

SECTION 404 PERMIT AND CONDITIONS

CONSTRUCT THIS PROJECT ACCORDING TO THE REQUIREMENTS OF U.S. ARMY CORPS OF ENGINEERS NATIONWIDE **PERMIT 14**. A COPY OF THIS PERMIT IS AVAILABLE FROM THE IOWA DOT WEBISTE ([HTTP://WWW.ENVPERMITS.IOWADOT.GOV/](http://www.envpermits.iowadot.gov/)). THE U.S. ARMY CORPS OF ENGINEERS RESERVES THE RIGHT TO VISIT THE SITE WITHOUT PRIOR NOTICE.

FOR LIST OF UTILITY CONTACTS, REFER TO SHEET A.2.

FOR LIST OF APPLICABLE STANDARD ROAD PLANS, REFER TO SHEET C.2.

FOR LIST OF APPLICABLE LRFD STANDARD BRIDGE PLANS, REFER TO SHEET V.1.

INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
A.2	Legend
A.3	Existing Conditions
B Sheets	Typical Cross Sections and Details
B.1	Typical Cross Sections and Details
C Sheets	Quantities and General Information
C.1	General Notes
C.2 - 3	Quantities, Estimate Reference Information, & Tabulations
C.3 - 4	Tabulations
D Sheets	Mainline Plan and Profile Sheets
D.1	Plan and Profile - CR S23
F Sheets	Removal Sheets
F.1	Removals
G Sheets	Survey Sheets
G.1	Reference Ties and Benchmarks
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control and Staging Notes
J.2	Detour Route
L Sheets	Geometric and Staking Sheets
L.1	Geometrics, Staking, and Jointing
Q Sheets	Soil Boring
Q.1 - 2	Soil Borings
RC Sheets	Erosion Control Tabulations
RC.1	Erosion Control Tabulations
RR Sheets	Erosion Control Plan Sheets
RR.1	Erosion Control Plan
V Sheets	Bridge Sheets
V.1	General Notes
V.2	Situation Plan
V.3	Site Plan
V.4	Top of Deck Elevations
W Sheets	Mainline Cross Sections
W.1 - 6	Cross Sections - CR S23

MILEAGE SUMMARY

DIV.	LOCATION	LIN. FT.	MILES
1	CR S23 STA. 102+25.00 TO STA. 107+00.00 DEDUCT BRIDGE @ STA. 104+52.87	475 140	0.09 0.03
TOTAL LENGTH OF ROADWAY		335	0.06
TOTAL LENGTH OF BRIDGE		140	0.03
TOTAL:		475	0.09



DESIGN DATA RURAL

2024 AADT	490	V.P.D.
20 -- AADT	--	V.P.D.
20 -- DHV	--	V.P.H.
TRUCKS	15 %	
Total Design ESALs	--	



HIGHWAY DIVISION

PLANS OF PROPOSED IMPROVEMENT ON THE

FARM-TO-MARKET ROAD SYSTEM
WARREN COUNTY

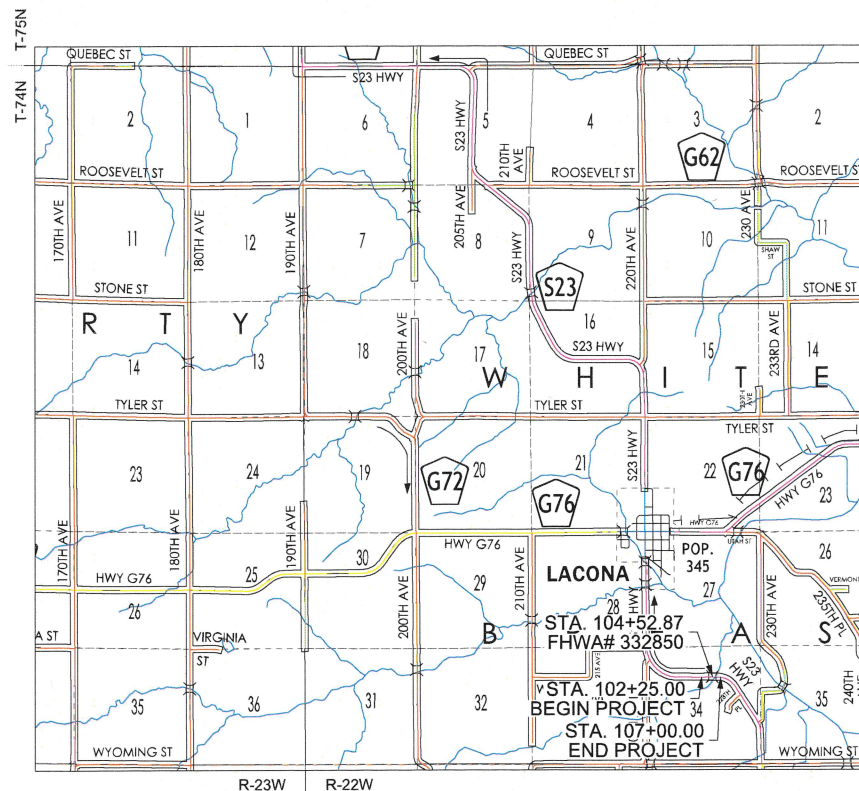
BRIDGE REPLACEMENT - CCS

On S23, Over STONY CREEK, S34, T74, R22

SCALES: As Noted

REFER TO THE PROPOSAL FORM FOR LIST OF APPLICABLE SPECIFICATIONS

VALUE ENGINEERING SAVES. REFER TO ARTICLE 1105.13 OF THE SPECIFICATIONS.



LOCATION MAP
NOT TO SCALE

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	ALEX SCHLADER, P.E.	PRIMARY SIGNATURE BLOCK
A.1	JONAH HEER, P.E.	STRUCTURAL SIGNATURE BLOCK
Q.1	DAVID LOGEMANN, P.E.	GEOTECHNICAL SIGNATURE BLOCK
V.2	MEGAN LEHMAN, P.E.	HYDRAULIC SIGNATURE BLOCK

TOTAL	28
PROJECT IDENTIFICATION NUMBER	
IOWA DOT PROJECT NUMBER	
BRS-CHBP-C091(146)--GB-91	

BRIAN ARNOLD, CHAIR DISTRICT 1	8/11/26 DATE
AARON DEKOCK DISTRICT 2	8/11/26 DATE
TRAVIS DEWITT, VICE CHAIR DISTRICT 3	8/11/26 DATE
STEPHANIE ERICKSON DISTRICT 4	8/11/26 DATE
CRYSTAL MCINTYRE DISTRICT 5	8/11/26 DATE
BOARD OF SUPERVISORS	

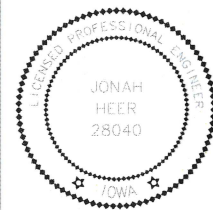
WARREN COUNTY

REVIEWED:

J. Hill
TIM HILL, P.E., COUNTY ENGINEER

8/10/26
DATE

STRUCTURAL DESIGN



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

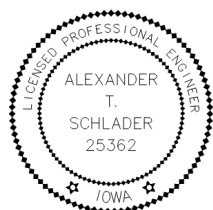
Signature: *Jonah Heer*
Jonah Heer, P.E.

Printed or Typed Name

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: V-SHEETS

ROADWAY DESIGN



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature: *Alex T. Schlader*
Alexander T. Schlader, P.E.

Printed or Typed Name

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: A-SHEETS, B-SHEETS, C-SHEETS, D-SHEETS, F-SHEETS, G-SHEETS, J-SHEETS, RC-SHEETS, RR-SHEETS, W-SHEETS



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PROJECT NUMBER
BRS-CHBP-C091(146)--GB-91

REVISIONS

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PROJECT INFO
2025000413

ENGINEER DRAWN BY CHECKED BY
ATS JCH ATS

BRS-CHBP-C091(146)--GB-91
CR S23 BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA

TITLE SHEET

DRAWING NO.

A.1

GENERAL LEGEND

EXISTING	PROPOSED	
		SANITARY SEWER MAIN
		SANITARY SEWER SERVICE
		SANITARY SEWER FORCE MAIN
		STORM SEWER MAIN OR CULVERT
		SECONDARY STORM SEWER SERVICE
		SUBDRAIN/TILE
		WATER MAIN
		WATER SERVICE
		UNDERGROUND ELECTRIC
		OVERHEAD ELECTRIC
		UNDERGROUND TELEPHONE
		UNDERGROUND FIBER OPTIC
		UNDERGROUND CABLE TV
		GAS MAIN OR SERVICE
		CONTOUR LINES INTERMEDIATE
		CONTOUR LINES INDEX
		PROPERTY LINE / LOT LINE
		RIGHT OF WAY LINE
		SECTION LINE
		TEMPORARY EASEMENT
		PERMANENT EASEMENT
		GUARD RAIL
		FIELD FENCE
		ROAD CENTERLINE
		CONSTRUCTION LIMITS
		AG LINE
		WATERWAY FLOWLINE

UTILITY QUALITY SERVICE LEVELS:

UTILITY QUALITY LEVELS ARE BASED ON THE CI/ASCE 38-02 STANDARD.

UTILITY QUALITY LEVEL A:
PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE (OR VERIFICATION OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES.

UTILITY QUALITY LEVEL B:
INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES.

UTILITY QUALITY LEVEL C:
INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL D INFORMATION.

UTILITY QUALITY LEVEL D:
INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS.

8"SS(A)	SANITARY SEWER MAIN - QUALITY SERVICE LEVEL A
8"SS(B)	SANITARY SEWER MAIN - QUALITY SERVICE LEVEL B
8"SS(C)	SANITARY SEWER MAIN - QUALITY SERVICE LEVEL C
8"SS(D)	SANITARY SEWER MAIN - QUALITY SERVICE LEVEL D

EXISTING UTILITIES NOTE:

THESE EXISTING UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS AND THEREFORE MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS. IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGING THEM. NO CLAIMS WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OF DELAY CAUSED BY SUCH WORK. PAYMENT WILL BE ALLOWED FOR UNCHARTED UTILITIES PER THE SPECIFICATIONS.

EXISTING	PROPOSED	
		SANITARY SEWER MANHOLE
		SANITARY SEWER CLEANOUT
		AIR RELEASE MANHOLE/DRAIN MANHOLE
		STORM SEWER MANHOLE
		STORM SEWER CLEANOUT
		STORM SEWER INTAKE
		STORM SEWER BEEHIVE INTAKE
		FLARED END SECTION
		FIRE HYDRANT
		WATER VALVE
		WATER VALVE MANHOLE
		CURB STOP
		WATER METER MANHOLE
		YARD HYDRANT
		ELECTRIC MANHOLE / VAULT
		ELECTRIC PEDESTAL / TRANSFORMER
		OUTDOOR ELECTRIC POWER OUTLET
		POWER POLE
		POWER POLE w/ STREET LIGHT
		STREET LIGHT POLE
		GUY WIRE
		FLOODLIGHT
		FIBER OPTIC MARKER
		TRAFFIC SIGNAL
		TRAFFIC SIGNAL BOX
		TRAFFIC SIGNAL MANHOLE / VAULT
		RAILROAD CROSSING SIGNAL
		TELEPHONE MANHOLE / VAULT
		TELEPHONE PEDESTAL
		CABLE TV MANHOLE / VAULT
		CABLE TV PEDESTAL
		GAS VALVE
		IRRIGATION HANDHOLE
		BOLLARD (BUMPER POST)
		ROADWAY SIGN
		MAILBOX
		WELL
		DECIDUOUS TREE
		EVERGREEN TREE
		SHRUB OR BUSH
		TREE OR SHRUB LINE
		STUMP
		MONITORING WELL
		SOIL BORINGS
		FLAG POLE
		SATELLITE DISH
		SLOPE INDICATORS
		CONTROL POINT
		BENCH MARK
		SECTION CORNER
		IRON PIN SET
		IRON PIN FOUND

ABBREVIATIONS			
T/S	TOP OF SLAB	TOP	TOP OF SLOPE
BC	BACK OF CURB	BOT	BOTTOM OF SLOPE
TC	TOP OF CURB	EP	EDGE OF PAVING
FG	FORM GRADE	BOP	BEGINNING OF PROJECT
FL	FLOWLINE	EOP	END OF PROJECT
CL	CENTERLINE	UAC	USE AS CONSTRUCTED
C	CUT		
F	FILL		

SHADING/HATCHING

	PROPOSED ADA SIDEWALK		PROPOSED NON-ADA SIDEWALK
	PROPOSED SIDEWALK RAMP		HMA PAVEMENT
	PROPOSED SIDEWALK TURNING SPACE		PCC CURB AND GUTTER
	PROPOSED HMA DRIVEWAY		DELINEATES RESTRICTED AREAS
	PROPOSED GRANULAR SHOULDER		PROPOSED PAVEMENT PATCH SHADING

UTILITY LEGEND

	Warren Water District Matt Van Wyk 515-962-1200 Mvanwyk@warrenwaterdistrict.com
	Alliant Energy Justin Dittmer 641-891-8334 JustinDittmer@alliantenergy.com
	Windstream Communications Clint Woodward Clint.Woodward@uniti.com

McCLURE™
1535 SW MARKET ST SUITE 200
ANKENY, IA 50023
MAIN (515) 512-1361

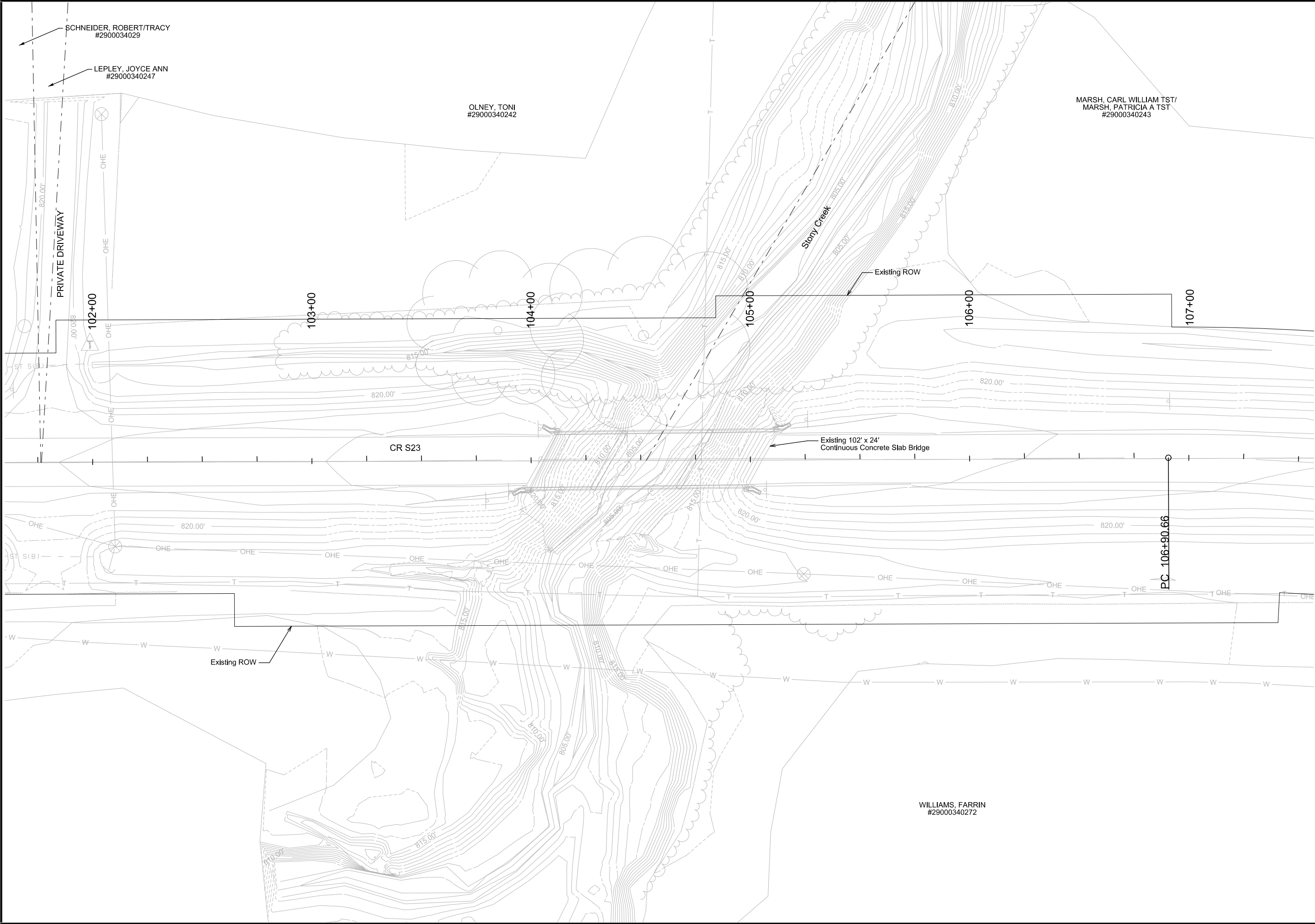
Ankeny, IA | Carroll, IA | Clive, IA
Cedar Rapids, IA | Coralville, IA
Fort Dodge, IA | Sioux City, IA
Macon, MO | Columbia, MO
North Kansas City, MO
Lenexa, KS
Boston, MA | Portsmouth, NH

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PROJECT INFO 2025000413		
ENGINEER ATS	DRAWN BY JCH	CHECKED BY ATS

BRS-CHBP-C091(146)--GB-91
CR S23 BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA

REF. TIES, BENCHMARKS, & HORZ. CNTRL.





