



## **ADDENDUM NO. 01**

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**Project:** Stuhr Museum of the Prairie Pioneer

**Project No.:** L11019

**Location:** Grand Island, NE

**Date:** 01-23-14

This Addendum is issued by the Architect to all bidders of record prior to receipt of proposals. Bidders shall acknowledge receipt of this addendum by so indicating on the Proposal Form. Failure to do so may subject Bidder to disqualification.

All information and instructions given herein shall become a part of the Contract Documents.

### **GENERAL**

1. The Sign-in sheet (3 pages) from the January 21, 2014 Pre-Bid meeting is attached at the end of this Addendum.
2. The Architectural specifications "Section 087113, Automatic Door Operator" was not originally issued in the Project Manual but will be forthcoming in Addendum number 2.

### **PROJECT MANUAL - ARCHITECTURAL**

1. Section 033000 – CAST-IN-PLACE CONCRETE
  - A. Reference Paragraph 2.05,b,2: Add subparagraph
    - e. Interplast Group, Barrier-Bac VB 350. 16-mil (Class A):  
[www.intreplast.com](http://www.intreplast.com)
2. Section 055213 – PIPE AND TUBE RAILINGS
  - A. Reference Paragraph 1.01: Add Paragraph
  - B. Aluminum guide-railing system at exterior and interior ADA aluminum automated pair of doors.
3. Section 072419 – RECOTE FINISH SYSTEM
  - A. Reference Paragraph 1.01,A: After the word exterior add the words "and interior".
4. Section 075300 – ELASTOMERIC MEMBRANE ROOFING
  - A. Reference Paragraph 1.09,D: Add the following Paragraphs
    - E. Do not tear off more roof than can be covered the same workday.
    - F. Do not install more roofing insulation than can be roofed over and sealed the same workday.
    - G. Do not phase roofing installation. Complete all details daily, and install night seals as required to ensure the installed roofing components are protected from moisture.
    - H. Maintain entire building in a waterproof condition during the removal of the

existing roof system and installation of the new roof system.

- B. Reference Paragraph 2.04,B,a: After the word Attachment delete the word Mechanically and add the words "Cold adhesive".
- C. Reference Paragraph 2.05,C: Delete paragraph C in its entirety and add subparagraph:
  - C Membrane Adhesive: Two-component low-rise polyurethane adhesive or approved equal as recommended by membrane manufacturer such as the following:
    - 1. I.S.O. Twin Pack Insulation Adhesive manufactured by Firestone.
    - 2. Sure-Seal FAST Adhesive manufactured by Carlisle.
- D. Reference Paragraph 3.03,B,1: After the word on in two places delete the words metal and add "concrete".

Reference Paragraph 3.03,G: Add subparagraph

H. Use factory-tapered boards to slope down to roof drains over the distance as shown on the Drawings. Sumps at roof drains shall be set at appropriate elevation to insure proper drainage and no ponding water.

5. Section 076200 – SHEET METAL FLASHINGS AND TRIM

- A. Reference Paragraph 2.05,D, After the word Model delete TE-375 and add "TEX-375".

6. Section 079005 – JOINT SEALERS

- A. Reference Paragraph 2.04,D, Add the following paragraphs

E. Joint Filler at Concrete Walks: Minimum 1/2 inch thick polyethylene closed-cell expansion joint filler.

F. Sealant at Concrete Walks: Polyurethane self-leveling sealant.

- 1. Product: Sonneborn SL1 or SL2 by ChemRex, Inc., or equal.

7. Section 084313 – ALUMINUM-FRAMED STOREFRONTS

- A. Reference Paragraph 2.02,A,8, Delete the word White and add "Custom color to match Architect's color sample".

- B. Reference Paragraph 2.03: Delete this paragraph in its entirety.

8. Section 084413 – GLAZED ALUMINUM CURTAIN WALLS

Reference Paragraph 2.02,A,3,: Add subparagraph

"a. 3 3/8 inches at spandrel glass locations".

9. Section 093000 – TILING

- A. Reference Paragraph 2.04,B,2: Add subparagraph

h. Mapei Ultraflex LFT (for large format tile installations), [www.mapei.us](http://www.mapei.us)

- B. Reference Paragraph 2.04,C,2: Add subparagraph

- f. Mapei Kerapoxy 410 epoxy setting mortar, [www.mapei.us](http://www.mapei.us)
  - C. Reference 2.05,A,4: Add subparagraph
    - c. Mapei Keracolor S or U, [www.mapei.us](http://www.mapei.us)
  - D. Reference Paragraph 2.05,B,3: Add subparagraph
    - f. Mapei Kerapoxy, [www.mapei.us](http://www.mapei.us)
  - E. Reference Paragraph 2.05,C: Add subparagraph
    - 3. Mapei Mapesil, [www.mapei.us](http://www.mapei.us)
  - F. Reference Paragraph 2.06,A,4: Add subparagraph
    - g. Mapei AquaDefense, [www.mapei.us](http://www.mapei.us)
- 10. Section 111313 – LOADING DOCK BUMPERS
  - A. Reference Paragraph 2.02,A,3, Delete the words 14 inches and add “36 inches”.

#### **DRAWINGS - ARCHITECTURAL**

1. Reference Sheet A1.13, ROOF PLAN.  
General Contractor shall salvage all existing roof ballast material and turn it over to the owner for the owner’s future use. The owner’s representative will designate a location to stock pile the salvaged ballast on the building site.
2. Reference Sheet A7.1, DOOR SCHEDULE, FRAME TYPES AND DOOR DETAILS.  
At door head conditions of new door openings in existing masonry walls located at Doors 114.1, 123.1, 127.1 and 133.1 provide and install new concrete masonry lintels that match the existing masonry wall thickness.
3. See Drawing Attachment “1” for new Plan Detail Referenced on Sheet A1.1
4. See Drawing Attachment “2” for new Plan Detail.
5. See Drawing Attachment “3” for revised Detail drawn on Sheet A3.1.
6. See Drawing Attachment “4” for revised Wall Section drawn on Sheet A5.2.
7. See Drawing Attachment “5” for revised Pool Bulkhead Framing Detail drawn on Sheet A8.3.

#### **PROJECT MANUAL - CIVIL**

- 1 See the attached Civil Addendum No. 1. Reissued spec sections 022280 and 026190.

#### **DRAWINGS - CIVIL**

- 1 See the attached Civil Addendum No. 1. Reissued full size Drawings C1 through C9.

#### **END OF ADDENDUM**

BAHR VERMEER HAECKER ARCHITECTS

440 NORTH 8TH STREET STE 100  
1425 JONES STREET  
26 SOUTH TEJON STREET STE 300

LINCOLN NE 68508  
OMAHA NE 68102  
COLORADO SPRINGS CO 80903

402 475 4551  
402 345 3060  
719 471 8422

bvh.com

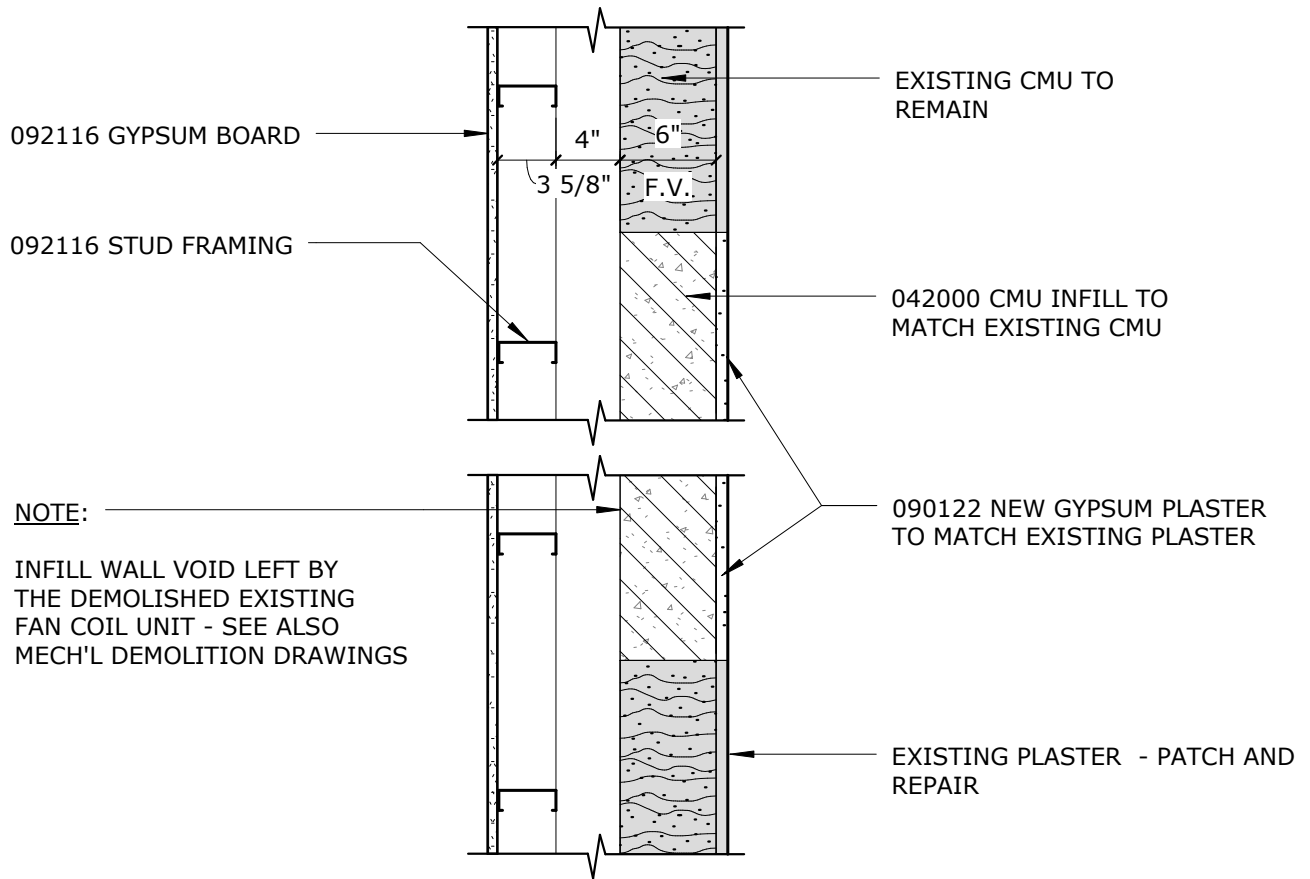




# STUHR MUSEUM OF THE PRAIRIE PIONEER REHABILITATION

ASI NO.:  
 ADDENDUM NO.: 1  
 CHANGE PROPOSAL REQUEST NO.:  
 R.F.I REQUEST NO.:  
 PROJECT: L11019  
 PROJECT DATE: 01.06.2014  
 ISSUE DATE: 01/23/14

## ATTACHMENT DRAWING 2 OF 5



### 1 PLAN DETAIL - ADD 1

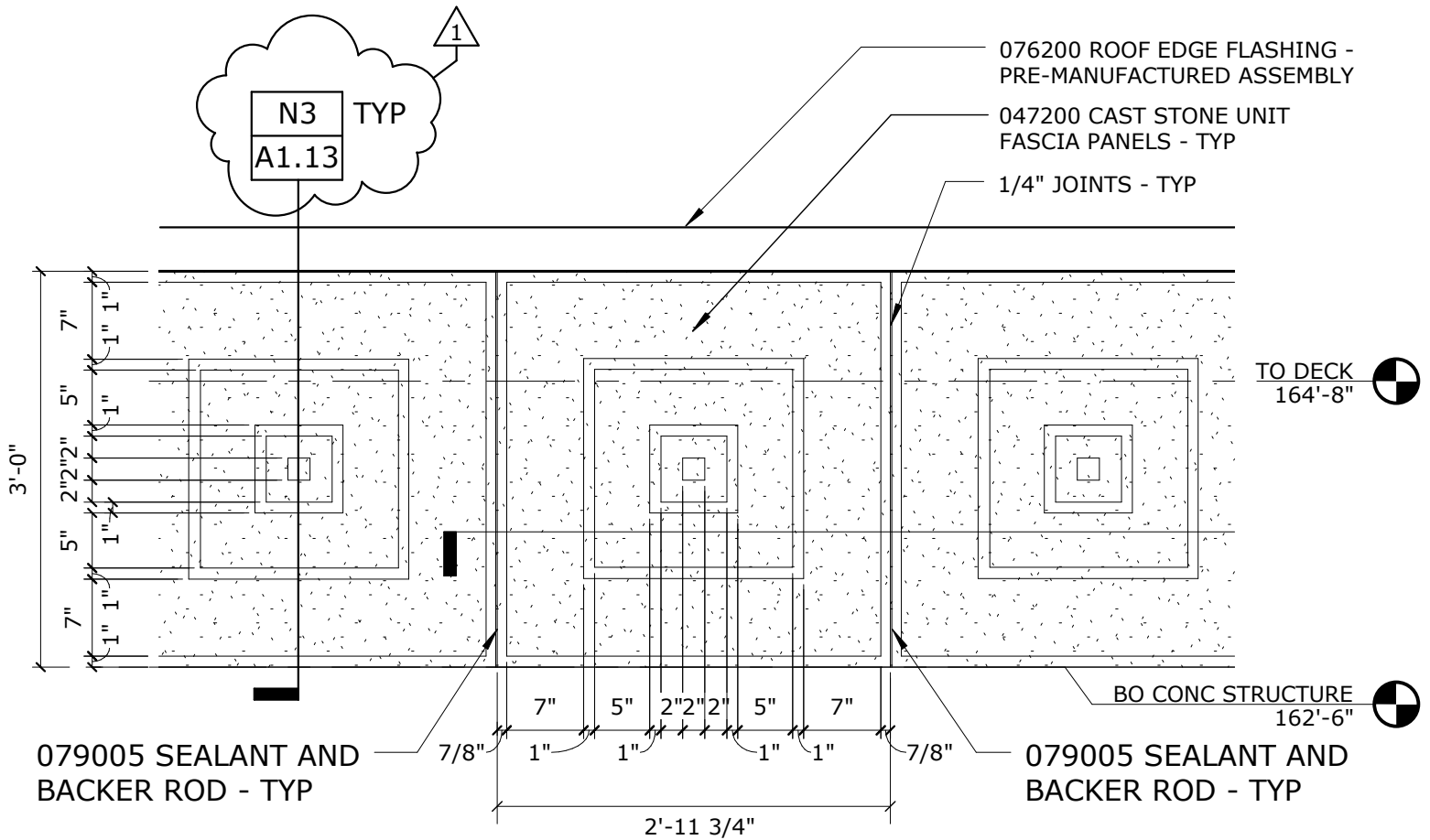
1" = 1'-0"



STUHR MUSEUM OF THE  
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ATTACHMENT DRAWING  
3 OF 5



