

**BRIDGEPORT WEST SEWER IMPROVEMENTS
SECTION C – LIFT STATION IMPROVEMENTS
CITY OF SIOUX CITY, IOWA
Project No. 6827C-539-201 – 2016**

CONTRACTOR'S BID DATE: Tuesday, March 8, 2016, 1:00 p.m.

PLACE FOR CONTRACTORS
TO SUBMIT BIDS:

City of Sioux City
City Clerk
Customer Service Center, 1st Floor
405 Sixth Street
P.O. Box 7402
Sioux City, IA 51102

ADDENDUM NO. 2

March 3, 2016

TO ALL PLANHOLDERS:

The following changes, additions, and/or deletions are hereby made a part of the contract documents for the above-referenced project, as fully and completely as if the same were fully set forth therein:

GENERAL

A Pre-bid Meeting was held on February 23, 2016 at 1:00 p.m. at the York Street Lift Station (3901 Southgate Drive, Sioux City, IA).

The minutes and attendance sheet for the Pre-Bid Meeting are attached.

SPECIFICATIONS

1. Refer to Bidding Requirements:

Replace pages C-3 and C-4 with the attached sheets.

2. Refer to Contracting Requirements:

Replace pages D-3 and D-4 with the attached sheets.

3. Refer to Spec Section 22 0523.25 Surge Relief and Anticipator Valves:

Replace Section 22 0523.25 with the attached sheets. Replaced paragraph 2.01,X as follows:

X. Approved Manufacturers:

1. GA Industries Inc.
2. Ross Valve.
3. Singer Valve, Inc.
4. Engineer approved equivalent.

4. Refer to Spec Section 22 0523.60 Valve and Gate Operators:

Replace Section 22 0523.60 with the attached sheets. Deleted 2.01,B,h.

5. Refer to Spec Section 25 5100, Instrumentation and Control Integration :

Replace Section 25 5100 with the attached sheets. Add the following to 1.01:

"B. System Integrator is responsible for providing items listed above. The General Contractor and/or Electrical Contractor will be responsible for physically installing all items provided by the System Integrator and for providing and installing any conduit and wire to such items."

6. Refer to Spec Section 41 2223.19, Hoist and Monorail System:

Replace Section 41 2223.19 with the attached sheets. The following changes were made:

Add the following to 1.07.A:

"3. Monorail curve radius shall be 3'-0".

Change 2.01.B.3.a & b as follows:

- "a. Provide pendant control with on/off, lift, lower, forward and reverse control, installed at 3'-6" above floor.
- b. Control(s) shall be single-speed or two-speed."

Delete 2.01.C.5 and change C.6 to C.5:

"5. Provide festoon system with heavy duty rigid C-track for each monorail mounted hoist system."

7. Refer to Spec Section 44 4256.08 Submersible Pumping Systems:

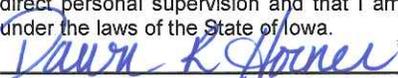
Replace Section 44 4256.08 with the attached sheets. Replace 3.04,B,5 with the following:

"5. Discharge Size (in): [8]"

PLANS

1. Replace Sheets C.01-C.03. See changes noted on Plan Sheet.
2. Replace Sheets D.03-D.06. See changes noted on Plan Sheet.
3. Replace Sheet D.21. See changes noted on Plan Sheet.
4. Replace Sheet E.01. See changes noted on Plan Sheet.
5. Replace Sheets E.05-E.06. See changes noted on Plan Sheet.
6. Replace Sheet E.11. See changes noted on Plan Sheet.
7. Replace Sheet J.01. See changes noted on Plan Sheet.
8. Replace Sheet U.13. See changes noted on Plan Sheet.
9. Refer to Sheet U.08. The use of the manhole utility marker is no longer needed for the project.
10. Replace Sheet U.16. See changes noted on Plan Sheet.

All bidders shall acknowledge receipt and acceptance of ADDENDUM NO. 2 by signing the space provided on the Bid Form.

	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.	
		Date: <u>3/3/16</u>
	DAWN R. HORNER, P.E.	
	License No. 16306	
	My renewal date is December 31, 2017	
Pages or sheets covered by this seal:		
<u>Entire Document.</u>		

Prebid Meeting Agenda

Bridgeport West Sewer Improvements, Section C: Lift Station Improvements Sioux City, Iowa

CIP No. 539-201

Date: February 23, 2016 at 1:00 P.M.

1. Attendance of Prebid Meeting

- a) Distribute attendance roster for everyone to sign.
- b) HR Green: Dawn Horner, Project Manager; Kenny Van Ballegooyen, Construction Observer
- c) City: Lincoln Ryan, Maintenance Supervisor; Jim Maynes, WWTP Superintendent

2. Bid Information

- a) Bid Date: Tuesday, March 8, 2016, 1 pm

3. Project Overview

- a) Coordinate schedule closely with Owner and Engineer
- b) Bridgeport Lift Station Improvements: New submersible pumps, VFDs, electrical, controls, piping, valves, underground concrete flow meter vault, underground concrete forcemain stilling structure, gravity sewer, lined manhole, temporary bypass pumping, pavement patching, traffic control, erosion control, and site restoration.
 - a. Minimal flow to existing lift station; vac truck available during shutdown.
 - b. Stilling structure can be built immediately.
 - c. Work on Murray for new manhole shall be on weekend; maintain industry access during pavement replacement.
 - d. Flow meter vault can be built immediately.
- c) York Lift Station Improvements: Forcemain extension to existing Gelita forcemain, cleaning/inspection of existing forcemain, temporary bypass structure and pumping, new dry well submersible pumps, VFDs, electrical, controls, piping, valves, flow meters, HVAC, generator, hoist crane, hatch, coating, pavement patching, traffic control, erosion control, and site restoration.
 - a. Traffic Control.
 - b. Forcemain – must be completed before May 11th before Explorer baseball season; maintain work in City right of way.

Addendum #2

- c. Demo in lift station shall not commence prior to 6 weeks before pump delivery. Work beyond pump delivery shall be completed within 4 weeks. Bypass bid item based on this schedule (10 weeks).
- d. Stage existing forcemain cleaning after new forcemain is in operation with new pumps.

4. Bid Form, Liquidated Damages

- a) Follow City bidding requirements described in Project Manual.
- b) See Bid Form for list of bid items and quantities.
- c) Final Completion Date: November 20, 2016.
- d) Engineer's Opinion of Probable Cost: \$2,400,000.
- e) Liquidated Damages: \$250 per working day.

5. Construction Utilities

- a) Field verify all utilities.

6. Project Meetings

- a) Bi-weekly Meetings to be held on site depending on progress.

7. Discussion of Plans

- a) Site visit to both lift stations is strongly encouraged.

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Addendum #2

Attendance Roster			
Name	Company	Cell	Email
Dawn Horner	HR Green	605-351-2111	dhorner@hrgreen.com
Travis Hahn	Dakota Pump	605-770-9371	Travis.hahn@dakotapump.com
Kerry VanDallegooyen	HR Green	605-359-1705	Kvandallegooyen@hrgreen.com
Tim Shaw	Eriksen Const	402-658-8061	tims@eriksenconst.com
Miko Christensen	Groundworks, Const	712-261-1001	ghllc4@ncw.net
BOB LESSARD	LESSARD CON. INC	712-253-2003	lessardb@lessardcon.com
Heath Warrick	Dicks Electric	402-426-4614	dickselectric@gmail.com
Brad Krommenhoek	Thompson Electric	712-204-3214	BKrommenhoek@tec-corp.com
Barrie Larsen	Thompson Electric	712-389-1548	blarsen@tec-corp.com
Rick Morgan	Morgan Painting	712-261-1436	rickmorgan@questoffice.net
Zeb Davis	Kevin O'Neill E&A	712-204-6465	zeb@odellinc.com
Jim Maynes	City WWTP		
Mack Swame	City		
BRAD SMITH	SubSurface, LLC	712-203-1293	bsmith@SubSurface.com
ADAM GIBBY	LESSARD CON.	712-203-0120	adamm@lessardcon.com
Tim Higgins	City	712-898-4098	thiggins@swave-city.org

Addendum #2

**BID ITEMS, QUANTITIES AND PRICES FOR
BRIDGEPORT WEST SEWER IMPROVEMENTS
SECTION C - LIFT STATION IMPROVEMENTS**

This is a UNIT BID PRICE CONTRACT. The bidder must provide the Unit Bid Price, the Total Bid Price, any Alternate Price(s), and the Total Construction Cost; in case of discrepancy, the Unit Bid Price governs. The quantities shown on this Attachment - Bid Items, Quantities, and Prices are approximate only, but are considered sufficiently adequate for the purpose of comparing bids. The total Construction Cost plus any alternate selected by the City shall be used only for comparison of bids. The Total Construction Cost, including any Alternates, shall be used for determining the sufficiency of the bid security.

ITEM NO.	STD. BID ITEM	ITEM DESCRIPTION	UNIT	APPROX QTY	UNIT PRICE	TOTAL
DIVISION 1 - GENERAL						
1	1070-206-X-X	TRAFFIC CONTROL	LS	1		
2	1090-105-D-0	MOBILIZATION	LS	1		
DIVISION 2 - EARTHWORK						
3	2010-108-A-1	TREE REMOVAL	EA	2		
4	2010-108-D-1	TOPSOIL, ON-SITE	CY	223		
5	2010-108-E-0	EXCAVATION, CLASS 10	CY	42		
6	2010-108-G-0	SUBGRADE PREPARATION	SY	222		
DIVISION 3 - TRENCH EXCAVATION AND BACKFILL						
7	3010-XXX-X-X	DEWATERING	LS	1		
DIVISION 4 - SEWERS AND DRAINS						
8	4010-108-A-1	VCP SANITARY SEWER GRAVITY MAIN, TRENCHED (6")	LF	5		
9	4010-108-A-1	VCP SANITARY SEWER GRAVITY MAIN, TRENCHED (24")	LF	95		
10	4010-108-A-1	DI SANITARY SEWER GRAVITY MAIN, TRENCHED (24")	LF	5		
11	4010-108-C-1	DI SANITARY SEWER FORCE MAIN, TRENCHED (12")	LF	10		
12	4010-108-C-1	DI SANITARY SEWER FORCE MAIN, TRENCHED (16")	LF	365		
13	4010-108-H-0	REMOVAL OF SANITARY SEWER, 6" VCP	LF	5		
14	4010-108-H-0	REMOVAL OF SANITARY SEWER, 12" DI FORCEMAIN	LF	90		
15	4010-108-H-0	REMOVAL OF SANITARY SEWER, 24" VCP	LF	10		
16	4050-302-X-X	MURRAY ST. BYPASS PUMPING	LS	1		
17	4050-302-X-X	YORK LIFT STATION BYPASS PUMPING	LS	1		
18	SPECIAL	12" DI MJ LONG SLEEVE	EA	2		
19	SPECIAL	16" DI MJ 45 BEND	EA	10		
20	SPECIAL	16" x 16" DI MJ WYE	EA	1		
21	SPECIAL	16" DI BLIND FLANGE	EA	1		

Addendum #2

ITEM NO.	STD. BID ITEM	ITEM DESCRIPTION	UNIT	APPROX QTY	UNIT PRICE	TOTAL
22	SPECIAL	16" MJ RESILIENT WEDGE GATE VALVE	EA	3		
23	SPECIAL	20" MJ RESILIENT WEDGE GATE VALVE	EA	1		
24	SPECIAL	20" x 16" DI MJ WYE	EA	1		
25	SPECIAL	20" DI MJ LONG SLEEVE	EA	1		
26	SPECIAL	INSPECTION OF 16" FORCE MAIN	LF	4,800		
27	SPECIAL	INTERMEDIATE ACCESS	LS	1		
28	SPECIAL	GELITA FORCE MAIN CONNECTION	LS	1		
DIVISION 6 - STRUCTURES FOR SANITARY AND STORM SEWERS						
29	6010-108-A-0	72" LINED MANHOLE	EA	1		
30	6010-108-H-0	REMOVE MANHOLE	EA	1		
31	SPECIAL	BRIDGEPORT LIFT STATION AND VALVE VAULT	LS	1		
32	SPECIAL	BRIDGEPORT LIFT STATION ELECTRICAL/CONTROLS	LS	1		
33	SPECIAL	BRIDGEPORT FLOW METER VAULT	LS	1		
34	SPECIAL	BRIDGEPORT STILLING STRUCTURE	LS	1		
35	SPECIAL	YORK LIFT STATION	LS	1		
36	SPECIAL	YORK LIFT STATION ELECTRICAL/CONTROLS/HVAC	LS	1		
37	SPECIAL	YORK WET WELL CLEANING	HR	10		
38	SPECIAL	PAINTING AND COATINGS	LS	1		
DIVISION 7 - STREETS AND RELATED WORK						
39	7010-108-A-0	PCC PAVEMENT	SY	184		
40	7030-108-A-0	REMOVAL OF CONCRETE SIDEWALK	SY	92		
41	7030-108-E-0	SIDEWALK, P.C. CONCRETE, 4 IN.	SY	92		
42	7030-108-H-2	GRANULAR DRIVEWAY	SY	230		
43	7040-108-H-0	PAVEMENT REMOVAL	SY	184		
44	SPECIAL	TEMPORARY TRAFFIC LANE	TON	87		
45	SPECIAL	REMOVE AND RESET LIGHT POLE	EA	2		
DIVISION 9 - SITE WORK AND LANDSCAPING						
46	9010-108-A-1	SEEDING, FERTILIZING, AND MULCHING FOR HYDRAULIC SEEDING	AC	0.3		
47	9040-108-N-1	SILT FENCE	LF	777		
48	9040-108-N-2	SILT FENCE, REMOVAL OF SEDIMENT	LF	194.25		
49	9040-108-N-3	SILT FENCE, REMOVAL OF DEVICE	LF	777		
50	9040-108-T-1	INLET PROTECTION	EA	4		
51	9040-108-T-2	INLET PROTECTION, MAINTENANCE	EA	4		
52	9060-108-A-0	CHAIN LINK FENCE, 8'	LF	40		
53	9060-108-B-0	10' CHAIN LINK GATE	EA	1		

Addendum #2

ITEM NO.	STD. BID ITEM	ITEM DESCRIPTION	UNIT	APPROX QTY	UNIT PRICE	TOTAL
54	9060-108-D-0	REMOVAL AND REINSTALLATION OF CHAIN LINK FENCE, 8'	LF	140		
55	SPECIAL	BRIDGEPORT TEMPORARY SECURITY FENCE/GATE	LS	1		
56	SPECIAL	YORK TEMPORARY SECURITY FENCE/GATE	LS	1		
57	SPECIAL	STABILIZE CONSTRUCTION ENTRANCE	LS	1		
58	SPECIAL	WEED BARRIER FABRIC	SY	183		
59	SPECIAL	LANDSCAPE ROCK	TON	77		
60	SPECIAL	STREET SWEEPING	HR	20		
DIVISION 11 - MISCELLANEOUS						
61	11010-303-X-X	CONSTRUCTION STAKING	LS	1		
			TOTAL OF ITEMS 1 THRU 61			

NOTE: It is understood that the above quantities are estimated for the purpose of this bid. All quantities are subject to revision by the City. Quantity changes which amount to twenty percent (20%) or less of the total bid shall not affect the unit bid price.

Addendum #2

**CONTRACT ATTACHMENT:
 BID ITEMS, QUANTITIES, AND PRICES FOR
 BRIDGEPORT WEST SEWER IMPROVEMENTS
 SECTION C – LIFT STATION IMPROVEMENTS**

THIS CONTRACT IS AWARDED AND EXECUTED FOR COMPLETION OF THE WORK SPECIFIED IN THE CONTRACT DOCUMENTS FOR THE BID PRICES TABULATED BELOW AS PROPOSED BY THE CONTRACTOR IN ITS BID SUBMITTED IN ACCORDANCE WITH INSTRUCTIONS TO BIDDERS AND NOTICE OF PUBLIC HEARING. ALL QUANTITIES ARE SUBJECT TO REVISION BY THE CITY. QUANTITY CHANGES WHICH AMOUNT TO TWENTY PERCENT (20%) OR LESS OF THE AMOUNT BID SHALL NOT AFFECT THE UNIT BID PRICE.

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9	4010-108-A-1	VCP SANITARY SEWER GRAVITY MAIN, TRENCHED (24")	LF	95		
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11	4010-108-C-1	DI SANITARY SEWER FORCE MAIN, TRENCHED (12")	LF	10		
12	4010-108-C-1	DI SANITARY SEWER FORCE MAIN, TRENCHED (16")	LF	365		
13	4010-108-H-0	REMOVAL OF SANITARY SEWER, 6" VCP	LF	5		
14	4010-108-H-0	REMOVAL OF SANITARY SEWER, 12" DI FORCEMAIN	LF	90		
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DIVISION 11 - MISCELLANEOUS						
61	11010-303-X-X	CONSTRUCTION STAKING	LS	1		
			TOTAL OF ITEMS 1 THRU 61			

SECTION 22 0523.25
SURGE RELIEF AND ANTICIPATOR VALVES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surge Anticipator and Surge Relief Valves and Accessories.

1.02 REFERENCES

- A. ANSI B16.1 - Cast Iron Pipe Flanges and Flanged Fittings.
- B. ASTM B61 - Standard Specification for Steam or Valve Bronze Castings.
- C. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings.
- D. AWWA C550 - Protective Epoxy Interior Coatings for Valves and Hydrants.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Submit the following as appropriate for each valve provided:
 - 1. Outline and installation drawings for equipment and fixtures furnished.
 - 2. Equipment performance data and operating characteristics.
 - 3. Manufacturer's catalog data, marked to indicate materials being furnished as standard equipment, fixtures, specialties, and accessories.
 - 4. Shop Drawings on shop-fabricated systems.
 - 5. Drawings showing arrangement of piping, controls, and accessory equipment furnished.
- C. Manufacturer's Certificates: Certify that products of this section meet or exceed specified requirements.
- D. Operation and Maintenance Manual as described in Section 01 7800.

1.04 DELIVERY, STORAGE, AND PROTECTION

- A. Arrange delivery of products in accordance with construction schedules and to allow inspection prior to installation.
- B. Coordinate deliveries to avoid conflict with conditions at site.
- C. Deliver products in undamaged condition in original containers or packaging, with identifying labels intact and legible.
- D. Clearly mark to identify partial deliveries of component parts to facilitate assembly.
- E. Store products immediately on delivery and protect until installed. Storage to be done according to manufacturer's instructions with seals and labels intact and legible.
- F. Provide platforms, blocking or skids, or coverings required to protect products from deterioration or damage.
- G. Arrange storage in a manner to provide easy access for inspection.
- H. Maintain storage conditions to prevent deterioration or damage.
- I. Protect products after installation to prevent damage from subsequent operations. Remove when no longer needed.
- J. Provide equipment and personnel necessary to handle products by methods to prevent damage to products or packaging.
- K. Handle products by methods to prevent bending or overstressing.

1.05 SERVICE REPRESENTATIVE

- A. Provide qualified service representative to perform functions described in Section 01 4000 and to sign Certificate of Proper Inspection attached to Section 01 4000.
- B. Valve and operator installation shall include necessary trip(s) by the Manufacturer's representative consisting of one 8-hour work day(s) on-site (travel time not included) for startup and training of operations personnel.
- C. Any additional trips required by the Contractor before or after final startup and training shall not be charged to the Owner.

1.06 WARRANTY

- A. Full warranty against defects in materials and workmanship for two years after substantial completion, including all parts, labor, and expenses.

PART 2 PRODUCTS

2.01 SURGE RELIEF VALVE

- A. Hydraulically operated with pilots that shall cause the main valve to open on a high pressure wave.
- B. The main valve shall open quickly at any preset pressure above the normal operating pressure, then close slowly when normal operating pressure is restored.
- C. Main valve shall be a hydraulically-operated, pilot-controlled, diaphragm-type or differential-piston-type.
- D. All valves by the same manufacturer.
- E. Service: Raw unscreened sewage.
- F. Body: Cast iron angle design with integral 125 lb. flanges per ANSI B16.1.
- G. Cover: Cast iron flanged cover through which all service can be accomplished without removing the valve from the line.
- H. Cover Gasket: Resilient.
- I. Valve Inlet: Flanged, sizes as noted on the drawings.
- J. Valve Outlet: Same as inlet.
- K. Valve Trim: Bronze ASTM B61 or B62.
- L. Valve Seat: Removable bronze seat and renewable resilient seat.
- M. Diaphragm: Nylon fabric bonded with synthetic rubber, not to be used as a seating surface.
- N. Piston: Bronze ASTM B62.
- O. Pilot Control System: Brass ASTM B62 with 303 stainless steel trim.
- P. High Pressure Pilot: 20 to 200 psi.
- Q. Coating: ANSI/AWWA C550 epoxy coating, inside of body and cover. Manufacturer's standard exterior primer, compatible with epoxy field coating as per Section 09 9000.
- R. Pressure Rating: 175 psi, bubble-tight closure.
- S. Visual valve position indicator.
- T. Isolation cocks on sensing/supply lines.
- U. Y-strainers on sensing/supply lines.
- V. Adjustable closing speed controls.
- W. Opened and Closed limit switches.

- X. Approved Manufacturers:
 - 1. GA Industries Inc.
 - 2. Ross Valve.
 - 3. Singer Valve, Inc.
 - 4. Engineer approved equivalent.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions as shown on the plans by qualified craftsmen.
- B. Location, orientation, and quantities as shown on the plans.
- C. Include all required related items necessary for a complete installation.
- D. Follow the piping surface preparation specification. Coordinate compatibility of manufacturer's shop coating and final finish.
- E. Support independently or from piping.

END OF SECTION

**SECTION 22 0523.60
VALVE AND GATE OPERATORS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Valve and Gate Operators.

1.02 SUBMITTALS

- A. Submit the following as appropriate for each valve provided:
 - 1. Outline and installation drawings for equipment and fixtures furnished.
 - 2. Equipment performance data and operating characteristics.
 - 3. Manufacturer's catalog data, marked to indicate materials being furnished as standard equipment, fixtures, specialties, and accessories.
 - 4. Shop Drawings on shop-fabricated systems.
 - 5. Drawings showing arrangement of piping, controls, and accessory equipment furnished.
- B. Manufacturer's Certificates: Certify that products of this section meet or exceed specified requirements.
- C. Operation and Maintenance Manual.

1.03 DELIVERY, STORAGE, AND PROTECTION

- A. Arrange delivery of products in accordance with construction schedules and to allow inspection prior to installation.
- B. Coordinate deliveries to avoid conflict with conditions at site.
- C. Deliver products in undamaged condition in original containers or packaging, with identifying labels intact and legible.
- D. Clearly mark to identify partial deliveries of component parts to facilitate assembly.
- E. Store products immediately on delivery and protect until installed. Storage to be done according to manufacturer's instructions with seals and labels intact and legible.
- F. Provide platforms, blocking or skids, or coverings required to protect products from deterioration or damage.
- G. Arrange storage in a manner to provide easy access for inspection.
- H. Maintain storage conditions to prevent deterioration or damage.
- I. Protect products after installation to prevent damage from subsequent operations. Remove when no longer needed.
- J. Provide equipment and personnel necessary to handle products by methods to prevent damage to products or packaging.
- K. Handle products by methods to prevent bending or overstressing.

1.04 WARRANTY

- A. Full warranty against defects in materials and workmanship for two years after substantial completion, including all parts, labor, and expenses.