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REVISIONS

PROJECT INFO
2025000413

ENGINEER	DRAWN BY	CHECKED BY
ATS	JCH	ATS

**BRS-CHBP-C091(146)--GB-91
CR S23 BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA**

EXISTING CONDITIONS

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DRAWING NO.
A.3

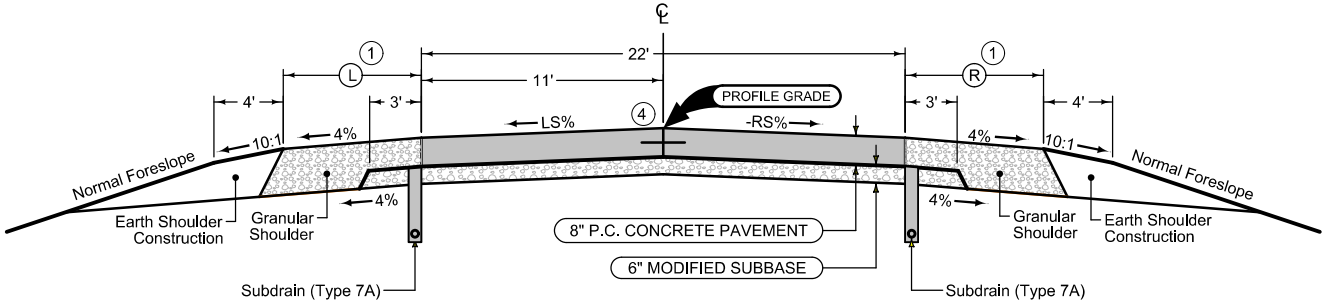
LOCATION			DIMENSIONS	
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet
CR S23 Avenue	102+00.00	102+76.48	6	6
CR S23 Avenue	102+76.48	102+93.80	6	Varies
CR S23 Avenue	102+93.80	103+82.39	Varies	Varies
CR S23 Avenue	105+23.35	106+11.94	Varies	Varies
CR S23 Avenue	106+11.94	106+29.29	Varies	6
CR S23 Avenue	106+29.29	107+00.00	6	6

LOCATION			SLOPE	
ROAD IDENTIFICATION	STATION TO STATION		LS	RS
CR S23 Avenue	102+00.00	103+82.39	2%	2%
CR S23 Avenue	105+23.35	106+18.00	2%	
CR S23 Avenue	105+23.35	106+83.00		2%
CR S23 Avenue	106+18.00	107+00.00	2% to (-1.7%)	
CR S23 Avenue	106+83.00	107+00.00		2% to 2.75%

Normal section shown may be modified appropriately in locations specifically designated by the Engineer.

See plan & profile sheets and cross sections for additional details of ditches and backslopes.

- ① Refer to Iowa DOT Standard Road Plan EW-301 and Tabulation 107-23 for guardrail grading widths and limits.
- ② Refer to Estimate Reference Information for gradation information.
- ③ Refer to special ditch profiles detailed on the D-Sheets.
- ④ Refer to the L-Sheets for Geometric and Jointing details.



CR S23 AVENUE TYPICAL SECTIONS

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ENGINEER DRAWN BY CHECKED BY
ATS JCH ATS

BRS-CHBP-C091(146)--GB-91
CR S23 BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA

TYPICAL CROSS SECTIONS AND DETAILS

GENERAL NOTES

CONTRACTOR SHALL CONFINE WORK TO THE CONSTRUCTION LIMITS SHOWN ON SHEET H.1 UNLESS PERMISSION FROM RESPECTIVE LANDOWNERS IS PROVIDED TO WARREN COUNTY IN WRITING.

ALL HOLES RESULTING FROM OPERATIONS OF THE CONTRACTOR, INCLUDING REMOVAL OF GUARDRAIL POSTS, FENCE POSTS, UTILITY POLES, OR FOUNDATION STUDIES, SHALL BE FILLED AND CONSOLIDATED TO FINISHED GRADE AS DIRECTED BY THE COUNTY TO PREVENT FUTURE SETTLEMENT. THE VOIDS SHALL BE FILLED AS SOON AS PRACTICAL - PREFERABLY THE DAY CREATED AND NOT LATER THAN THE FOLLOWING DAY. ANY PORTION OF THE RIGHT-OF-WAY OR PROJECT LIMITS (INCLUDING BORROW AREAS AND OPERATION SITES) DISTURBED BY ANY SUCH OPERATION SHALL BE RESTORED TO AN ACCEPTABLE CONDITION. THIS OPERATION SHALL BE CONSIDERED INCIDENTAL TO OTHER BID ITEMS ON THE PROJECT.

ALL RUBBLE AND DEBRIS FROM THE REMOVAL OF EXISTING STRUCTURES SHALL BE DISPOSED OF BY THE CONTRACTOR IN COMPLIANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS. 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 WARREN COUNTY.

THE TOP SIX (6) INCHES OF THE DISTURBED AREAS SHALL BE FREE OF ROCK AND DEBRIS AND SHALL BE SUITABLE FOR THE ESTABLISHMENT OF VEGETATION, SUBJECT TO THE APPROVAL OF WARREN COUNTY.

THE CONTRACTOR IS EXPECTED TO HAVE MATERIALS, EQUIPMENT, AND LABOR AVAILABLE ON A DAILY BASIS TO INSTALL AND MAINTAIN EROSION CONTROL FEATURES OF THE PROJECT. THIS MAY INVOLVE SEEDING, SILT FENCE, ROCK DITCH CHECKS, SILT BASINS, OR SILT DIKES.

REMOVAL OF ANY EXISTING TRAFFIC MARKERS, WARNING DEVICES OR GUARDRAIL BARRIERS SHALL BE SCHEDULED SUBJECT TO THE APPROVAL OF WARREN COUNTY. THE CONTRACTOR MAY BE REQUIRED TO PLACE TEMPORARY WARNING DEVICES AT CERTAIN LOCATIONS WHERE REPLACEMENT FEATURES ARE NOT INSTALLED THE SAME DAY DURING WHICH ANY SUCH REMOVALS TAKE PLACE.

DEWATERING SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION, AND ALL COST THEREOF SHALL BE INCLUDED IN VARIOUS UNIT CONTRACT PRICES IN THE PROPOSAL, UNLESS OTHERWISE PROVIDED FOR IN THE SPECIAL PROVISIONS.

CONTRACTOR SHALL PROVIDE WARREN COUNTY AND 911 OPERATOR WITH THE NAME AND PHONE NUMBERS OF THE REPRESENTATIVE TO BE CONTACTED DURING WORK AND NON-WORKING HOURS AS NECESSARY.

CONTRACTOR SHALL COORDINATE WITH WARREN COUNTY BEFORE CLOSURE OF CR S23.

ELECTRONIC FILES WILL NOT BE MADE AVAILABLE TO THE CONTRACTOR. ALL WORK SHALL BE COMPLETED BY FOLLOWING THE INFORMATION IN THE PLANS.

SCHEDULE OF OPERATION

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, PRIOR TO THE PRECONSTRUCTION CONFERENCE, A WRITTEN SCHEDULE FOR PERFORMANCE OF THE WORK ITEMS. THE SCHEDULE SHALL BE IN THE FORM OF A BAR GRAPH CHART OR CHART SHOWING STARTING AND COMPLETION DATED FOR THE ITEMS. THE CONTRACTOR SHALL THEN MAKE EVERY EFFORT TO CONFORM TO THE ACCEPTED SCHEDULE.

DRAWING APPROVAL

ALL WORKING DRAWINGS WHICH REQUIRE REVIEW BY THE CONTRACTING AUTHORITY SHALL BE REVIEWED BY WARREN COUNTY.

WARREN COUNTY:
WARREN COUNTY ENGINEER OFFICE
TIM HILL, PE
301 NORTH BUXTON, SUITE 211
INDIANOLA, IOWA 50125
PHONE: (515) 690-9290
FAX: (515) 690-9299

PROJECT ENGINEER:
MCCLURE ENGINEERING
ALEX SCHLADER, PE
1535 SW MARKET ST SUITE 200
ANKENY, IOWA 50023
PHONE: (515) 512-1361



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REVISIONS

PROJECT INFO
2025000413

ENGINEER DRAWN BY CHECKED BY
ATS JCH ATS

BRS-CHBP-C091(146)--GB-91
CR S23 BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA

GENERAL NOTES

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ESTIMATED PROJECT QUANTITIES				
ITEM NO.	ITEM CODE	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY
1	2101-0850001	CLEARING AND GRUBBING	ACRE	0.17
2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	305
3	2102-2710090	EXCAVATION, CLASS 10, WASTE	CY	1,365
4	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	1,030
5	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	970
6	2121-7425020	GRANULAR SHOULDERS, TYPE B	TON	135
7	2301-0690201	BRIDGE APPROACH, BR-201	SY	550.4
8	2301-1033080	STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 8 IN.	SY	449.9
9	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1
10	2402-2720000	EXCAVATION, CLASS 20	CY	95
11	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	376.1
12	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	87,897
13	2414-6424124	CONCRETE OPEN RAILING, TL-4	LF	302.9
14	2501-0201042	PILES, STEEL, HP 10 X 42	LF	770
15	2501-0201473	PILES, STEEL, HP 14 X 73	LF	1,440
16	2501-5478073	CONCRETE ENCASEMENT OF STEEL H PILES, HP 14 X 73 (P10L TYPE 3)	LF	558
17	2501-6335010	PREBORED HOLE	LF	140
18	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	97
19	2505-4008420	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-221	EACH	4
20	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	4
21	2505-4021722	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-225	EACH	4
22	2507-2638650	BRIDGE WING ARMORING - EROSION STONE	SY	12.6
23	2507-6800061	REVTMENT, CLASS E	TON	1,270
24	2507-6875002	REVTMENT, REMOVE AND REPLACE	CY	230
25	2507-8029000	EROSION STONE	TON	12
26	2510-6745850	REMOVAL OF PAVEMENT	SY	938
27	2524-6765010	REMOVE AND REINSTALL SIGN AS PER PLAN	EACH	1
28	2524-6765210	REMOVAL OF TYPE A SIGN ASSEMBLY	EACH	2
29	2526-8285020	CONSTRUCTION SURVEY, CONTROL POINT SURVEY	LS	1
30	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY	LS	1
31	2527-9263209	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED	STA	19
32	2528-2518000	SAFETY CLOSURE	EACH	2
33	2528-8445110	TRAFFIC CONTROL	LS	1
34	2533-4980005	MOBILIZATION	LS	1
35	2599-9999020	MODIFIED SUBBASE	TON	240
36	2601-2634100	MULCHING	ACRE	0.6
37	2601-2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	0.6
38	2602-0000020	SILT FENCE	LF	623
39	2602-0000030	SILT FENCE FOR DITCH CHECKS	LF	68
40	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	346
41	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF	69
42	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	580
43	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE	LF	580

STANDARDS			105_04 4 / 16 / 24
The following Standards apply to construction work on this project.			
Number	Date	Title	
BA-200	10/20/2026	STEEL BEAM GUARDRAIL COMPONENTS	
BA-202	10/20/2026	STEEL BEAM GUARDRAIL BOLTED END ANCHOR	
BA-221	10/18/2022	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION (MASH TL-2)	
BA-225	10/17/2023	STEEL BEAM GUARDRAIL TANGENT END TERMINAL (MASH TL-2)	
BR-201	10/20/2026	DOUBLE REINFORCED 10" APPROACH	
EC-201	4/20/2021	SILT FENCE	
EC-204	10/19/2021	PERIMETER, SLOPE AND DITCH CHECK SEDIMENT CONTROL DEVICES	
EW-202	4/19/2016	BRIDGE BERM GRADING WITHOUT RECOVERABLE SLOPE (NON-BARNROOF SECTION)	
EW-301	10/21/2026	GUARDRAIL GRADING	
EW-401	10/20/2015	TEMPORARY STREAM CROSSING, CAUSEWAY, OR EQUIPMENT PAD	
LS-635	10/18/2022	STEEL BEAM GUARDRAIL INSTALLATION AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION (MASH TL-2)	
SI-173	4/19/2016	OBJECT MARKERS	
SI-211	10/18/2022	OBJECT MARKER AND DELINEATOR PLACEMENT WITH GUARDRAIL	
TC-1	10/15/2019	WORK NOT AFFECTING TRAFFIC (TWO-LANE OR MULTI-LANE)	
TC-252	10/20/2026	ROUTES CLOSED TO TRAFFIC	

