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No.	DESCRIPTION
A Sheets	Title Sheets
* A.1	Title Sheet
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	* Color Plan Sheets



PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
WOODBURY COUNTY
GORDON DRIVE TEST PILE PROGRAM

Adjacent to Gordon
Drive Viaduct

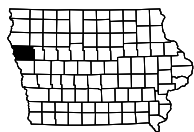
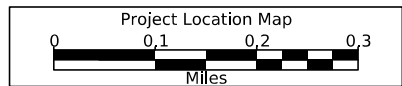
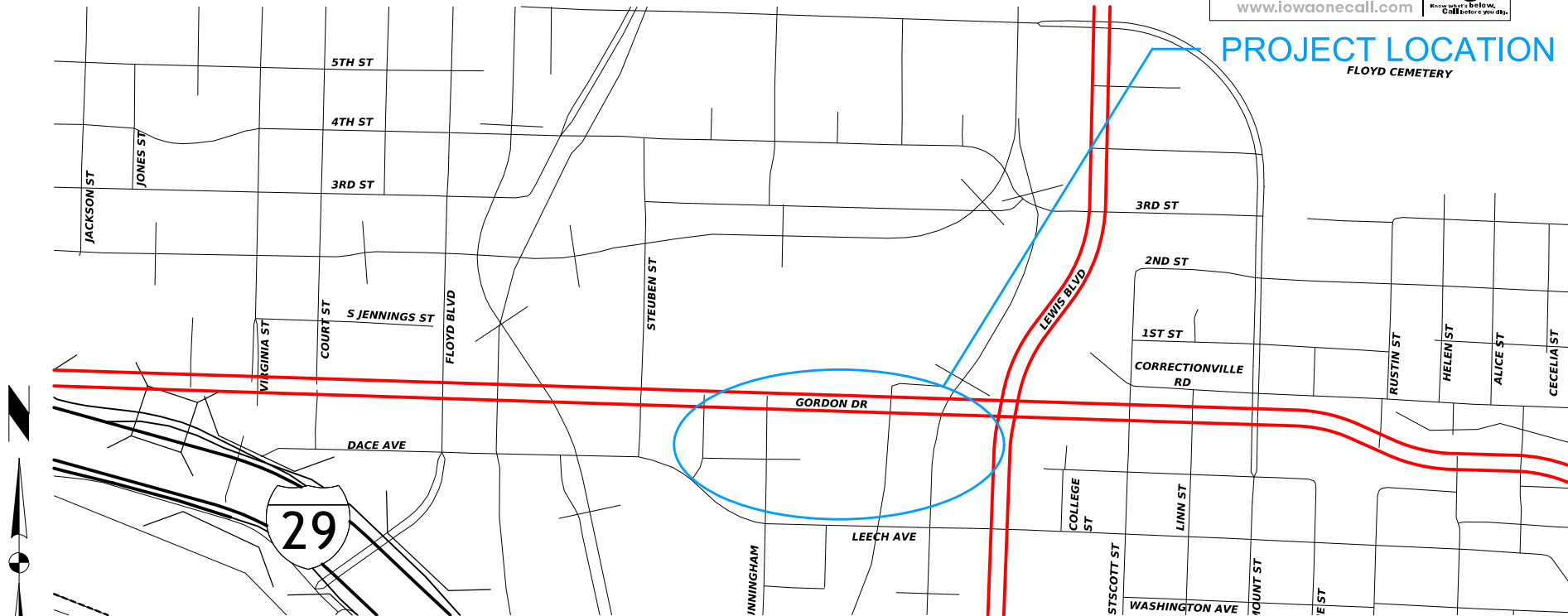
SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



PROJECT LOCATION
FLOYD CEMETERY



INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Gopalakrishna Allam	Geotechnical Design
A.1	Aleksander T. Nelson	Structural Design
A.1	John M. Carter	Roadway Design

REVISIONS

TOTAL

18

PROJECT IDENTIFICATION NUMBER

19-97-012-010

PROJECT NUMBER

NHSN-012-1(075)--2R-97

R.O.W. PROJECT NUMBER

GEOTECHNICAL 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.



Gopalakrishna Allam
Signature

8-26-2026
Date

Gopalakrishna Allam

Printed or Typed Name

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: U.1, U.3

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.



Aleksander T. Nelson
Signature

8-26-2026
Date

Aleksander T. Nelson

Printed or Typed Name

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: U.1, U.3

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.



John M. Carter
Signature

8-26-2026
Date

John M. Carter

Printed or Typed Name

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: A.1, C.1-3, J.1-3, U.2

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadway Items : Roadway Items

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
1	2102-2713090	EXCAVATION, CLASS 13, WASTE	CY	50	Bid item included for excavation and haul away of rubble or debris hindering test pile installation, if encountered. Dispose of excess material according to Article 1106.07 of the current specifications.
2	2401-6750001	REMOVALS, AS PER PLAN	LS	1	Bid item includes removal of tops of test piles and test casing to 2 feet below existing ground line. Includes all work for excavation, removal, backfill, and off-site disposal of test element cutoffs. Removed pile and casing sections shall become property of the Contractor. Removal of the test pile top cannot begin until after the pile has been retapped. Removal of test casing top cannot begin until a minimum of 12 hours has elapsed since conclusion of casing installation. Bid item also includes vibratory extraction of test sheet pile. Removal of sheet pile cannot begin until at least 12 hours has elapsed since conclusion of sheet pile installation. Estimate assumes complete removal of test sheet pile sections. After removal, sheet pile shall become property of the Contractor. Bid item also includes the removal and reinstallation of the north-side structural bolts securing the separation diaphragms for Piers #45, #46, and #47 as shown on Sheet U.3. Remove the diaphragm bolts prior to driving any test piles. Resecure the pier separation diaphragms at the conclusion of pile driving using new high-strength bolts matching the existing size and type.
3	2501-0201517	PILES, STEEL, HP 14 X 117	LF	640	All piling shall be Grade 50 steel. All test piles shall be installed with a DELMAG D30-32 open end diesel hammer according to the pile driving notes listed on Sheet U.3. Bid item includes effort to retap each test pile. Estimate assumes four test piles driven to a depth of 160 feet. The Contractor shall cease installation operations immediately if an alert threshold is exceeded and may not resume until directed by the Engineer.
4	2501-2500010	DYNAMIC PILE TEST	LS	1	Bid item includes Pile Driving Analyzer (PDA) testing in accordance with Standard Spec 2501.03, Article M. PDA testing is to be included at all four test pile locations. Payment is full compensation for all labor, materials, equipment, and time associated with the test.
5	2501-5775000	PILES, STEEL SHEET	SF	600	Furnish and install PZ 27 section or larger sheet pile. Steel sheet piling shall be in accordance with Section 4167 of the Standard Specifications. The sheet pile shall be installed with a vibratory hammer at the locations shown in the plans. Estimate assumes 15-foot-wide pile section with 40-foot depth. The Contractor shall cease installation operations immediately if an alert threshold is exceeded and may not resume until directed by the Engineer.
6	2519-1003072	FENCE, CHAIN LINK WITH SECURITY TOP, 72 IN. HEIGHT	LF	644	Install security fence enclosures at locations shown in plans. Refer to Tab 100_07 and Sheets U.2 and U.3 for additional details.
7	2519-3300600	FENCE, SAFETY	LF	360	Install Safety Fence 15 feet from edge of existing Bacon Creek Channel prior to beginning any construction activities. Safety Fence to remain in-place until all construction equipment has been demobilized. Estimate includes complete installation and removal of Safety Fence. Refer to Sheet U.2 and Tab 100_07 for additional details.
8	2519-3710000	GATE ASSEMBLY, CHAIN LINK, 8 FT.	EACH	1	Furnish and install 8-foot-wide gate assembly as part of 72-inch chain link security fence with security top. Gate assembly to match height and security rating of the security fence perimeter. Alternative size and location of gate may be submitted for approval by the Engineer to facilitate instrumentation and inspection activities.
9	2519-3711600	GATE ASSEMBLY, CHAIN LINK, 16 FT.	EACH	1	Furnish and install 16-foot-wide gate assembly as part of 72-inch chain link security fence with security top. Gate assembly to match height and security rating of the security fence perimeter. Alternative size and location of gate may be submitted for approval by the Engineer to facilitate instrumentation and inspection activities.
10	2519-4200120	REMOVAL OF FENCE, CHAIN LINK	LF	668	Bid item includes complete removal of security fence perimeters installed as part of this project, including removal of gate assemblies. Removal of fence will occur in two phases. Refer to Sheet U.2 for additional details.