**1** NEW CAST STONE FASCIA DETAIL - ADD 1

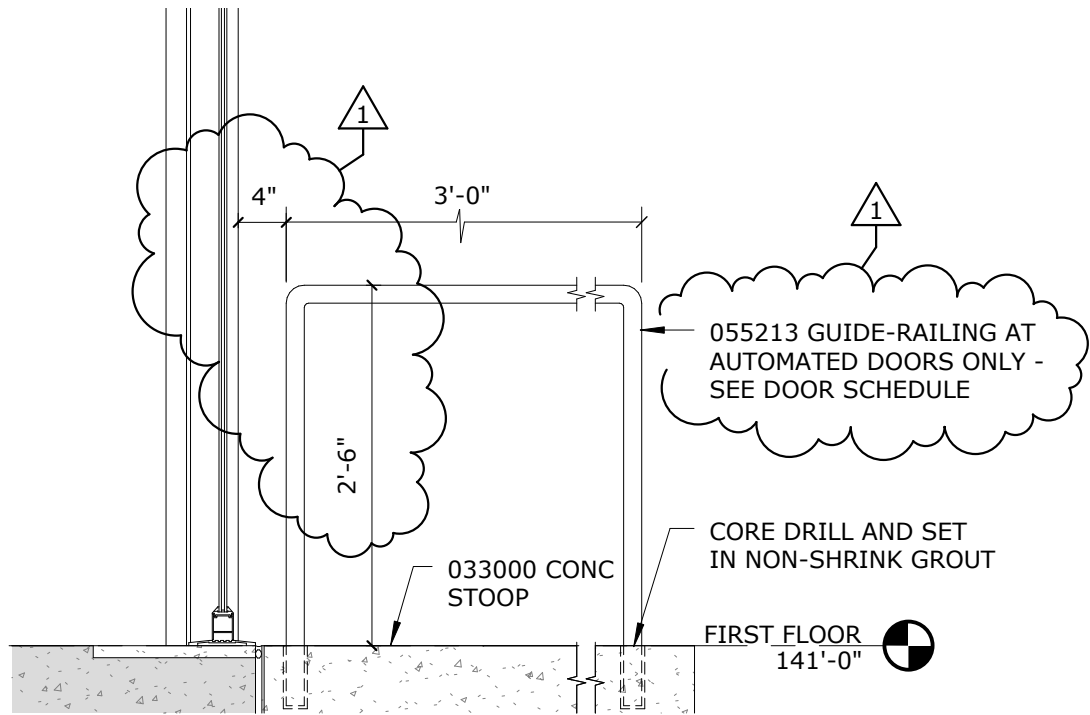
3/4" = 1'-0" TYPICAL PANEL - MATCH EXISTING - REFER TO DETAIL R2 ON SHEET A3.1



# STUHR MUSEUM OF THE PRAIRIE PIONEER REHABILITATION

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## ATTACHMENT DRAWING 4 OF 5



### 1 WALL SECTION - ADD 1

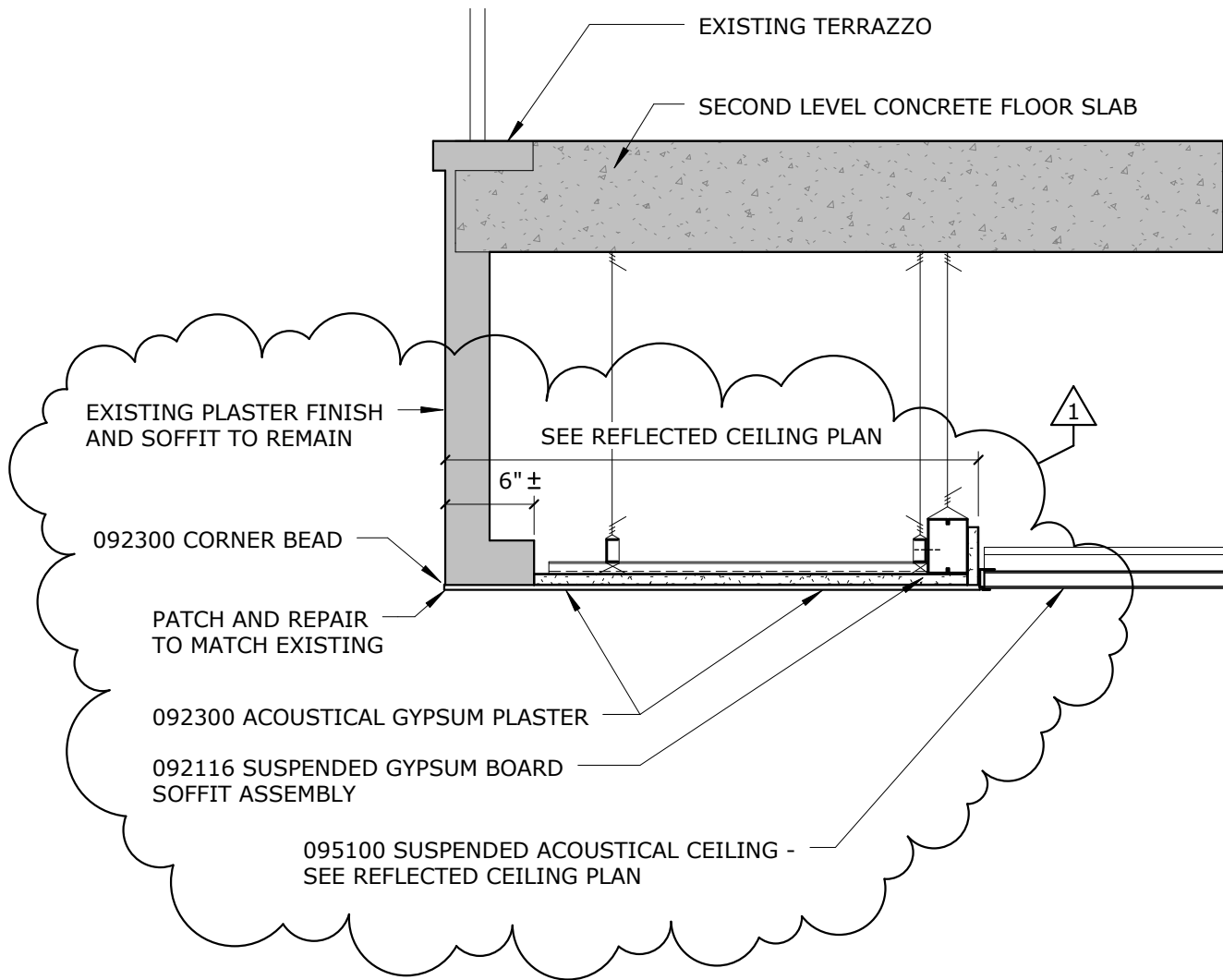
3/4" = 1'-0" REFER TO SECTION A12 ON SHEET A5.2



STUHR MUSEUM OF THE  
PRAIRIE PIONEER  
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ATTACHMENT DRAWING  
5 OF 5



**1** POOL BULKHEAD FRAMING - ADD 1  
 1" = 1'-0" REFER TO DETAIL A21 ON SHEET A8.3

Stuhr Museum of the Prairie Pioneer  
Stuhr Building Rehabilitation Project  
Walkthrough  
January 21, 2014, 10am

Business

GARY RICHTER D.R. ANDERSON  
Weathercraft Co. Grand Island  
Sampson Construction  
Complete Construction  
Duff Roofing  
Jamie Simmerman  
SIEMENS  
BAMFORD INC  
Lund-Ross  
BOYD SONES  
B-D LONST  
ARID RESOURCES  
NEBRASKA FIRE SPRINKLE  
TRI VALLEY BUILDERS  
MEININGER FIRE PROT.  
TRI-CITIES GROUP  
SNELL SERVICES, INC  
~~SWIT KROSSHELL~~ CHRISTENSEN  
CONCRETE PRODUCTS  
Chief Construction

Representative (Please Print)

Vern Chinn  
NATE KASTENS  
Bobby Kinser  
ERIC LOMAZ  
Van Kirk Bros.  
JEFF DINZOLE  
ROGER SCHEIDTBS  
REGAN ZELLER  
ANDREW BEASLE  
Bryan Gorman  
NICK GRIMIT  
RYAN DEYER  
DOAN SKEEN  
DAVID AUTRY  
TOM URBAN  
CHARLIE HIPWELL  
SWIT KROSSHELL  
Austin Schindler

Stuhr Museum of the Prairie Pioneer  
Stuhr Building Rehabilitation Project  
Walkthrough  
January 21, 2014, 10am

Business

XIGC GROUP

MID PLAINS POWER

GSC Unlimited

O'Neil Company

KIDWELL

MIDWEST HEATING & A/C

NEBRASKA SAFETY & FIRE

NCC

ALVINE ENGINEERING

||

STATE GLASS

STATE GLASS

Access Electric


COMMONWEALTH ELECTRIC

Chover Construction

Ziller file

General Excavating

Sorenson Group



Representative (Please Print)

BEN BOGNER

CORY BENDTSEN

Greg Cramer

Pat O'Neill

JOHN ERICH

SCOTT HILLIGAS

Roy SWAN

AS FROELICH

Gene Neemann

STEVE FORD

STEVE METZGER

JUAN BOWER

JEREMY NORR

Jim Toomey

Josh Weckly

Willy Chaver

Randy McDonald

Gay Sorenson

Essink Bros Drywall

Stuhr Museum of the Prairie Pioneer  
Stuhr Building Rehabilitation Project  
Walkthrough  
January 21, 2014, 10am

Business

Representative (Please Print)

K-T Heating + A/C  
Continental Fire Sprinkler Co  
Lacy Construction Co.  
Central Contracting  
Energy Roofing  
GT Fire + Security  
HAMPTON CONSTRUCTION  
JBS Roofing  
Mid Plains Power  
BVH Architects  
DUANE MUNDT HAMPTON CONSTRUCTION

Jim Batenhorst  
Andrew Johnson  
Steve Grubbs  
Steve Lentell  
John Sommerfeld  
GARY Hesman  
GREG STENNETT  
Bruce Brooks  
Tim Benson  
Jim Smith



Olsson Associates  
201 East 2nd Street  
P.O. Box 1072  
Grand Island, NE 68802  
January 22, 2014

Addendum No. 1  
Stuhr Museum Site Development  
Water Service Project #WS2014-1  
Grand Island, Nebraska  
OA Project No. 013-3051

TO ALL WHO HAVE RECEIVED PLANS AND SPECIFICATIONS FOR THE REFERENCED PROJECT.

This addendum supersedes all conflicting portions of the drawings and specifications C-1 to C-9. Contractor shall include all omissions, additions, and adjustments of all trades as may be necessary because of each change, substitution, or omission. Such omission, addition, or adjustment shall conform to recognized and accepted engineering practice.

1. Refer to the Plan Sheets C-1 through C - 9
  - a. Note alignment and material changes due to the City of Grand Island's Final Review. The "Table of Approximate Quantities" reflects the new items and quantities. The Plan and profile have been modified to reflect minor alignment changes.
2. Refer to Specifications
  - a. Add Technical Section 022280 – Horizontal Directionally Drilled Chiller Lines (Attached)
  - b. Add Technical Section 026190 – High Density Polyethylene Pipe (Attached)
3. Erosion Control: Contractor is responsible for installing & maintaining Best Management Practices. A Storm Water Pollution Prevention Plan shall be completed and implemented as part of the project by contractor.

Each bidder must acknowledge receipt of all addenda in the space provided on the proposal form.

## SECTION 022280

### HORIZONTAL DIRECTIONALLY DRILLED CHILLER LINES

#### PART 1 GENERAL

##### 1.1 WORK INCLUDED

- A. This section covers the installation of chiller line in the sizes indicated and at the locations shown on the Drawings, using horizontal directional drilling (HDD). See City of Grand Island specifications section 37.0 for Ductile Iron chiller line installation.
- B. HDD is a trenchless excavation method which is accomplished in three phases. The first phase consists of drilling a small diameter pilot hole along a designed directional path. The second phase consists of enlarging the pilot hole to a diameter suitable for installation of the pipe. The third phase consists of pulling the pipe into the enlarged hole. HDD is accomplished using a specialized horizontal drilling rig with ancillary tools and equipment.
- C. Services furnished by Contractor shall be performed in accordance with standard HDD industry practice and these Contract Documents and shall include all labor, equipment, and consumables necessary to complete the work, including the following tasks:
  - 1. Clearing, grading, and general site and access preparation necessary for construction operations.
  - 2. Transportation of all equipment, labor, consumables, and materials to and from the site of the work.
  - 3. Erection of horizontal drilling equipment.
  - 4. Drilling of a small diameter pilot hole along the path defined on the Drawings.
  - 5. Reaming the pilot hole to a diameter suitable for installation of the prefabricated pull section of HDPE chiller line.
  - 6. Prefabrication of the pull section of HDPE chiller line.
  - 7. Preliminary test of HDPE chiller line.
  - 8. Installation of the prefabricated pull section of HDPE chiller line in the reamed hole.
  - 9. Fusion of HDPE fittings to the end of each individual HDPE pipe following installation of pull section.
  - 10. Logging the location of the installed chiller line.
  - 11. Final testing of the installed HDPE chiller line.
  - 12. Clean-up and restoration of all work areas.
- D. The Contractor shall furnish all labor, materials, tools, equipment, drilling fluids, and other items as

necessary for a complete and functional installation as required, to the lines and grades shown on the Drawings and as specified.

- E. The Contractor shall not disturb areas outside of the designated construction easements.

## 1.2 REFERENCES

- A. ANSI/AWWA C-600

## 1.3 RELATED SECTIONS

- A. Section 014000 - Quality Requirements.
- B. Section 015000 - Temporary Facilities and Controls.
- C. Section 023000 - Earthwork.
- D. City of Grand Island specifications section 37.0 HDD water main installations.

## 1.4 QUALIFICATIONS AND EXPERIENCE

- A. Contractor installing the horizontal directionally drilled chiller line shall be commonly engaged and well experienced in installations using this technique. Contractor shall, within the past five (5) years, have successfully completed projects of a similar length, diameter, and conditions using horizontal directional drilling and installing the same type of pipe. Contractor shall submit satisfactory references on previous projects to the ENGINEER for acceptance with his Bid. Contractor's qualifications and experience will be considered by ENGINEER in evaluation of bids.

## 1.5 SUBMITTAL DATA

- A. Submit drawings and data under provisions of Section 013300.
- B. Submit the following data on Contractor Qualifications:
  - 1. A listing of similar past projects installed using horizontal directional drilling within the past five (5) years.
  - 2. A list of references including contact person with telephone number for each reference project.
  - 3. Background information on key personnel proposed for use on the project.
- C. Submit the following data on Construction Materials:
  - 1. Material data for certifications of the chiller line pipe.
  - 2. Details regarding the type, capabilities, and use of the instrumentation system to ensure the chiller line is installed within the installation tolerances. Include certification of calibration for instrumentation system.
  - 3. A sketch detailing areas and arrangements for staging areas, equipment set-up, equipment layout, storage, and all major supporting equipment.