PART 2 PRODUCTS

2.01 VALVE AND GATE OPERATORS

- A. General:
 - 1. Operator (actuator) types for each valve or gate are as shown on the drawings and valve schedule.

2. The rated torque capability of each operator shall be sufficient to seat, unseat, and rigidly hold, in any intermediate position, the valve disc it controls under the operating conditions specified.
 3. Valve actuators shall be equipped with adjustable mechanical stop-limiting devices to prevent over-travel of the valve disc in the open and closed positions.
 4. Actuator housings, supports, and connections to the valve shall be designed with a minimum safety factor of 5, based on the ultimate strength, or a minimum safety factor of 3, based on the yield strength of materials used.
 5. The actuator shall be designed to control the valve in all positions from fully open to fully closed and from fully closed to fully open with control in any intermediate position.
 6. Valves and operators shall be furnished as complete assemblies.
 7. The valve manufacturer shall provide and take full responsibility for sizing all valve operators to be compatible with the valves shown on the drawings and valve schedule. For valves without extension-bonnets or torque tubes, floor stands shall be leak tested and cycled after installation of the operator.
 8. All operators shall be by the same manufacturer.
 9. Coating: Buried valves shall have manufacturer's standard exterior asphalt or epoxy coating. Above-grade valves shall have manufacturer's standard exterior primer, compatible with epoxy field coating as per Section 09 9000.
 10. Operators shall meet the full requirements of AWWA C504 and AWWA C540 for the designated pressure class and service conditions, and the following requirements.
- B. Manual Operators:
1. Manual operators shall meet the full requirements of AWWA C504, Section 3.8.5, and the following.
 2. Handwheel Operator:
 - a. Provide handwheels for gate valves, knife gate valves, butterfly valves, plug valves, and globe valves.
 - 1) Sized in accordance with AWWA C500
 - b. To be used when centerline of valve is less than 6' above finished floor elevation.
 - c. Cast iron housing and handwheel, wide gripping area, with arrow to indicate opening direction.
 - d. Bronze thrust and sleeve bearings on the operating shaft, adjustable open and closed position stops.
 - e. Counterclockwise to open, valve position indicator.
 - f. Size of handwheel shall be the largest nominal size that will fit at each valve location and operator orientation.
 - g. Valve manufacturer and Contractor shall be responsible for properly sizing all handwheels for each valve application and location.
 3. Chainwheel Operators:
 - a. To be used when centerline of valve is greater than 6' above finished floor elevation.
 - b. Other requirements shall be same as handwheel operators; supply adequate length of rustproof chain to reach from valve location to within 3 feet of the floor level.
 4. Wrench Nut:
 - a. Wrench nuts shall be provided on all buried valves, on all valves that are to be operated through floor boxes, and where indicated on the drawings. Wrench nuts shall comply with Section 3.16 of AWWA C500 fitted to the top of valve stem. Counterclockwise to open.
 5. Approved Manufacturers:
 - a. DeZurik.
 - b. Pratt.

- c. Mueller.
- d. Engineer approved equivalent.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions as shown on the plans by qualified craftsmen.
- B. Location, orientation, and quantities as shown on the plans.
- C. Include all required related items necessary for a complete installation.
- D. Install with stem between 9:00 and 3:00 position (stem shall not be inverted).
- E. Surface preparation shall follow the piping surface preparation specification. Contractor shall be responsible for compatibility of manufacturers shop coating and final finish.
- F. Support independently or from piping.

END OF SECTION

**SECTION 25 5100
INSTRUMENTATION AND CONTROL INTEGRATION**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Integration of instrumentation and controls system, provided by a single systems integrator, furnishing and activating items specified in Sections 25 1316, 25 1613, 25 3100, 25 5100, 25 9100 and 26 2923 (Variable Frequency Drives).
- B. System Integrator is responsible for providing items listed above. The General Contractor and/or Electrical Contractor will be responsible for physically installing all items provided by the System Integrator and for providing and installing any conduit and wire to such items."

1.02 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. The Submittals shall consist of legible printed text, high quality drawings, and manufacturer's catalog data with index tabs that identify major sections of the document. The Submittals shall address all hardware and software to be supplied.
- C. The Submittals shall contain:
 - 1. Identification of the respective responsibilities of each party to the project, including what is provided by the system manufacturer, what is to be subcontracted, etc.
 - 2. Description of the major user related features and operating characteristics of the proposed system.
 - 3. Description of all master site hardware and software, including examples of digital displays, control loops, reports, and how the operator will interface with the system to achieve each specified function.
 - 4. Description and operation of all master configuration features of the I/O and local control loop characteristics.
 - 5. Describe the training program. An outline shall be provided that covers the basic software and hardware training, operator training, system maintenance training, and programming training. Identify the course content and the time spent on each subject area.
 - 6. Describe the startup implementation plan, participants' responsibilities and a schedule of events.
 - 7. All significant equipment to be supplied shall be listed, followed by descriptive data sheets. The equipment list shall include each component name, manufacturer, model number, a description of the operation, quantity supplied, and any special setup and operation and maintenance characteristics.
 - 8. Drawings of equipment to be supplied shall include as a minimum, overall dimensions and details for each unit, including installation arrangements, door mounted operator devices, and instruments. Interior wiring diagrams of all control panels, including field device connections, shall be included and specific installation wiring responsibilities identified.
 - 9. Detailed written sequences of operation describing pre-startup, normal operation, shutdown, and emergency shutdown procedures.
 - 10. Recommended maintenance, special tools, and test equipment.
 - 11. Hardware configuration block diagrams.
 - 12. Network diagrams.
- D. Operation and maintenance manuals.

1.03 MAINTENANCE MANUALS AND RECORD DRAWINGS

- A. O&M Manuals shall be provided as specified in Section 01 7800. In addition to those requirements, specific additional details as indicated below shall be provided.

- B. Provide detailed O&M manuals with complete information concerning the operation of the system and support necessary, with diagnostics down to the module and card replacement level.
- C. Provide a detailed written description of system hardware, software, and system operation. The description of master site hardware and software shall identify pertinent references to sections of standard hardware and software manuals where operational procedures are detailed. Control loops shall be fully described in the O&M manual.
- D. Submit complete O&M manuals with all project specific information with indexed tab sections. Include manufacturer/supplier, contact and phone number for all equipment listed..
- E. A listing of all recommended spare parts shall be included in the O&M manuals.
- F. Data sheets shall be supplied for all significant equipment used in the system. The data sheet shall include, as a minimum, the component name, manufacturer, model number, quantity, and any special O&M characteristics.
- G. Final record drawings of equipment shall be provided and as a minimum to include:
 - 1. Overall dimensions and details for all equipment and all door mounted operator devices including nameplate designations.
 - 2. Control panel(s) interior Interconnecting wiring diagrams of as built conditions, including field device connections.
 - 3. PLC program including well documented ladder logic program, flow chart, and address list (hard copy and diskette).
- H. Detailed written sequences of operation describing pre-startup, startup, normal operation, shutdown, and emergency shutdown procedures.
- I. Alarm list:
 - 1. Provide list of process alarms as configured.
 - 2. Provide list of PLC and SCADA equipment and communications alarms as configured and indicate likely source of problem.
- J. PLC and Operator Interface panel programs and graphics documentation: commented, fully documented and cross-indexed ladder diagrams and screen configurations.
- K. Equipment and software manuals:
 - 1. Equipment list identifying components, model numbers, and release levels.
 - 2. Operation and maintenance data for each hardware and software component.
 - 3. Programming/configuration instructions for components.
- L. Guides for locating faults, symptoms, possible causes of trouble, and suggested remedial action.
- M. Detailed instructions on operation of utility programs.
- N. Documentation concerning system software development:
 - 1. Diagrams, code annotation, and other pertinent documents to define system.
 - 2. Listing of screens included in system.
 - 3. Color printout of all screens.
 - 4. Database structures, views, tables, and indexes.
 - 5. List of constants and variables with descriptions.
- O. Documents pertaining to factory and field testing efforts.
- P. Equipment lists including manufacturer's name, part number, serial number, revision number, and recommended spare parts.
- Q. Communication parameters needed to interface with other computers (speed, number of data bits, parity, modem control, etc.).

1.04 WARRANTY

- A. Full warranty against defects in materials and workmanship for two year(s) after substantial completion, including all parts, labor, and expenses.

1.05 START-UP BY SERVICE REPRESENTATIVE

- A. Provide for equipment installation check, calibrations, control adjustments, startups, and other services in the field by qualified service representative to produce complete working installation in compliance with drawings and specifications, satisfactory to Owner and Engineer.
- B. Provide field startup service at the project site.
- C. This field service is to cover both the separate mounted instrumentation involved in the system and the various control panels and components.
- D. Coordinate with General Contractor, Sub-Contractors and Equipment Suppliers to provide start-up services in concert with other equipment in the project.
- E. In addition to the field services, arrange for Owner training to be performed by the Manufacturer in the use and maintenance of all instrumentation and control system equipment supplied. Refer to scheduled training requirements.
- F. Provide complete start-up services until all systems are fully functional.
- G. Any additional trips and/or days required by the Contractor before or after final startup and training shall not be charged to the Owner.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 INSTALLATION

- A. All units shall be installed in accordance with manufacturer's recommendations and as indicated on drawings.
- B. Units shall be installed and programmed by well qualified and experienced craftsmen and engineers/technicians.
- C. Locations, orientations, and quantities as indicated on drawings.
- D. Units shall be properly interfaced with the input and output devices.
- E. Electrical and control wiring, cabling, conduits, connections, etc. shall be neatly installed.
- F. Include all required and related items for a complete installation.
- G. Support and anchor all units as per the manufacturer's recommendations and as indicated on drawings.

3.02 RESPONSIBILITY

- A. The instrumentation and control integrator shall be responsible for coordination of the control center components, instrumentation, and supervisory controls with the process equipment installed.
- B. Provide complete shop drawings and wiring diagrams.
- C. To ensure a complete and totally integrated system, a single manufacturer who has had at least five years experience in furnishing similar microprocessor based control and telemetry systems, shall supply all specified equipment and services. This shall include: hardware, software, programming, installation coordination, startup, training, and warranty services as required. The manufacturer shall have successfully completed at least ten similar sized non-proprietary PLC-based telemetry, instrumentation and controls systems.

- D. To ensure an integrated and operational control system it is required that one system integrator shall supply all necessary control equipment and employ the personnel necessary to provide and support the complete system.
- E. Systems Integrator's service organization must stock parts for equipment supplied and be available within 24 hours of verbal notice on all days of the week to provide free service during the guarantee period. System integrator's organization shall include the full complement of engineering, manufacturing, and field services.
- F. Service shall also be available 24 hours per day, 365 days per year.

3.03 SYSTEMS INTEGRATOR

- A. Shall have successfully configured and installed at least ten (10) networked systems of similar size, scope, and complexity in water/wastewater plant applications.
- B. Shall provide project engineer for programming the PLCs and SCADA software on this project who is formally trained and experienced with Allen-Bradley and Siemens PLC's.
- C. Experience shall include multiple PLCs, networking on Ethernet, WAN/LAN networks with multiple SCADA workstations, graphical screens, reporting, operating systems, etc.
- D. Acceptable Systems Integrator:
 - 1. ICS Healy Ruff (Subsidiary of SJE/PRIMEX), Plymouth, MN.
 - 2. No Substitutes.

END OF SECTION

**SECTION 41 2223.19
HOIST AND MONORAIL SYSTEM**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Trolley, Hoist, and Monorail Systems and Accessories.
 - 1. 2-ton trolley, electric hoist and monorail in the York lift station.

1.02 REFERENCES

- A. ASTM A36 - Structural Steel.
- B. ASTM A325 - High-Strength Bolts for Structural Steel Joints.
- C. SSPC SP6 - Commercial Blast Cleaning.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Certified layout drawings including general arrangement, assembly, and installation for monorails.
- C. Detail shop drawings for monorails and supports.
- D. Equipment performance data and operating characteristics.
- E. Manufacturer's catalog data, marked to indicate materials being furnished.
- F. Operation and maintenance manuals as described in Section 01 7800.
- G. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- H. Test results from load tests.

1.04 DELIVERY, STORAGE, AND PROTECTION

- A. Arrange delivery of products in accordance with construction schedules and to allow inspection prior to installation.
- B. Coordinate deliveries to avoid conflict with conditions at site.
- C. Deliver products in undamaged condition in original containers or packaging, with identifying labels intact and legible.
- D. Clearly mark to identify partial deliveries of component parts to facilitate assembly.
- E. Store products immediately on delivery and protect until installed. Storage to be done according to manufacturer's instructions with seals and labels intact and legible.
- F. Provide platforms, blocking or skids, or coverings required to protect products from deterioration or damage.
- G. Arrange storage in a manner to provide easy access for inspection.
- H. Maintain storage conditions to prevent deterioration or damage.
- I. Protect products after installation to prevent damage from subsequent operations. Remove when no longer needed.
- J. Provide equipment and personnel necessary to handle products by methods to prevent damage to products or packaging.
- K. Handle products by methods to prevent bending or overstressing.

1.05 SERVICE REPRESENTATIVE

- A. Provide qualified Service Representative to perform functions described in Section 01 4000, and to sign the Certification of Proper Inspection attached at the end of Section 01 4000.

- B. Hoists, monorails and runway crane installation shall include necessary trips by the Manufacturer's representative to provide one 8-hour work day on-site (travel time not included) for startup and training of operations personnel.
- C. Any additional trips required by the Contractor before or after final startup and training shall not be charged to the Owner.

1.06 QUALITY ASSURANCE

- A. Work shall comply with applicable codes and standards of the following organizations:
 - 1. American Society for Testing and Materials (ASTM).
 - 2. Hoist Manufacturer's Institute (HMI).
 - 3. American National Standards Institute (ANSI).
 - 4. Occupational Safety and Health Act of 1970, as amended (OSHA).
 - 5. Crane Manufacturers Association of America (CMAA).
- B. Design of crane and monorail systems shall be under direction of South Dakota Registered Professional Engineer ("Hoist Specialty Engineer"). Submittal drawings shall be certified by Hoist Specialty Engineer. Hoist Specialty Engineer shall be responsible for design of all items not specifically indicated on Contract Documents. This includes, but is not limited to: sizing of monorail, connections, bracing, supports, etc. If the crane and monorail system is a pre-engineered system, then supporting documentation for the design/selection shall be provided.

1.07 DESIGN CRITERIA FOR MONORAIL

- A. Design runways, monorails, supports, and auxiliary framing in accordance with requirements of AISC and following modifications.
 - 1. Connections shall be designed for 100% of computed load without permitting any overstress in connection parts. Connections shall also assure failure by yielding of members entering joint.
 - 2. Live load shall be taken as capacity specified plus hoist and trolley, factored by 1.25 for overload and impact.
 - 3. Monorail curve radius shall be 3'-0".
- B. A monorail deflection of L/450 shall be used.
- C. The rated capacity of the monorail shall be permanently marked so that it can be read from the floor.

1.08 WARRANTY

- A. Full warranty against defects in materials and workmanship for two years after substantial completion, including all parts, labor, and expenses.

PART 2 PRODUCTS

2.01 TROLLEY, HOIST AND MONORAIL

- A. Trolleys
 - 1. Types:
 - a. York Lift Station - Motorized.
 - 2. Capacities:
 - a. York Lift Station - 2-ton rated plus hoist.
 - 3. Travel speed of approximately 35 ft/min.
- B. Hoist
 - 1. Type: Wire rope, electric, heavy-duty hoist.
 - 2. Hoists:
 - a. Low head room design with plumb lift.

- b. Magnetic disc motor brakes, adjustable externally using standard tools.
 - c. Upper and lower lift limit switches.
 - d. Load brake to control lowering speed and prevent load from dropping in case of power failure.
 - e. Automatic overload cutoff switch.
 - f. Bottom block shall be completely guarded. Hook shall revolve 360°.
 - g. Hoist Lifting Speed: Approximately 15 ft/min.
 - h. Capacities: 2-ton rated plus trolley.
 - i. NEMA 12 control enclosures for all hoists.
 3. Control: Operation shall be by means of Pendant Control
 - a. Provide pendant control with on/off, lift, lower, forward and reverse control, installed at 3'-6" above floor.
 - b. Control(s) shall be single-speed or two-speed.
 4. Provide required starters, disconnect, cables, cable reels, fasteners, and pendant-type pushbutton controls for trolley/hoist.
 5. Motors:
 - a. Standards: Applicable parts of NEMA MG-1, latest revision.
 - b. Induction type with sealed ball bearings.
 - c. Enclosure: TEFC.
 - d. Starting: Full voltage, across-the-line.
 - e. Ratings:
 - 1) Voltage: 460-volt, 3-phase, 60 Hz, 1.0 service factor.
 - 2) Insulation: Class F insulation.
 - 3) Thermal overload protectors.
 6. Manufacturer and Model:
 - a. ACCO.
 - b. Lift-Tech.
 - c. R & M Materials Handling.
 - d. Engineer approved equivalent.
- C. Monorails
1. Location: As shown on Drawings.
 2. Capacity: 2-ton rated plus hoist and trolley.
 3. Rail: ASTM A36.
 4. Provide trolley end stop plates.
 - a. Location: At each end of monorail.
 5. Provide festoon system with heavy duty rigid C-track for each monorail mounted hoist system.

2.02 PAINTING

- A. Painting: Manufacturer's standard finish coat (primed and painted safety yellow), compatible with field epoxy coating as per Section 09 9000.

2.03 LABELING

- A. Each system shall be clearly labeled with its capacity in tons.
- B. Labeling shall be easily read from the floor.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install rails in accordance with manufacturer's drawings and instructions, by qualified craftsmen. Manufacturer shall check Drawings for compatibility between rail and trolley.

- B. Location, orientation, and quantities as shown on the Drawings.
- C. Include all required-related items for a complete installation.
- D. Support and anchor as shown on the Drawings.
- E. Make final adjustment on trolleys, rails, and supports to ensure proper operation of trolley. Grind rails where required to make smooth running surface.
- F. Apply one coat of touch-up primer to scratches and abrasions of shop coat. Field painting shall be as specified in Section 09 9000. Contractor shall be responsible for compatibility of manufacturer's shop coating and final finish.

3.02 TESTING

- A. Testing shall confirm adequacy of hoists, rails, and supports.
- B. Test installed crane and monorail to 125 percent of rated capacity.

END OF SECTION

SECTION 44 4256.08
SUBMERSIBLE PUMPING SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Submersible Non-Clog Pumps and Motors.

1.02 REFERENCES

- A. ASTM A48 - Specification for Gray Cast Iron Castings.
- B. ASTM A532 - Specification for Chrome Cast Iron
- C. ANSI B 16.1 - Cast Iron Pipe Flanges and Flanged Fittings Class 125.
- D. HIS - Hydraulic Institute Standards Test Code.
- E. NEMA MG1 - Motors and Generators.
- F. NFPA 70 - National Electric Code (NEC).
- G. SSPC SP6 - Commercial Grade Finish.
- H. SSPC SP10 - Near White Finish

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop drawings showing arrangement, dimensions, and materials.
- C. Submittal: Characteristic performance curves for pumps, showing total dynamic head, pump runout, shutoff head, efficiency, brake horsepower, and net positive suction head required plotted against capacity in gpm. Include full curve from shutoff head to maximum capacity for all impeller sizes. Indicate operating point and impeller diameter being furnished.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements. Certify that manufacturer of bowl assembly is supplier of column pipe, lineshafting and discharge head.
- E. Operation and maintenance manuals according to Section 01 7800.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Receive and unload shipments to plant site from suppliers of equipment under this contract.
- B. Unload equipment as soon as possible after arrival.
- C. Pay freight car and truck demurrage, detention, and any other costs which may be billed to Owner due to failure to unload cars or trucks within time required by freight companies.
- D. Provide physical protection for equipment placed in storage.
 - 1. Support stored equipment above ground and cover with canvas or other heavy-duty sheeting. Cover shall be securely fastened and shall be replaced if torn or otherwise damaged during storage period.
 - 2. Store motors in dry, warm place and in accordance with manufacturer's recommendations. Motors over 20 hp shall have shaft rotated 90 degrees each month. Provide Engineer with evidence that this requirement is met.
 - 3. Maintain desiccant between cover and motor frames on motors. Provide desiccant of type permitting visual determination of condition of desiccant. Replace desiccant when it becomes ineffective.
 - 4. Store the following items in weatherproof, heated (minimum 50 degrees F.) building complete with bins for storage of small pieces of equipment. Storage inside of existing treatment plant not available.

- a. Electronic instruments and cabinets.
 - b. Electrical equipment with general purpose enclosures.
 - c. Insulation materials.
 - d. Rotating equipment.
 - e. Miscellaneous electronic equipment, gaskets, and small machined parts.
 - f. Instruments and controls.
- E. Inspect stored equipment weekly. Renew protective coatings as necessary to preserve fitness of equipment.
- F. Provide for safekeeping of materials or equipment received. Store and maintain materials and equipment after receipt until completed installation is accepted by Owner. Such storage and maintenance shall be in accordance with manufacturer's recommendations and requirements of these Specifications. Provide materials, equipment, and labor required for such storage and maintenance.
- G. Contractor shall be accountable for any deterioration of materials or equipment occasioned by improper storage or maintenance, and shall recondition, repair, or replace any such materials or equipment without additional cost to Owner.

1.05 SERVICE REPRESENTATIVE

- A. Provide qualified service representative to perform functions described in Section 01 4000 and to sign the Certification of Proper Inspection attached to Section 01 4000.
- B. Include necessary trips by the manufacturer's representative to provide one 8-hour work day on-site (travel time not included) for startup and training of operations personnel. Training may be video taped by Owner.
- C. Additional trips required by the Contractor before or after final startup and training shall not be charged to the Owner.

1.06 START-UP, COMMISSIONING, AND TRAINING

- A. Factory test all pumps at manufacturer's plant. Perform tests in accordance with test code of Hydraulic Institute Standards. Pump test shall be witnessed by Owner if desired.
- B. Test curves shall cover full range of operation from shutoff to maximum capacity; plot capacity as abscissa; plot operating head, brake horsepower, efficiency and NPSHR as ordinates.
- C. Test Points:
 1. Shutoff.
 2. Pump runout.
 3. Design operating point.
 4. Two additional points, one on each side of the rated operating point.
- D. Test Tolerances:
 1. Operate pumps during tests within one of the following tolerances:
 - a. At rated head: +10%/-0% of the rated capacity.
 - b. At rated capacity: +5%/-0% of the rated head.
 2. No minus tolerance or margin with respect to capacity or total head at rated or specified condition.
- E. Provide shop space, tools, equipment, instruments, personnel, and facilities required for satisfactory completion of tests.
- F. Submit test curves and allow Engineer's review prior to pump shipments.
- G. Pump Tests:
 1. Pump manufacturer shall perform following inspections and tests on pumps prior to shipment.

- a. Inspect for conformance to Contract Documents with respect to correct model number, motor rating, and electrical connections.
 - b. Test motor and seal housing chambers for moisture content or insulation defects.
 - c. Prior to submergence, allow pump to run dry to establish correct rotation and mechanical integrity.
 - d. Discharge piping attached to pump shall operate submerged under a minimum of 6 feet of water for a minimum of 30 minutes.
 - e. After operational test, motor and cable shall be tested again for moisture content or insulation defects.
2. Pumps failing inspection or tests shall be repaired or replaced at no cost to Owner.