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
11	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY	LS	1	Bid item included for staking location of test elements and fencing installations. All coordinates listed in plans are Iowa RCS Zone 4. Survey control monuments will be established by others and will not be paid for separately.
12	2528-2518000	SAFETY CLOSURE	EACH	5	Install as part of Gordon Drive Viaduct closure. Refer to Tab 108-13A and J Sheets for additional details.
13	2528-4983200	MONITORING WITH INCIDENT RESPONSE	CDAY	7	Contractor shall provide monitoring of the signed detour route for the duration of the Gordon Drive closure. Refer to the J Sheets for detour details.
14	2528-8445110	TRAFFIC CONTROL	LS	1	The Gordon Drive Viaduct will be closed to traffic during pile driving operations. The Contractor shall install and maintain detour signage, PDMS boards and safety closures for the duration of the project. Refer to the Traffic Control Plan and J sheets for additional details. The Contractor shall maintain access to local businesses and existing traffic on side roads adjacent to worksite including Dace Avenue, Leech Avenue, and Cunningham Drive.
15	2528-9290050	PORTABLE DYNAMIC MESSAGE SIGN (PDMS)	CDAY	56	Install PDMS at locations in accordance with the Traffic Control Plan and Sheet J.2. Estimate assumes four PDMS at 14 days each.
16	2533-4980005	MOBILIZATION	LS	1	Multiple mobilizations will be required for this project. Security Fence installation must occur prior to installation of instrumentation by others. Primary mobilization and setup of pile driving equipment will not be permitted until instrumentation has been installed and baseline readings are obtained. The Estimate assumes six working days to install the test elements, however actual installation times may differ depending on instrumentation readings and direction from the Engineer.
17	2599-9999009	('LINEAR FEET' ITEM) 54 IN. DIA. CASING	LF	60	Furnish and install 54 inch diameter casing pipe with a 0.375 inch minimum wall thickness at location shown in plans. Casing shall be ASTM A 252 Grade 2 or Grade 3 per Standard Specifications 4167.01, B and Materials IM 467.03. Casing is to be installed with a vibratory hammer. The Contractor shall cease installation operations immediately if an alert threshold is exceeded and may not resume until directed by the Engineer. METHOD OF MEASUREMENT: Plan quantity. BASIS OF PAYMENT: Contract unit price is full compensation for delivering, preparing, and installing the casing. The length of unused casing will be subtracted from the plan quantity.
18	2599-9999010	('LUMP SUM' ITEM) WORKSITE SECURITY	LS	1	Bid item included for worksite security for the duration of the data collection period. Contractor shall submit a proposed security plan for approval by the Engineer. METHOD OF MEASUREMENT: Lump sum. BASIS OF PAYMENT: Payment is full compensation to implement the approved security plan.

100_01D 8/15/22 PROJECT DESCRIPTION This project is a test pile demonstration program in advance of the main Gordon Drive project letting. The purpose of the project is to estimate the impact of pile driving on the existing Gordon Drive Viaduct. The test elements consist of HP pile sections, a sheet pile group, and a steel casing.

113_02

8/15/22

PEDESTRIAN PATH CLOSURES

Refer to TC-601.

*Assumes 6 foot wide barricade.

Closures may need to be removed and re-established.

Line No.	Location	Side	Width of Closure (FT)	Type III Barricades* (No.)	Remarks
1.0	EB Gordon Dr approach	Left	5.0	1	Close sidewalk at Court St. See J Sheets for details.
2.0	WB Gordon Dr approach	Left	5.0	1	Close sidewalk at Lewis Blvd offramp. See J Sheets for details.

105_04 4/21/26 STANDARDS The following Standards apply to construction work on this project.		
Number	Date	Title
MI-101	10-20-15	Fencing Layout
MI-102	10-20-15	Chain Link Fence Construction
TC-1	10-15-19	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-202	04-18-23	Work Within 15 ft of Traveled Way
TC-252	10-21-25	Routes Closed to Traffic
TC-273	10-15-19	Construction Site Entrance
TC-402	04-18-23	Work Within 15 ft of Traveled Way
TC-417	04-21-20	Ramp Closure
TC-418	04-18-23	Lane Closure on Divided Highway
TC-420	10-16-18	Lane Closure at Ramps

108_13A 3/27/25			
SAFETY CLOSURES			
Station	Road Closure Qty.	Hazard Closure Qty.	Remarks
	1		EB Gordon Dr approach
	1		WB Gordon Dr approach
	1		NB Lewis Blvd to WB Gordon Dr ramp
	1		SB Lewis Blvd to WB Gordon Drive ramp
	1		NB Court St at Dace Ave