- D. Submit the following data on drilling fluids:
  - 1. Composition of proposed drilling fluids.
  - 2. Methods for monitoring, prevention, containment, and clean-up of drilling fluid surface returns at unauthorized locations.
  - 3. Proposed locations for disposal of drilling fluids.
  
- E. Submit the following data and drawings regarding the installation of the pilot hole and the chiller line:
  - 1. Submit a tabulation of pilot hole survey coordinates.
  - 2. Submit written record of installation pullback loads monitored on the chiller line during the installation process.
  - 3. Plan and profile drawings of the documented as-built location of the chiller line.
  - 4. Records of field testing of the chiller line.
  - 5. Submit Project Record Documents as required, including log of all recorded instrumentation readings with tabulation.

## PART 2 PRODUCTS

### 2.1 GENERAL

- A. Contractor shall be responsible for providing equipment and materials of sufficient size and capabilities along with adequately experienced labor as required for a complete installation in accordance with the contract requirements.

### 2.2 MATERIALS

- A. Horizontal Directional Drilling Equipment shall have adequate thrust, pullback, and torque capabilities to successfully complete the installation.
  
- B. Contractor shall at all times provide and maintain instrumentation which will accurately locate the pilot hole, measure drill string axial and torsional loads, and measure drilling fluid discharge rate and pressure. ENGINEER shall have access to these instruments and their readings at all times. A log of all recorded readings shall be maintained by the Contractor and will become a part of the Project Record Documents supplied by Contractor. Instrumentation systems shall be calibrated immediately prior to beginning the work.

- C. Drilling Fluid System shall be capable of mixing and delivering the drilling fluid to the drill head or the reamer in the volumes and pressures required. Contractor shall maximize recirculation of drilling fluid surface returns. Contractor shall provide solids control and fluid cleaning equipment of a configuration and capacity that can process surface returns and produce drilling fluid suitable for reuse.
- D. Drilling Fluid shall be used as required during the installation of the pilot hole, enlarging of the pilot hole, and installation of the chiller line. The composition of all drilling fluids proposed for use shall be submitted to ENGINEER for acceptance. No fluid will be accepted or utilized that does not comply with permit requirements and environmental regulations.
- E. Contractor shall be responsible for obtaining, transporting, and storing any water required for drilling fluids.
- F. Drill Pipe (drill stem) shall be of sufficient size and strength to resist all installation loadings including tensile, compressive, bending, and torsional loads. An appropriate safety factor shall be used by the Contractor in sizing the drill pipe.
- G. Drill Head configuration shall be as selected by Contractor and compatible with requirements for location system.
- H. Reamer and Swivels shall be as selected by Contractor. Reamer and swivel assembly shall be capable of enlarging borehole while preventing damage due to rotation of the pipe during its pullback into its final position.
- I. Chiller line shall be HDPE pipe as specified in Section 026190 - HDPE.

## PART 3 EXECUTION

### 3.1 INSTALLATION

#### A. STAGING AND SET-UP

1. Contractor shall perform surveying for layout of installation.

- B. Contractor shall be responsible for locating any and all underground facilities as required. Contractor shall be responsible for all losses and repairs occasioned by damage to underground facilities resulting from drilling operations. Contractor shall, as a minimum, undertake the following steps prior to commencing drilling operations:

1. Contact the utility location/notification service for the construction area.
2. Positively locate and stake all existing lines, cables, or other underground facilities including exposing any facilities which are located within ten (10) feet of the designed drilled path.

- C. Modify drilling practices and down hole assemblies to prevent damage to existing facilities.
  - 1. Contractor shall position and anchor drill unit as required. Proper setbacks shall be provided to allow for installation of the chiller line at the locations indicated on the drawings and to avoid excessive steep entry and exit angles for the pilot hole and the installed water pipe.
- D. Make necessary provisions for operation of instrumentation systems.
- E. Salt Creek Location - The Contractor shall monitor the drilling fluid and note any migration of the fluid to the surface. If there is any migration of the drilling fluid to the surface at the levees of Salt Creek, the Contractor will be required to repair at his own expense, any damage caused to the levees. Repairs shall be made to the standards and satisfaction of the U.S. Army Corps of Engineers.
  - 1. Grouting of the annular space with a cement or bentonite - Cement grout mixture shall be performed to expel the semi-fluid mixture of bentonite, soil, and water with a grout material that will set and provide a solid barrier against seepage flow along the annulus.

### 3.2 BORING OF PILOT HOLE

- A. Install pilot hole using steerable drilling head. Pilot hole shall be drilled along the path shown on the Drawings to the tolerances listed herein. However, in all cases, right-of-way restrictions shall take precedence over the listed tolerances. Regardless of the tolerance achieved, no pilot hole will be accepted if it will result in any or all of the pipeline being installed in violation of right-of-way restrictions. Additionally, concern for adjacent utilities and/or structures shall take precedence over the listed tolerances. Listing of tolerances shall not relieve Contractor from responsibility for safe operations or damage to adjacent utilities and structures.
- B. Curves shall be drilled at a radius equal to or greater than that listed for tolerances. The drilled radius will be calculated over any three joint (range 2 drill pipe) segment using the following formula:

$$R_{\text{drilled}} = ( L_{\text{drilled}} / A_{\text{average}} ) \times 57.32$$

Where:  $R_{\text{drilled}}$  = drilled radius over  $L_{\text{drilled}}$

$L_{\text{drilled}}$  = length drilled, but not less than 75 feet and not greater than 100 feet.

$A_{\text{average}}$  = total change in angle over  $L_{\text{drilled}}$

- C. Monitor location of drill head as required to install pilot hole to indicated lines and grades, but in no instance shall the interval between locating the drilling head exceed fifteen (15) feet in length along the alignment.
- D. Use drilling fluids as required to lubricate and support the pilot hole excavation.
- E. Pilot hole shall be free from abrupt changes in line or grade that could result in unacceptably high loadings on the drill pipe or the chiller line during installation.

- F. After completion of pilot hole drilling, Contractor shall provide a tabulation of coordinates, referenced to the drilled entry point, which accurately describe the location of the pilot hole. This tabulation shall be in addition to the log of recorded readings required.

### 3.3 PREREAMING OF THE PILOT HOLE

- A. Subsequent to ENGINEER=s acceptance of pilot hole, Contractor may, at his option, preream the pilot hole as necessary for installation of the chiller line.
- B. Prereaming operations shall be conducted at the discretion of the Contractor. Contractor shall insure that a hole sufficient to accommodate the pull section of chiller line has been produced. Any damage to the chiller line resulting from inadequate prereaming shall be the responsibility of the Contractor. All provisions of this Specification relating to simultaneous reaming and pulling back operations shall also pertain to prereaming operations.
- C. Use drilling fluids as required to lubricate and support the reamed pilot hole.
- D. Use of pre-reaming shall be at the option of the Contractor, however, lack of pre-reaming shall not result in excessive installation loads on the chiller line.

### 3.4 REAMING AND PULLBACK OF THE CHILLER LINE

- A. Contractor shall utilize a reamer to enlarge the pilot hole to sufficient size for installation of the chiller line without imposing excessive installation loadings on the water pipe.
- B. Grippers used on the chiller line shall not damage adjacent sections of the pipe. Sections of the pipe utilized by the grippers shall be removed from the pipe after installation of the pipe.
- C. Contractor shall handle and support the pull section of chiller line so as to prevent damage to the pipe and minimize pullback forces. Pull section of chiller line shall be supported as it proceeds during pull back so that it moves freely and the pipe is not damaged.
- D. Contractor shall use drilling fluids as required to lubricate and support the reamed pilot hole, lubricate installation of the chiller line, and completely fill all overcut of the reamed pilot hole.
- E. The pull section of chiller lineshall be installed in the reamed hole in such a manner that external pressures are minimized and an appropriate counter-balancing internal pressure is maintained. Any damage to the pipe resulting from external pressure during installation shall be the responsibility of Contractor. The HDPE pipe shall be filled with water as it enters the ground to insure that adequate internal pressure is maintained at all points to counter balance external collapse pressures. Contractor shall submit pipe filling procedure proposed for use to ENGINEER for review and acceptance.
- F. Contractor shall continuously monitor the pulling loads imposed upon the chiller line. The maximum allowable tensile load imposed on the chiller line shall not exceed the recommendations of the pipe manufacturer. Contractor shall take all required measures necessary to prevent installation loads on the chiller line from exceeding those recommended by the pipe manufacturer. If necessary, Contractor shall at his own expense, stop the pullback of the chiller line, remove the section of pipe installed within the enlarged pilot hole, and pre-ream the pilot hole as required to allow installation of the chiller line without exceeding the allowable pullback forces.
- G. After the chiller line has been installed, Contractor shall determine and log the installed location and depth of the chiller line. Contractor shall submit to ENGINEER a drawing detailing the installed

location of the chiller line in both plan and profile view.

### 3.5 FIELD TESTING REQUIREMENTS

#### A CHILLER LINE

1. Chiller line shall be capped at each end and pressure tested in accordance with Section 027040 - Pipeline Pressure & Leakage Testing. A preliminary test shall take place after the pipe is assembled on top of the ground at the site. The pipeline shall be pressure tested again after pulling.

### 3.6. REJECTION

A. The following criteria shall be used for evaluation and rejection of the chiller line installation.

B. Pilot Hole. The pilot hole may be rejected by ENGINEER for the following causes:

1. Installation outside of the allowable tolerances.
2. Installed line and grade of the pilot hole would result in excessively high installation loadings on the chiller line.
3. If the pilot hole is rejected by ENGINEER, Contractor shall, at his own expense, backfill the rejected pilot hole with bentonite, and install a pilot hole acceptable to the ENGINEER.

C. Chiller line. The installed chiller line may be rejected by ENGINEER for the following causes:

1. Pipe is unable to successfully pass pressure test.
2. Monitoring records indicate that pullback loads exerted on pipe exceeded the loadings recommended by pipe manufacturer.
3. Installation outside of the allowable tolerances.

D. If the chiller line is rejected by ENGINEER, Contractor shall, at his own expense, remove the rejected pipe and install an acceptable chiller line.

### 3.7 TOLERANCES

A. Tolerances for the pilot hole and the installed chiller line shall be as listed below.

B. Vertical tolerance. The chiller line shall be installed at the grade indicated on the plans. Minor deviations from the grade indicated on the plans may be allowed, provided that:

1. The soil cover above the top of the chiller line shall not be less than shown on the drawings.

2. Except at crossings under water courses, the chiller line shall maintain downward slope towards all blowoff points to provide for positive drainage of the chiller line.
  3. The chiller line shall maintain upward slope towards all venting points to provide for positive venting and air release from the chiller line.
- C. Horizontal tolerance. The chiller line shall be installed at the locations indicated on the plans. Minor deviations from the locations indicated on the plans may be allowed, provided that:
1. The horizontal deviation of the chiller line from the location required on the drawings shall not exceed five feet at any location along the chiller line without prior authorization of the ENGINEER.
  2. The horizontal deviation shall not cause the chiller line to interfere with existing structures, utilities, or result in any part of the finished work being installed outside of the permanent easements.
- 3.8 Contractor shall, at his own expense, compensate for installation tolerances of the chiller line by adjusting the installation of the chiller line approaches to accommodate the connections to other materials at each end of the horizontal directionally drilled chiller line.
- 3.9 CLEAN UP AND DISPOSAL OF MATERIALS
1. Contractor shall remove all construction debris and spoil material and dispose of it at an acceptable location.
  2. Drilling fluid shall be removed from pits and then the pits backfilled as required.
  3. Disposal of excess drilling fluids shall be the responsibility of the Contractor and shall be conducted in compliance with all environmental regulations, right-of-way and workspace agreements, and permit requirements. Disposal of drilling fluids shall not be allowed on the project site. Drilling fluid disposal procedures proposed for use shall be submitted to ENGINEER for acceptance. No procedure may be used which has not been accepted by ENGINEER.
  4. Contractor shall employ his best efforts to maintain full annular circulation of drilling fluids. Drilling fluid returns at location other than the entry and exit points shall be minimized. In the event that annular circulation is lost, Contractor shall take steps to restore circulation. If inadvertent surface returns of drilling fluids occur, they shall be immediately contained with hand placed barriers (i.e., hay bales, sand bags, silt fences, etc.) as required and collected using pumps as practical. If the amount of the surface return is not great enough to allow practical collection, the affected area shall be diluted with fresh water and the fluid will be allowed to dry and dissipate naturally. If the amount of the surface return exceeds that which can be contained with hand placed barriers, small collection sumps (less than five (5) cubic yards) may be used. If the amount of the surface return exceeds that which can be contained and collected using small sumps, drilling operations shall be suspended until surface return volumes can be brought under control.

3.10 SUBMITTAL DATA

- A. Contractor shall prepare and submit information as required.

END OF SECTION

SECTION 026190

HIGH DENSITY POLYETHYLENE PIPE

PART 1 GENERAL.

1.1 WORK INCLUDED.

- A. Chiller line.
- B. Fittings and jointing materials.

1.2 RELATED WORK.

- A. Section 023000 - Earthwork.
- B. Section 022280 - Horizontal Directionally Drilled chiller line.
- C. Section 026750 - Cleaning and Disinfection of chiller line.
- D. Section 027040 - Pipeline Pressure and Leakage Testing.

1.3 SUBMITTALS .

- A. Submit product data under provisions of Section 013300.
- B. Include data on pipe materials, pipe fittings, gasket material, and accessories.

1.4 DELIVERY, STORAGE, AND HANDLING.

- A. Deliver products to site under provisions of Section 016120.
- B. Store and protect products under provisions of Section 016140.

PART 2 PRODUCTS.

2.1 HDPE CHILLER LINE

- A. HDPE chiller lines shall be installed by horizontal directional drilling.
  - 1. HDPE water main shall be used for chiller lines.

B. Pipe and Fittings: Solid wall HDPE with butt fusion welded joints.

1. PE3408 high density, extra high molecular weight polyethylene piping system (Chevron Phillips APerformance Pipe® or equal conforming to the requirements of AWWA C906). Cell classification shall be PE345434C as specified by ASTM D3350. Dimensions and workmanship shall be in accordance with ASTM F714. Pipe sizes and dimensions shall be as indicated below:

Nominal Size as shown on the drawings & specifications (inches)	DR	Outside Diameter (inches)	Internal Diameter (inches)
4"	17	XX	XX <sup>+/-</sup>

2.3 Joining:

A. Butt fusion welded joints

1. Heat fusion welded joints in accordance with pipe manufacturer's recommendations and ASTM D3261. Operator of fusion machine shall be certified by fusion machine manufacturer. Fusion machine and procedures shall be acceptable to the pipe manufacturer.

