13th Ave W P1 Roadway Improvements & Detention Pond 8

Project No. 25-001 January 2025

Bidding Documents

Prepared By:



Prepared For:



13th Ave W Roadway Improvements & Detention Pond 8

25-001 January 2025

Bidding Documen

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13th Ave W Roadway Improvements Detention Pond 8

13th Ave W Roadway Improvements & Detention Pond 8

*25-001*January 2025

Part 1: Bidding Requirements

ADVERTISEMENT FOR BIDS FOR

13th Ave W Roadway Improvements & Detention Pond 8

Notice is hereby given that sealed bids for the 13th Ave W Roadway Improvements & Detention Pond 8 projects for the City of Williston, North Dakota will be received at the Office of the City Finance Director located in the Williston City Hall, 22 East Broadway, Williston, North Dakota until 3:00 P.M., Central Time, February 5, 2025. At that time the bids will be opened and read aloud at the John Kautzman Chamber Room located at 22 East Broadway, Williston, North Dakota.

Description of Work:

The project involves installation of utilities including water, sewer and storm drain on 13th Ave West, and Construction of Detention Pond 8 in Williston, North Dakota. This includes approximately 694 lineal feet of various sized RCP storm drain pipe, 1,200 lineal feet of various sized sanitary sewer pipe, and 1,300 feet of various sized water pipe and associated appurtenances along with 62,400 square feet of Asphalt, 3,150 linear feet of curb and gutter, and 19,500 square feet of concrete flatwork.

A pre-bid meeting will be held **January 30, 2025** at **9:00 AM** at the City of Williston Public Works Building located at 1121 5th Street E, Williston, North Dakota. An optional site visit will take place after the pre-bid for those interested. The project has a **120-calendar** day construction schedule from the construction initiation date. The project must be substantially complete no later than **October 15, 2025**. The final completion date is **October 25, 2025**.

To order plans and specifications, or for further information, contact Alliance Consulting at (701) 572-8100 or at 621 26th Street West, Williston, ND 58801, after **January 18, 2025**. Copies of the bid forms, drawings, specifications, and contract documents are Digital Documents obtained for a fee of \$80.00 from www.QuestCDN.com by navigating to the "Bid Documents tab and entering Quest Project Number **9462761**. ALL BIDDERS are required to view the proposed project site area in order to familiarize themselves with the details of the area prior to submitting a bid.

Drawings and specifications are available for VIEWING PURPOSES ONLY at the office of the CITY ENGINEER in Williston, (701) 577-6368. BIDDERS must obtain the bid documents directly from either Alliance Consulting or QuestCDN to be a registered bidder and receive addenda. Bidders obtaining copies of the documents from other sources do so at their own risk.

Each bid is to be submitted on the basis of cash payment for the work and is to be enclosed in a sealed envelope addressed to the City auditor. Each bid shall be accompanied by a Bidder's Bond in a sum equal to 5% of the full amount of the bid, executed by the BIDDER as principal and by a surety company authorized to do business in the State of North Dakota, conditioned that if the principal's bid be accepted and the contract be awarded to him, he, within 10 days after Notice of Award, will execute and effect a contract in accordance with the terms of his bid and provide a Performance and Payment Bond in the amount of 100% of the Contract Price with a corporate surety approved by the Owner.

The Bid Bond and Contractor's License Renewal Certificate shall be submitted in a separate sealed envelope attached to the outside of the Bid Envelope. Bidders must be licensed for the highest amount of their bid.

For each Bid, the outside of the envelope shall be marked with the date of the proposal, the name of the Bidder, and acknowledgment of any Addendums that were received. The right is reserved to reject any or all bids, and to waive any informality in any bid and to hold bids for a period not to exceed 50 days from said date of opening of bids.

CITY OF WILLISTION, NORTH DAKOTA

By:____

Hercules Cummings, Finance Director

By Order of the Board of City Commissioners,
City of Williston, North Dakota

Publish: Herald (Advertise January 18th, 25th, & February 1st 2025) www.QuestCDN.com (Quest Project Number 9462761)

INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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ARTICLE 1—DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
 - A. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders.

ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the Advertisement or invitation to bid, from the Issuing Office. Bidders may rely that sets of Bidding Documents obtained from the Issuing Office are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may distribute the Bidding Documents, or make them available for examination. Those prospective bidders that obtain an electronic (digital) copy of the Bidding Documents from a plan room are encouraged to register as plan holders from the Bidding Documents Website or Issuing Office. Owner is not responsible for omissions in Bidding Documents or other documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda from a plan room.

2.05 Electronic Documents

- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
 - 1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader 11 or later. It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.

- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.05.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.
- C. After the Contract is awarded, the Owner will provide or direct the Engineer to provide for the use of the Contractor documents that were developed by Engineer as part of the Project design process, as Electronic Documents in native file formats.
 - Electronic Documents that are available in native file format include:

a. Construction Drawing Surface CAD files

- Release of such documents will be solely for the convenience of the Contractor. No such document is a Contract Document.
- 3. Unless the Contract Documents explicitly identify that such information will be available to the Successful Bidder (Contractor), nothing herein will create an obligation on the part of the Owner or Engineer to provide or create such information, and the Contractor is not entitled to rely on the availability of such information in the preparation of its Bid or pricing of the Work. In all cases, the Contractor shall take appropriate measures to verify that any electronic/digital information provided in Electronic Documents is appropriate and adequate for the Contractor's specific purposes.
- In no case will the Contractor be entitled to additional compensation or time for completion due to any differences between the actual Contract Documents and any related document in native file format.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

- 3.01 Bidder is to submit the following information with its Bid to demonstrate Bidder's qualifications to perform the Work:
 - A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.
 - B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.
 - C. Bidder's state or other contractor license number, if applicable.
 - D. Subcontractor and Supplier qualification information.
 - E. Other required information regarding qualifications.

- 3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

ARTICLE 4—PRE-BID CONFERENCE

- 4.01 A non-mandatory pre-bid conference will be held at the time and location indicated in the Advertisement or invitation to bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference; however, attendance at this conference is not required to submit a Bid.
- 4.02 Information presented at the pre-Bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions at the pre-Bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

5.01 Site and Other Areas

A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

5.02 Existing Site Conditions

- A. Subsurface and Physical Conditions; Hazardous Environmental Conditions
 - The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:
 - a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
 - b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.
 - c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
 - 2. Owner will make digital copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any

- interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
- 3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.
- 4. Geotechnical Baseline Report/Geotechnical Data Report: The Bidding Documents contain a Geotechnical Baseline Report (GBR) and Geotechnical Data Report (GDR).
 - a. As set forth in the Supplementary Conditions, the GBR describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations ("Baseline Conditions"). The GBR is a Contract Document.
 - b. The Baseline Conditions in the GBR are intended to reduce uncertainty and the degree of contingency in submitted Bids. However, Bidders cannot rely solely on the Baseline Conditions. Bids should be based on a comprehensive approach that includes an independent review and analysis of the GBR, all other Contract Documents, Technical Data, other available information, and observable surface conditions. Not all potential subsurface conditions are baselined.
 - c. Nothing in the GBR is intended to relieve Bidders of the responsibility to make their own determinations regarding construction costs, bidding strategies, and Bid prices, nor of the responsibility to select and be responsible for the means, methods, techniques, sequences, and procedures of construction, and for safety precautions and programs incident thereto.
 - d. As set forth in the Supplementary Conditions, the GDR is a Contract Document containing data prepared by or for the Owner in support of the GBR.
- B. Underground Facilities: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.
- 5.03 Other Site-related Documents
 - No other Site-related documents are available.
- 5.04 Site Visit and Testing by Bidders
 - A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.
 - B. A Site visit is scheduled following the pre-bid conference. Maps to the Site will be available at the pre-Bid conference.
 - C. A Site visit is scheduled for **[designate, date, time and location]**. Maps to the Site will be made available upon request.
 - D. Bidders visiting the Site are required to arrange their own transportation to the Site.

- E. All access to the Site other than during a regularly scheduled Site visit must be coordinated through the following Owner or Engineer contact for visiting the Site: James Hammon Alliance Consulting. jsh@allianceconsulting.us Bidder must conduct the required Site visit during normal working hours.
- F. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- G. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.
- H. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- I. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

5.05 Owner's Safety Program

A. Site visits and work at the Site may be governed by an Owner safety program. If an Owner safety program exists, it will be noted in the Supplementary Conditions.

5.06 Other Work at the Site

A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

- 6.01 Express Representations and Certifications in Bid Form, Agreement
 - A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.
 - 3. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7—INTERPRETATIONS AND ADDENDA

- 7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:
 - A. Via email to James Hammon @ jsh@allianceconsulting.us
- 7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.
- 7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of **5** percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages-form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

9.01 The number of days within which, or the dates by which, the Work is to be (**120 Calendar Day** construction schedule from the construction initiation date.) The project me be substantially

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- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.
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- completed no later than **October 14, 2025** and Final completed by **October 21, 2025** ready for final payment. and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.
- 9.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 10—SUBSTITUTE AND "OR EQUAL" ITEMS

- 10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those "or-equal" or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an "or-equal" or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer within 10 days of the issuance of the Advertisement for Bids or invitation to Bidders. Each such request must comply with the requirements of Paragraphs 7.05 and 7.06 of the General Conditions, and the review of the request will be governed by the principles in those paragraphs. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all registered Bidders. Bidders cannot rely upon approvals made in any other manner.
- 10.02 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 11.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- 11.02 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work within five days after Bid opening:
 - A. Any subcontractor or major supplier performing more than 10% of the work on this project. Subcontractor not named in such list may be employed on the project only with the express written permission of the Owner.
- 11.03 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, without an increase in Bid price.
- 11.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers.

Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder

ARTICLE 12—PREPARATION OF BID

- 12.01 The Bid Form is included with the Bidding Documents.
 - A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."
- 12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.
- 12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.
- 12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.
- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 12.06 A Bid by an individual must show the Bidder's name and official address.
- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 All names must be printed in ink below the signatures.
- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.

12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13—BASIS OF BID

13.01 *Lump Sum*

A. Bidders must submit a Bid on a lump sum basis as set forth in the Bid Form.

13.02 Base Bid with Alternates

- A. Bidders must submit a Bid on a lump sum basis for the base Bid and include a separate price for each alternate described in the Bidding Documents and as provided for in the Bid Form. The price for each alternate will be the amount added to or deleted from the base Bid if Owner selects the alternate.
- B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form.

13.03 Sectional Bids

- A. Bidders may submit a Bid on any individual section or any combination of sections, as set forth in the Bid Form.
- B. Submission of a Bid on any section signifies Bidder's willingness to enter into a Contract for that section alone at the price offered.
- C. If Bidder submits Bids on individual sections and a Bid based on a combination of those sections, such combined Bid need not be the sum of the Bids on the individual sections.
- D. Bidders offering a Bid on one or more sections must be capable of completing the Work covered by those sections within the time period stated in the Agreement.

13.04 Cost-Plus-Fee Bids

- A. Bidders must submit a Bid on the Contractor's fee, which must be in addition to compensation for Cost of the Work. Such fee must be either (1) a fixed fee, (2) percentages of specified categories of costs, or (3) a percentage applicable to the Cost of the Work as a whole, as set forth in the Bid Form.
- B. If the Contractor's fee, as set forth in the Bid Form, is to be based on percentages of categories of cost, or on a percentage applicable to the Cost of the Work as a whole, then Bidders must enter a maximum amount limiting the total fee if required by the Bid Form to do so.
- C. Bidders must submit a Bid on the Guaranteed Maximum Price, setting a maximum amount on the compensable Cost of the Work plus Contractor's fee, if required by the Bid Form to do so.

13.05 Unit Price

A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.

- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

13.06 Allowances

A. For cash allowances the Bid price must include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the General Conditions.

13.07 Price-Plus-Time Bids

- A. The Owner will consider the time of Substantial Completion commitment made by the Bidder in the comparison of Bids.
- B. Bidder must designate the number of days required to achieve Substantial Completion of the Work and enter that number in the Bid Form as the total number of calendar days to substantially complete the Work.
- C. The total number of calendar days for Substantial Completion designated by Bidder must be less than or equal to a maximum of [number], but not less than the minimum of [number]. If Bidder purports to designate a time for Substantial Completion that is less than the allowed minimum, or greater than the allowed maximum, Owner will reject the Bid as nonresponsive.
- D. The Agreement as executed will contain the Substantial Completion time designated in Successful Bidder's Bid, and the Contractor will be assessed liquidated damages at the rate stated in the Agreement for failure to attain Substantial Completion within that time.
- E. Bidder must also designate the time in which it will achieve Milestones, and achieve readiness for final payment. Such time commitments must be consistent with the "Time of Substantial Completion" to which Bidder commits. The Agreement as executed will contain, as binding Contract Times, Successful Bidder's time commitments regarding Milestones, as applicable, and readiness for final payment.

ARTICLE 14—SUBMITTAL OF BID

- 14.01 The Bidding Documents include one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 2 of the Bid Form.
- 14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and

- other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the Advertisement.
- 14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

- 15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 15.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

ARTICLE 16—OPENING OF BIDS

16.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid-and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

- 18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.
- 18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of

- the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.
- 18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.

18.05 Evaluation of Bids

- A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. To determine the Bid prices for purposes of comparison, Owner will announce to all bidders a "Base Bid plus alternates" budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.
- C. For determination of the apparent low Bidder(s) when sectional bids are submitted, Bids will be compared on the basis of the aggregate of the Bids for separate sections and the Bids for combined sections that result in the lowest total amount for all of the Work.
- D. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
- E. For the determination of the apparent low Bidder when cost-plus fee bids are submitted, Bids will be compared on the basis of the Guaranteed Maximum Price set forth by Bidder on the Bid Form.
- F. Bid prices will be compared after adjusting for differences in time of Substantial Completion (total number of calendar days to substantially complete the Work) designated by Bidders. The adjusting amount will be determined at the rate set forth in the Agreement for liquidated damages for failing to achieve Substantial Completion, or such other amount that Owner has designated in the Bid Form.
 - The method for calculating the lowest bid for comparison will be the summation of the Bid price shown in the Bid Form plus the product of the Bidder specified time of Substantial Completion in calendar days times the rate for liquidated damages [or other Owner-designated daily rate] in dollars per day.
 - 2. This procedure is only used to determine the lowest bid for comparison and contractor selection purposes. The Contract Price for compensation and payment purposes remains the Bid price shown in the Bid Form.
- 18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for

- those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- 18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 19—BONDS AND INSURANCE

- 19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.
- 19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 20—SIGNING OF AGREEMENT

20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 (3) three days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

BID FORM FOR CONSTRUCTION CONTRACT

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 1—OWNER AND BIDDER

- 1.01 This Bid is submitted to: [City of Williston Office of the City Finance Director located in the Williston City Hall, 22 East Broadway, Williston, North Dakota]
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

- 2.01 The following documents are submitted with and made a condition of this Bid:
 - A. Required Bid security;
 - B. List of Proposed Subcontractors;
 - C. List of Proposed Suppliers;
 - D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids;
 - E. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids;
 - F. Required Bidder Qualification Statement with supporting data; and
 - G. [List other documents and edit above as pertinent].

ARTICLE 3—BASIS OF BID—LUMP SUM BID AND UNIT PRICES

- 3.01 Unit Price Bids
 - A. Bidder will perform the following Work at the indicated unit prices:

SEE ATTACHED BID SCHEDULE:

(13th Ave W P1 Roadway Improvements &

Detention Pond 8)

- B. Bidder acknowledges that:
 - 1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and

- 2. estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.
- 3.02 Total Bid Price (Lump Sum and Unit Prices)

Total Bid Price (Total of all Lump Sum and Unit Price Bids)	\$
Total bid Frice (Total of all Europ Sum and Offic Frice bids)	۲

ARTICLE 4—TIME OF COMPLETION

- 4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 4.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 5—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

- 5.01 Bid Acceptance Period
 - A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.
- 5.02 Instructions to Bidders
 - A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.
- 5.03 Receipt of Addenda
 - A. Bidder hereby acknowledges receipt of the following Addenda: [Add rows as needed. Bidder is to complete table.]

Addendum Number	Addendum Date

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

- 6.01 Bidder's Representations
 - A. In submitting this Bid, Bidder represents the following:
 - 1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
 - 2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - 3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.

- 4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
- 5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
- 6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.
- 7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- 8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- 9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- 10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- 11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 Bidder's Certifications

A. The Bidder certifies the following:

- 1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
- 2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
- 3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
- 4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:

- a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
- b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
- c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
- d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

Bidder:	
	(typed or printed name of organization)
Ву:	(individual's signature)
Name:	(a.r.aca. o signata. o)
	(typed or printed)
Title:	(typed or printed)
Date:	
	(typed or printed)
If Bidder is a corporation, a	partnership, or a joint venture, attach evidence of authority to sign.
Attest:	(to third or the store to make
Name:	(individual's signature)
	(typed or printed)
Title:	
Date:	(typed or printed)
	(typed or printed)
Address for giving notices	x:
-	
Bidder's Contact:	
Name:	
	(typed or printed)
Title:	(typed or printed)
Phone:	
Email:	
Address:	
Bidder's Contractor Licen	se No.: (if applicable)

BID BOND (DAMAGES FORM)

Bidder	Surety
Name:	Name:
Address (principal place of business):	Address (principal place of business):
Owner	Bid
Name: City of Williston	Project (name and location):
Address (principal place of business):	13 th Ave W P1 Roadway improvements &
City Hall	Detention Pond 8
22 East Broadway	
Williston, North Dakota	
	Bid Due Date:
Bond	
Bond Amount:	
Date of Bond:	
do each cause this Bid Bond to be duly executed by	ereby, subject to the terms set forth in this Bid Bond, y an authorized officer, agent, or representative.
	• • • • • • • • • • • • • • • • • • • •
do each cause this Bid Bond to be duly executed by	y an authorized officer, agent, or representative.
do each cause this Bid Bond to be duly executed by	y an authorized officer, agent, or representative.
do each cause this Bid Bond to be duly executed by Bidder	y an authorized officer, agent, or representative. Surety
do each cause this Bid Bond to be duly executed by Bidder (Full formal name of Bidder)	y an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal)
do each cause this Bid Bond to be duly executed by Bidder (Full formal name of Bidder) By: (Signature) Name:	y an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal) By: (Signature) (Attach Power of Attorney) Name:
do each cause this Bid Bond to be duly executed by Bidder (Full formal name of Bidder) By: (Signature) Name: (Printed or typed)	y an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal) By: (Signature) (Attach Power of Attorney) Name: (Printed or typed)
do each cause this Bid Bond to be duly executed by Bidder (Full formal name of Bidder) By: (Signature) Name:	y an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal) By: (Signature) (Attach Power of Attorney) Name:
do each cause this Bid Bond to be duly executed by Bidder (Full formal name of Bidder) By: (Signature) Name: (Printed or typed)	y an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal) By: (Signature) (Attach Power of Attorney) Name: (Printed or typed)
do each cause this Bid Bond to be duly executed by Bidder (Full formal name of Bidder) By: (Signature) Name: (Printed or typed) Title: Attest:	y an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal) By: (Signature) (Attach Power of Attorney) Name: (Printed or typed) Title: Attest:
do each cause this Bid Bond to be duly executed by Bidder (Full formal name of Bidder) By: (Signature) Name: (Printed or typed) Title: (Signature)	y an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal) By: (Signature) (Attach Power of Attorney) Name: (Printed or typed) Title: Attest: (Signature)
do each cause this Bid Bond to be duly executed by Bidder (Full formal name of Bidder) By: (Signature) Name: (Printed or typed) Title: Attest: (Signature) Name:	y an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal) By: (Signature) (Attach Power of Attorney) Name: (Printed or typed) Title: Attest: (Signature) Name:
do each cause this Bid Bond to be duly executed by Bidder (Full formal name of Bidder) By: (Signature) Name: (Printed or typed) Title: (Signature) Name: (Printed or typed)	y an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal) By: (Signature) (Attach Power of Attorney) Name: (Printed or typed) Title: Attest: (Signature) Name: (Printed or typed)
do each cause this Bid Bond to be duly executed by Bidder (Full formal name of Bidder) By: (Signature) Name: (Printed or typed) Title: (Signature) Name: (Printed or typed) Title:	y an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal) By: (Signature) (Attach Power of Attorney) Name: (Printed or typed) Title: Attest: (Signature) Name:

- 1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder any difference between the total amount of Bidder's Bid and the total amount of the Bid of the next lowest, responsible Bidder that submitted a responsive Bid, as determined by Owner, for the work required by the Contract Documents, provided that:
 - 1.1. If there is no such next Bidder, and Owner does not abandon the Project, then Bidder and Surety shall pay to Owner the bond amount set forth on the face of this Bond, and
 - 1.2. In no event will Bidder's and Surety's obligation hereunder exceed the bond amount set forth on the face of this Bond.
 - 1.3. Recovery under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
- 2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
- 3. This obligation will be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by Owner, or
 - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
- 4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
- 5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions will not in the aggregate exceed 120 days from Bid due date without Surety's written consent
- 6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
- 7. Any suit or action under this Bond must be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
- 8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
- 9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
- 10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
- 11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

ARTICLE 1—GENERAL INFORMATION

1.01	Provide	contact	inform	ation	for the	Business:

	Legal Name of Business:					
	Corporate Office					
	Name:			Phone numbe	r:	
	Title:			Email address	:	
	Business address of corpo	rate office:				
	Local Office					
	Name:			Phone numbe	r:	
	Title:			Email address	:	
	Business address of local	office:				
1.02	Provide information on the	a Rusinass's c	vrganizatio	nal structure		
1.02	- Tovide information on the	. Dusiness s c	n garnization	iai structure.		
	Form of Business:	ole Proprieto	rship 🗆 Pa	rtnership 🗆 Co	rporation	
	☐ Limited Liability Compa	any □ Joint V	enture con	nprised of the fo	ollowing companies	S:
	1.					
	2.					
	3.					
	Provide a separate Qualif	ication State	ment for ea	ach Joint Ventui	er.	
	Date Business was forme	d:	Sta	te in which Busi	ness was formed:	
	Is this Business authorize	d to operate	in the Proje	ect location?	☐ Yes ☐ No ☐ Per	nding
1.03	Identify all businesses that	own Rusine	ss in whole	or in part (25%	(or greater) or the	ut are wholly
1.03	or partly (25% or greater)			or in part (23%	o or greater), or the	it are writing
					1	
	Name of business:			Affiliation:		
	Address:				1	
	Name of business:			Affiliation:		
	Address:				1	
	Name of business:			Affiliation:		
	Address:					

1.04	Provide information regard	ing the Business's	officers, pa	rtners, a	na iin	nits of au	tnority.
	Name:		Title:				
	Authorized to sign contract	cts: 🗆 Yes 🗆 No	Limit	of Author	rity:	\$	
	Name:		Title:				
	Authorized to sign contract	cts: 🗆 Yes 🗆 No	Limit	of Author	rity:	\$	
	Name:		Title:				
	Authorized to sign contract	cts: 🗆 Yes 🗆 No	Limit	of Author	rity:	\$	
	Name:		Title:				
ARTIC 2.01	LE 2—LICENSING Provide information regard	ing licensure for B	usiness:				
	Name of License:						
	Licensing Agency:						
	License No:		Expiration	Date:			
	Name of License:						
	Licensing Agency:						
	License No:		Expiration	Date:			
ARTIC 3.01	Provide information regard of current certification.		erse Busine	ess Certif	icatio	n, if any.	Provide evidence
	Certificat	ion	(Certifying	g Ageı	ncy	Certification Date
	☐ Disadvantaged Busines	s Enterprise					
	☐ Minority Business Ente	rprise					
	☐ Woman-Owned Busine	ss Enterprise					
	☐ Small Business Enterpri	se					
	☐ Disabled Business Ente	rprise					
	☐ Veteran-Owned Busine	ss Enterprise					
	☐ Service-Disabled Vetera	an-Owned Busines	s				
	☐ HUBZone Business (Hist Underutilized) Business	torically					
	☐ Other						
	□ None						

ARTICLE 4—SAFETY

N (D - : / - C - (-		_							
Name of Business's Safe	ty Office	r:							
Safety Certifications									
Certification	Name			Issu	ing Ager	ісу		Expirati	on
Provide Worker's Competer Frequency Rate (TRFR) for 3 years and the EMR, TRF that will provide Work with EMR history for Busin	r inciden R, and M alued at :	ts, and [·] IH histor 10% or i	Total Nury for the more of	umber of e last 3 y the Cor	f Record ears of	ed Man any pro	hours (N posed S	MH) for tubcontra	the las
Year									
Company	EMR	TRFR	МН	EMR	TRFR	МН	EMR	TRFR	МН
E E EINANCIAI									
F 5—FINANCIAL Provide information regal financial statement, and incurrent financial statement.	f such au				-				
Provide information rega financial statement, and i	f such au				-				
Provide information rega financial statement, and i current financial stateme	f such au				-				
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Provide information regal financial statement, and it current financial statement. Financial Institution: Business address:	f such au nt.	nancial s	nancial	nt:	nt is not			ovide th	e mos
Provide information regal financial statement, and is current financial statement. Financial Institution: Business address: Date of Business's most	f such au nt. recent fi	nancial s	stateme	nt: stateme	nt is not			ovide th	e mos
Provide information regal financial statement, and is current financial statement. Financial Institution: Business address: Date of Business's most Date of Business's most	recent firecent au	nancial sudited fi	stateme nancial t financi	nt: stateme	nt is not			ovide th	thed

ARTICLE 6—SURETY INFORMATION

Phone (main):

Surety Name:					
-	ration organi	and and avisting	under the leve of th	o stata of	
			under the laws of th		
	· · · · · · · · · · · · · · · · · · ·		the Project location		
Federal Bonds a	nd as Accepta	ble Reinsuring C	ates of Authority as a companies" publishe ce, U.S. Department	d in Departm	ent Circu
Mailing Address	;				
(principal place	of business):				
Physical Address	S				
(principal place					
Phone (main):			Phone (claims):		
Phone (main): 7—INSURANCE			Phone (claims):		
7—INSURANCE Provide informat			Phone (claims): ance company(s), ir formation for each p	_	not limite
7—INSURANCE Provide informat Commercial Gene Name of insurar	eral Liability cance provider, a	arrier. Provide in	ance company(s), ir	_	not limite
7—INSURANCE Provide informat Commercial Gene Name of insurar	eral Liability ca	arrier. Provide in	ance company(s), ir formation for each p y (CLE, auto, etc.):	_	
7—INSURANCE Provide informat Commercial Gene Name of insurar	eral Liability cance provider, a	arrier. Provide in	ance company(s), ir formation for each p y (CLE, auto, etc.):	provider.	
7—INSURANCE Provide informat Commercial Gene Name of insurar	eral Liability cance provider, a	arrier. Provide in	ance company(s), ir formation for each p y (CLE, auto, etc.):	provider.	
7—INSURANCE Provide informat Commercial Gene Name of insurar	eral Liability cance provider, a	arrier. Provide in	ance company(s), ir formation for each p y (CLE, auto, etc.):	provider.	
7—INSURANCE Provide informat Commercial Gene Name of insurar In:	eral Liability ca nce provider, a surance Provid	arrier. Provide in	ance company(s), ir formation for each p y (CLE, auto, etc.): Type of Pol	orovider. icy (Coverage	
7—INSURANCE Provide informat Commercial Gene Name of insurar In:	eral Liability ca nce provider, a surance Providence	arrier. Provide in	ance company(s), in formation for each projections (CLE, auto, etc.): Type of Poleonicies in the Projections	orovider. icy (Coverage	e Provide
7—INSURANCE Provide informat Commercial Gene Name of insurar In: Are providers lice	eral Liability cance provider, a surance Provider, a surance Provider, a surance Provider, ave an A.M. B	arrier. Provide in and type of police der	ance company(s), in formation for each projections (CLE, auto, etc.): Type of Poleonicies in the Projections	orovider. icy (Coverage	e Provide

Phone (claims):

ARTICLE 8—CONSTRUCTION EXPERIENCE

8.01 Provide information that will identify the overall size and	capacı	v of the Business.
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Average number of current full-time employees:	
Estimate of revenue for the current year:	
Estimate of revenue for the previous year:	

8.02 Provide information regarding the Business's previous contracting experience.

Years of experience with projects like the proposed project:							
As a general contractor:		As a joint venturer:					
Has Business, or a predecessor in interest, or an affiliate identified in Paragraph 1.03:							
Been disqualified as a bidder by any local, state, or federal agency within the last 5 years?							
☐ Yes ☐ No	☐ Yes ☐ No						
Been barred from contracti	ng by ar	ny local, state, or feder	al agency	within the last 5 years?			
☐ Yes ☐ No							
Been released from a bid in the past 5 years? ☐ Yes ☐ No							
Defaulted on a project or failed to complete any contract awarded to it? ☐ Yes ☐ No							
Refused to construct or refused to provide materials defined in the contract documents or in							
a change order? ☐ Yes ☐ No							
Been a party to any currently pending litigation or arbitration? ☐ Yes ☐ No							
Provide full details in a separate attachment if the response to any of these questions is Yes.							