1.07 QUALITY ASSURANCE

- A. All pumps shall be products of single manufacturer.
- B. Pump manufacturer shall be engaged primarily in design and fabrication of submersible pumps, including solids handling type pumps for wastewater service for at least the last 10 years.
- C. Minimum of 100 similar units installed and operating successfully in U.S.

1.08 WARRANTY

- A. Full warranty against defects in materials and workmanship for two years after substantial completion, including all parts, labor, and expenses.

PART 2 PRODUCTS

2.01 SUBMERSIBLE PUMPS

- A. Manufacturers:
 1. Flygt.
 2. Engineer approved equivalent.
- B. General
 1. Furnish and install submersible pumps and motors at locations indicated on drawings. Units shall consist of submersible pumps and motors, guide rails, lifting chains, discharge connection and mounting plate, anchor bolts, access frame and cover, electrical cables, and accessories for a complete operable system.
 2. Service: Raw wastewater
 3. Rotation: Counter-clockwise, when viewed from the top of pump.
 4. Pumps shall be suitable for continuous operation at flow conditions stated herein without excessive noise, vibration, heating, cavitation, or damage to pump.
 5. Head characteristics for pumps: Continuously rising as flow is decreased. Shutoff head shall be minimum of 1.35 times rated head.
 6. Size pumps to allow increase in rated pump head by as much as 10% by replacement of impellers.
 7. Pump, appurtenances, and cable shall be capable of continuous submergence underwater to depth of (actual depth up to 40') without loss of watertight integrity.
 8. All metal surfaces coming into contact with the pumpage, other than stainless steel or brass, shall be protected by a factory applied spray coating of acrylic dispersion zinc phosphate primer with polyester resin paint finish on the exterior of the pump.
 9. Rectangular cross sectioned rubber, paper, or synthetic gaskets that require specific torque limits to achieve compression shall not be considered as adequate or equal.
 10. Secondary sealing compounds, elliptical O-rings, grease, or other devices shall not be used.
- C. Pump Design

1. Type: Submersible, non-clog, bottom suction, integral discharge mating with discharge connection, rail guided. Elbow type discharge connection.
 2. Quantity: See Pump Schedule.
 3. Operating conditions: See Pump Schedule.
 4. Materials:
 - a. Casing: Cast iron, ASTM A48 Class 35B.
 - b. Impeller: Cast iron, ASTM A-532 (Alloy III A) 25% chrome cast iron.
 - c. Shaft: ASTM A479 S43100-T stainless steel.
 - d. Exposed nuts and bolts: Type 316 stainless steel.
 - e. Volute inlet wear ring contact surface: Brass-coated steel ring.
 - f. Insert ring: Cast iron, ASTM A-532 (Alloy III A) 25% chrome cast iron.
 - g. Anchor bolts: Type 316 stainless steel.
- D. Casing
1. Volute: Single-piece design with smooth fluid passages.
 2. The volute shall have a replaceable suction cover insert ring in which are cast spiral-shaped, sharp-edged groove(s).
 - a. Spiral groove(s) shall provide trash release pathways and sharp edge(s) across which each impeller vane leading edge shall cross during rotation so to remain unobstructed.
 3. Pump casing shall be of sufficient thickness to withstand a minimum hydrostatic test pressure of 125 psig.
 4. Insert ring shall provide effective sealing between the multi-vane semi-open impeller and the volute housing.
 5. Mating surfaces requiring watertight sealing shall be machined and fitted with nitrile rubber O-rings. Sealing shall be accomplished by metal-to-metal contact and controlled compression of O-ring without specific torque requirement.
 6. Cable entry design:
 - a. Ensure a watertight and submersible seal without specific torque requirement.
 - b. Provide close tolerance fit against cable outside diameter and cable entry inside diameter and shall produce compression seal when installed.
 - c. Entry body shall provide strain relief separate from sealing function to prevent strain in cable from damaging seal and allowing entry of water.
 - d. Cable entry junction chamber and motor shall be separated by stator lead sealing gland or terminal board which shall prevent foreign material from coming in contact with motor interior.
 - e. Junction chamber, containing terminal board with permanently affixed connectors between cable conductors and stator leads, shall provide completely leakproof seal from motor.
 - f. Assembly shall provide ease of changing the cable when necessary using the same entry seal.
 - g. Cable sealing design which does not utilize compression fitted power cord and requires epoxy or other secondary sealing system to be reapplied after each cable disconnection or removal shall not be considered acceptable.
- E. Impeller
1. One-piece, semi-open, multi-vane, back swept, screw-shaped, nonclog-type capable of handling solids normally present in sewage.
 2. Dynamically balanced, locked to the shaft, held by an impeller bolt and shall be coated with alkyd resin primer. Provide means for impeller clearance adjustment.
 3. The leading edges shall be mechanically self-cleaned automatically upon each rotation.

4. The screw shape of the impeller inlet shall provide an inducing effect for the handling of up to 5% sludge and rag-laden wastewater.
 5. The impeller to volute clearance shall be readily adjustable by the means of a single trim screw.
 6. Impellers shall have smooth contours.
- F. Pump Shaft
1. Machine and polish over entire length.
 2. The pump and motor shaft shall be a single piece unit.
 3. Dynamically balanced with impeller at all operating speeds.
 4. Isolated from pumped liquid.
 5. Shaft shall provide rigid support of impeller and prevent critical vibration and all operating speeds.
 6. Shaft sleeves and shafts using mechanical couplings shall not be acceptable.
- G. Bearings
1. Anti-friction ball bearings, minimum AFBMA L10 life rating of 50,000 hours, designed to carry thrust and radial loads.
 2. Lubrication: Permanently lubricated with grease specifically suited for high temperature applications.
 3. Pump/motor shaft shall have two bearings.
- H. Thermal Protection
1. Provide thermal sensors to monitor stator temperatures.
 2. Three thermal switches, one in each stator phase connected in series, shall be embedded in end coils.
- I. Moisture Protection
1. Provide one float-actuated reed switch in motor housing to detect liquid leakage into stator area.
- J. Seals
1. Sealing design shall incorporate metal-to-metal contact between machined surfaces.
 2. Critical mating surfaces where watertight sealing is required shall be machined and fitted with Nitrile rubber O-rings.
 3. Fittings will be the result of controlled compression of rubber O-rings in two planes and O-ring contact of four sides without the requirement of a specific torque limit.
 4. Provide pump with shaft sealing system utilizing lubricant chamber.
 - a. Lubricant chamber shall be designed to prevent overfilling and shall provide capacity for lubricant expansion.
 - b. Seal system shall not rely upon the pumped media for lubrication.
 - c. Seal lubricant shall be non-hazardous.
 5. Provide lubricant chamber with easily accessible drain and inspection plug equipped with positive, antileak seal. Access to plug shall not require any disassembly of pump.
 6. Dual independent mechanical rotating shaft seal system.
 - a. Lower seal unit, between pump and seal chamber: One stationary and one positively driven rotating corrosion and abrasion resistant tungsten-carbide ring.
 - b. Upper seal unit, between seal chamber and the seal inspection chamber: One stationary and one positively driven rotating corrosion and abrasion resistant tungsten-carbide seal ring.
 - c. Rotating seal ring shall have small back-swept grooves laser inscribed upon its face to act as a pump as it rotates, returning any fluid that should enter the dry motor chamber back into the lubricant chamber.

- d. Seal rings shall be individual solid sintered rings and each seal interface shall be held in place by its own spring system.
 7. Area about the exterior of the lower mechanical seal in the cast iron housing shall have cast in an integral concentric spiral groove.
 8. Provide a separate seal leakage chamber to capture any leakage prior to its entry into the motor stator housing.
 - a. Equip the leakage chamber with a float type switch that signals if the chamber reaches 50% capacity.
 9. Seal springs shall be isolated from the pumped media to prevent materials from packing around them.
 10. Seals shall require neither maintenance nor adjustment and shall be easily inspected and replaceable.
 11. Seals shall be capable of operating in either clockwise or counter clockwise direction of rotation without damage or loss of seal.
 12. The following seal types shall not be considered acceptable or equal to the dual independent seal:
 - a. Shaft seals without positively driven rotating members, or conventional double mechanical seals containing either a common single or double spring acting between the upper and lower seal faces.
 - b. No system requiring a pressure differential to offset pressure and to affect sealing shall be used.
- K. Spare Parts
1. One set of gaskets and O-rings required for disassembly and reassembly.
 2. One set of upper and lower seal units.
 3. One volute and impeller wear rings.
 4. One set of cable entry grommet.
- L. Discharge Connection (Bridgeport Lift Station)
1. Discharge connections shall be permanently installed in wet well with discharge piping. Pump shall automatically connect to discharge connection when lowered into place and shall disengage easily and automatically without removal of fasteners or piping when pump is raised.
 2. Sealing of the pumping unit to the discharge connection shall be accomplished by a machined metal to metal watertight contact.
- M. Pedestal Mounted Base (York Lift Station)
1. Pumps shall be installed on concrete equipment pads as indicated on the Drawings.
 2. Pumps shall be mounted on heavy-duty fabricated pedestal bases.
 3. All seams and contact surfaces between steel shapes and plates of fabricated steel pedestals shall be continuously welded.
 4. Each pedestal shall be suitable for grouting and bolting to concrete risers.
- N. Lifting Accessories (Bridgeport Lift Station)
1. Fit each pump with centered lifting loop and stainless steel lifting chain of adequate strength to raise and lower pumping unit. Chain shall be of length required for installation depth shown on Drawings.
 2. Working load of lifting system shall be 50 percent greater than the pump unit weight.
 3. Attach sliding guide bracket to pump units which will slide between a minimum of 2 guide rails to properly position pump discharge on discharge connection elbow.
- O. Guide Rails and Brackets (Bridgeport Lift Station)

1. Guide rails: Minimum Schedule 40 Type 304 stainless steel pipe of sufficient size to remain rigid and unbending under intended loading conditions. Coordinate size of guide rail with pump manufacturer.
 2. Guide rails shall not support any portion of weight of pump.
 3. Secure lower end of guide bars to discharge connection. Secure upper ends to frame of access cover with upper guide bar bracket.
 4. Provide intermediate guide bar spacer supports when clear span distances between supports will exceed 20'.
 5. Sliding guide brackets: Cast iron or fabricated steel, galvanized after fabrication.
- P. Motors
1. Motor horsepower shall be adequate so that pump is non-overloading throughout the entire pump performance curve from shut-off through run-out.
 2. Submergence: Design pump motors to operate continuously at design conditions with 100% of motor unsubmerged without overheating.
 3. Standards: Applicable parts of NEMA MG1.
 4. Type: Squirrel cage induction, shell-type design, housed in air-filled, watertight chamber. Oil-filled ball bearing motor acceptable alternate.
 5. Enclosure: Completely submersible, watertight.
 6. Ratings: Continuous duty, 1.15 service factor, capable of sustaining a minimum of 15 starts per hour.
 7. Insulation and temperature rating: Class H insulation rated 180°C (40°C ambient plus 80°C rise).
 8. Operation: See Pump Schedule.
 9. Nameplate horsepower shall be not less than maximum required pump input for all conditions of head and capacity for full range of impeller furnished.
 10. Monitor stator temperature for pumps using thermal sensors embedded in each stator winding. Sensors shall be used in conjunction with and supplemental to external motor overload protection.
 11. Motors shall be furnished with preassembled power and control cables of adequate length to reach electrical terminal box location shown on drawings.
 - a. Cable shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of 65'.
 12. Junction chamber shall be sealed off from the stator housing and shall contain a terminal board for connection of power and pilot sensor cables using threaded compression type terminals.
 13. Stator shall be insulated by the trickle impregnation method using Class H monomer-free polyester resin resulting in a winding fill factor of at least 95%.
 14. Stator shall be heat-shrink fitted into the cast iron stator housing.
- Q. Cooling System (Bridgeport Lift Station)
1. Each pump shall be provided with an integral motor cooling system.
 - a. Stainless steel motor cooling jacket shall encircle the stator housing, providing for dissipation of the motor heat.
 - b. One fill port and one drain port integral to the cooling jacket to be included.
 - c. Impeller driven by the pump shaft shall provide the necessary circulation of the cooling liquid through the jacket.
 - d. Cooling liquid shall pass about the stator housing in a closed loop system in turbulent flow.
 - e. Pump operation shall be continuous in liquid or ambient temperatures of up to 104°F.
 - f. Fans, blowers, or auxiliary cooling systems that are mounted external to the pump motor shall not be accepted.

- R. Cooling System (York Lift Station)
1. Each pump shall be provided with an integral motor cooling system.
 2. Stainless steel motor cooling jacket shall encircle the stator housing, providing for dissipation of the motor heat.
 - a. Two cooling liquid supply pipes, one discharging low and one discharging high within the jacket, shall supply the cooling liquid to the jacket.
 - b. Provide an air evacuation tube to facilitate air removal from within the jacket.
 - c. All piping internal to the cooling system shall be shielded from the cooling media flow.
 - d. Equipped with two flanged, gasketed, and bolted inspection ports of not less than 4" diameter located 180 degrees apart.
 3. Provide two cooling liquid return ports.
 4. Internals to the cooling system shall be non-clogging by virtue of their dimensions.
 5. Provide drilled and threaded provisions for external cooling and seal flushing or air relief.
 6. One fill port and one drain port integral to the cooling jacket to be included.
 7. Impeller driven by the pump shaft shall provide the necessary circulation of the cooling liquid through the jacket.
 8. Cooling liquid shall pass about the stator housing in a closed loop system in turbulent flow.
 9. Pump operation shall be continuous in liquid or ambient temperatures of up to 104°F.
 10. Fans, blowers, or auxiliary cooling systems that are mounted external to the pump motor shall not be accepted.
- S. Floor Vane (York Lift Station)
1. Floor vane shall be provided by the pump manufacturer and installed in the wet well.

2.02 IDENTIFICATION

- A. Permanently attach stainless steel nameplate to pump with the following information:
1. Equipment number.
 2. Serial number of pump.
 3. Rated Capacity in gpm.
 4. Rated pumping head in feet.
 5. Speed in rpm.
 6. Manufacturer's name.
 7. Size and type of pump.
 8. Design pressure and temperature.
- B. Cast-in or permanently attached direction of rotation arrow.
- C. Stainless steel motor nameplate with horsepower, speed, power characteristics, efficiency, enclosure type, power factor, and other data.

2.03 PAINTING

- A. All external surfaces of the pumps and motors, except where stainless steel, aluminum or other corrosion-resistant materials are used, given one (1) shop coat of rust-inhibitive primer.
- B. All touch-up and field coatings furnished and applied by the Contractor.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Before assembly or erection, thoroughly clean equipment of temporary protective coatings and foreign materials; completely remove shop-applied flushing compound.
- B. Blow out with compressed air as required to remove foreign material.

- C. After erection of equipment, clean external surfaces of oil, grease, dirt, or other foreign materials; touch up shop paint, primer, and filler; leave surfaces smooth and ready for finish painting.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions and Section 46 0500, as indicated on drawings, by qualified craftsmen.
- B. Location, orientation, and quantities as indicated on Drawings.
- C. Include all required related items necessary for a complete installation.
- D. Coordinate for compatibility of manufacturer's shop coating and final finish.
- E. Support and anchor as indicated on drawings.
- F. The pump pedestal shall be grouted after initial fitting and alignment, but before final bolting of connecting piping. Special care shall be taken to maintain alignment of pumping unit components. No stresses shall be transmitted to the pump flanges. After final alignment and bolting, pump connections shall be tested for applied piping stresses by loosening the flange bolts. If any movement or opening of the joints is observed, piping shall be adjusted to fit properly.
- G. Start up in presence of manufacturer's service representative.
- H. Test power draw and motor vibration during initial operation with manufacturer's service representative.

3.03 GROUTING

- A. Place a minimum of 1" nonshrink grout under equipment being mounted on concrete foundations unless specified otherwise.
- B. Determine quantity of grout required.
- C. Space between top of foundation and bottom of equipment base shall be filled with grout, free of any voids.
- D. Place no grout that has been allowed to set, after mixing, beyond time limitations set forth by grout manufacturer.

3.04 SUBMERSIBLE PUMP SCHEDULE

- A. Bridgeport West Lift Station
 - 1. Type: Submersible, non-clog, solids handling, bottom suction, integral elbow discharge connection, rail guided.
 - 2. Quantity: 2.
 - 3. Design Point: [1650] GPM @ [51.6]' TDH.
 - 4. Nominal speed (rpm): [1170].
 - 5. Discharge Size (in): [8].
 - 6. NPSHA: [32.4]
 - 7. Motor Horsepower (hp): [35].
 - 8. Rating: 3 phase, 230 VAC, 60 Hz.
 - 9. Installation Orientation: Vertical
 - 10. Operation: Variable-speed
- B. York Street Lift Station
 - 1. Type: Dry-pt installed, submersible, non-clog, solids handling, bottom suction, heavy-duty fabricated pedestal base.
 - 2. Quantity: 4.
 - 3. Design Point: [2150] GPM @ [71]' TDH.

HR Green, Inc.
Project No. 50150006.01

Addendum #2

Bridgeport West Sewer Improvements
Section C - Lift Station Improvements
City of Sioux City, Iowa

4. Nominal speed (rpm): [1185]
5. Discharge Size (in): [8]
6. Suction Size (in): [10]
7. NPSHA: [34.8]
8. Motor Horsepower (hp): [90]
9. Rating: 3 phase, 460 VAC, 60 Hz.
10. Installation Orientation: Horizontal
11. Operation: Variable-speed

END OF SECTION

ESTIMATED QUANTITIES					
ITEM NO.	STD. BID ITEM	ITEM DESCRIPTION	UNIT	APPROX. QTY.	TOTAL QUANTITIES AS BUILTS
DIVISION 1 - GENERAL					
1	1070-206-X-X	TRAFFIC CONTROL	LS	1	
2	1090-105-D-0	MOBILIZATION	LS	1	
DIVISION 2 - EARTHWORK					
3	2010-108-A-1	TREE REMOVAL	EA	2	
4	2010-108-D-1	TOPSOIL, ON-SITE	CY	223	
5	2010-108-E-0	EXCAVATION, CLASS 10	CY	42	
6	2010-108-G-0	SUBGRADE PREPARATION	SY	222	
DIVISION 3 - TRENCH EXCAVATION AND BACKFILL					
7	3010-XXX-X-X	DEWATERING	LS	1	
DIVISION 4 - SEWERS AND DRAINS					
8	4010-108-A-1	VCP SANITARY SEWER GRAVITY MAIN, TRENCHED (6")	LF	5	
9	4010-108-A-1	VCP SANITARY SEWER GRAVITY MAIN, TRENCHED (24")	LF	95	2
10	4010-108-A-1	DI SANITARY SEWER GRAVITY MAIN, TRENCHED (24")	LF	5	
11	4010-108-C-1	DI SANITARY SEWER FORCE MAIN, TRENCHED (12")	LF	10	
12	4010-108-C-1	DI SANITARY SEWER FORCE MAIN, TRENCHED (16")	LF	365	2
13	4010-108-H-0	REMOVAL OF SANITARY SEWER, 6" VCP	LF	5	
14	4010-108-H-0	REMOVAL OF SANITARY SEWER, 12" DI FORCEMAIN	LF	90	
15	4010-108-H-0	REMOVAL OF SANITARY SEWER, 24" VCP	LF	10	
16	4050-302-X-X	MURRAY ST. BYPASS PUMPING	LS	1	2
17	4050-302-X-X	YORK LIFT STATION BYPASS PUMPING	LS	1	
18	SPECIAL	12" DI MJ LONG SLEEVE	EA	2	
19	SPECIAL	16" DI MJ 45 BEND	EA	10	
20	SPECIAL	16" x 16" DI MJ WYE	EA	1	
21	SPECIAL	16" DI BLIND FLANGE	EA	1	
22	SPECIAL	16" MJ RESILIENT WEDGE GATE VALVE	EA	3	
23	SPECIAL	20" MJ RESILIENT WEDGE GATE VALVE	EA	1	
24	SPECIAL	20" x 16" DI MJ WYE	EA	1	
25	SPECIAL	20" DI MJ LONG SLEEVE	EA	1	
26	SPECIAL	INSPECTION OF 16" FORCE MAIN	LF	4,800	
27	SPECIAL	INTERMEDIATE ACCESS	LS	1	
28	SPECIAL	GELITA FORCE MAIN CONNECTION	LS	1	
DIVISION 6 - STRUCTURES FOR SANITARY AND STORM SEWERS					
29	6010-108-A-0	72" LINED MANHOLE	EA	1	
30	6010-108-H-0	REMOVE MANHOLE	EA	1	
31	SPECIAL	BRIDGEPORT LIFT STATION AND VALVE VAULT	LS	1	
32	SPECIAL	BRIDGEPORT LIFT STATION ELECTRICAL/CONTROLS	LS	1	
33	SPECIAL	BRIDGEPORT FLOW METER VAULT	LS	1	
34	SPECIAL	BRIDGEPORT STILLING STRUCTURE	LS	1	
35	SPECIAL	YORK LIFT STATION	LS	1	
36	SPECIAL	YORK LIFT STATION ELECTRICAL/CONTROLS/HVAC	LS	1	
37	SPECIAL	YORK WET WELL CLEANING	HR	10	
38	SPECIAL	PAINTING AND COATINGS	LS	1	
DIVISION 7 - STREETS AND RELATED WORK					
39	7010-108-A-0	PCC PAVEMENT	SY	184	
40	7030-108-A-0	REMOVAL OF CONCRETE SIDEWALK	SY	92	
41	7030-108-E-0	SIDEWALK, P.C. CONCRETE, 4 IN.	SY	92	
42	7030-108-H-2	GRANULAR DRIVEWAY	SY	230	
43	7040-108-H-0	PAVEMENT REMOVAL	SY	184	
44	SPECIAL	TEMPORARY TRAFFIC LANE	TON	87	
45	SPECIAL	REMOVE AND RESET LIGHT POLE	EA	2	

DIVISION 9 - SITE WORK AND LANDSCAPING					
46	9010-108-A-1	SEEDING, FERTILIZING, AND MULCHING FOR HYDRAULIC SEEDING	AC	0.3	
47	9040-108-N-1	SILT FENCE	LF	777	
48	9040-108-N-2	SILT FENCE, REMOVAL OF SEDIMENT	LF	194.25	
49	9040-108-N-3	SILT FENCE, REMOVAL OF DEVICE	LF	777	
50	9040-108-T-1	INLET PROTECTION	EA	4	
51	9040-108-T-2	INLET PROTECTION, MAINTENANCE	EA	4	
52	9060-108-A-0	CHAIN LINK FENCE, 8'	LF	40	
53	9060-108-B-0	10' CHAIN LINK GATE	EA	1	
54	9060-108-D-0	REMOVAL AND REINSTALLATION OF CHAIN LINK FENCE, 8'	LF	140	
55	SPECIAL	BRIDGEPORT TEMPORARY SECURITY FENCE/GATE	LS	1	
56	SPECIAL	YORK TEMPORARY SECURITY FENCE/GATE	LS	1	
57	SPECIAL	STABILIZE CONSTRUCTION ENTRANCE	LS	1	
58	SPECIAL	WEED BARRIER FABRIC	SY	183	
59	SPECIAL	LANDSCAPE ROCK	TON	77	
60	SPECIAL	STREET SWEEPING	HR	20	
DIVISION 11 - MISCELLANEOUS					
61	11010-303-X-X	CONSTRUCTION STAKING	LS	1	

ADDENDUM #2

DRAWN BY: JV JOB DATE: 2015
 APPROVED: DRH JOB NUMBER: 50150006
 PLOT DATE: 3/3/2016 3:40 PM
 CAD FILE: \\HRGSFDC\Drawings\50150006.01\CAD\Section C\DWG\CIC.01.dwg

BAR IS ONE HALF INCH ON OFFICIAL DRAWINGS.
 0 1/2"
 IF NOT ONE HALF INCH, ADJUST SCALE ACCORDINGLY.