PART 3 EXECUTION.

3.1 HANDLING

- A. Pipe, fittings, and accessories shall be handled in a manner that will insure installation in sound, undamaged condition. Equipment, tools, and methods used in handling and installing pipe and fittings shall not damage the pipe and fittings.
- B. Hooks inserted in ends of pipe shall have broad, well padded contact surfaces.

3.2 CUTTING PIPE. Cutting shall be done in a neat manner, without damage to the pipe.

- A. Cuts shall be smooth, straight, and at right angles to the pipe axis. After cutting, the end of the pipe shall be dressed with a file to remove all roughness and sharp corners.
- B. HDPE pipe shall not be cut or anchored after installation until after the pipe has completed thermal and stress relaxation and has reached dimensional stability. The relaxation time shall be as recommended by the HDPE pipe manufacturer.

3.3 CLEANING. The interior of all pipe and fittings shall be thoroughly cleaned of foreign matter before being installed and shall be kept clean until the work has been accepted.

- A. Before jointing, all joint contact surfaces shall be wire brushed if necessary, wiped clean, and kept clean until jointing is completed.
- B. Precautions shall be taken to prevent foreign material from entering the pipe during installation.

Debris, tools, clothing, or other materials shall not be placed in or allowed to enter the pipe.

- C. Whenever pipe installation is stopped, the open end of the pipe shall be sealed with a watertight plug which will prevent trench water from entering the pipe.

- 3.4 INSPECTION. Pipe and fittings shall be carefully examined for cracks and other defects immediately before installation; spigot ends shall be examined with particular care.

All defective pipe and fittings shall be removed from site of the work.

- 3.5 ALIGNMENT. Pipelines or runs intended to be straight shall be installed straight and at grade as shown on the plans.

### 3.6 CONNECTING WITH OTHER PIPING

- A. Connections between new HDPE and existing piping or new HDPE and piping of a different material shall be made with fittings suitable for the conditions encountered, including changes in pipe diameters and wall thicknesses. Contractor shall submit details of connections to Engineer.

- 3.7 FIELD TESTING. HDPE water main shall be pressure tested in accordance with Section 027040 - Pipeline Pressure & Leakage Testing.

END OF SECTION



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CODE CONSULTANT  
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 V 402 525 5026

# STUHR MUSEUM SITE DEVELOPMENT WATER SERVICE PROJECT #WS2014-1 GRAND ISLAND, NEBRASKA 2014

## LEGEND

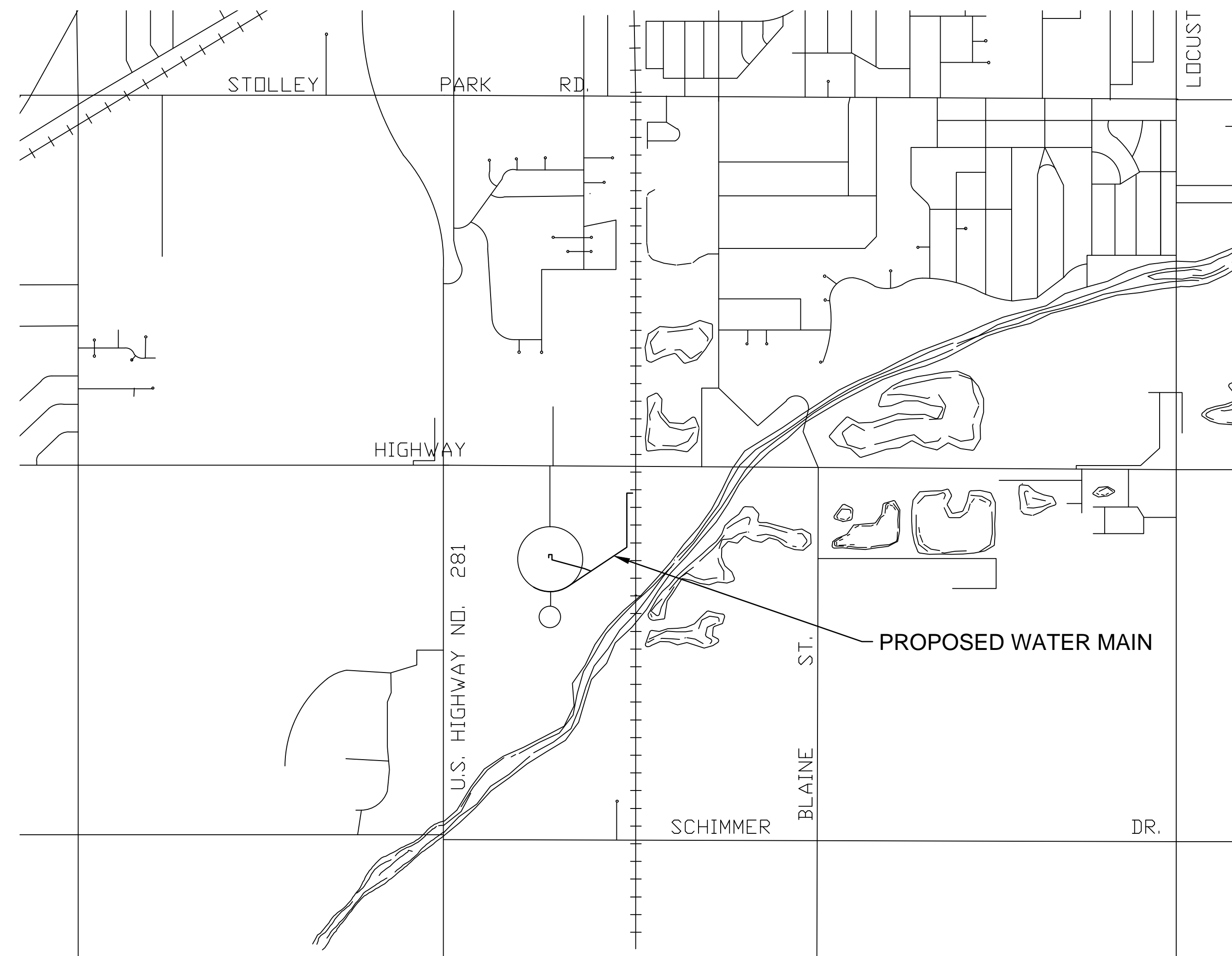
SD	STORM SEWER PIPE
SS	SANITARY SEWER MAIN
G	GAS MAIN
W	WATER MAIN
---	UNDERGROUND CABLE TV
---	OVERHEAD POWER
---	CHAINLINK FENCE
⊕	POWER POLE
⊕LP	LIGHT POLE
⊕PSP	POWER POLE/LIGHT POLE
←	GUY WIRE
⊕FH	FIRE HYDRANT
⊕WV	WATER VALVE
⊕PIV	POST INDICATOR VALVE
⊕MP	WATER METER PIT
⊕SM	SANITARY SEWER MANHOLE
⊕SMH	STORM SEWER MANHOLE
⊕GM	GAS METER
⊕AC	AIR CONDITIONER
⊕EM	ELECTRIC METER
⊕TP	TELEPHONE PEDESTAL
⊕TR	TELEPHONE RISER
⊕TRF	TRANSFORMER
⊕SCV	SPRINKLER CONTROL VALVES
⊕RD	ROOF DRAIN
⊕SGI	STORM SEWER GRATE INLET
⊕MB	MAILBOX
⊕SB	STEEL BOLLARD
⊕S	SIGN
⊕SC	SECTION CORNER
⊕CP	CONTROL POINT
⊕B	BUSH
⊕T	TREE

ITEM	UNIT	QUANTITY
12" D.I. WATER MAIN	L.F.	1,925
6" D.I. WATER MAIN	L.F.	-274 266
DIRECTIONAL DRILL 6" D.I. WATER MAIN	L.F.	-277 285
12" TAPPING TEE W/ VALVE AND BOX	EA.	1
12" GATE VALVE W/BOX	EA.	1
6" GATE VALVE W/BOX	EA.	1
4" GATE VALVE W/BOX	EA.	1
FIRE HYDRANT ASSEMBLY	EA.	3
6" POST INDICATOR VALVE (PIV)	EA.	1
12" M.J. 22.5" BEND	EA.	1
12" M.J. 45" BEND	EA.	3
12" X6" M.J. TEE	EA.	4
12" M.J. PLUG	EA.	1
6" M.J. SLEEVE	EA.	2
6" M.J. 45" BEND	EA.	5
6" M.J. 11.25" BEND	EA.	2
6"x4" M.J. TEE	EA.	1
4" M.J. PLUG w/ 2.5" TAPPED HOLE	EA.	1
1-2.5" PACK JOINT COUPLING (D.I. TO COPPER)	EA.	1
2.5" COPPER SERVICE LINE	L.F.	51
2.5" SERVICE CONNECTION	L.F.	1
2.5" CURB STOP W/BOX	L.F.	1
4" HDPE CHILLER LINE	L.F.	370
DIRECTIONAL DRILL 4" HDPE CHILLER LINE	L.F.	620
4" HDPE 45" BEND	EA.	6
STRIP & RELAY GRAVEL SURFACING	TNS.	49.3
GRAVEL SURFACING	TNS.	49.3
REMOVE & REPLACE 6" ASPHALT PAVEMENT	S.Y.	109
REMOVE & REPLACE 5" SIDEWALK	S.F.	345
DEWATERING	L.F.	800

## GENERAL NOTES

- ALL WORK SHALL BE IN ACCORDANCE WITH THE CITY OF GRAND ISLAND STANDARD SPECIFICATIONS.
- THE LOCATION OF ALL AERIAL AND UNDERGROUND UTILITY FACILITIES MAY NOT BE INDICATED ON THESE PLANS. UNDERGROUND UTILITIES, WHETHER INDICATED OR NOT WILL BE LOCATED AND FLAGGED BY THE UTILITIES AT THE REQUEST OF THE CONTRACTOR. NO EXCAVATION WILL BE PERMITTED IN THE AREA OF UNDERGROUND UTILITY FACILITIES UNTIL ALL SUCH FACILITIES HAVE BEEN LOCATED AND IDENTIFIED TO THE SATISFACTION OF ALL PARTIES. THE EXCAVATION MUST BE ACCOMPLISHED WITH EXTREME CARE IN ORDER TO AVOID ANY POSSIBILITY OF DAMAGE TO THE UTILITY FACILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES.
- CONTRACTOR SHALL PRESERVE ALL PROPERTY CORNER MONUMENTS OR RE-ESTABLISH THEM IF THEY ARE DISTURBED DURING CONSTRUCTION.
- THE CONTRACTOR SHALL OBTAIN AND PAY THE COST OF ALL REQUIRED PERMITS AND FEES, OTHER THAN BUILDING PERMIT.
- CONTRACTOR TO PROVIDE ALL INCIDENTAL FITTINGS NECESSARY TO COMPLETE WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS OF TESTS AS REQUIRED.
- CONTRACTOR SHALL REPAIR ALL SPRINKLER SYSTEMS DAMAGED DURING CONSTRUCTION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL. TRAFFIC CONTROL PLAN SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE MANUAL UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- TRENCH EXCAVATION & BACKFILL SHALL BE MECHANICALLY TAMPED BY THE CONTRACTOR & TESTED. COMPACTION TESTING SHALL BE PAID BY CONTRACTOR AND SHALL BE IN ACCORDANCE WITH THE CITY OF GRAND ISLAND SPECIFICATIONS.
- ALL BENDS SHALL BE BLOCKED. FOR DETAILS OF THRUST BLOCKS, ANCHORS, AND TEE BLOCKS, SEE G.I. STANDARD PLAN 134, 134A & 134B.
- FIRE HYDRANT ASSEMBLY SHALL INCLUDE: 6" 90° BEND, 6" PIPE, BLOCKING, AUXILIARY VALVE, AND FIRE HYDRANT. FOR DETAILS OF FIRE HYDRANT INSTALLATION AND AUX. VALVE, SEE G.I. STANDARD PLAN 135, 140, & 159.
- NEW WATER MAIN SHALL BE POLYETHYLENE ENCASED PER G.I. STANDARD PLAN 155.
- ANY GRADE CONFLICTS BETWEEN SANITARY/STORM SEWERS AND WATER MAINS SHALL BE ADDRESSED PER G.I. STANDARD PLANS 133 AND 138.
- PRIOR TO MOVING OFF SITE THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING REQUESTING A FINAL WALK-THROUGH OF THE PROJECT.
- THE GROUND WATER ELEVATION AS OF DECEMBER 2, 2013 WAS 1844.84 RECORDED AT WELL 24 AT SOUTH SIDE OF RAMADA DR. WEST OF MOTEL THE PREVIOUS RECORD HIGH ELEVATION IS 1852.52 AT THIS LOCATION ON JULY 29, 1993. THE GROUND WATER ELEVATION AS OF DECEMBER 2, 2013 WAS 1853.46 RECORDED AT WELL 31 AT BRENTWOOD LAKE. THE PREVIOUS RECORD HIGH ELEVATION IS 1858.20 AT THIS LOCATION ON JULY 29, 1993.
- ALL WORK TO ACCOMPLISH THE SHUT-DOWN AND ISOLATION OF THE EXISTING WATER MAIN NEEDS TO BE SCHEDULED AND COORDINATED WITH THE GRAND ISLAND WATER DEPARTMENT. THE CONTRACTOR SHALL NOTIFY THE CITY'S WATER DEPARTMENT (308-385-5436), AND AFFECTED CUSTOMERS OF THE SERVICE INTERRUPTION, A MINIMUM OF FORTY-EIGHT (48) HOURS IN ADVANCE OF THE WORK.
- CITY OF GRAND ISLAND STANDARD PLANS AND SPECIFICATIONS ARE AVAILABLE ON THE CITY OF GRAND ISLAND WEB SITE. CONTRACTOR RESPONSIBLE FOR GETTING SPECIFICATIONS FROM WEBSITE OR FROM CITY.
- EXISTING IRRIGATION LINE RUNS PERIMETER OF BUILDING APPROXIMATELY 15' OFF EDGE OF BUILDING. CONTRACTOR SHALL LOCATE AS PROTECT AS NECESSARY.
- 4" HDPE CHILLER LINE SHALL CONFORM TO AWWA C906 & ASTM F714. MATERIAL SHALL BE U-H MANUFACTURING HDPE DR 17 (125 PSI) OR EQUIVALENT. HDPE FITTINGS SHALL BE WATER TIGHT AND CONFORM TO ASTM D2513, D2683, D3261. SEE SPEC SECTION FOR ADDITIONAL INFORMATION.
- SEEDING/SODDING TO BE PLACED BY OWNER. CONTRACTOR SHALL LEAVE SITE IN A CONDITION READY FOR SEEDING/SODDING.