100_07
MODIFIED

FENCING

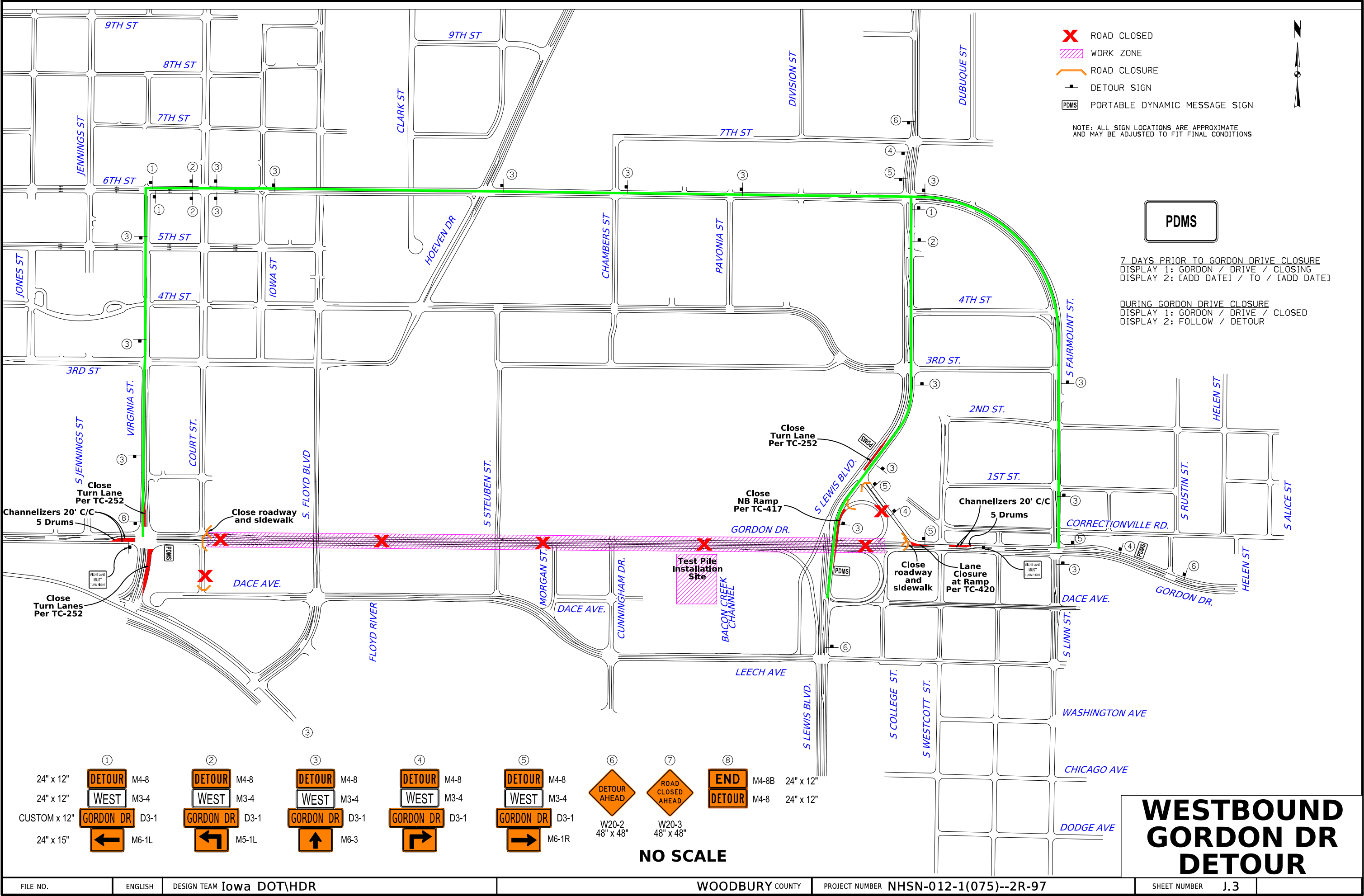
* Bid Item

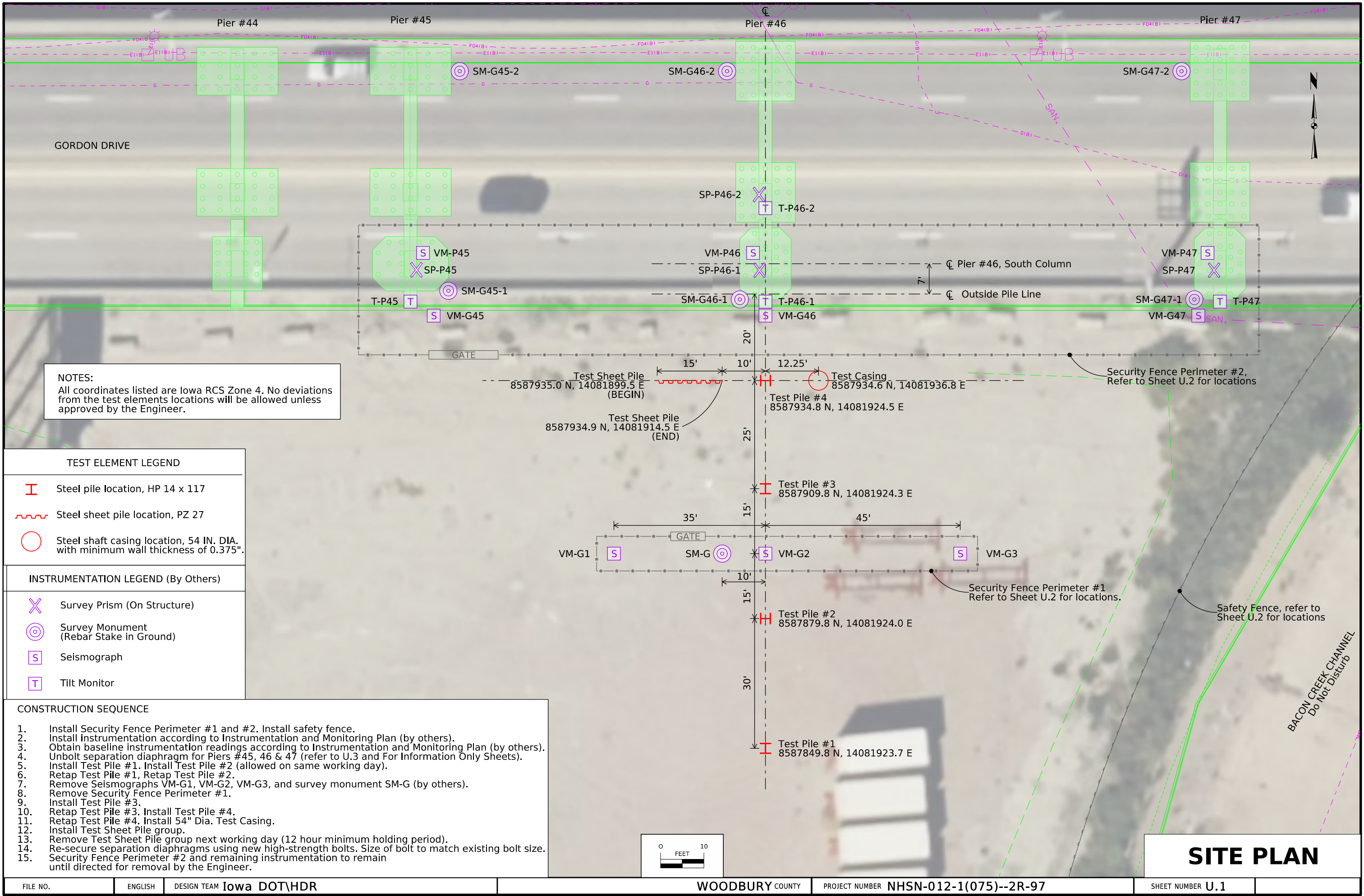
Line No.	Northing From	Easting	Northing To	Easting	Side	Fence Type	Fence Feature	Height (FT)	Quantity (EA) *	Length (LF) *	Remarks
1.0	8587941.56	14081830.58	8587941.41	14081846.83		Chain Link [1]	Running Fence	6.0	0	16.3	SW Corner to Gate
2.0	8587941.41	14081846.83	8587941.27	14081862.83		Chain Link [1]	Gate [2]	6.0	1	16.0	Gate
3.0	8587941.27	14081862.83	8587939.67	14082038.57		Chain Link [1]	Running Fence	6.0	0	175.8	Gate to SE Corner
4.0	8587939.67	14082038.57	8587969.66	14082038.84		Chain Link [1]	Running Fence	6.0	0	30.0	SE Corner to NE Corner
5.0	8587969.66	14082038.84	8587971.56	14081830.85		Chain Link [1]	Running Fence	6.0	0	208.0	NE corner to NW corner
6.0	8587941.56	14081830.85	8587941.56	14081830.58		Chain Link [1]	Running Fence	6.0	0	30.0	NW corner to SW corner
7.0	8587891.12	14081885.12	8587890.32	14081973.12		Chain Link [1]	Running Fence	6.0	0	88.0	SW Corner to SE Corner
8.0	8587990.32	14081973.12	8587898.32	14081973.19		Chain Link [1]	Running Fence	6.0	0	8.0	SE Corner to NE Corner
9.0	8587898.32	14081973.19	8587898.89	14081910.29		Chain Link [1]	Running Fence	6.0	0	62.9	NE Corner to Gate
10.0	8587898.89	14081910.29	8587898.97	14081902.29		Chain Link [1]	Gate [2]	6.0	1	8.0	Gate
11.0	8587898.97	14081902.29	8587899.12	14081885.19		Chain Link [1]	Running Fence	6.0	0	17.1	Gate to NW Corner
12.0	8587899.12	14081885.19	8587891.12	14081885.12		Chain Link [1]	Running Fence	6.0	0	8.0	NW Corner to SW Corner
13.0	85877255811	14081976.22	8588031.71	14082143.70		Safety	Running Fence		0	360.0	15' from edge of Bacon Creek Channel

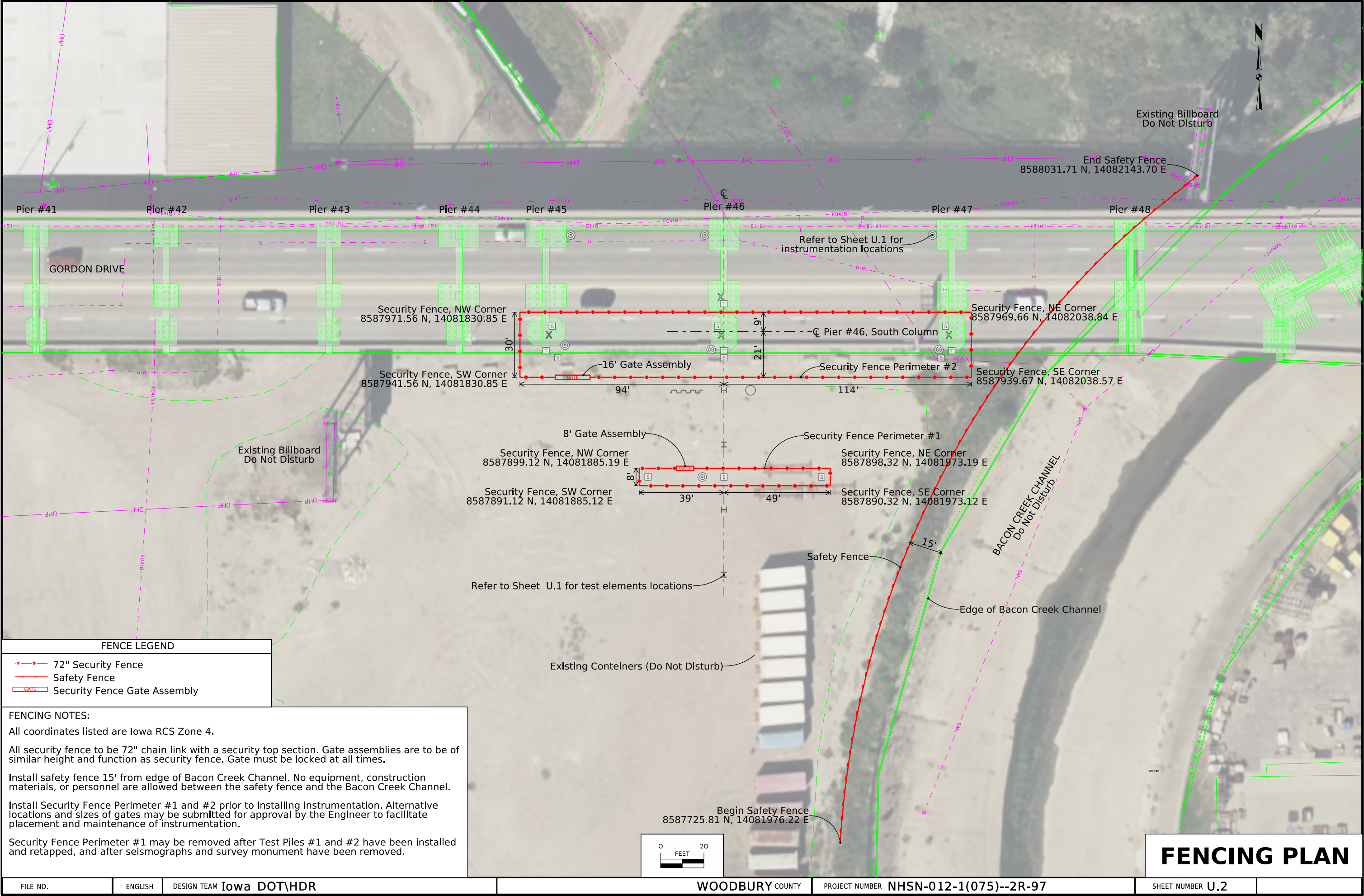
NOTES:
[1] 72" chain link fence with security top
[2] Alternative location and size of gate may be submitted for approval