- 8.03 List all projects currently under contract in Schedule A and provide indicated information.
- 8.04 List a minimum of three and a maximum of six projects completed in the last 5 years in Schedule B and provide indicated information to demonstrate the Business's experience with projects similar in type and cost of construction.
- 8.05 In Schedule C, provide information on key individuals whom Business intends to assign to the Project. Provide resumes for those individuals included in Schedule C. Key individuals include the Project Manager, Project Superintendent, Quality Manager, and Safety Manager. Resumes may be provided for Business's key leaders as well.

ARTICLE 9—REQUIRED ATTACHMENTS

- 9.01 Provide the following information with the Statement of Qualifications:
 - A. If Business is a Joint Venture, separate Qualifications Statements for each Joint Venturer, as required in Paragraph 1.02.
 - B. Diverse Business Certifications if required by Paragraph 3.01.
 - C. Certification of Business's safety performance if required by Paragraph 4.02.
 - D. Financial statements as required by Paragraph 5.01.

E. Attachments providing additional information as required by Paragraph 8	E.	Attachments provide	ding additional info	ormation as requi	red by Paragraph 8.02
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- F. Schedule A (Current Projects) as required by Paragraph 8.03.
- G. Schedule B (Previous Experience with Similar Projects) as required by Paragraph 8.04.
- H. Schedule C (Key Individuals) and resumes for the key individuals listed, as required by Paragraph 8.05.
- I. Additional items as pertinent.

This Staten	nent of Qualifications is offered by:
Business:	
	(typed or printed name of organization)
Ву:	(individual's signature)
Name:	(typed or printed)
T11.	(typed of printed)
Title:	(typed or printed)
Date:	(date signed)
(If Business	s is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)
Attest:	(individual's signature)
Name:	
Title:	(typed or printed)
	(typed or printed) r giving notices:
Designated	Representative:
Name:	
T111.	(typed or printed)
Title: Address:	(typed or printed)
Phone:	
Email:	

Schedule A—Current Projects

Name of Organization								
Project Owner			Project Nam	ne				
General Description of P	roject							
Project Cost			Date Projec	t				
Key Project Personnel	Project Manager	Project S	Superintendent	Safe	ety Manager	Quality Control Manager		
Name								
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)								
	Name	Title/Position	Organ	ization	Telephone	Email		
Owner								
Designer								
Construction Manager								
Project Owner			Project Nan	20				
General Description of P	roinst		Project Nan	ie				
Project Cost	Toject		Date Projec	+				
Key Project Personnel	Project Manager	Project 9	Superintendent		ety Manager	Quality Control Manager		
Name	Project Manager	Project 3	aperintendent	Sali	ety ivialiagei	Quality Control Manager		
	nation (listing names indicat	oc approval to cont	acting the names in	dividuals as a	roforonco)			
Reference Contact Infort	Name	Title/Position		the names individuals as a reference) Organization Telephone		Email		
Owner	INdille	Title/Position	Organ	iizatiOii	Telephone	Liliali		
Owner Designer								
Construction Manager								
Project Owner			Project Nan	ne				
General Description of P	roject							
Project Cost			Date Projec	t				
Key Project Personnel	Project Manager	Project S	Superintendent	Safe	ety Manager	Quality Control Manager		
Name								
Reference Contact Inform	nation (listing names indicat	es approval to cont	acting the names in	dividuals as a	reference)			
	Name	Title/Position	Organ	nization	Telephone	Email		
Owner								
Designer								
Construction Manager		_						

Schedule B—Previous Experience with Similar Projects

Name of Organization								
Project Owner				Project Nam	e			
General Description of Pr	roject							
Project Cost				Date Project				
Key Project Personnel	Project Manager	P	Project Superi	ntendent	Safe	ety Manager	Quality Control Manager	
Name								
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)								
	Name	Title/F	Position	Organization		Telephone	Email	
Owner								
Designer								
Construction Manager								
Project Owner				Project Nam	e			
General Description of Pi	roject			-				
Project Cost				Date Project				
Key Project Personnel	Project Manager	Р	Project Superi	ntendent	Safe	ety Manager	Quality Control Manager	
Name								
Reference Contact Inforr	nation (listing names indicat	tes approval	to contacting	the names inc	dividuals as a	reference)		
	Name	Title/F	Position	Organization		Telephone	Email	
Owner								
Designer								
Construction Manager								
Project Owner				Project Nam	e			
General Description of Pi	roiect			1				
Project Cost	-,			Date Project				
Key Project Personnel	Project Manager	Project Manager Project Supe		·		ety Manager	Quality Control Manager	
Name								
Reference Contact Inforr	nation (listing names indicat	tes approval	to contacting	the names inc	dividuals as a	reference)		
	Name	Title/F	Position	Organization		Telephone	Email	
Owner								
Designer								
Construction Manager								

Schedule B—Previous Experience with Similar Projects

Name of Organization						
Project Owner			Project Nam	ne		
General Description of Pr	roject					
Project Cost			Date Projec	t		
Key Project Personnel	Project Manager	Project Supe	rintendent	Safe	ety Manager	Quality Control Manager
Name						
Reference Contact Inform	nation (listing names indicat	es approval to contactin	ng the names in	dividuals as a	reference)	
	Name	Title/Position	Organ	ization	Telephone	Email
Owner						
Designer						
Construction Manager						
Project Owner			Project Nan	ne		
General Description of Pi	roject					
Project Cost			Date Projec	t		
Key Project Personnel	Project Manager	Project Supe	rintendent	Safe	ety Manager	Quality Control Manager
Name						
Reference Contact Inforr	nation (listing names indicat	es approval to contacti	ng the names in	dividuals as a	reference)	
	Name	Title/Position	Organ	ization	Telephone	Email
Owner						
Designer						
Construction Manager						
Project Owner			Project Nam	ne		
General Description of Pi	roiect					
Project Cost	-,		Date Projec	t		
Key Project Personnel	Project Manager	Project Supe	rintendent	Safe	ety Manager	Quality Control Manager
Name						
Reference Contact Inform	nation (listing names indicat	es approval to contacti	ng the names in	dividuals as a	reference)	
	Name	Title/Position	Organ	nization	Telephone	Email
Owner						
Designer						
Construction Manager						

Schedule C—Key Individuals

Project Manager		
Name of individual		
Years of experience as project manager		
Years of experience with this organization		
Number of similar projects as project manager		
Number of similar projects in other positions		
Current Project Assignments		
Name of assignment	Percent of time used for	Estimated project
	this project	completion date
Reference Contact Information (listing names indicates a	· ·	ividuals as a reference)
Name	Name	
Title/Position	Title/Position	
Organization	Organization	
Telephone	Telephone	
Email	Email	
Project Candidate's role on	Project Candidate's role on	
project		
Project Superintendent	project	
Name of individual		
Years of experience as project superintendent		
Years of experience with this organization		
Number of similar projects as project superintendent		
Number of similar projects in other positions		
Current Project Assignments		
Name of assignment	Percent of time used for	Estimated project
	this project	completion date
Reference Contact Information (listing names indicates a	pproval to contact named ind	ividuals as a reference)
Name	Name	
Title/Position	Title/Position	
Organization	Organization	
Telephone	Telephone	
Email	Email	
Project	Project	
Candidate's	Candidate's	
role on project	role on project	

Safety Manager		
Name of individual		
Years of experience as project manager		
Years of experience with this organization		
Number of similar projects as project manager		
Number of similar projects in other positions		
Current Project Assignments		
Name of assignment	Percent of time used for	Estimated project
	this project	completion date
Reference Contact Information (listing names indicates app		viduals as a reference)
Name	Name	
Title/Position	Title/Position	
Organization	Organization	
Telephone	Telephone	
Email	Email	
Project	Project	
Candidate's role on	Candidate's role on	
project	project	
Quality Control Manager		
Name of individual		
Years of experience as project superintendent		
Years of experience with this organization		
Number of similar projects as project superintendent		
Number of similar projects in other positions		
Current Project Assignments		T=
Name of assignment	Percent of time used for	Estimated project
	this project	completion date
Reference Contact Information (listing names indicates app	aroval to contact named indi	viduals as a reference)
Name	Name	viduals as a reference;
Title/Position	Title/Position	
Organization	Organization	
Telephone	Telephone	
Email	Email	
Project	Project	
Candidate's	Candidate's	
role on project	role on project	

SCHEDULE OF VALUES

The BIDDER shall complete and submit this form with the BID. Include all rates for labor and equipment that are currently provided by your company and/or anticipated to be required for this project. This information will assist the OWNER in the evaluation of BIDS. The Schedule of Values of costs listed below shall include overhead and profit. The unit costs will be used for change orders if changes or additions are required during the project. Unit costs for equipment shall include the cost of an operator.

	Description	Unit Cost
	Other	
1		
2		
3		
4		
5		
	Labor Rates (i.e. Foreman, Laborers, etc.)	
6	Supervisor	
7	Foreman	
8	Pipe Layer	
9	Laborer	
10	Operator	
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

(Add Pages if Necessary)

Respectfully Submitted:	
Bidder:	_
iignature:	

BID SCHEDULE

13th Ave W P1A Roadway Improvements & Detention Pond 8

PROJECT: 13th Ave W P1 Roadway Improvements & Detention Pond 8

PREPARED BY: Alliance Consulting

PROJECT NO: 5150-19

LOCATION: Williston City, North Dakota

DATE: 1/16/25

13th Ave W P1A Roadway Improvements & Detention Pond 8

ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	EXTENDED PRICE
General Ite	ems				
1	General Conditions/Mobilization	1	LS		
2	Traffic Control	1	LS		
3	Dust/ Mud Control	1	LS		
4	Pre-existing Conditions	1	LS		
5	Material Testing	1	LS		
6	Utility Protection, Relocation, and Coordination	1	LS		
7	Groundwater Mitigation & Trench/Soil Stabilization	1	LS		
8	12" Fiber Rolls (Wattles)	280	LF		
9	Berm Bag Locations	4	Each		
10	Dirt Berm	100	LF		
11	Tire Tracking Pads (1 Location) Remove Existing Asphalt, Concrete, Base, Fences, Conduits, Storm Sewer and Landscaping, etc. (within Williston Square)	1	LS LS		
arthwork					
13	Roadway Earthwork/ Rework Material	3,585	CY		
14	Topsoil Removal and Stockpile	176,105	SF		
15	Topsoil Placement	86,440	SF		
16	Re-Seeding disturbed Areas	86,440	SF		
torm Wat	ter				
17	60" Storm Drain Manhole with Grate	1	Each		
18	3'x4' Single Curb Inlet	2	Each		
19	3'x3' Single Curb Inlet	2	Each		
20	30" RCP Storm Drain Pipe	690	LF		
21	24" RCP Storm Drain Pipe	40	LF		
22	Tie to Existing Storm Drain Inlet Box	1	LS		

BID SCHEDULE

ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	EXTENDED PRICE
Sewer					
23	60" dia Manhole (12'-20' Depth)	2	Each		
24	48" dia Manhole (12'-20' Depth)	5	Each		
25	8" PVC SDR-35 Sewer Line (12'-20' Depth)	1,575	LF		
26	Tie to Existing Sewer (1 Location)	1	LS		
Vater					
27	10" PVC SDR-21 Class 200 Water Line and Locator Wire	1,625	LF		
28	10" Gate Valves	7	Each		
29	10"x10" Cross	1	Each		
30	10" 11.25 deg Bend	3	Each		
31	10" End Cap	3	Each		
32	2" Poly Water Service Line with Curb Stop	1	Each		
33	5" Fire Hydrant Assembly with Tee	2	Each		
34	Pressure Reducing Valve with Vault	1	LS		
35	Connect into Existing Water Line (1-Locations)	1	LS		
ower					
36	JUT Coordination with Gas, and Communication Companies	1	EACH		
37	Connect to Existing Feed Point	1	EACH		
38	29' Street Light Pole, LED Luminaire, and Foundation (Type A)	5	EACH		
39	Electrical Wires [(3) #4 & (1) #6 Copper Conductors] with Trenching	3,070	LF		
40	Street Light Junction Box	8	EACH		
oadway				_	
41	4" FAA 42 Hot Bituminous Asphalt Pavement	57,875	SF		
42	8" Class 5 Aggregate Base (Under Roadways)	57,875	SF		
43	4" Thick Concrete Flatwork with 6" Class 5 Aggregate	22,665	SF		
44	24" Curb and Gutter with Base	3,020	LF		
45	8' Wide Valley Gutters with Base	2	Each		
46	Type S1 Fabric	64,625	SF		
47	NX-650 Geo Grid	64,625	SF		
48	Soft Spot Repair	500	SF		
49	Sign Plaque and Post	11	EACH		
50	Type 3 Barricade (8')	9	EACH		
51	Pavement Marking	1	LS		
52	ADA Access Ramps Single	2	EACH		
53	ADA Access Ramps Double	4	Each		

BID SCHEDULE

ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	EXTENDED PRICE
54	2) 4" Landscaping Conduit & Locator wire	304	LF		
55	Irrigation Infrastructure	1	LS		
56	Street Landscaping	1	LS		
	•			Total	
Detent	ion Pond 8				
57	Roadway Earthwork/ Rework Material	13,100	CY		
58	Topsoil Removal and Stockpile	285,000	SF		
59	Topsoil Placement	285,000	SF		
60	Re-Seeding disturbed Areas	285,000	SF		
61	6'x5' Curb Inlet	1	Each		
62	4'x4' Overflow Structure	1	Each		
63	42" RCP Storm Drain Pipe	85	LF		
64	30" RCP Storm Drain Pipe	50	LF		
65	Concrete End Section (42" RCP Pipe Outlet) with Gate	1	LS		
66	4" Thick Concrete Ditch with 4" Class 5 Aggregate	3,120	SF		
				Total	
The ow	ner reserves the right to increase or decrease the quantities listed in the Bid				
	le or to entirely eliminate certain Bid Items if found desirable or expedient.		Bic	d Schedule Grand Total	

13th Ave W Roadway Improvements & Detention Pond 8

25-001

January 2025

Part 2:

Contract Forms

NOTICE OF AWARD

Date of Issua	ance:	
Owner:	City of Williston	Owner's Project No.:
Engineer:	Alliance Consulting LLC	Engineer's Project No.: 25-001
Project:	13 th Ave W P1 Roadway Im	provements & Detention Pond 8
Contract Na	me: 13 th Ave W P1 Roadway Im	provements & Detention Pond 8
Bidder:		
Bidder's Add	dress:	
	ed that Owner has accepted your Bi uccessful Bidder and are awarded a	d dated for the above Contract, and that Contract for:
13 th Ave \	W P1 Roadway Improvements & De	etention Pond 8
on the provisi		XXXXXXX. Contract Price is subject to adjustment based ot limited to those governing changes, Unit Price Work, applicable.
	uments accompanies this Notice of	t accompany this Notice of Award, and one copy of the Award, or has been transmitted or made available to
□ Dr	rawings will be delivered separately	from the other Contract Documents.
You must con Notice of Awa	• •	recedent within 15 days of the date of receipt of this
1. Delive	er to Owner three counterparts of tl	he Agreement, signed by Bidder (as Contractor).
paym		Contract security (such as required performance and tation, as specified in the Instructions to Bidders and in
3. Other	r conditions precedent (if any):	
	nply with these conditions within th I this Notice of Award, and declare y	e time specified will entitle Owner to consider you in your Bid security forfeited.
counterpart c	, , ,	conditions, Owner will return to you one fully signed additional copies of the Contract Documents as tions.
Owner:	City of Williston North Dako	ta
By (signature	e):	
Name (print	ed):	
Title:	-	
Copy: Engin	eer	

AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

This Agreement is by and between City of Williston ("Owner") and	_("Contractor").
Terms used in this Agreement have the meanings stated in the General Conditions and Conditions.	d the Supplementary
Owner and Contractor hereby agree as follows:	

ARTICLE 1—WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

Work involves installation of utilities including water, sewer and storm drain on 13th Ave West, and Construction of Detention Pond 8 in Williston, North Dakota. This includes approximately 775 lineal feet of various sized RCP storm drain pipe, 1,600 lineal feet of various sized sanitary sewer pipe, and 1,625 feet of various sized water pipe and associated appurtenances along with 133,890 square feet of Asphalt, 7,120 linear feet of curb and gutter, and 43,170 square feet of concrete flatwork.

THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: The project is located along 13th Ave W P1 & Detention Pond 8 in the Williston Square Development.

ARTICLE 2—ENGINEER

- 3.01 The Owner has retained **Alliance Consulting** ("Engineer") to act as Owner's representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.
- 3.02 The part of the Project that pertains to the Work has been designed by Engineer.

ARTICLE 3—CONTRACT TIMES

- 4.01 Time is of the Essence
 - A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.
- 4.03 *Contract Times: Days*
 - A. The Work will be substantially complete within **120** days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within **30** days after the date when the Contract Times commence to run.

4.05 Liquidated Damages

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
 - 1. Substantial Completion: Contractor shall pay Owner \$3,500 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
 - 2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$150 for each day that expires after such time until the Work is completed and ready for final payment.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

4.06 Special Damages

- A. Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.
- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.
- C. The special damages imposed in this paragraph are supplemental to any liquidated damages for delayed completion established in this Agreement.

ARTICLE 4—CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:
 - A. For all Work other than Unit Price Work, a lump sum of \$[number].

All specific cash allowances are included in the above price in accordance with Paragraph 13.02 of the General Conditions.

B. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item).

	Unit Price Work				
Item No-	Description	Unit	Estimated Quantity	Unit Price	Extended Price
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
	of all Extended Prices for Unit P ment based on actual quantitie	•	ubject to fina		\$

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

- C. Total of Lump Sum Amount and Unit Price Work (subject to final Unit Price adjustment) \$[number].
- D. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit. See Article 3 3.01 of the Bid Form.

ARTICLE 5—PAYMENT PROCEDURES

- 6.01 Submittal and Processing of Payments
 - A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.
- 6.02 *Progress Payments; Retainage*
 - A. Owner shall make progress payments on the basis of Contractor's Applications for Payment on or about the 5th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.
 - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments

previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.

- a. 95% percent of the value of the Work completed (with the balance being retainage).
 - If 50 percent or more of the Work has been completed, as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
- b. 0% percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

6.03 Final Payment

A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.

6.04 Consent of Surety

A. Owner will not make final payment, or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

6.05 Interest

A. All amounts not paid when due will bear interest at the rate of percent per annum.

ARTICLE 6—CONTRACT DOCUMENTS

7.01 Contents

- A. The Contract Documents consist of all of the following:
 - 1. This Agreement.
 - 2. General Conditions.
 - 3. Supplementary Conditions.
 - 4. Specifications as listed in the table of contents of the project manual (copy of list attached).
 - Drawings (not attached but incorporated by reference) consisting of 84 & 12 sheets with each sheet bearing the following general title: 13th Ave W Roadway Construction & Detention Pond 8
 - 6. Addenda #1 inclusive).
 - 9. Exhibits to this Agreement (enumerated as follows):

a.

10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:

- a. Notice to Proceed.
- b. Work Change Directives.
- c. Change Orders.
- d. Field Orders.
- e. Warranty Bond, if any.
- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 7—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 Contractor's Representations

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
 - 1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 - 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - 4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 - 6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.
 - 7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

- 8. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- 9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- 10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- 11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 Contractor's Certifications

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:
 - "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 - "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner,
 (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.03 Standard General Conditions

A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor			
-	(which is the Effective Date of the Contract).		
Owner:	Contractor:		
City of Williston	<u> </u>		
(typed or printed name of organization)	(typed or printed name of organization)		
By:	Ву:		
(individual's signature)	(individual's signature)		
Date:	Date:		
(date signed)	(date signed)		
Name:	Name:		
(typed or printed)	(typed or printed)		
Title:	Title:		
(typed or printed)	(typed or printed) (If [Type of Entity] is a corporation, a partnership, or a		
	joint venture, attach evidence of authority to sign.)		
Attest:	Attest:		
(individual's signature)	(individual's signature)		
Title:	Title:		
(typed or printed)	(typed or printed)		
Address for giving notices:	Address for giving notices:		
Designated Representative:	Designated Representative:		
Name:	Name:		
(typed or printed)	(typed or printed)		
Title:	Title:		
(typed or printed)	(typed or printed)		
Address:	Address:		
Phone:	Phone:		
Email:	Email:		
(If [Type of Entity] is a corporation, attach evidence of	License No.:		
authority to sign. If [Type of Entity] is a public body, attach evidence of authority to sign and resolution or	(where applicable)		
other documents authorizing execution of this	State:		
Agreement.)			

MEASUREMENT AND PAYMENT ITEMS

13th Ave W P1 Roadway Improvements & Detention Pond 8

13th Ave W P1 Roadway Improvements

General

Bid Item #1 General Conditions/Mobilization

Under this item, the Contractor shall be paid the lump sum price bid as full compensation for all materials, labor and equipment for General Conditions and mobilization and demobilization. This item includes all general items, coordination, SWPPP, time associated with changes, bringing to the site all equipment and facilities necessary to accomplish the work and upon completion of the work, removing from the site the equipment and facilities and leaving the site in a manner acceptable to the Owner and Engineer. The contractor is responsible for all requirement associated with the notes throughout the construction documents and specifically on sheet C101. The Payment shall be made at 20% upon mobilization and initiation of the work, 20% upon clean up and demobilization, and the remaining 60% shall be prorated over the project, and shall be paid in 20% increments based upon the work completed in the field, with a payment made when 25%, 50% and 75% of the work is complete.

Bid Item #2 Traffic Control

Under this item, the Contractor shall be paid the lump sum price bid as full compensation for all traffic control plan required for the project. The lump sum price shall include equipment, flaggers as required, barricades, labor, or whatever method is required to control traffic on the project. See Part 3-Execution 3.01 in the traffic regulation technical specification, The Contractor shall make his own determination of the traffic control plan required, and base his lump sum price on that amount. No adjustments shall be made to the lump sum price quoted.

Bid Item #3 Dust/Mud Control

Under this item, the Contractor shall be paid the lump sum price bid as full compensation for all dust/mud control required. The lump sum price shall include water, equipment, labor, traffic control, flaggers as required, barricades, or whatever method is required to control dust/mud on the project. The Contractor must follow the city ordinances for dust/mud control. The Contractor shall make his own determination of the dust/mud control required, and base his lump sum price on that amount. No adjustments shall be made to the lump sum price quoted.

Bid Item #4 Pre-existing Conditions

Under this item, the Contractor shall be paid the lump sum price bid as full compensation for documenting the conditions of the site prior to start of construction. The documentation should clearly show any areas of concern or areas that have been damaged prior to the start of the project. The lump sum price shall include all equipment and labor that is required to complete the item. The sewer lines must be video recorded to identify any conflicts, condition of the sewer line, and location of the sewer laterals. Documentation must show all conditions of the work site, not simply problem areas. If the existing features are damaged and not shown in the documentation it will be assumed that the damage occurred during construction. Documentation should be overly extensive as opposed to limited in what is shown, described, or otherwise recorded. Documentation should be on a Flash Drive. Measurement shall be by completion of the documentation and physical evidence (i.e. flash drive, electronic pictures, notes, etc.) delivered to the City and City Representative. Proof of pre-construction documentation must be approved prior to starting work on the project.

Bid Item #5 Material Testing

Under this item, the Contractor shall be paid the lump sum price bid as full compensation for all the material testing on the project. The Contractor is responsible to contract with a licensed Geo-Technical Engineering firm for all the material testing required for the project. This includes all testing, equipment, labor, coordinating time, or whatever method is required to perform the material testing on the job. The Contractor shall make his own determination of the material testing and base the lump sum price on that amount. No adjustments shall be made to the lump sum price quoted.

Bid Item #6 Utility Protection, Relocation, and Coordination

Under this item, the Contractor shall be paid the lump sum price bid as full compensation for the protection, relocation, and coordinating of the existing utilities. The utility locations on the construction drawings are approximate locations. Not all existing utilities are shown on the plans. The lump sum price shall include all means and methods to field locate before construction commences. This includes all equipment, labor, relocating of existing utility lines, working around utility lines, crossing existing utilities during the construction project. Including all traffic control, flaggers as required, barricades, coordinating time, site access or whatever method is required to protect, relocate, and coordinate the existing utility location. The Contractor is responsible for coordinating with all local utility companies affected. The Contractor shall make his own determination of the utility protection, relocation, and coordination, and base the lump sum price on that amount. No adjustments shall be made to the lump sum price quoted.

Bid Item #7 Groundwater Mitigation & Trench/Soil Stabilization

Under this item, the Contractor shall be paid the lump sum price bid as full compensation for any ground water mitigation & Trench/Soil stabilization required for the entire project. Ground water will be encountered throughout the project. The lump sum price bid shall include delivery of the material, the material itself, compaction, traffic control, flaggers, barricades, as required, construction, gravel, well points, sheet piling, mitigation, de-watering, collection, pumping, transportation, disposal, ground stabilization means and methods required, geo-grid, cobble, trench shoring etc. along with all labor, equipment and miscellaneous items required to perform the job. The contractor is to do whatever measure is necessary to mitigate the ground water and stabilize the Trench/soil. Any damage to asphalt, base, curb, landscaping etc. as a result of inadequate trench stabilization shall be the contractor's responsibly, and shall be replaced by the contractor at no cost to the owner. The groundwater mitigation shall cover all aspects of the trench from stabilization material, to finish grade. The Contractor shall make his own determination of the payment for ground water mitigation and trench/soil stabilization, and base his lump sum price on that amount. No adjustments shall be made to the lump sum price quoted.

Bid Item #8 12" Fiber Roll Wattles

Under this item, the Contractor shall be paid the unit price bid as full compensation for each lineal foot of wattles that is installed. The unit price bid shall include delivery of the material, the material itself, installation, maintenance throughout construction, and clean up after project completion, along with all labor, equipment, and miscellaneous items required for installing the wattles, plus maintaining the wattles in a functional state throughout the construction period. All wattles must be installed at the beginning of construction unless noted otherwise. Measurement shall be by the lineal foot of wattles installed, based on field measurements taken along the wattles.

Bid Item #9 Berm Bag Locations

Under this item, the Contractor shall be paid the unit price bid as full compensation for each berm bag protection area that is installed. The unit price bid shall include delivery of the material, the material itself, installation, maintenance throughout construction, and clean up after project completion, along with all labor, equipment, and miscellaneous items required for installing the wattles, plus maintaining the berm bags in a functional state throughout the construction period. All berm bags must be installed at the beginning of construction unless noted otherwise. Measurement shall be by the areas of berm bags installed, based on locations installed.

Bid Item #10 12" Dirt Berm

Under this item, the Contractor shall be paid the unit price bid as full compensation for each lineal foot of Berm that is installed. The unit price bid shall include delivery of the material, the material itself, installation, maintenance throughout construction, and clean up after project completion, along with all labor, equipment, and miscellaneous items required for installing the dirt Berm plus maintaining the berms in a functional state throughout the construction period. All berms must be installed at the beginning of construction unless noted otherwise. Measurement shall be by the lineal foot of berms installed, based on field measurements taken along the berm.

Bid Item #11 Tire Tracking Pad

Under this item, the Contractor shall be paid the lump sum price bid as full compensation for installing and maintaining the tire clean-off as detailed in the construction drawings. Installation of rock tracking pad must be constructed as shown in the construction drawings. If the rock tracking pad is not maintained and effectiveness is reduced a tire wash will be required without additional pay. The tracking pad may be required to be relocated during the construction of the project; it is the contractor's responsibility to relocate the tracking pad. The Contractor shall make their own determination of the material, equipment, and labor, and base the lump sum price on that amount required. No adjustments shall be made to the lump sum price quoted.

<u>Bid Item #12</u> Removal of Existing Asphalt, Concrete, Base, Fences, Conduits, Storm Sewer, and <u>landscaping</u>

Under this item, the Contractor shall be paid the lump sum price bid as full compensation for the asphalt, concrete, base, fences, conduits, storm sewer and landscaping that is removed per the demolition construction documents. The lump sum price bid shall include, traffic control, flaggers as required, barricades, saw cutting and removing the existing materials, any existing runway lighting, and conduits, including disposal of the removed materials, and any fees associated with disposal material, transportation of the disposed material, along with all labor, equipment and miscellaneous items required for removal of the items. The lump sum price shall include anything the contractors comes across during the construction of the project. The Contractor shall make their own determination of the payment to remove the demolition items and base the lump sum price on that amount. No adjustments shall be made to the lump sum price quoted.