INDEX OF DRAWINGS	
C1	COVER
C2	GENERAL INFORMATION
C3-C6	12" WATER MAIN PLAN AND PROFILE
C7-C8	6" SERVICE PLAN AND PROFILE
C9	CHILLER LINES PLAN AND PROFILE



WATER PROJECT #WS2014-1  
 APPROVED FOR CONSTRUCTION  
 [Signature] 1-21-14  
 DIRECTOR OF UTILITIES OPERATIONS DATE

APPROVED FOR CONSTRUCTION  
 [Signature] 1-21-14  
 FIRE CHIEF DATE

APPROVED FOR CONSTRUCTION  
 [Signature] 1-21-14  
 DIRECTOR OF PUBLIC WORKS DATE

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEBRASKA. THESE PLANS MEET THE REQUIREMENTS OF THE CITY ENGINEERS OFFICE DESIGN REQUIREMENTS.

[Signature]  
 ENGINEER

REVISIONS SCHEDULE		
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△	1-14-2014	CITY COMMENTS

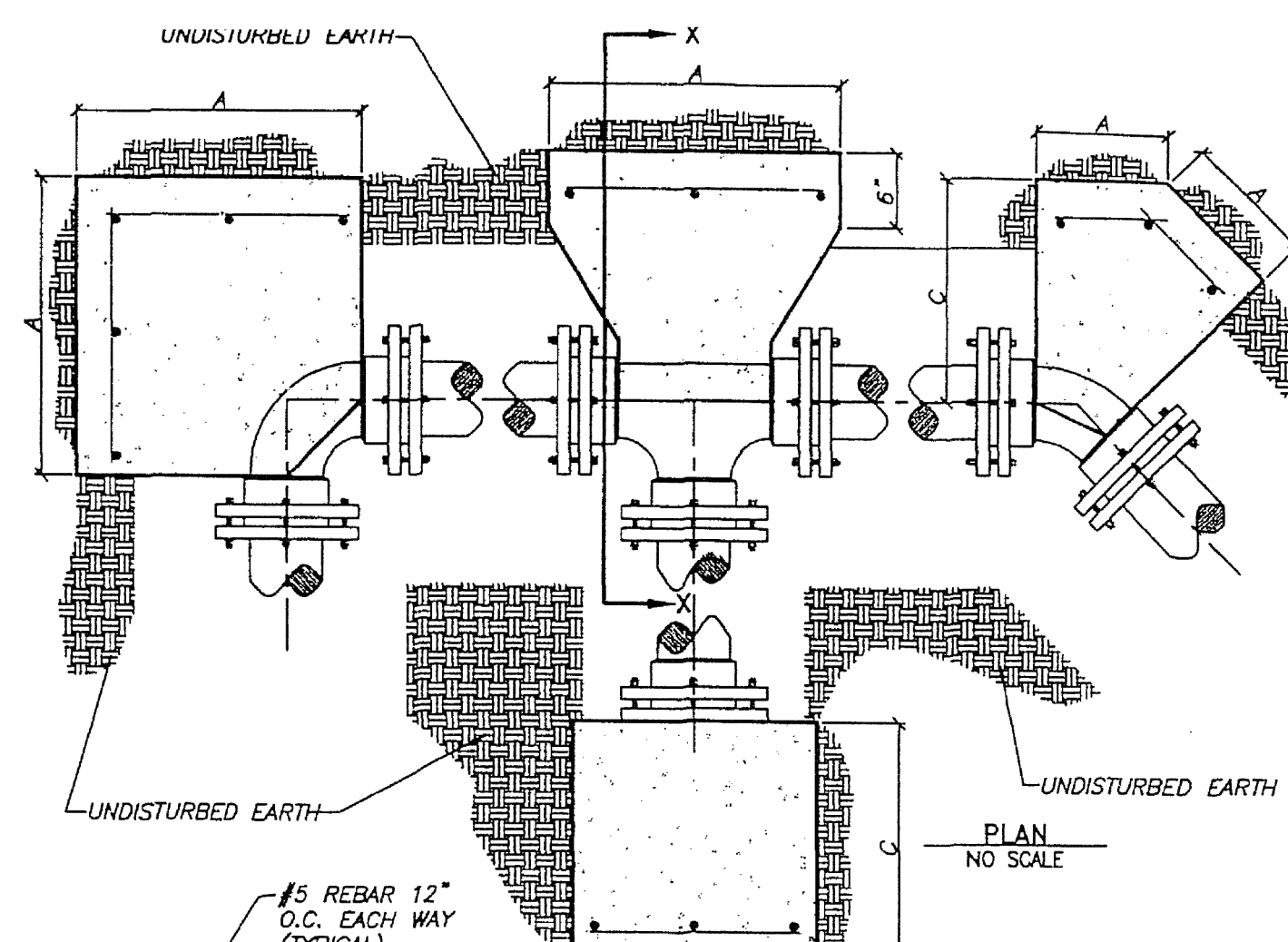
STUHR MUSEUM OF THE PRAIRIE PIONEER REHABILITATION

PROJECT: L11019 DATE: 01.06.2014  
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CIVIL COVER SHEET

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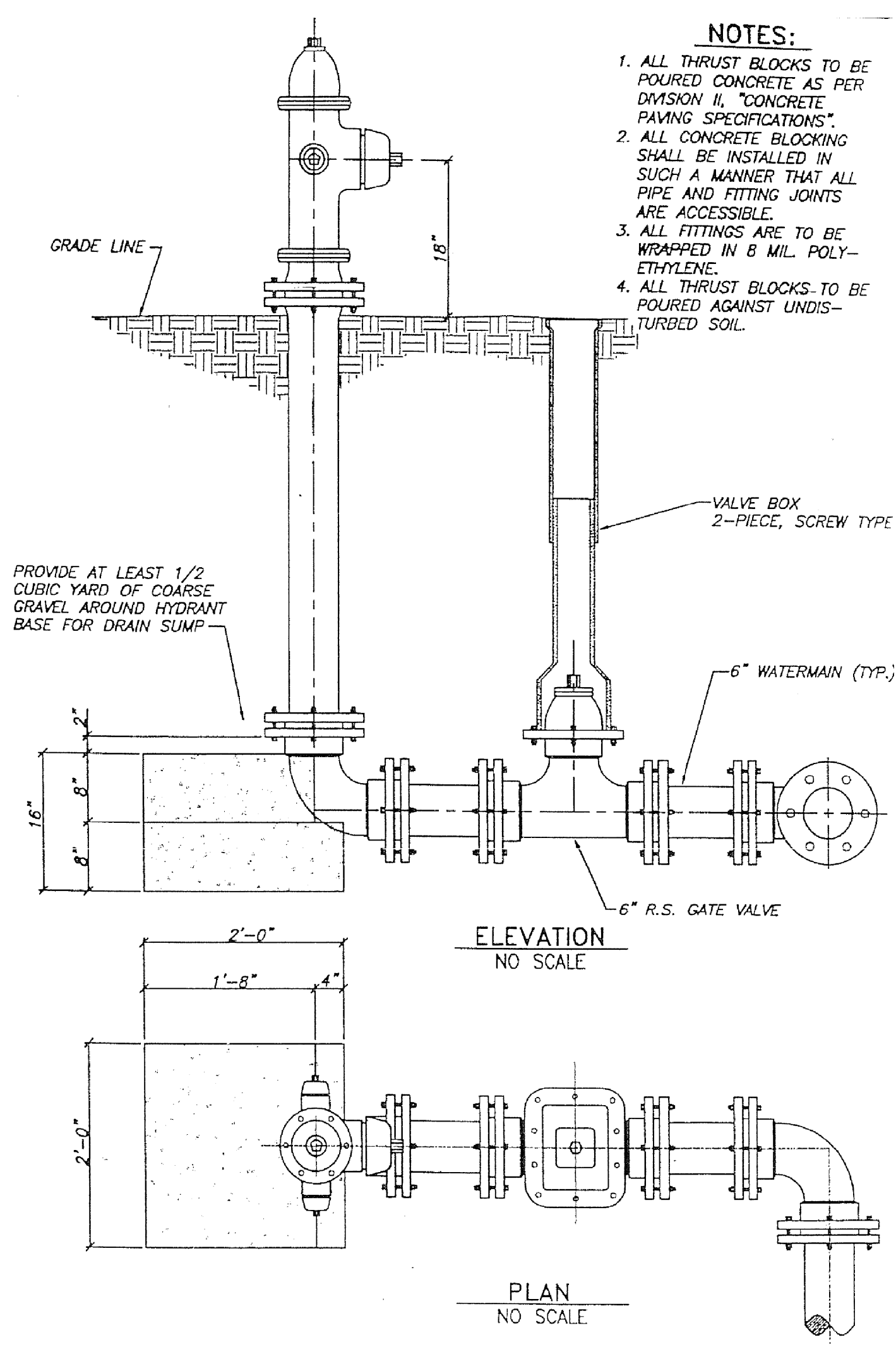


- NOTES:**
1. ALL THRUST BLOCKS TO BE TYPE 47-B Poured CONCRETE AS PER DIVISION II "CONCRETE PAVING SPECIFICATIONS"
  2. ALL CONCRETE BLOCKING SHALL BE INSTALLED IN SUCH A MANNER THAT ALL PIPE AND FITTING JOINTS ARE ACCESSIBLE.
  3. ALL FITTINGS ARE TO BE WRAPPED IN 8 MIL. POLY-ETHYLENE.
  4. ALL THRUST BLOCKS TO BE Poured AGAINST UNDISTURBED SOIL.

THRUST BLOCK DIMENSIONS (INCHES)	PIPE TEES & 90° ELLS			FLUGS			45° ELLS			22 1/2° ELLS			11 1/4° ELLS		
	DM.	A	B	A	B	C	A	B	C	A	B	C	A	B	C
4"	17	17	18	14	14	18	12	12	18	12	12	18	12	12	18
6"	24	24	20	20	20	20	18	18	20	12	12	20	12	12	20
8"	31	31	22	26	26	22	23	23	22	16	16	22	12	12	22
10"	38	38	24	32	32	24	28	28	24	20	20	24	14	14	24
12"	46	46	26	38	38	26	34	34	26	24	24	26	17	17	26
14"	53	53	29	45	45	29	39	39	29	28	28	29	20	20	29
16"	60	60	31	51	51	31	44	44	31	32	32	31	22	22	31
18"	68	68	33	57	57	33	50	50	33	35	35	33	25	25	33
20"	75	75	36	63	63	36	55	55	36	38	39	36	28	28	36
24"	90	90	39	75	75	39	67	67	39	47	47	39	33	33	39
30"	112	112	42	93	93	42	83	83	42	58	58	42	42	42	42

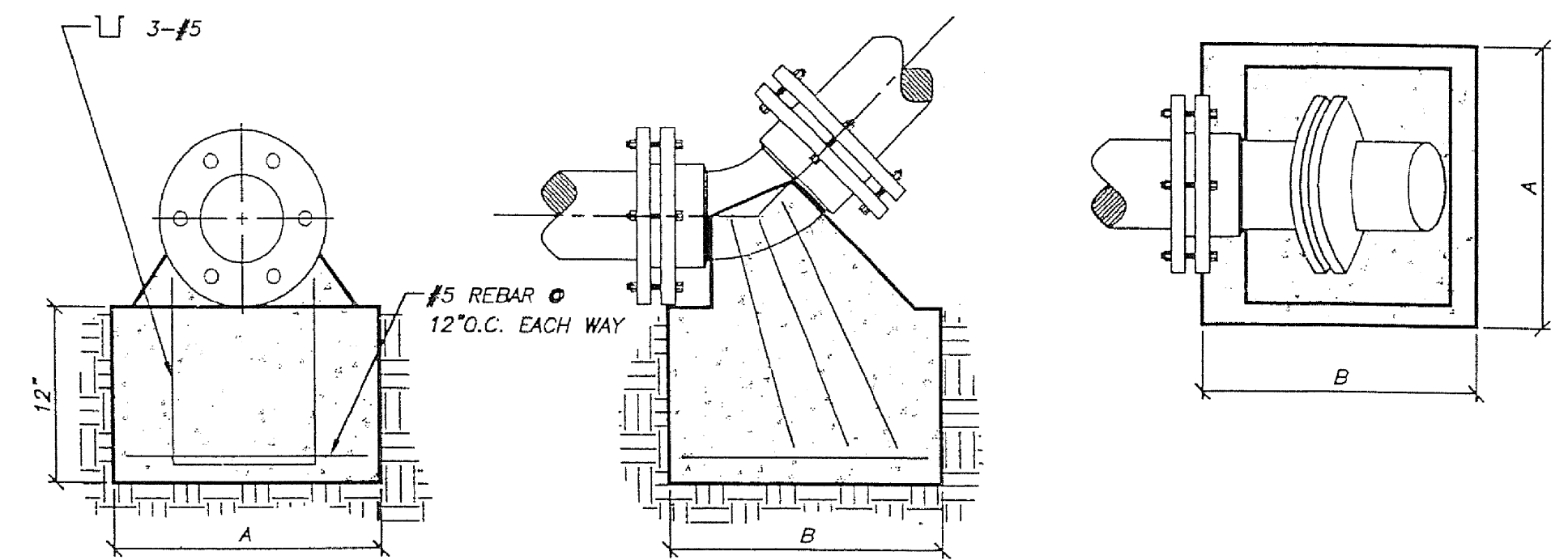
DESIGN PRESSURE: 150 p.s.i.  
SOIL TYPE: SANDY SILT, 2000 lbs./s.f.

**CONCRETE BLOCKING FOR FITTINGS**  
GRAND ISLAND STD PLAN 134 - NOT TO SCALE



- NOTES:**
1. ALL THRUST BLOCKS TO BE Poured CONCRETE AS PER DIVISION II "CONCRETE PAVING SPECIFICATIONS"
  2. ALL CONCRETE BLOCKING SHALL BE INSTALLED IN SUCH A MANNER THAT ALL PIPE AND FITTING JOINTS ARE ACCESSIBLE.
  3. ALL FITTINGS ARE TO BE WRAPPED IN 8 MIL. POLY-ETHYLENE.
  4. ALL THRUST BLOCKS TO BE Poured AGAINST UNDISTURBED SOIL.