108_23A 8/15/22	
TRAFFIC CONTROL PLAN	
1. The Gordon Drive Viaduct has a 20 Ton load posting. No construction equipment, delivery trucks, or inspection vehicles that exceed the load rating will be permitted on the structure at any time. 2. Traffic Closures A. A full closure of the Gordon Drive Viaduct will be in effect for the duration of the test element installations. The maximum closure window for Gordon Drive is 7 days. Except for inspection vehicles complying with the load restrictions, no vehicles will be permitted on the bridge during the closure window. B. The Contractor will be required to maintain traffic on the side roads adjacent to the work site for the duration of the project. Full closures of Leech Avenue, Dace Avenue, and Cunningham Drive will not be permitted. C. The time, length, and duration of lane closures on side roads shall be on a case-by-case basis to be approved by the Engineer. The Department reserves the right to modify these restrictions to accommodate specific Contractor activities and unforeseen traffic conditions. D. The Contractor must maintain access to local businesses adjacent to the work site at all times. 3. The Contractor shall supply, install, maintain, and remove all detour signing required for the project. Refer to the J Sheets for approximate locations of detour signs. All detour signs shall become property of the Contractor at the conclusion of the project. 4. The Contractor shall supply, install, maintain, and remove Portable Dynamic Message Sign (PDMS) required for the project. Refer to the J Sheets for approximate locations. 5. Installation of traffic control shall conform to the Manual on Uniform Traffic Control Devices (MUTCD) 11th Edition unless otherwise specified in the plans.	

111_01 10/14/22	
COORDINATED OPERATIONS	
Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.	
Project	Type of Work
6th St Bridge Redecking	City-sponsored project to redeck the 6th St bridge. The project is scheduled to be completed and opened to traffic prior to test pile program letting, but punchlist items may remain.
Bacon Creek Channel Sanitary Sewer Lining	City-sponsored project to install a liner in the existing sanitary sewer located within the concrete-lined Bacon Creek Channel. The City Contractor may be actively accessing and working within the channel during the installation of the test piles. An access ramp was graded into the channel south of the test pile installation sites. The Contractor shall not inhibit access into the channel.







CONSTRUCTION NOTES:

All monitoring and instrumentation devices associated with the test pile program shall be installed by others. The Contractor shall not disturb the monitoring devices, power and data cables, and survey control points for the duration of the test pile program. The Contractor is responsible for installing security fencing around the instrumentation sites and providing worksite security measures as needed.

The instrumentation readings shall be continuously monitored against alert thresholds for ground vibration, ground deformation/settlement, pier settlement, pier tilt, and ambient air temperature. The Contractor must provide clear line-of-sight between survey station(s), control monuments, and survey elements during the active data collection.

The Contractor shall not be permitted to begin installation of test elements until baseline instrumentation readings (as defined in the Instrumentation and Monitoring Plan) are acquired so normal site conditions can be isolated from construction operations. The baseline data collection period shall be 1-week but may change depending on site conditions.

At the beginning of each working day, the Contractor shall attend a pre-work meeting with representatives from Iowa DOT (Engineer), instrumentation monitoring, survey monitoring, and the engineering consultant. The purpose of the meeting is to review roles and responsibilities, review stop work parameters, and discuss results from the previous working day that may impact the current working day operations.

All test piles are HP 14x117 sections. Each test pile shall be driven according to the pile notes on this sheet. Pile driving shall be paused by the Engineer if an alert threshold is exceeded. Pile driving shall resume on the direction of the Engineer.

All test piles shall be installed with a DELMAG D30-32 open end diesel hammer. Use a hammer cushion according to the manufacturer's recommendations.

Pile Driving Analyzer (PDA) testing shall be included at all four test pile locations.

The test piles shall be driven in the prescribed sequence and in the orientation shown on Sheet U.1.

Test Piles #1 and #2 may be driven in one working day. Test Pile #1 shall be installed in its entirety prior to beginning installation of Test Pile #2. The retap for Test Piles #1 and #2 shall occur on the following working day.

Test Pile #3, Test Pile #4, the test casing, and the test sheet pile group shall be limited to one complete installation per working day. The retap and/or removal shall occur on the following working day.

Leave a minimum of 6 feet of pile exposed above the ground surface after initial pile driving to facilitate retapping the following working day.

The test casing element shall be a 54-inch diameter steel casing with a minimum wall thickness of 0.375 inches. The test casing shall be installed with a vibratory hammer to a depth of 60 feet. Casing installation shall be paused by the Engineer if an alert threshold is exceeded. Installation shall resume on the direction of the Engineer.

The test sheet pile group shall be a PZ 27 section or larger. The width of the installed sheet pile section shall be 15 feet minimum. The sheet pile section shall be installed with a vibratory hammer to a depth of 40 feet. Sheet pile installation shall be paused by the Engineer if an alert threshold is exceeded. Installation shall resume on the direction of the Engineer.

The test sheet pile group shall be extracted using a vibratory hammer. The removal of the sheet pile cannot begin until a minimum of 12 hours has elapsed since the end of installation operations. Removal shall be paused by the Engineer if an alert threshold is exceeded. Removal shall resume on the direction of the Engineer.

The Contractor shall coordinate with monitoring and inspection personnel to maintain detailed driving logs with driving rates and time stamps for all test element installation and removal activities. Activities include but are not limited to: pile driving, pile splicing, pile retapping, vibratory installation, vibratory removal, and any pauses in operations due to alert threshold exceedence or otherwise.

The Contractor shall protect all existing utilities in-place.

PILE NOTES:

The contract length of 160 feet for the test pile is based on a non-cohesive soil classification, a total factored axial load per pile (PU) of 290 kips, and a geotechnical resistance factor (PHI) of 0.55.

The nominal axial bearing resistance for construction control was determined from a non-cohesive soil classification and a geotechnical resistance factor (PHI) of 0.55. Piles are assumed to be driven from a start elevation at ground line.