Earthwork

Bid Item #13 Roadway Earthwork/Rework/ Material

Under this item, the Contractor shall be paid the unit price bid as full compensation for all earthwork, cut and fill including any removal or import/Export required. The unit price shall include equipment, labor, loading, transportation, unloading, ripping, sur-charging, blasting, drying, or whatever method is required to excavate and remove to the sub-grade lines as defined on the construction drawings and the geo-tech report. All areas requiring fill will first be moisture conditioned, reworked per the Geotech recommendations and specified in the plans/details, and compacted. Dust Control shall be compensated under a separate bid item. The finish graded surface shall be +/- 0.01 feet from the design surface. All disturbed areas shall be graded to the finished design grade. The unit price shall include (mitigating, collection, pumping, transportation, disposal, any fee associated with disposal, and any soil stabilization required) with any ground water and materials required during the earthwork and removal. It is the contractor's responsibility for determining soil moisture criteria and the soil condition before re-use of any earthwork. The estimated quantity of earthwork is provided in the construction documents. All quantities under this item shall be calculated as the volume differences between the surfaces created with topographic surveys before and after the activity is complete. Contractor must give the Engineer 48 hour notice for all topographic surveys. If contractor foregoes the 48 hour notice requirement, contractor shall by default agree to the plan quantities as shown in the schedule of values. No other quantities shall take precedence over those indicated in the schedule of values. Measurement shall be by the unit price of material moved, imported/exported, placed and compacted.

Bid Item #14 Topsoil Removal and Stockpile

Under this item, the Contractor shall be paid the unit price bid as full compensation for all topsoil removal required for the project. The Contractor is responsible to estimate the topsoil required to be removed, the complete removal of the topsoil materials, with stockpile of the topsoil material. All fees associated with transporting, striping, stockpiling, and miscellaneous items required for removal of the topsoil material. Contractor shall be responsible to find a suitable location to stockpile the topsoil and provide erosion control during construction. Contractor must get the area required for topsoil removal approved from the project engineer prior to removal. Measurement shall be by the square foot of topsoil removed during construction.

Bid Item #15 Topsoil Placement

Under this item, the Contractor shall be paid the unit price bid as full compensation for all topsoil replacement required for the project. The Contractor is responsible to replace the topsoil materials as outlined in the construction documents after the completion of the job. There are generated and existing topsoil piles located within Williston Square. The contractor shall utilize the piles identified to completed the topsoil requirements. Some areas may require additional imported topsoil, all fees associated with importing, strip, gathering and re-spreading the topsoil, and miscellaneous items required for replacement of the topsoil material. Contractor must get the area required for topsoil replacement approved from the project engineer prior to placement. Measurement shall be by the square foot of topsoil placed during construction.

Bid Item #16 Re-Seeding Disturbed Areas

Under this item, the Contractor shall be paid the unit price bid for furnishing and installing the seed mix. The unit price bid shall include delivery of the seed, the seed itself, placement, herbicide, mulch, watering, and clean up after placing the seed, along with all labor, equipment and miscellaneous items required for the installation. Contractor must get the area required for seeding approved from the project engineer prior to placement. Measurement shall be by the square foot of seeding per the neat line identified in construction documents. Any areas required re-seeding outside of the neat line will be considered an incidental to the project, contractor should plan accordingly.

STORM WATER

Bid Item #17 60-inch dia. Manhole with Grate

Under this item, the Contractor shall be paid the unit price bid as full compensation for furnishing and installing each unit complete with excavation, traffic control as required, flaggers as required, barricades, pipe bedding material, manhole materials (floor, sections, rings, ladder rungs, and grate or cover), backfill compaction, interior pipe with fittings, air testing, installation of concrete collar, and clean up. The unit price bid shall include removal and off-site disposal of the excavated native material, any fee's associated with disposal, delivery of imported select backfill and final backfill material with compaction, clean up and whatever miscellaneous items are required to install the manhole. The unit price bid shall include all labor, equipment and materials to perform the job. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. Measurement shall be by counting the manholes installed upon completion of the work.

Bid Item #18 3'x4' Single Curb Inlet

Under this item, the Contractor shall be paid the unit price bid as full compensation for furnishing and installing each unit complete with excavation, traffic control as required, flaggers as required, barricades, backfill, compaction, castings, concrete, coring the box, traffic control, and clean up. The unit price bid shall include removal and off-site disposal of the excavated native material, delivery of imported select bedding material, and the select bedding material, tying to storm drain pipe. The unit price bid shall include all labor, equipment and materials to perform the job. The unit price bid shall include equipment and miscellaneous items required for the installation. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. Measurement shall be made by counting the number of Curb Inlets installed.

Bid Item #19 3'x3' Single Curb Inlet

Under this item, the Contractor shall be paid the unit price bid as full compensation for furnishing and installing each unit complete with excavation, traffic control as required, flaggers as required, barricades, backfill, compaction, castings, concrete, coring the box, traffic control, and clean up. The unit price bid shall include removal and off-site disposal of the excavated native material, delivery of imported select bedding material, and the select bedding material, tying to storm drain pipe. The unit price bid shall include all labor, equipment and materials to perform the job. The unit price bid shall include equipment and miscellaneous items required for the installation. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. Measurement shall be made by counting the number of Curb Inlets installed.

Bid Item #20 30" RCP Storm Drain Pipe

Under this item, the Contractor shall be paid the unit price bid as full compensation for furnishing and installing the RCP Storm Drain pipe complete with excavation, traffic control as required, barricades, flaggers as required, RCP pipe, pipe bedding, trench backfill and final backfill material with all compaction and clean up required. The unit price bid shall include removal and off-site disposal with the excavated native material, and any fees associated with disposal, delivery of imported select pipe materials and delivery of any products required to complete the job. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. The unit price bid shall include all labor, equipment and materials to perform the job. The pipe shall be measured by the lineal footage of pipe as it is installed.

Bid Item #21 24" RCP Storm Drain Pipe

Under this item, the Contractor shall be paid the unit price bid as full compensation for furnishing and installing the RCP Storm Drain pipe complete with excavation, traffic control as required, barricades, flaggers as required, RCP pipe, pipe bedding, trench backfill and final backfill material with all compaction and clean up required. The unit price bid shall include removal and off-site disposal with the excavated native material, and any fees associated with disposal, delivery of imported select pipe materials and delivery of any products required to complete the job. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. The unit price bid shall include all labor, equipment and materials to perform the job. The pipe shall be measured by the lineal footage of pipe as it is installed.

Bid Item #22 Tie to Existing Storm Drain Inlet

Under this item, the Contractor shall be paid the lump sum bid as full compensation for furnishing and installing to the existing storm inlet with excavation, traffic control as required, flaggers as required, barricades, pipe bedding material, Tie to existing manhole, (core, grout, rings, piping), backfill compaction, interior pipe with fittings, air testing, installation of concrete collar, and clean up. The lump sum price bid shall include removal and off-site disposal of the excavated native material, any fee's associated with disposal, delivery of imported select backfill and final backfill material with compaction, clean up and whatever miscellaneous items are required to connect to the existing manhole, including all labor, equipment and materials to perform the job. No additional dollars will be given for ground water mitigation and ground stabilization; all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. The Contractor shall make his own determination of the effort required to tie to the existing inlet and base his lump sum price on that amount. No adjustments shall be made to the lump sum price quoted.

SEWER

Bid Item #23 60-inch dia. (12'-20' Deep)

Under this item, the Contractor shall be paid the unit price bid as full compensation for furnishing and installing each unit complete with excavation, traffic control as required, flaggers as required, barricades, pipe bedding material, manhole materials (floor, sections, rings, and grate or cover), backfill compaction, interior pipe with fittings, air testing, installation of concrete collar, and clean up. The unit price bid shall include removal and off-site disposal of the excavated native material, any fee's associated with disposal, delivery of imported select backfill and final backfill material with compaction, clean up and whatever miscellaneous items are required to install the manhole. The unit price bid shall include all labor, equipment and materials to perform the job. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. Measurement shall be by counting the manholes installed upon completion of the work.

Bid Item #24 48-inch dia. Manhole (12'-20' Depth)

Under this item, the Contractor shall be paid the unit price bid as full compensation for furnishing and installing each unit complete with excavation, traffic control as required, flaggers as required, barricades, pipe bedding material, manhole materials (floor, sections, rings, and grate or cover), backfill compaction, interior pipe with fittings, air testing, installation of concrete collar, and clean up. The unit price bid shall include removal and off-site disposal of the excavated native material, any fee's associated with disposal, delivery of imported select backfill and final backfill material with compaction, clean up and whatever miscellaneous items are required to install the manhole. The unit price bid shall include all labor, equipment and materials to perform the job. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. Measurement shall be by counting the manholes installed upon completion of the work.

Bid Item #25 8" PVC Sewer Pipe SDR-35 (12' to 20' Depth)

Under this item, the Contractor shall be paid the unit price bid as full compensation for furnishing and installing the pipe complete with excavation, pipe material, trench backfill with native material, including imported select pipe bedding material, and the select pipe bedding material, compaction, removal and off-site disposal of the excavated native material, delivery of all material, and clean up. The unit price bid shall include all labor, equipment and miscellaneous materials and items to perform the job. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. The pipe shall be measured by the lineal footage of pipe as it is installed.

Bid Item #26 Tie to Existing Sewer Manhole

Under this item, the Contractor shall be paid the lump sum bid as full compensation for furnishing and installing to the existing sewer manhole with excavation, traffic control as required, flaggers as required, barricades, pipe bedding material, Tie to existing manhole, (core, grout, rings, piping), backfill compaction, interior pipe with fittings, air testing, installation of concrete collar, and clean up. The lump sum price bid shall include removal and off-site disposal of the excavated native material, any fee's associated with disposal, delivery of imported select backfill and final backfill material with compaction, clean up and whatever miscellaneous items are required to connect to the existing manhole, including all labor, equipment and materials to perform the job. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. The Contractor shall make his own determination of the effort required to tie to the existing sewer manhole, and base his lump sum price on that amount. No adjustments shall be made to the lump sum price quoted.

WATER

Bid Item #27 10" PVC SDR-21 Class 200 Water Line & locator wire

Under this item, the Contractor shall be paid the unit price bid as full compensation for furnishing and installing the pipe complete with excavation, pipe bedding material, select backfill as required, locating wire, disinfection, thrust restraint, megalugs, pressure testing, insulated wraps, flushing, fittings, traffic control as required, flaggers as required, barricades, compaction, warning tape, and clean up. The unit price bid shall include all labor, equipment and materials to perform the job. Water testing shall conform with http://www.dot.ca.gov/hq/esc/sdsee/wwe/documents/Disinfecting_Water_Mains.pdf. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. The pipe shall be measured by the lineal footage of pipe as it is installed, with fittings, valves and appurtenances not included as part of the total.

Bid Item #28 10" Gate Valve

Under this item, the Contractor shall be paid the unit price bid as full compensation for each gate valve furnished and installed. The unit price bid shall include furnishing and installing the valve and valve box, traffic control as required, flaggers as required, barricades, including all gaskets, follower rings, bolts, grease, polyethylene wrap, joint restraints, as required for the complete installation of the valve. This includes all labor, equipment, support blocks and material for thrust restraint, installing a concrete collar around the valves, megalugs, and raising the valve box to the proper grade for asphalt or landscaping, depending upon the location. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. Measurement shall be made by counting the number of valves installed.

Bid Item #29 10"x 10" Cross

Under this item, the Contractor shall be paid the unit price bid as full compensation for each cross furnished and installed. The unit price bid shall include furnishing and installing the fitting, traffic control as required, flaggers as required, barricades, including all gaskets, thrust restraining follower rings (mega lugs), bolts, grease, polyethylene wrap, joint restraints, etc as required for the complete installation. This includes all labor, equipment, and material for thrust blocking. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. Measurement shall be made by counting the number of crosses installed.

Bid Item #30 10"x 11.25 deg bend

Under this item, the Contractor shall be paid the unit price bid as full compensation for each bend furnished and installed. The unit price bid shall include furnishing and installing the fitting, traffic control as required, flaggers as required, barricades, including all gaskets, thrust restraining follower rings (mega lugs), bolts, grease, polyethylene wrap, joint restraints, etc as required for the complete installation. This includes all labor, equipment, and material for thrust blocking. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. Measurement shall be made by counting the number of bends installed.

Bid Item #31 10" End Cap

Under this item, the Contractor shall be paid the unit price bid as full compensation for each end cap furnished and installed. The unit price bid shall include furnishing and installing the fitting, traffic control as required, flaggers as required, barricades, including all gaskets, end caps, thrust restraining follower rings (mega lugs), bolts, grease, polyethylene wrap, joint restraints, etc as required for the complete installation. This includes all labor, equipment, and material for thrust blocking. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. Measurement shall be made by counting the number of end caps installed.

Bid Item #32 2" Poly Water Service line with Curb Stop

Under this item, the Contractor shall be paid the unit price bid as full compensation for furnishing and installing each service line with curb stop to the existing main line, complete with excavation, pipe bedding material, select backfill as required, locating wire disinfection, curb stop, curb stop parts, thrust restraint, megalugs, pressure testing, insulated wraps, flushing, fittings, traffic control as required, flaggers as required, barricades, verifying field location, curb sidewalk, and landscaping replacement, tying to the existing or new service line, compaction, replacement of curb and sidewalk, and clean up. Water service line must meet City of Williston Standards. Service lines may be adjusted out in the field to connect to the existing service line. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. The unit price bid shall include all labor, equipment and materials to perform the job. Measurement shall be made by counting the number of water service line with curb stops that are installed.

Bid Item #33 5" Fire Hydrant Assembly with Tee

Under this item, the Contractor shall be paid the unit price bid as full compensation for each fire hydrant assembly furnished and installed. The unit price bid shall include furnishing and installing the fire hydrant assembly, traffic control, flaggers as required, barricades, including all, tee, gaskets, follower rings, bolts, grease, polyethylene wrap, joint restraints, as required for the complete installation of the fire hydrant assembly. All removed hydrants "upon request" must be delivered to the City of Williston for Re-Commission. This includes all labor, and equipment and material for thrust blocking. Fire hydrant assembly includes reducers, fittings, pipe, tee, and hydrant from main line to hydrant. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. Measurement shall be made by counting the number of fire hydrant assembly installed.

Bid Item #34 Pressure Reducing Valve with Vault

Under this item, the Contractor shall be paid the lump sum price bid as full compensation for constructing the pressure reducing valve, complete with excavation, traffic control as required, flaggers as required, barricades, backfill, compaction, castings, concrete, required steel, including all gaskets, follower rings, (mega lugs), bolts, grease, polyethylene wrap ductile iron pipes, pipes, reducers bends and fittings, manhole ring and cover, concrete collars, pressure gages, valves, saddles, sleeves, hand wheels, manhole steps, pipe hangers, floor pipe supports, sleeves, seals, gages, paint, clean up, and whatever is required to complete the pressure reducing valve as depicted on the plans. The lump sum bid shall include removal and off-site disposal of the excavated native material, delivery of imported select bedding material, and the select bedding material, any fees associated with de the lump sum price bid shall include all labor, equipment and materials to perform the job. The Contractor shall make his own determination of the effort required to install the pressure reducing valve, and base his lump sum price on that amount. No adjustments shall be made to the lump sum price quoted.

Bid Item #35 Connect into Existing Water Line (1 locations)

Under this item, the Contractor shall be paid the lump sum price bid as full compensation for field locating and connecting to the existing water mains. The lump sum price bid shall include field locating the existing water mains, determining size, taping line, include furnishing and installing the fitting, all gaskets, saddles, thrust restraining follower rings (mega lugs), bolts, grease, polyethylene wrap, joint restraints, etc as required for the complete installation, and clean up, along with all labor, equipment and miscellaneous items required for connecting to the existing water mains and the means and method to connect to the existing lines. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. The Contractor shall make his own determination of the payment to connect to the existing main lines, and base his lump sum price on that amount. No adjustments shall be made to the lump sum price quoted.

POWER

Bid Item #36 JUT Coordination with Gas, and Communication Companies

Under this item, the Contractor shall be paid the lump sum price bid as full compensation for the coordinating of the JUT with the utility companies. The lump sum price shall include equipment, labor, coordinating time, site access or whatever method is required to coordinate the JUT lines in the project. There are some locations that may require relocation of the existing JUC utilities. The lump sum price shall include coordinating with all associated parties, (Gas, Phone, Cable, Communications, Williston City, Engineer, etc.) to detect potential conflict areas, along with any equipment, labor, and miscellaneous items required to detect those conflicts. The contractor is responsible to get the grade along the roadway within 6-inches of grade for the utility company to installation of the JUT lines. The contractor is responsible to coordinate with the utility companies for relocation of existing lines. The Contractor shall make his own determination of the JUT Coordination, and base the lump sum price on that amount. No adjustments shall be made to the lump sum price quoted.

Bid Item #37 Connection to Existing Feed Point

Under this item, the Contractor shall be paid the unit price bid as full compensation for each connection installed to an existing feed point as specified. The unit price bid shall include all labor, equipment, material, and associated work required to furnish, deliver, and install the connection in accordance with the Construction Drawings, Specifications, and as stated herein. The connection shall include the provision and installation of circuit breakers, relays, all components specified, and other appurtenances not specifically mentioned for complete installation. All electrical systems installed shall conform to the latest edition of the National Electric Code (NEC) and other applicable codes and standards. System start-up and review of system operations on-site with Owner and Owner's Representative is required. The Contractor shall make their determination of all material and labor required to complete the installation and base their unit price on that amount. Measurement shall be based on each connection installed as determined by observation in the field. No adjustment shall be made to the unit price quoted.

Bid Item #38 29' Street Light Pole, LED Luminaire, and Foundation

Under this item, the Contractor shall be paid the unit price bid as full compensation for each Street Light Installed as specified. The unit price bid shall include all labor, equipment, material, and associated work required to furnish, deliver, and install the street light foundation, light pole, LED luminaire, trim rings, wiring, and the fused connections to underground circuits in accordance with the Construction Drawings, Specifications, and as stated herein. The unit price bid shall include all excavation, backfill, and grading necessary to complete the installation. All electrical systems installed shall conform to the latest edition of the National Electric Code (NEC) and other applicable codes and standards. The Contractor shall make their determination of the material and labor required to complete the installation and base their unit price on that amount. Measurement shall be based on each completed unit installed as determined by observation in the field. No adjustment shall be made to the unit price quoted.

Bid Item #39 Electrical Wires (2) #4 & (1) #6 Copper Conductors with Trenching

Under this item, the Contractor shall be paid the unit price bid as full compensation for each lineal foot of copper conductors installed as specified. The unit price bid shall include all labor, equipment, material, and associated work required to furnish, deliver, and install the copper conductors in accordance with the Construction Drawings, Specifications, and as stated herein. The copper circuit conductors shall consist of the installation of the type and size of conductors and ground wires shown on the Construction Drawings, including all connections and splices at light poles, junction boxes, and feed points. Additional slack or looping required at junction boxes, street lights, and feed points shall be considered incidental to this item. Trenching required for installation of the conductors shall be included under this item, including all excavation, sand cushion, backfill, surface restoration, topsoil placement, seeding, sodding, and mulching required for conductor trenches. The Contractor shall make allowances for necessary conductors in and out of poles, junction boxes, and feed points in the unit price quoted. All electrical systems installed shall conform to the latest edition of the National Electric Code (NEC) and other applicable codes and standards. The contractor shall make their determination of the material and labor required to complete the installation and base their unit price on that amount. Measurement shall be based on the lineal foot of copper wires installed from center line to center line of light poles, feed points, and junction boxes as determined from Owner prepared record drawings. No adjustment shall be made to the unit price quoted.

Bid Item #40 Street Light Junction Box

Under this item, the Contractor shall be paid the unit price bid as full compensation for each street light junction box installed as specified. The unit price bid shall include all labor, equipment, material, and associated work required to furnish, deliver, and install the street light junction box, including excavation, gravel, base, backfill, and connection to adjacent electrical facilities in accordance with the Construction Drawings, Specifications, and as stated herein. The Contractor shall make their determination of all material and labor required to complete the installation and base their unit price on that amount. Measurement shall be based on each junction box installed as determined by observation in the field. No adjustment shall be made to the unit price quoted.

ROADWAY

Bid Item #41 4" FAA 42 Hot Bituminous Pavement with Oil

Under this item, the Contractor shall be paid the unit price bid as full compensation for each square foot of asphalt to the neat line that is installed to the specified thickness. The unit price bid shall include the Hot Bituminous asphalt mix and prime as per City of Williston Engineering Specifications, PG 58H-34 asphalt cement, delivery of the asphalt, the asphalt itself, placement, compaction, traffic control, barricades, flaggers, and clean up after placing the material, along with all labor, equipment and miscellaneous items required for the installation. Asphalt mix design must be submitted and approved before placement. The engineer/owner has the right to request additional equipment to paving equipment (ski, etc.) to ensure proper installation of asphalt. Measurement shall be by the neat line square footage determined from measurements shown on plans.

Bid Item #42 8" Class 5 Aggregate Base

Under this item, the Contractor shall be paid the unit price bid as full compensation for each square foot of material that is installed to the specified thickness and cross section shown in the drawings. The unit price bid shall include delivery of the material, the material itself, placement, water for compaction, compaction, dust control, compaction testing, gradation testing, and clean up after placing the material, along with all labor, equipment and miscellaneous items required for the installation. The Class 5 aggregate gradation must meet NDDOT Specification. Measurement shall be by surface area calculations based on measurements taken after the material is in place.

Bid Item #43 4" Thick concrete Flatwork with 4" Class 5 Aggregate

Under this item, the Contractor shall be paid the unit price bid as full compensation for each square foot of 10' wide trail concrete sidewalk that is installed. The unit price bid shall include grading, furnishing the road base under the sidewalk, preparation, placement and compaction of base, concrete delivery, the concrete itself, concrete additives, concrete placement, formwork, concrete protection, curing compounds, traffic control, barricades, flaggers, and clean up, along with all labor, equipment and miscellaneous items required for the installation. Measurement shall be by the square footage as measured along the centerline of the sidewalk.

Bid Item #44 24" Curb & Gutter with Base

Under this item, the Contractor shall be paid the unit price bid as full compensation for each lineal foot of curb and gutter with base that is installed. The unit price bid shall include grading, preparation, placement and compaction of base, base behind the curb, placement and compaction of granular sub-base, concrete delivery, the concrete itself, concrete additives, concrete placement, formwork, concrete protection, curing compounds, traffic control, barricades, flaggers, and clean up, along with all labor, equipment and miscellaneous items required for the Curb & Gutter with base. Measurement shall be by the lineal footage as measured along the top back of the curb.

<u>Bid Item #45</u> 8' Wide Valley Gutter (8" Concrete w/ Base)

Under this item, the Contractor shall be paid the unit price bid as full compensation for each valley gutter installed. The unit price bid shall include grading, preparation, placement and compaction of base, placement and compaction of granular sub-base, concrete delivery, the concrete itself, concrete additives, concrete placement, formwork, concrete protection, curing compounds, rebar, traffic control, barricades, flaggers, and clean up, along with all labor, equipment and miscellaneous items required for the installation. Measurement shall be by the number of Valley Gutters installed.

Bid Item #46 Type S1 Fabric

Under this item, the Contractor shall be paid the unit price bid as full compensation for each square foot of NDDOT Type S1 Fabric that is installed. The unit price bid shall include delivery of the fabric material, the fabric material itself, placement, after placing the fabric material, along with all labor, equipment and miscellaneous items required for the installation. Overlapping of the fabric is the contractor's responsibility and is not included in the overall square footage. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and ground stabilization shall be compensated under a separate bid item. Measurement shall be by the overall square foot area calculations based on measurements taken after the fabric material is in place.

Bid Item #47 NX-650 Geo Grid

Under this item, the Contractor shall be paid the unit price bid as full compensation for each square foot of NX-650 Geo Grid that is installed. The unit price bid shall include delivery of the geo grid material, the geo grid material itself, placement, after placing the fabric material, along with all labor, equipment and miscellaneous items required for the installation. Overlapping of the geogrid is the contractor's responsibility and is not included in the overall square footage. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and ground stabilization shall be compensated under a separate bid item. Measurement shall be by the overall square foot area calculations based on measurements taken after the geogrid material is in place.

Bid Item #48 Soft Spot Repair

Under this item, the Contractor shall be paid the Unit price for each square foot of material that is installed to the specified thickness. Includes all labor, material and equipment to locate and remove soft spot to length, width, and depth as directed by the Engineer. Also includes placing aggregate material to bottom of aggregate base layer specified in project plans, compaction, removal and disposal of excavated and excess material, installation of geotextile fabric, the fabric itself, installation of geogrid, and the geogrid material. There will be no additional payment for dewatering. Estimated plan quantities are based on preliminary field review for bidding purposes only. Placement of the actual quantities will be directed by the Engineer. Soft spot repair may be reduced, deleted or increased over the bid quantities from the contract. The price of the actual quantity will be paid at the contract unit price.

Bid Item #49 Sign Plaque and Post

Under this item, the Contractor shall be paid the unit price bid as full compensation for each sign that is installed. The unit price bid shall include all materials, installation, and clean up after installation, along with all labor, equipment and miscellaneous items required for the installation. Measurement shall be by counting the number of signs installed.

Bid Item #50 Type 3 Barricades 8 foot.

Under this item, the Contractor shall be paid the unit price bid as full compensation for each sign that is installed. The unit price bid shall include all materials, installation, and clean up after installation, along with all labor, equipment and miscellaneous items required for the installation. Measurement shall be by counting the number of signs installed.

Bid Item #51 Pavement Markings

Under this item, the Contractor shall be paid the lump sum price bid as full compensation for all pavement markings installed as indicated on the drawings. The lump sum price shall include removal by sand blasting of existing conflicting pavement markings, if any. The lump sum price shall include all material, traffic control, barricades, flaggers, marking roadway and trail, and clean up. Along with all labor, survey, equipment, apparatus, and miscellaneous items required or necessary to perform the job. The Contractor shall make his own determination of the pavement markings and base his lump sum price on that amount. No adjustments shall be made to the lump sum price quoted.

Bid Item #52 ADA Access Ramp Single

Under this item, the Contractor shall be paid the unit price bid as full compensation for each ADA handicapped ramp that is installed. The unit price bid shall include grading, preparation of the base, placement and compaction of base, concrete delivery, the concrete itself, concrete additives, concrete placement, formwork, concrete protection, curing compounds, curb walls, gutters, sidewalk, detectable warning truncated domes, all incidental items related to the ADA ramp installation, and clean up, along with all labor, equipment and miscellaneous items required for the installation. Measurement shall be made by counting the number of ADA access ramps installed.

Bid Item #53 ADA Access Ramp Double

Under this item, the Contractor shall be paid the unit price bid as full compensation for each ADA handicapped ramp that is installed. The unit price bid shall include grading, preparation of the base, placement and compaction of base, concrete delivery, the concrete itself, concrete additives, concrete placement, formwork, concrete protection, curing compounds, curb walls, gutters, sidewalk, detectable warning truncated domes, all incidental items related to the ADA ramp installation, and clean up, along with all labor, equipment and miscellaneous items required for the installation. Measurement shall be made by counting the number of ADA access ramps installed.

Bid Item #54 Landscaping Sleeves 2)4" Landscape Conduit & locator wire

Under this item, the Contractor shall be paid the unit price bid as full compensation for each set of 4" conduit that is installed. The unit price bid shall include delivery of the material, the material itself, rebar, paint, sweeps, locator wire, end caps, installation, and clean up after installation, along with all labor, equipment and miscellaneous items required for installing the set of 4" conduits. The conduit shall be measured by the lineal footage of pipe as it is installed per set.

Bid Item #55 Irrigation Infrastructure

Under this item, the Contractor shall be paid the lump sum price bid as full compensation for furnishing and installing all Irrigation Infrastructure. The lump sum price bid shall include irrigation: (sprinklers, backflow preventer with enclosed rock, pipes, valves, valve boxes, drip lines, conduit, etc.), time clocks, meters, meter pits, the delivery of the materials, the materials itself, and clean up, along with all labor, equipment and miscellaneous items required for the installation of the landscaping. (Refer to plans & specifications for all items.) The Contractor shall make his own determination and the effort required to construct the Irrigation infrastructure, and base his lump sum price on that amount. No adjustments shall be made to the lump sum price quoted.