NO.	DATE	BY	REVISION DESCRIPTION
2	3/2/16	JV	ADD BID ITEMS, REVISE QUANTITIES



BRIDGEPORT WEST SEWER IMPROVEMENTS - SECTION C
 CITY OF SIOUX CITY, IOWA



ESTIMATE OF QUANTITIES
 ESTIMATE OF QUANTITIES

SHEET NO.
C.01

ESTIMATE REFERENCE INFORMATION	
INFORMATION LISTED BELOW IS TO BE USED IN ADDITION TO OR IN LIEU OF SUDAS. DATA LISTED BELOW IS FOR INFORMATIONAL PURPOSES ONLY AND SHALL NOT CONSTITUTE A BASIS FOR ANY EXTRA WORK.	
STD. BID ITEM	DESCRIPTION
	TRAFFIC CONTROL
1070-206-X-X	REFER TO SUDAS AND SIOUX CITY SUPPLEMENT TO SUDAS. BASIS OF PAYMENT SHALL INCLUDE ALL SIGNS, BARRICADES, EQUIPMENT, LABOR, AND ALL OTHER ITEMS NECESSARY TO CONTROL TRAFFIC DURING CONSTRUCTION. ALL TRAFFIC CONTROL DEVICES SHALL MEET THE REQUIREMENTS OF THE MOST CURRENT VERSION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND BE INSTALLED AS SHOWN ON THE J SHEETS.
1090-105-D-0	MOBILIZATION REFER TO SUDAS.
2010-108-A-1	TREE REMOVAL REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE PER EACH TREE REMOVED.
2010-108-D-1	TOPSOIL, ON-SITE REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE IN CUBIC YARDS OF TOPSOIL STRIPPED, SALVAGED, AND SPREAD, AND WILL BE COMPUTED ON THE BASIS OF AN UNIFORM 8 INCH FINISHED THICKNESS. QUANTITY WAS CALCULATED ASSUMING AN 8 INCH THICK TOPSOIL.
2010-108-E-0	EXCAVATION, CLASS 10 REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE IN CUBIC YARDS OF MATERIAL EXCAVATED FROM THE PROJECT SITE AND BORROW AREAS.
2010-108-G-0	SUBGRADE PREPARATION REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE IN SQUARE YARDS OF THE AREA OF THE PROPOSED PAVEMENT UNDER WHICH THE SUBGRADE PREPARATION IS PERFORMED, PLUS 2 FEET ON EACH SIDE. BASIS OF PAYMENT SHALL INCLUDE, BUT IS NOT LIMITED TO, EXCAVATING, MANIPULATING, REPLACING, COMPACTING, AND TRIMMING TO THE PROPER GRADE.
3010-XXX-X-X	DEWATERING REFER TO SUDAS. THIS SHALL BE FULL COMPENSATION FOR FURNISHING ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY FOR DEWATERING ACTIVITIES AND MONITORING IN THE PIPE TRENCH AND AROUND UNDERGROUND CONCRETE STRUCTURES.
4010-108-A-1	VCP SANITARY SEWER GRAVITY MAIN, TRENCHED (6") REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE BASED ON LINEAR FEET OF PIPE INSTALLED. BASIS OF PAYMENT SHALL INCLUDE, BUT IS NOT LIMITED TO, TRENCH EXCAVATION, FURNISHING BEDDING MATERIAL, PLACING BEDDING AND BACKFILL MATERIAL, PIPE JOINTS, PIPE CONNECTIONS, NON-SHEAR COUPLINGS, TESTING, AND INSPECTION.
4010-108-A-1	VCP SANITARY SEWER GRAVITY MAIN, TRENCHED (24") REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE BASED ON LINEAR FEET OF PIPE INSTALLED. BASIS OF PAYMENT SHALL INCLUDE, BUT IS NOT LIMITED TO, TRENCH EXCAVATION, FURNISHING BEDDING MATERIAL, PLACING BEDDING AND BACKFILL MATERIAL, PIPE JOINTS, PIPE CONNECTIONS, NON-SHEAR COUPLINGS, TESTING, AND INSPECTION.
4010-108-A-1	DIP SANITARY SEWER GRAVITY MAIN, TRENCHED (24") REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE BASED ON LINEAR FEET OF PIPE INSTALLED. BASIS OF PAYMENT SHALL INCLUDE, BUT IS NOT LIMITED TO, TRENCH EXCAVATION, FURNISHING BEDDING MATERIAL, PLACING BEDDING AND BACKFILL MATERIAL, PIPE JOINTS, PIPE CONNECTIONS, NON-SHEAR COUPLINGS, POLYWRAP, TESTING, AND INSPECTION.
4010-108-C-1	DI SANITARY SEWER FORCE MAIN, TRENCHED (12") REFER TO SUDAS AND PLAN D SHEETS. METHOD OF MEASUREMENT SHALL BE BASED ON LINEAR FEET OF PIPE INSTALLED. BASIS OF PAYMENT SHALL INCLUDE, BUT IS NOT LIMITED TO, TRENCH EXCAVATION, FURNISHING BEDDING MATERIAL, PLACING BEDDING AND BACKFILL MATERIAL, PIPE INSULATION, POLYETHYLENE WRAP, TESTING, AND INSPECTION.
4010-108-C-1	DI SANITARY SEWER FORCE MAIN, TRENCHED (16") REFER TO SUDAS AND PLAN SHEET E.01. METHOD OF MEASUREMENT SHALL BE BASED ON LINEAR FEET OF PIPE INSTALLED. BASIS OF PAYMENT SHALL INCLUDE, BUT IS NOT LIMITED TO, TRENCH EXCAVATION, FURNISHING BEDDING MATERIAL, PLACING BEDDING AND BACKFILL MATERIAL, PIPE INSULATION, POLYETHYLENE WRAP, TESTING, AND INSPECTION.
4010-108-H-0	REMOVAL OF SANITARY SEWER, 6" VCP REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE BASED ON LINEAR FEET OF PIPE REMOVED. BASIS OF PAYMENT INCLUDES, BUT IS NOT LIMITED TO, REMOVAL AND DISPOSAL OF THE PIPE.
4010-108-H-0	REMOVAL OF SANITARY SEWER, 12" DI FORCEMAIN REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE BASED ON LINEAR FEET OF PIPE REMOVED. BASIS OF PAYMENT INCLUDES, BUT IS NOT LIMITED TO, REMOVAL AND DISPOSAL OF THE PIPE.
4010-108-H-0	REMOVAL OF SANITARY SEWER, 24" VCP REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE BASED ON LINEAR FEET OF PIPE REMOVED. BASIS OF PAYMENT INCLUDES, BUT IS NOT LIMITED TO, REMOVAL AND DISPOSAL OF THE PIPE.

4050-302-X-X	MURRAY ST. BYPASS PUMPING REFER TO SUDAS AND SPECIAL PROVISION 01 5136. METHOD OF MEASUREMENT SHALL BE BASED ON A LUMP SUM. BASIS OF PAYMENT INCLUDES, BUT IS NOT LIMITED TO, USE OF VAC-TRUCKS OR TANKER, AND MONITORING.
4050-302-X-X	YORK LIFT STATION BYPASS PUMPING REFER TO SUDAS AND SPECIAL PROVISION 01 5136. METHOD OF MEASUREMENT SHALL BE A LUMP SUM ON THE BASIS OF 10 WEEKS. BASIS OF PAYMENT INCLUDES, BUT IS NOT LIMITED TO, BYPASS PIPING, PUMPS, USE OF VAC-TRUCKS OR TANKER, MONITORING, AND REDUNDANCY.
SPECIAL	12" DI MJ LONG SLEEVE COMPLY WITH AWWA C153 AND C111. METHOD OF MEASUREMENT SHALL BE PER EACH TYPE AND SIZE. BASIS OF PAYMENT WILL BE MADE AT THE UNIT PRICE FOR EACH TYPE AND SIZE AND INCLUDES, BUT IS NOT LIMITED TO, RESTRAINED JOINTS.
SPECIAL	16" DI MJ 45 BEND COMPLY WITH AWWA C153 AND C111. METHOD OF MEASUREMENT SHALL BE PER EACH TYPE AND SIZE. BASIS OF PAYMENT WILL BE MADE AT THE UNIT PRICE FOR EACH TYPE AND SIZE AND INCLUDES, BUT IS NOT LIMITED TO, RESTRAINED JOINTS.
SPECIAL	16" x 16" DI MJ WYE COMPLY WITH AWWA C153 AND C111. METHOD OF MEASUREMENT SHALL BE PER EACH TYPE AND SIZE. BASIS OF PAYMENT WILL BE MADE AT THE UNIT PRICE FOR EACH TYPE AND SIZE AND INCLUDES, BUT IS NOT LIMITED TO, RESTRAINED JOINTS.
SPECIAL	16" DI BLIND FLANGE COMPLY WITH AWWA C153 AND C111. METHOD OF MEASUREMENT SHALL BE PER EACH TYPE AND SIZE. BASIS OF PAYMENT WILL BE MADE AT THE UNIT PRICE FOR EACH TYPE AND SIZE AND INCLUDES, BUT IS NOT LIMITED TO, RESTRAINED JOINTS.
SPECIAL	16" MJ RESILIENT WEDGE GATE VALVE COMPLY WITH AWWA C153 AND C111. METHOD OF MEASUREMENT SHALL BE PER EACH TYPE AND SIZE. BASIS OF PAYMENT WILL BE MADE AT THE UNIT PRICE FOR EACH TYPE AND SIZE AND INCLUDES, BUT IS NOT LIMITED TO, RESTRAINED JOINTS.
SPECIAL	20" MJ RESILIENT WEDGE GATE VALVE COMPLY WITH AWWA C153 AND C111. METHOD OF MEASUREMENT SHALL BE PER EACH TYPE AND SIZE. BASIS OF PAYMENT WILL BE MADE AT THE UNIT PRICE FOR EACH TYPE AND SIZE AND INCLUDES, BUT IS NOT LIMITED TO, RESTRAINED JOINTS.
SPECIAL	20" x 16" DI MJ WYE COMPLY WITH AWWA C153 AND C111. METHOD OF MEASUREMENT SHALL BE PER EACH TYPE AND SIZE. BASIS OF PAYMENT WILL BE MADE AT THE UNIT PRICE FOR EACH TYPE AND SIZE AND INCLUDES, BUT IS NOT LIMITED TO, RESTRAINED JOINTS.
SPECIAL	20" DI MJ LONG SLEEVE COMPLY WITH AWWA C153 AND C111. METHOD OF MEASUREMENT SHALL BE PER EACH TYPE AND SIZE. BASIS OF PAYMENT WILL BE MADE AT THE UNIT PRICE FOR EACH TYPE AND SIZE AND INCLUDES, BUT IS NOT LIMITED TO, RESTRAINED JOINTS.
SPECIAL	INSPECTION OF 16" FORCEMAIN METHOD OF MEASUREMENT SHALL BE BASED ON LINEAR FEET OF PIPE INSPECTED. BASIS OF PAYMENT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY TO COMPLETE THE CCTV AND LASER PROFILING, AS WELL AS THE DATA PROCESSING OF THE EXISTING FORCE MAIN BETWEEN YORK LIFT STATION AND THE WASTEWATER TREATMENT PLANT. SEE SUPPLEMENTAL SPEC 33 0130.18 - "INSPECTION OF FORCEMAINS"
SPECIAL	INTERMEDIATE ACCESS METHOD OF MEASUREMENT SHALL BE BASED ON A LUMP SUM. BASIS OF PAYMENT INCLUDE, BUT IS NOT LIMITED TO, EXCAVATION, BACKFILL, AND CUTTING AND PATCHING OF FORCEMAIN IF AN INTERMEDIATE ACCESS PIT IS REQUIRED FOR THE "INSPECTION OF 16" FORCEMAIN" BID ITEM.
SPECIAL	GELITA FORCE MAIN CONNECTION REFER TO U SHEETS. METHOD OF MEASUREMENT SHALL BE BASED ON A LUMP SUM. BASIS OF PAYMENT SHALL INCLUDE EXCAVATION, BACKFILL, DRAINING OF THE FORCEMAIN LINE, AND ALL OTHER ITEMS OF PERTINENCE TO COMPLETE FORCE MAIN CONNECTION AS DETAILED ON THE PLAN SHEETS.
6010-108-A-0	72" LINED MANHOLE REFER TO SUDAS AND SPECIAL PROVISION 09 9600.01. METHOD OF MEASUREMENT SHALL BE PER EACH MANHOLE INSTALLED. BASIS OF PAYMENT SHALL INCLUDE, BUT NOT LIMITED TO, EXCAVATION, FURNISHING BEDDING MATERIAL, PLACE BEDDING AND BACKFILL MATERIAL, COMPACTION, BASE, INVERTS, PIPE CONNECTIONS, CASTINGS, ADJUSTMENT RINGS, LINING THE STRUCTURE, AND A LIQUID ADDITIVE TO THE CONCRETE INVERT AND BENCH FOR LONG TERM MICROBIOLOGICAL INDUCED CORROSION PROTECTION.
6010-108-H-0	REMOVE MANHOLE REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE PER EACH MANHOLE REMOVED. BASIS OF PAYMENT SHALL INCLUDE, BUT NOT LIMITED TO, REMOVAL OF CASTING, CONCRETE, AND DISPOSAL OF ALL REMOVED MATERIAL.
SPECIAL	BRIDGEPORT LIFT STATION AND VALVE VAULT REFER TO SHEETS D.02 AND D.03. METHOD OF MEASUREMENT SHALL BE BASED ON A LUMP SUM. BASIS OF PAYMENT SHALL INCLUDE PUMPS, VALVES, PIPING, CONCRETE, START UP, TESTING, AND ALL ADDITIONAL EQUIPMENT, MATERIAL, LABOR, TOOLS, AND ALL OTHER ITEMS OF PERTINENCE TO COMPLETE LIFT STATION CONSTRUCTION AS DETAILED ON THE PLAN SHEETS. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.

ADDENDUM #2

DRAWN BY: JV JOB DATE: 2015
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BAR IS ONE HALF INCH ON OFFICIAL DRAWINGS.
 0 1/2"
 IF NOT ONE HALF INCH, ADJUST SCALE ACCORDINGLY.

NO.	DATE	BY	REVISION DESCRIPTION
2	3/2/16	JV	ADD NEW ESTIMATE REFERENCE ITEMS



BRIDGEPORT WEST SEWER IMPROVEMENTS - SECTION C
 CITY OF SIOUX CITY, IOWA



ESTIMATE OF QUANTITIES
 ESTIMATE REFERENCE INFORMATION

SHEET NO.
C.02

SPECIAL	BRIDGEPORT LIFT STATION ELECTRICAL/CONTROLS REFER TO SHEETS D.20 AND D.21. METHOD OF MEASUREMENT SHALL BE BASED ON A LUMP SUM. BASIS OF PAYMENT SHALL INCLUDE ALL EQUIPMENT, SUPPLIES, AND LABOR TO MODIFY/CHANGE SERVICE ENTRANCE POWER FEED, NEW POWER PANEL, PUMP MOTOR VFD'S, NEW CONTROL PANEL, NEW METER VAULT ELECTRICAL, NEW PUMP POWER FEEDS, NEW WET WELL FLOATS, NEW LIGHTS, AND CONDUIT AND WIRING TO AFFECT THE CHANGES AS REQUIRED BY THE PLANS AND SPECIFICATIONS.
SPECIAL	BRIDGEPORT FLOW METER VAULT REFER TO SHEET D.04 AND SPECIAL PROVISIONS. METHOD OF MEASUREMENT SHALL BE BASED ON A LUMP SUM. BASIS OF PAYMENT SHALL INCLUDE EXCAVATION, BACKFILL, STRUCTURE, HATCH, PIPING, FITTINGS, VALVES, FLOW METERS, APPARATUSES, SUPPORTS, AND ALL ADDITIONAL EQUIPMENT, MATERIAL, LABOR, TOOLS, AND ALL OTHER ITEMS OF PERTINENCE TO COMPLETE METER VAULT CONSTRUCTION AS DETAILED ON THE PLAN SHEETS. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
SPECIAL	BRIDGEPORT STILLING STRUCTURE REFER TO SHEETS D.05, D.06, SPECIAL PROVISIONS, AND CITY SUPPLEMENT TO SUDAS. METHOD OF MEASUREMENT SHALL BE BASED ON A LUMP SUM. BASIS OF PAYMENT SHALL INCLUDE EXCAVATION, BACKFILL, STRUCTURE, HATCH, FITTINGS, ODOR ELIMINATION MODULE AND VENT PIPING, AND ALL ADDITIONAL EQUIPMENT, MATERIAL, LABOR, TOOLS, AND ALL OTHER ITEMS OF PERTINENCE TO COMPLETE DISCHARGE STRUCTURE CONSTRUCTION AS DETAILED ON THE PLAN SHEETS. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
SPECIAL	YORK LIFT STATION REFER TO SHEETS E.02 - E.08 AND SPECIAL PROVISIONS. METHOD OF MEASUREMENT SHALL BE BASED ON A LUMP SUM. BASIS OF PAYMENT SHALL INCLUDE EXCAVATION, DEMOLITION, HATCH, MONORAIL, SUPPORTS, PIPING, FITTINGS, VALVES, FLOW METERS, GANTRY CRANE, HOIST, APPARATUSES, START UP, TESTING, AND ALL ADDITIONAL EQUIPMENT, MATERIAL, LABOR, TOOLS, AND ALL OTHER ITEMS OF PERTINENCE TO COMPLETE LIFT STATION CONSTRUCTION AS DETAILED ON THE PLAN SHEETS. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
SPECIAL	YORK LIFT STATION ELECTRICAL / CONTROLS / HVAC REFER TO SHEETS E.20 - E.24. METHOD OF PAYMENT SHALL BE BASED UPON A LUMP SUM. BASIS OF PAYMENT SHALL INCLUDE EMERGENCY GENERATOR, SERVICE ENTRANCE MODIFICATIONS, AUTOMATIC TRANSFER SWITCH, POWER PANEL, PUMP MOTOR VFD'S, HARMONIC FILTER, NEW CONTROL PANEL, WET WELL FLOATS, SCADA SYSTEM PROGRAMMING MODIFICATION, HVAC, AND MODIFICATIONS TO EXISTING BUILDING ELECTRICAL SYSTEM AS INDICATED ON THE PLANS AND SPECIFICATIONS. WORK SHALL INCLUDE ALL ELECTRICAL DEMOLITION AND CONDUIT/WIRE, AND LABOR AS REQUIRED TO COMPLETE, TEST, AND TROUBLESHOOT THE PROJECT FOR A COMPLETE INSTALLATION.
SPECIAL	YORK WET WELL CLEANING REFER TO SHEETS E.02-E.08 FOR YORK WET WELL PLAN AND SECTION. METHOD OF MEASUREMENT SHALL BE PER HOUR. BASIS OF PAYMENT SHALL INCLUDE ALL TIME, MATERIALS, AND EQUIPMENT NEEDED TO FULLY CLEAN THE ENTIRETY OF THE WET WELL FROM ALL DEBRIS AND OTHER LOOSE MATERIALS IN PREPARATION FOR COATING. FLOW SHALL BE BYPASSED DURING CLEANING AS PART OF LIFT STATION DEMO/PUMP INSTALL. DEBRIS IS EXPECTED TO INCLUDE BRICKS (FROM UPSTREAM MANHOLES) AND 48" OF SEDIMENT DEPTH. HAZARDOUS CONDITIONS WILL REQUIRE TEMPORARY VENTING. PROVIDE DEWATERING BOX AND DRAINAGE TO NEARBY MANHOLE. BLAST ALL LOOSE CONCRETE MATERIAL FROM WET WELL WALLS.
SPECIAL	PAINTING AND COATINGS REFER TO SPECIAL PROVISIONS 09 9000 AND 09 9600.01. METHOD OF MEASUREMENT SHALL BE BASED ON A LUMP SUM. BASIS OF PAYMENT SHALL INCLUDE ALL TIME, MATERIALS, AND EQUIPMENT NEEDED TO ADEQUATELY PREPARE SURFACES FOR COATING AS WELL AS APPLYING APPLICABLE COATING SYSTEMS PER THE SPECIAL PROVISIONS.
7010-108-A-0	PCC PAVEMENT REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE IN SQUARE YARDS OF PCC PAVEMENT INSTALLED. BASIS OF PAYMENT SHALL INCLUDE, BUT IS NOT LIMITED TO, FINAL TRIMMING OF SUBGRADE OR SUBBASE, INTEGRAL CURB, BARS AND REINFORCEMENT, JOINTS AND SEALING, SURFACE CURING AND PAVEMENT PROTECTION, SAFETY FENCING, CONCRETE FOR RIGID HEADERS, BOXOUTS FOR FIXTURES, AND PAVEMENT SMOOTHNESS TESTING.
2	7030-108-A-0 REMOVAL OF CONCRETE SIDEWALK REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE PER SQUARE YARD OF CONCRETE REMOVED. BASIS OF PAYMENT SHALL INCLUDE SAWING, HAULING, AND DISPOSING OF ALL MATERIALS. SIDEWALK, P.C. CONCRETE, 4 IN.
7030-108-E-0	REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE PER SQUARE YARD OF CONCRETE INSTALLED. BASIS OF PAYMENT SHALL INCLUDE CONCRETE, EQUIPMENT, AND ALL LABOR NECESSARY TO COMPLETE THE CONSTRUCTION. INCIDENTALS INCLUDE MINOR GRADE ADJUSTMENTS, SUBGRADE PREPARATION, FORMWORK, AND JOINTING.
7030-108-H-2	GRANULAR DRIVEWAY REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE PER SQUARE YARDS. BASIS OF PAYMENT SHALL INCLUDE EXCAVATION AND PREPARATION OF SUBGRADE AND FINAL GRADING.
7040-108-H-0	PAVEMENT REMOVAL REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE IN SQUARE YARDS. BASIS OF PAYMENT SHALL INCLUDE, BUT IS NOT LIMITED TO, SAWING, BREAKING, REMOVING, AND DISPOSING OF EXISTING PAVEMENT AND REINFORCING STEEL.
SPECIAL	TEMPORARY TRAFFIC LANE METHOD OF MEASUREMENT SHALL BE PER TON. BASIS OF PAYMENT SHALL INCLUDE, BUT NOT LIMITED TO, SOIL STRIPPING AND SALVAGING, CRUSHED CONCRETE MATERIAL MEETING IDOT GRADATION NO. 11, COMPACTION, MAINTENANCE, REMOVAL AND DISPOSAL AFTER USE, AND REGRADING TO ORIGINAL CONDITION.