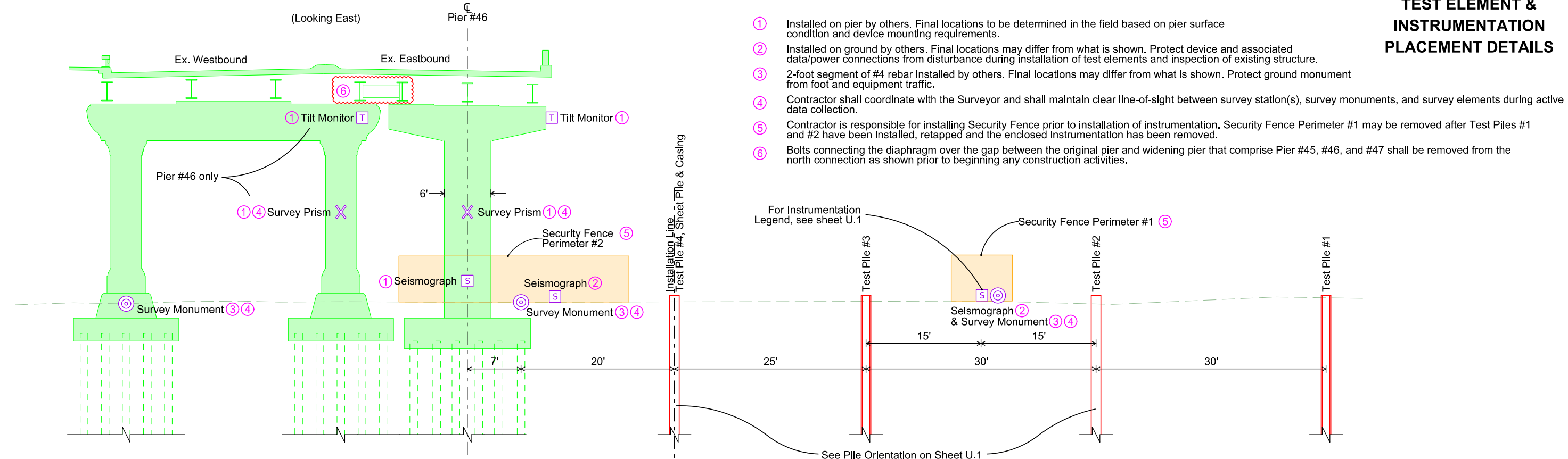
The required nominal axial bearing resistance for the test piles is 260 tons at end of drive or retap. The pile contract length shall be driven as per plan unless piles reach refusal. Construction control requires a Wave Equation Analysis Program (WEAP) simulation with bearing graph, to be prepared by Iowa DOT.

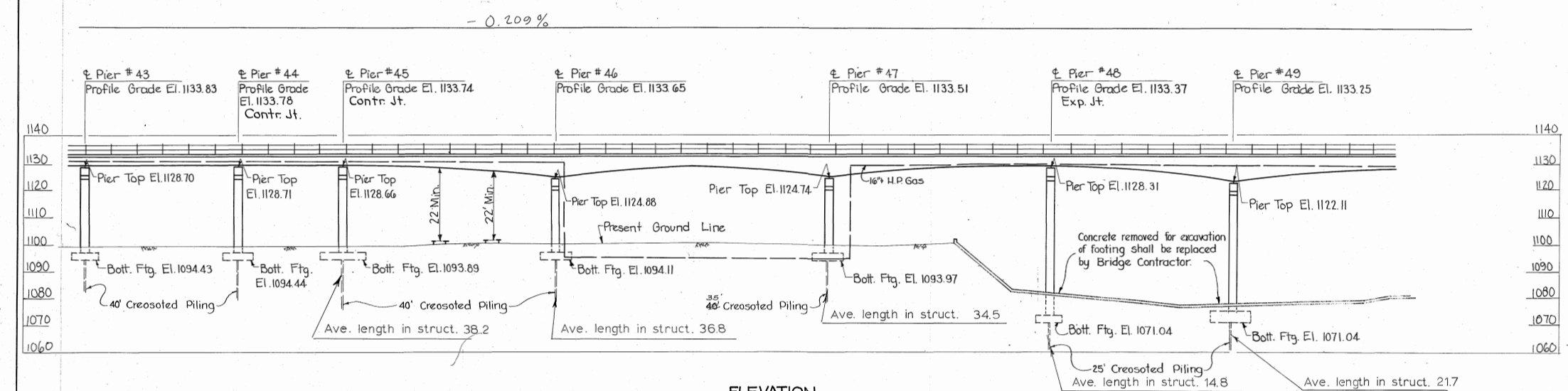
RESPONSIBILITIES BY OTHERS - ITEMS NOT COVERED OR PAID FOR IN THIS CONTRACT

- Inspection(s) and condition assessment(s) of the Gordon Drive Viaduct.
- Installation and maintenance of instrumentation and monitoring devices.
- Installation of survey monuments and establishment of survey control points outside the project zone of influence.
- Data collection, monitoring and reporting for vibration, displacement, and pier tilt measurements.
- Notification and reporting of alert threshold exceedence.

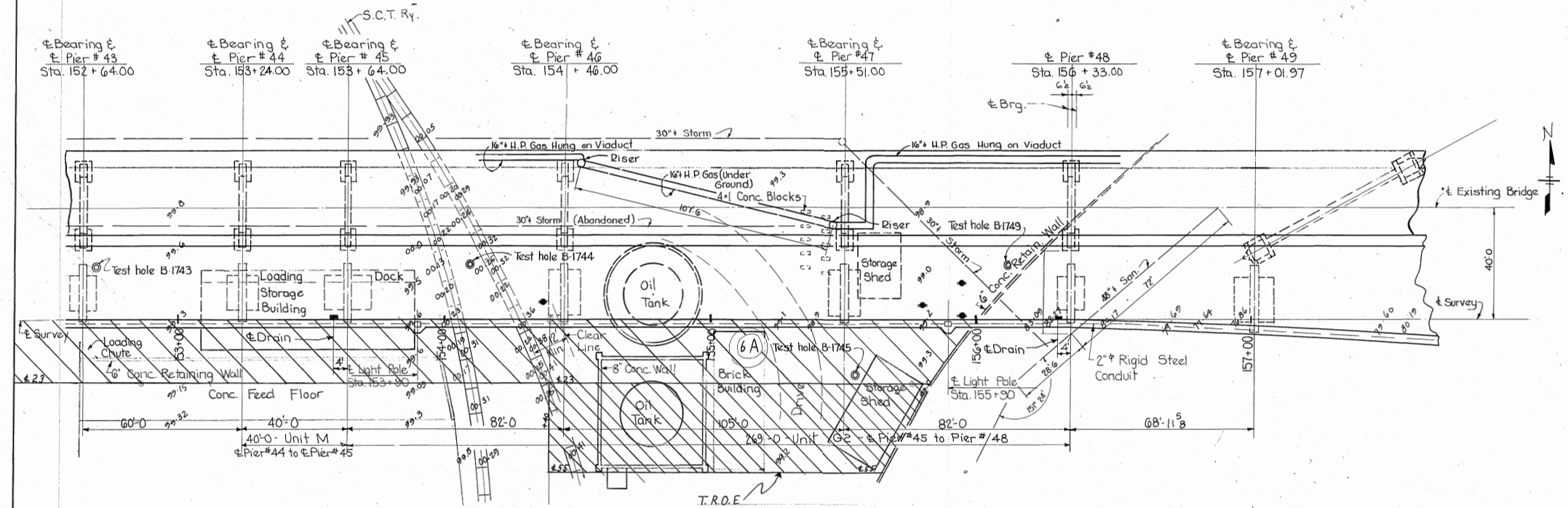
Refer to Instrumentation and Monitoring Plan for project contacts and additional details regarding project roles and responsibilities.