Bid Item #56 Street Landscaping

Under this item, the Contractor shall be paid the lump sum price bid as full compensation for furnishing and installing all Landscaping. The lump sum price bid shall include finish grading, furnishing and installing the trees, grass, sleeves, shaping earthwork, landscape rock, the delivery of the materials, the materials itself, and clean up, along with all labor, equipment and miscellaneous items required for the installation of the landscaping. The estimated quantities for these items are provided in the construction documents. (Refer to plans & specifications for all items.) The owner reserves the right to remove and replace any tree and plant items with any approved tree and plant items from the approved list. The Contractor shall make his own determination and the effort required to construct the landscaping, and base his lump sum price on that amount. No adjustments shall be made to the lump sum price quoted.

Detention Pond 8

Bid Item #57 Roadway Earthwork/Rework/ Material

Under this item, the Contractor shall be paid the unit price bid as full compensation for all earthwork, cut and fill including any removal or import/Export required. The unit price shall include equipment, labor, loading, transportation, unloading, ripping, sur-charging, blasting, drying, or whatever method is required to excavate and remove to the sub-grade lines as defined on the construction drawings and the geo-tech report. All areas requiring fill will first be moisture conditioned, reworked per the Geotech recommendations and specified in the plans/details, and compacted. Dust Control shall be compensated under a separate bid item. The finish graded surface shall be +/- 0.01 feet from the design surface. All disturbed areas shall be graded to the finished design grade. The unit price shall include (mitigating, collection, pumping, transportation, disposal, any fee associated with disposal, and any soil stabilization required) with any ground water and materials required during the earthwork and removal. It is the contractor's responsibility for determining soil moisture criteria and the soil condition before re-use of any earthwork. The estimated quantity of earthwork is provided in the construction documents. All quantities under this item shall be calculated as the volume differences between the surfaces created with topographic surveys before and after the activity is complete. Contractor must give the Engineer 48 hour notice for all topographic surveys. If contractor foregoes the 48 hour notice requirement, contractor shall by default agree to the plan quantities as shown in the schedule of values. No other quantities shall take precedence over those indicated in the schedule of values. Measurement shall be by the unit price of material moved, imported/exported, placed and compacted.

Bid Item #58 Topsoil Removal and Stockpile

Under this item, the Contractor shall be paid the unit price bid as full compensation for all topsoil removal required for the project. The Contractor is responsible to estimate the topsoil required to be removed, the complete removal of the topsoil materials, with stockpile of the topsoil material. All fees associated with transporting, striping, stockpiling, and miscellaneous items required for removal of the topsoil material. Contractor shall be responsible to find a suitable location to stockpile the topsoil and provide erosion control during construction. Contractor must get the area required for topsoil removal approved from the project engineer prior to removal. Measurement shall be by the square foot of topsoil removed during construction.

Bid Item #59 Topsoil Placement

Under this item, the Contractor shall be paid the unit price bid as full compensation for all topsoil replacement required for the project. The Contractor is responsible to replace the topsoil materials as outlined in the construction documents after the completion of the job. There are generated and existing topsoil piles located within Williston Square. The contractor shall utilize the piles identified to completed the topsoil requirements. Some areas may require additional imported topsoil, all fees associated with importing, strip, gathering and re-spreading the topsoil, and miscellaneous items required for replacement of the topsoil material. Contractor must get the area required for topsoil replacement approved from the project engineer prior to placement. Measurement shall be by the square foot of topsoil placed during construction.

<u>Bid Item #60 Re-Seeding Disturbed Areas</u>

Under this item, the Contractor shall be paid the unit price bid for furnishing and installing the seed mix. The unit price bid shall include delivery of the seed, the seed itself, placement, herbicide, mulch, watering, and clean up after placing the seed, along with all labor, equipment and miscellaneous items required for the installation. Contractor must get the area required for seeding approved from the project engineer prior to placement. Measurement shall be by the square foot of seeding per the neat line identified in construction documents. Any areas required re-seeding outside of the neat line will be considered an incidental to the project, contractor should plan accordingly.

Bid Item #61 6'x5' Curb Inlet

Under this item, the Contractor shall be paid the unit price bid as full compensation for furnishing and installing each unit complete with excavation, traffic control as required, flaggers as required, barricades, backfill, compaction, castings, concrete, coring the box, traffic control, and clean up. The unit price bid shall include removal and off-site disposal of the excavated native material, delivery of imported select bedding material, and the select bedding material, tying to storm drain pipe. The unit price bid shall include all labor, equipment and materials to perform the job. The unit price bid shall include equipment and miscellaneous items required for the installation. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. Measurement shall be made by counting the number of Curb Inlets installed.

Bid Item #62 4'x4' Overflow Structure

Under this item, the Contractor shall be paid the unit price bid as full compensation for furnishing and installing each unit complete with excavation, traffic control as required, flaggers as required, barricades, backfill, compaction, castings, concrete, coring the box, traffic control, and clean up. The unit price bid shall include removal and off-site disposal of the excavated native material, delivery of imported select bedding material, and the select bedding material, tying to storm drain pipe. The unit price bid shall include all labor, equipment and materials to perform the job. The unit price bid shall include equipment and miscellaneous items required for the installation. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. Measurement shall be made by counting the number of Curb Inlets installed.

Bid Item #63 42" RCP Storm Drain Pipe

Under this item, the Contractor shall be paid the unit price bid as full compensation for furnishing and installing the RCP Storm Drain pipe complete with excavation, traffic control as required, barricades, flaggers as required, RCP pipe, pipe bedding, trench backfill and final backfill material with all compaction and clean up required. The unit price bid shall include removal and off-site disposal with the excavated native material, and any fees associated with disposal, delivery of imported select pipe materials and delivery of any products required to complete the job. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. The unit price bid shall include all labor, equipment and materials to perform the job. The pipe shall be measured by the lineal footage of pipe as it is installed.

Bid Item #64 30" RCP Storm Drain Pipe

Under this item, the Contractor shall be paid the unit price bid as full compensation for furnishing and installing the RCP Storm Drain pipe complete with excavation, traffic control as required, barricades, flaggers as required, RCP pipe, pipe bedding, trench backfill and final backfill material with all compaction and clean up required. The unit price bid shall include removal and off-site disposal with the excavated native material, and any fees associated with disposal, delivery of imported select pipe materials and delivery of any products required to complete the job. No additional dollars will be given for ground water mitigation and ground stabilization, all ground water mitigation and trench/soil stabilization shall be compensated under a separate bid item. The unit price bid shall include all labor, equipment and materials to perform the job. The pipe shall be measured by the lineal footage of pipe as it is installed.

<u>Bid Item #65</u> <u>Concrete End Section (42" RCP Drain Pipe) with Gate</u>

Under this item, the Contractor shall be paid the lumps sum price bid as full compensation for furnishing and installing Concrete End Section. The lump sum price shall include, concrete, preparation, excavation, placement, concrete delivery, the concrete itself, concrete additives, concrete placement, pumping, formwork, footing, rebar, concrete protection, curing compounds, bolts, rod iron fencing, hinges, etc. and clean up, along with all labor, equipment and miscellaneous items required for the installation. The Contractor shall make his own determination of the effort required to install construct the Concrete End Section, and base his lump sum price on that amount. No adjustments shall be made to the lump sum price quoted.

Bid Item #66 4" Thick concrete Ditch with 4" Class 5 Aggregate

Under this item, the Contractor shall be paid the unit price bid as full compensation for each square foot of concrete ditch that is installed. The unit price bid shall include grading, furnishing the road base under the ditch, preparation, placement and compaction of base, concrete delivery, the concrete itself, concrete additives, concrete placement, formwork, concrete protection, curing compounds, traffic control, barricades, flaggers, and clean up, along with all labor, equipment and miscellaneous items required for the installation. Measurement shall be by the square footage as measured along the centerline of the Ditch.

WAIVER AND RELEASE UPON PAYMENT

	oadway Improvements & Detention Pond 8
Project Location The project is lo	i: cated at Williston Square. North of 26 th Street and West of Hwy 2
Undersigned's C	ustomer:
Invoice/Paymen	t Application Number:
Payment Amou	nt:
Payment Period	<u></u> :
	provided below, this document becomes effective to release and the undersigned is considered to e of lien or right under North Dakota Code.
1. 2.	The undersigned endorses a check in the above referenced Payment Amount payable to the undersigned; and The check is paid by the depository institution on which it is drawn. This waiver and release applies to a progress payment for the work, materials, equipment, or a combination of work, materials, and equipment furnished by the undersigned to the Property or to the Undersigned's Customer which are the subject of the Invoice or Payment Application, but only to the extent of the Payment Amount. This waiver and release does not apply to any retention withheld; any items, modifications, or changes pending approval; disputed items and claims; or items furnished or invoiced after the Payment Period. The undersigned warrants that the undersigned either has already paid or will use the money the undersigned receives from this progress payment promptly to pay in full all the undersigned's laborers, subcontractors, materialmen, and suppliers for all work, materials, equipment, or combination of work, materials, and equipment that are the subject of this waiver and release.
Dated:	
	(Company Name)
	By:
	Its:

NOTICE TO PROCEED

Owner:	City of Williston	Owner's Project No.:	
Engineer:	Alliance Consulting, LLC	Engineer's Project No.:	25-001
Contractor:		Contractor's Project No.:	
Project:	13 th Ave W P1 Roadway Improvements & Detention Pond 8		
Contract Name:			
Effective Date of	Contract:		
•		Times under the above Contract o Paragraph 4.01 of the General Co	
	tractor shall start performing its o Site prior to such date.	bligations under the Contract Doc	uments. No Work
	the Agreement: [Select one of the ethe other alternative.]	e following two alternatives, inser	t dates or number
•	and the date by which readiness	pe achieved is [date for Substantial s for final payment must be achi	•
[or]			
the date stated Completion of achieve readin date of the Co	above for the commencement of [date, calculated from commer ess for final payment is [number of the comment is [number of	npletion is [number of days, from the Contract Times, resulting in a d ncement date above]; and the no of days, from Agreement] from the for readiness for final payment of	ate for Substantial umber of days to e commencement
Before starting any	Work at the Site, Contractor mus	st comply with the following:	
[Note any acce	ess limitations, security procedure	es, or other restrictions]	
Owner:	[Full formal name of Owner]		
By (signature):			
Name (printed):			
Title:			
Date Issued:			
Copy: Engineer			

PERFORMANCE BOND

Contractor	Surety			
Name:	Name:			
Address (principal place of business):	Address (principal place of business):			
Owner	Contract			
Name: City of Williston	Description (name and location):			
Mailing address (principal place of business):	13 th Ave W P1 Roadway Improvements & Detention Pond 8			
City Hall	Detention Folia 8			
22 East Broadway Williston, North Dakota	Contract Price:			
Willistoll, North Bakota	Effective Date of Contract:			
Bond	Zirestive Date or contract.			
Bond Amount:				
Date of Bond:				
(Date of Bond cannot be earlier than Effective Date of Contract) Modifications to this Bond form:				
None ☐ See Paragraph 16				
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this				
Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer				
agent, or representative.				
Contractor as Principal	Surety			
(Full formal name of Contractor)	(Full formal name of Surety) (corporate seal)			
Ву:	Ву:			
(Signature)	(Signature)(Attach Power of Attorney)			
Name:	Name:			
(Printed or typed)	(Printed or typed)			
Title:	Title:			
Attest:	Attest:			
(Signature)	(Signature)			
Name:	Name:			
(Printed or typed)	(Printed or typed)			
Title:	Title:			
Notes: (1) Provide supplemental execution by any additional par				
Contractor, Surety, Owner, or other party is considered plural with	nere applicable.			

- 1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
- 2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
- 3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
 - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
 - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
- 4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
- 5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
 - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
 - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
 - 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

- 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- 5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
- 6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.
- 7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
 - 7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
 - 7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
 - 7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
- 8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
- 9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
- 10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
- 11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.
- 12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.
- 13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such

statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

- 14.1. Balance of the Contract Price—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
- 14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
- 14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
- 14.4. Owner Default—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
- 15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
- 16. Modifications to this Bond are as follows: [Describe modification or enter "None"]

PAYMENT BOND

Name: Address (principal place of business): Owner Name: City of Williston Mailing address (principal place of business): City Hall 22 East Broadway Williston, North Dakota Bond Bond Amount: Date of Bond: (pate of Bond cannot be earlier than Effective Date of Contract) Modifications to this Bond form: None See Paragraph 18 Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, o representative. Contractor as Principal Surety (Full formal name of Contractor) By: (Signature) (Printed or typed) Title: Attest: (Signature) Name: (Printed or typed) Title: Name: (Printed or typed) Title: Name: (Printed or typed) Title: Title: Title: Title: Title: Name: (Printed or typed) Title: Title: Name: (Printed or typed) Title: Title: Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.	Contractor	Surety
Owner Name: City of Williston Mailing address (principal place of business): City Hall 22 East Broadway Williston, North Dakota Bond Bond Amount: Date of Bond: (Pate of Bond cannot be earlier than Effective Date of Contract) Modifications to this Bond form: None See Paragraph 18 Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be dully executed by an authorized officer, agent, o representative. Contractor as Principal Surety (Full formal name of Surety) (corporate seal) By: (Signature) Name: (Printed or typed) (Printed or typed) (Printed or typed) Title: Name: (Printed or typed) (Printed or typed) Title: Name: (Printed or typed) (Printed or typed) Title: Name: (Printed or typed) Title: Name: (Printed or typed) Title: Name: (Printed or typed) Title: Title: Name: (Printed or typed) Title: Title: Name: (Printed or typed) Title: Name: (Printed or typed) Title: Title: Name: (Printed or typed)	Name:	Name:
Name: City of Williston Mailing address (principal place of business): City Hall 22 East Broadway Williston, North Dakota Bond Bond Amount: Date of Bond: (Date of Bond cannot be earlier than Effective Date of Contract) Modifications to this Bond form: None See Paragraph 18 Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, o representative. Contractor as Principal Surety Full formal name of Contractor Surety Signature Name: (Signature) (Signature) Title: Attest: (Signature) (Signature) Name: (Printed or typed) (Printed or typed) (Printed or typed) Title: Title: (Signature) (Printed or typed) Title: (Signature) (Signature) (Printed or typed) Title: (Signature) (Sign	Address (principal place of business):	Address (principal place of business):
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22 East Broadway Williston, North Dakota Contract Price: Effective Date of Contract: Bond Bond Amount: Date of Bond: (Date of Bond cannot be earlier than Effective Date of Contract) Modifications to this Bond form: None See Paragraph 18 Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be dully executed by an authorized officer, agent, o representative. Contractor as Principal Surety (Full formal name of Contractor) (Full formal name of Surety) (corporate seal) By: (Signature) Name: (Printed or typed) Title: Attest: (Signature) Name: (Printed or typed) (Printed or typed) (Printed or typed) Title: Title: Name: (Printed or typed) (Printed or typed) Title: Name: (Printed or typed)		• •
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Composition of Contractor of		Surety
By: Comparison of Attorney	·	,
Name: (Signature) (Attach Power of Attorney) Name:	(Full formal name of Contractor)	(Full formal name of Surety) (corporate seal)
Name: (Signature) (Attach Power of Attorney) Name:	Bv:	Bv:
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- 1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
- 2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
- 3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
- 4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
- 5. The Surety's obligations to a Claimant under this Bond will arise after the following:
 - 5.1. Claimants who do not have a direct contract with the Contractor
 - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
- 6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
- 7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2. Pay or arrange for payment of any undisputed amounts.
 - 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

- 8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.
- 9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
- 10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
- 11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
- 12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.
- 13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.
- 14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
- 15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

- 16.1. *Claim*—A written statement by the Claimant including at a minimum:
 - 16.1.1. The name of the Claimant;
 - 16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;
 - 16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 - 16.1.4. A brief description of the labor, materials, or equipment furnished;

- 16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- 16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
- 16.1.7. The total amount of previous payments received by the Claimant; and
- 16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
- 16.2. Claimant—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
- 16.3. Construction Contract—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
- 16.4. Owner Default—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
- 17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
- 18. Modifications to this Bond are as follows: [Describe modification or enter "None"]

Contractor's Application for Payment Owner: Owner's Project No.: **Engineer's Project No.: Engineer: Contractor's Project No.: Contractor: Project: Contract: Application No.:** Application Date: **Application Period:** From to 1. Original Contract Price #REF! 2. Net change by Change Orders #REF! 3. Current Contract Price (Line 1 + Line 2) #REF! 4. Total Work completed and materials stored to date (Sum of Column G Lump Sum Total and Column J Unit Price Total) #REF! 5. Retainage #REF! **Work Completed** #REF! b. X #REF! Stored Materials #REF! c. Total Retainage (Line 5.a + Line 5.b) #REF! 6. Amount eligible to date (Line 4 - Line 5.c) #REF! 7. Less previous payments (Line 6 from prior application) #REF! 8. Amount due this application 9. Balance to finish, including retainage (Line 3 - Line 4) #REF! **Contractor's Certification** The undersigned Contractor certifies, to the best of its knowledge, the following: (1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment; (2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such liens, security interest, or encumbrances); and (3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective. Contractor: Signature: Date: **Recommended by Engineer Approved by Owner** By: By: Title: Title: Date: Date: **Approved by Funding Agency** By: By: Title: Title:

Date:

Date:

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:	City of Williston	Owner's Project No.:	
Engineer:	Alliance Consulting LLC	Engineer's Project No.:	25-001
Contractor: Project:	13 th Ave W P1 Roadway Improvements	Contractor's Project No.:	
Contract Name:	13 Ave W r 1 Roadway improvements	a Determon Fond 5	
This \square Preliminary	☐ Final Certificate of Substantial Compl	etion applies to:	
\square All Work \square	The following specified portions of the W	/ork:	
West, and Constructineal feet of variou and 1,625 feet of various	rolves installation of utilities including was ection of Detention Pond 8 in Williston, No is sized RCP storm drain pipe, 1,600 linea arious sized water pipe and associated ag near feet of curb and gutter, and 43,170 s	orth Dakota. This includes a I feet of various sized sanita opurtenances along with 13	pproximately 775 ary sewer pipe, 3,890 square feet
Date of Substar	ntial Completion: [Enter date, as determ i	ned by Engineer]	
Contractor, and Eng the Work or portio Contract pertaining	this Certificate applies has been inspectance, and found to be substantially come in thereof designated above is hereby on the Substantial Completion. The date of Substantial Completion marks the commencement of the by the Contract.	nplete. The Date of Substan established, subject to the Substantial Completion in th	tial Completion of provisions of the he final Certificate
inclusive, and the fa	s to be completed or corrected is attach ilure to include any items on such list doe rk in accordance with the Contract Docur	s not alter the responsibility	•
	ntractual responsibilities recorded in this er and Contractor; see Paragraph 15.03.	•	
utilities, insurance,	between Owner and Contractor for sec and warranties upon Owner's use or oc t as amended as follows:	• • • • • • • • • • • • • • • • • • • •	
Amendments to Ov	vner's Responsibilities: \square None \square As fol	lows:	
[List amendme	nts to Owner's Responsibilities]		
Amendments to Co	ntractor's Responsibilities: \square None \square A	s follows:	
[List amendme	nts to Contractor's Responsibilities]		
The following document	ments are attached to and made a part o	f this Certificate:	
[List attachmer	nts such as punch list; other documents]		

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.				
Engineer				
By (signature):				
Name (printed):				
Title:				

NOTICE OF ACCEPTABILITY OF WORK

Projec Contr	eer: actor:	City of Williston Alliance Consulting LLC 13 th Ave W P1 Roadway Impro	Owner's Project No.: Engineer's Project No.: Contractor's Project No.: evements & Detention Pond 8 ate of the Construction Contract:	25-001
to Cont is acce ("Conti dated Accept	tractor, and to ptable, exprosorate Docume [date of picability of Wo	hat the Work furnished and per essly subject to the provisions nts") and of the Agreement be rofessional services agreemen	I Contractor that Engineer recommends formed by Contractor under the Construction Contract's Contract tween Owner and Engineer for Profes of the Construction Contract of the Construction Contract of the Contract of the following terms and conductions of the Contract of	uction Contract act Documents ssional Services This Notice of
1.			skill and care ordinarily used by mo- imilar conditions at the same time an	
2.	This Notice	reflects and is an expression of	the Engineer's professional opinion.	
3.	This Notice the Notice I		of Engineer's knowledge, information, a	and belief as of
4.	employed observation facts that ar as a result	by Owner to perform or fur n of the Contractor's Work) under re within Engineer's knowledge	sly limited by the scope of services Eng nish during construction of the Pro er the Owner-Engineer Agreement, and or could reasonably have been ascertain pilities specifically assigned to Engine	ject (including applies only to ned by Engineer
5.	Contract, ar but not lin responsibili accordance	n acceptance of Work that is not nited to defective Work disco ty for any failure of Contract	of Contractor's performance under the in accordance with the Contract Docume vered after final inspection, nor an or to furnish and perform the Work or to otherwise comply with the Contractified therein.	nents, including assumption of thereunder in
6.			of any surviving obligations under the rations of rights with respect to compl	
Engine	er			
В	y (signature):	:		
	ame (printeq			

Title:

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By









Endorsed By





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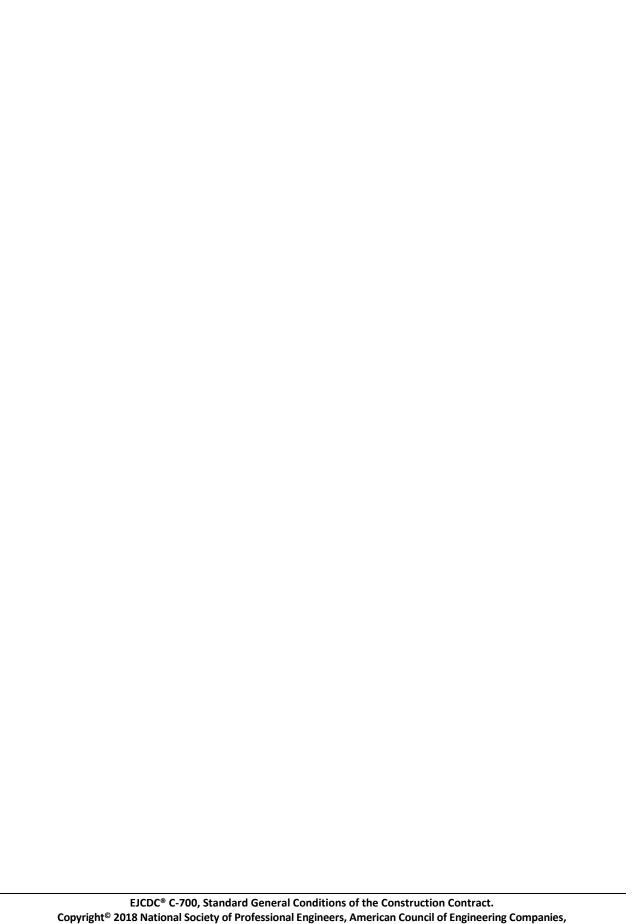
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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 Defined Terms

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
 - Addenda—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 - 2. Agreement—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 - 3. Application for Payment—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 - 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 - 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 - 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 - 7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 - 8. Change Order—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 - 9. Change Proposal—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.

10. Claim

 a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

- requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.
- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
- c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
- d. A demand for money or services by a third party is not a Claim.
- 11. Constituent of Concern—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
- 12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
- 13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
- 14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
- 15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
- 16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
- 17. Cost of the Work—See Paragraph 13.01 for definition.
- 18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
- 19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
- 20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
- 21. Electronic Means—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

- recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.
- 22. Engineer—The individual or entity named as such in the Agreement.
- 23. Field Order—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
- 24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
 - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
 - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
 - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.
- 25. Laws and Regulations; Laws or Regulations—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
- 26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
- 27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
- 28. Notice of Award—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
- 29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
- 30. Owner—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
- 31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.
- 32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

- 33. Resident Project Representative—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
- 34. Samples—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
- 35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals.
- 36. Schedule of Values—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.
- 37. Shop Drawings—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
- 38. Site—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
- 39. Specifications—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
- 40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
- 41. Submittal—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
- 42. Substantial Completion—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion of such Work.

- 43. Successful Bidder—The Bidder to which the Owner makes an award of contract.
- 44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
- 45. Supplier—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

46. Technical Data

- a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
- b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
- c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
- 47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
- 48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
- 49. Work—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
- 50. Work Change Directive—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 *Terminology*

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. Intent of Certain Terms or Adjectives: The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. Day: The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective*: The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - 1. does not conform to the Contract Documents;
 - 2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - 3. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).

E. Furnish, Install, Perform, Provide

- 1. The word "furnish," when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
- 2. The word "install," when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
- 3. The words "perform" or "provide," when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.
- 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words "furnish," "install," "perform," or "provide," then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

- F. Contract Price or Contract Times: References to a change in "Contract Price or Contract Times" or "Contract Times or Contract Price" or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term "or both" is not expressed.
- G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 Delivery of Performance and Payment Bonds; Evidence of Insurance

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. Evidence of Contractor's Insurance: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. Evidence of Owner's Insurance: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 Copies of Documents

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 Before Starting Construction

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 - a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work

into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 Preconstruction Conference; Designation of Authorized Representatives

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 Acceptance of Schedules

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.
 - The Progress Schedule will be acceptable to Engineer if it provides an orderly progression
 of the Work to completion within the Contract Times. Such acceptance will not impose
 on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or
 progress of the Work, nor interfere with or relieve Contractor from Contractor's full
 responsibility therefor.
 - 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 - Contractor's Schedule of Values will be acceptable to Engineer as to form and substance
 if it provides a reasonable allocation of the Contract Price to the component parts of the
 Work.
 - 4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 Electronic Transmittals

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 Intent

- A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- G. Nothing in the Contract Documents creates:
 - 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
 - any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 Reference Standards

- A. Standards Specifications, Codes, Laws and Regulations
 - Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility

inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 Reporting and Resolving Discrepancies

A. Reporting Discrepancies

- 1. Contractor's Verification of Figures and Field Measurements: Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
- 2. Contractor's Review of Contract Documents: If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
- Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. Resolving Discrepancies

- Except as may be otherwise specifically stated in the Contract Documents, the provisions
 of the part of the Contract Documents prepared by or for Engineer take precedence in
 resolving any conflict, error, ambiguity, or discrepancy between such provisions of the
 Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 Requirements of the Contract Documents

A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 Reuse of Documents

- A. Contractor and its Subcontractors and Suppliers shall not:
 - have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

- 4.01 Commencement of Contract Times; Notice to Proceed
 - A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 Starting the Work

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

4.03 Reference Points

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the

established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 Progress Schedule

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 Delays in Contractor's Progress

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 - 1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 - 2. Abnormal weather conditions;
 - 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
 - 4. Acts of war or terrorism.

- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
 - 1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
 - Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
 - 3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
 - 1. The circumstances that form the basis for the requested adjustment;
 - 2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
 - 3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
 - 4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
 - 5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.
 - Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.
- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

- 5.01 Availability of Lands
 - A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 Use of Site and Other Areas

- A. Limitation on Use of Site and Other Areas
 - 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
 - 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. Removal of Debris During Performance of the Work: During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.
- C. Cleaning: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment

- and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. Loading of Structures: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 Subsurface and Physical Conditions

- A. Reports and Drawings: The Supplementary Conditions identify:
 - 1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
 - Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
 - 3. Technical Data contained in such reports and drawings.
- B. *Underground Facilities*: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.
- C. Reliance by Contractor on Technical Data: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.
- D. Limitations of Other Data and Documents: Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
 - the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
 - 3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
 - 4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 Differing Subsurface or Physical Conditions

- A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:
 - 1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
 - 2. is of such a nature as to require a change in the Drawings or Specifications;
 - 3. differs materially from that shown or indicated in the Contract Documents; or
 - 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. Engineer's Review: After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. Owner's Statement to Contractor Regarding Site Condition: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. Early Resumption of Work: If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. Possible Price and Times Adjustments
 - Contractor shall be entitled to an equitable adjustment in Contract Price or Contract
 Times, to the extent that the existence of a differing subsurface or physical condition, or
 any related delay, disruption, or interference, causes an increase or decrease in

Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
- b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
- c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
- 2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;
 - b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice required by Paragraph 5.04.A.
- 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
- 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.
- F. Underground Facilities; Hazardous Environmental Conditions: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 Underground Facilities

- A. *Contractor's Responsibilities*: Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
 - 1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - complying with applicable state and local utility damage prevention Laws and Regulations;

- 3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
- 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
- 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. Notice by Contractor: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review*: Engineer will:
 - promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
 - identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
 - obtain any pertinent cost or schedule information from Contractor; determine the extent,
 if any, to which a change is required in the Drawings or Specifications to reflect and
 document the consequences of the existence or location of the Underground Facility; and
 - 4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.
 - During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. Owner's Statement to Contractor Regarding Underground Facility: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. Early Resumption of Work: If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. Possible Price and Times Adjustments
 - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
- b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
- c. Contractor gave the notice required in Paragraph 5.05.B.
- 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
- 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
- 4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 Hazardous Environmental Conditions at Site

- A. Reports and Drawings: The Supplementary Conditions identify:
 - 1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
 - 2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 - 3. Technical Data contained in such reports and drawings.
- B. Reliance by Contractor on Technical Data Authorized: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures

- of construction to be employed by Contractor, and safety precautions and programs incident thereto;
- 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
- 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special

- conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

- 6.01 Performance, Payment, and Other Bonds
 - A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
 - B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
 - C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or

Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.
- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 Insurance—General Provisions

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and "Occupational Accident and Excess Employer's Indemnity Policies," are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

- Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.
- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
- F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

H. Contractor shall require:

- Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
- 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
- If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
- K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

- L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
- N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 Contractor's Insurance

- A. Required Insurance: Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions*: The policies of insurance required by this Paragraph 6.03 as supplemented must:
 - 1. include at least the specific coverages required;
 - 2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
 - remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;
 - 4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and
 - 5. include all necessary endorsements to support the stated requirements.
- C. Additional Insureds: The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
 - 1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
 - 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
 - 3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

- 4. not seek contribution from insurance maintained by the additional insured; and
- 5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 Builder's Risk and Other Property Insurance

- A. Builder's Risk: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. Property Insurance for Facilities of Owner Where Work Will Occur: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.
- C. Property Insurance for Substantially Complete Facilities: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.
- D. Partial Occupancy or Use by Owner: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.
- E. Insurance of Other Property; Additional Insurance: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 Property Losses; Subrogation

A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

- 1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
- 2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.
 - Owner waives all rights against Contractor, Subcontractors, and Engineer, and the
 officers, directors, members, partners, employees, agents, consultants and
 subcontractors of each and any of them, for all losses and damages caused by, arising out
 of, or resulting from fire or any of the perils, risks, or causes of loss covered by such
 policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 Receipt and Application of Property Insurance Proceeds

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 Contractor's Means and Methods of Construction

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 Supervision and Superintendence

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 Labor; Working Hours

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 Services, Materials, and Equipment

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 *"Or Equals"*

- A. Contractor's Request; Governing Criteria: Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
 - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
- 3) has a proven record of performance and availability of responsive service; and
- 4) is not objectionable to Owner.
- b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. Engineer's Evaluation and Determination: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. Effect of Engineer's Determination: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.
- E. Treatment as a Substitution Request: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 Substitutes

- A. Contractor's Request; Governing Criteria: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
 - Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

- 3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
 - a. will certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design;
 - 2) be similar in substance to the item specified; and
 - 3) be suited to the same use as the item specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. Engineer's Evaluation and Determination: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. Reimbursement of Engineer's Cost: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

- E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. Effect of Engineer's Determination: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 Concerning Subcontractors and Suppliers

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.
- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.
- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.
- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 Patent Fees and Royalties

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.09 Permits

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.11 Laws and Regulations

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.
- C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 Record Documents

A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.13 Safety and Protection

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.
- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

- Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 Hazard Communication Programs

A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 Submittals

- A. Shop Drawing and Sample Requirements
 - 1. Before submitting a Shop Drawing or Sample, Contractor shall:
 - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determine and verify:
 - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
 - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
 - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
 - Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

- 3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.
- B. Submittal Procedures for Shop Drawings and Samples: Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. Shop Drawings

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.

2. Samples

- a. Contractor shall submit the number of Samples required in the Specifications.
- b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.
- 3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. Engineer's Review of Shop Drawings and Samples

- Engineer will provide timely review of Shop Drawings and Samples in accordance with the
 accepted Schedule of Submittals. Engineer's review and approval will be only to
 determine if the items covered by the Submittals will, after installation or incorporation
 in the Work, comply with the requirements of the Contract Documents, and be
 compatible with the design concept of the completed Project as a functioning whole as
 indicated by the Contract Documents.
- 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.
- 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
- 4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will

- document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.
- 5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
- 6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
- 7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
- 8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. Resubmittal Procedures for Shop Drawings and Samples

- Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.
- 2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
- 3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs

- 1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

- d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
- 2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03. 2.04, and 2.05.
- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 Contractor's General Warranty and Guarantee

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
 - 1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
 - 2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 - 1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 - 2. normal wear and tear under normal usage.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
 - 1. Observations by Engineer;
 - 2. Recommendation by Engineer or payment by Owner of any progress or final payment;
 - 3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 - 4. Use or occupancy of the Work or any part thereof by Owner;
 - 5. Any review and approval of a Shop Drawing or Sample submittal;
 - 6. The issuance of a notice of acceptability by Engineer;
 - 7. The end of the correction period established in Paragraph 15.08;
 - 8. Any inspection, test, or approval by others; or

- 9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 Delegation of Professional Design Services

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
 - 1. Checking for conformance with the requirements of this Paragraph 7.19;
 - 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
 - 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 Other Work

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 Coordination

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. An itemization of the specific matters to be covered by such authority and responsibility;
 - 3. The extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 Legal Relationships

A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
 - 1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.
 - 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

- 9.01 Communications to Contractor
 - A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.
- 9.02 Replacement of Engineer
 - A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.
- 9.03 Furnish Data
 - A. Owner shall promptly furnish the data required of Owner under the Contract Documents.
- 9.04 Pay When Due
 - A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

- 9.05 Lands and Easements; Reports, Tests, and Drawings
 - A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
 - B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
 - C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 Insurance

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 Change Orders

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 Inspections, Tests, and Approvals

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 Limitations on Owner's Responsibilities

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 Undisclosed Hazardous Environmental Condition

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 Evidence of Financial Arrangements

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

9.12 Safety Programs

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 Owner's Representative

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 Visits to Site

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 Resident Project Representative

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.
- B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 Engineer's Authority

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 Determinations for Unit Price Work

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 Decisions on Requirements of Contract Documents and Acceptability of Work

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 Limitations on Engineer's Authority and Responsibilities

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 Compliance with Safety Program

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 Amending and Supplementing the Contract

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
 - 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 Work Change Directives

A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

- B. If Owner has issued a Work Change Directive and:
 - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
 - Owner believes that an adjustment in Contract Times or Contract Price is necessary, then
 Owner shall submit any Claim seeking such an adjustment no later than 60 days after
 issuance of the Work Change Directive.

11.04 Field Orders

- A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 Owner-Authorized Changes in the Work

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 Unauthorized Changes in the Work

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 Change of Contract Price

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:

- 1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
- Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
- 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).
- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit will be determined as follows:
 - 1. A mutually acceptable fixed fee; or
 - 2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
 - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;
 - c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
 - d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
 - f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 Change of Contract Times

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 Change Proposals

A. Purpose and Content: Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. Change Proposal Procedures

- 1. *Submittal*: Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
- 2. Supporting Data: The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
 - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
 - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

- 3. Engineer's Initial Review: Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
- 4. Engineer's Full Review and Action on the Change Proposal: Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

- 5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- C. Resolution of Certain Change Proposals: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.
- D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 Notification to Surety

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12—CLAIMS

12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
 - 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 - 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
 - 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
 - 4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. Submittal of Claim: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge

- and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. Review and Resolution: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.

D. Mediation

- 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
- 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.
- 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. Denial of Claim: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. Final and Binding Results: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 Cost of the Work

- A. Purposes for Determination of Cost of the Work: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 - 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

- 2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. Costs Included: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:
 - 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.
 - 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.
 - 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
 - 4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
 - 5. Other costs consisting of the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are

consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. Construction Equipment Rental

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
- 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
- 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.
- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.
- C. Costs Excluded: The term Cost of the Work does not include any of the following items:
 - 1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
 - 2. The cost of purchasing, renting, or furnishing small tools and hand tools.
 - 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
 - 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 - 5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
 - 6. Expenses incurred in preparing and advancing Claims.
 - 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. Contractor's Fee

- 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
 - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
- 2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

E. Documentation and Audit: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. Cash Allowances: Contractor agrees that:
 - the cash allowances include the cost to Contractor (less any applicable trade discounts)
 of materials and equipment required by the allowances to be delivered at the Site, and
 all applicable taxes; and
 - Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision

thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. Adjustments in Unit Price

- 1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
- 2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
- 3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 Access to Work

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 Tests, Inspections, and Approvals

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 Defective Work

- A. Contractor's Obligation: It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects*: Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. Correction, or Removal and Replacement: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. Costs and Damages: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs,

losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 Acceptance of Defective Work

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 Uncovering Work

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 Owner May Stop the Work

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work,

or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 Owner May Correct Defective Work

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

A. Basis for Progress Payments: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.

B. Applications for Payments

- 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.
- 2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation

establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

- Beginning with the second Application for Payment, each Application must include an
 affidavit of Contractor stating that all previous progress payments received by Contractor
 have been applied to discharge Contractor's legitimate obligations associated with prior
 Applications for Payment.
- 4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. Review of Applications

- Engineer will, within 10 days after receipt of each Application for Payment, including each
 resubmittal, either indicate in writing a recommendation of payment and present the
 Application to Owner, or return the Application to Contractor indicating in writing
 Engineer's reasons for refusing to recommend payment. In the latter case, Contractor
 may make the necessary corrections and resubmit the Application.
- 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
- 3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

- 4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work;
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
- 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
- 6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. Payment Becomes Due

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. Reductions in Payment by Owner

- 1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

- b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
- c. Contractor has failed to provide and maintain required bonds or insurance;
- d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
- e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
- f. The Work is defective, requiring correction or replacement;
- g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
- h. The Contract Price has been reduced by Change Orders;
- i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
- j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
- k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or
- I. Other items entitle Owner to a set-off against the amount recommended.
- 2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
- 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 Contractor's Warranty of Title

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 Substantial Completion

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

- submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 Partial Use or Occupancy

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without

significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

- At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.
- 2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
- 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
- 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 Final Inspection

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 Final Payment

A. Application for Payment

- After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
- 2. The final Application for Payment must be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

- d. a list of all duly pending Change Proposals and Claims; and
- e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
- 3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- B. Engineer's Review of Final Application and Recommendation of Payment: If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.
- C. Notice of Acceptability: In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. Completion of Work: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.
- E. Final Payment Becomes Due: Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 Waiver of Claims

A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

- appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 Correction Period

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such adjacent areas;
 - 2. correct such defective Work;
 - 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.
- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.
- D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 Owner May Suspend Work

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 Owner May Terminate for Cause

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,

attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 Owner May Terminate for Convenience

- A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 Contractor May Stop Work or Terminate

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The

provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 Methods and Procedures

- A. *Disputes Subject to Final Resolution*: The following disputed matters are subject to final resolution under the provisions of this article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
 - 2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes*: For any dispute subject to resolution under this article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
 - agree with the other party to submit the dispute to another dispute resolution process;
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
 - 1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
 - 2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
 - 3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 Computation of Times

A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 Cumulative Remedies

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 Limitation of Damages

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 No Waiver

A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 Survival of Obligations

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 Controlling Law

A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 Assignment of Contract

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 Successors and Assigns

A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 Headings

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

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SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

These Supplementary Conditions amend or supplement EJCDC® C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, "Paragraph SC-4.05."

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

No suggested Supplementary Conditions in this Article.

ARTICLE 2—PRELIMINARY MATTERS

- 2.02 Copies of Documents
- SC-2.02 Amend the first sentence of Paragraph 2.02.A. to read as follows:

Owner shall furnish to Contractor printed copies of the Contract Documents (including one fully signed counterpart of the Agreement), and **none** in electronic portable document format (PDF).

- SC-2.06 Supplement Paragraph 2.06 of the General Conditions by adding the following paragraph:
 - D. Requests by Contractor for Electronic Documents in Other Formats
 - Release of any Electronic Document versions of the Project documents in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be at the sole discretion of the Owner.
 - 2. To extent determined by Owner, in its sole discretion, to be prudent and necessary, release of Electronic Documents versions of Project documents and other Project information requested by Contractor ("Request") in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be subject to the provisions of the Owner's response to the Request, and to the following conditions to which Contractor agrees:
 - by the Request was prepared by Engineer as an internal working document for Engineer's purposes solely, and is being provided to Contractor on an "AS IS" basis without any warranties of any kind, including, but not limited to any implied warranties of fitness for any purpose. As such, Contractor is advised and acknowledges that the content may not be suitable for Contractor's application, or may require substantial modification and independent verification by Contractor. The content may include limited resolution of models, not-to-scale schematic representations and symbols, use of notes to convey design concepts in lieu of

- accurate graphics, approximations, graphical simplifications, undocumented intermediate revisions, and other devices that may affect subsequent reuse.
- b. Electronic Documents containing text, graphics, metadata, or other types of data that are provided by Engineer to Contractor under the request are only for convenience of Contractor. Any conclusion or information obtained or derived from such data will be at the Contractor's sole risk and the Contractor waives any claims against Engineer or Owner arising from use of data in Electronic Documents covered by the Request.
- c. Contractor shall indemnify and hold harmless Owner and Engineer and their subconsultants from all claims, damages, losses, and expenses, including attorneys' fees and defense costs arising out of or resulting from Contractor's use, adaptation, or distribution of any Electronic Documents provided under the Request.
- d. Contractor agrees not to sell, copy, transfer, forward, give away or otherwise distribute this information (in source or modified file format) to any third party without the direct written authorization of Engineer, unless such distribution is specifically identified in the Request and is limited to Contractor's subcontractors. Contractor warrants that subsequent use by Contractor's subcontractors complies with all terms of the Contract Documents and Owner's response to Request.
- 3. In the event that Owner elects to provide or directs the Engineer to provide to Contractor any Contractor-requested Electronic Document versions of Project information that is not explicitly identified in the Contract Documents as being available to Contractor, the Owner shall be reimbursed by Contractor on an hourly basis (at \$200 per hour) for any engineering costs necessary to create or otherwise prepare the data in a manner deemed appropriate by Engineer.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 Intent

ARTICLE 4—SC-3.01 DELETE PARAGRAPH 3.01.C IN ITS ENTIRETYCOMMENCEMENT AND PROGRESS OF THE WORK

4.05 Delete Parage 4.05 in its entirety.

ARTICLE 5—SITE, SUBSURFACE AND PHYSICAL CONDITIONS, HAZARDOUS ENVIRONMENTAL CONDITIONS

- 5.03 Subsurface and Physical Conditions
- SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.D:
 - E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may rely: [If there are no such reports, so indicate in the table.]

Report Title	Date of Report	Technical Data
American Engineering Testing, Inc Geotechnical Exploration Williston Square Development Work Order #1	April 2, 2020	
American Engineering Testing, Inc Geotechnical Exploration Williston Square Development Work Order #2	March 26, 2020	

F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely: [If there are no such drawings, so indicate in the table.]

Drawings Title	Date of Drawings	Technical Data
None		

- 5.06 Hazardous Environmental Conditions
- SC-5.06 Add the following new paragraphs immediately after Paragraph 5.06.A.3:
 - 4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

Report Title	Date of Report	Technical Data
None		

5. The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely: [If there are no such drawings, so indicate in the table]

Drawings Title	Date of Drawings	Technical Data
None		

ARTICLE 6—BONDS AND INSURANCE

- 6.01 Performance, Payment, and Other Bonds
- SC-6.01 No Bonds Required

- 6.02 Insurance—General Provisions
- SC-6.02 Add the following paragraph immediately after Paragraph 6.02.H.2 of the General Conditions:
 - 3. For the following Subcontractors, Suppliers, or categories of Subcontractor or Supplier, Contractor shall require the following specified insurance, with policy limits as stated: All Subcontractors, Suppliers, that provide 10% of the project work.
- 6.03 Contractor's Insurance
- SC-6.03 Supplement Paragraph 6.03 with the following provisions after Paragraph 6.03.C:
 - D. Other Additional Insureds: As a supplement to the provisions of Paragraph 6.03.C of the General Conditions, the commercial general liability, automobile liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies must include as additional insureds (in addition to Owner and Engineer) the following: [Here list by legal name (not category, role, or classification) other persons or entities to be included as additional insureds. See GC-6.03.C.]
 - E. Workers' Compensation and Employer's Liability: Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

Workers' Compensation and Related Policies	Policy limits of not less than:
Workers' Compensation	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's	Statutory
responsibility coverage), if applicable	
Jones Act (if applicable)	
Bodily injury by accident—each accident	\$
Bodily injury by disease—aggregate	\$
Employer's Liability	
Each accident	\$ 500,000
Each employee	\$ 500,000
Policy limit	\$ 500,000
Stop-gap Liability Coverage	
For work performed in monopolistic states, stop-gap liability	\$
coverage must be endorsed to either the worker's compensation	
or commercial general liability policy with a minimum limit of:	

- Waiver of Subrogation
 - Waiver of Subrogation box is checked on Certificate

- F. Commercial General Liability—Claims Covered: Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:
 - damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,
 - 2. damages insured by reasonably available personal injury liability coverage, and
 - 3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- G. Commercial General Liability—Form and Content: Contractor's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:
 - 1. Products and completed operations coverage.
 - a. Such insurance must be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 - 2. Blanket contractual liability coverage, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 - 3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
 - 4. Underground, explosion, and collapse coverage.
 - 5. Personal injury coverage.
 - 6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
 - 7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- H. Commercial General Liability—Excluded Content: The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:
 - 1. Any modification of the standard definition of "insured contract" (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
 - 2. Any exclusion for water intrusion or water damage.
 - 3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
 - 4. Any exclusion of coverage relating to earth subsidence or movement.

- 5. Any exclusion for the insured's vicarious liability, strict liability, or statutory liability (other than worker's compensation).
- 6. Any limitation or exclusion based on the nature of Contractor's work.
- 7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.
- 1. Commercial General Liability—Minimum Policy Limits

Commercial General Liability	Policy limits of not less than:
General Aggregate	\$ 2,000,000
Products—Completed Operations Aggregate	\$ 2,000,000
Personal and Advertising Injury	\$ 1,000,000
Bodily Injury and Property Damage—Each Occurrence	\$ 1,000,000

- City of Williston named as Additional Insured
 - Additional Insured box is checked on Certificate
- Primary/Non-Contributory Basis
 - This should be stated in Description of Operations box on Certificate
- Waiver of Subrogation
 - Waiver of Subrogation box is checked on Certificate
- It is preferable to have the contractor include the actual Additional Insured and Waiver of Subrogation Endorsements from the policy with the certificate.
- J. Automobile Liability: Contractor shall purchase and maintain automobile liability insurance for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy must be written on an occurrence basis.

Automobile Liability	Policy limits of not less than:
Bodily Injury	
Each Person	\$
Each Accident	\$
Property Damage	
Each Accident	\$
[or]	
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	\$ 1,000,000

- City of Williston named as Additional Insured
 - Additional Insured box is checked on Certificate

- If Endorsement is included, confirm Additional Insured includes both ongoing operations and products/completed operations
- Primary/Non-Contributory Basis
 - o This should be stated in Description of Operations box on Certificate
- Waiver of Subrogation
 - Waiver of Subrogation box is checked on Certificate
- K. Umbrella or Excess Liability: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	\$ 5,000,000
General Aggregate	\$5,000,000

- City of Williston named as Additional Insured
 - Additional Insured box is checked on Certificate
- Primary/Non-Contributory Basis
 - o This should be stated in Description of Operations box on Certificate
- Waiver of Subrogation
 - Waiver of Subrogation box is checked on Certificate
- P. Unmanned Aerial Vehicle Liability Insurance: If Contractor uses unmanned aerial vehicles (UAV—commonly referred to as drones) at the Site or in support of any aspect of the Work, Contractor shall obtain UAV liability insurance in the amounts stated; name Owner, Engineer, and all individuals and entities identified in the Supplementary Conditions as additional insureds; and provide a certificate to Owner confirming Contractor's compliance with this requirement. Such insurance will provide coverage for property damage, bodily injury or death, and invasion of privacy.

Unmanned Aerial Vehicle Liability Insurance	Policy limits of not less than:
Each Claim	\$
General Aggregate	\$500,000

- City of Williston named as Additional Insured
 - o Additional Insured box is checked on Certificate
- Primary/Non-Contributory Basis
 - o This should be stated in Description of Operations box on Certificate
- Waiver of Subrogation

- Waiver of Subrogation box is checked on Certificate
- Q. Other Required Insurance: None

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

- 7.03 Labor; Working Hours
- SC-7.03 Delete Paragraph 7.03.C in its entirety, and insert the following:
 - C. In the absence of any Laws or Regulations to the contrary, Contractor may perform the Work on holidays, during any or all hours of the day, and on any or all days of the week, at Contractor's sole discretion.
- SC-7.03 Add the following new paragraph immediately after Paragraph 7.03.C:
 - D. Contractor shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.
- SC-7.03 Add the following new subparagraph immediately after Paragraph SC-7.03.D:
 - 1. For purposes of administering the foregoing requirement, additional overtime costs are defined as \$160 per hour.

ARTICLE 8—OTHER WORK AT THE SITE

- 8.02 Coordination
- SC-8.02 Add the following new Paragraph 8.02.C immediately after Paragraph 8.02.B:
 - C. Owner intends to contract with others for the performance of other work at or adjacent to the Site.
 - 1. **City of Williston** shall have authority and responsibility for coordination of the various contractors and work forces at the Site;

ARTICLE 9—OWNER'S RESPONSIBILITIES

No suggested Supplementary Conditions in this Article.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.03 Resident Project Representative

SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.B:

- C. The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:
 - 1. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor's safety meetings), and as appropriate prepare and circulate copies of minutes thereof.
 - 2. Safety Compliance: Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR's own personal safety while at the Site.

3. Liaison

- a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
- b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
- c. Assist in obtaining from Owner additional details or information, when required for Contractor's proper execution of the Work.

4. Review of Work; Defective Work

- a. Conduct on-Site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.
- b. Observe whether any Work in place appears to be defective.
- c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.

5. Inspections and Tests

- a. Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.
- b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.
- 6. Payment Requests: Review Applications for Payment with Contractor.

7. Completion

- a. Participate in Engineer's visits regarding Substantial Completion.
- b. Assist in the preparation of a punch list of items to be completed or corrected.

- c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.
- d. Observe whether items on the final punch list have been completed or corrected.

D. The RPR will not:

- 1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
- 2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
- 3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
- 4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.
- Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
- 6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
- 7. Authorize Owner to occupy the Project in whole or in part.

ARTICLE 11—CHANGES TO THE CONTRACT

No suggested Supplementary Conditions in this Article.

ARTICLE 12—CLAIMS

No suggested Supplementary Conditions in this Article.

ARTICLE 13—COST OF WORK; ALLOWANCES, UNIT PRICE WORK

No suggested Supplementary Conditions in this Article.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCCEPTANCE OF DEFECTIVE WORK

Add the following new Paragraph 14.03..

- A. Replace the Work, or portion of the Work, not conforming to specified requirements.
- B. If, in the opinion of the Owner's Representative it is not practical to remove and replace the Work, the Owner's Representative will direct one of the following remedies:
 - 1) The defective Work may remain, but the unit/lump sum price will be reduced 50 percent at the discretion of the Owner's Representative.
 - 2) The defective Work will be partially repaired to the instructions of the Owner's Representative, and the unit/lump sum price will be adjusted to a new sum/price at the discretion of the Owner's Representative.

ARTICLE 15—PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD

15.03 Substantial Completion

SC-15.03 Add the following new subparagraph to Paragraph 15.03.B:

 If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such reinspection or re-testing, including the cost of time, travel and living expenses, will be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under this Article 15.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

No suggested Supplementary Conditions in this Article.

ARTICLE 17—FINAL RESOLUTIONS OF DISPUTES

17.02 Arbitration

SC-17.02 Add the following new paragraph immediately after Paragraph 17.01.

17.02 Arbitration

- A. All matters subject to final resolution under this Article will be settled by arbitration administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules (subject to the conditions and limitations of this Paragraph SC-17.02). Any controversy or claim in the amount of \$100,000 or less will be settled in accordance with the American Arbitration Association's supplemental rules for Fixed Time and Cost Construction Arbitration. This agreement to arbitrate will be specifically enforceable under the prevailing law of any court having jurisdiction.
- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitration administrator, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in Article 17, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event will any such demand be made after the date when institution of legal or equitable proceedings based on such matter in question would be barred by the applicable statute of limitations.
- C. The arbitrator(s) must be licensed engineers, contractors, attorneys, or construction managers. Hearings will take place pursuant to the standard procedures of the Construction Arbitration Rules that contemplate in-person hearings. The arbitrators will have no authority to award punitive or other damages not measured by the prevailing party's actual damages, except as may be required by statute or the Contract. Any award in an arbitration initiated under this clause will be limited to monetary damages and include no injunction or direction to any party other than the direction to pay a monetary amount.

- D. The Arbitrators will have the authority to allocate the costs of the arbitration process among the parties, but will only have the authority to allocate attorneys' fees if a specific Law or Regulation or this Contract permits them to do so.
- E. The award of the arbitrators must be accompanied by a reasoned written opinion and a concise breakdown of the award. The written opinion will cite the Contract provisions deemed applicable and relied on in making the award.
- F. The parties agree that failure or refusal of a party to pay its required share of the deposits for arbitrator compensation or administrative charges will constitute a waiver by that party to present evidence or cross-examine witness. In such event, the other party shall be required to present evidence and legal argument as the arbitrator(s) may require for the making of an award. Such waiver will not allow for a default judgment against the non-paying party in the absence of evidence presented as provided for above.
- G. No arbitration arising out of or relating to the Contract will include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:
 - 1. the inclusion of such other individual or entity will allow complete relief to be afforded among those who are already parties to the arbitration;
 - such other individual or entity is substantially involved in a question of law or fact which
 is common to those who are already parties to the arbitration, and which will arise in
 such proceedings;
 - 3. such other individual or entity is subject to arbitration under a contract with either Owner or Contractor, or consents to being joined in the arbitration; and
 - 4. the consolidation or joinder is in compliance with the arbitration administrator's procedural rules.
- H. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.
- I. Except as may be required by Laws or Regulations, neither party nor an arbitrator may disclose the existence, content, or results of any arbitration hereunder without the prior written consent of both parties, with the exception of any disclosure required by Laws and Regulations or the Contract. To the extent any disclosure is allowed pursuant to the exception, the disclosure must be strictly and narrowly limited to maintain confidentiality to the extent possible.

ARTICLE 18—MISCELLANEOUS

SC-18.11 Alliance Consulting Supplementary Conditions

Add the following new paragraphs

SC-18.11.A Oral Agreements

No oral order, objections, claims or notice by any party to the other shall affect or modify any of the terms or obligations contained in any of the Contract Documents, and none of the provisions of the Contract Documents shall be held to be waived or modified by reason of any whatsoever other than by a definite agreed waiver or modification thereof in writing, and no evidence shall be introduced in any proceeding of any other waiver or modification.

SC-18.11.B Conflicts of Specifications

If there is a conflict in the Specifications the most stringent condition shall apply.

SC-18.11.C Property Owners

The Contractor shall coordinate all work with the property owners abutting the project and other contractors within the same area. The Contractor shall notify all homeowners of any disruption of service to utilities and driveways. The Contractor shall maintain access to adjoining property at all times except when absolutely necessary for trenching or installing improvements. As a minimum, access to adjoining property shall be restored at the end of each working day.

SC-18.11.D Interpretation of Site Conditions

The Contractor shall be responsible to visit the site and make their own interpretation as to the conditions which may affect the cost of accomplishing the work called for under this contract. Neither the Owner nor the Engineer will be responsible for any interpretation made from the information furnished nor from any inferences drawn from the plans and specifications in regard to bidding or performing the work specified.

SC-18.11.E Permits Required

The Contractor shall obtain all required licenses for construction on State, County and City roads. Securing of digging permits and posting of required bonds associated with State or County or City roads will be the responsibility, and at the expense, to the Contractor.

SC-18.11.F Construction Staking

The Engineer will provide all staking necessary. Re-staking required by the Engineer as a result of the Contractor's carelessness or failure to protect survey markers and stakes shall be accomplished at the expense of the Contractor. Applications for construction stakes must be made by the Contractor at least 48 hours before the services of the survey party will be required to accomplish the staking.

SC-18.11.G Disruption of Existing Utilities

Existing utilities shall be maintained with minimum disruption. Work that may require disruption to these services must be scheduled with the Engineer prior to starting. Access to the adjacent properties must be maintained at all times.