**FIRE HYDRANT BLOCKING**  
GRAND ISLAND STD PLAN 135 - NOT TO SCALE

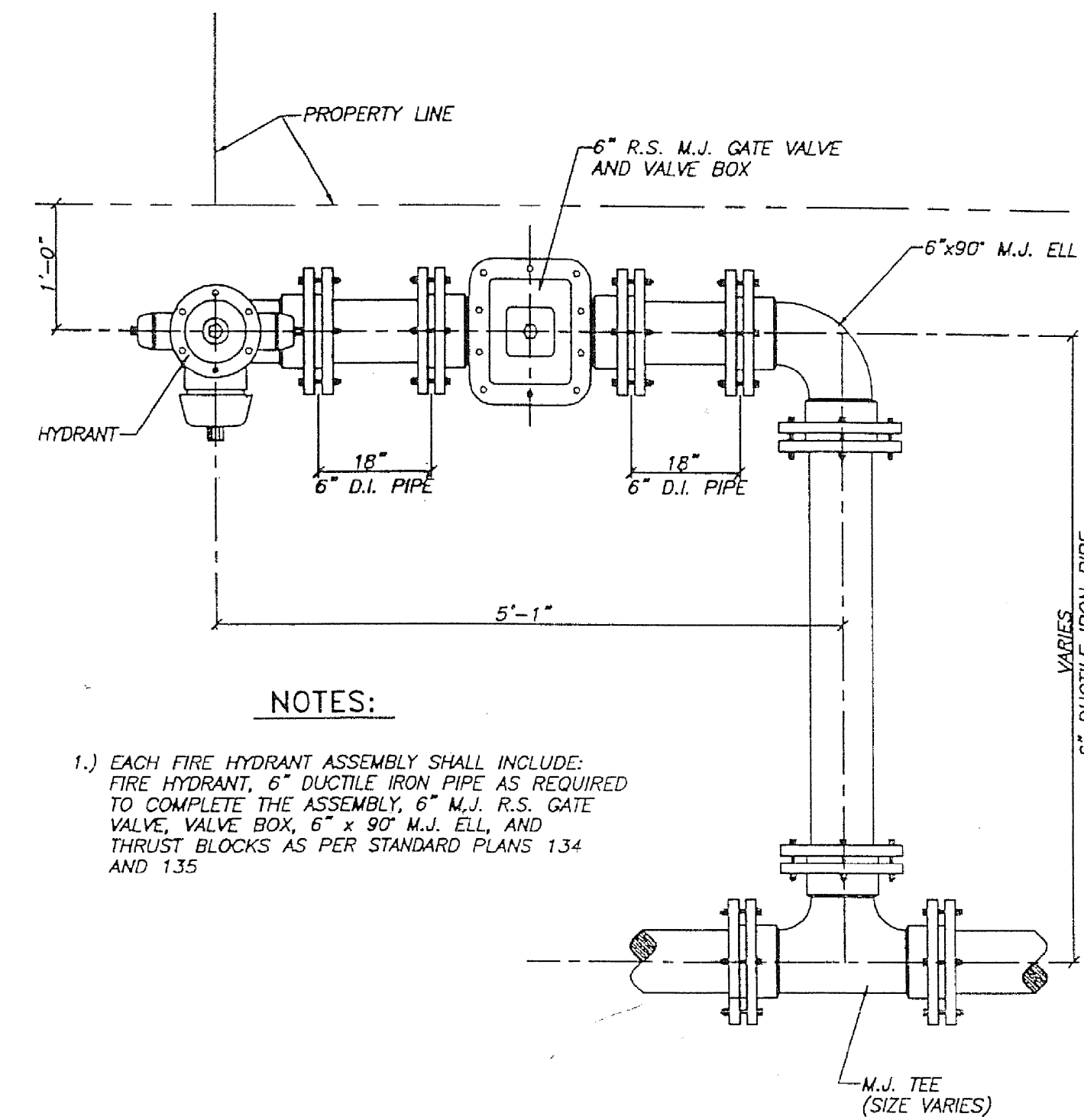


THRUST BLOCK DIMENSIONS (INCHES)	PIPE	
	DM.	A
4"	12"	12"
6"	19"	19"
8"	24"	24"
10"	28"	28"
12"	34"	34"
14"	40"	40"
16"	44"	44"
18"	51"	51"
20"	55"	55"
24"	79"	79"

DESIGN PRESSURE: 150 p.s.i.  
SOIL TYPE: SANDY SILT, 2000 lbs./s.f.

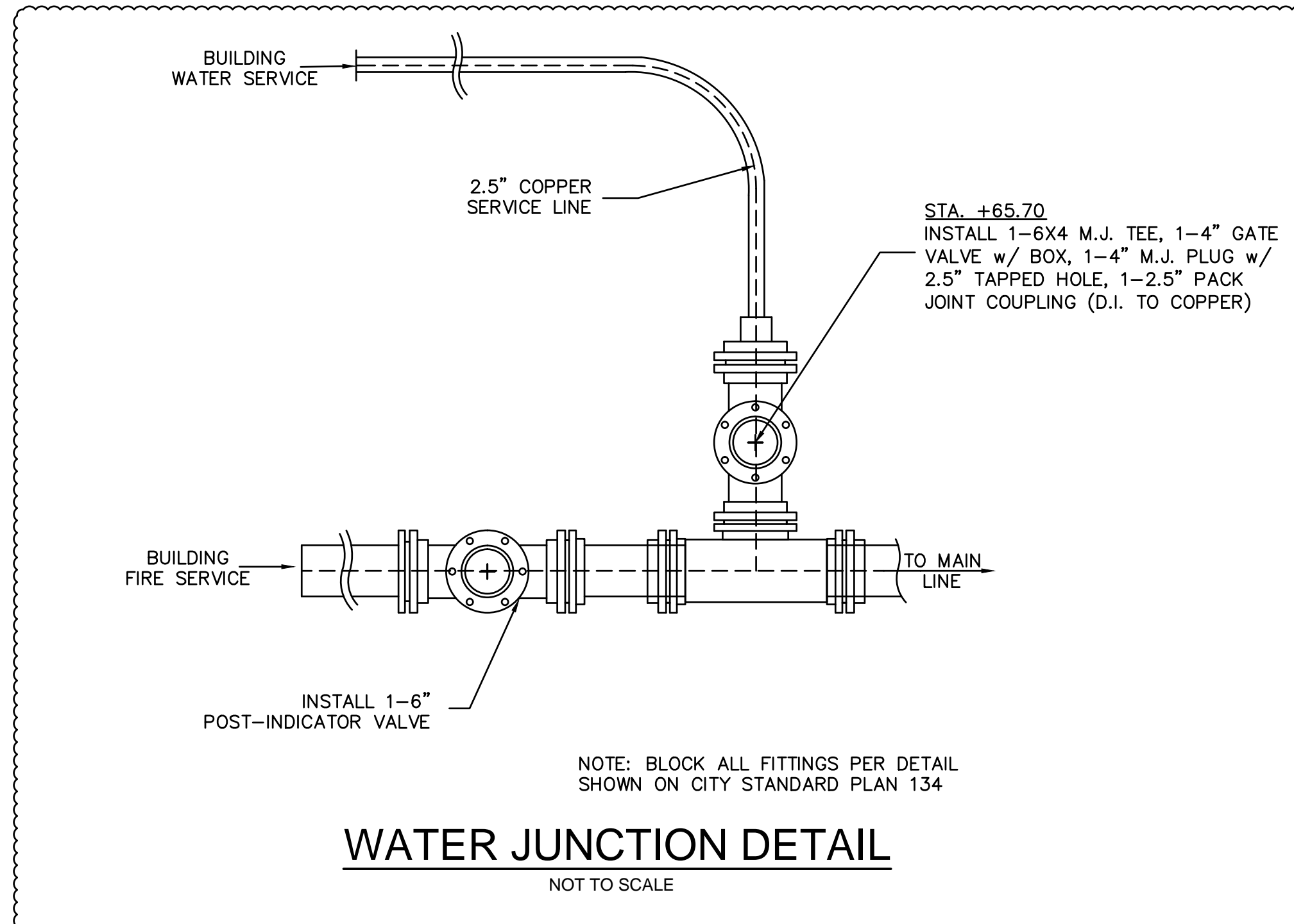
- NOTES:**
1. ALL THRUST BLOCKS TO BE TYPE 47-B Poured CONCRETE AS PER DIVISION II "CONCRETE PAVING SPECIFICATIONS"
  2. ALL CONCRETE BLOCKING SHALL BE INSTALLED IN SUCH A MANNER THAT ALL PIPE AND FITTING JOINTS ARE ACCESSIBLE.
  3. ALL FITTINGS ARE TO BE WRAPPED IN 8 MIL. POLY-ETHYLENE.
  4. ALL THRUST BLOCKS TO BE Poured AGAINST UNDISTURBED SOIL.

**INVERT BLOCKING**  
GRAND ISLAND STD PLAN 134B - NOT TO SCALE



- NOTES:**
- 1.) EACH FIRE HYDRANT ASSEMBLY SHALL INCLUDE: FIRE HYDRANT, 6" DUCTILE IRON PIPE AS REQUIRED TO COMPLETE THE ASSEMBLY, 6" M.J. R.S. GATE VALVE, VALVE BOX, 6" x 90° M.J. ELL, AND THRUST BLOCKS AS PER STANDARD PLANS 134 AND 135.

**FIRE HYDRANT LOCATION**  
GRAND ISLAND STD PLAN 140 - NOT TO SCALE



**WATER JUNCTION DETAIL**  
NOT TO SCALE





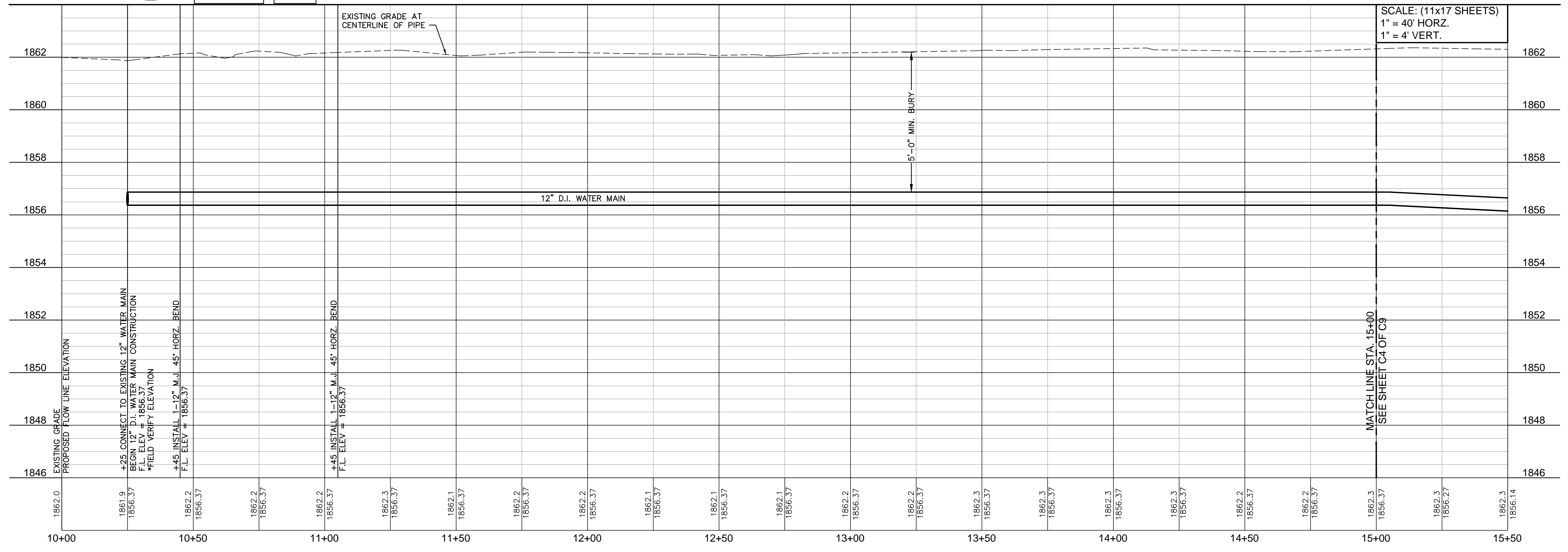
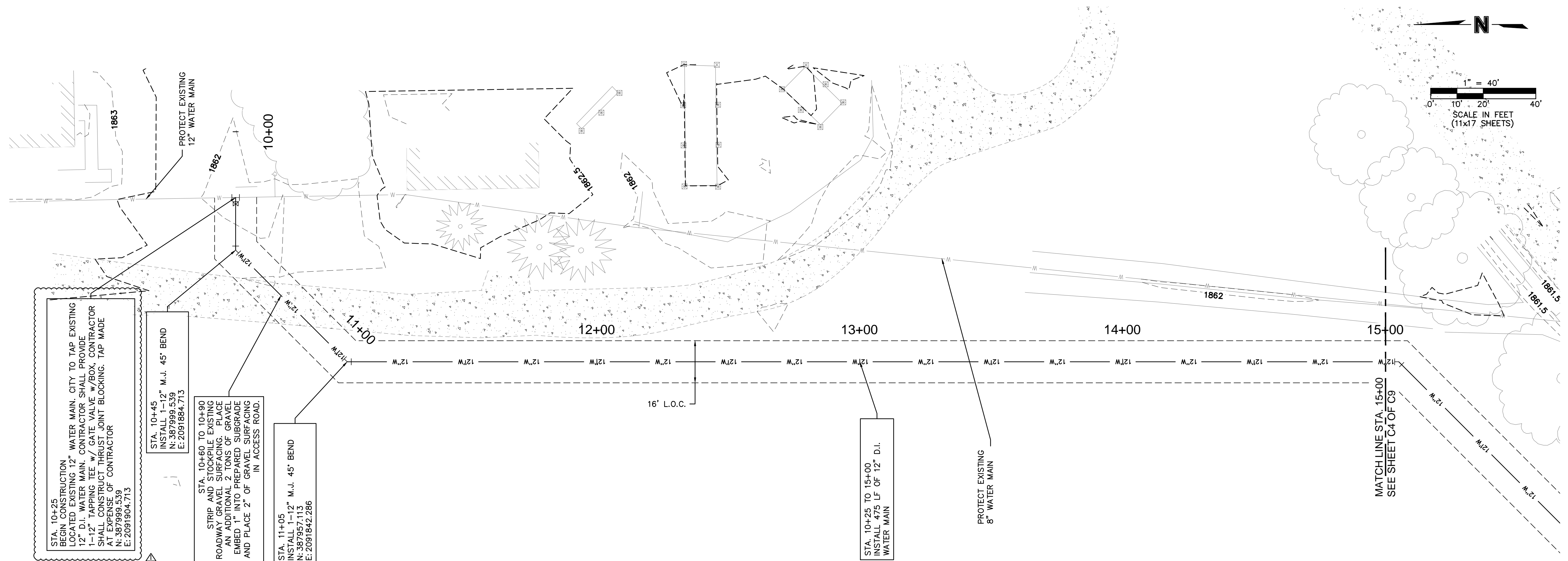
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STUHR MUSEUM OF THE PRAIRIE PIONEER REHABILITATION

PROJECT: L11019 DATE: 01.06.2014  
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WATER MAIN PLAN AND PROFILE  
 STA. 10+00 - STA. 15+00