ESTIMATE REFERENCE INFORMATION		
ITEM NO.	ITEM CODE	ITEM DESCRIPTION
1	2101-0850001	CLEARING AND GRUBBING Refer to the F-Sheets for details and locations.
2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW The total quantity included in this bid item is 305 cubic yards of fill. Excavated Class 10, Roadway and Borrow, and Class 10, Channel material may be used as Embankment-in-Place material, provided it consists of suitable lean clay and does not contain soft and/or organic material, subject to approval by the Warren County Engineer. This bid item will be paid based on plan quantity.
3	2102-2710090	EXCAVATION, CLASS 10, WASTE Total quantity included in this bid item is for 1,365 CY of waste. This bid item will be paid based on plan quantity.
4	2104-2710020	EXCAVATION, CLASS 10, CHANNEL Estimated excavation quantity assumes bridge berm and roadway grading have been completed. This bid item will be paid based on plan quantity. This item consists of the excavation required to embed the revetment (Class E rip rap). Refer to Sheet V.3 for quantity itemization and limits of excavation.
5	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD Quantity based on depth of 12 inches of stripped topsoil and 8 inches of topsoil spread. Bid item will be paid based on plan quantity.
6	2121-7425020	GRANULAR SHOULDERS, TYPE B Refer to typical section on B-Sheets and Tabulation 112-06 on the C-Sheets for details and locations.
7	2301-0690201	BRIDGE APPROACH, BR-201 Refer to the D-Sheets for locations. Refer to IDOT Standard Road Plan BR-201 for additional information. Certified plant inspection is required and is the Contractor's responsibility. Paper tickets meeting the requirements of Materials I.M. 527 shall be provided. No additional payment will be allowed for heating and protection of concrete, if necessary.
8	2301-1033080	STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 8 IN. Refer to B and D-Sheets for locations and details. Refer to Tabulation 100-24 on the C-Sheets for additional information. Certified plant inspection is required and is the Contractor's responsibility. Paper tickets meeting the requirements of Materials I.M. 527 shall be provided. No additional payment will be allowed for heating and protection of concrete, if necessary.
9	2401-6745625	REMOVAL OF EXISTING BRIDGE Refer to Tabulation 110-2 the C-Sheets for details and locations. Remove substructures to a depth of 2 feet below the stream bed. An inspection for the presence of asbestos-containing materials was performed on the existing bridge and no asbestos-containing materials were identified. Removal of miscellaneous fill and debris behind the existing bridge abutment and removal of the existing deadman anchor system, if present, shall be incidental to this item. The existing structure and its components shall become the property of the Contractor.
10	2402-2720000	EXCAVATION, CLASS 20 Work under this item assumes bridge berm and roadway grading have been completed. Refer to Bridge Standard J30-48-06 for limits of Class 20 Excavation.
11	2403-0100010	STRUCTURAL CONCRETE (BRIDGE) All concrete shall be Class "C". Includes all required preformed joint filler. Certified plant inspection for the concrete is required and shall be included in the cost of this item. Paper tickets meeting the requirements of Materials I.M. 527 shall be provided for structural concrete. No additional payment will be allowed for heating and protection of concrete, if necessary. This item includes furnishing and placing subdrain (including required excavation), floodable backfill, porous backfill, geotextile fabric, water flooding, and subdrain outlets at the abutments and toe of berm. The cost of excavating and backfilling the outlet trench shall be included in this work. Quantities are based on Iowa DOT Standard Sheets.
12	2404-7775005	REINFORCING STEEL, EPOXY COATED Quantities are based on Iowa DOT Standard Sheets. The minimum clear distance from the face of concrete to the nearest reinforcing bar shall be 2 inches, unless otherwise noted or shown.
13	2414-6424124	CONCRETE OPEN RAILING, TL-4 All concrete shall be Class "C". Certified plant inspection for the concrete is required and shall be included in the cost of this item. Paper tickets meeting the requirements of Materials I.M. 527 shall be provided for open railing concrete. No additional payment will be allowed for heating and protection of concrete, if necessary.
14	2501-0201042	PILES, STEEL, HP 10 X 42 Quantity itemization: 7-HP 10X42 at 55 feet west abutment, 7-HP 10X42 at 55 feet east abutment.
15	2501-0201473	PILES, STEEL, HP 14 X 73 Quantity itemization: 12-HP 14X73 at 60 feet Pier 1, 12-HP 14X73 at 60 feet Pier 2.
16	2501-5478073	CONCRETE ENCASEMENT OF STEEL H PILES, HP 14 X 73 (P10L TYPE 3) Quantity itemization: 12 encasements at 23'-3" for Pier 1 and 12 encasements at 23'-3" for Pier 2. Certified plant inspection is required and is included in the cost of this item. Paper tickets meeting the requirements of Materials I.M. 527 shall be required for structural concrete. No additional payment will be allowed for heating and protection of concrete, if necessary.
17	2501-6335010	PREBORED HOLE Quantity itemization: 7 prebored holes at 10 feet west abutment, 7 prebored holes at 10 feet east abutment.
18	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL Refer to F-Sheets for locations and details. Any signs mounted to guardrail shall be removed and considered incidental to this bid item.
19	2505-4008420	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-221 Refer to tabulation 108-8A on the C-Sheets for details and locations.
20	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED Refer to tabulation 108-8A on the C-Sheets for details and locations.
21	2505-4021722	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-225 Refer to tabulation 108-8A on the C-Sheets for details and locations.
22	2507-2638650	BRIDGE WING ARMORING - EROSION STONE Refer to sheet V.3 for details and locations. Standard Bridge Plan J30-46-06 applies, except that bridge wing armoring material shall be Erosion Stone, in lieu of Macadam Stone shown in Standard.
23	2507-6800061	REVTMENT, CLASS E Refer to sheet V.3 for details and quantity itemization. Estimated at 1.6 TON/CY. Bid quantity accounts for deduction of estimated quantity of existing revetment to be salvaged and re-used.



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PROJECT INFO
2025000413

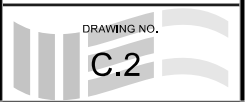
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QUANTITIES & ESTIMATE REFERENCE NOTES



DRAWING NO.
C.2

24	2507-6875002	REVTMENT, REMOVE AND REPLACE Refer to the F-Sheets for locations of revetment to be removed. Quantity shall be plan quantity. Material of revetment expected to be large chunks of concrete and grout. Contractor to reuse broken up concrete as proposed rip rap as long as nominal diameter is less than 3-feet and the concrete is free of protruding rebar. Revetment to be reused shall be stockpiled on site at an approved stockpile location. Revetment that cannot be reused is to become property of the contractor and to be removed and responsibly disposed of off site. Bid item includes all materials, labor, and equipment needed to remove revetment. Thickness of existing revetment assumed to be 2 feet. Measurement and payment is per cubic yard of revetment to be removed and re-used. Existing revetment estimated at 1.6 TON/CY for deduction from proposed revetment quantity. Refer to sheet V.3 for itemized revetment quantity estimates.
25	2507-8029000	EROSION STONE Refer to sheet V.3 for details and quantity itemization.
26	2510-6745850	REMOVAL OF PAVEMENT Refer to the F-Sheets for locations and details. Contactor to take care to protect pavement that is not to be removed. Any pavement that is damaged outside the project limits will be the responsibility of the contractor to repair at no expense to the County.
27	2524-6765010	REMOVE AND REINSTALL SIGN AS PER PLAN Refer to the F-Sheets for locations. Sign to be installed in the same location once grading operations are completed. Contractor to reuse sign, post, and mounting hardware any damage made to items during removal shall be replaced by the Contractor at no expense to the Owner. Bid item includes reinstalling sign base if there is one present. Bid item includes all labor, materials, and equipment needed to remove and reinstall sign. Measurement and payment is per sign removed and reinstalled.
28	2524-6765210	REMOVAL OF TYPE A SIGN ASSEMBLY Refer to the F-Sheets for location and details. All signs, mounting hardware, post, and footings are included as part of the removal. All materials removed are to become property of the contractor and to be responsibly disposed of off-site. Bid item includes all materials, labor, and equipment needed to remove the signs. Measurement and payment is per sign assembly removed.
29	2526-8285020	CONSTRUCTION SURVEY, CONTROL POINT SURVEY --
30	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY --
31	2527-9263209	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED Refer to Tabulation 108-22 for locations and details.
32	2528-2518000	SAFETY CLOSURE Safety closure to be placed at limits of construction. Safety closure not to inhibit entry to private driveway at west limits of project.
33	2528-8445110	TRAFFIC CONTROL Refer to traffic control notes on sheet J.1 and detour on J.2.
34	2533-4980005	MOBILIZATION Includes all costs associated with mobilization for the entire project, including all bridge and roadway work.

35	2599-9999020	MODIFIED SUBBASE Refer to typical section on B-Sheets for details and locations. Refer to Tabulation 100-24 on the C-Sheets for additional information. A density of 140 pcf was used for estimating purposes. Material to comply with IDOT Specification Section 211.5. Bid item to be constructed per IDOT Specification Section 211.5. Bid item includes all materials, labor, and equipment needed to place modified subbase. Measurement and payment is per ton of modified subbase placed. Quantity includes an additional 60 tons to be used as backfill behind the proposed abutments.
36	2601-2634100	MULCHING Refer to the RR-Sheets for details and locations. Quantity is doubled to account for any areas that need re-seeded.
37	2601-2636043	SEEDING AND FERTILIZING (RURAL) Refer to the RR-Sheets for details and locations. Quantity is doubled to account for any areas that need re-seeded.
38	2602-0000020	SILT FENCE Refer to Tabulation 100-17 on the RC-Sheets, which includes estimated locations for placement of silt fence to address possible erosion during construction. Verify the specific locations with the Engineer prior to beginning placement. This bid item includes 25% additional quantity to allow for field adjustments and replacements.
39	2602-0000030	SILT FENCE FOR DITCH CHECKS Refer to Tabulation 100-18 on the RC-Sheets. The tabulation includes estimated locations for placement of Silt Fence for Ditch Checks to address possible erosion during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 50% additional quantity for field adjustments and replacements.
40	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS This item includes removal of silt fence and silt fence for ditch checks required for staging purposes, for replacement (replacement to be paid separately), or for areas that have achieved 70% permanent growth. This quantity is assumed at 50% of the bid quantity total for Silt Fence and Silt Fence for Ditch Checks.
41	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK This item is included for maintaining the new silt fence and silt fence ditch checks installed for the paving project and existing silt fence and silt fence for ditch checks installed as part of the grading project. This quantity is assumed at 10% of the bid quantity total for Silt Fence and Silt Fence for Ditch Checks.
42	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA. Refer to tabulation 100-19 on the RC-Sheets for details and locations.
43	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE --

100_24
MODIFIED

PCC PAVEMENT

The image contains two diagrams. The top diagram, labeled 'Typical Intersection', shows a plan view of a road intersection with a central island. Areas are labeled: (A) for the island, (B) for the curb, (C) for the shoulder, (D) for the travel lane, and (E) for the intersection area. The bottom diagram, labeled 'Ramp or Loop Taper', shows a plan view of a ramp or loop taper with area (F) labeled for the taper area.

The image contains two diagrams. The top diagram, labeled 'Channelized Intersection Widen Existing Roadway', shows a plan view of a road intersection with a central island. Area (G) is labeled for the widening area. The bottom diagram, labeled 'Channelized Intersection Reconstructed Roadway', shows a plan view of a road intersection with a central island. Area (H) is labeled for the reconstructed area.

(1) Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.
(2) Refer to PV-410, PV-411, PV-412, and PV-414.
(3) Quantity includes Pavement Header.

Line No.	Road Identification	Direction Of Travel	Station From	Station To	Width (FT)	Length (FT)	Area (SY)	Area A(1) (SY) (3)	Area B (SY) (3)	Area C (SY) (3)	Area D (SY) (3)	Area E (SY) (3)	Area F(2) (SY) (3)	Area G (SY) (3)	Area H (SY) (3)	Area by Thickness - Thickness (IN)	Area by Thickness - Area (SY)	Polymer Grid (SY)	Special Backfill (TON)	Modified Subbase (CY)	Modified Subbase (TON)	Remarks
	S23	BOTH	102+25.00	103+07.39	22	82.4	201.4													42.7	81	
	S23	BOTH	105+98.35	107+00.00	22	101.7	248.5													52.7	100	
TOTALS:							449.9														180	

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PROJECT INFO
2025000413

ENGINEER
ATS

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JCH

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ESTIMATE REFERENCE NOTES, AND TABS

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DRAWING NO.
C.3

BRIDGE APPROACH SECTION																					112_06 2 / 22 / 24
* Not a bid item																					
Line No.	Bridge Station	End	Skew Ahead Left (Degrees)	Skew Ahead Right (Degrees)	(T) Thickness (IN)	Pay Length (FT)	Non-Reinf. Area (SY)	Single-Reinf. Area (SY)	Double-Reinf. Area (SY)	SRP Approach	SRP Abutment Type	SRP Abutting Pavement	Perforated * 4" Subdrain (LF)	Subdrain * Outlet (STA)	Subdrain * Outlet Side	Porus * Backfill (CY)	Class 'A' * Crushed Stone Backfill (CY)	Modified * Subbase (TON)	Polymer * Grid (SY)	Special * Backfill (TON)	Remarks
	103+82.87	W	30		10	75	110.6	73.7	90.9	BR-201	Moveable	PCC	40	103+22.39	RT	14.8		217.7	550.4		No Curb
	105+22.87	E	30		10	75	110.6	73.7	90.9	BR-201	Moveable	PCC	40	105+83.35	RT	14.8		217.7	550.4		No Curb
TOTALS:							221.1	147.4	181.9				80			29.6		435.3	1100.8		

108_08A

10 / 15 / 24

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, BA-210, BA-211, BA-221, BA-225, BA-250, BA-260, LS-625, LS-626, LS-630, LS-635, SI-172, SI-173 and SI-211.

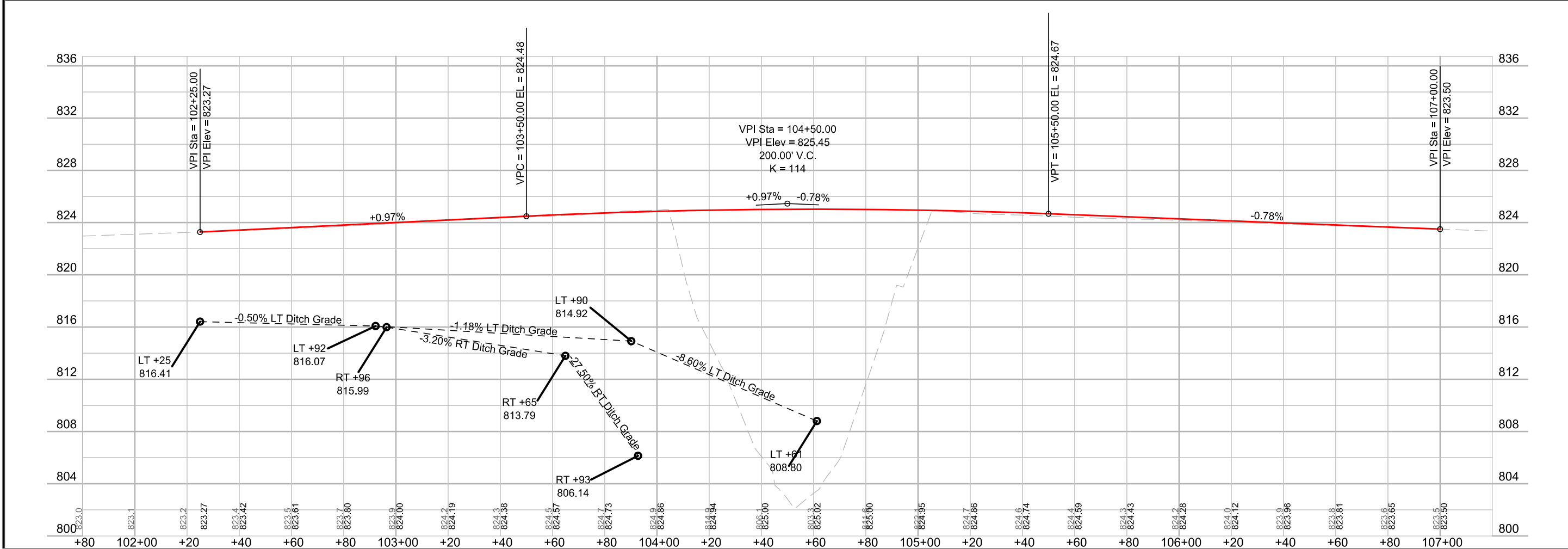
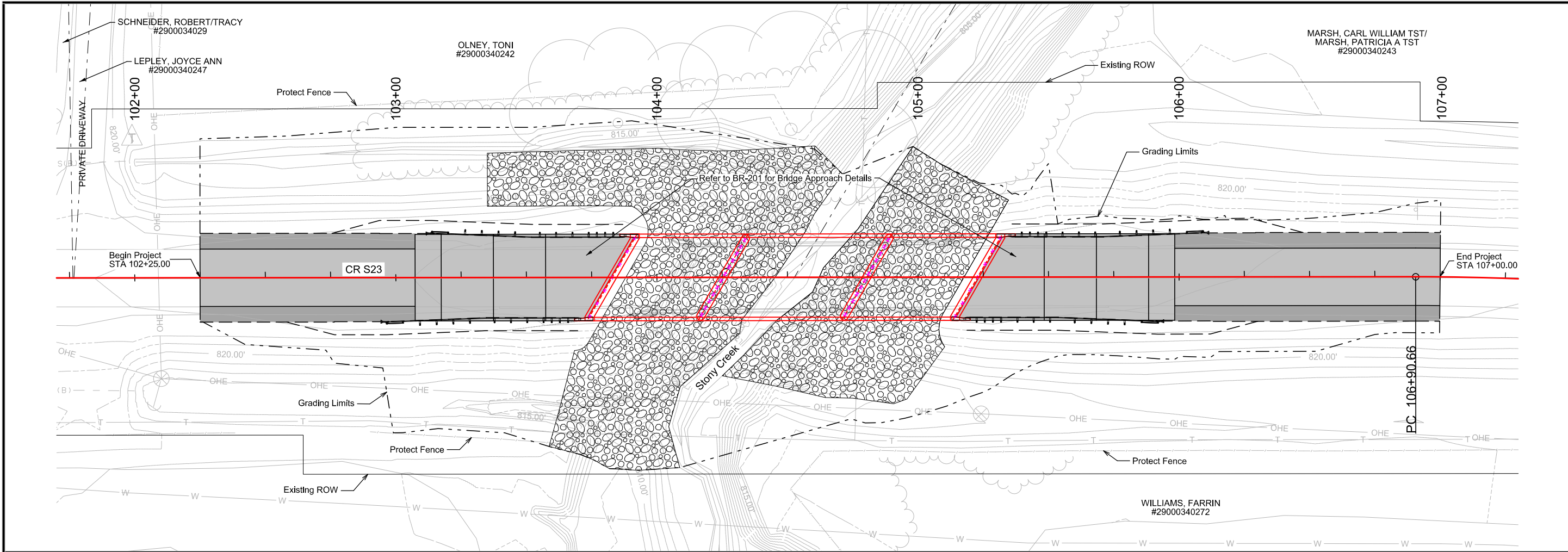
(1) Lane(s) to which the obstacle is adjacent.