SC-18.11.H Protection of Work

The Contractor shall protect the work and materials from damage due to the nature of the work, the action of the elements, the carelessness of other contractors or any other cause whatever until the completion and acceptance of the work. Should any damage occur, the Contractor shall repair it at their own expense to the satisfaction of the Engineer. It may be necessary, because of weather conditions, to temporarily suspend work on a portion or all of the work, and in such event the Contractor shall maintain sufficient workers and equipment at this site during such suspension to fully protect the work from damage.

SC-18.11.I Cleanup

Throughout all phases of construction, the Contractor shall keep the construction areas in a clean condition free from rubbish and debris. All materials and equipment required in connection with the construction of any portion of the work shall be removed from the site as soon as the use of said materials and equipment at that location is no longer necessary. Upon completion of work and prior to final inspection, the entire site of operations shall be cleared of equipment, unused materials including excess rock and cobbles and rubbish so as to present a clean and neat appearance satisfactory to the Engineer. Restoration and re-grading of roads to blend in with surrounding topography and replacement of any fences that were removed for construction purposes shall be absorbed in the prices bid for the various bid items. Disposal of all materials shall be at a site approved by the Engineer. Failure on the part of the Contractor to comply with the orders of the Engineer regarding cleanup may result in a written directive from the Engineer to cease progress on any or all parts of the work under contract until the unsatisfactory condition is corrected. No additional compensation will be allowed as a result of such suspension.

SC-18.11.J L License

The Contractor shall hold a valid contractor's license pursuant to the provisions of the Utah code during the construction of the project. If at the time of bidding such a license is not in force, the Contractor shall submit evidence with the bid that such a license can be obtained prior to commencing work.

SC-18.11.K Restoration of Existing Conditions

The Contractor shall be responsible to restore existing properties to their original condition and to the satisfaction of the owner insomuch as it may be possible. This may require sketching, photographing, or otherwise recording the original state prior to beginning work. Also including any crop materials required, or anything not mentioned to restore the property to its original state. Adjacent property owners must sign a letter stating that post-construction conditions are restored to pre-construction conditions.

SC-18.11.L As-Built Drawings

The contractor shall maintain a set of drawings at the job site for the purpose of recording all actual measurements and details to be used in the preparation of the "As-Built" or "Record" drawings. The retainage shall not be released until the as-built drawings are submitted to the Engineer, and the drawings have been accepted.

SC-18.11.M Jurisdictional Construction Standards and Specifications

It shall be the responsibility of the Contractor to obtain and become familiar with local Jurisdictional Construction Standards and Specifications.

SC-18.11.N Communication

Contractor is responsible to communicate electronically on all forms of communication.

SC-18.11.0 Grading Requirements

All grading areas requiring fill will be a minimum of 95% of a modified proctor and considered structural fill, unless otherwise specified by the Engineer. Contractor is to moisture condition, rework, and place and compact all materials. No stockpiling of material is allowed without written permission from project Engineer.

SC-18.11.P Machine Control

Contractor is required to have machine control on equipment. At a minimum they must have the machine control and model for final grading requirements. The contractor must produce their own model for the project. Unless prior approval from project Engineer. The contractor will be supplied with the XML files for the existing and design grades upon request.

SC-18.11.P CAD/Electronic File Transfer Documents.

Our electronic files are compatible with AutoCad Civil 3D 2018. We make no representation as to the compatibility of these files with your hardware or your software beyond the specified release of the reference specifications.

Data contained on these electronic files are part of our instrument of service and shall not be used by you or anyone else receiving these data through or from you for any purpose other than as a convenience in the preparation of the referenced project. Any other use or reuse by you or by others will be at your sole risk and without liability or legal exposure to us you agree to make no claim and hereby waive, to the fullest extent permitted by law, any claim or cause of action of any nature against us, our officers, directors, employees, agents or sub-consultants and Alliance Consulting LLC, that may arise out of or in connection with your use of the electronic files.

Furthermore, you shall, to the fullest extent permit by law, defend, indemnify and hold us harmless against all damages, liabilities or costs, including reasonable attorney's fees and defense costs, arising out of or resulting from your use of these electronic files.

These electronic files are not construction documents. Differences may exist between these electronic files and corresponding hard-copy construction documents. We make no representation regarding the accuracy or completeness of the electronic files you receive. In the event that a conflict arises between the signed and sealed hard-copy construction documents prepared by us and the electronic files, the signed or sealed hard-copy construction documents shall govern. You are responsible for determining if any conflicts exists. By your use of these electronic files, you are not relieved of your duty to fully comply with the contract documents, including, and without limitations, the need to check, confirm and coordinate all dimensions and details, take field measurements, verify field conditions and coordinate your work for the project.

Because information presented on the electronic files can be modified, unintentionally or otherwise, we reserve the right to remove all indication of ownership and/ or involvement from each electronic display.

Under no circumstance shall delivery of the electronic files for use by you be deemed a sale by us, and we make no warranties, either express or implied, of merchantability and fitness for any particular purpose. In no event shall we be liable for any loss or profit or any consequential damages as a result of your use or reuse of these electronic files.

WORK CHANGE DIRECTIVE NO.: [Number of Work Change Directive]

Owner:	City of Williston	Owner's Project No.:
Engineer:	Alliance Consulting LLC	Engineer's Project No.: 25-001
Contractor:		Contractor's Project No.:
Project:	13 th Ave W P1 Roadway Improve	ements & Detention Pond
Contract Na		
Date Issued	: Effec	tive Date of Work Change Directive:
Contractor i	s directed to proceed promptly with	the following change(s):
Description:		
[Descrip	otion of the change to the Work]	
Attachment	s:	
[List doo	cuments related to the change to the	e Work]
Purpose for	the Work Change Directive:	
[Describ	e the purpose for the change to the	Work]
	proceed promptly with the Work dentract Time, is issued due to:	escribed herein, prior to agreeing to change in Contract
Notes to Us	er—Check one or both of the follow	ing
□ Non-agre	ement on pricing of proposed change	e. \square Necessity to proceed for schedule or other reasons.
Estimated C	hange in Contract Price and Contract	Times (non-binding, preliminary):
Contract P	rice: \$	[increase] [decrease] [not yet estimated].
Contract Ti	me: days	[increase] [decrease] [not yet estimated].
Basis of esti	mated change in Contract Price:	
☐ Lump Sui	m \square Unit Price \square Cost of the Work \square	☐ Other
Re	commended by Engineer	Authorized by Owner
Ву:		
Title:		
Date:		
		

CHANGE ORDER NO.: [Number of Change Order]

Owner Engine Contra Project Contra Date Is	er: ctor: t: ct Name:	City of Williston Alliance Consulting LLC 13 th Ave W P1 Roadway Improve	Owner's Project No.: Engineer's Project No.: Contractor's Project No.: ements & Detention Pond ive Date of Change Order:	25-001
The Con	ntract is mo	dified as follows upon execution of	f this Change Order:	
Descript	tion:			
[De	scription of	the change]		
Attachm	nents:			
[List	t document	s related to the change]		
			Change in Contract Ti	
	a 1		[State Contract Times as either a s	specific date or a
Origina	Chai I Contract Pr	nge in Contract Price	number of days] Original Contract Times:	
Origina	i Contract Fi	ice.	Substantial Completion:	
\$			Ready for final payment:	
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. [Number of previous Change Order]:			[Increase] [Decrease] from previously approved Change Orders No.1 to No. [Number of previous Change Order]:	
\$			Substantial Completion: Ready for final payment:	
Contract Price prior to this Change Order:		to this Change Order:	Contract Times prior to this Change Substantial Completion:	Order:
\$			Ready for final payment:	
[Increase] [Decrease] this Change Order:			[Increase] [Decrease] this Change C Substantial Completion:	rder:
\$			Ready for final payment:	
Contract Price incorporating this Change Order:		porating this Change Order:	Contract Times with all approved Ch Substantial Completion:	nange Orders:
\$			Ready for final payment:	
	Recomm	ended by Engineer (if required)	Authorized by Ow	ner
Ву:				
Title:				
Date:				
Authorized by Owner		d by Owner	Approved by Funding Agency (if applicable)
Ву:				
Title:				
				

Date: _____

FIELD ORDER NO.: [Number of Field Order]

Owner:	City of Williston	Owner's Project No.:	
Engineer: Contractor:	Alliance Consulting LLC	Engineer's Project No.: 25-001 Contractor's Project No.:	
Project:	13 th Ave W P1 Roadway Improve		
Contract Name:	, .		
Date Issued:	Effecti	ve Date of Field Order:	
accordance with P changes in Contra	aragraph 11.04 of the General Conc	e Work described in this Field Order, issued in litions, for minor changes in the Work without ctor considers that a change in Contract Price or before proceeding with this Work.	•
Reference:			
Specification S	Section(s):		
Drawing(s) / D	etails (s):		
Description:			
[Description o	of the change to the Work]		
Attachments:			
	to supporting shapped		
List documen	ts supporting change]		
Issued by Enginee	r		
Ву:			
Title:		<u></u>	
Date:			

13th Ave W Roadway Improvements & Detention Pond 8

25-001 January 2025

Part 3:

Technical Specifications/Forms



REQUEST FOR CONSTRUCTION STAKING

Project Name:		
Staking Type:	Reason For Survey:	
Boundary Survey	For Review	
Utility Engineering Right-of-Way	For Construction	
Grading		
Structure Staking		

	To a control of the c	0-1	Do Ctoles	Legation Deportution Otation at	be ready	Staking
Item #	Type of Staking	Orig.	Re-Stake	Location, Description, Station, etc.	for Staking	Needed
1						
2						
3						
4						

Requested by:		ALLIANCE USE ONLY Restaking Charges		
(Authorized Represenative)	(Company)	Comments:		
Staking Completed:	(Date Completed)			
		Backcharge to:		
		Authorized by:		

CONTRACTOR LOGO

SUBMITTAL DATA SHEET

SUBMITTED TO:		SUBMITTAL NO.:	
Project Name:		Submittal Date:	
Specification Reference	e:		
Location:			
Description of Submitta	ıl:		
Type of Submittal (che	eck one):		
☐ Per Plans/Spec	cification		
□ Proposed Devi	ation		
□ Proposed Subs	stitution with Request for Su	bstitution Form	
Comments:			
-			
Submitted By:	<u> </u>	Date:	
	Contractor		
REVIEW ACTION BY PROJ	ECT ENGINEER		
	COMMENTS:		
☐ APPROVED			
☐ DENIED			
ACTION BY:		Date:	
	PROJECT MANAGER		



Request For Substitution

This form must be completely filled in with all relevant data by the Contractor and submitted to the Project Manager for consideration before any request to change the drawing or specification requirements will be considered.

Project Name:	Dat	e of Paguast
Project Name:		
Location:	Job) No.:
Request By(Company):		
Address:		
Contact Person:	Title	e:
Phone:	EXT:	Fax:
Submittal No Subr	mittal Description:	
Substitution is Requested for: Named Product	Reason for Reque	est:
Product Type, Material, or Finish Me		
Fabrication or Installation Method		
PRODUCT / MATERIAL / METHOD FOR THE FOLLOWING DOCUMENTS Specification: Section No.:		ON IS REQUESTED IS SHOWN ON Clause NO.(s):
	Fage(s)	Clause NO.(s)
Drawings: (List No.'s of all Drawings	Affected):	

CONTINUE TO NEXT PAGE

COST/BENEFIT ANALYSIS

substitution:		
Total net cost of any such other required alterations, including overhead and profit:	¢	
Cost of CONTRACTOR'S administration (to be filled in by Contractor):		
Cost of ENGINEER'S documentation & administration (Project Manager):		
Total cost of other alterations (Project Manager):		
Total cost savings achieved (from page 3, to be filled in by Project Manager)		
Total cost/benefit to OWNER (to be filled in by Project Manager)		
Benefits to OWNER other than financial:		

ADDITIONAL INFORMATION REQUIRED

Complete the third page as applicable. Attach the following information:

- 1. Manufacture's technical data sheets on proposed products.
- Manufacture's standard form of warranty.
 Detailed Schematic/Drawings with Engineer's stamp where applicable.
- 4. Letter on manufacture's letterhead stating that manufacturer will warrant products as specified.

COMPARISON OF OPTIONS

Fill in the following fields as are applicable to the product, material, or method type. Requests lacking relevant information will be returned without action.

SPECIFIED PRODUCT, MATERIAL, OR METHOD	PROPOSED SUBSTITUTION		
Description:	Description:		
Product Name:	Product Name:		
Type:	Type:		
Model NO.:	Model NO.:		
Country of Manufacture:	Country of Manufacture:		
Length of Warranty Available (Years):	Length of Warranty Available (Years):		
Other Specified Criteria (list):	Other Specified Criteria (list):		
1.	1.		
2.	2.		
3.	3.		
4.	4.		
(Attach additional sheets if necessary)	(Attach additional sheets if necessary)		
Unit Cost of Product Material (must be completed)	Unit Cost of Product Material (must be completed)		
\$UNIT	\$UNIT		
Units Required: Total Value: \$	Units Required: Total Value: \$		
CONTRACTOR'S REVIEW			
I certify that I have checked the above documentation the proposed Request for Substitution and warrange substantially complete and accurate			
PROJECT MANAGER'S ACTION			
Request Approved Request approved so to qualifications per attached documentary Comments:	tion. Date://		

SECTION 01 25 13 PRODUCT SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. This document describes the requirements for submission of product information and procedures for consideration of substitutions by Owner, including products proposed to be used by Contractor under "or equal" or "acceptable alternate" provisions.
- B. Where equipment, materials or process have been specifically named, it is the intention of the Engineer to use these items. If a Contractor desires to have an alternate considered, they are to provide the following information. It will be the responsibility of the Contractor to convince the Engineer that the alternate materials are equal and will perform the intended function at or above that of the specified equipment. The burden of proof is on the Contractor to convince the Engineer that the product is equal for the purpose of a particular function.
- C. Substitution or Alternative Product Options: The alternative materials shall be submitted to Engineer no less than 10 business days before the bid opening. Engineer shall evaluate the materials, and if Engineer approves the substitution, an addendum shall be issued allowing the equipment alternatives.

1.2 DEFINITIONS

- A. The word "Products," as used herein, is defined to include purchased items form incorporation into the work, regardless of whether specifically purchased for the project or taken from Contractor's stock of previously purchased products. The word "Materials," is defined as products which must be substantially cut, shaped, worked, mixed, finished, refined, or otherwise fabricated, processed, installed, or applied to form units of work. The word "Equipment" is defined as products with operation parts, regardless of whether motorized or manually operated, and particularly including products with service connections (wiring, piping, and other like items). Definitions in this paragraph are not intended to negate the meaning of other terms used in the Contract Documents, including "specialties", "system", "structure", "finishes", "accessories", "furnishings", "special construction", and similar items, which are self-explanatory and have recognized meanings in the construction industry.
- B. Neither "Products" nor "Materials" nor "Equipment" includes machinery and equipment used for preparation, fabrication, conveying and erection of the Goods.

1.3 CONTRACTOR'S OPTIONS

- A. For products specified only by reference standards, select any product meeting standards, by any manufacturer.
- B. For products specified by naming several products or manufacturers, select any product and manufacturer named.
- C. For products specified by naming one or more products, but indicating the option of selecting equivalent products by stating "or equal" or "acceptable alternate" after specified product, Contractor must submit request, as required for substitution, for any product not specifically named.
 - 1. "Or-Equal" Items: if in the Engineer's sole judgment an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related work will be required, it may be considered by the Engineer as an "or-equal" item, in which case review and approval of the proposed item may in the Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purpose of the paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. It is at least equal in quality, durability, appearance, strength and design characteristics.
 - b. It will reliably perform at least equally well the function imposed by the design concept of the complete project as a functioning whole;
 - c. There is no increase in cost to the Owner, and
 - d. It will conform to the detailed requirements of the item named in the Contract Documents.
- D. For products specified by name, brand, model, etc., the Contractor shall provide information as required below for the Engineer to review and determine under their sole discretion that the product is acceptable.

1.4 SUBSTITUTIONS

A. If in the Engineer's sole judgment an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, it will be considered a proposed substitute item and subject to the review process.

- B. If Contractor wishes to furnish or use a substitute item of material or equipment, Contractor shall first make written application to the Engineer for review of a proposed substitute item of material or equipment. The application shall certify that the proposed substitute will perform adequately the function and achieve the results called for by the general design, be similar in substance to the specified and be suited to the same use that is specified.
- C. The procedure for review by the Engineer will include the following:
 - 1. If the Contractor wishes to provide a substitution item, the Contractor shall make written application to the Engineer.
 - 2. Unless otherwise provided by law or authorized in writing by the Engineer, the request shall be submitted within a 35-day period after award of the Contract.
 - 3. Wherever a proposed substitution item has not been submitted within said 35-day period, or wherever the submission of a proposed substitution material or equipment has been judged to be unacceptable by the Engineer, the Contractor shall provide the material or equipment indicated in the Contract Documents.
 - 4. The Engineer will evaluate each proposed substitution within a reasonable period of time.
 - 5. As applicable, no shop drawing submittals shall be made for a substitution item nor shall any substitution item be ordered, installed, or utilized without the Engineer's prior written acceptance of the Contractor's request.
 - 6. The Engineer will record the time required by the Engineer in evaluating substitutions proposed by the Contractor and in making changes by the Contractor in Contract Documents occasioned thereby.
- D. Contractor shall submit sufficient information as provided below to allow the Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and therefore an acceptable substitute therefore. Requests for review of proposed substitute items of materials or equipment will not be accepted by the Engineer from anyone other than the Contractor. Include the following minimum information in the application:
 - 1. The Contractor shall certify that the proposed substitution will perform adequately the functions and achieve the results called for by the general design, and be similar and of equal substance to that indicated, and be suited to the same use as the specified.

2. For products:

- a. Product identification, including manufacturer's name and address.
- b. Manufacturer's literature:
 - 1) Product description
 - 2) Performance and test data
 - 3) Reference standards
- 3. Samples.
- 4. Name and address of similar projects on which product was used and date of installation.
- 5. All variations of the proposed substitute item for the specified shall be identified in the application and available engineering, sales, maintenance, repair and replacement service shall be indicated.
- 6. The application shall state the extent, if any, to which the use of the proposed substitute will prejudice Contractor's achievement of delivery on time, whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provision of any other direct contract with Owner for work on the project) to adapt the design to the proposed substitute item and whether or not incorporation or use of the substitute in connection with the work is subject to payment of any license fee or royalty.
- 7. Relation to separate contracts.
- 8. The application shall also contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other sellers affected by any resulting change, all of which will be considered by the Engineer in evaluating the proposed substitute item.
- E. In making request for substitution, Contractor shall:
 - 1. Investigate proposed product or method and determine that it is equal or superior in all respects to that specified.
 - 2. Provide the same guarantee for substitution as for product or method specified.

- 3. Coordinate installation of accepted substitution into work, making such changes as may be required for work to be complete in all respects.
- 4. Waive all claims for additional costs related to substitution which consequently become apparent.
- 5. Ensure cost data is complete and includes all related costs under this contract, but excludes:
 - a. Costs under separate contracts
 - b. Engineer's redesign
- F. Substitutions will not be considered if:
 - 1. They are indicated or implied on shop drawings or project data submittals without formal request submitted in accord with Paragraph 1.05.
 - 2. Acceptance will require substantial revision of work.
- G. Contractor shall provide all data in support of any proposed substitute or "orequal" at Contractor's expense.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01 33 00 SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Related Requirements:

- 1. Section 01 78 23 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
- 2. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Engineers responsive action.
- B. Informational Submittals: Written and graphic information and physical samples that do not require Engineers responsive action. Submittals may be rejected for not complying with requirements.

1.3 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Engineer and additional time for handling and reviewing submittals required by those corrections.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - Coordinate transmittal of different types of submittals for related parts of the Work so
 processing will not be delayed because of need to review submittals concurrently for
 coordination.
 - a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

- B. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineers receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 - 1. Initial Review: Allow fifteen (15) days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
 - 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 - 3. Resubmittal Review: Allow fifteen (15) days for review of each resubmittal.
- C. Paper Submittals: Place a permanent label or title block on each submittal item for identification.
 - 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 - 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Engineer.
 - 3. Include the following information for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name of Engineer.
 - d. Name of Contractor.
 - e. Name of subcontractor.
 - f. Name of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - Submittal number shall use Specification Section number or special provision number followed by a decimal point and then a sequential number (i.e., 129300.01). Resubmittals shall include an alphabetic suffix after another decimal point (i.e., 129300.01.A).
 - i. Number and title of appropriate Specification Section.
 - i. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - Other necessary identification.
 - 4. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
 - a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Engineer.
 - 5. Transmittal for Paper Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Engineer will discard submittals received from sources other than Contractor.
 - a. Transmittal Form for Paper Submittals: Use form approved by engineer.
 - b. Transmittal Form for Paper Submittals: Provide locations on form for the following information:
 - 1) Project name.
 - 2) Date.
 - 3) Destination (To:).
 - 4) Source (From:).

- 5) Name and address of Engineer.
- 6) Name of Contractor.
- 7) Name of firm or entity that prepared submittal.
- 8) Names of subcontractor, manufacturer, and supplier.
- 9) Category and type of submittal.
- 10) Submittal purpose and description.
- 11) Specification Section number and title.
- 12) Specification paragraph number or drawing designation and generic name for each of multiple items.
- 13) Drawing number and detail references, as appropriate.
- 14) Indication of full or partial submittal.
- 15) Transmittal number
- 16) Submittal and transmittal distribution record.
- 17) Remarks.
- 18) Signature of transmitter.
- D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
 - Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 - 2. Name file with submittal number or other unique identifier, including revision identifier.
 - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (i.e., LARF-129300.01).
 Resubmittals shall include an alphabetic suffix after another decimal point (i.e., LARF-129300.01.A).
 - 3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Engineer.
 - 4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Agency, containing the following information:
 - a. Project name.
 - b. Date.
 - c. Name and address of Engineer.
 - d. Name of Construction Manager.
 - e. Name of Contractor.
 - f. Name of firm or entity that prepared submittal.
 - g. Names of subcontractor, manufacturer, and supplier.
 - h. Category and type of submittal.
 - i. Submittal purpose and description.
 - j. Specification Section number and title.
 - k. Specification paragraph number or drawing designation and generic name for each of multiple items.
 - I. Drawing number and detail references, as appropriate.
 - m. Location(s) where product is to be installed, as appropriate.
 - n. Related physical samples submitted directly.
 - o. Indication of full or partial submittal.
 - p. Transmittal number.
 - q. Submittal and transmittal distribution record.

- r. Other necessary identification.
- s. Remarks.
- 5. Metadata: Include the following information as keywords in the electronic submittal file metadata:
 - a. Project name.
 - b. Number and title of appropriate Specification Section.
 - c. Manufacturer name.
 - d. Product name.
- E. Options: Identify options requiring selection by Engineer.
- F. Deviations: Identify deviations from the Contract Documents on submittals.
- G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements:
 - 1. Submit electronic submittals via email as PDF electronic files.
 - a. Engineer will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
 - 2. Action Submittals: Submit four (4) paper copies of each submittal unless otherwise indicated. Engineer will return two (2) copies.
 - 3. Informational Submittals: Submit two (2) paper copies of each submittal unless otherwise indicated. Engineer will not return copies.
 - Certificates and Certifications Submittals: Provide a statement that includes signature
 of entity responsible for preparing certification. Certificates and certifications shall be
 signed by an officer or other individual authorized to sign documents on behalf of that
 entity.
 - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.

- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 - 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 - 5. Submit Product Data before or concurrent with Samples.
 - 6. Submit Product Data in the following format:
 - a. PDF electronic file.
 - b. Three (3) paper copies of Product Data unless otherwise indicated. Engineer will return two (2) copies.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Engineers digital data drawing files is otherwise permitted.
 - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 - 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 24 by 36 inches.
 - 3. Submit Shop Drawings in the following format:
 - a. PDF electronic file.

- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
 - 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 - 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 - 3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
 - 4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Agency's property, are the property of Contractor.
 - 5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one (1) full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Engineer will return submittal with options selected.
 - 6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three (3) sets of Samples.
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
 - 1. Submit product schedule in the following format:
 - a. PDF electronic file.
- F. Application for Payment and Schedule of Values: Comply with requirements specified in Section 01 29 00 "Payment Procedures".

- G. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 01 40 00 "Quality Requirements."
- H. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 01 77 00 "Closeout Procedures."
- I. Maintenance Data: Comply with requirements specified in Section 01 78 23 "Operation and Maintenance Data."
- J. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- K. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- L. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- M. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- N. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- O. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- P. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- Q. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- R. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.
- S. Schedule of Tests and Inspections: Comply with requirements specified in Section 01 40 00 "Quality Requirements."
- T. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before

installation of product, for compliance with performance requirements in the Contract Documents.

- U. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- V. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- W. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file and three (3) paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 01 77 00 "Closeout Procedures."

C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 Engineers Action

- A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or revisions required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action required.
- C. Informational Submittals: Engineer will review each submittal and will not return it or will return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 01 33 00

SECTION 01 55 26 TRAFFIC CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including Fixed Price Construction Contract and Division 1 Specifications Sections, apply to this Section.
- 1.2 Section includes: Traffic control requirements to keep streets and traffic ways open for the passage of vehicles and pedestrians during the construction period

1.3 SUBMITTALS

- A. Approved and signed copies of:
 - 1) Encroachment permit
 - 2) Right-of-way occupancy permit
 - 3) Traffic control plan (TCP)
 - 4) Notification plan

1.4 Measurement and Payment

A. Contractor is responsible for costs associated with permits, plans, implementation, and maintenance.

1.5 TRAFFIC CONTROL PLAN (TCP)

- A. Approval of the Traffic Control Plan by the Authority Having Jurisdiction shall in no way relieve the Contractor of the responsibility for traffic and safety requirements.
- B. Include labor, material, equipment, tools, and services used in the regulation of construction traffic to and from the project site as well as public vehicular and pedestrian traffic within the project limits.
- C. Provide a TCP for each phase or segment of the construction meeting the requirements of the AHJ and this Section.
- D. Each TCP shall be considered separately.
- E. TCP constraints:
 - Access to all local streets and residences shall be maintained at all times, except as noted. Turn lanes are not considered as travel lanes. Provide one travel lane that is 12 feet wide in each direction at all times. The table below describes the traffic control restrictions.
- F. Submit approved TCP to the PM/CM within 48 hours of approval by the AHJ. Changes to the TCP:
- G. If, during the execution of the work, the Contractor determines that the traffic control is not functioning as intended, the Contractor shall submit revised TCP to AHJ for approval.

- H. Submit revised approved TCP to the PM/CM within 48 hours of completing a change.
- I. Provide for the protection of the traveling public, pedestrians, and workers within the area covered by the limits of construction, at all times when the area is affected by construction facilities or activities including the following:
 - 1) Public traffic access.
 - 2) Business access.
 - 3) Private property access.
 - 4) Warn, control, protect, and expedite vehicular and pedestrian traffic through private property.
 - 5) Driveway access.
 - 6) Pedestrian access.
 - 7) Sanitation (trash) truck access.
 - 8) Bike access.
 - Maintain safe bike facilities through the work zone and associated traffic control layouts.
 - Provide alternative bike facilities or designated detour routes when necessitated by temporary removal of existing bike lanes.
- 1.6 Emergency vehicle access.
 - A. Maintain access for emergency vehicles at all times.
- 1.7 School zones and safe routes to school.
 - A. When a designated Safe Route to School is encroached upon by a construction work zone or the AHJ identifies a need for students to be assisted in the safe crossing through the work zone, provide a qualified crossing guard approved by the AHJ.
 - 1) Crossing guard shall be present for the full duration of time that children are likely to be present, as determined by the AHJ.
 - 2) Contractor is responsible for fees associated with the use of crossing guards.
 - B. Protection from excavations.
 - C. Limit access to work sites.

1.8 NOTIFICATION PLAN

- A. Submit Notification Plan to PM/CM for approval.
- B. Define who will notify, how they will notify, and when they will notify.
 - 1) Notify affected emergency agencies, residences, and businesses within the area of current work 15 days prior to start of operations.
 - 2) Notify AHJ for any traffic control or work areas affecting traffic signals,

public bus routes, or bus stops at a minimum of 72 hours prior to any the work.

- C. Notify PM/CM 15 days prior to start of construction.
- D. Notify the AHJ a minimum of 2 working days prior to the anticipated beginning of construction.
 - 1) Emergency services, such as police and fire.
 - 2) Other services, such as bus service, mail and garbage collection.