TEST ELEMENT & INSTRUMENTATION PLACEMENT DETAILS





ELEVATION

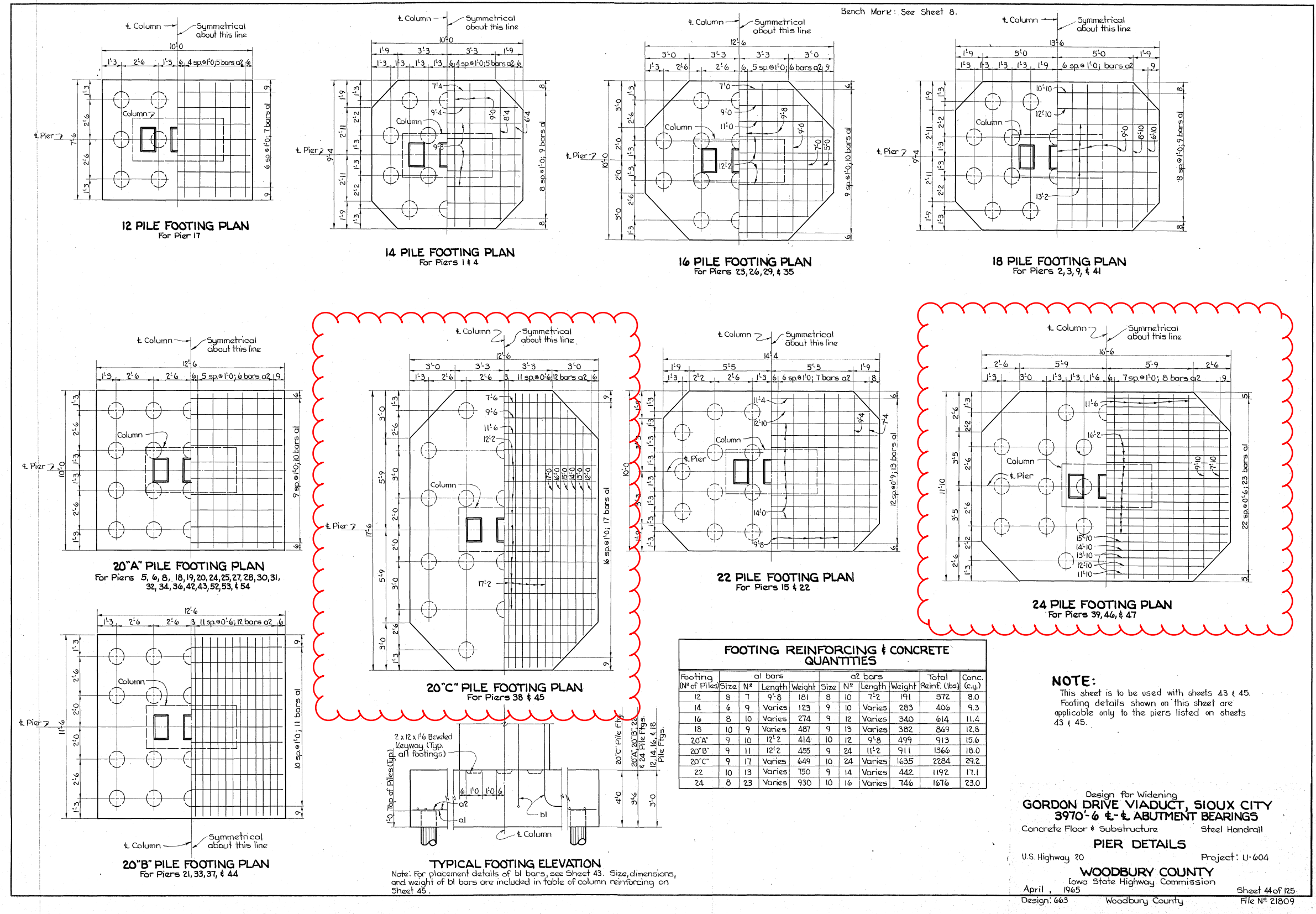


PLAN
Scale: 1" = 20'

SWIFT & COMPANY OF CHICAGO 8,660 SQ. FT.
Acquired JUNE 9, 1965
BY EASEMENT

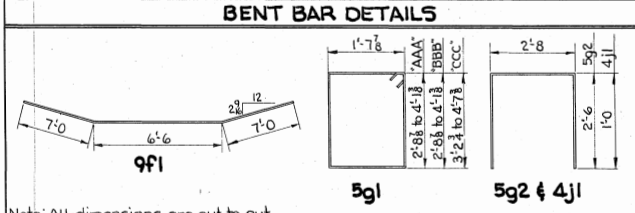
Design For Widening
GORDON DRIVE VIADUCT, SIOUX CITY
3970'-6" E-ABUTMENT BEARINGS
Concrete Floor & Substructure Steel Handrail
SITUATION PLAN
Station: U.S.Nº20 Project No. U-604(3)
WOODBURY COUNTY
Iowa State Highway Commission
April 1965 Sheet 15 of 125
Design No. 663 Woodbury County File No. 21809

**FOR INFORMATION ONLY
NOT PART OF PLANS**



**FOR INFORMATION ONLY
NOT PART OF PLANS**

PIER CAP REINFORCING STEEL																									
Bar	Shape	PIER CAP "AAA"				PIER CAP "BBB"				PIER CAP "CCC"															
		Size	N ^o	Length	Weight	Size	N ^o	Length	Weight	Size	N ^o	Length	Weight												
F1		9	4	20'-6"	279	9	4	20'-6"	279	9	4	20'-6"	279												
F2		9	2	16'-0"	109	9	2	16'-0"	109	9	2	16'-0"	109												
F3		9	2	20'-2"	137	9	2	20'-2"	137	9	2	20'-2"	137												
G1		5	48	Varies	544	5	32	Varies	363	5	56	Varies	692												
G2		5	6	7'-6"	47	5	6	7'-6"	47	5	6	7'-6"	47												
H1		10	6	20'-2"	521	10	6	20'-2"	521	11	6	20'-2"	643												
H2		10	6	20'-2"	521	8	4	20'-2"	215	10	6	20'-2"	521												
J1		4	3	4'-6"	9	4	3	4'-6"	9	4	3	4'-6"	9												
K1		4	2	3'-2"	4	4	2	3'-2"	4	4	2	3'-2"	4												
		Total (lbs.)				2171				Total (lbs.)				1684				Total (lbs.)				2441			



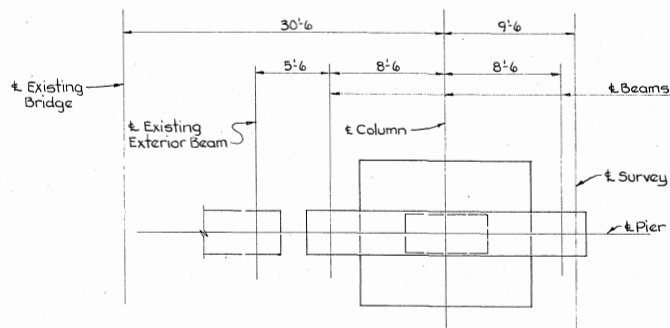
Note: All dimensions are out to out.