(2) Not a bid item. Incidental to guardrail installation.

Line No.	Direction of Travel (1)	Side	Station	Offset (FT)	Barrier Transition Section	Barrier Transition Section (EA)	End Terminal	End Terminal Count (EA)	VT1 (LF)	VF (LF)	VT2 (LF)	ET (LF)	BA-211 Station	BA-211 (Type)	Delineator SI-172 Type 1 (EA) (2)	Object Marker Type 2 (EA) (2)	Object Marker Type 3 Lt (EA) (2)	Object Marker Type 3 Rt (EA) (2)	Bolted End Anchor BA-202 (EA)	Post Adapter BA-210 (EA)	Steel Beam Guardrail BA-200 (LF)	Remarks
	WB	LT	103+86.40	15.4	BA-221	1	BA-225	1	34.4			38.3			3	2	1		A		12.5	
	WB	LT	105+36.66	15.4	BA-221	1	BA-225	1	34.4			38.3			3	2		1	A		12.5	
	EB	RT	103+69.08	15.4	BA-221	1	BA-225	1	34.4			38.3			3	2		1	A		12.5	
	EB	RT	105+19.34	15.4	BA-221	1	BA-225	1	34.4			38.3			3	2	1		A		12.5	
TOTAL:						4		4							12	8	2	2	4		50	

GRADING FOR GUARDRAIL INSTALLATIONS																107_23 8 / 15 / 22
(1) Lane(s) to which the installation is adjacent.																
Line No.	Direction of Traffic (1)	Station	Side	Foreslope at Guardrail	X1 (FT)	Y1 (FT)	X2 (FT)	Y2 (FT)	X3 (FT)	Y3 (FT)	X4 (FT)	Y4 (FT)	Z (FT)	Excavation Class 10 (CY)	Embankment-in-Place (CY)	Remarks
	WB	103+86.40	LT	2:1	33.8	5						72.0	4.9	38.3		Earthwork quantity included in project totals.
	WB	105+36.66	LT	3:1	33.8	5						72.0	4.9	38.3		Earthwork quantity included in project totals.
	EB	103+69.08	RT	2:1	33.8	5						72.0	4.9	38.3		Earthwork quantity included in project totals.
	EB	105+19.34	RT	3:1	33.8	5						72.0	4.9	38.3		Earthwork quantity included in project totals.

PAVEMENT MARKING LINE TYPES															108_22 10 / 21 / 25
Line factors based on 6-inch wide continuous line. *BCY4 - Place on the same side of the roadway to match existing markings near the project. **NPY4 - Estimating purposes only. No Passing Zone Lines will be located in the field. ***MNY6 - Factor of 1.00 includes number of 6-inch passes to cover median nose area.															
BCY4 : Broken Centerline (Yellow) @ 0.1 CBW6 : Crosswalk Bar (White) @ 10.00 CLW6 : Crosswalk Line (White) @2.00 DLW4 : Dotted Line (White) @ 0.22 ELW6 : Edge Line Right (White) @ 1.00 MNY6 : Median Nose (Yellow) @ 1.00 RLY4 : Ramp Edge Line Left (Yellow) @ 0 SPW4 : Sloped Curb 4" (White) @ 2.16 STY6 : Standard Curb 6" (Yellow) @ 2.03															
BCY6 : Broken Centerline (Yellow) @ 0.25 CHW6 : Channelizing Line (White) @1.33 DCY4 : Double Centerline (Yellow) @ 1.34 DLW6 : Dotted Line (White) @ 0.33 ELY4 : Edge Line Left (Yellow) @ 0.67 NPY4 : No Passing Zone Line (Yellow) @ 0.84 RLY6 : Ramp Edge Line Left (Yellow) @ 1.00 SPW6 : Sloped Curb 6" (White) @ 2.28 YLW2 : Yield Line (White) @ 1.15															
BLC6 : Broken Line Contrast (White/Black) @0.50 CHW10 : Channelizing Line (White) @ 1.67 DCY6 : Double Centerline (Yellow) @ 2.00 DLY4 : Dotted Line (Yellow) @ 0.22 ELY6 : Edge Line Left (Yellow) @ 1.00 NPY6 : No Passing Zone Line (Yellow) @ 1.25 SLW2 : Stop Line (White) @ 4.00 SPY4 : Sloped Curb 4" (Yellow) @ 2.16															
BLW4 : Broken Lane Line (White) @ 0.17 CHY8 : Channelizing Line (Yellow) @ 1.33 DDY4 : Double Dotted Line (Yellow) @ 0.44 DLY6 : Edge Line Right (White) @ 0.33 LDW8 : Lane Drop (White) @ 0.33 RLW4 : Ramp Edge Line Right (White) @ 0.67 SLW4 : Solid Lane Line (White) @ 0.67 SPY6 : Standard Curb 6" (Yellow) @ 2.28															
BLW6 : Broken Lane Line (White) @ 0.25 CHY10 : Channelizing Line (Yellow) @ 1.67 DDY6 : Double Dotted Line (Yellow) @ 0.67 ELW4 : Dotted Line (Yellow) @ 0.67 LDW10 : Lane Drop (White) @ 0.42 RLW6 : Ramp Edge Line Right (White) @ 1.00 SLW6 : Solid Lane Line (White) @ 1.00 STW6 : Sloped Curb 6" (Yellow) @ 2.03															
Line No.	Road ID	Station From	Station To	Lane	Marking Type	Left	Center	Right	Groove Marking Needed?	Groove Qty. (STA)	BCY4* Factored (STA)	DCY4 Factored (STA)	ELW6 Factored (STA)	ELY4 Factored (STA)	Remarks
	G16	102+25.00	107+00.00		ELW6	X			NO				4.8		
		102+25.00	107+00.00		NPY6		X		NO			9.5			
		102+25.00	107+00.00		ELW6			X	NO				4.8		
TOTALS:												9.50	9.50		



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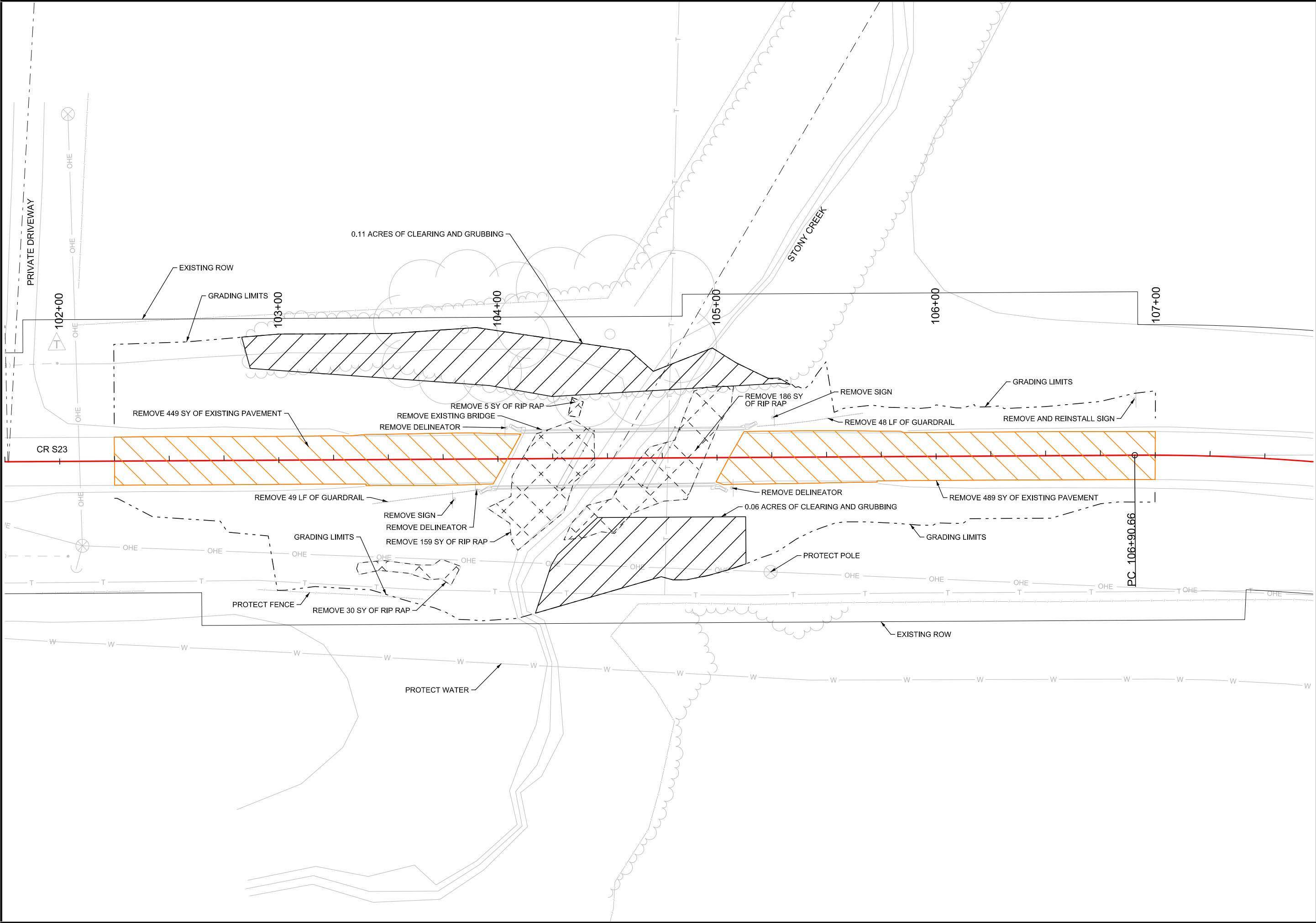
ENGINEER: ATS DRAWN BY: JCH CHECKED BY: ATS

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CR S23 BRIDGE REPLACEMENT - CCS
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CR S23 PLAN & PROFILE

DRAWING NO.
D.1

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PROJECT INFO
2025000413

ENGINEER	DRAWN BY	CHECKED BY
ATS	JCH	ATS

**BRS-CHBP-C091(146)--GB-91
CR S23 BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA**

REMOVALS



DRAWING NO.
F.1

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HORIZONTAL AND VERTICAL CONTROL				
CP#	BM#			
POINT NAME	NORTHING	EASTING	ELEVATION	DESCRIPTION
206	7335875.08	18593900.47	822.008	CP / 1/2IN RBR BLUE MEC CAP
207	7335916.10	18594062.77	822.157	CP / 1/2IN RBR BLUE MEC CAP
208	7335873.76	18594204.22	823.708	CP / 1/2IN RBR BLUE MEC CAP
209	7335874.89	18594375.83	824.038	CP / 1/2IN RBR BLUE MEC CAP
210	7335908.58	18594559.33	823.599	CP / 1/2IN RBR BLUE MEC CAP
211	7335849.40	18594749.03	821.768	CP / 1/2IN RBR BLUE MEC CAP
212	7335844.05	18594905.89	822.193	CP / 1/2IN RBR BLUE MEC CAP
BM2	7335854.65	18594074.43	818.436	BM / RAILROAD SPIKE IN POWER POLE
HORIZONTAL DATUM: Iowa Regional Coordinate System Zone 8 (Ames-Des Moines)				
VERTICAL DATUM: North American Vertical Datum of 1988 (NAVD 88) - Geoid 18				

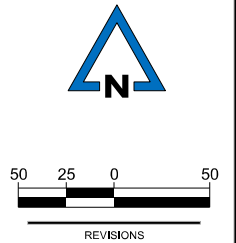
CONTROL LINE DATA - CR S23									
ALIGNMENT NAME: ML_CRS23									
DESCRIPTION: CR S23									
ELEMENT	POINT TYPE	POINT NUMBER	STATION	NORTHING	EASTING	RADIUS	LENGTH	DELTA	DIRECTION
TANGENT	START		100+00.00	7335893.26	18593863.80				
TANGENT	PC		106+90.66	7335891.20	18594554.46				
ARC	PC		106+90.66	7335891.20	18594554.46				
ARC	PI		108+67.73	7335890.67	18594731.52	955	350.15	21.01°	RIGHT
ARC	CC			7334936.20	18594551.61				
ARC	END		110+40.81	7335826.70	18594896.63				



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PROJECT INFO
2025000413

ENGINEER: ATS DRAWN BY: JCH CHECKED BY: ATS

BRS-CHBP-C091(146)--GB-91
CR S23 BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA

REFERENCE TIES AND BENCH MARKS

TEMPORARY TRAFFIC CONTROL

The CONTRACTOR shall employ sound practices of safety and traffic control. These methods and practices shall include, but not be limited to, the following:

1.

All traffic control shall be provided in accordance with requirements set forth in the Manual on Uniform Traffic Control Devices (MUTCD) for streets and highways, as adopted by the Department per 761 of the Iowa Administrative Code (IAC), Chapter 130.
2.

This traffic control plan shows general staging, signing, and traffic control. Additional traffic control may be required for specific situations not shown in the staging plans. It is the CONTRACTOR's responsibility to determine and install all traffic control.
3.

At the time of initial set up or at the time of major stage changes, 100 percent of each type of device (signs, cones, tubular markers, drums, barricades, vertical panels, changeable message signs, and pavement markings) shall be classified as acceptable by the requirements of the American Traffic Safety Services Association (ATSSA), "Quality Standard For Work Zone Traffic Control Devices -1992." Throughout the duration of the project, unacceptable devices or situations that are found on the job site as determined by before mentioned publication shall be replaced or the situation corrected within 12 hours of initial notification by the ENGINEER.
4.