SPECIAL	REMOVE AND RESET LIGHT POLE REFER TO E SHEETS FOR LOCATION OF LIGHT POLES. METHOD OF MEASUREMENT SHALL BE PER EACH LIGHT POLE THAT IS REMOVED AND RESET. BASIS OF PAYMENT SHALL INCLUDE BUT NOT LIMITED TO FULL COMPENSATION FOR FURNISHING ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO REMOVE AND RESET LIGHT POLE, SALVAGE LIGHT POLE, PROTECT EXISTING CONDUIT, WIRE, LIGHT POLE, CONCRETE FOOTING, AND ALL OTHER COMPONENTS, REINSTALL LIGHTPOLE, AND RECONNECT ELECTRICAL TO LIGHT POLE.
9010-108-A-1	SEEDING, FERTILIZING, AND MULCHING FOR HYDRAULIC SEEDING REFER TO SUDAS. CONTRACTOR TO SEED, FERTILIZE, AND MULCH ALL DISTURBED AREAS AS SOON AS PRACTICABLE FOLLOWING FINAL GRADING AT EACH LOCATION. SEED MIX SHALL BE TYPE 2 PER SUDAS.
9040-108-N-1	SILT FENCE REFER TO D AND E SHEETS FOR LOCATION OF SILT FENCE AND SUDAS 9040 FOR SPECIFICATIONS. METHOD OF MEASUREMENT SHALL BE PER LINEAR FOOT OF SILT FENCE. BASIS OF PAYMENT SHALL INCLUDE BUT NOT LIMITED TO FULL COMPENSATION FOR FURNISHING ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY FOR SILT FENCE.
9040-108-N-2	SILT FENCE, REMOVAL OF SEDIMENT REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE PER LINEAR FOOT OF SILT FENCE. BASIS OF PAYMENT SHALL INCLUDE MAINTENANCE AND MUCK REPAIR.
9040-108-N-3	SILT FENCE, REMOVAL OF DEVICE REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE PER LINEAR FOOT. BASIS OF PAYMENT SHALL BE FOR SILT FENCE REMOVAL AND DISPOSAL. SILT FENCE WILL BE REMOVED AS DIRECTED BY THE ENGINEER AND WILL BE PAID FOR BY ACTUAL QUANTITY REMOVED. SILT FENCE SHALL NOT BE REMOVED PRIOR TO THE SITE BEING STABILIZED.
9040-108-T-1	INLET PROTECTION REFER TO SUDAS. BASIS OF PAYMENT BASED ON INSTALLATION AND REMOVAL OF DEVICE UPON PROJECT COMPLETION.
9040-108-T-2	INLET PROTECTION, MAINTENANCE REFER TO SUDAS. BASIS OF PAYMENT BASED ON REMOVAL AND OFF-SITE DISPOSAL OF ACCUMULATED SEDIMENT UPON PROJECT COMPLETION.
9060-108-A-0	CHAIN LINK FENCE, 8' REFER TO SUDAS, D SHEETS FOR FENCE LOCATION, AND U SHEETS FOR DETAILS. METHOD OF MEASUREMENT SHALL BE PER LINEAR FOOT. BASIS OF PAYMENT TO INCLUDE FURNISHING AND INSTALLING FENCE PER DETAILS.
9060-108-B-0	10' CHAIN LINK GATE REFER TO SUDAS, D SHEETS FOR LOCATION, AND U SHEETS FOR DETAILS. METHOD OF MEASUREMENT SHALL BE PER EACH. BASIS OF PAYMENT TO INCLUDE FURNISHING AND INSTALLING GATE AT BRIDGEPORT LIFT STATION.
9060-108-D-0	REMOVAL AND REINSTALLATION OF CHAIN LINK FENCE, 8' REFER TO THE D SHEETS. CONTRACTOR SHALL COORDINATE FENCE REMOVAL WITH CITY OF SIOUX CITY. THE LENGTH OF FENCE TO BE REMOVED SHALL BE MEASURED IN FEET BY THE PROJECT ENGINEER. THIS SHALL BE FULL COMPENSATION FOR FURNISHING ALL TOOLS, EQUIPMENT, LABOR AND MATERIALS NECESSARY FOR REMOVAL, SALVAGE OF FENCE AND POSTS, AND REINSTALLATION.
SPECIAL	BRIDGEPORT TEMPORARY SECURITY FENCE/GATE METHOD OF MEASUREMENT IS A LUMP SUM. BASIS OF PAYMENT SHALL INCLUDE FURNISHING, INSTALLING, AND REMOVING POSTS, FABRIC, TIES, AND FITTINGS.
SPECIAL	YORK TEMPORARY SECURITY FENCE/GATE METHOD OF MEASUREMENT IS A LUMP SUM. BASIS OF PAYMENT SHALL INCLUDE FURNISHING, INSTALLING, AND REMOVING POSTS, FABRIC, TIES, AND FITTINGS.
SPECIAL	STABILIZE CONSTRUCTION ENTRANCE METHOD OF MEASUREMENT SHALL BE BASED ON A LUMP SUM. BASIS OF PAYMENT INCLUDES, BUT NOT LIMITED TO, SUBGRADE STABILIZATION FABRIC.
SPECIAL	WEED BARRIER FABRIC METHOD OF MEASUREMENT SHALL BE PER SQUARE YARD OF WEED BARRIER FABRIC USED. BASIS OF PAYMENT SHALL INCLUDE, BUT NOT LIMITED TO, FULL COMPENSATION FOR FURNISHING ALL LABOR, EQUIPMENT, AND MATERIAL NECESSARY FOR THE INSTALLATION OF THE WEED BARRIER FABRIC WITHIN THE NEWLY FENCED AREA OF THE BRIDGEPORT LIFT STATION.
SPECIAL	LANDSCAPE ROCK REFER TO PLAN SHEET D.01. METHOD OF MEASUREMENT SHALL BE PER TON OF LANDSCAPE ROCK USED. BASIS OF PAYMENT SHALL INCLUDE, BUT NOT LIMITED TO, FULL COMPENSATION FOR FURNISHING ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY FOR THE INSTALLATION OF THE LANDSCAPE ROCK AT BRIDGEPORT LIFT STATION.
SPECIAL	STREET SWEEPING METHOD OF MEASUREMENT SHALL BE PER HOUR OF STREET SWEEPING. BASIS OF PAYMENT SHALL INCLUDE FULL COMPENSATION FOR FURNISHING ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY FOR THE STREET SWEEPING. THE MINIMUM EQUIPMENT TO BE USED FOR STREET SWEEPING SHALL BE A SKID LOADER WITH A PICK UP BROOM ATTACHMENT OR ENGINEER APPROVED EQUAL. NO ROTARY BROOM WITHOUT THE PICK UP BROOM ATTACHMENT/CONTAINMENT SYSTEM WILL BE ACCEPTABLE.
11010-303-X-X	CONSTRUCTION STAKING REFER TO SUDAS. METHOD OF MEASUREMENT SHALL BE BASED ON A LUMP SUM. BASIS OF PAYMENT SHALL INCLUDE, BUT NOT LIMITED TO, ALL COMPENSATION FOR FURNISHING ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY FOR THE CONSTRUCTION STAKING AND FINAL VERIFICATION OF STRUCTURE LOCATIONS.

ADDENDUM #2

DRAWN BY: JV JOB DATE: 2015
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BAR IS ONE HALF INCH ON OFFICIAL DRAWINGS.
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2	3/2/16	JV	EDIT ERI 7030-108-A-0



BRIDGEPORT WEST SEWER IMPROVEMENTS - SECTION C
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 ESTIMATE REFERENCE INFORMATION

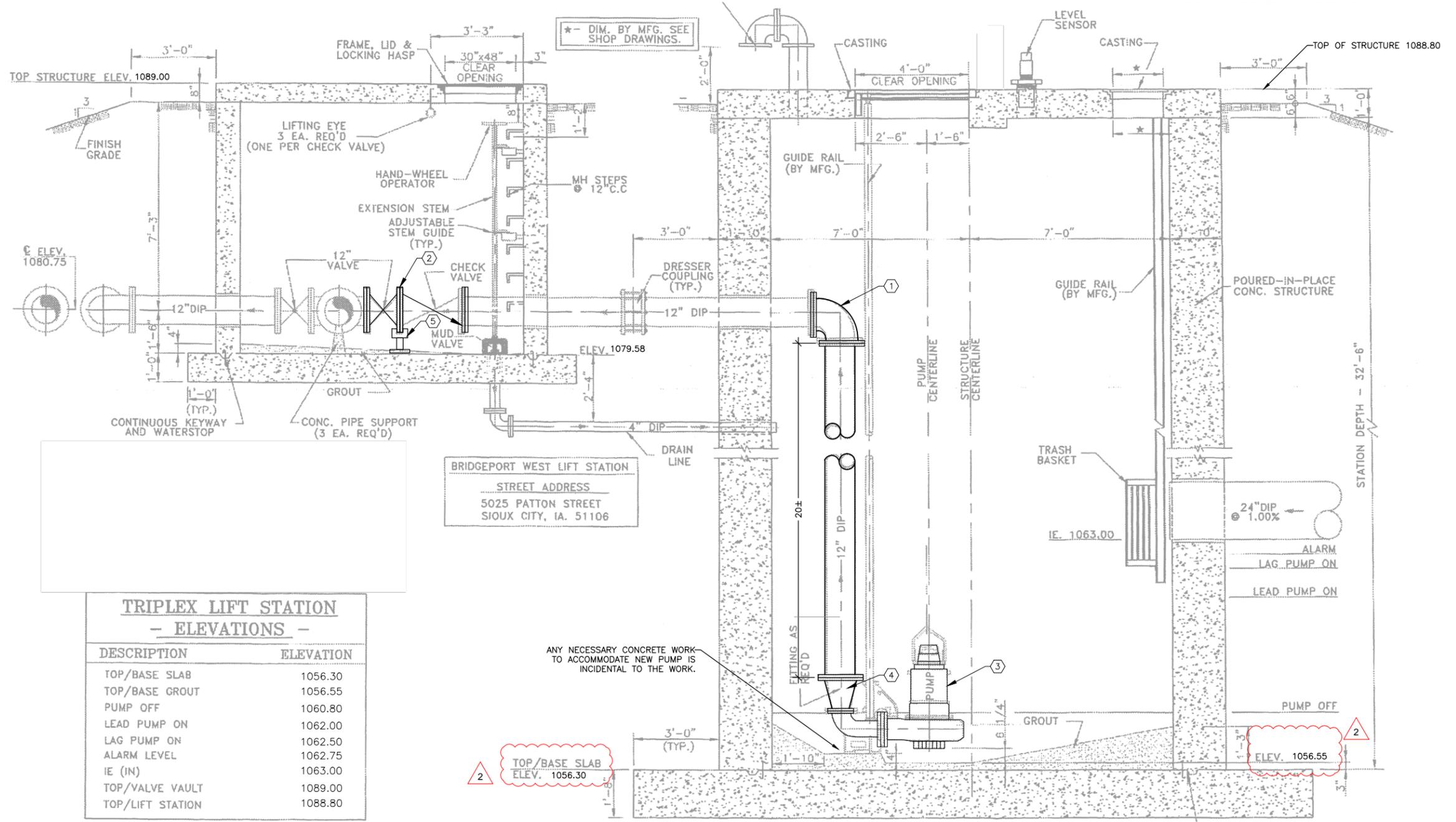
SHEET NO.
C.03

GENERAL NOTES:

1. DRAWING INDICATES EXISTING FACILITIES TAKEN FROM PREVIOUS CONSTRUCTION DRAWINGS FOR REFERENCE ONLY. INFORMATION SHALL BE VERIFIED BY CONTRACTOR PRIOR TO BEGINNING CONSTRUCTION.

KEY NOTES:

- ① REMOVE 12" BLIND FLANGE, CONNECT 90° BEND, PIPING, REDUCER, AND NEW PIPE.
- ② REMOVE 12" BLIND FLANGES AND INSTALL 12" KNIFE GATE AND SALVAGED CHECK VALVE FROM THE YORK LIFT STATION.
- ③ INSTALL NEW PUMP
- ④ 12"x6" REDUCER
- ⑤ STANCHION PIPE SUPPORT. SEE DETAIL 2/U.13.



**TRIPLEX LIFT STATION
- ELEVATIONS -**

DESCRIPTION	ELEVATION
TOP/BASE SLAB	1056.30
TOP/BASE GROUT	1056.55
PUMP OFF	1060.80
LEAD PUMP ON	1062.00
LAG PUMP ON	1062.50
ALARM LEVEL	1062.75
IE (IN)	1063.00
TOP/VALVE VAULT	1089.00
TOP/LIFT STATION	1088.80

1 EXISTING LIFT STATION SECTION
SCALE: 1/4" = 1'-0"

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2	3/2/16	JV	REVISE EXISTING ELEVATIONS



**BRIDGEPORT WEST SEWER
IMPROVEMENTS - SECTION C
CITY OF SIOUX CITY, IOWA**



**BRIDGEPORT LIFT STATION
LIFT STATION SECTION**

SHEET NO.
D.03

ADDENDUM #2

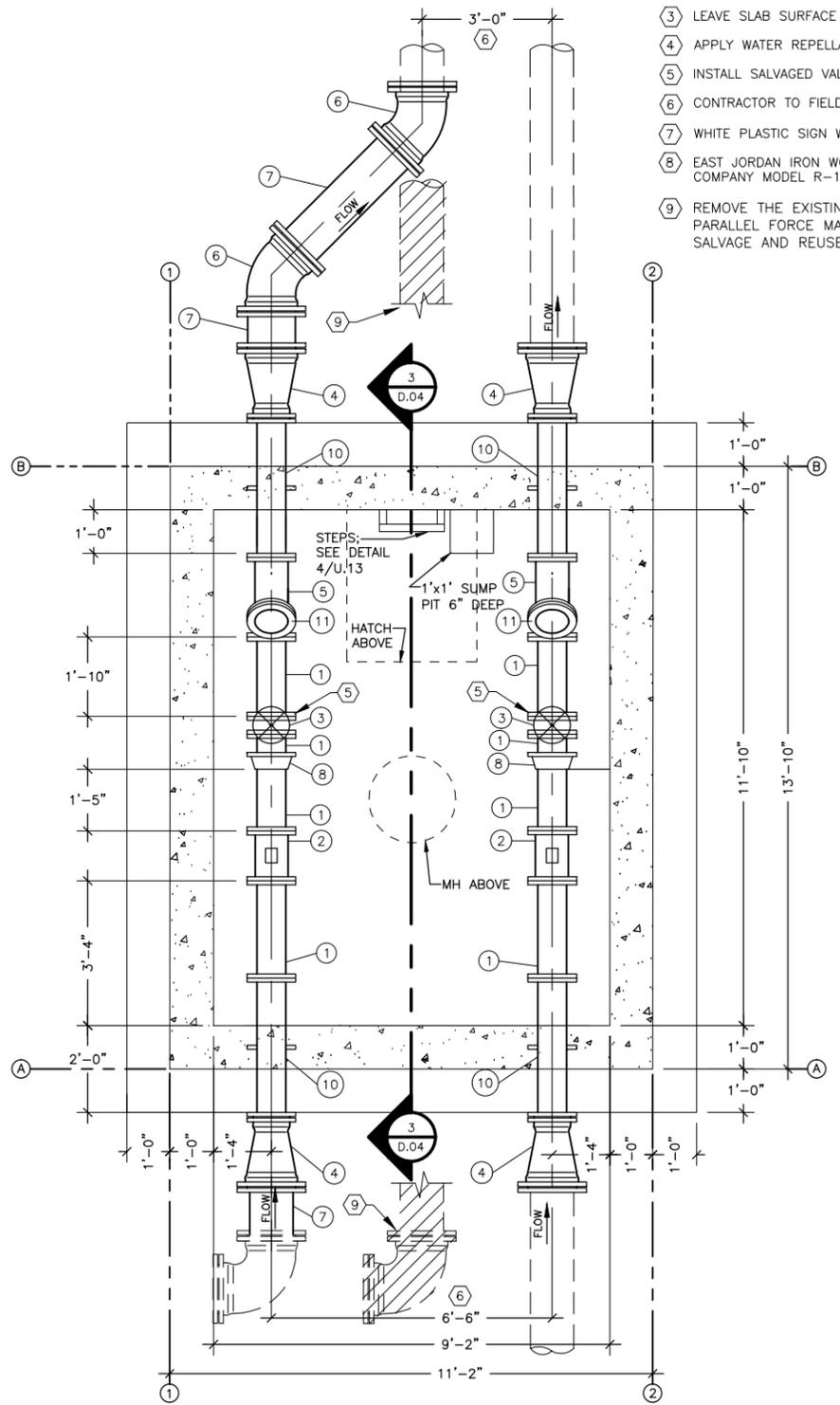
KEY NOTES:

- ① 6#5x4'-0" EW AT 2" CLEAR BELOW BOTTOM OF PIT. CENTER BARS ON CENTER OF PIT.
- ② GROUT FILL SHALL BE 3/4" DEEP MINIMUM AND SLOPE UP TO GRID A AT 1/4"/FT. LIGHT BROOM FINISH.
- ③ LEAVE SLAB SURFACE ROUGH FOR BOND TO GROUT FILL.
- ④ APPLY WATER REPELLANT TO TOP SLAB.
- ⑤ INSTALL SALVAGED VALVES FROM YORK LIFT STATION SUCTION PIPING.
- ⑥ CONTRACTOR TO FIELD VERIFY DISTANCE BETWEEN FORCE MAINS AND ELEVATIONS OF FORCE MAINS.
- ⑦ WHITE PLASTIC SIGN WITH 3" LETTERS: "LIFT HOOK CAPACITY 500 POUNDS"
- ⑧ EAST JORDAN IRON WORKS MODEL 3124, DEETER FOUNDRY, INC. MODEL 1158 NEENAH FOUNDRY COMPANY MODEL R-1695 OR EQUAL.
- ⑨ REMOVE THE EXISTING 12" FORCE MAIN, 90° BEND AND 3'-3" OF DI FORCE MAIN SO THAT PARALLEL FORCE MAINS ARE APPROPRIATELY SPACED. PROVIDE NEW 90° BEND W/BASE BID; SALVAGE AND REUSE 12" DI MJ 90° BEND IF POSSIBLE AND PROVIDE DEDUCT.

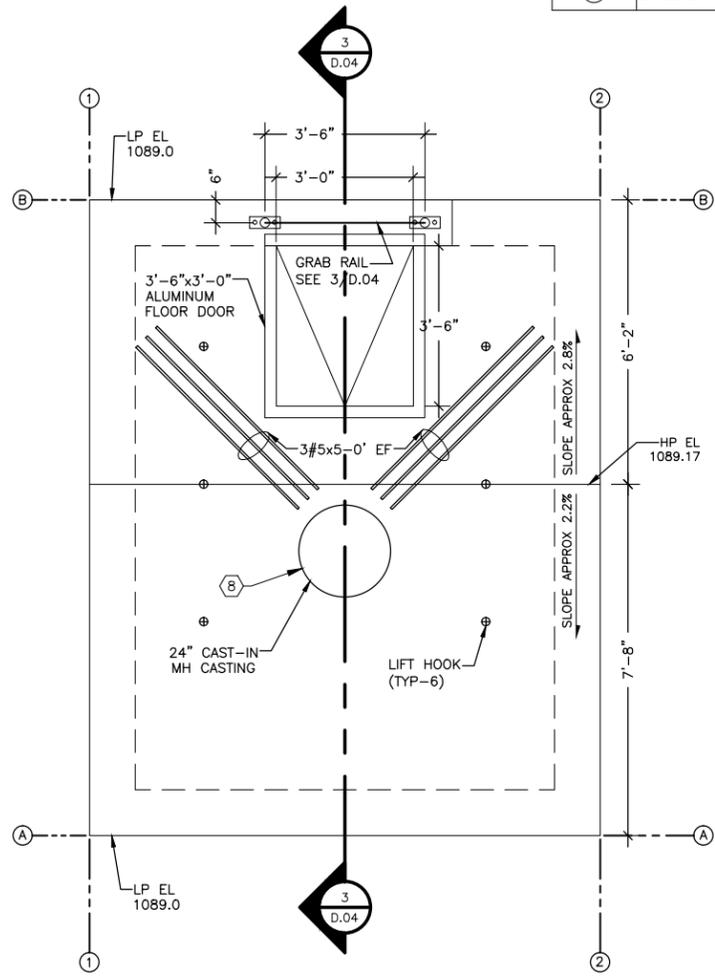
FITTING SCHEDULE	
NUMBER	DESCRIPTION
①	8" DI FL SPOOL
②	8" FLOW METER
③	8" KNIFE GATE VALVE (SALVAGED)
④	12"x8" DI MJ CONCENTRIC REDUCER
⑤	8"x8"x8" DI FL WYE
⑥	12" DI MJ 45° BEND
⑦	12" DI FL SPOOL
⑧	8" FL ADAPTER
⑨	12" DI MJ 90° BEND
⑩	8" PE x FL WALL PIPE
⑪	8" BLIND FLANGE

GENERAL NOTES:

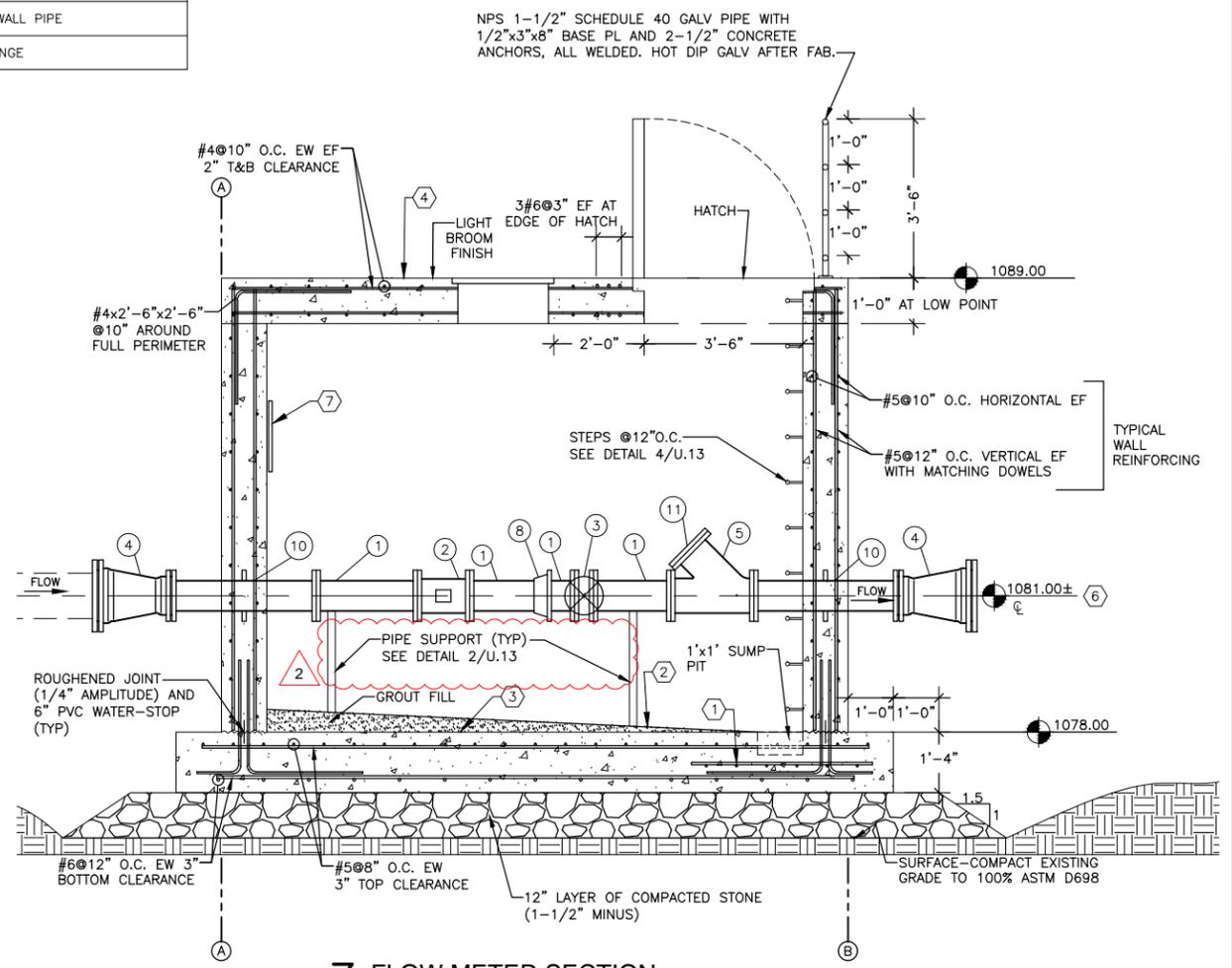
1. SEE SHEET U.13 TO U.15 FOR GENERAL STRUCTURAL NOTES AND STANDARD DETAILS.
2. ALL CONCRETE IS MIX 1 UNLESS OTHERWISE NOTED.
3. GROUT FILL IS CONCRETE MIX 2.
4. DESIGN LIVE LOAD FOR VAULT ROOF: 300 PSF.
6. SEE SPEC FOR MAGNETIC FLOW METER AND FLOOR HATCH.



