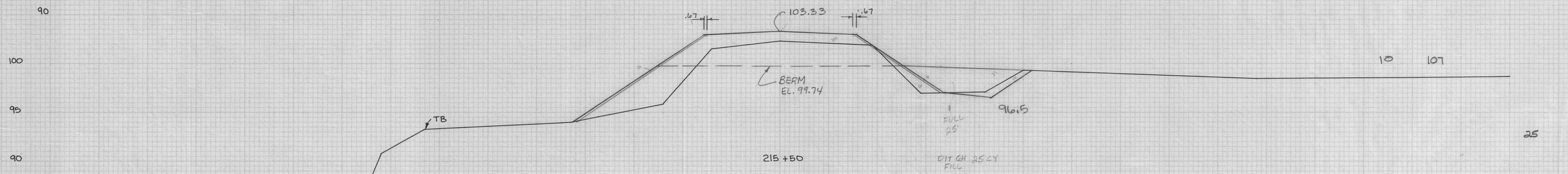
216+00

10 58



215+75

9 74



215+50

DITCH 25 CY FILL

STA. 215+48.5
℄ ABUTMENT

℄ DITCH

150 100 50 ℄ 50 100 150

FILE NO.: 54661 DESIGN NO.: 5594
PROJECT NO.: BROS-9024(34)-5F-24
SHEET W.04

SF CY
C F C F

105
100

220+00

105
100
95

219+00

105
100
95

NORTH
SOUTH

218+31
F.E. LT.

105
100
95

218+00

105
100
95

103.28

217+46
F.E. RT.

FILL= 30 CY

150 100 50 0 50 100 217+00 3 57 150

FILE NO.: 54661 DESIGN NO.: 5594
PROJECT NO.: BROS-9024(34)-5F-24
SHEET W.05