The CONTRACTOR shall coordinate traffic control with other projects in the area.
5.

All traffic control devices shall be furnished, erected, maintained and removed by the CONTRACTOR. CONTRACTOR shall erect all warning signs on steel posts. Portable mountings for warning signs may be used for temporary installations of 3 days or less. All construction signs shall be diamond grade fluorescent orange or white V.I.P. sheeting or equivalent. (Iowa DOT Type VII sheeting). All traffic control signs shall be placed at a minimum of 2 feet clear of the outside edge of shoulder where possible. The proposed signing may be modified to meet field conditions, prevent obstructions and to accommodate construction scheduling upon approval of the project engineer. Long term or permanent traffic control signs that conflict with specific layouts shown on these plans are to be covered as directed by the ENGINEER. Sign washing shall be considered incidental to traffic control and required as directed by the ENGINEER.
6.

All Type III barricades shall have Type 'A' low intensity flashing warning lights. The back side of the Type III barricade shall be reflectorized by a minimum of six yellow reflectors, one at each end of each rail, or at least one rail on each barricade shall have reflectorized stripes properly sloped at each end. At all full closure locations, the CONTRACTOR shall provide enough Type III barricades to completely cross the road and sidewalk where applicable. "ROAD CLOSED" signs to be mounted above the top rail of Type III barricade so as not to obscure the diagonal panels. Orange safety fence shall be placed entirely across the traveled portion of the roadway at all locations where type III barricades with "ROAD CLOSED" signs are used.
7.

The CONTRACTOR shall notify the ENGINEER, OWNER, local fire/rescue services, and law enforcement a minimum of seven (7) days prior to temporary road closures and changes to traffic patterns during construction.
8.

The CONTRACTOR shall provide, prior to the start of construction, the name and 24-hour phone number of the CONTRACTOR's representative in charge of traffic control. The project site must be patrolled a minimum of two (2) times each 24-hour period to check and reinstall, if necessary, traffic control devices. All extra standard traffic control, signs, barricades, cones, etc. that are required will be delivered and installed at the project site within four (4) hours of notification, including weekends and holidays.
9.

Proposed changes in the traffic control plan, private property access, or alternate signing details to coincide with the schedule of operations for any variations shall be submitted in writing and reviewed with the ENGINEER at least 24-hours before changes are made in the field.
10.

It shall be the CONTRACTOR's responsibility for proper barricading and adequate protection of all open trenches and other excavations. Obstructions, such as material piles and equipment, shall be provided with warning signs, barricades, and lights. All barricades and obstructions shall be illuminated by means of warning lights from sunset to sunrise or when any other low light conditions exist. Material stored upon or alongside public streets shall be so placed, and the work shall at all times be constructed as to cause the minimum obstruction and inconvenience to the public and to local residents.
11.

The CONTRACTOR shall provide temporary signage or cover existing signs to maintain safe traffic operation at intersections, lane closures, road closures, traffic signals, and other locations where normal traffic operation is changed due to project construction. This work shall be considered incidental to the contract unless otherwise noted in the plans. Damaged signs shall be replaced by the CONTRACTOR at no expense to the OWNER.
12.

The CONTRACTOR shall maintain at least one (1) access to all businesses, industries, and adjacent farm fields during normal working hours by staging work accordingly. Coordinate construction at private property with the OWNER and the ENGINEER. The CONTRACTOR shall be responsible for maintaining access to individual properties during construction. The CONTRACTOR shall coordinate with area residents/property owners prior to changing access to adjacent properties. The project plans assume that vehicular access to adjacent properties is maintained at all times during construction. There may be residents who must access their property via vehicle, as they are unable to park elsewhere and walk to their property. The CONTRACTOR shall notify the ENGINEER a minimum of three (3) business days in advance for lane closure and shall receive approval before closing any lane to traffic. The CONTRACTOR shall notify the ENGINEER a minimum of seven (7) calendar days in advance for street closure and shall receive approval before closing any street to traffic.

CONSTRUCTION STAGING

1.

Construction staging and traffic control plans shown in the J-Sheets are provided to show anticipated signing, maintenance of access, and traffic placement during construction. The CONTRACTOR may present alternate staging and traffic control plans for consideration by the ENGINEER, including revisions to construction sequencing and beginning/end locations for each stage.
2.

The intent of the staging plan is to not limit the CONTRACTOR but rather provide the appropriate traffic control needed throughout the duration of the project depending on where the CONTRACTOR is working.
3.

Short portions of the safety fence may be moved to allow temporary access during the working day hours. All safety fence shall be replaced and firmly secured at the end of each day. This work is incidental to the 'Traffic Control' bid item.
4.

Coordinate all construction with utility companies. Existing utilities encountered during construction shall be protected and utility owner representatives shall be immediately notified.

Temporary Traffic Control: Safety Closure, Detour Route
Construction: Bridge Replacement, PCC Paving

1.

CONTRACTOR to set up detour route per J.2.

2.

A complete closure will be required for this project.

3.

CONTRACTOR is to provide 72-hours notice to Highway Maintenance Supervisor – Todd Netley 515-250-3374.



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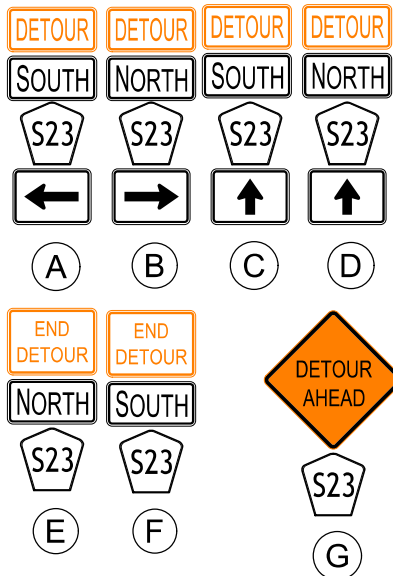
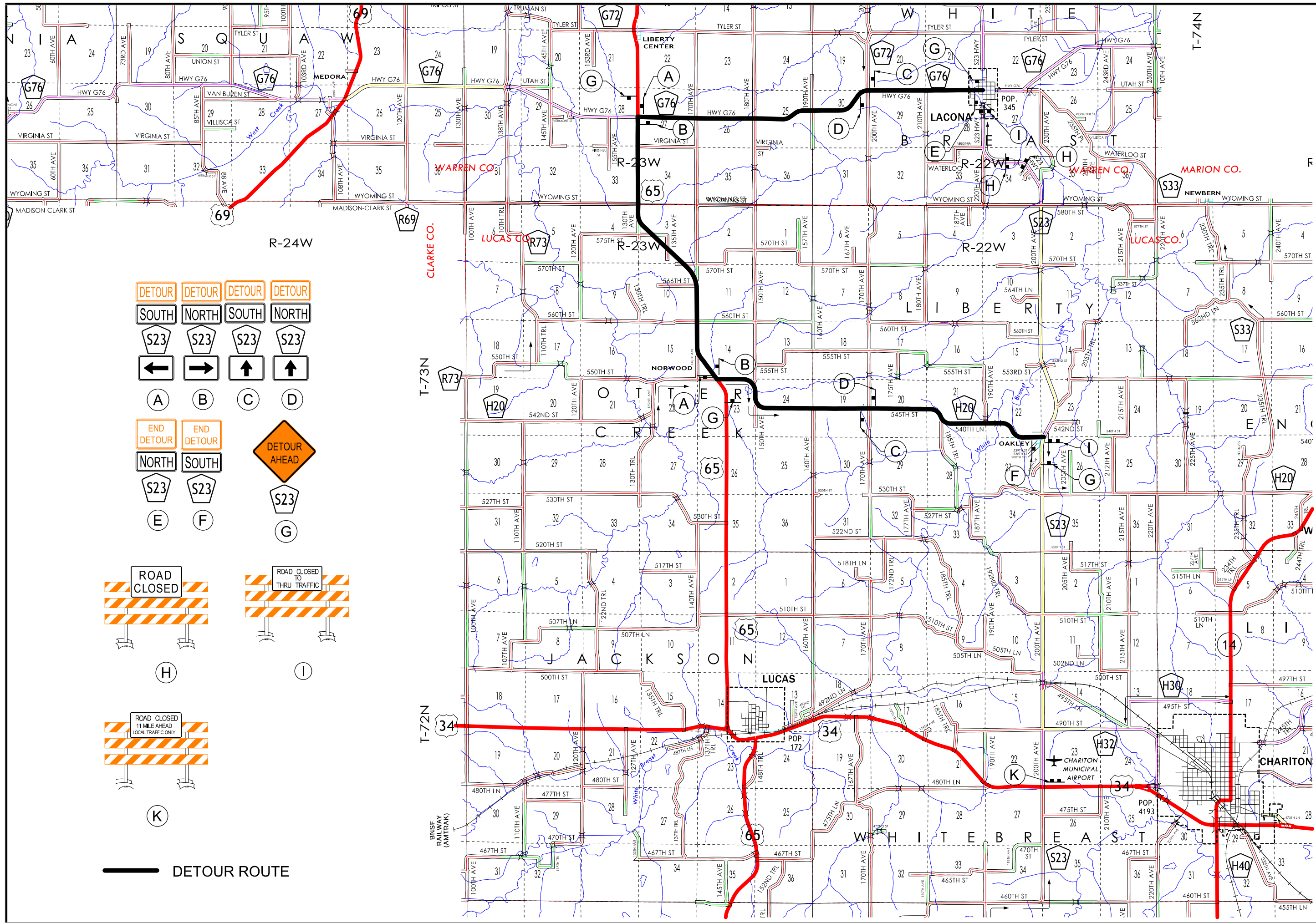
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REVISIONS		
PROJECT INFO 2025000413		
ENGINEER ATS	DRAWN BY JCH	CHECKED BY ATS

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WARREN COUNTY, IOWA

TRAFFIC CONTROL AND STAGING NOTES



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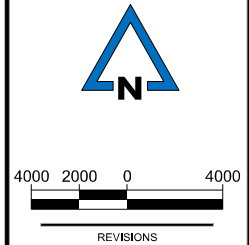
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DETOUR ROUTE

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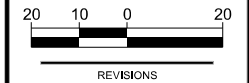
PROJECT INFO
2025000413

ENGINEER: JCH
DRAWN BY: JCH
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DETOUR PLAN

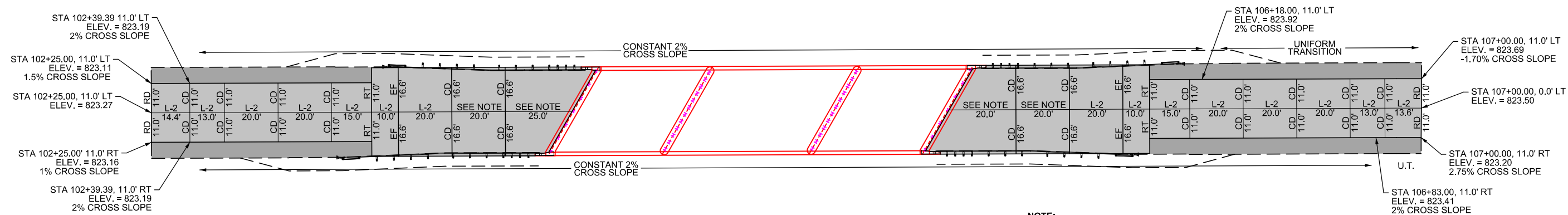
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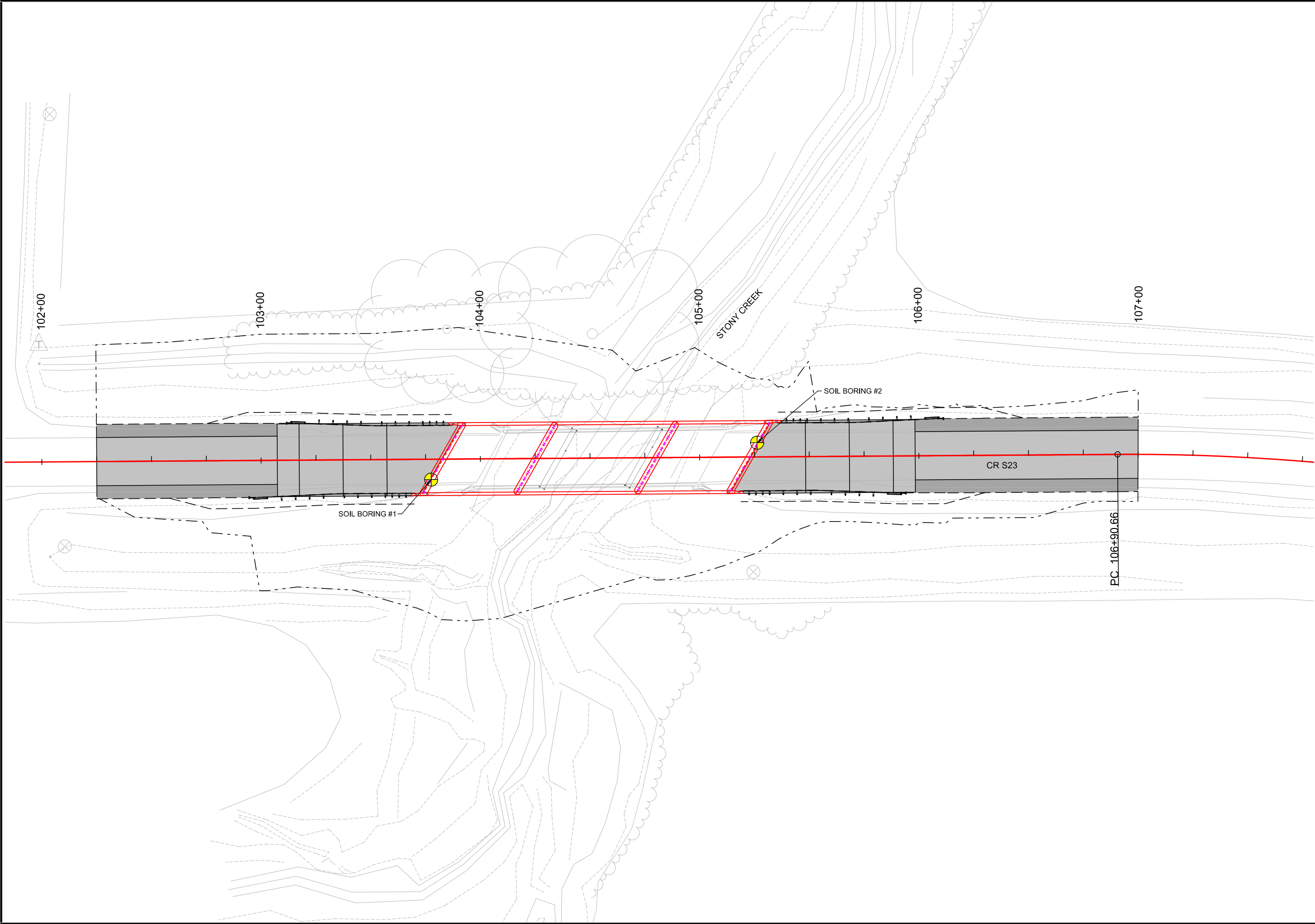
PROJECT INFO
2025000413
ENGINEER: JCH
DRAWN BY: JCH
CHECKED BY: ATS

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GEOMETRICS, STAKING, AND JOINTING



NOTE:
1. IF SINGLE POUR, SAW CUT JOINT PER DETAIL B OF PV-101.
2. IF TWO POURS, USE 'BT-2' JOINT PER PV-101.