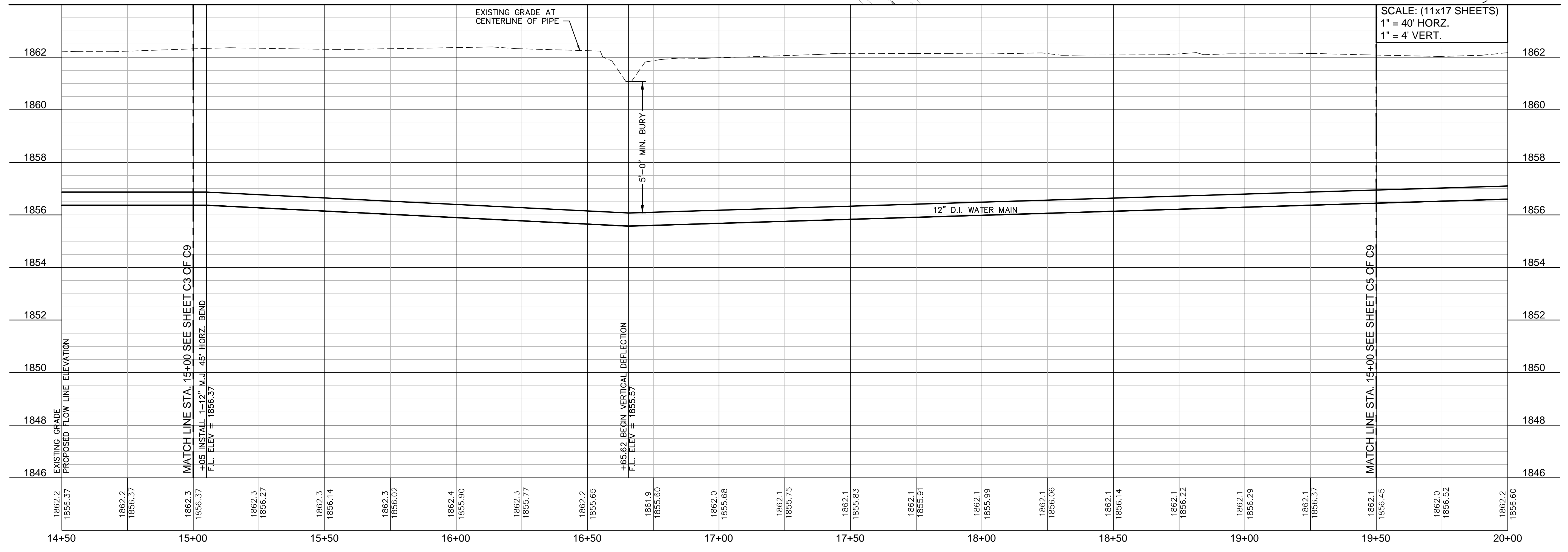
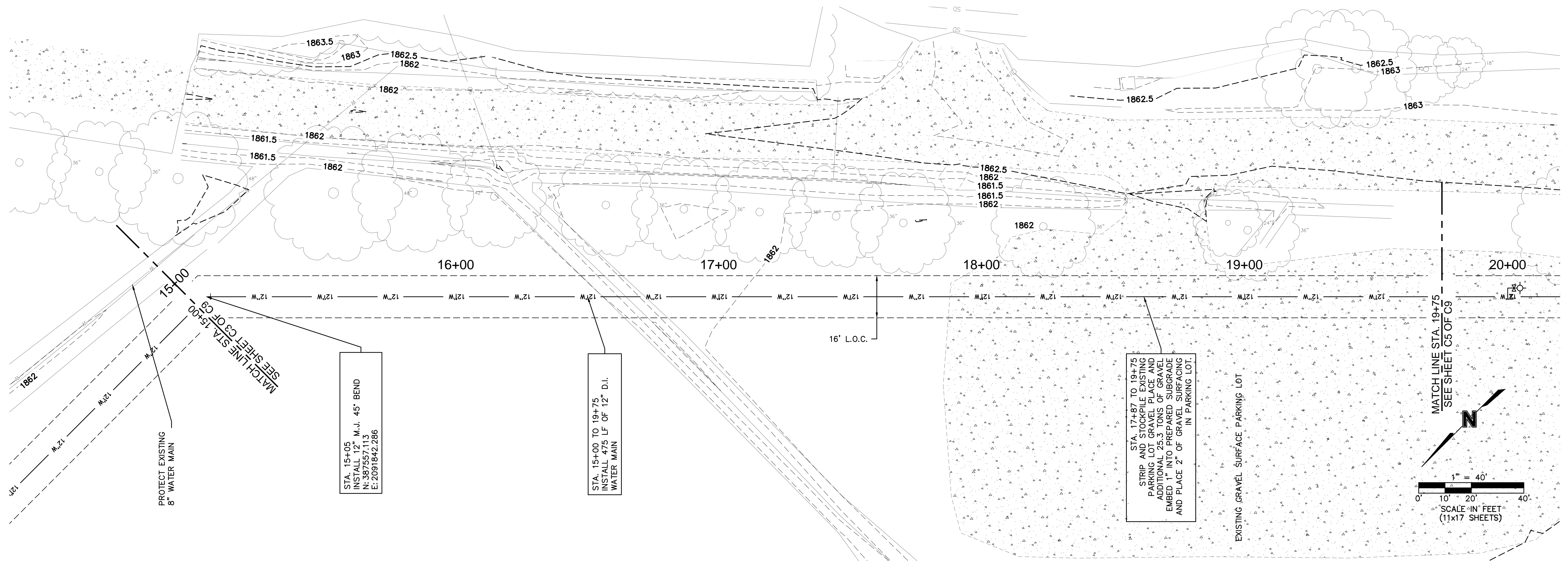
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WATER MAIN PLAN AND PROFILE  
 STA. 15+00 - STA. 19+50





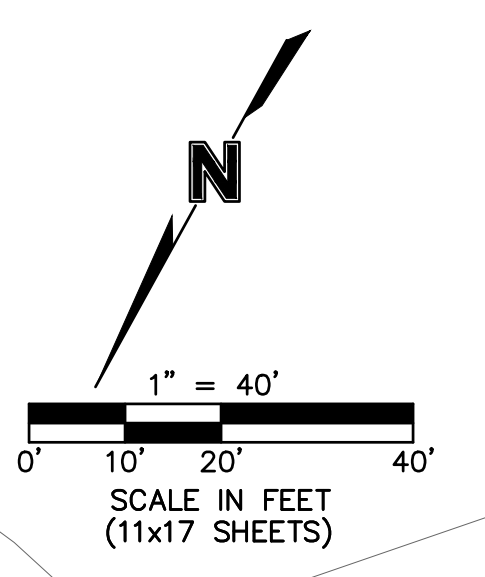
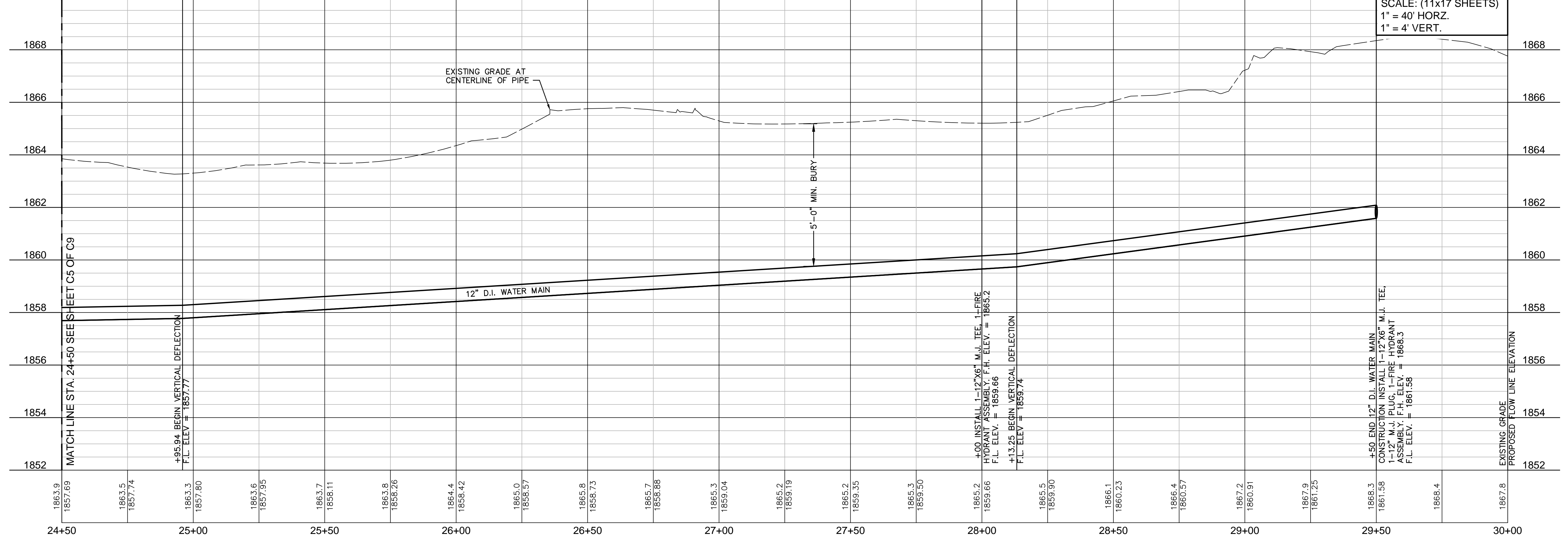
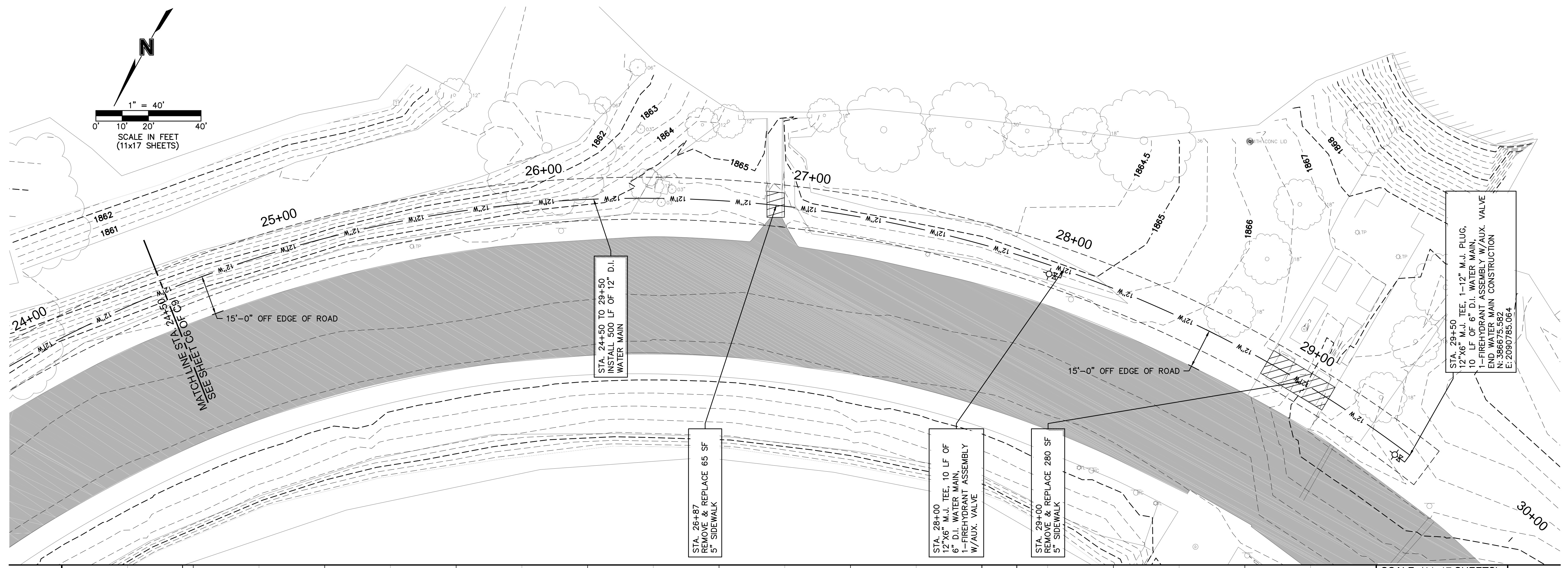
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 LINCOLN, NE 68521  
 V: 402 525 5026



REVISIONS SCHEDULE		
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PROJECT: L11019 DATE: 01.06.2014  
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WATER MAIN PLAN AND PROFILE  
 STA. 24+50 - STA. 29+50