PIER CAP CONCRETE QUANTITIES			
	PIER CAP "AAA"	PIER CAP "BBB"	PIER CAP "CCC"
Quantity, C.Y.	9.4	9.4	10.5

PIER COLUMN REINFORCING AND CONCRETE QUANTITIES																	
Pier	Column	Column Height	bar b1					bar c1				bar d1				Total Reinf. (lbs.)	Concrete (cu. yd.)
			Size	N ^o	Dim. "X"	Length	Weight	Size	N ^o	Length	Weight	Size	N ^o	Length	Weight		
1	"AA"	9'-0"	10	24	4'-6"	6'-11"	714	10	24	12'-0"	1239	5	18	12'-3"	230	2183	5.5
2	"AA"	11'-0"	10	24	4'-6"	6'-11"	714	10	24	14'-0"	1446	5	22	12'-3"	281	2441	6.7
3	"AA"	14'-0"	10	24	4'-6"	6'-11"	714	10	24	17'-0"	1756	5	28	12'-3"	358	2828	8.6
4	"AA"	15'-0"	10	24	4'-6"	6'-11"	714	10	24	18'-0"	1859	5	30	12'-3"	383	2956	9.2
5	"AA"	17'-0"	10	24	5'-0"	7'-5"	766	10	24	20'-0"	2045	5	34	12'-3"	434	3265	10.4
6	"AA"	18'-0"	10	24	5'-0"	7'-5"	766	10	24	21'-0"	2149	5	36	12'-3"	460	3395	11.0
8	"AA"	20'-0"	10	24	5'-0"	7'-5"	766	10	24	23'-0"	2375	5	40	12'-3"	511	3652	12.2
9	"AA"	20'-0"	10	24	4'-6"	6'-11"	714	10	24	23'-0"	2375	5	40	12'-3"	511	3600	12.2
15	"AA"	21'-0"	10	24	5'-0"	7'-5"	766	10	24	24'-0"	2479	5	42	12'-3"	537	3782	12.8
17	"AA"	21'-0"	10	24	4'-6"	6'-11"	714	10	24	24'-0"	2479	5	42	12'-3"	537	3730	12.8
18	"AA"	22'-0"	10	24	5'-0"	7'-5"	766	10	24	25'-0"	2582	5	44	12'-3"	562	3910	13.4
19	"AA"	23'-0"	10	24	5'-0"	7'-5"	766	10	24	26'-0"	2685	5	46	12'-3"	588	4039	14.1
20	"AA"	24'-0"	10	24	5'-0"	7'-5"	766	10	24	27'-0"	2788	5	48	12'-3"	613	4167	14.7
21	"BB"	25'-0"	10	42	5'-0"	7'-5"	1340	10	42	28'-0"	5060	5	50	12'-7"	656	7056	15.3
22	"AA"	25'-0"	10	24	5'-0"	7'-5"	766	10	24	28'-0"	2892	5	50	12'-3"	639	4297	15.3
23	"AA"	25'-0"	10	24	4'-6"	6'-11"	714	10	24	28'-0"	2892	5	50	12'-3"	639	4245	15.3
24	"AA"	25'-0"	10	24	5'-0"	7'-5"	766	10	24	28'-0"	2892	5	50	12'-3"	639	4297	15.3
25	"AA"	26'-0"	10	24	5'-0"	7'-5"	766	10	24	29'-0"	2995	5	52	12'-3"	664	4425	15.9
26	"AA"	26'-0"	10	24	4'-6"	6'-11"	714	10	24	29'-0"	2995	5	52	12'-3"	664	4373	15.9
27	"AA"	27'-0"	10	24	5'-0"	7'-5"	766	10	24	30'-0"	3098	5	54	12'-3"	690	4554	16.5
28	"AA"	27'-0"	10	24	5'-0"	7'-5"	766	10	24	30'-0"	3098	5	54	12'-3"	690	4554	16.5
29	"AA"	28'-0"	10	24	4'-6"	6'-11"	714	10	24	31'-0"	3201	5	56	12'-3"	716	4631	17.1
30	"AA"	28'-0"	10	24	5'-0"	7'-5"	766	10	24	31'-0"	3201	5	56	12'-3"	716	4683	17.1
31	"AA"	28'-0"	10	24	5'-0"	7'-5"	766	10	24	31'-0"	3201	5	56	12'-3"	716	4683	17.1
32	"AA"	28'-0"	10	24	5'-0"	7'-5"	766	10	24	31'-0"	3201	5	56	12'-3"	716	4683	17.1
33	"CC"	28'-0"	11	42	5'-6"	7'-11"	1767	11	42	31'-0"	6918	5	56	12'-7"	735	9420	17.1
34	"AA"	28'-0"	10	24	5'-0"	7'-5"	766	10	24	31'-0"	3201	5	56	12'-3"	716	4683	17.1
35	"AA"	28'-0"	10	24	4'-6"	6'-11"	714	10	24	31'-0"	3201	5	56	12'-3"	716	4631	17.1
36	"AA"	28'-0"	10	24	5'-0"	7'-5"	766	10	24	31'-0"	3201	5	56	12'-3"	716	4683	17.1
37	"BB"	28'-0"	10	42	5'-0"	7'-5"	1340	10	42	31'-0"	5603	5	56	12'-7"	735	7678	17.1
38	"DD"	28'-0"	11	42	6'-0"	8'-5"	1878	11	42	31'-0"	6918	5	56	Varies	801	9597	20.7
39	"AA"	23'-0"	10	24	5'-0"	7'-5"	766	10	24	26'-0"	2685	5	46	12'-3"	588	4039	14.1
41	"AA"	28'-0"	10	24	4'-6"	6'-11"	714	10	24	31'-0"	3201	5	56	12'-3"	716	4631	17.1
42	"AA"	27'-0"	10	24	5'-0"	7'-5"	766	10	24	30'-0"	3098	5	54	12'-3"	690	4554	16.5
43	"AA"	26'-0"	10	24	5'-0"	7'-5"	766	10	24	29'-0"	2995	5	52	12'-3"	664	4425	15.9
44	"CC"	26'-0"	11	42	5'-6"	7'-11"	1767	11	42	29'-0"	6471	5	52	12'-7"	682	8920	15.9
45	"DD"	26'-0"	11	42	6'-0"	8'-5"	1878	11	42	29'-0"	6471	5	52	Varies	739	9088	19.0
46	"AA"	22'-0"	10	24	5'-0"	7'-5"	766	10	24	25'-0"	2582	5	44	12'-3"	562	3910	13.4
47	"AA"	22'-0"	10	24	5'-0"	7'-5"	766	10	24	25'-0"	2582	5	44	12'-3"	562	3910	13.4
52	"AA"	20'-0"	10	24	5'-0"	7'-5"	766	10	24	23'-0"	2375	5	40	12'-3"	511	3652	12.2
53	"AA"	21'-0"	10	24	5'-0"	7'-5"	766	10	24	24'-0"	2479	5	42	12'-3"	537	3782	12.8
54	"AA"	19'-0"	10	24	5'-0"	7'-5"	766	10	24	22'-0"	2272	5	38	12'-3"	486	3524	11.6

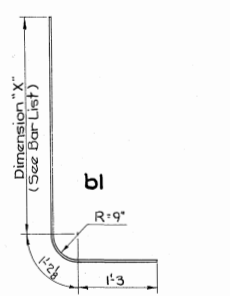
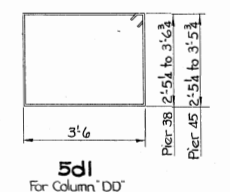
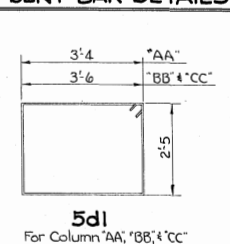
Note: All dimensions are out to out. Radii are to center of bar.

Bench Mark: See Sheet 8.

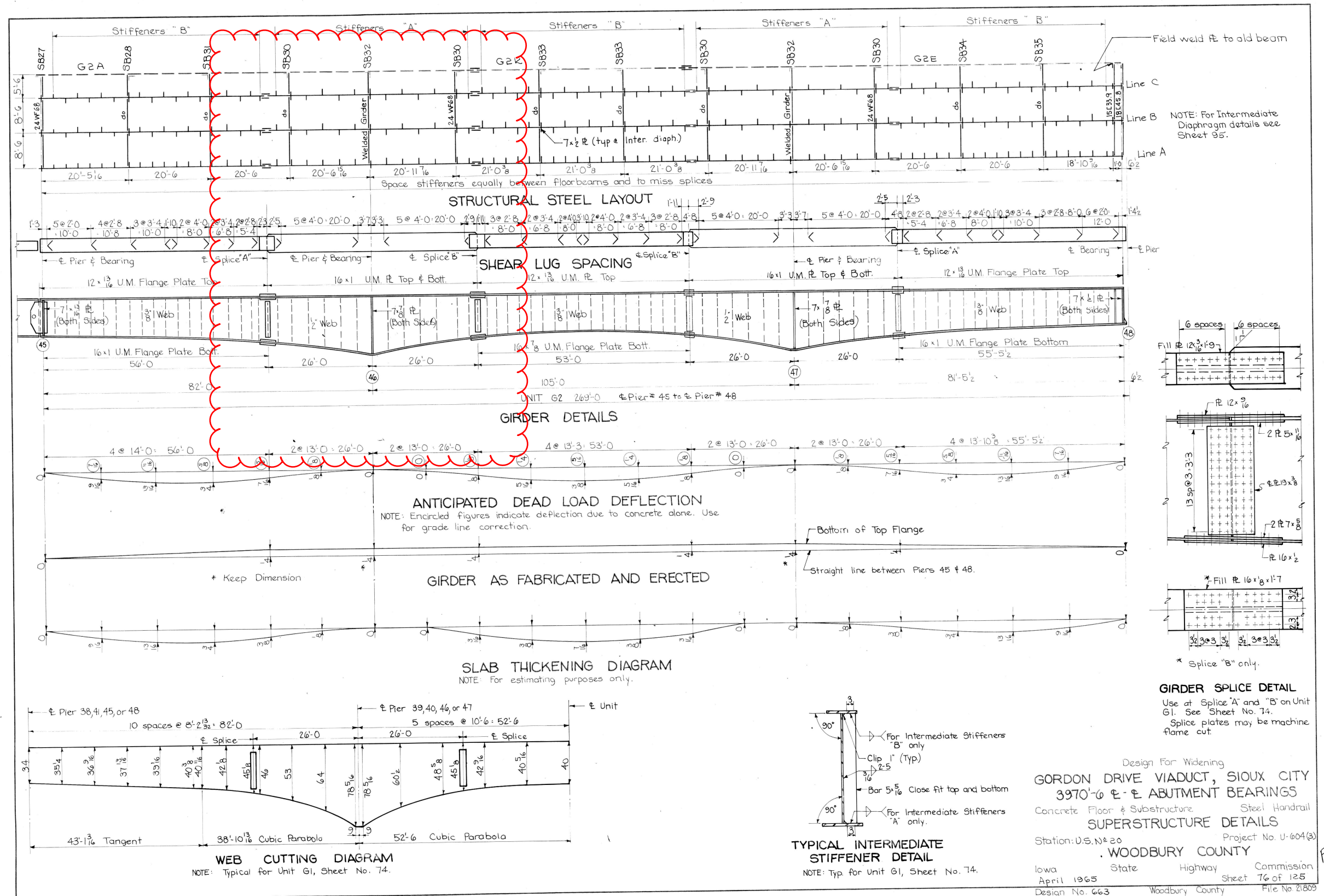


TYPICAL PIER LOCATION AND LAYOUT
(Typical only for Piers listed on this sheet and on sheets 43 & 44)