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SOIL BORINGS

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DRAWING NO.
Q.2

PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE							
Possible Standards: EC-204							
100_19							
10 / 15 / 24							
Line No.	Station From	Station To	Side	Sediment Control Device Type	Diameter Size	Length (LF)	Remarks
	103+35.00	104+66.00	LT	Perimeter	20"	140	
	103+35.00	103+90.00	LT	Perimeter	20"	60	
	103+62.00	104+07.00	RT	Perimeter	20"	50	
	104+08.00	104+71.00		Perimeter	20"	130	
	104+46.00	104+98.00		Perimeter	20"	90	
	104+46.00	105+10.00	RT	Perimeter	20"	70	
	104+98.00	105+35.00	LT	Perimeter	20"	40	
TOTAL:						580	

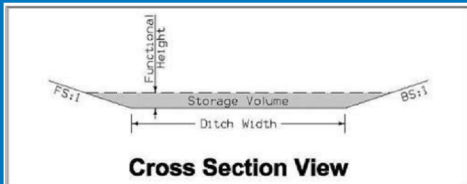
TABULATION OF SILT FENCES					
Refer to EC-201					
100_17					
8 / 15 / 22					
Line No.	Station From	Station To	Side	Length (FT)	Remarks
	102+25.00	102+95.00	RT	75	
	104+74.00	107+00.00	RT	233	
	105+36.00	107+00.00	LT	190	
TOTAL:				498	

100_18

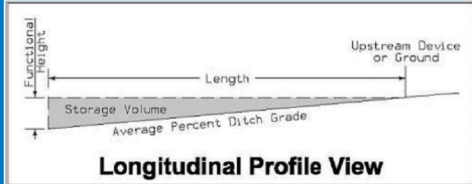
8 / 15 / 22

SILT FENCES FOR DITCH CHECKS

Possible Standard : EC-201



Cross Section View



Longitudinal Profile View

* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.

* Volume equation: [0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]

Line No.	Basin No.	Type	Station	Side	Installation (LF)	Maintenance (LF)	Removal (LF)	Foreslope (FS : 1)	Backslope (BS : 1)	Ditch Width (FT)	Avg. % Slope Ditch Grade	Volume (CF)	Remarks
			102+85.00	LT	15	15	15	2	2	4	0.5		
			103+32.00	LT	15	15	15	2	2	4	0.5		
			103+60.00	RT	15	15	15	2	2	4	0.5		
TOTALS:					45	45	45						



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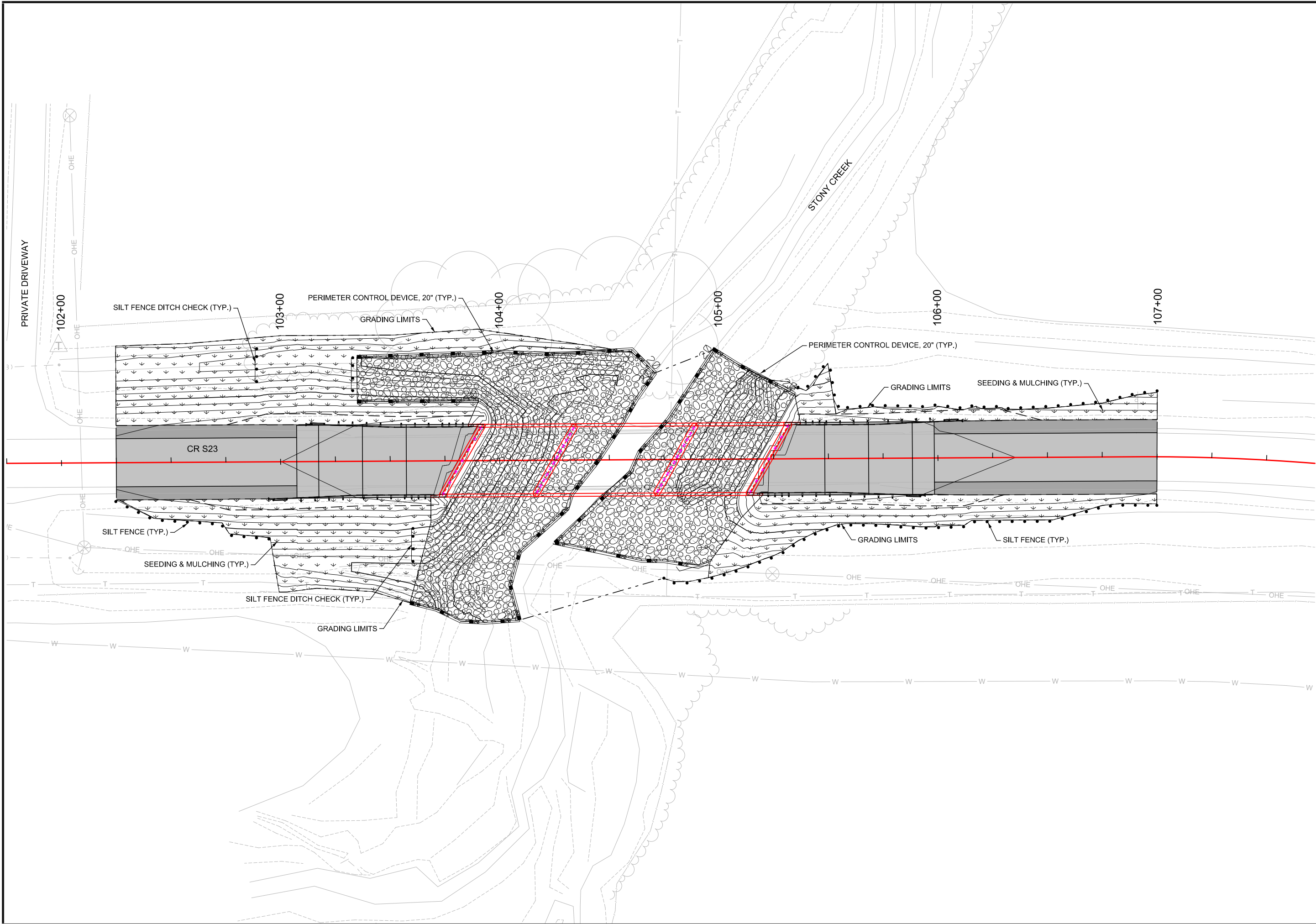
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EROSION CONTROL TABULATIONS

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DRAWING NO.
RC.1



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EROSION CONTROL PLAN

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DRAWING NO.
RR.1

Specifications:

Design:
AASHTO LRFD, Series of 2004 with Interim 2005.

Construction:
Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, current revision, plus applicable General Supplemental Specifications, DevelopmentalSpecifications, Supplemental Specifications and Special Provisions shall apply to construction work on this project.

Design Stresses:

Design stresses for the following materials are in accordance with the AASHTO LRFD Bridge Design Specifications, 3rd Ed., Series of 2004.
Reinforcing steel in accordance with LRFD AASHTO Section 5, Grade 60.
Concrete in accordance with LRFD AASHTO Section 5, f'c = 3,500 psi,
Structural steel in accordance with LRFD AASHTO Section 6. ASTM A709 Grade 36 or Grade 50 (AASHTO M270 Grade 36 or Grade 50).
n = 9 for tension steel
2n = 18 for compression steel
HL-93 live load plus 20 lbs. per sq. ft. for future wearing surface.
End span length is used to calculate equivalent width in live load distribution.
Six foot of approach slab dead & live load included in abutment loads. Control of cracking by distribution of reinforcement for slab design based on pre-2005 LRFD Interims.

General Notes:

It is the intent of this design to construct a new 140'-0" x 30'-6" continuous concrete slab bridge on CR 523 over Stony Creek.

This design is for the replacement of the existing 102' x 24' continuous concrete slab bridge, FHWA No. 332850.

The lump sum bid item "Removal of Existing Bridge" shall include removal of the existing 102' x 24' continuous concrete slab bridge, including removal of the existing substructures to 2'-0 below finished grade. Removal of miscellaneous fill and debris behind the existing abutments and removal of the existing deadman anchor systems, if present, are incidental to "Removal of Existing Bridge". The Contractor will be responsible for removal and disposal offsite.

Removals shall be in accordance with Section 2401, of the Standard Specifications.

The county and utility companies whose facilities are shown on the plans or known to be within the construction limits shall be notified by the Bridge Contractor of the construction starting date.

This bridge is designed for HL-93 loading, plus 20 lbs. per square foot of roadway for future wearing surface.

Excavation quantities for the abutments are based on the assumption that abutment slopes/fills are in place.

It shall be the bridge Contractor's responsibility to provide sites for excess excavated material. No payment for overhaul will be allowed for material hauled to these sites.

All reinforcing bars and bars noted as dowels supplied for this structure shall be deformed reinforcement unless otherwise noted or shown.

These bridge plans label all reinforcing steel with english notation (5a1 is 5/8 inch diameter bar). English reinforcing steel received in the field may display the following "Bar Designation". The "Bar Designation" is the stamped impression on the reinforcing bars, and is equivalent to the bar diameter in millimeters.

English Size	3	4	5	6	7	8	9	10	11
Bar Designation	10	13	16	19	22	25	29	32	36

Faint lines on plans indicate the existing structure.

Keyway dimensions shown on the plans are based on nominal dimensions unless stated otherwise. In addition, the bevel used on the keyway shall be limited to a maximum of 10 degrees from vertical.

The floor slab as shown includes 1/2" integral wearing surface.

West Abutment Pile Driving Notes:

The contract length of 55 feet for the west abutment piles is based on a cohesive soil classification, a total factored axial load per pile (Pu) of 95 kips, and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing.

The nominal axial bearing resistance for construction control was determined from a cohesive soil classification and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing. Piles are assumed to be driven from a start elevation at the bottom of footing.

The required nominal axial bearing resistance for west abutment piles is 71 tons at end of drive or retap. The pile contract length shall be driven as per plan unless piles reach refusal. Construction control requires a WEAP analysis with bearing graph.

Pier 1 Pile Driving Notes:

The contract length of 60 feet for the Pier 1 piles is based on a cohesive soil classification, a total factored axial load per pile (Pu) of 103 kips, and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing.

The nominal axial bearing resistance for construction control was determined from a cohesive soil classification and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing. Piles are assumed to be driven from a start elevation at the bottom of encasement. Design scour (200-year) was assumed to affect the upper 5 feet of embedded pile length and cause 6 kips of driving resistance.

The required nominal axial bearing resistance for Pier 1 piles is 79 tons at end of drive or retap. The pile contract length shall be driven as per plan unless piles reach refusal. Construction control requires a WEAP analysis with bearing graph.

Pier 2 Pile Driving Notes:

The contract length of 60 feet for the Pier 2 piles is based on a cohesive soil classification, a total factored axial load per pile (Pu) of 103 kips, and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing.

The nominal axial bearing resistance for construction control was determined from a cohesive soil classification and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing. Piles are assumed to be driven from a start elevation at the bottom of encasement. Design scour (200-year) was assumed to affect the upper 6 feet of embedded pile length and cause 9 kips of driving resistance.

The required nominal axial bearing resistance for Pier 2 piles is 82 tons at end of drive or retap. The pile contract length shall be driven as per plan unless piles reach refusal. Construction control requires a WEAP analysis with bearing graph.

East Abutment Pile Driving Notes:

The contract length of 55 feet for the east abutment piles is based on a cohesive soil classification, a total factored axial load per pile (Pu) of 95 kips, and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing.

The nominal axial bearing resistance for construction control was determined from a cohesive soil classification and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing. Piles are assumed to be driven from a start elevation at the bottom of footing.

The required nominal axial bearing resistance for east abutment piles is 72 tons at end of drive or retap. The pile contract length shall be driven as per plan unless piles reach refusal. Construction control requires a WEAP analysis with bearing graph.

Working Drawing and Calculation Submittals			
Working drawings and calculations shall be submitted for the following items shown in the table below. (Note additional working drawings and calculations may be required in accordance with Article 1105.03 of the Standard Specifications.)			
Submittal requirements for working drawings and calculations shall be in accordance with 1105.03 of the Standard Specifications for Highway and Bridge Construction of the Iowa Department of Transportation. The absence of a certification requirement for a submittal does not relieve the Contractor of the responsibility to attain certification.			
Calculation submittals in this table which are associated with working drawing submittals shall be submitted on the same day. Review time for calculation submittals shall be of the same duration as and run concurrently with review time for associated working drawings. The calculation submittals listed in the table are not meant to be an exhaustive list and do not relieve the Contractor from providing additional calculation submittals if requested by the Engineer.			
No.	Working Drawing Description	Working Drawing File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)
1	Falsework	(146)_Warren_Falsework.pdf	Yes
No.	Calculation Description	Calculation File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)
1	Falsework Calculations	(146)_Warren_FalseworkCalculations.pdf	Yes

A scrape sample was taken from an area of this bridge to get an indication of the existence of and level of total lead and total chromium. Analysis of total lead on this sample was 11,000 parts per million (ppm). Analysis of total chromium on this sample was 31,000 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 County's testing and analysis for any purpose other than as an indication of the existence of these two toxic constituents.

Bridge Deck Dimension Table			
No.	Item	Unit	Quantity
1	Deck Length	L.F.	140.96
2	Minimum Deck Width	L.F.	33.17
3	Maximum Deck Width	L.F.	33.17
4	Deck Area	S.F.	4,675.29

- Deck length is measured from face-to-face of paving notches along the centerline of the roadway.
3. Deck widths are measured from out-to-out of deck perpendicular to the centerline of roadway.
4. Deck area is to be based on the face-to-face paving notch distance and out-to-out deck dimensions.

English Standard Bridge Plans		
Standard	Issued	Revised
J30-01-06	11-06	09-20
J30-16E-06	11-06	09-20
J30-17E-06	11-06	09-20
J30-20-06	11-06	09-20
J30-22-06	11-06	09-20
J30-23-06	11-06	09-20
J30-24-06	11-06	09-20
J30-36-06	11-06	09-20
J30-39-06	11-06	09-20
J30-43-06	11-06	09-20
J30-44-06	11-06	09-20
J30-45-06	11-06	09-20
J30-46-06*	11-06	09-20
J30-48-06	11-06	09-20
P10L	11-23	06-25

* Bridge wing armoring material shall be Erosion Stone, in lieu of Macadam Stone shown in Standard J30-46-06.

Traffic Control Plan
The roadway will be closed to thru traffic. Refer to the Traffic Control Plan shown elsewhere in these plans.