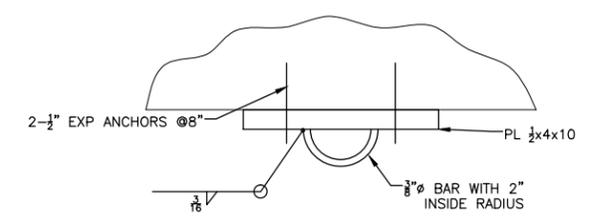
1 FLOW METER FOUNDATION AND PIPING PLAN
SCALE: 1/4" = 1'-0"
NORTH



2 FLOW METER ROOF PLAN
SCALE: 1/4" = 1'-0"
NORTH



3 FLOW METER SECTION
SCALE: 1/4" = 1'-0" NOTE: LIFT HOOKS NOT SHOWN



4 LIFT HOOK DETAIL (500 LB)
NTS HOT DIP GALVANIZE AFTER FABRICATION

ADDENDUM #2

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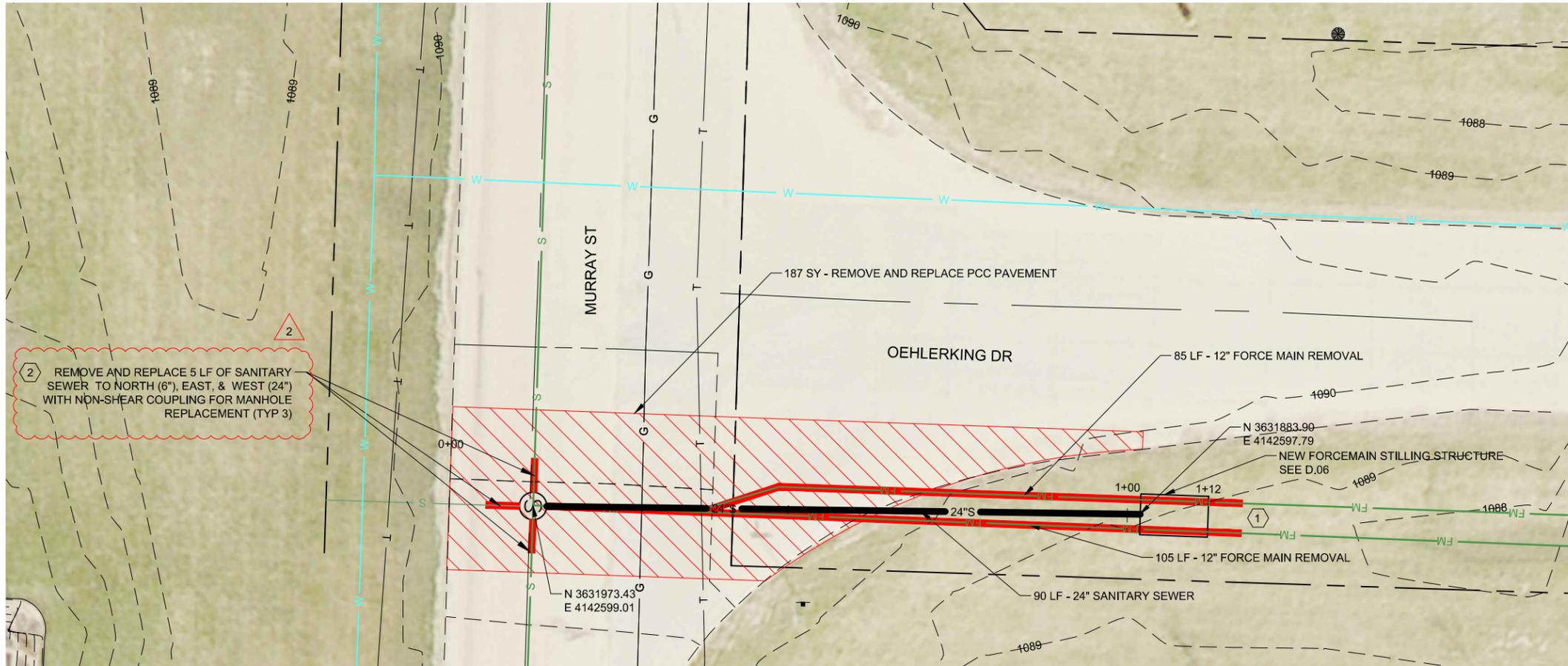


BRIDGEPORT WEST SEWER IMPROVEMENTS - SECTION C
CITY OF SIOUX CITY, IOWA

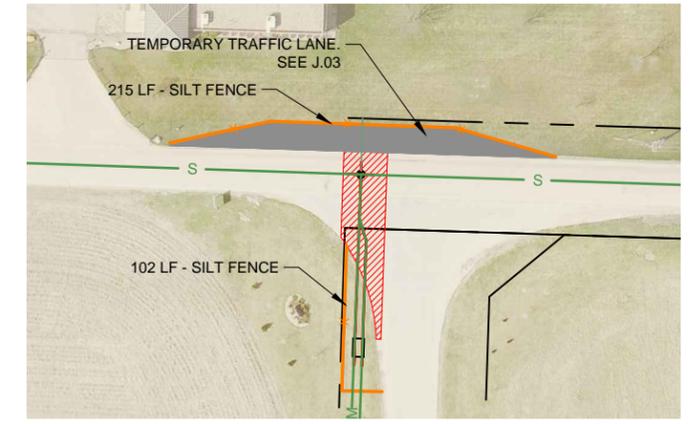
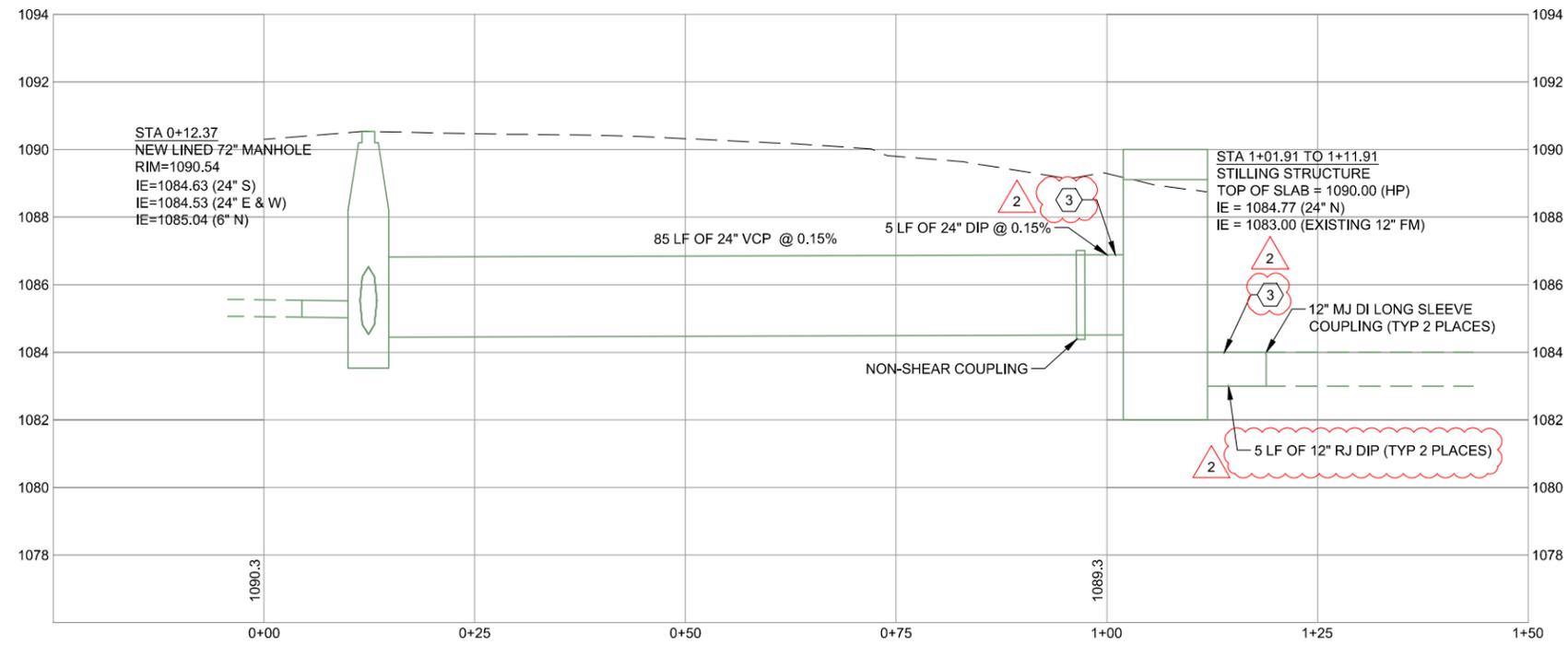


BRIDGEPORT LIFT STATION
FLOW METER STRUCTURE

SHEET NO.
D.04



1 SITE PLAN
SCALE: 1" = 20'



2 SILT FENCE AND BYPASS LANE
SCALE: 1" = 100'

KEY NOTES:

- ① FORCE MAIN LOCATION IS APPROXIMATE. FIELD VERIFY LOCATION OF EXISTING FORCE MAIN PRIOR TO BEGINNING WORK AND NOTIFY ENGINEER OF ANY DISCREPANCIES. COORDINATE FINAL LOCATION OF FLOW METER STRUCTURE WITH ENGINEER. PROVIDE SURVEY OF FINAL 4 CORNER LOCATIONS.
- ② NON-SHEAR COUPLING TO HAVE STAINLESS STEEL BOLTS AND NUTS.
- ③ SEE D.06 FOR PIPE CONNECTIONS INTO STILLING STRUCTURE.

GENERAL NOTES

- 1. MANHOLE REPLACEMENT AND 24" GRAVITY PIPE WORK TO BE COMPLETED OVER A WEEKEND.
- 2. CONTRACTOR TO PLUG UPSTREAM LINE AND PROVIDE OBSERVATION AT UPSTREAM MANHOLE TO ENSURE BACK UP OF FLOW DOES NOT COMPLETELY SURCHARGE UPSTREAM LINES. VAC TRUCK SHALL BE PROVIDED BY THE CONTRACTOR IN THE EVENT THAT PARTIAL BYPASSING IS NEEDED.
- 3. COORDINATE WITH OWNER AND DARLING INDUSTRY TO HOLD FLOW DURING WORK. DISCHARGE FROM DARLING IS APPROXIMATELY 100,000 GPD.
- 4. CONTRACTOR TO SEED ALL DISTURBED AREAS.
- 5. CONTRACTOR TO PROVIDE TRAFFIC CONTROL AND BYPASS LANE PER PLAN SHEET J.03.
- 6. MAINTAIN WORK WITHIN CITY PROPERTY OR R/W.
- 7. SEE SPECIFICATION FOR CORROSION LINING OF MANHOLE.

ADDENDUM #2

DRAWN BY: JV JOB DATE: 2015
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BRIDGEPORT WEST SEWER IMPROVEMENTS - SECTION C
CITY OF SIOUX CITY, IOWA

BRIDGEPORT LIFT STATION
STILLING STRUCTURE SITE PLAN

SHEET NO.
D.05

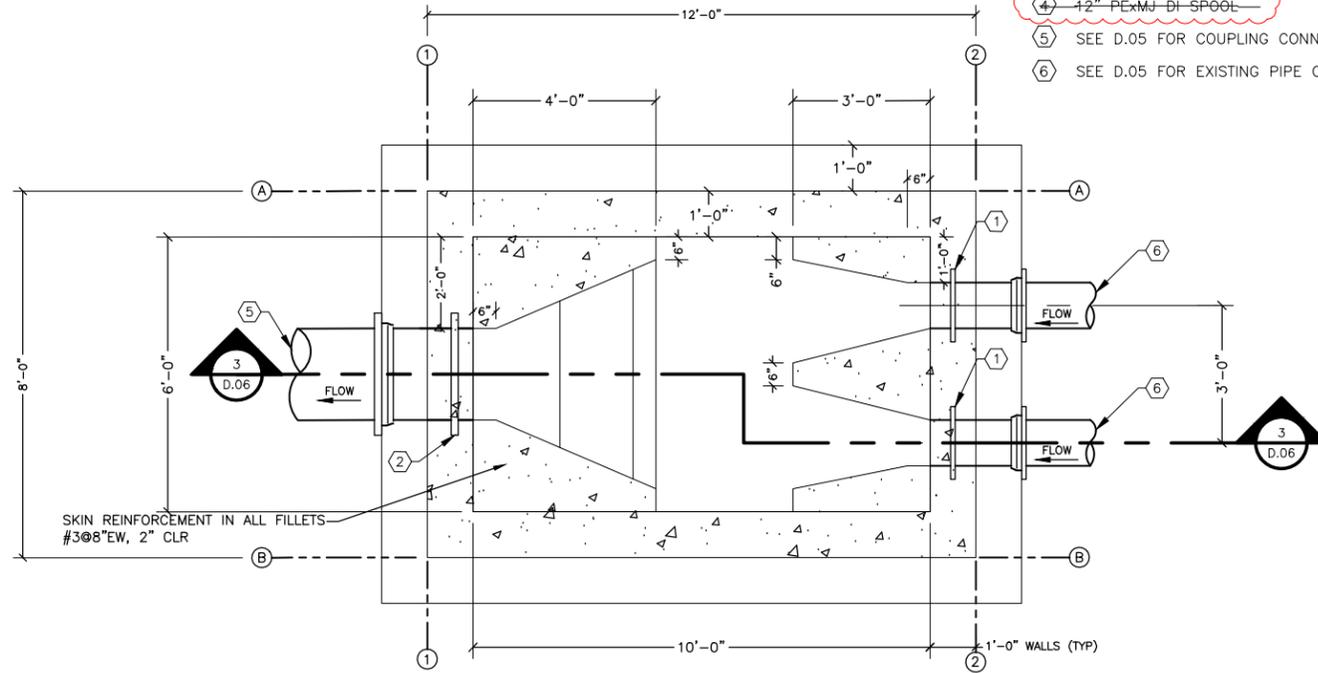
KEY NOTES:

- ① 12" PEXMJ DI WALL PIPE.
- ② 24" PEXMJ DI WALL PIPE
- ③ 24" PEXMJ DI SPOOL
- ④ 12" PEXMJ DI SPOOL
- ⑤ SEE D.05 FOR COUPLING CONNECTION.
- ⑥ SEE D.05 FOR EXISTING PIPE CONNECTION.

GENERAL NOTES:

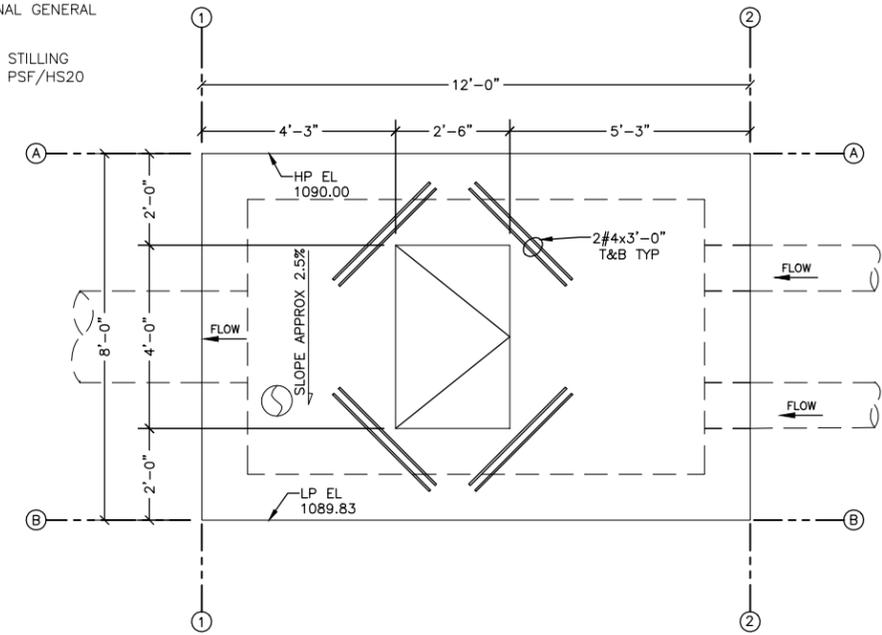
- 1. ALL INTERIOR SURFACES ARE TO BE LINED. SEE SPEC 09 9600.01 FOR CORROSION PROTECTIVE LINING REQUIREMENTS.
- 2. ALL DUCTILE IRON PIPE SPOOLS AND WALL PIPE ARE TO BE PROTECTO 401 LINED.
- 3. SEE D.04 FOR ADDITIONAL GENERAL NOTES.
- 4. DESIGN LIVE LOAD FOR STILLING STRUCTURE ROOF: 600 PSF/HS20 WHEEL LOAD.

- 5. PRIOR TO BACKFILLING AND INSTALLING ROOF, PERFORM VISUAL-ONLY WATERTIGHTNESS TEST TO A MAXIMUM WATER LEVEL OF 1088.5. HOLD WATER IN STRUCTURE FOR THREE 24-HOUR DAYS AND REPAIR ANY LEAKS UNTIL EXTERIOR OF STRUCTURE REMAINS DRY. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.



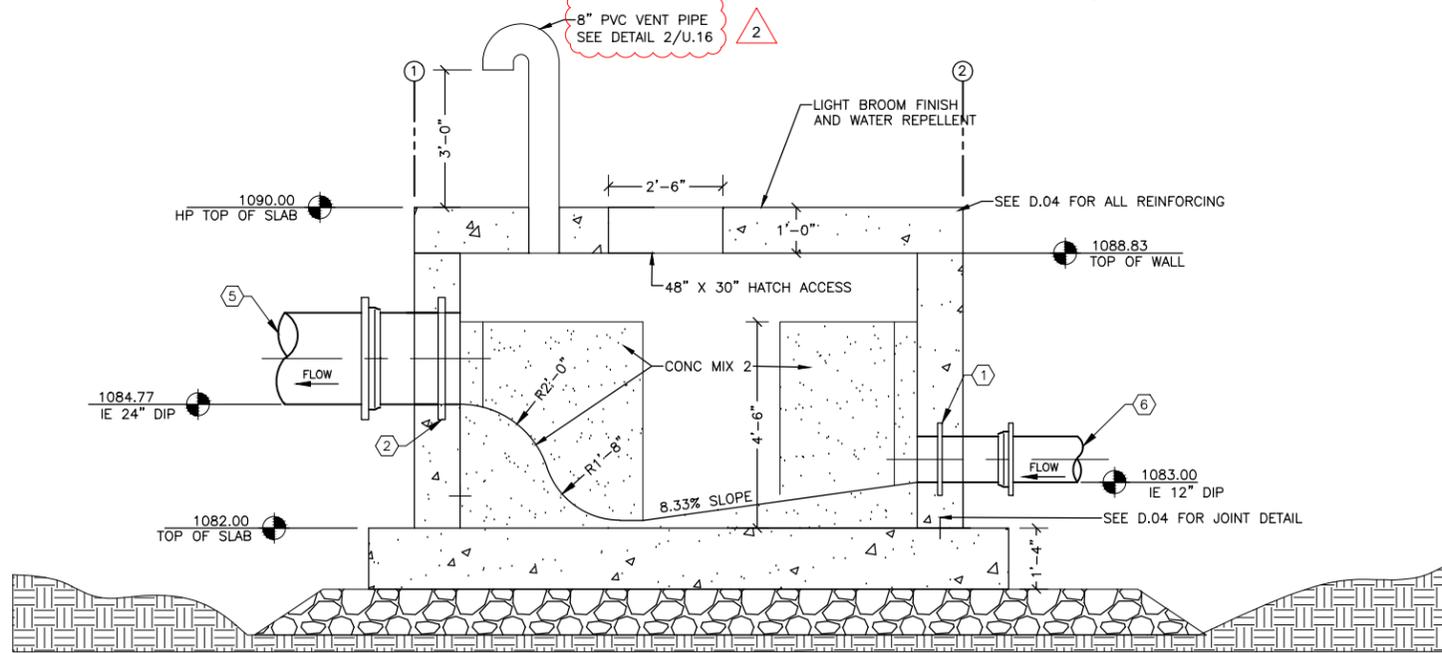
1 FORCE MAIN STILLING STRUCTURE FOUNDATION PLAN

SCALE: 1/4" = 1'-0"



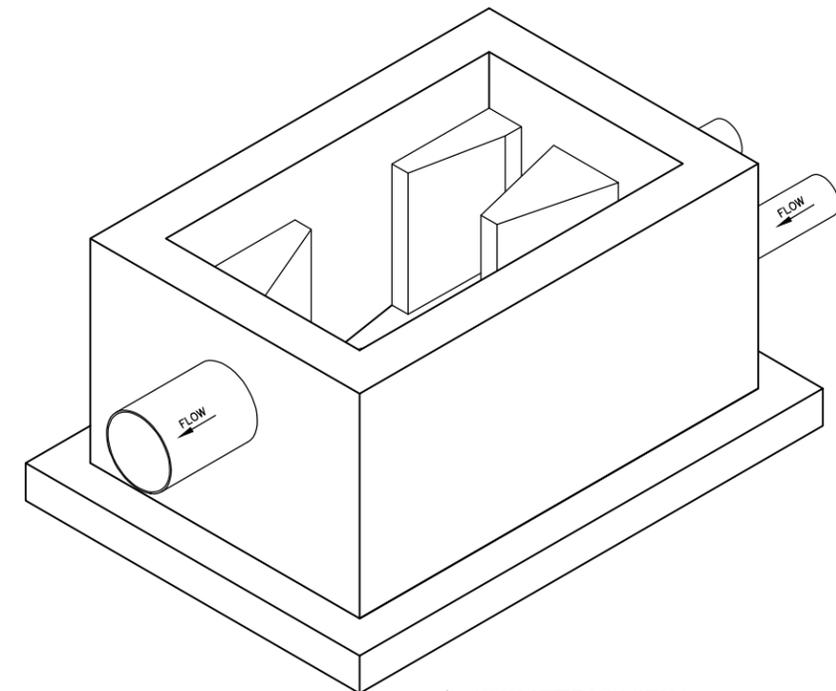
2 FORCE MAIN STILLING STRUCTURE ROOF PLAN