E. Residential areas:

- 1) Notify adjacent residents as applicable at least 4 days prior to restricting driveway access or starting any work, using "door knob type" Notices approved by the PM/CM.
 - Notices shall describe the impending work.
 - Notices shall also identify dates and stages of work.
- F. Give special consideration to multi-family residential complexes and other high-density uses.
 - 1) Notices shall also identify dates and stages of work.
- G. Vehicular Traffic: Define placement of the following:
 - 1) Project signs.
 - 2) Locate project signs as indicated on the Drawings.
- H. Text message boards.
 - 1) Locate text message boards as needed and indicated on the Drawings and local codes.
- I. Haul Routes
 - Contractor shall submit a haul route plan to the Owner for approval. Haul routes shall avoid areas of high vehicular or pedestrian traffic. Confine construction traffic to designated haul route.

1.9 REQUIREMENTS

A. In accordance with Manual on Uniform Traffic Control Devices for Highways, prepared by the National Joint Committee of Uniform Traffic Control Devices or as per local governing authority.

PART 2 - PRODUCTS -

N/A PART 3 -

EXECUTION

3.1 TRAFFIC CONTROL

A. A construction and traffic control schedule indicating areas and type of work to be performed shall be submitted by the Contractor for review by the Engineer prior to

starting work on the Project. This schedule shall include proposed pedestrian and vehicle detours; and any necessary traffic control devices and pavement markings.

- All traffic control plans shall be in conformance with the Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways and the authority having jurisdiction.
- 2. All traffic control located within the right of way shall be approved by the Engineer and the authority having jurisdiction.
- B. A minimum of two working days notice shall be given before any changes in the schedule is made.
- C. The Contractor shall provide an individual or individuals trained in traffic control to maintain and monitor required traffic control. Such individual or individuals shall have traffic control as a primary responsibility and duty and shall be available at all times that work is in progress to perform these duties. The Contractor is responsible for monitoring and maintaining traffic control devices during non-working days and non working hours. During non-working days the individual shall visit the site at least once per day and perform maintenance of traffic control devices as necessary. The individual responsible need not be on duty but shall be on call during the construction phase and be available by telephone contact to correct problems and perform maintenance.
- D. Detours. Detours, such as utilization of one or more traffic lanes for construction or maintenance shall be the responsibility of the Contractor. Costs for these items shall be included in the contract price. A detour plan showing the detour route and all applicable detour signing shall be furnished by the Contractor and approved by the governing authority before starting work on the project. Both lanes of traffic shall be open with appropriate construction signing during all non-working hours.
- E. Local and Emergency Traffic. Pedestrian traffic shall be provided access to private properties at all times, except during urgent stages of construction when it is impracticable to carry on the construction and maintain traffic simultaneously.
- F. No private driveway may be closed without the approval of the Engineer. No private driveways may be closed for more than eight (8) hours without written approval of the property owner.
- G. Emergency traffic such as police, fire, school bus, mail delivery and disaster units shall be provided reasonable access at all times. The Contractor shall be liable for any damages which may result from his failure to provide such reasonable access.
- H. The Contractor shall keep emergency vehicle dispatchers up-to-date on road detours and closures at all times.
- Protection of Pedestrian and Vehicular Traffic. The Contractor shall take every precaution to
 protect pedestrian and vehicular traffic. Wherever, in the opinion of the
 Architect/governing authority, the Contractor has not provided sufficient or proper safety
 precautions and safeguards, he shall do so immediately and to the extent deemed
 advisable.
- J. The posting of advance warning signs, barricades, traffic cones, flashers, etc., shall be in accordance with the current edition of Part VI of the "Manual on Uniform Traffic Control Devices for Streets and Highways" prepared by the National Joint Committee of Uniform Traffic Control Devices.

- K. Flagmen. The Contractor shall furnish, at his own expense, all flag persons who may be needed.
- L. Dust Control. It shall be the Contractor's responsibility to control dust on the project and on any detour by watering as directed by the Engineer or Project Representative. Dust control on the project or on a detour shall be considered incidental to the project.
- M. Traffic Control Within and Abutting the Project. The Contractor shall place and maintain all signs, barricades and warning lights within the limits of the project on the approach to the work area so that approaching traffic will be aware of construction. Signs which are required shall be furnished by the Contractor.
- N. Barricades shall be furnished by the Contractor. The barricades shall be of a conventional design normally used in road construction work and painted "construction orange" with black stripes.
- O. Traffic Control Signs. Standard traffic control signs required for construction will be furnished by the Contractor. The contractor shall maintain them in a neat condition until the need for them has ceased, after which the contractor shall carefully remove the signs.

END OF SECTION 01 55 26

SECTION 01 71 13 MOBILIZATION

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Mobilization consists of preparatory work and operations including, but not limited to those necessary for the movement of personnel, movement of equipment, temporary construction facilities, supplies and incidentals to the project site. Included is the establishment of all necessary offices, buildings, signs, utilities, acquisition of permits, preconstruction submittals, and all other work which must be performed and costs incurred prior to beginning work on the various items of the contract.
- B. Mobilization shall include the following principal items:
 - 1. Moving onto the site all Contractor's plant and equipment required for first month operations.
 - 2. Providing all necessary temporary on-site utilities.
 - 3. Arranging for and erection of Contractor's work, staging, and storage areas in accordance with the project plans and specifications.
 - 4. Constructing any necessary haul/access roads to the Site.
 - 5. Installing proper stormwater pollution prevention measures as specified in the Stormwater Pollution Prevention Plan.
 - 6. Obtaining all required permits and property insurance.
 - 7. Having all OSHA required notices and establishment of safety programs.
 - 8. Having the Contractor's superintendent at the job site full-time.
 - 9. Submitting pre-construction submittals in accordance with Specification Section 01 33 00 -Submittal Procedures.

Mobilization 01 71 13 - 1

1.2 SITE AREA

- A. The limits of the project site are as indicated on the Drawings.
- B. Contractor shall provide and maintain all signing, barricades, fencing, drainage facilities, and other items as required to protect public and private property from damage caused by mobilization operations.

1.3 ACCESS

A. Contractor shall secure Owner's approval of all project entrances prior to construction. Contractor shall also obtain written approval from impacted land owner(s) if other than project owner.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 PAYMENT FOR MOBILIZATION

- A. Allowable amounts for partial payment of mobilization are as follows:
 - 1. First monthly progress estimate: Up to 60% of the Mobilization contract price in the agreed-upon Schedule of Values, or 6% of the total Contract Amount, whichever is less.
 - 2. The balance of the Mobilization contract price in the agreed-upon Schedule of Values shall be paid after Substantial Completion.
 - 3. The Contractor's attention is directed to the condition that 2 percent of the total Contract Price will be deducted from any money due the Contractor as progress payments until all mobilization items listed above have been completed as specified. The aforementioned amount will be retained by the Owner as the agreed estimated value of completing all of the mobilization items listed. Any such retention of money for failure to complete all such mobilization items as a lump-sum item shall be in addition to the retention of any payments due to the

END OF SECTION

Mobilization 01 71 13 - 2

CLOSEOUT PROCEDURES SECTION 01 77 00

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Comply with requirements stated in conditions of the contract and in Specifications for administrative procedures in closing out the Work.
- B. Furnish lien waivers, bond extensions, tax statements, and other required data.
- C. Satisfy conditions of the contract, fiscal provisions, legal submittals and additional administrative requirements.

1.2 SUBSTANTIAL COMPLETION

- A. When substantially complete, the Contractor shall submit to the Engineer:
 - 1. A written notice that the Work, or designated portion thereof, is substantially complete.
 - 2. A list of items to be completed or corrected.
- B. Within a reasonable time after receipt of such notice, Engineer will perform an inspection to determine the status of completion. If the Work is not deemed substantially complete, the following will occur:
 - 1. Engineer will promptly notify the Contractor in writing, giving the reasons therefore.
 - 2. The Contractor shall remedy the deficiencies in the Work, and send a second written notice of Substantial Completion to the Engineer.
 - 3. The Engineer will re-inspect the Work.
 - 4. Once the Work is deemed Substantially Complete and after review and approval, the Engineer will execute and deliver to the Owner and the Contractor, the Certificate of Substantial Completion with a final list of items to be completed or corrected prior to release of final payment.

1.3 PROJECT RECORD DOCUMENTS

A. Maintain at Project site, available to Owner and Engineer, one copy of the

Contract Documents, shop drawings and other submittals, in good order.

- 1. Mark and record field changes and detailed information contained in submittals and change orders.
- Record actual depths, horizontal and vertical location of underground pipes, duct banks and other buried utilities. Reference dimensions to permanent surface features.
- 3. Identify specific details of pipe connections, location of existing buried features located during excavation, and the final locations of piping, equipment, electrical conduits, manholes, and pull boxes.
- 4. Identify location of spare conduits including beginning, ending, and routing through pull boxes and manholes. Record spare conductors, including number and size, within spare conduits, and filled conduits.
- 5. Provide schedules, lists, layout drawings, and wiring diagrams.
- 6. Make annotations with erasable colored pencil conforming to the following color code:
 - a. Additions Red
 - b. Deletions Green
 - c. Comments Blue
 - d. Dimensions Graphite
- 7. Make all annotations on one set of Drawings.
- B. Maintain documents separate from those used for construction.
 - 1. Label documents "RECORD DRAWINGS."
- C. Keep documents current.
 - 1. Contractor shall update the Drawings daily to record changes in the Work as built.
 - 2. Record required information at the time the material and equipment is installed and before permanently concealing.
 - 3. During progress meetings, record documents will be reviewed to ascertain that changes have been recorded.
- D. Submit record documents for review. Submittal shall be in accordance with Section

01 33 00 - Submittal Procedures.

1.4 FINAL SUBMITTALS

- A. The Contractor, prior to requesting final payment, shall obtain and submit the following items to the Engineer for transmittal to the Owner:
 - 1. Written guarantees, where required.
 - 2. Technical Manuals and instructions.
 - 3. New permanent cylinders and key blanks for all locks.
 - 4. Maintenance stock items; spare parts; special tools.
 - 5. Completed record drawings.
 - 6. Bonds for roofing, maintenance, etc., as required.
 - 7. Certificates of inspection and acceptance by local governing agencies having jurisdiction.
 - 8. Releases from all parties who are entitled to claims against the subject project, property, or improvement pursuant to the provisions of law.
 - 9. Letter from bonding company stating that bonds will be extended for one year after substantial completion.
- B. Owner will prepare a final Change Order, reflecting approved adjustments to the contract sum which were not previously made by Change Orders.

1.5 FINAL CLEANUP

A. The Contractor shall promptly remove from the vicinity of the completed Work, all rubbish, unused materials, concrete forms, construction equipment, and temporary structures and facilities used during construction. Final acceptance of the Work by the Owner will be withheld until the Contractor has satisfactorily performed the final cleanup of the Site.

1.6 MAINTENANCE AND GUARANTEE

- A. The Contractor shall comply with the maintenance and guarantee requirements contained in the General Conditions.
- B. The Contractor shall make all repairs and replacements promptly upon receipt of written order from the Owner. If the Contractor fails to make such repairs or replacements promptly, the Owner reserves the right to do the Work and the Contractor and its surety shall be liable to the Owner for the cost thereof.

1.7 FINAL PAY ESTIMATE

- A. Submit final pay estimate and supporting data to Owner.
- B. Final estimates shall reflect all adjustments to the contract sum:
 - 1. The original contract sum
 - 2. Additions and deductions resulting from:
 - a. Previous Change Orders
 - b. Allowances
 - c. Unit prices
 - d. Deductions for uncorrected work
 - e. Penalties and bonuses
 - f. Deductions for liquidated damages
 - 3. Total contract sum, as adjusted
 - 4. Previous payments
 - 5. Sum remaining due

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

Section 26 56 13 Lighting Poles and Standards

Part 1 General

1.1

- A. The intent of this section of the specification and the accompanying drawings is to comply in every respect with the requirements set forth by the National Electric Code, the North Dakota State Electrical Board, the Occupational Safety and Health Act (OSHA), the ordinances established by the City of Williston and the requirements of Montana Dakota Utilities Company. The Contractor shall familiarize themself with all of the above regulations and shall be responsible for insuring that all requirements are met.
- B. In the event that all regulations are not complied with by plans or specifications through omission of equipment, material and methods of installation, or by specification of material, equipment or installation method, the Contractor shall immediately notify the Engineer of the discrepancy prior to bidding. Any required changes will be published in addenda for inclusion in the bid. Any proposed changes to the contract after bid date shall be accompanied with complete substantiating documentation, including take off and pricing sheets, and letters of quotation. Restocking charges shall not apply to any credited material.
- C. The contractor shall guarantee materials, workmanship and the proper operation of equipment for a period of one year after the acceptance of the project by the City of Williston. Contractor shall correct all equipment, material and workmanship found to be defective or non-conforming to the contract documents without cost to the Owner. This guarantee shall not relieve the Contractor from liability arising from improper installation or non-compliance with applicable codes. Costs to repair third party damage to the system shall be the Contractor's responsibility prior to project acceptance and the Owner's responsibility after project acceptance.

2 Part 2 Description

2.1

- A. This work consists of providing new street lighting with underground wiring in designated areas in Williston, ND. Areas are outlined on cover sheet of plans and in advertisement. Portions of the work lay in existing residential and commercial areas and as such the Contractor shall plan and layout their work to create the least amount of inconvenience to the residents and businesses.
- B. Vehicle and pedestrian traffic into and out of the area must be maintained. Provide all necessary barriers and signs.
- C. Clean up of area shall be a continuous process with final clean up kept within one block of construction.
- D. Street gutters shall be kept free of excavated dirt. Dirt shall be cleaned up immediately and in no case shall dirt be left in gutters overnight.
- E. The Contractor shall comply with the requirements of the latest edition of the Manual of Uniform Traffic Control Devices.

3 Part 3 Materials

3.1 Materials

A. Materials furnished by the Contractor shall include all materials required to install the street lighting, in place as shown on the plans, complete and operating.

- B. All materials and equipment shall be new and listed by a Nationally Recognized Testing Laboratory as conforming to its standards in every case where such a standard has been established for the item in question.
- C. All approved substitute items will be clearly identified in an addenda which will be sent to all bidders in advance of opening of bids. Only those items listed on the drawings and specifications and those items approved prior to bidding shall be furnished and installed on this project. All substitutions shall be approved by the Engineer.
- D. Where substitute items are used by the Contractor, he shall assume all responsibility for physical dimensions and pay for all changes resulting from the substitutions. This responsibility shall also include all extra work necessitated by other trades as a result of the substitutions.

3.2 Shop Drawings

- A. Before any materials are delivered to the job, submit to the Engineer complete shop drawings for each item indicated. Include catalog numbers, performance data, dimensions and other descriptive information. Shop drawings shall be bound together, neatly indexed and tabbed, and stamped, initialed, & dated by Contractor to indicate he has thoroughly reviewed them.
- B. Provide shop drawings for: Cable, Conduit, Standards, Luminaires, Pull Boxes, and Feed Points.

3.3 Record Drawings

A. As work progresses, Contractor shall mark in red, on a clean set of plans, the actual conditions of installation. Particular attention shall be given to marking locations of feeders and underground runs.

3.4 Manuals

A. Manuals: upon completion of work, compile one Manual in loose-leaf binder. List project name, date, and Contractor's information on the exterior. Provide indexed and tabbed information on each major piece of equipment. ALSO INCLUDE ALL INSTALLATION, OPERATION AND MAINTENANCE DATA PACKAGED WITH THE EQUIPMENT.

4 Part 4 Construction

4.1 Feeder and Distribution Circuits

- A. All feeders and distribution circuits shall be of the multiple type, 120/240 volt, single phase and shall consist of two or three conductors constituting one or two 120 volt circuits.
- B. The system shall be laid out as shown on the plans and distribution circuits shall be routed as shown.
- C. Individual lamp circuits are to be fused in the base of each lighting standard. See local and state codes for requirements. The neutral conductor shall be solidly connected, unfused, throughout the system.

4.2 Underground Cable and Conductors

- A. Underground circuit conductors shall be No. 4 stranded copper type for direct burial.
- B. Direct burial conductors shall be rated 600 volts. Conductor sheath shall be marked as to voltage, AWG, type (RHH, RHW-2 or USE-2) and manufacturer.
- C. Provide No. 6 S.D. bare or insulated (RHH, RHW-2 or USE-2) copper ground conductor between all metal poles and associated feed points. Bond all metal components of the system.
- D. Conductors shall be continuous from pole base to pole base or from feed point to pole base. Splicing conductors underground will not be allowed without specific approval of the Engineer. Conductor to

Lighting Poles and Standards 26 56 13 - 2

be placed in trench, minimum of 24 inches below grade. (Exceptions: 48 inches between MDU power source and feed point.)

4.2.D.1 All conductors to be routed into and out of pole base.

4.3 Cable Laying In trench or Conduit

- A. Underground direct burial distribution circuits, consisting of single conductor cables, quantity and sizes designated on the drawings shall be installed in conduits crossing streets and drives and when rising up into feed point.
- B. Conductors (installed direct burial or in conduit) shall be installed to a depth of not less than 24 inches below finished grade. Under streets, drives and sidewalks, conductor shall be installed not less than 24 inches below underside of concrete, asphalt or hard surface.
- C. Provide 2" conduit under existing hard surfaced sidewalks, driveways, streets and alleys by jacking rigid galvanized steel conduit or installing non-metallic Schedule 40 (PVC) conduit with "mole" or drilling device. Conduits to extend 12 inches beyond each side of the surface. Rigid conduit to be complete with plastic bushings; PVC conduits to be complete with bell end fittings. Conduits under gravel or dirt streets to be laid in trench a minimum of 24 inches below grade.
- D. If an obstruction is encountered when "jacking", "drilling" or "moling" conduit under a concrete or asphalt street, driveway, alley or sidewalk or for any other reason it becomes impractical to install the conduit in this manner, the Engineer or his authorized representative may grant the Contractor permission to cut the street, driveway, alley or sidewalk with a concrete saw so conduit can be trenched into place. The width of the concrete or asphalt to be removed and the depth of the saw cutting shall be performed as directed by the Engineer or his authorized representative. No extra payment will be made for cutting the concrete or asphalt. Street "cuts" shall not be started until permission is granted by the Engineer.
- E. Where conduits cross streets, drives, sidewalks, etc., a maximum of six No. 4 conductors may be installed in a single 2-inch conduit, plus grounding conductor when required.
- F. Conduit shall be sloped to provide drainage. Provide a sand pocket at the lower end.
- G. PVC conduit ends shall be terminated with bell type fittings. Close up conduit by inserting a loose stopper plug of "dry oakum" or similar material to prevent earth from entering the conduit.
- H. 2-inch PVC conduit shall be provided for the risers at the pad mounted feed points. Do not seal the lower end of conduits at pole mounted feed points.
- I. During installation, the cable shall be handled with care. Do not bend or kink cable to a radius of less than six times cable diameter.
- J. All cable run through conduit shall be pulled by hand and shall not be strained in any manner. Provide a slack loop in conductors prior to entering any conduit that rises vertically.
- K. The street light branch circuit feeders consist of two 120-volt single pole circuits routed underground from pole to pole. Streetlights are alternated on circuits. Both circuits shall be brought up into pole for splicing.
- L. Where conduit or pipe is not used, cable shall be packed in sand to provide a cushion and to facilitate drainage in the following manner: Excavate trench to required depth minimum of 27 inches (Exception: 51 inches from feed points to MDU power source) then fill with 3 inches of clean washed sand, leveled and lightly tamped; the three or two single conductor cables shall be laid loosely in the trench and spaced as per drawing detail. Conductor crossovers shall be avoided. Contractor shall use a paddle template just ahead of 3 inch sand cover operation to insure proper spacing. Cover conductors with not less than 3 inches of sand. Sand shall be leveled and lightly tamped about the sides and over the cable. The trench shall then be filled and finished in the regular manner. (See

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- trench detail on plans). Exception "if" the Engineer approves specific excavations as being free of rock and debris, the Contractor may use backfill without sand cushion.
- M. In all trenches, provide 6" wide yellow plastic marker tape 6" below final grade. Tape to read "Caution-Buried Electric Cable". Manufacturer: Blackburn #YT6 or equivalent.
- N. Where excavations for cables or conduits are made as above provided, the backfill shall be compacted, in 6 inch lifts or layers, to density as specified under the project documents.
- O. Splicing of cable underground and splicing will only be allowed in junction boxes, pole bases or feed point cabinet.

4.4 Junction Boxes

- A. Provide Quazite No. PG1324BA18 Junction Boxes with PG1342CA0041 Covers and PG1324EA08 Extensions at locations shown on drawings. Junction boxes to be installed in boulevard. Top of junction boxes to be same elevation as top of adjacent curb or sidewalk.
- B. Provide slack loop in conductors not being spliced so conductor can be pulled out of junction box to a minimum of 24 inches above ground.
- C. Provide Blackburn type USL insulated street lighting connectors for all splicing.
 - 4.4.C.1 No. USL-11 Straight splice
 - 4.4.C.2 No. USL-30 Three conductor splice
 - 4.4.C.3 No. USL-40 Four conductor splice
 - 4.4.C.4 No. USL-50 Five conductor splice
 - 4.4.C.5 No. USL-60 Six conductor splice
 - 4.4.C.6 Tape connector kits with 1/2 lapped layer of rubber or synthetic rubber tape and one layer of scotch 88 for a distance of 1-1/2 inches each side of joint.

4.5 Street Light Feed Point

- A. Provide feed point where shown on drawings.
 - 4.5.A.1 Feed point enclosure to be Povolny Specialties or approved equal with two doors front and back. Doors to be complete with locking device utilizing recessed penta head bolt and padlock hasp. Padlocks to be furnished by City. Provide unistrut framing and equipment mounted brackets as required and shown. Enclosure sides and top to be solid -no louvers.
 - 4.5.A.2 Concrete pad to be sized as shown and shall extend a minimum of 6 inches beyond feed point enclosure on all four sides. Provide a 4x4 14/14 wire fabric mesh cut to fit around block outs. Provide 1 inch chamfer all around and down vertical sides to a minimum of 2 inches below grade. Concrete to have a minimum strength of 3000 PSI in 28 days. Minimum of 5.75 bags of cement per cubic yard.
 - 4.5.A.3 Electric panel to be, Cutler Hammer, or Siemens 12 circuit load center without door, rated 120/240 volt with 100 amp two pole main breaker. Provide 40 amp single pole branch breakers as indicated for each 120 volt street light circuit; 20 amp single pole breaker for receptacle, and 15 amp single pole breaker for control circuit. Paint handle of 15 amp breaker red.
 - 4.5.A.4 Street light relays to be RCOC type MR-UD No. 6342 (N.O. contact). Control voltage to be 120 volt. Provide one relay for each three wire 120 volt street light circuit.
 - 4.5.A.5 Provide a single pole 3 position switch (1900 box and raised switch cover). Switch to be connected into control circuit to bypass time clock for daytime test or select photocell operation. Provide engraved name plate.
 - 4.5.A.6 Provide 1/2 inch by 10 foot ground rod in blocked out area below cabinet. Bond all conduits, relay cabinets, electric panel cabinet, enclosure and neutral.

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- 4.5.A.7 Provide button style photocell as back up control. Photocell shall be Paragon LB series or equivalent. Mount to North side of feed point enclosure.
- 4.5.A.8 Street lights to be controlled by Tork Model EWZ101/120V Time Clock. Control shall have non-volatile program and time-of-day memory.
- 4.5.A.9 Provide Nema 5-20 GFCI duplex receptacle (1900 box and raised cover).
- 4.5.A.10 Exact field location of feed point to be coordinated with the Engineer.

B. Service

- 4.5.B.1 Provide pad mount transformer, KVA rating as per specifications, 12470 ground wye/7200 V. to 120/240 V., single phase three wire, similar to RTE OISC distribution transformer with load break elbow connector and bayonet fuse. Service to be 2-inch conduit with three No. 2 type USE conductors.
- 4.5.B.2 Provide high voltage service from pad mounted transformer to connection point on MDU power pole. Conductor type UD-P No. 4, XLP-90° C., -15 KV grounded neutral, aluminum conductor with copper strand 100% neutral and overall PVC jacket. Encase conductor in 2-inch rigid steel conduit from terminal on pole to pad mount. Provide conduit standoffs on MDU pole. Ground conduit at pole and at feed point. Provide pole mounted PSC cable terminal on MDU pole and terminate cable as per manufacturer's instructions. Provide and turn over to MDU for installation by MDU personnel, one 9 KV arrester (Joslyn No. J9231-QS/300) and one open type fuse cutout similar to Joslyn No. J9234-2J complete with fuse.
- 4.5.B.3 Contractor at their discretion and, after coordination with the Engineer provide 120/240 volt single phase service from serving utility transformer. Service conductors shall be three #2 AWG type USE conductors installed direct bury between feed point and transformer Enclose conductors in 2" conduit within feed point. Service conductors shall be in a trench separate from street light circuits. Provide meter socket and utility company transformer pad as required. Coordinate with utility company. This item shall replace 4.5.5.B.2 and be coordinated closely with the Engineer.
- 4.5.B.4 All costs associated with installing service conductors and any transformer/utility requirements shall be included with feed point Bid Item.

4.6 Street Light Standard Foundations

- A. Foundations for Steel Galvanized Standards—Type A and C series
 - 4.6.A.1 Concrete base for metal standards shall be installed as per detail on drawing. Bases to be complete with anchor bolts, rebar and conduit stub-in and ground rod. (1/2 inch by 10 feet). Concrete to be minimum of 3000 PSI strength at 28 days.
- B. Foundation for Butt Type Concrete Standards—Type B and D series
 - 4.6.B.1 A concrete trim ring of dimensions shown in detail on the plans shall be constructed around the base of the butt type concrete standard. A bearing pad, 6 inches thick to be provided in bottom of hole as shown. No extra payment will be made for this item. All costs of constructing the concrete rings and pads shall be included in the price bid for furnishing and installing street light standards. The concrete to be used in the construction of the concrete rings and pads shall be 3000 pound concrete with a minimum of six bags of cement per cubic yard of concrete and shall conform to all respects to the City's specifications for sidewalks, curbs and gutters where it applies. Provide 1/4 inch expansion joint between poles and trim rings. Provide 1/2 inch expansion joint between base and sidewalk. Base excavations shall

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be backfilled with a dry mix consisting of 1 part cement and 15 parts clean washed sand. The dry mix shall be wet compacted by thoroughly tamping at 1 foot intervals. Cement to be type II/III cement.

- C. Street Light Standards
 - 4.6.C.1 Steel Galvanized Standards -Type A and C series
 - 4.6.C.1.1 Steel light standards shall be of one or two piece construction. Galvanizing shall be in accordance with ASTM A-123. The shaft shall have only one longitudinal weld and shall have a minimum yield strength of 50,000 PSI. Shaft may be round or octagonal.
 - 4.6.C.1.2 The Davit type mast arm shall be constructed of one piece galvanized steel material.