Design For 30 Degree LA Skew

140'-0" x 30'-6" Continuous Concrete Slab Bridge

42'-6" End Spans55'-0" Interior Span

General Notes

STA. 104+52.87 (CR 523)Turn-in Date: Sept. 2026

Warren County



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PROJECT NUMBER
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REVISIONS

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JCH

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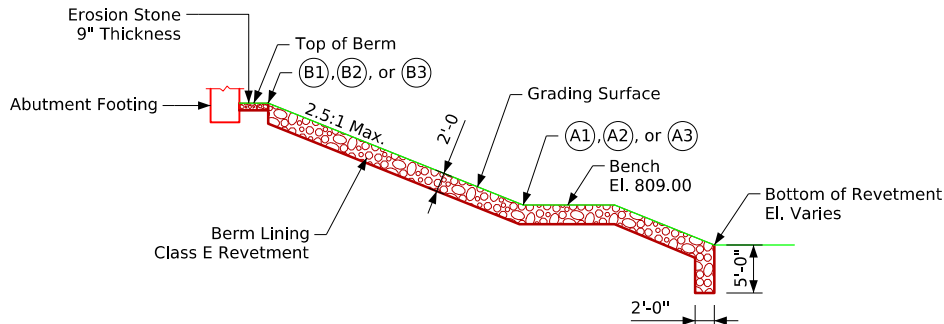
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CR S23 BRIDGE REPLACEMENT - CCS
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GENERAL NOTES

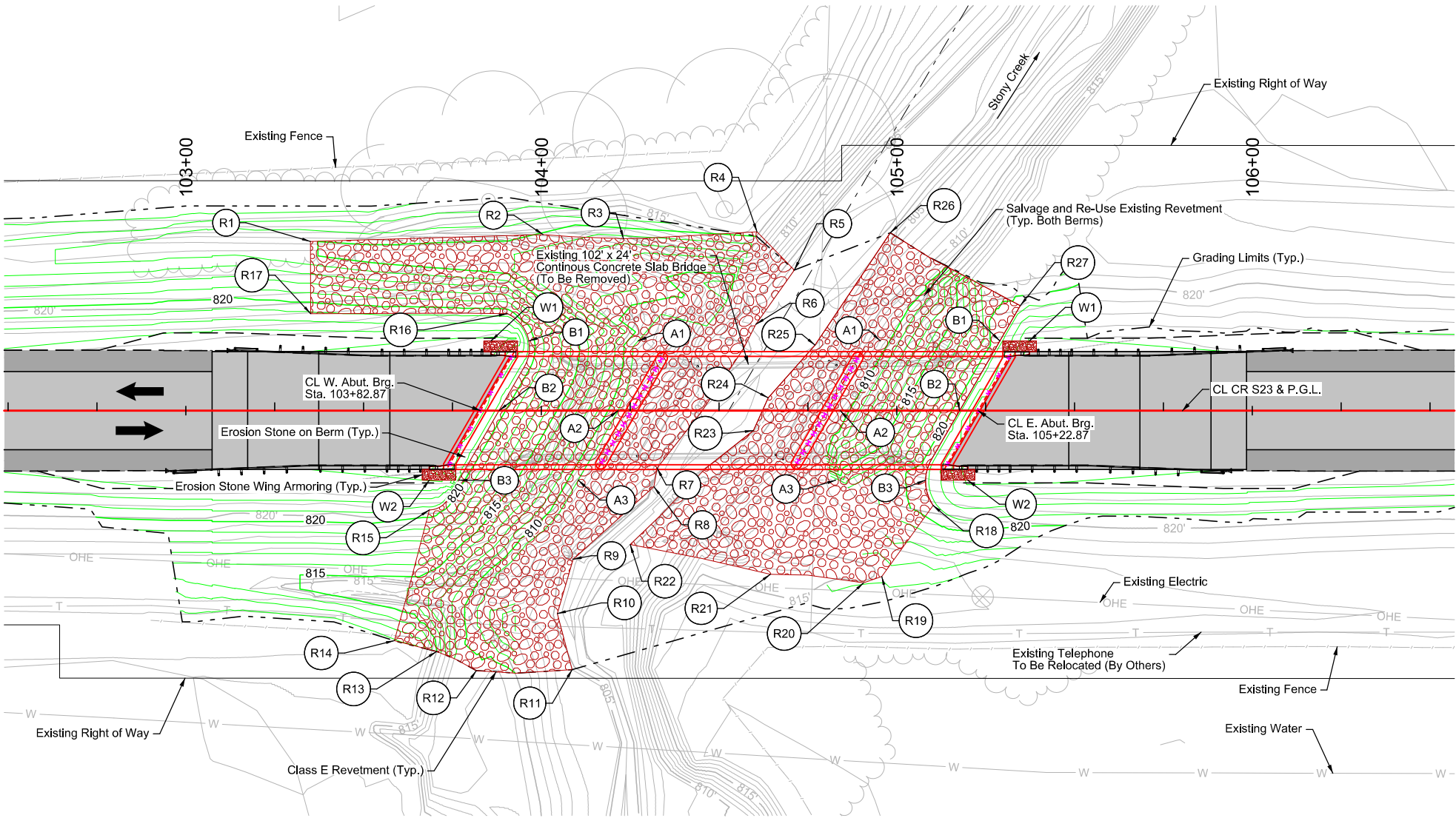
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DRAWING NO.

V.1



Section Thru Embedded Revetment Berm



Site Plan

Utilities Note:

Utilities shown on this sheet are for information only. See Road Design sheets for utility information.

General Utility Symbols:

- E - Electric Line

G - Gas Line

SAN. - Sanitary Sewer

T - Telephone Line

W - Water Line
- FO - Fiber Optic Line

GHP - Gas High Pressure

ST S - Storm Sewer

TV - TV

⊗ - Power Poles

Notes:
All units are in feet unless noted otherwise.
See sheet V.2 for detailed plan of CR S23 over Stony Creek.
Class E revetment stone is embedded.

Estimated Berm Armoring Quantities

Location	Revetment CL, E (Ton)	Erosion Stone (Ton)	Engineering Fabric (SY)	CL, 10 Channel Excavation (CY)
Existing Available - West	-170	--	--	--
Existing Available - East	-200	--	--	--
Berm Lining - West	1,005	6	--	630
Berm Lining - East	635	6	--	400
Totals	1,270	12	--	1,030

Excavation quantity calculated from grading surface. Excavation quantity is for embedded revetment core out only, and does not include excavation to the grading surface. Excavation quantity to the grading surface is included in the Road Plans.

Remove and re-use existing revetment. Quantity of existing revetment is accounted for in totals. Existing revetment assumes a 2 foot depth. Existing and proposed revetment estimated at 1.6 Ton/CY.

End of Bridge Wing Table

Points	West Abutment			East Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
W1	103+85.80	19.58' Lt.	824.32	105+37.26	19.58' Lt.	824.76
W2	103+68.48	19.58' Rt.	824.19	105+19.94	19.58' Rt.	824.86

Berm Slope Location Table

Points	West Abutment			East Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
A1	104+27.21	19.58' Lt.	809.00	104+95.38	19.58' Lt.	809.00
A2	104+21.57	0.00'	809.00	104+84.11	0.00'	809.00
A3	104+10.36	19.58' Rt.	809.00	104+82.84	19.58' Rt.	817.59
B1	103+96.47	19.58' Lt.	820.64	105+28.98	19.58' Lt.	820.74
B2	103+88.07	0.00'	820.64	105+17.68	0.00'	820.74
B3	103+76.76	19.58' Rt.	820.64	105+08.06	19.58' Rt.	820.74

Berm slope elevations reflect the grading surface.

Revetment Layout:

West Berm:

- (R1) 103+35.05, 47.62' LT

(R2) 104+00.47, 49.56' LT

(R3) 104+23.08, 48.39' LT

(R4) 104+60.64, 50.30' LT

(R5) 104+71.17, 39.55' LT

(R6) 104+60.32, 24.24' LT
- (R7) 104+32.52, 16.18' RT

(R8) 104+31.67, 21.41' RT

(R9) 104+08.93, 41.82' RT

(R10) 104+04.48, 57.12' RT

(R11) 104+08.67, 72.88' RT

(R12) 103+81.72, 73.20' RT
- (R13) 103+70.54, 67.80' RT

(R14) 103+58.67, 64.72' RT

(R15) 103+68.47, 27.94' RT

(R16) 103+90.45, 27.27' LT

(R17) 103+35.11, 27.29' LT

East Berm:

- (R18) 104+99.98, 28.12' RT

(R19) 104+95.78, 46.66' RT

(R20) 104+64.43, 46.06' RT

(R21) 104+90.65, 48.46' RT
- (R22) 104+24.99, 37.69' RT

(R23) 104+59.66, 5.64' RT

(R24) 104+63.83, 3.63' LT

(R25) 104+76.99, 18.43' LT
- (R26) 104+98.14, 50.06' LT

(R27) 105+34.73, 29.54' LT

Design For 30 Degree LA Skew
140'-0" x 30'-6" Continuous Concrete Slab Bridge

42'-6" End Spans

55'-0" Interior Span

Site Plan

STA. 104+52.87 (CR S23)

Turn-in Date: Sept. 2026

Warren County

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REVISIONS

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DRAWING NO.

V.3

SITE PLAN

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Bench Mark No. BM2: Railroad Spike in Power Pole
Elev. 818.436, N. 7335854.65, E. 18594074.43



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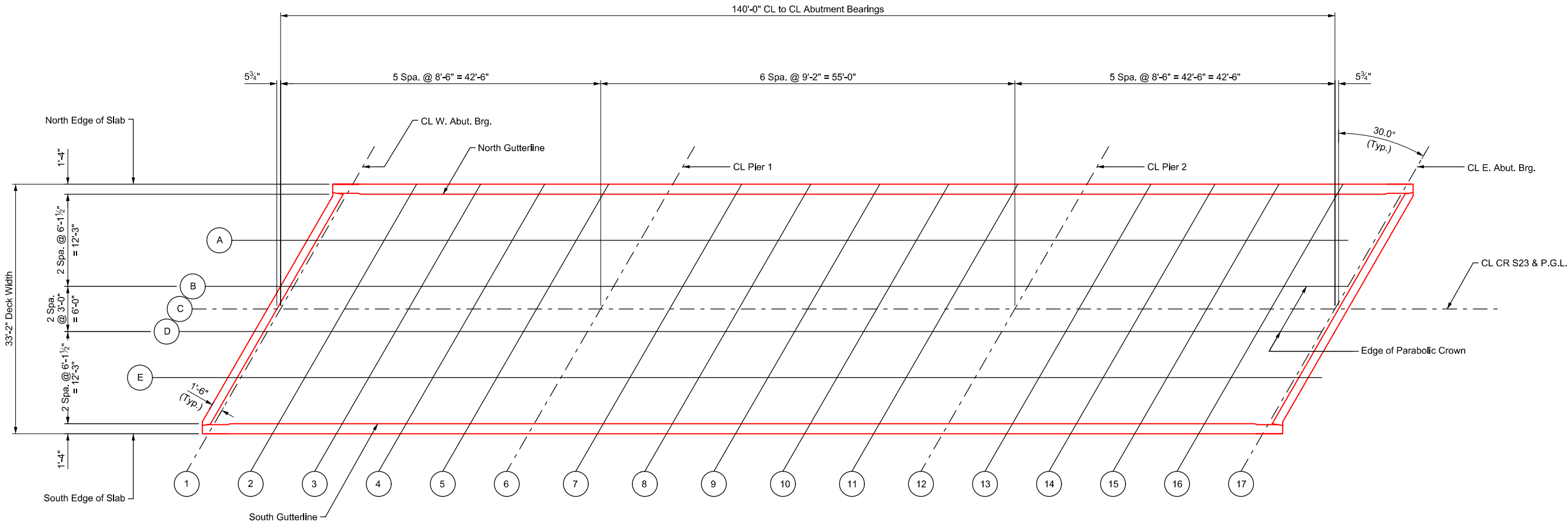
TOP OF DECK ELEVATIONS

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DRAWING NO.

V.4

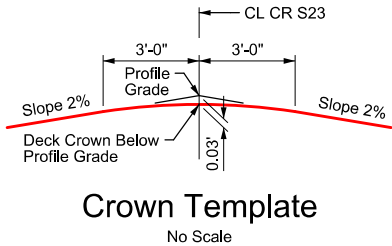


Location of Top of Deck Elevations

Top of Deck Elevations																	
	CL W. Abut. Brg.					CL Pier 1						CL Pier 2					CL E. Abut. Brg.
Line Number	Line 1	Line 2	Line 3	Line 4	Line 5	Line 6	Line 7	Line 8	Line 9	Line 10	Line 11	Line 12	Line 13	Line 14	Line 15	Line 16	Line 17
North Edge of Deck	824.48	824.53	824.57	824.61	824.63	824.66	824.67	824.68	824.69	824.68	824.67	824.65	824.62	824.59	824.56	824.51	824.46
North Gutterline	824.50	824.55	824.59	824.63	824.66	824.68	824.70	824.71	824.71	824.71	824.70	824.68	824.65	824.62	824.58	824.54	824.49
Line A	824.60	824.65	824.70	824.74	824.77	824.79	824.81	824.83	824.83	824.83	824.82	824.81	824.79	824.76	824.72	824.68	824.64
Line B	824.70	824.76	824.80	824.84	824.88	824.91	824.93	824.95	824.95	824.96	824.95	824.94	824.92	824.89	824.86	824.82	824.78
CL CR S23 / Line C	824.72	824.78	824.82	824.87	824.90	824.93	824.96	824.97	824.98	824.99	824.98	824.97	824.95	824.93	824.90	824.86	824.82
Line D	824.68	824.73	824.78	824.83	824.86	824.90	824.92	824.94	824.95	824.96	824.95	824.94	824.93	824.90	824.87	824.84	824.80
Line E	824.53	824.59	824.64	824.69	824.73	824.76	824.79	824.81	824.83	824.83	824.83	824.83	824.81	824.79	824.76	824.73	824.69
South Gutterline	824.38	824.44	824.50	824.55	824.59	824.63	824.66	824.68	824.70	824.71	824.71	824.71	824.70	824.68	824.65	824.62	824.59
South Edge of Deck	824.35	824.41	824.47	824.52	824.56	824.60	824.63	824.65	824.67	824.68	824.69	824.68	824.67	824.65	824.63	824.60	824.57

Table of Bottom of Encasement Elevations		
Pile Number	Pier 1	Pier 2
1 (North Exterior)	798.57	798.57
2	798.62	798.63
3	798.67	798.68
4	798.72	798.74
5	798.77	798.79
6	798.80	798.84
7	798.80	798.84
8	798.75	798.80
9	798.69	798.75
10	798.64	798.70
11	798.58	798.65
12 (South Exterior)	798.52	798.60

Elevations assume a uniform 23'-3" encasement length at all locations, beginning from the bottom of the monolithic pier cap.



Note:
The top of slab elevations for the high point on the bridge slab are 0.03 feet below the high point on the approach roadway to account for the rounding of the slab with a parabolic template at the cross slope intersection.