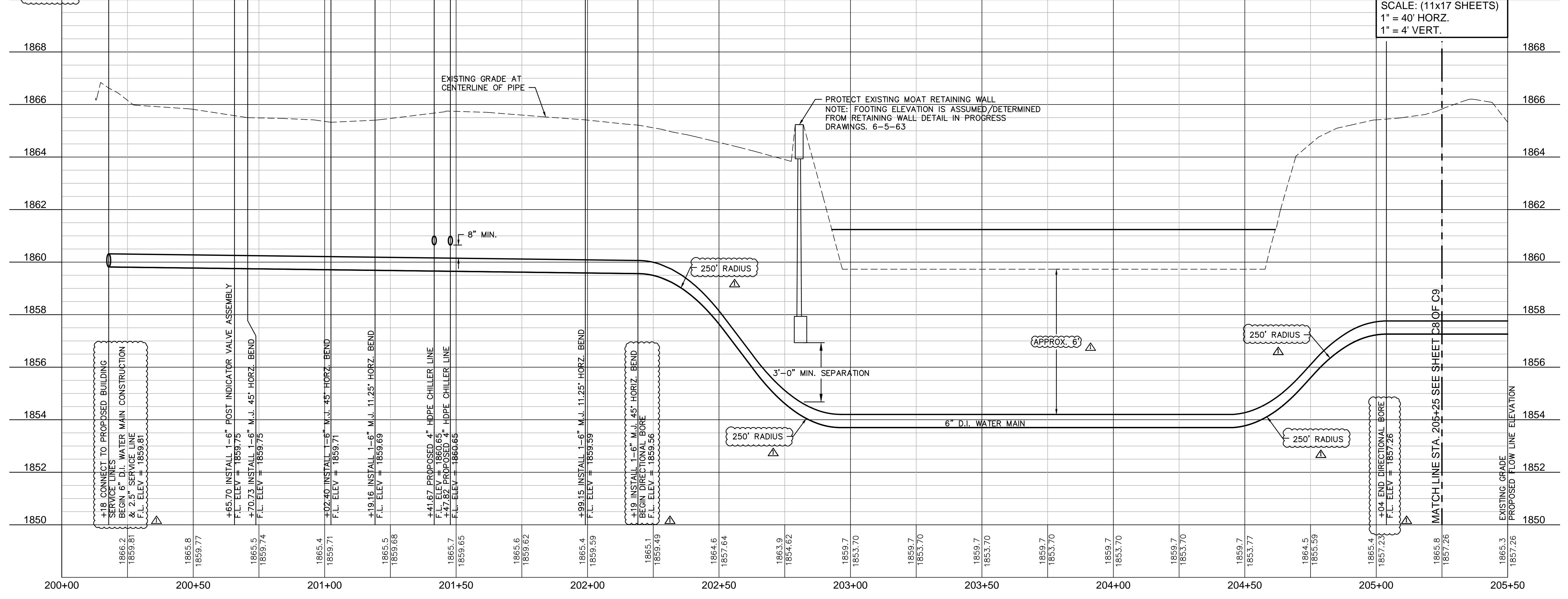
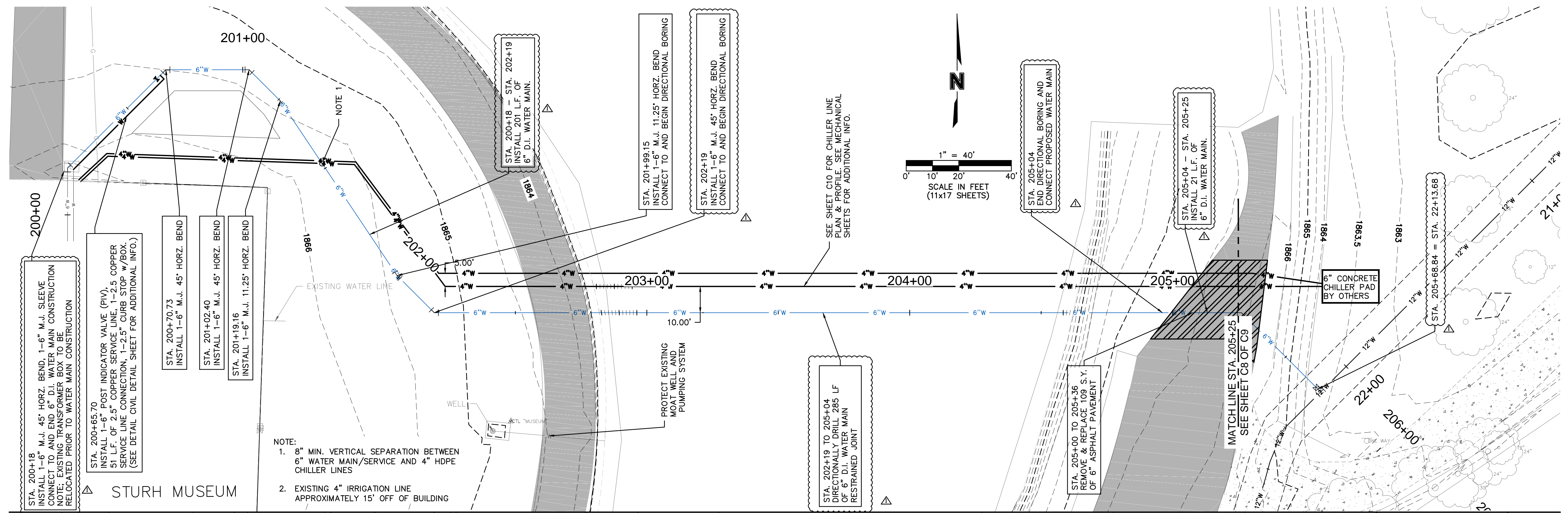
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REVISIONS SCHEDULE		
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STURH MUSEUM OF THE PRAIRIE PIONEER REHABILITATION

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WATER MAIN PLAN AND PROFILE  
STA. 200+00 - STA. 205+25



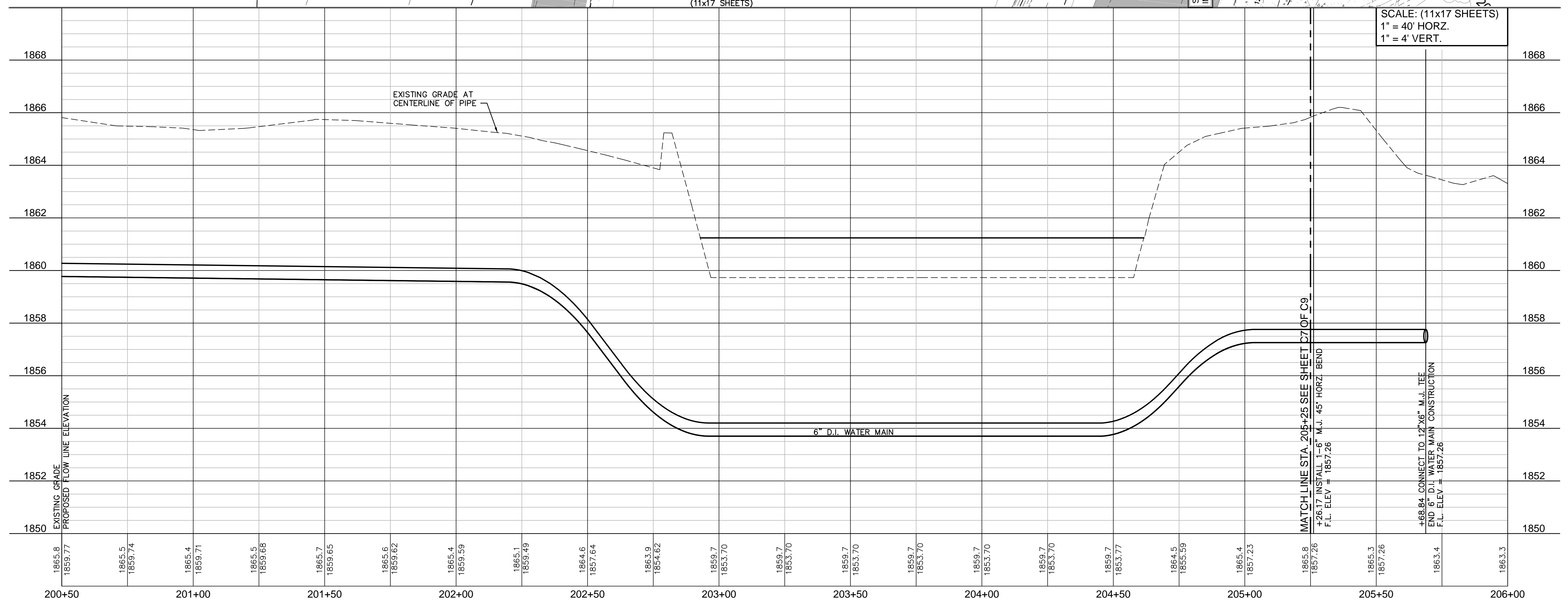
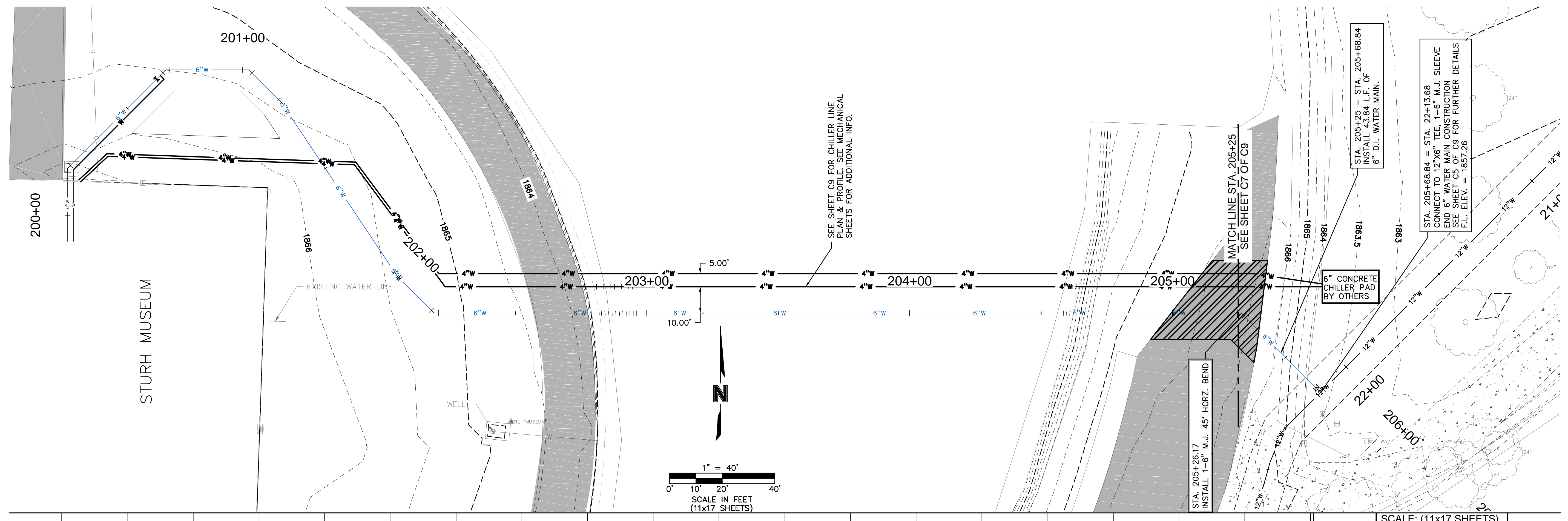
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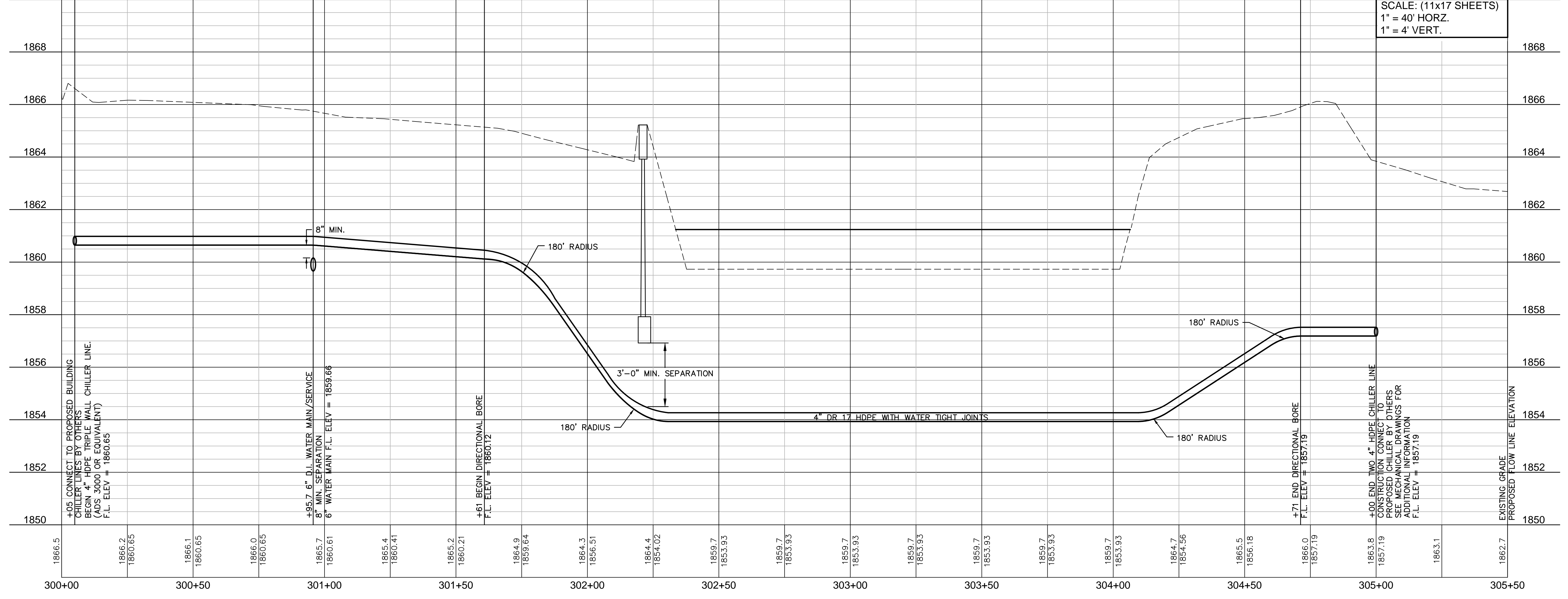
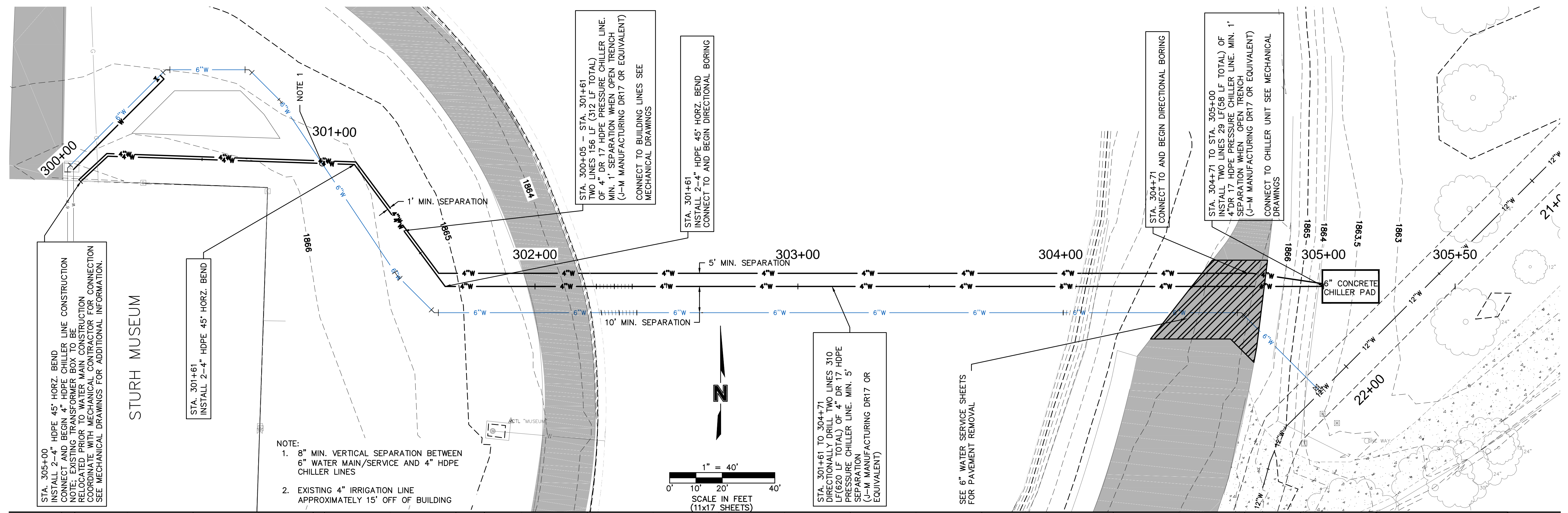
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