SCALE: 1/4" = 1'-0"



3 FORCE MAIN STILLING STRUCTURE SECTION

SCALE: 1/4" = 1'-0"



4 ISOMETRIC VIEW

SCALE: NTS

DRAWN BY: JV JOB DATE: 2015
 APPROVED: DRH JOB NUMBER: 50150006
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 CAD FILE: \\HRGSFDC\Drawings\50150006.01\CAD\Section C\DWG\DI.D.06.dwg

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 0 1/2"
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NO.	DATE	BY	REVISION DESCRIPTION
2	3/2/16	JV	REMOVE KEY NOTES 3 & 4, REVISE VENT PIPE NOTES



BRIDGEPORT WEST SEWER IMPROVEMENTS - SECTION C
 CITY OF SIOUX CITY, IOWA



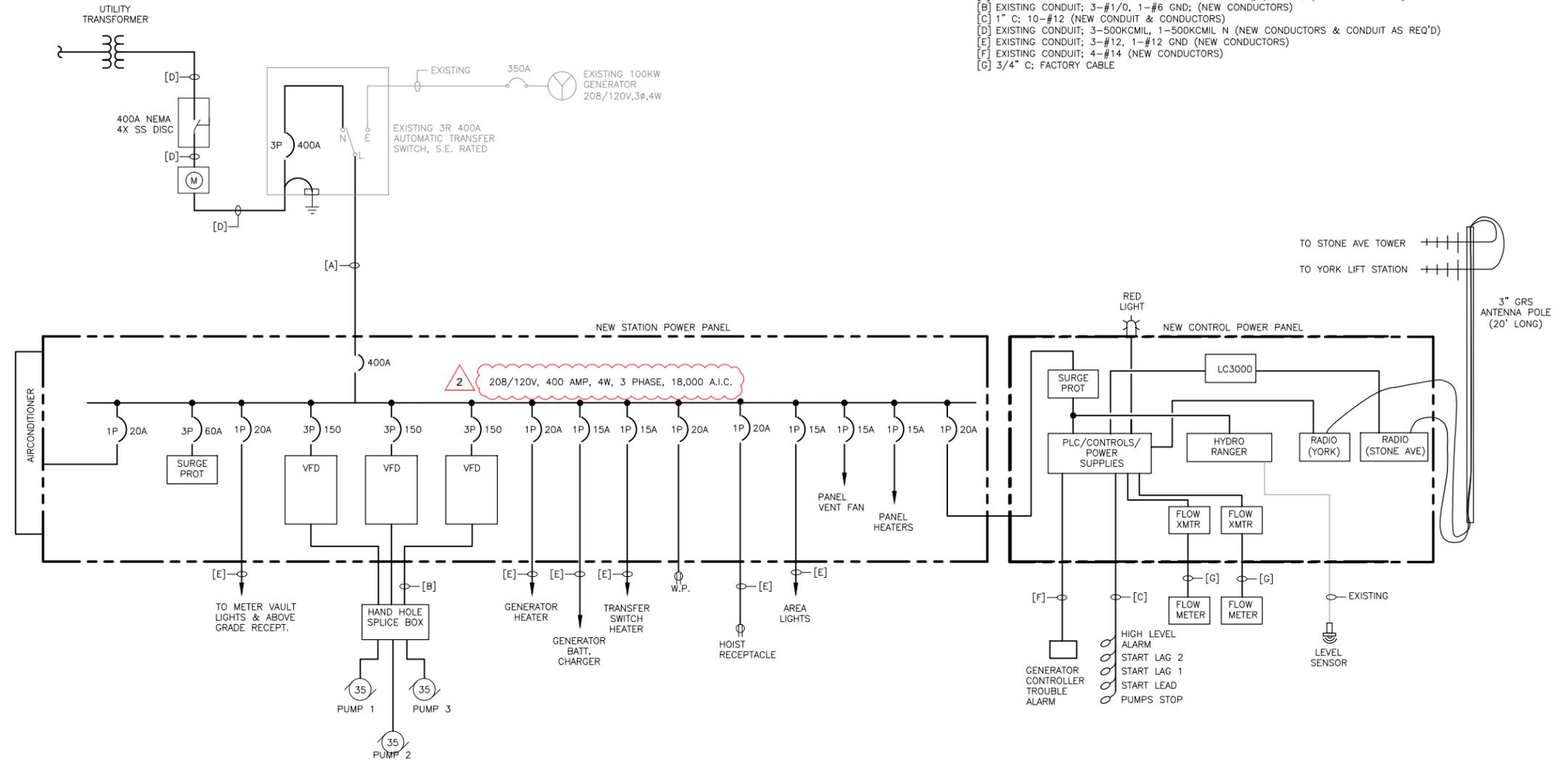
BRIDGEPORT LIFT STATION
 FORCE MAIN STILLING STRUCTURE

ADDENDUM #2

SHEET NO.
D.06

CIRCUIT/CONDUIT SCHEDULE:

- [A] EXISTING CONDUIT; 3-500KCML, 1-500KCML N, 1-#1/0 GND; (NEW CONDUCTORS)
- [B] EXISTING CONDUIT; 3-#1/0, 1-#6 GND; (NEW CONDUCTORS)
- [C] 1" C; 10-#12 (NEW CONDUIT & CONDUCTORS)
- [D] EXISTING CONDUIT; 3-500KCML, 1-500KCML N (NEW CONDUCTORS & CONDUIT AS REQ'D)
- [E] EXISTING CONDUIT; 3-#12, 1-#12 GND (NEW CONDUCTORS)
- [F] EXISTING CONDUIT; 4-#14 (NEW CONDUCTORS)
- [G] 3/4" C; FACTORY CABLE



1 POWER ONE-LINE DIAGRAM

SCALE: NTS

ADDENDUM #2

DRAWN BY: JV JOB DATE: 2015
 APPROVED: DRH JOB NUMBER: 50150006
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NO.	DATE	BY	REVISION DESCRIPTION
2	3/2/16	JV	REVISE POWER PANEL VOLTAGE

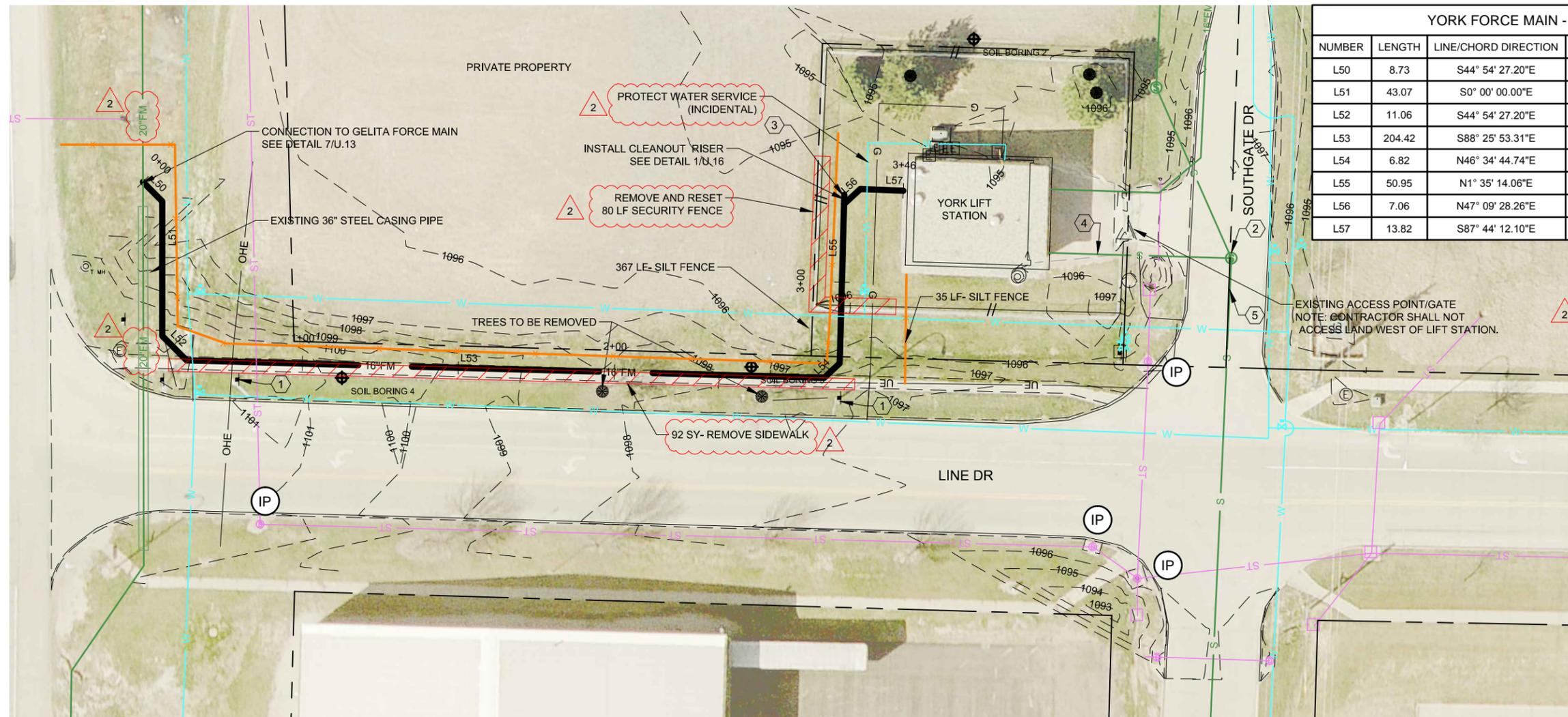


BRIDGEPORT WEST SEWER IMPROVEMENTS - SECTION C
 CITY OF SIOUX CITY, IOWA



BRIDGEPORT LIFT STATION ELECTRICAL DETAILS

SHEET NO.
D.21

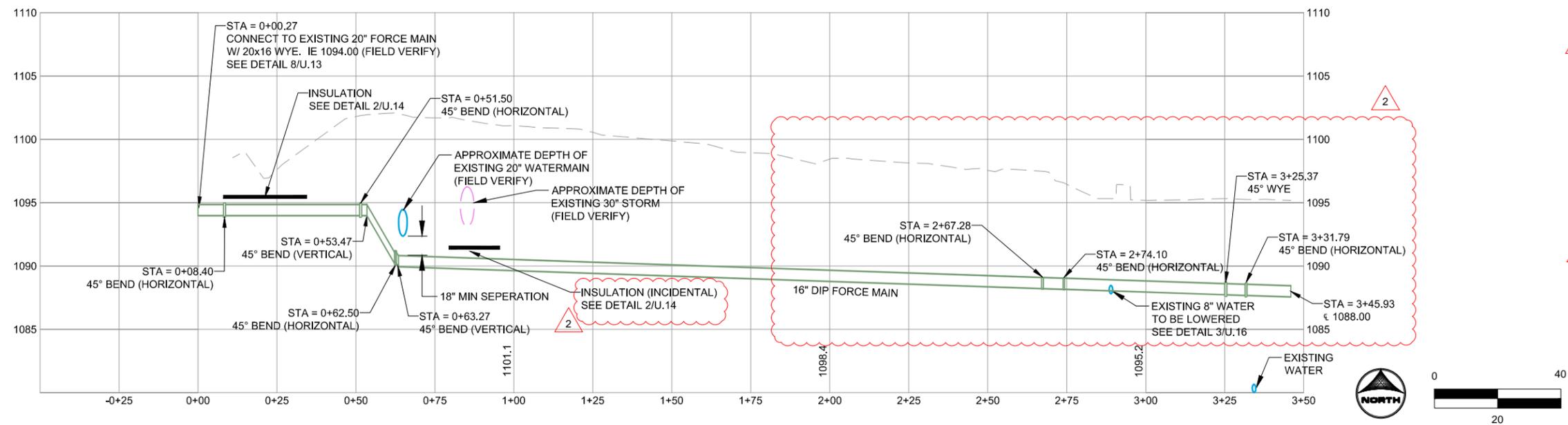


YORK FORCE MAIN - NEW 16 INCH ALIGNMENT DATA TABLE						
NUMBER	LENGTH	LINE/CHORD DIRECTION	START STATION	END STATION	START NORTHING	START EASTING
L50	8.73	S44° 54' 27.20"E	0+00.00	0+08.73	3637941.19	4146533.83
L51	43.07	S0° 00' 00.00"E	0+08.73	0+51.80	3637935.00	4146540.00
L52	11.06	S44° 54' 27.20"E	0+51.80	0+62.86	3637891.93	4146540.00
L53	204.42	S88° 25' 53.31"E	0+62.86	2+67.28	3637884.10	4146547.80
L54	6.82	N46° 34' 44.74"E	2+67.28	2+74.10	3637878.50	4146752.14
L55	50.95	N1° 35' 14.06"E	2+74.10	3+25.05	3637883.20	4146757.10
L56	7.06	N47° 09' 28.26"E	3+25.05	3+32.11	3637934.13	4146758.51
L57	13.82	S87° 44' 12.10"E	3+32.11	3+45.93	3637938.93	4146763.69

- KEY NOTES:**
- REMOVE AND REPLACE CITY OWNED LIGHT POLE.
 - SEE E.11 FOR BYPASS ROUTE
 - PRIOR TO BEGINNING WORK ON YORK LIFT STATION, INSTALL CLEAN OUT AND NEW 16" FORCE MAIN INTO BUILDING. PLACE BLIND FLANGE ON INTERIOR SIDE OF WALL PIPE. CONNECT TO CLEAN OUT RISER FOR BYPASS OF GRAVITY SEWER ENTERING WET WELL. REUSE BLIND FLANGE IN DRY WELL CONSTRUCTION WHEN BYPASSING IS COMPLETE.
 - COORDINATE WITH SEPARATE PROJECT TO CIPP LINE THE 36" INFLUENT PIPE TO THE YORK LIFT STATION. WORK MUST BE COMPLETED DURING DEMOLITION PERIOD, PRIOR TO PUMPS ARRIVING. WET WELL MUST BE CLEANED UPON STARTUP OF BYPASSING AROUND LIFT STATION TO ALLOW SAFE ACCESS FOR LINING WORK. LINING WORK IS EXPECTED TO BE COMPLETED WITHIN ONE WORK WEEK.
 - COORDINATE WITH SEPARATE PROJECT TO CIPP LINE THE 42" INTERCEPTOR UPSTREAM OF THE ENTRANCE DRIVE TO YORK LIFT STATION. WORK MUST BE COMPLETED PRIOR TO TAKING THE LIFT STATION OUT OF SERVICE. COORDINATE ACCESS FOR BYPASSING BY LINING CONTRACTOR.

- GENERAL NOTES:**
- UTILITY DEPTHS ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED.
 - CONTRACTOR TO FIELD VERIFY LOCATION OF THE END OF THE 36" STEEL CASING PIPE PRIOR TO CONNECTING FORCE MAIN.
 - RESTRAIN ALL JOINTS ON NEW 16" FORCE MAIN.
 - MAINTAIN WORK WITHIN CITY PROPERTY OR RIGHT OF WAY.
 - COORDINATE WITH OWNER TO CONNECT TO EXISTING 20" FORCE MAIN. PROVIDE METHOD TO REMOVE LIQUIDS FROM PIPE AND DISCHARGE TO YORK WET WELL.
 - COORDINATE WITH OWNER TO REDUCE FLOW AND INSTALL BYPASS STRUCTURE, VALVE, AND REQUIRED FITTINGS.
 - MONITOR UPSTREAM MANHOLE DURING BYPASSING TO ENSURE THAT PIPE DOES NOT BECOME FULLY SURCHARGED.
 - LINE DR CAN ONLY BE CLOSED FOR ONE WEEK AND IT CANNOT BE CLOSED AFTER MAY 11TH, 2016.
 - LIGHT POLE BASES TO BE PROTECTED AND REUSED DURING REMOVAL AND REPLACEMENT.
 - SEE J SHEETS FOR TRAFFIC CONTROL.
 - CONTRACTOR TO PROTECT CURB AND GUTTER THROUGH DURATION OF CONSTRUCTION. ANY DAMAGE DURING CONSTRUCTION SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE.

- BYPASSING NOTES:**
- PLUG EXISTING 36" LINE DURING WORK IN LIFT STATION, AND BYPASS FLOW VIA CONSTRUCTED BYPASS CONNECTION. CONTRACTOR TO PROTECT MANHOLE OPENING DURING DURATION OF BYPASS PUMPING.
 - AVERAGE FLOW: 1.20 MGD
PEAK FLOW: 2.88 MGD



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NO.	DATE	BY	REVISION DESCRIPTION
2	3/2/16	JV	REVISE FORCEMAIN PROFILE, REMOVE BYPASS ROUTE

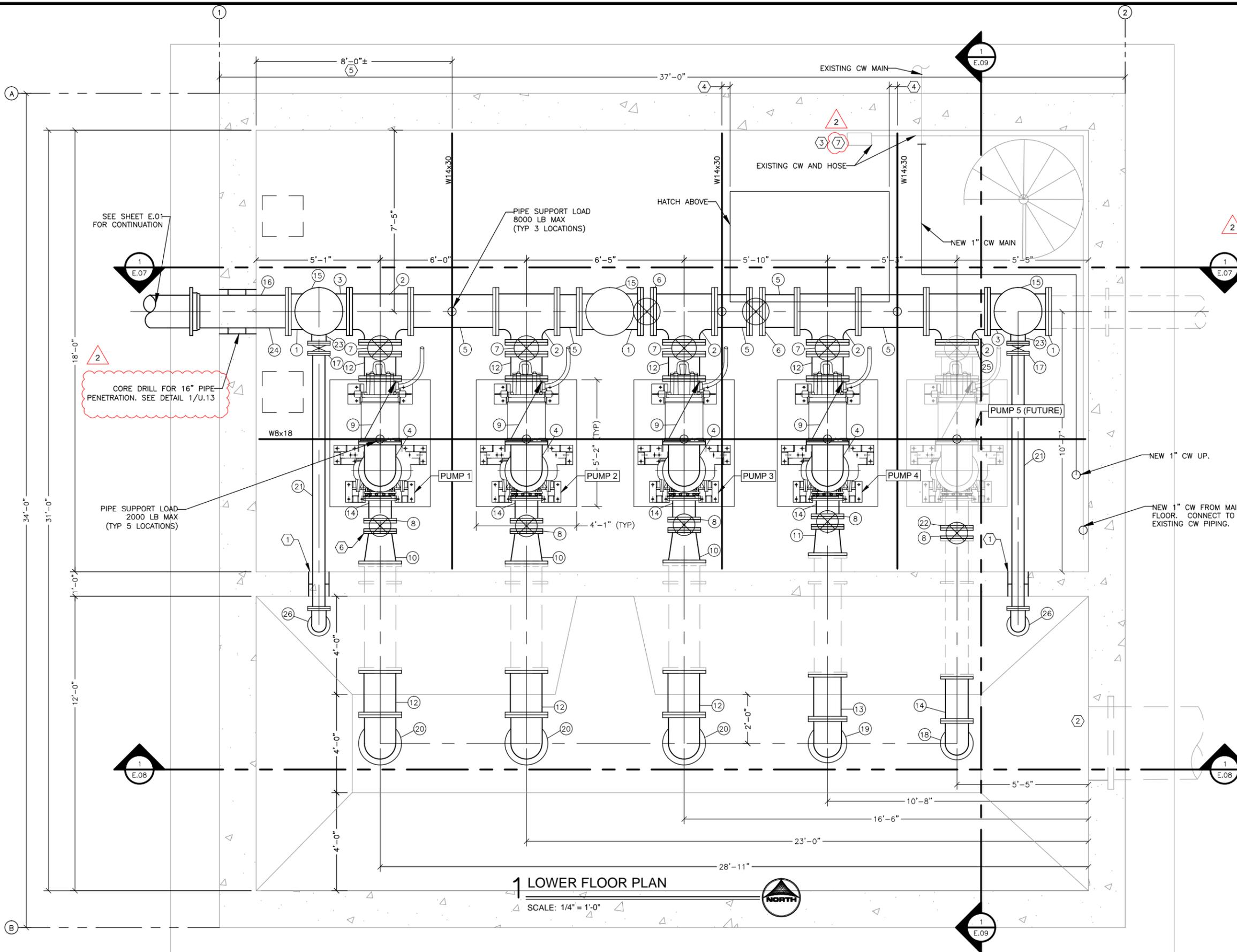


BRIDGEPORT WEST SEWER IMPROVEMENTS - SECTION C
 CITY OF SIOUX CITY, IOWA

YORK LIFT STATION
 SITE PLAN

SHEET NO.
E.01

ADDENDUM #2



- KEY NOTES:**
- ① CORE DRILL FOR 6" SURGE VALVE RELIEF PIPING. SEE 1/U.13.
 - ② ALL SURFACES OF WET WELL TO BE CLEANED AND LINED. SEE SPEC 09 9600.01 FOR CORROSION PROTECTIVE LINING REQUIREMENTS.
 - ③ DRY WELL SURFACES AND STAIRS TO BE BLASTED, CLEANED, AND PAINTED. SEE SPEC 09 9000 - PAINTING AND COATING FOR REQUIREMENTS.
 - ④ MINIMIZE DIMENSION 4"±. DO NOT ALLOW BEAM FLANGE TO PROTRUDE INTO HATCH CLEAR OPENING.
 - ⑤ CENTER BETWEEN PUMP 1 AND 2.
 - ⑥ USE NEW 10" KNIFE GATE VALVE CURRENTLY BEING STORED IN LOWER LEVEL DRY WELL.
 - ⑦ REMOVE CW LINE AND HOSE PRIOR TO BLASTING AND REPLACE UPON COMPLETION OF BLASTING.

- GENERAL NOTES:**
- 1. FIELD VERIFY ALL EXISTING INFORMATION (DIMENSIONS, ELEVATIONS, EQUIPMENT, PIPING, ETC).
 - 2. SEE 6/U.14 FOR W8 AND W14 CONNECTIONS TO WALLS.