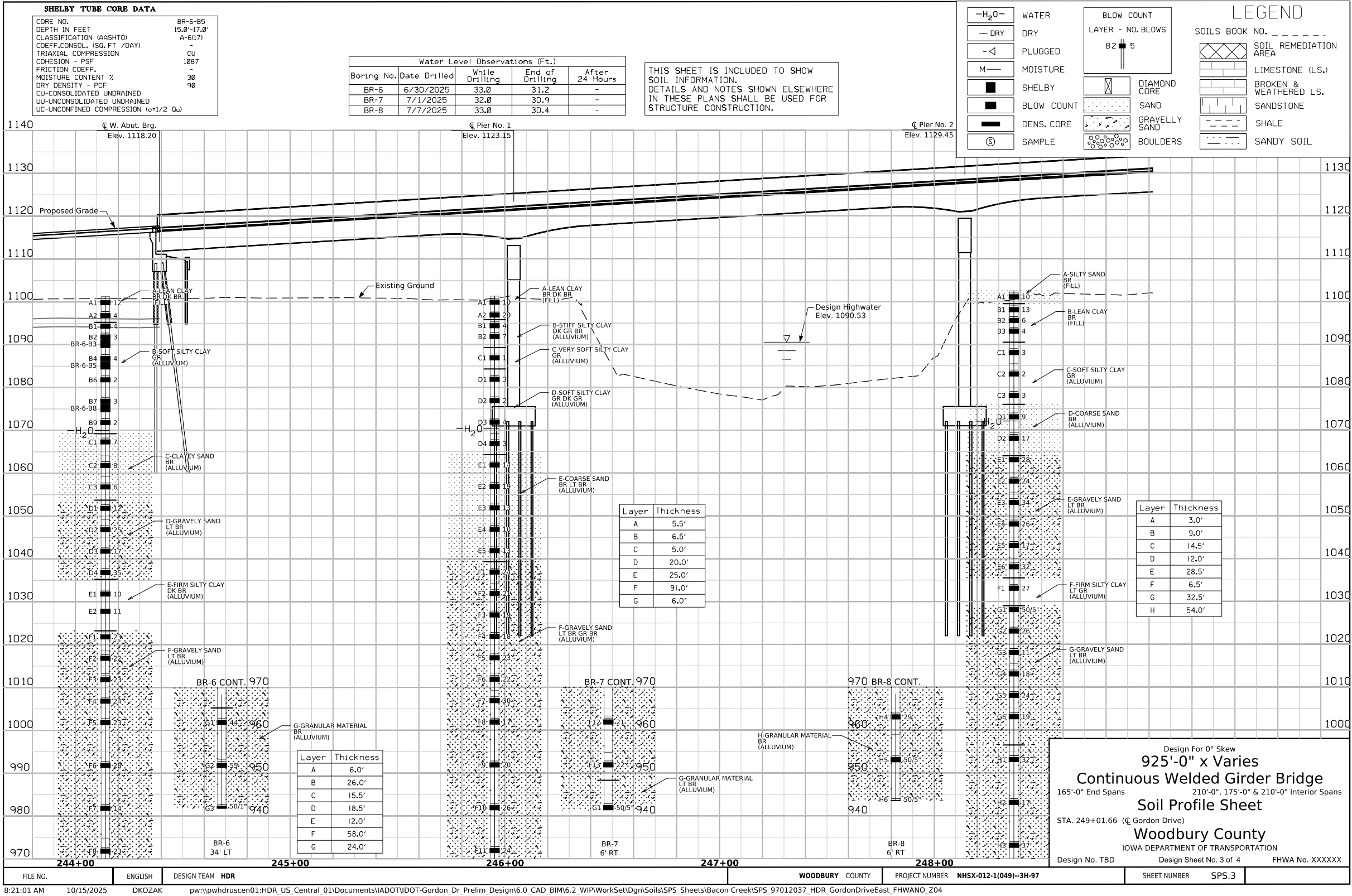
BENT BAR DETAILS



PIER DATA									
Pier	Brg. Type	Pier Height	Bott. Ftg. Elevation	Elevation A (Low Step)	Elevation B	Pier Top Elevation C	Footing (N ^o of Piles)	Column	Cap
1	Fixed	16'-6"	1095.86	1112.36	1112.50	1112.63	14	"AA"	"BBB"
2	Exp.	18'-6"	1096.05	1114.55	1114.69	1114.82	18	"AA"	"AAA"
3	Exp.	21'-6"	1095.44	1116.94	1117.08	1117.21	18	"AA"	"AAA"
4	Exp.	22'-6"	1096.04	1118.54	1118.68	1118.81	14	"AA"	"BBB"
5	Exp.	25'-0"	1094.98	1119.98	1120.12	1120.25	20'A"	"AA"	"AAA"
6	Exp.	26'-0"	1095.36	1121.36	1121.48	1121.60	20'A"	"AA"	"AAA"
8	Exp.	28'-0"	1094.28	1122.28	1122.44	1122.58	20'A"	"AA"	"AAA"
9	Exp.	27'-6"	1095.69	1122.69	1122.83	1122.97	18	"AA"	"AAA"
15	Exp.	29'-6"	1095.10	1124.60	1124.74	1124.87	22	"AA"	"CCC"
17	Exp.	28'-6"	1096.84	1125.34	1125.48	1125.61	12	"AA"	"BBB"
18	Exp.	30'-0"	1095.53	1125.53	1125.67	1125.80	20'A"	"AA"	"AAA"
19	Exp.	31'-0"	1094.82	1125.82	1125.96	1126.09	20'A"	"AA"	"AAA"
20	Exp.	32'-0"	1094.11	1126.11	1126.25	1126.38	20'A"	"AA"	"AAA"
21	Fixed	33'-0"	1093.37	1126.37	1126.51	1126.64	20'B"	"BB"	"BBB"
22	Exp.	33'-6"	1093.03	1126.53	1126.67	1126.80	22	"AA"	"CCC"
23	Exp.	32'-6"	1094.33	1126.83	1126.97	1127.10	16	"AA"	"BBB"
24	Exp.	33'-0"	1093.96	1126.96	1127.10	1127.23	20'A"	"AA"	"AAA"
25	Exp.	34'-0"	1093.17	1127.17	1127.31	1127.44	20'A"	"AA"	"AAA"
26	Fixed	33'-6"	1093.89	1127.39	1127.53	1127.66	16	"AA"	"BBB"
27	Exp.	35'-0"	1092.48	1127.48	1127.62	1127.75	20'A"	"AA"	"AAA"
28	Exp.	35'-0"	1092.65	1127.65	1127.79	1127.92	20'A"	"AA"	"AAA"
29	Exp.	35'-6"	1092.35	1127.85	1127.99	1128.12	16	"AA"	"BBB"
30	Exp.	36'-0"	1091.91	1127.91	1128.05	1128.18	20'A"	"AA"	"AAA"
31	Exp.	36'-0"	1092.03	1128.03	1128.17	1128.30	20'A"	"AA"	"AAA"
32	Exp.	36'-0"	1092.15	1128.15	1128.29	1128.42	20'A"	"AA"	"AAA"
33	Fixed	36'-0"	1092.29	1128.29	1128.43	1128.56	20'B"	"CC"	"BBB"
34	Exp.	36'-0"	1092.30	1128.30	1128.44	1128.57	20'A"	"AA"	"AAA"
35	Exp.	35'-6"	1092.93	1128.43	1128.57	1128.70	16	"AA"	"BBB"
36	Exp.	36'-0"	1092.42	1128.42	1128.56	1128.69	20'A"	"AA"	"AAA"
37	Fixed	36'-0"	1092.51	1128.51	1128.65	1128.78	20'B"	"BB"	"AAA"
38	Fixed	36'-6"	1092.04	1128.54	1128.68	1128.81	20'C"	"DD"	"BBB"



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