Design For 30 Degree LA Skew

140'-0" x 30'-6" Continuous Concrete Slab Bridge

42'-6" End Spans 55'-0" Interior Span

Top of Deck Elevations

STA. 104+52.87 (CR S23) Turn-in Date: Sept. 2026

Warren County

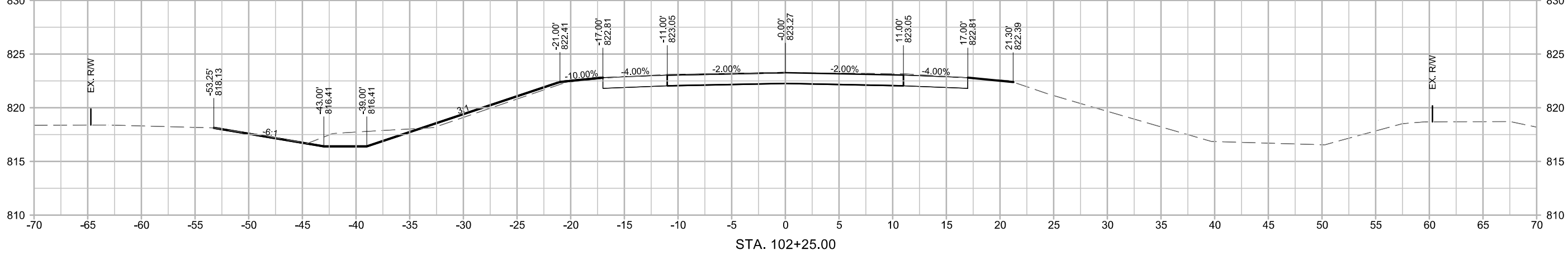
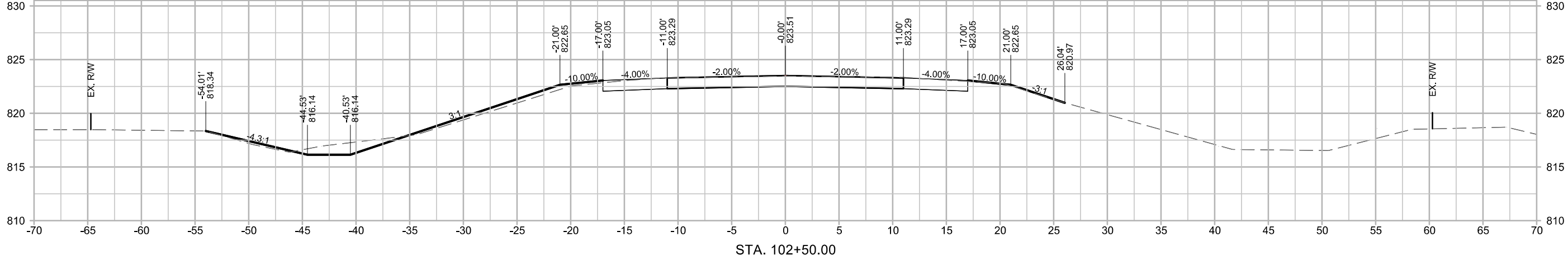
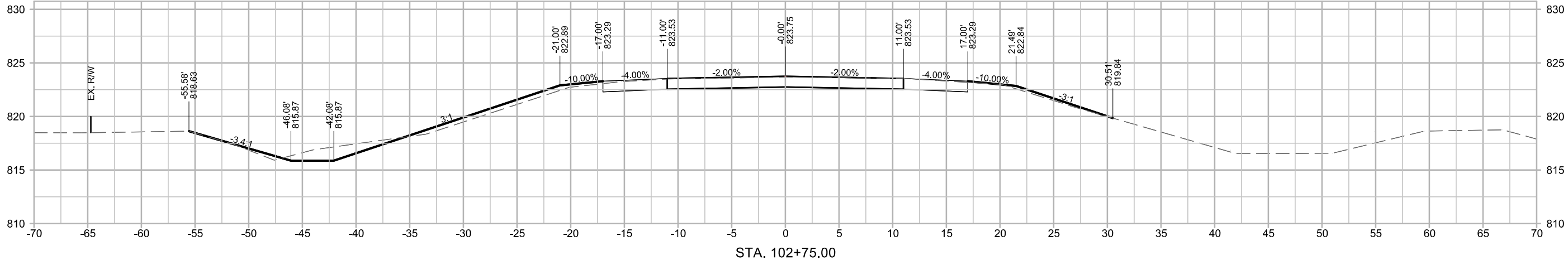
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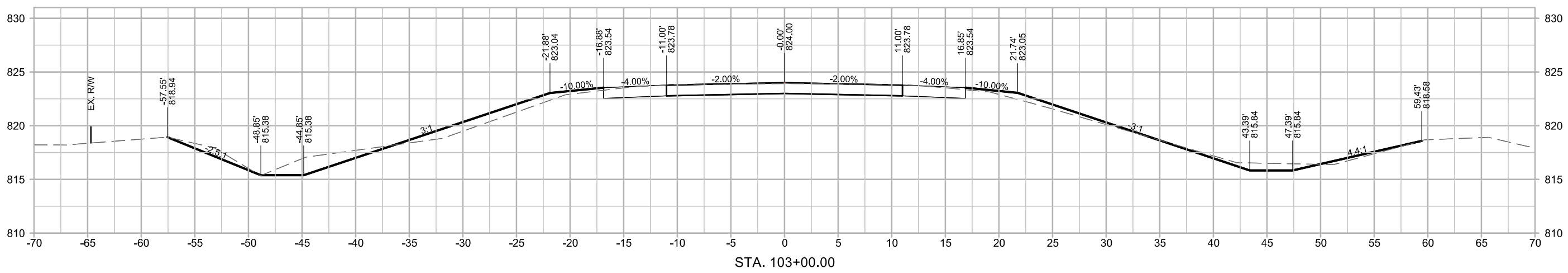
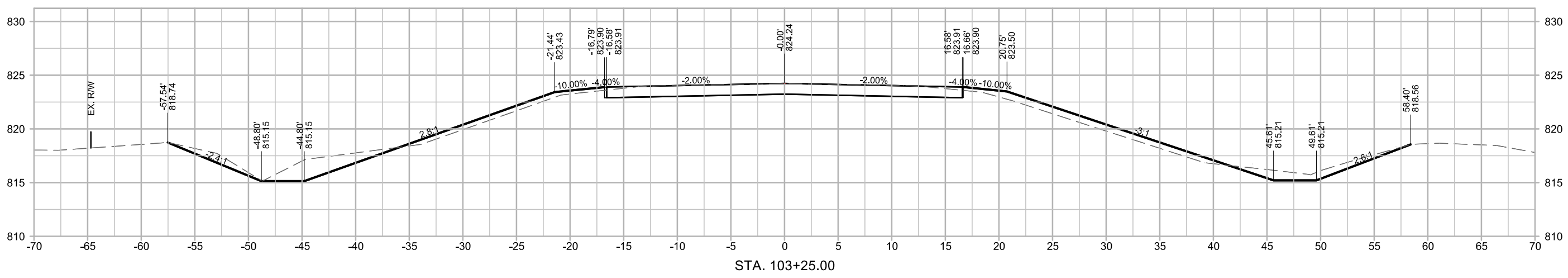
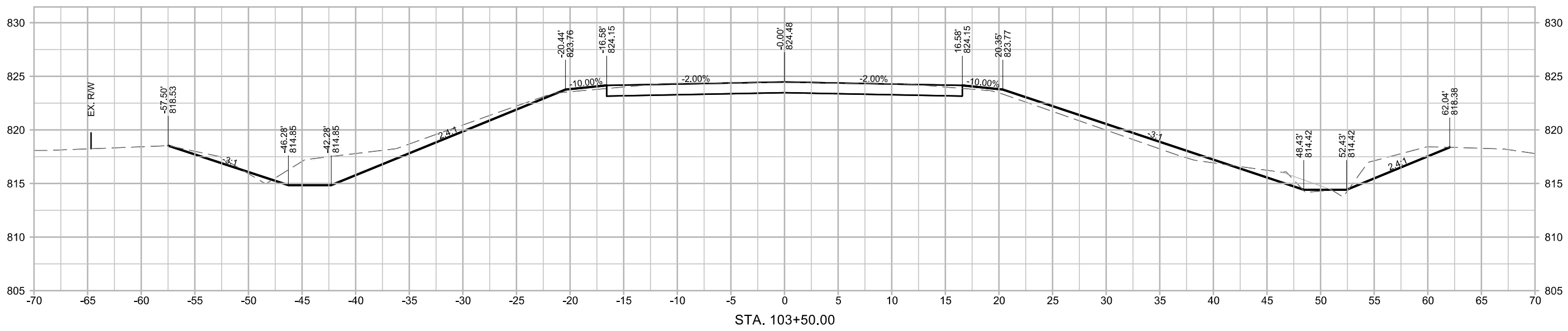
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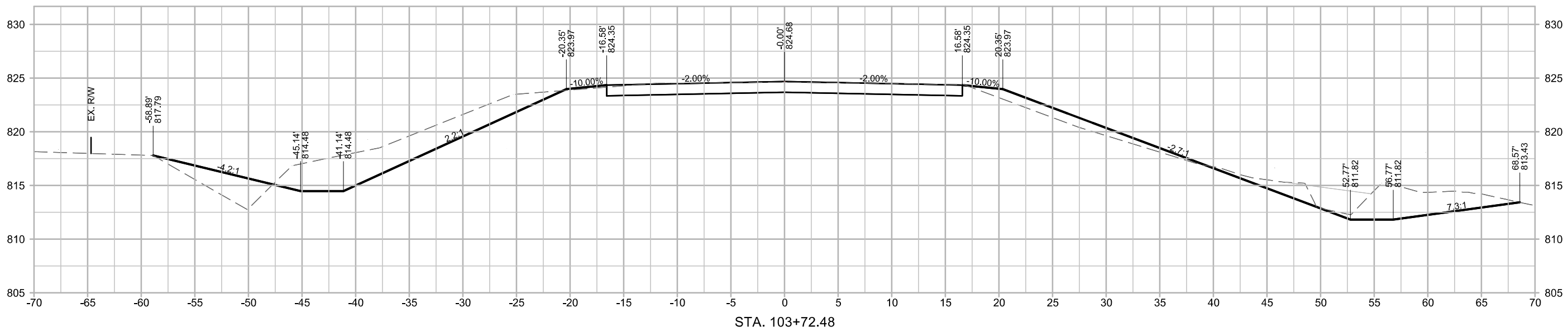
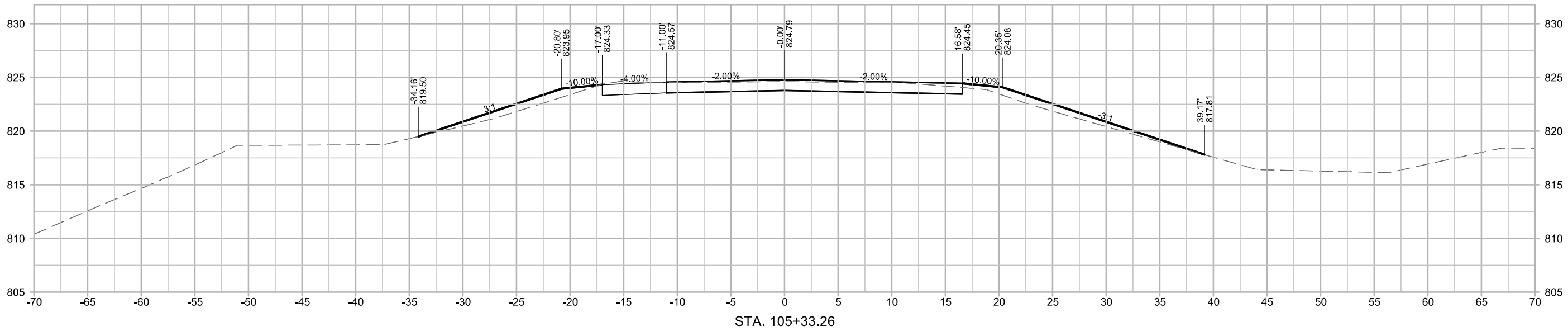
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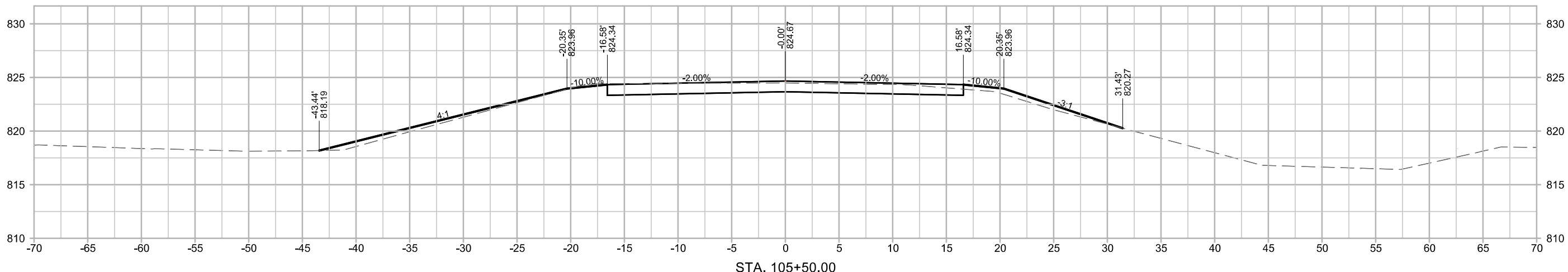
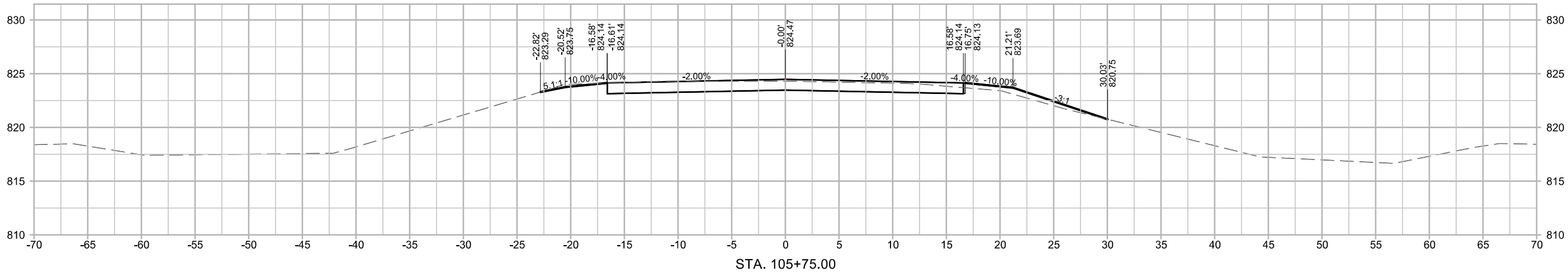
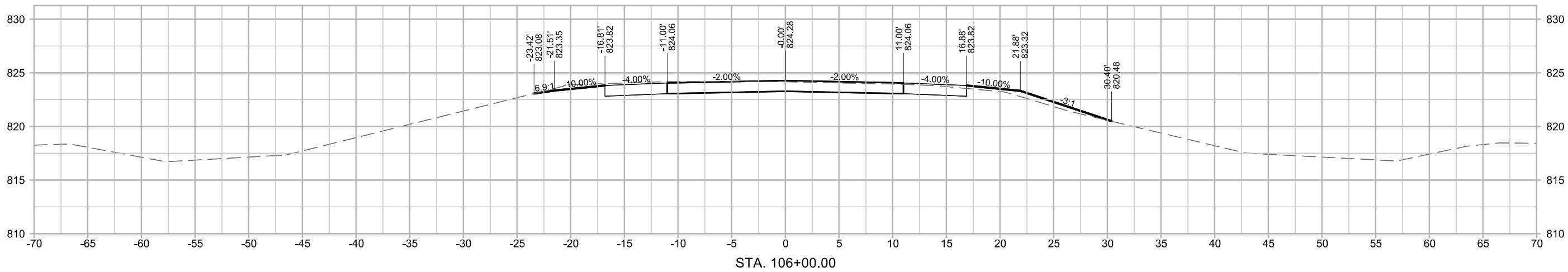
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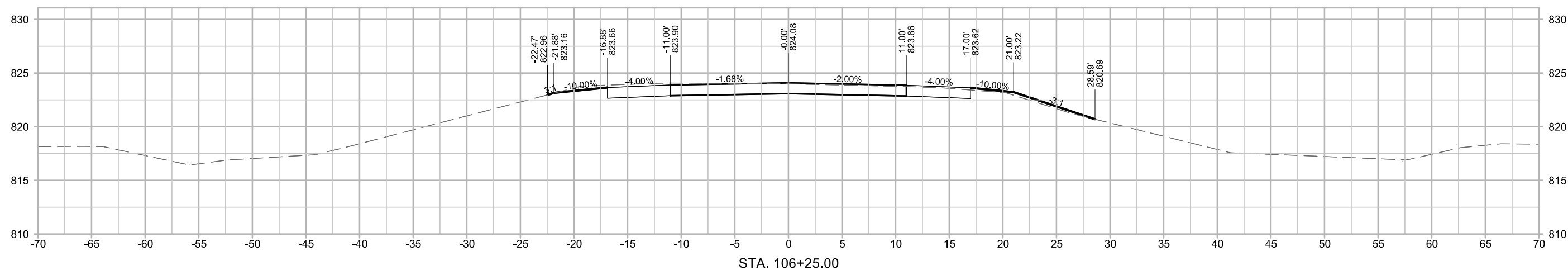
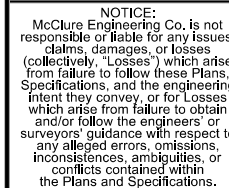
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