FITTING SCHEDULE	
NUMBER	DESCRIPTION
①	16"x16"x16" DI FL TEE
②	16"x16"x14" DI FL TEE
③	16" DI FL 90° BASE BEND
④	14" DI FL 90° BEND
⑤	16" DI FL SPOOL
⑥	16" KNIFE GATE VALVE
⑦	14" KNIFE GATE VALVE
⑧	10" KNIFE GATE VALVE
⑨	14" CHECK VALVE
⑩	14"x10" DI FL ECCENTRIC REDUCER
⑪	12"x10" DI FL ECCENTRIC REDUCER
⑫	14" DI FL SPOOL
⑬	12" DI FL SPOOL
⑭	10" DI FL SPOOL
⑮	16" BLIND FLANGE
⑯	16" UNI-FLANGE
⑰	6" SURGE RELIEF VALVE
⑱	10" DI FL FLARE ELBOW
⑲	12" DI FL FLARE ELBOW
⑳	14" DI FL FLARE ELBOW
㉑	6" DI FL SPOOL
㉒	10" BLIND FLANGE
㉓	16"x16"x6" DI FL TEE
㉔	16" DI MJ X WS X PE PIPE
㉕	14" BLIND FLANGE
㉖	6" DI FL 90° BEND

DRAWN BY: JV JOB DATE: 2015
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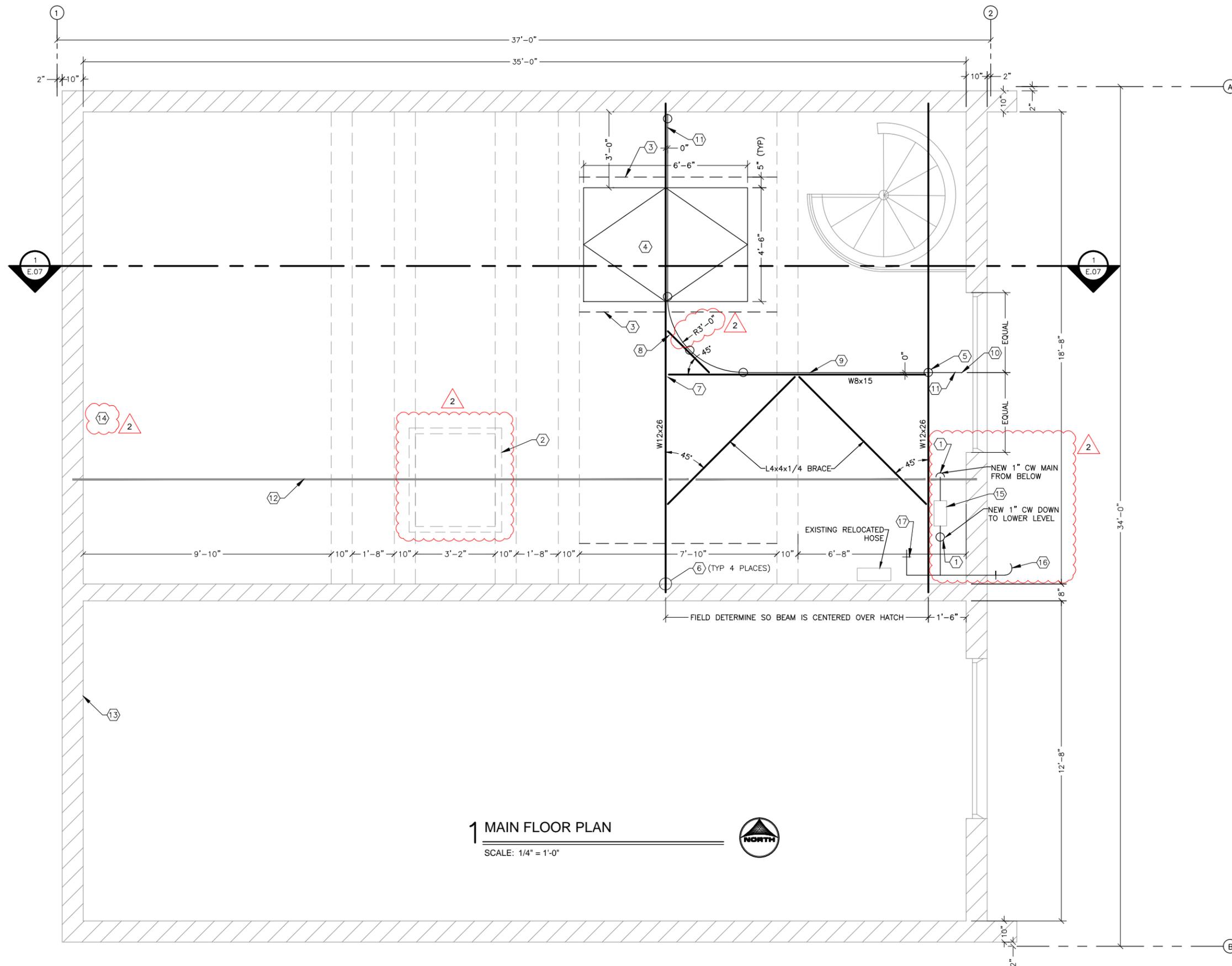
NO.	DATE	BY	REVISION DESCRIPTION
2	3/2/16	JV	ADD KEY NOTE 7, EDIT CORE DRILL NOTE



BRIDGEPORT WEST SEWER IMPROVEMENTS - SECTION C
 CITY OF SIOUX CITY, IOWA

YORK LIFT STATION
 PROPOSED LOWER FLOOR PLAN -
 PROCESS AND STRUCTURAL

ADDENDUM #2
 SHEET NO.
E.05



KEY NOTES:

- ① CORE DRILL OPENING IN FLOOR.
- ② EXISTING FLOOR HATCH OPENING.
- ③ NEW W6x15 UNDER SLAB WITH DOUBLE L4x4 CLIP ANGLE CONNECTION EACH END. SEE DETAIL 3/U.14.
- ④ 4'-6"x6'-6" DOUBLE LEAF FLOOR HATCH.
- ⑤ MONORAIL SUPPORT POINT (5 TOTAL) TYP.
- ⑥ BEAR NEW BEAM ON 1/2"x7"x12" GALVANIZED PLATE GROUTED INTO EXISTING WALL. FILL BLOCK/BRICK CORES BELOW BEARING PLATE FOR MINIMUM 4" HEIGHT. SET BOTTOM OF W12 AT TOP OF EXISTING 8" MONORAIL BEAM.
- ⑦ COPE BOTTOM OF W8 AND USE BOLTED-BOLTED STANDARD AISC CLIP ANGLE CONNECTION (TYP 2 PLACES).
- ⑧ W8x15 WITH 3/8"x5" SINGLE SIDED BENT PLATE 2-BOLT CONNECTION EACH END.
- ⑨ MONORAIL TRACK DESIGNED BY HOIST SUPPLIER-2 TON HOIST.
- ⑩ END MONORAIL AT 2" CLEAR FROM GRID 2 WALL AND DO NOT CONNECT TO WALL.
- ⑪ PROVIDE END STOPS SO HOIST CLEARS WALL BY 3".
- ⑫ EXISTING 8" MONORAIL BEAM (TO REMAIN).
- ⑬ CLEAN AND PREP ALL UPPER LEVEL WALLS, FLOOR, AND CEILING FOR PAINTING. FILL IN ANY HOLES OR GAPS. SEE SPEC 09 9000 - PAINTING AND COATING FOR REQUIREMENTS.
- ⑭ CLEAN AND PREP THE FLOOR FOR RECOATING. SEE SPEC 09 9000 FOR REQUIREMENTS.
- ⑮ RELOCATED PRESSURE REGULATOR, WATER METER, BACK-FLOW PREVENTER, AND VALVE. INSTALL 3'-0" ABOVE FLOOR. RE-PIPE TO FIT WITHIN SPACE ALONG WALL.
- ⑯ WALL HYDRANT, WH-1: WOODFORD, MODEL B67, FLUSH MOUNTED WALL BOX. PROVIDE WALL OPENING.
- ⑰ HOSE BIBB, HB-1: WOODFORD, MODEL 26, 3/4" NPT INLET.

GENERAL NOTES:

- 1. FIELD VERIFY ALL EXISTING INFORMATION (DIMENSIONS, ELEVATIONS, EQUIPMENT, PIPING, ETC).
- 2. EXISTING ELECTRICAL/ PROCESS/ MECHANICAL EQUIPMENT AND/OR PIPING, CONDUITS, ETC. MAY NEED TO BE RELOCATED TO ACCOMMODATE NEW CONSTRUCTION. ALL SUCH WORK SHALL BE CONSIDERED INCIDENTAL TO THE WORK.
- 3. ALL BOLTING: ASTM A325, GALVANIZED.

1 MAIN FLOOR PLAN

SCALE: 1/4" = 1'-0"



ADDENDUM #2

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 PLOT DATE: 3/3/2016 11:05 AM
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NO.	DATE	BY	REVISION DESCRIPTION
2	3/2/16	JV	ADJUST CORE DRILL LOCATIONS, SHOW EXISTING HATCH

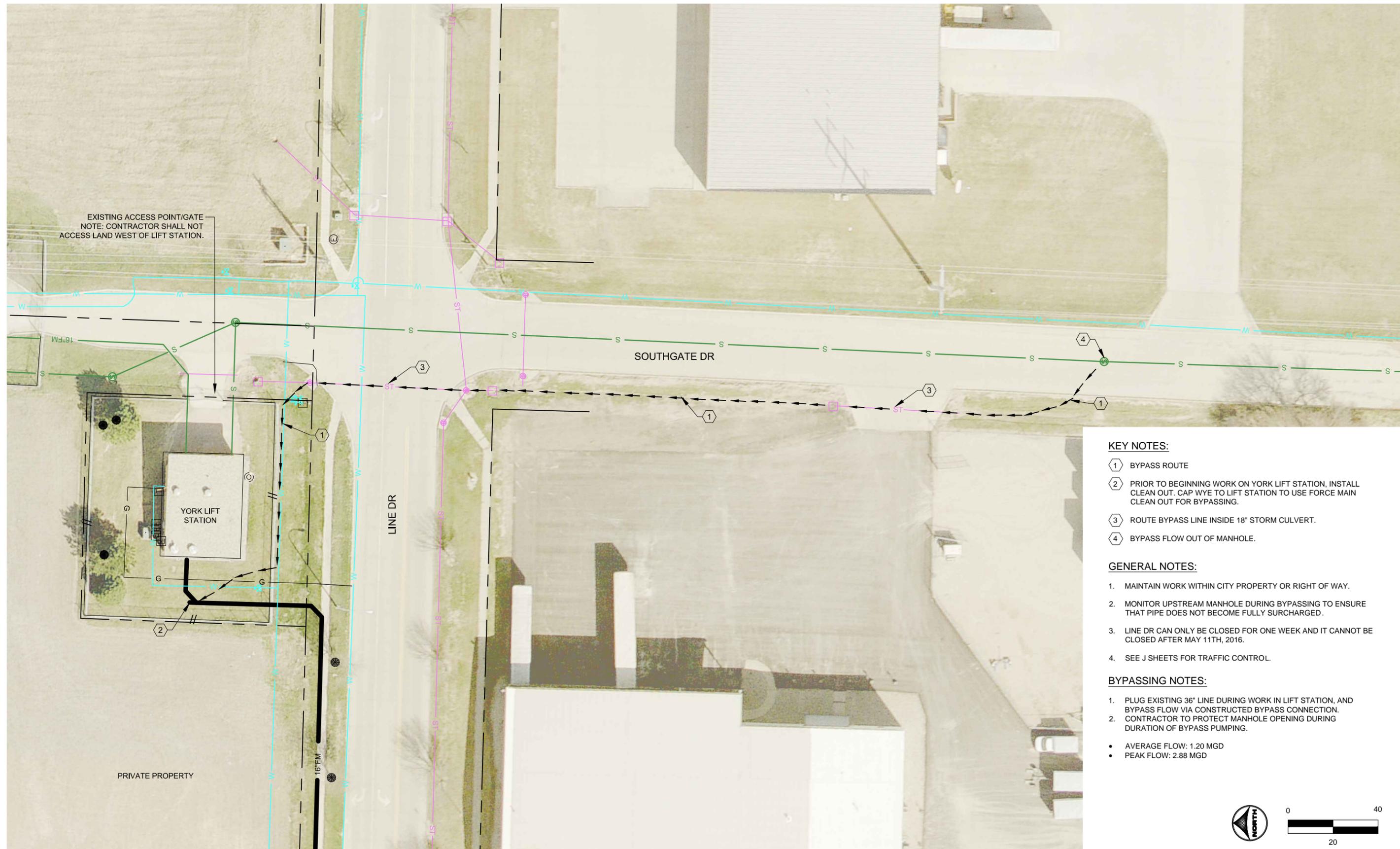


**BRIDGEPORT WEST SEWER
 IMPROVEMENTS - SECTION C
 CITY OF SIOUX CITY, IOWA**



**YORK LIFT STATION
 PROPOSED MAIN FLOOR PLAN -
 PROCESS AND STRUCTURAL**

SHEET NO.
E.06



KEY NOTES:

- ① BYPASS ROUTE
- ② PRIOR TO BEGINNING WORK ON YORK LIFT STATION, INSTALL CLEAN OUT. CAP WYE TO LIFT STATION TO USE FORCE MAIN CLEAN OUT FOR BYPASSING.
- ③ ROUTE BYPASS LINE INSIDE 18" STORM CULVERT.
- ④ BYPASS FLOW OUT OF MANHOLE.

GENERAL NOTES:

1. MAINTAIN WORK WITHIN CITY PROPERTY OR RIGHT OF WAY.
2. MONITOR UPSTREAM MANHOLE DURING BYPASSING TO ENSURE THAT PIPE DOES NOT BECOME FULLY SURCHARGED.
3. LINE DR CAN ONLY BE CLOSED FOR ONE WEEK AND IT CANNOT BE CLOSED AFTER MAY 11TH, 2016.
4. SEE J SHEETS FOR TRAFFIC CONTROL.

BYPASSING NOTES:

1. PLUG EXISTING 36" LINE DURING WORK IN LIFT STATION, AND BYPASS FLOW VIA CONSTRUCTED BYPASS CONNECTION.
 2. CONTRACTOR TO PROTECT MANHOLE OPENING DURING DURATION OF BYPASS PUMPING.
- AVERAGE FLOW: 1.20 MGD
 - PEAK FLOW: 2.88 MGD



ADDENDUM #2

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NO.	DATE	BY	REVISION DESCRIPTION
2	3/2/16	JV	ADD TEMPORARY BYPASS SHEET



BRIDGEPORT WEST SEWER IMPROVEMENTS - SECTION C
 CITY OF SIOUX CITY, IOWA



YORK LIFT STATION
 TEMPORARY SEWER BYPASS PLAN

SHEET NO.
E.11



GENERAL NOTES:

- 1. SEE E.11 FOR STAGING AND TIME LIMITS FOR CLOSURE OF LINE DRIVE.



ADDENDUM #2

DRAWN BY: JV JOB DATE: 2015
 APPROVED: DRH JOB NUMBER: 50150006
 PLOT DATE: 3/3/2016 11:06 AM
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NO.	DATE	BY	REVISION DESCRIPTION
2	3/2/16	JV	CHANGE DETOUR ROUTE TO STADIUM DR, NOTE 1

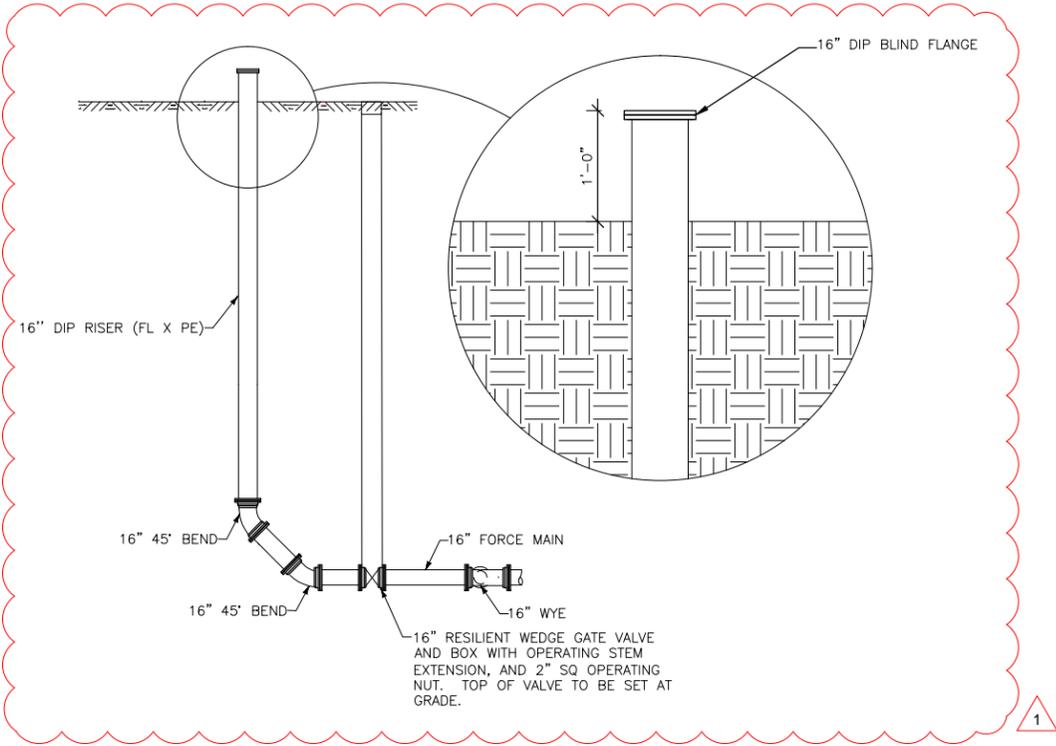


BRIDGEPORT WEST SEWER IMPROVEMENTS - SECTION C
 CITY OF SIOUX CITY, IOWA

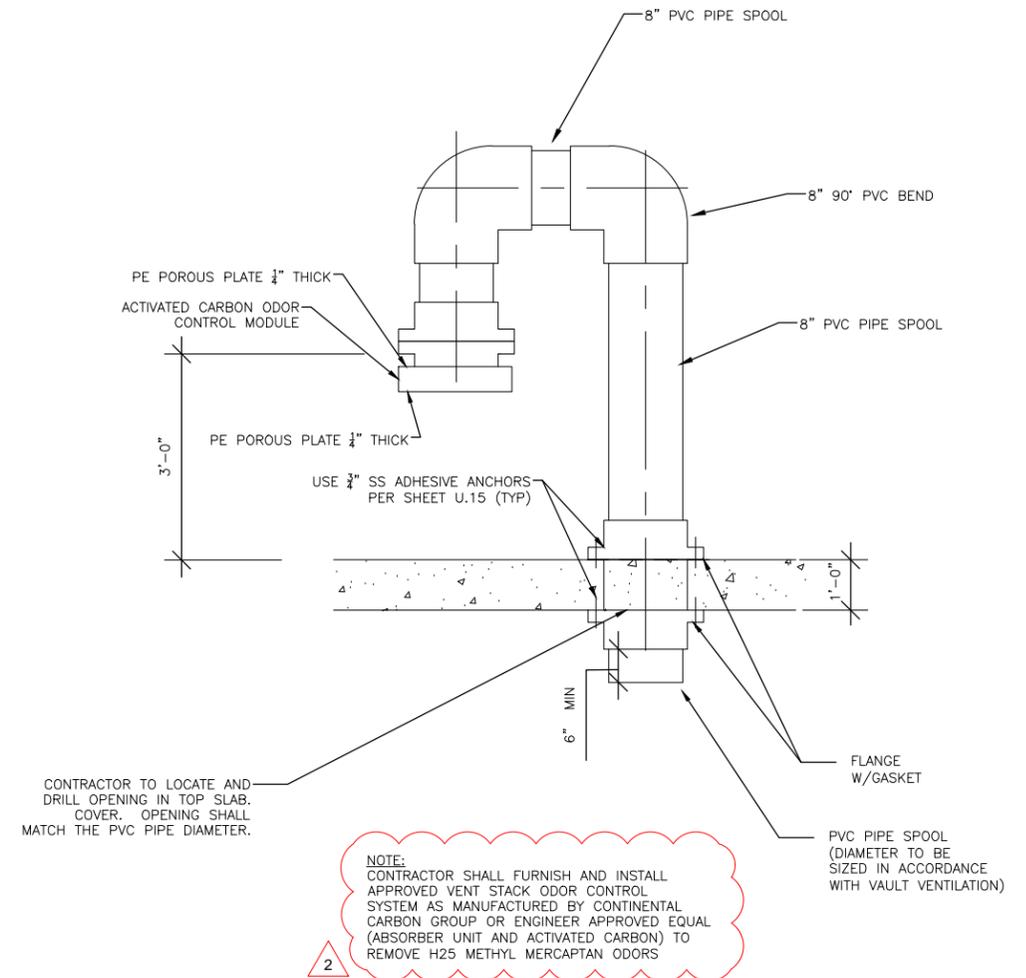


TRAFFIC
TRAFFIC CONTROL PLAN - YORK SITE

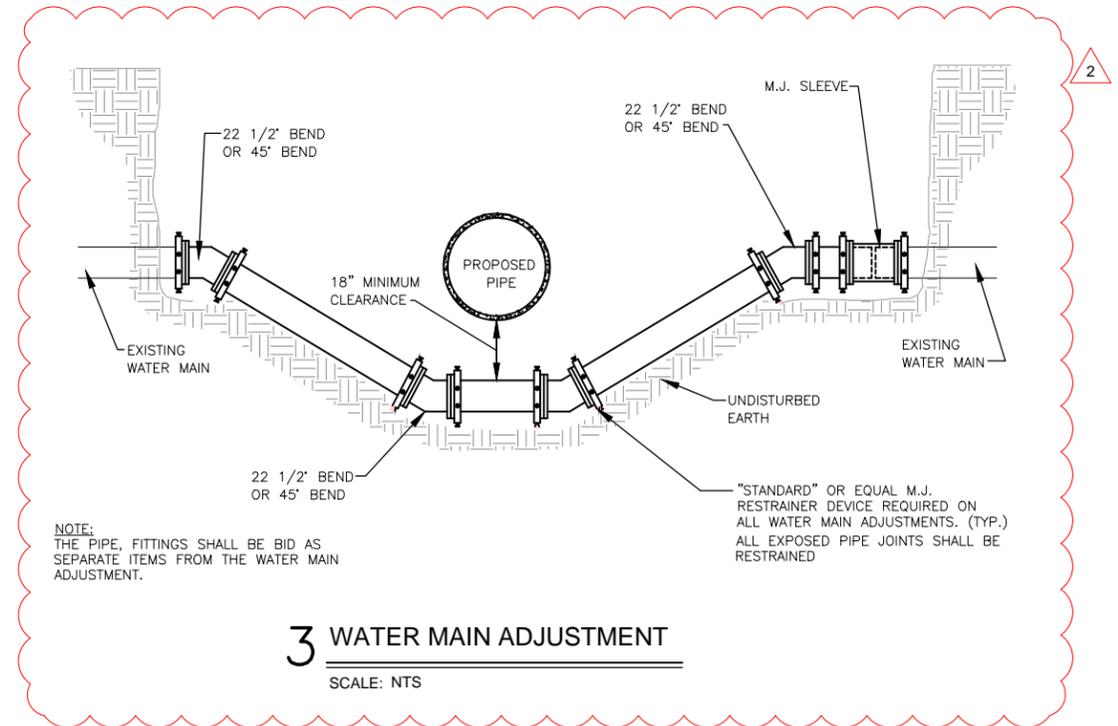
SHEET NO.
J.01



1 FORCE MAIN CLEANOUT
SCALE: NTS



2 STILLING STRUCTURE VENT PIPE
SCALE: NTS



3 WATER MAIN ADJUSTMENT
SCALE: NTS

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 APPROVED: DRH JOB NUMBER: 50150006
 PLOT DATE: 3/3/2016 11:12 AM
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NO.	DATE	BY	REVISION DESCRIPTION
1	2/22/16	JV	REVISE CLEANOUT DETAIL
2	3/2/2016	JV	ADD WATER MAIN ADJUSTMENT DETAIL



BRIDGEPORT WEST SEWER
 IMPROVEMENTS - SECTION C
 CITY OF SIOUX CITY, IOWA



DETAILS
 DETAILS

SHEET NO.
U.16

ADDENDUM #2