 Mast arm shall have a tenon adaptor for luminaire mounting.
 - 4.6.C.1.3 The anchor shall be a one piece steel casting secured to the lower end of the shaft by two continuous welds. One weld shall be inside the base at the bottom of the shaft and the other shall be on the outside of the shaft at the top of the anchor base. The welded connection shall develop the full strength of the adjacent shaft section. The anchor base shall be complete with bolts, washers, shims and bolt covers with cap screws for attaching covers to base. Grounding lug to be provided inside of base.
 - 4.6.C.1.4 A hand hole shall be provided in shaft opposite the roadside of pole. Hand holes to be a minimum of 4 inches by 6 inches with reinforced frame and removable cover. Cover to be secured in place with tamper proof screws. Provide the City with a minimum of six tamper proof screw removal tools.
 - 4.6.C.2 Concrete Butt Type Standards -Type B series
 - 4.6.C.2.1 All concrete street light standards shall be prestressed spun concrete of the precast butt type and shall be set as shown on plans with the hand hole and cable entrance hole facing away from the roadway. Poles shall have gray acrylic finish with 6' galvanized steel tenon bracket and extra support brace to provide a mounting height of 29'+. Poles to be complete with decorative top cap, hand holes, and cover with tamper proof screw. Provide the City with a minimum of six tamper proof screw removal tools.
 - 4.6.C.2.22 Manufacturer: Ameron #MEO8.5-MOSC6/Brace-113-Fin or approved equal
 - 4.6.C.3 Decorative Type Standards -Type D series
 - 4.6.C.3.1 All concrete street light standards shall be prestressed spun concrete of the precast butt type and shall be set as shown on plans with the hand hole and cable entrance hole facing away from the roadway. Poles shall have gray acrylic finish with 3" O.D. tenon to provide a mounting height of 14'. Poles to be complete with hand holes and cover with tamper proof screw. Provide the City with a minimum of six tamper proof screw removal tools.
 - 4.6.C.3.2 Manufacturer: Ameron #SER4.3-W3-113 or approved equal.
 - 4.6.C.4 Street Light Luminaires
 - 4.6.C.4.1 Type A, B and C Luminaires
 - 4.6.C.4.1.1.1 Luminaires shall consist of a cast aluminum head with integral quick disconnect ballast module and borosilicate glass optical assembly. Lamp socket shall be adjustable. Refer to drawings for lamp wattage and IES distribution. Head shall be furnished with adjustable 2 inch slip fitter for ±5° horizontal mounting.
 - 4.6.C.4.1.1.2 Type A and B: American Electric Lighting: ATB2 80BLEDE10 MVOLT R3

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- 4.6.C.4.1.1.3 Type C: General Electric #MDRA series American Electric Lighting #325 series
- 4.6.C.4.1.2 Type D Luminaire
 - 4.6.C.4.1.2.1 Decorative post top type with cast aluminum housing, integral ballast, 100W lamp, and borosilicate glass optical assembly for Type III distribution.
 - 4.6.C.4.1.2.2 Holophane #PTU100HP12BG3B or approved equal.
- 4.6.C.4.1.3 High Pressure Sodium lamps to be clear: General Electric, Sylvania or Phillips
 - 4.6.C.4.1.3.1 100W 9500 lumens
 - 4.6.C.4.1.3.2 150W—16000 lumens
 - 4.6.C.4.1.3.3 250W-28000 lumens
 - 4.6.C.4.1.3.4 400W-51000 lumens
- 4.6.C.4.1.4 The HPS ballasts shall be of a high power factor, regulator type, 120 volt with ±10% voltage variation and suitable for cold weather starting at an ambient temperature of -30°F. Provide data listing start and normal operating currents.
- D. Post Wiring, Bonding and Grounding
 - 4.6.D.1 All post wiring between cable or neutral wires, and the luminaires or convenience outlet, shall be No. 12 A.W.G. (copper) stranded, (THWN/THHN) 600 volt cable of the same type specified for the underground distribution circuits.
 - 4.6.D.2 In each post, one feeder lead (hot wire) and one neutral wire shall be run from the cable in the base to each luminaire.
 - 4.6.D.3 The feeder leads to the luminaire shall extend from the cable in the post base through a Buss type HEB in line fuse holder with a type FNM 10 ampere fuse. The fuse housing shall be supported by the conductors at the level of the post hand hole. Tape fuse kits with half-lapped layer of scotch 88 for a distance of 1-1/2 inches each side of joint with conductor. Sufficient excess conductor length shall be provided to permit withdrawal of the fuse holder through the hand hole for purposes of fuse installation and inspection. The neutral wire shall not be fused.
 - 4.6.D.4 Ground all metal standards. Bond to ground conductor and to ground rod.

End of Section

Lighting Poles and Standards

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Erosion and Sedimentation Control

PART 1 - General

1.01 Scope of Work

- a) The contractor will be responsible to furnish all material, equipment and labor required for the erosion and sediment control features as outlined in this section.
- b) This work shall include but is not limited to the construction of temporary straw bale dikes, temporary silt fences, runoff collection ditches, temporary straw bale barriers, and the seeding and mulching of soils disturbed during construction, installation of erosion control fabrics, diversion of water around or away from construction sites, installation of rip rap, and cleanup of all rock or soil fragments resulting from blasting or other rock removal methods.

a)

1.02 Related Work and References

a) Williston City Construction Design Standards

1.02 Regulatory Requirements

- a) Necessary measures shall be taken to prevent erosion due to drainage at all points in the road construction project. Erosion and sediment control measures shall be consistent with current Williston City Construction Design Standards. Efforts will be made and measures implemented to minimize disturbance caused by construction, and to mitigate and control any project-generated erosion and sedimentation If the owner determines that the implemented measures are not adequate, the Engineer may request that additional measures be utilized.
- b) It shall be the responsibility of the contractor to comply with all the requirements regarding erosion and sediment control as outlined in this section and the current Williston City Construction Design Standards related to erosion control. Fines and additional costs incurred due to a failure to comply with these documents shall be the responsibility of the contractor.
- c) Comply with any specific items related to erosion or sediment control in permit issued to Williston City for the project area.

PART 2 - Products

2.01 Silt Fence

a) Silt Fencing shall consist of celanese fiber, polyvinyl chloride woven cloth, reinforced chlorosulfinated polyethylene cloth or other approved water-permeable filter fabric. The fabric shall be supported by wood or steel fence posts and wire.

2.01 Fiber Roll/ Waddle

a) Fiber Roll shall consist of straw, flax, or other similar materials bounded into a tight tubular roll. The roll should be placed in a trench and staked along the fiber roll.

2.02 Straw Bale Barrier

a) Straw Bale Barrier shall consist of straw, flax, or other similar materials bounded into a rectangle. The bale should be placed in accordance to Williston City BMP manual.

2.03 Riprap

a) Rip rap to be used shall be as described supplemental technical specifications - Rip Rap.

2.03 Cable Concrete Mat

a) Concrete Mat must be CC45 minimum 50 lbs/s.f. or approved equal.

PART 3 – Execution

3.01 General

a) Erosion and Sediment control features shall be implemented as areas are disturbed in order to minimize erosion and sedimentation. Detailed descriptions of mitigative measures for different project segments are outlined in current Williston City Construction Design Standards. If the measures implemented are deemed inadequate, additional measures may be required as directed by the Engineer.

3.02 Silt Fences

- a) Silt Fences, shall be installed as necessary to protect stream during construction. Any staging areas or construction sites that are located adjacent to streams or such that runoff from construction areas discharges directly into the stream shall be bordered by sandbags or silt fencing.
- b) Install silt fencing along the limits of disturbance line as shown on construction drawings. Fencing along the limits of disturbance can be of materials other than silt fence, as the fence is intended to control traffic, not sediment. All fencing installed along the limits of disturbance shall be removed and disposed of off-site upon completion of the project.
- c) Silt fence barriers shall be used to help filter the flow in the inside drainage ditches along roadways before it enters the culverts and discharges into natural stream

3.03 Fiber Roll / Waddle

- a) Locate fiber rolls on level contours spaces as follows:
 - Slope inclination of 4:1 (H:V) of flatter: Fiber rolls should be placed at a maximum interval of 20 ft
 - Slope inclinations between 4:1 and 2:1 (H:V): Fiver rolls should be placed at a maximum interval of 15 ft.
 - Slope inclination 2:1 (H:V) or greater: Fiber rolls should be placed at a maximum interval of 10 ft.
- b) Turn the ends of the fiber roll up slope to prevent runoff from going around the roll
- Stake fiver rolls into a 2 to 4 in. deep trench with a width equal to the diameter of the fiber roll.
 - Drive stakes at the end of each fiber roll and space 4 ft maximum of center.
 - Use wood stakes with a nominal classification of 0.75 by 0.75 in. and minimum length of 24 in.
- d) If more than one fiber roll is placed in a row, the roll should be overlapped, not abutted.

3.03 Erosion Protection

a) Measures shall be taken to prevent or minimize, contain, and control natural erosion processes in disturbed areas of construction. Sediment-laden waters will not be allowed to discharge into natural streams. Reseeding, mulching. and soil erosion fabrics shall be placed as soon as possible after completion of work in a given area.

3.04 Stockpiles of Excavated Material

a) Stockpiles of excavated materials shall be located away from natural streams.

3.05 Dust Control

a) The Contractor shall be responsible to water down construction areas where dust due to construction activities becomes a visual or safety problem.

3.06 Tracking of Material onto Existing Roads

a) The Contractor shall take steps to limit the tracking of soil from the construction site onto the existing paved roads. In the event soil is tracked onto the road, the Contractor shall provide the labor and equipment necessary to keep the roads clean, and to limit dust generated by soils tracked onto the roads.

3.07 Cable Concrete Mat

- a) Install Cable concrete matt per manufacture recommendations
- b) Concrete Mat must be CC45 minimum 50 lbs/ s.f. or approved equal.

END OF SECTION

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Geotextile Stabilization

PART 1 GENERAL

1.01 SUMMARY

A. This section describes the general requirements for the manufacture, supply, installation, and quality control (QC) of geotextiles associated with the construction of the roadway section.

1.02 RELATED SECTIONS

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM).
 - ASTM D4491 Standard Test Methods for Water Permeability of Geotextiles by Permittivity
 - 2. ASTM D4533 Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
 - 3. ASTM D4632 Standard Test Method for Breaking Load and Elongation of Geotextiles (Grab Method)
 - 4. ASTM D4751 Standard Test Method for Determining Apparent Opening Size of a Geotextile
 - 5. ASTM D4833 Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.
 - 6. ASTM D5199 Standard Test Method for Measuring Geotextiles
 - 7. ASTM D5261 Standard Test Method for Measuring Mass Per Unit Area of Geotextiles

1.04 DEFINITIONS

A. Geotextile: Synthetic fiber filter fabric for use in geotechnical filter, strength and/or separation, geomembrane cushion, and erosion control applications.

1.05 SUBMITTALS

B. Product Data: Include installation, handling, storage, and repair instructions. Submit 14 days prior to shipment to the site.

- C. Certificates of compliance: Certifying that geotextile meets or exceeds specific requirements. Submit 14 days prior to shipment to the site.
- D. Warranty: Submit manufacturer's warranty and ensure forms have been filled out in Owner's Representatives name and registered with manufacturer. Submit 14 days prior to installation.

1.06 QUALIFICATIONS

- A. Geotextile shall be supplied by a Geotextile Manufacturer meeting the following qualification requirements:
 - 1. The Geotextile Manufacturer shall be responsible for the production and delivery of geotextile rolls and shall be a well-established firm with more than two years experience in the manufacture of geotextiles. The Geotextile Manufacturer shall submit a statement to the Owner's Representative listing:
 - 2. Certified minimum average roll property values of the proposed geotextiles and the test methods used to determine those properties.
 - 3. Projected delivery date of the material for this project.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Install geotextile in dry conditions and in accordance with manufacturer's instructions. Suspend installation operations whenever climatic conditions, as determined by Owner's Representative, are unsatisfactory for placing geotextile to the requirements of this Specification.

PART 2 PRODUCTS

2.01 GEOTEXTILE

A. Type S1 Separation Geotextile used for construction of the roadway and as otherwise specified on the plan shall have the following minimum properties:

Table 1: Type Separation Geotextile Physical Properties

Material Property	ASTM Test Method	Qualifier	Units	Value
Ultimate Grab Strength	ASTM D 4632	min.	lbs	180
Trapezoid Tearing Strength (any direction)	ASTM D 4533	min.	lbs	50
Static Puncture Strength	ASTM D 6241	min.	lbs	405

Table 1: Type Separation Geotextile Physical Properties

AOS less than	ASTM D 4751	Greater than US Std. Sieve	mm	0.212 - 70
Permittivity	ASTM D 4491	min.	sec ⁻¹	0.1
UV Resistance (After 500 hrs.)	ASTM D 4355	Min. Strength Retained	%	70
Sewn-Seam Strength	ASTM D 4632		lbs	160

B. All geotextiles shall be a non-woven, triple-punched, needle-punched polyester or polypropylene fabric free from needles or other foreign material.

2.02 DELIVERY, STORAGE, AND HANDLING

- A. Handling, storage, and care of the geotextiles following transportation to the site shall be the responsibility of the Installer. The Installer shall be liable for all damage to the materials incurred prior to final acceptance of the roadway system.
- B. The Installer shall be responsible for storage of the geotextile at the site after the material is delivered. The geotextile shall be stored off the ground and out of direct sunlight, and shall be protected from mud, dirt, dust, and any additional storage procedures required by the Geotextile Manufacturer.
- C. All rolls of geotextile shall be identified at the factory with the following:
 - 4. Manufacturer's name
 - 5. Product identification
 - 6. Lot Number
 - 7. Roll number
 - 8. Roll dimensions
- D. Geotextiles shall be handled in such a manner as to ensure they are not damaged in any way.
- E. Precautions shall be taken to prevent damage to underlying materials during placement of the geotextile.
- F. After unwrapping the geotextile from its cover, the geotextile shall not be left exposed for a period in excess of 30 days.

PART 3 EXECUTION

3.01 PREPARATION

- A. Prior to geotextile placement, all rocks, loose material, or potentially harmful foreign objects that may be present shall be removed.
- B. Examine geotextile for defects including rips, holes, flaws, deterioration, or damage incurred during manufacture, transportation, or handling.
- C. Remove defective or damaged geotextile.

3.02 INSTALLATION

- A. Contractor shall place the geotextile by such method as to prevent wrinkling.
- B. Notify Owner's Representative at least 24 hours in advance of intention to commence placement of geotextile.
- C. Obtain approval of the Owner's Representative prior to installation of the geotextile. Install geotextile in all locations shown on the Construction Drawings.
- D. Unfold or unroll the geotextile in accordance with manufacturer's instructions, directly on the prepared surface, in conditions which will prevent damage to both the geotextile and the base material. Unsuitable conditions include, but are not limited to, moderate to high wind conditions.
- E. The overlap dimensions and the method of joining adjacent sheets shall be in strict conformance with manufacturer's instructions. Unless specially selected for their ultraviolet light resistance, do not expose geotextile to sunlight for more than 72 hours, or as recommended by the manufacturer.
- F. Position and deploy geotextile to minimize handling. Lay smooth and free of tension, stress, folds, or creases. Protect properly placed geotextile from displacement, contamination by surface runoff, or damage, until and during placement of overlaid materials.
- G. Place geotextile by unrolling onto graded surface and retain in position as specified.
- H. Do not permit passage of vehicular traffic directly on geotextile at any time.
- Geotextile seams shall be continuously sewn. Geotextile seams shall be overlapped a
 minimum of 6 inches prior to sewing. No horizontal seams shall be allowed on slopes
 steeper than 5 horizontal to 1 vertical. In lieu of continuously sewn seams, the
 contractor may overlap all seams by two feet.
- J. Polymeric thread, with chemical resistance properties equal to or exceeding those of the geotextile, shall be used for all sewing. The seams shall be sewn using Stitch Type 401. The seam type shall be Federal Standard Type SSa-1.

- K. The Contractor and Geosynthetics Installer shall examine the entire geotextile surface after installation to ensure that no potentially harmful foreign objects are present. Such foreign objects shall be removed and damaged geotextile shall be repaired or replaced at no cost to Owner.
- L. Use care not to damage underlying materials during installation.
- M. Prevent the geotextile from accumulating excessive dust.
- N. The Geosynthetics Installer shall be responsible for field handling, storing, deploying, seaming or connecting, temporary restraining (against wind), anchoring, and other aspects of geotextile installation.
- O. The Contractor shall accept and retain full responsibility for all materials and installation and shall be held responsible for any defects in the completed system.
- P. No equipment shall operate directly on the geotextile.
- Q. Do not permit placement of materials directly over the geotextile until the Owner's Representative has inspected and approved installation of the geotextile.

3.03 REPAIRS

- A. Any holes or tears in the geotextile shall be repaired using a geotextile patch consisting of the same geotextile.
- B. On slopes inclined steeper than 10 horizontal to 1 vertical, patches shall be sewn into place with a minimum 6-inch overlap.
- C. On slopes inclined at 10 horizontal to 1 vertical or less, patches may be heat-bonded with a 6-inch overlap in all directions

3.04 FIELD QUALITY CONTROL

- A. Verify that the weather conditions (air temperature, non-excessive wind, and lack of precipitation) are acceptable for placement.
- B. Inspect the geotextile in place for tears, overlaps, and consistency before Contractor may place materials thereon. Identified sections damaged will be removed and replaced at no cost to the Owner.

END OF SECTION

31 37 00 Rip-Rap

Part 1 General

1.1 General

a) This section covers furnishing and placing the granular filter and loose riprap materials in accordance with these specifications and in conformity with the lines, grades, and dimensions shown on the drawings shown on the drawings or as directed by the ENGINEER.

1.2 References

- a) The latest edition of the following publications form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.
- b) American Society for Testing and Materials (ASTM)
 - ASTM C-127 Specific Gravity and Absorption of Coarse Aggregate.
 - ASTM C-535 Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

1.3 Submittals

- a) The following shall be submitted:
 - i) Certification from a certified independent laboratory that the riprap meets the material properties of this specification.
 - ii) A sample of the riprap to be used for construction.

1.4 Storage of Materials

a) Materials shall be arranged and used in a manner to avoid excessive segregation and to prevent contamination with other materials.

Part 2 Products

2.1 Filter Fabric

a) Synthetic filter fabric is a layer of material placed between the riprap and the underlying soil to prevent soil movement into or through the riprap. No filter fabric should have less than 4% open area or an EOS less than U.S. Standard Sieve No. 100 (0.15mm). The permeability of the fabric must be greater than of the soil. The fabric may be of woven or nonwoven monofilament yarns and should meet the following minimum requirements: thickness 20-60 mils, grab strength 90-120 lbs, conform to ASTM D-1682 or ASTM D-177.

2.2 Loose Rip-Rap

a) Riprap shall consist of quarry stone which is sound and durable against disintegration under conditions to be met in handling and placing, and is hard and tenacious and otherwise of suitable quality to ensure permanency in the specified kind of work.

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b) Riprap sources shall be approved by the ENGINEER prior to use. Concrete masonry or concrete pavement shall not be used or considered for use as rip-rap. Rip-rap shall be well graded with additional gradation requirements for riprap as follows:

Loose Riprap Gradations		Riprap D ₅₀ **				
Stone Diameter Range (ft)	Percent of Gradation Smaller Than	12"	14"	18"	24"	30"
1.5D50 to 1.7D50	100	18 – 20	21 – 24	27 – 31	36 – 41	45 – 51
1.2D50 to 1.4D50	85	14 – 17	17 – 20	22 – 25	29 – 34	36 – 42
1.0D50 to 1.15D50	50	12 – 14	14 – 16	18 – 21	24 – 28	30 – 35
0.4D50 to 0.6D50	15	5 – 7	6-9	7 – 11	10–15	12 – 18
0.1D50	10	1	1.5	2	2.5	3

^{**}D₅₀ = Nominal particle size

c) All stones shall be angular (no rounded rock will be permitted); each piece having its greatest dimensions not greater than three times its least dimensions. All stone shall conform to the following test requirements of the American Society for Testing and Materials Standards:

	Requirements	ASTM Standard
Specific Gravity,	2.60	C- 127
minimum		
Los Angeles Abrasion,	40	C-535
maximum percent		

d) The CONTRACTOR shall be responsible for obtaining by size per table listed above with loose riprap that will meet the specified material requirements. Riprap for this project shall be defined as per gradation table with, angular, well graded rocks and shall be clean and free of organic materials, excessive dirt or other objectionable material as determined by the Engineer. Broken concrete and/or asphalt will not be allowed as rip rap.

2.3 Rip-Rap Thickness/ Depth

- a) Rip-Rap thickness shall be 2 times the max rock diameter.
- b) A minimum of 2 layers of the max diameter rock required.
- c) Rip-rap shall be keyed in under the flow line a minimum of 36 inches.

Part 3 EXECUTION

3.1 Fabric Filter

a) Install fabric filter over properly excavated and compacted subgrade per manufacture's recommendation, providing for the minimum specified overlaps on both sides and end joints.

3.2 Loose Riprap

a) Insofar as is practical, all riprap shall be placed by equipment oil filter fabric and to the depths indicated on the drawings or to match existing adjacent depths. Before laying riprap and filter fabric, prepare the subgrade to the required grades shown on construction drawings. Channels

Rip Rap 31 37 00 - 2

- should be excavated sufficiently to allow placement of riprap in a manner such that the finished grade of the riprap meets design criteria. Riprap shall generally be placed at the lowest elevations and working upward.
- b) Place the filter fabric directly on the prepared foundation. Overlap the edges by at least 12 inches, and space anchor pins every 3 feet along the overlap. Bury the upper and lower ends of the cloth a minimum of 12 inches below ground. Placement of riprap should immediately after placement of filter fabric. Riprap need not be compacted but shall be placed to grade so that larger and smaller rock fragments are uniformly distributed and so that the smaller rock fragments fill in voids and result in a uniform graded surface. Hand placement will be required only to the extent necessary to produce the results described above.
- c) Where riprap is placed adjacent to new or existing construction, care and precaution shall be exercised to prevent damage to said items. For the energy dissipater pads at flared end outlets, the toe of the pad should be excavated to a depth about 1.5 times the design thickness of the riprap and should extend horizontally from the slope. Any damage incurred during rip rap operations shall be repaired at the Contractor's expense. Riprap shall be placed to the minimum thickness designated on the drawings and shall be positioned in such a manner that will provide uniform distribution of the various sizes of stone and produce a well-keyed mass of rock with the least practical amount of void space. The surface shall be leveled as necessary, to produce a reasonably uniform appearance and the required thickness.

END OF SECTION

Rip Rap 31 37 00 - 3

32 11 23 Aggregate Base Courses

PART 1 - General

1.1 SCOPE OF WORK

A. This item consists of the construction of aggregate bases and surfaces conforming to the lines a degrades shown on the plans and these specifications.

1.2 RELATED WORK AND REFERENCES

A. City of Williston Construction Design Standards

1.4 SUBMITTALS

- A. Action Submittals:
 - 1. Product Material Gradation
- B. Informational Submittals:
 - 1. Product Material:
 - a. Source
- C. Closeout Submittals:
 - 1. None

PART 2 – Material

2.1 MATERIAL

The Gradation of the aggregate shall meet the following:

	Class 5	Class 7	Class 13	
	Percent Passing By Weight			
Square Mesh Sieve Size	Aggregate Base	Aggregate Surface	Aggregate Surface	
1"	100%	100%	100%	
3/4"	90- 100%	95-100%	70-100%	
1/2"		85-100%		
3/8"		60-90%		
No. 4	35-70%	15-25%	38-75%	
No. 8	20-60%	2-10%	22-62%	
No. 30	16-40%		12-45%	
No. 200	4-10%	0-3%	7-15%	
Shale	12% max	8% max	12% max	
L.A. Abrasion	50% max	40% max	50% max	

Aggregate Base Courses 32 11 23 - 1

Fractured Faces 10% min.	85% min.	10% min.
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These Gradations are intended to meet the current version of the NDDOT Class 5, Class 7 and Class 13 aggregate gradations.

PART 3 – CONSTRUCTION REQUIREMENTS

3.1 SPREADING

- A. Unless otherwise direct by the Engineer, aggregate shall be spread from equalized windrows
- B. The initial aggregate layer shall not exceed a 6 inch compacted thickness. Subsequent layers shall not exceed a 3 inch compacted thickness.
- C. Aggregate shall not be spread in snow or on a frozen, soft, or muddy subgrade. Any soft spots which develop in the subgrade shall be repaired by the Contractor.

3.2 FINISHING AND COMPACTING

- A. While the aggregate is being spread, it shall be thoroughly compacted with pneumatic rollers. Rolling shall continue until the aggregate has thoroughly set. Voids have been reduced to the minimum, and the aggregate no longer creeps ahead of the roller. Blading and rolling shall be done alternately to obtain a smooth uniform section, Areas inaccessible to a roller shall be compacted with mechanical compacters, and sprinkling of the aggregate may be used to aid in compaction.
- B. After the aggregate has been compacted, the surface shall be at the elevations required by the plans. The surface shall not vary more than 0.10 of a foot.
- C. Contractor shall meet the optimal moisture content of the material before compaction begins. Contractor is responsible to ensure that the moisture content is uniform throughout the material.

3.3 MAINTENANCE

- A. The Contractor shall maintain the aggregate base until such time it has been paved.
- B. The Contractor shall maintain the aggregate surface until the project has been accepted.

3.4 SAMPLING OF AGGREGATES

A. One sample shall be taken each production day according to ASTM D75. An aggregate sieve analysis shall be run with the sample by the Contractor and promptly provide all results to the Engineer.

3.5 QUALITY CONTROL

- A. Special Requirements: The requirements outlined below are minimum; the recommendations of the geotechnical report shall be followed unless said recommendations are less than minimum standards.
- B. Soil Proctor: One determination for each significant change in soil type as necessary to provide required compaction testing. Test shall be ASTM D698 (Standard Proctor) or as approved by the Engineer.
- C. Moisture / Density determination: One test per 100 lineal ft of roadway. Test shall be ASTM D-1556 or D-2922 and D-3017. Test locations shall be alternated over

- roadway cross section.
- D. Additional moisture / density determinations, soil classifications, and soil proctors may be made when required by the Owner's Representative.
- E. Acceptance: Any earthwork determined (by Owner's Representative) not to be in compliance with the specifications shall be removed and replaced or reworked until compliance is attained. Costs for the rework or testing the rework shall be paid for by the Contractor.

END OF SECTION

32 01 29.64 Partial Depth Roadway Repair

PART 1 - General

<u>DESCRIPTION</u> This item shall consist of the removal and disposal of over saturated, soft, pumping material found in existing roadway base, replacing soft material with aggregate base along with placement of a geotextile reinforcing fabric separating the existing material and new aggregate base. The over excavation alternative shown on the plans is a separate item from Soft Spot Repair.

Part 2 - Products

MATERIALS

Aggregate Base Aggregate base material shall conform to section 800M Aggregate Base and Surfaces.

<u>Geotextile Fabric</u> Geotextile shall be a Type R1 reinforcing fabric. The fabric shall consist of polymeric filament or yarns such as polypropylene, polyester, polyamide, or polyvinylidene chloride. The filaments or yarns shall be formed into a stable network so they retain their relative position to each other. The geotextile shall be inert to commonly encountered chemicals and meet the following properties.

Grab Tensile Strength = 270 lbs./in. min.
Grab Tensile Elogation = max 15%
Trapezoid Tear Strength = 100 lbs. min. (in any direction)
Puncture Strength = 100 lbs. min.
AOS less than mm = 0.600
UV Resistance = 70% strength retained after 150 hrs.
Sewn-Seam Strength = 240 lbs./in. min

Part 3 - Execution

CONSTRUCTION REQUIREMENTS

<u>General</u> All locations of Soft Spot Repair will be determined at the Engineer's discretion. The Engineer will determine the location and size of each soft area to be repaired. The contractor will provide, per Engineers request, a fully loaded water truck or suitable equal for proof rolling purposes.

Excavation Excavation shall be performed in accordance with Williston City Standards

<u>Aggregate Base</u> Aggregate Base shall be placed in accordance with Williston City Standards. A minimum of 12 inches of Aggregate Base will be placed over the Geotextile Fabric and at a maximum of 6 inch lifts thereafter.

<u>Geotextile Fabric</u> The surface receiving fabric shall be smooth and free of stones, sticks and other debris or irregularities that might puncture the fabric.

Fabric shall be placed free of wrinkles and shall be protected at all times during construction. No construction equipment shall operate on the fabric. For areas wider than the width of the fabric, an overlap of 12 inches will be required.

Reinforcement fabric shall be placed parallel to the centerline of the road. The fabric shall be placed such that it is taut and pinned. The first lift above the reinforcement fabric shall have a minimum lift of 12 inches before compaction.

Small dozer equipment or front-end loaders with low ground pressures shall be used to spread the cover material.

-END OF SECTION-

SECTION 32 12 16

ASPHALT PAVING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Hot-mix asphalt patching
 - 2. Hot-mix asphalt paving
 - 3. Pavement-marking paint and Preformed thermoplastic pavement markings
- B. Related Sections:
 - 1. Contract Documents Part 4 Supplemental Information Geotech Reports

1.2 DEFINITION

A. Hot-Mix Asphalt Paving Terminology: Refer to ASTM D 8 for definitions of terms.

1.3 SUBMITTALS

- A. Submit under provisions of Division 01 Specifications.
- B. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.
- C. Submit design mix under provisions of Division 01.
- D. Submit asphalt mix aggregate under provisions of Division 01.
- E. Submit pavement marking product data under provisions of Division 01.
- F. Material Certificates: For each paving and striping material, from manufacturer.
- G. Material Test Reports: For each paving material.

1.4 QUALITY ASSURANCE

- A. Perform work in accordance with the Current Edition of the NDDOT Road and Bridge Standard Specifications.
- B. Mixing Plant: Conform to the Current Edition of the NDDOT Section 430 and comply with ASTM D 3515.
- C. Obtain materials from same source throughout duration of project.

1.5 HANDLING

- A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.
- B. Store pavement-marking materials in a clean, dry, protected location within temperature range required by manufacturer. Protect stored materials from direct sunlight.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:
 - 1. Tack Coat: Minimum surface temperature per NDDOT 430.
 - 2. Asphalt Single Course: Minimum surface temperature of 40 deg F and rising at time of placement.
- B. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F for oil- based materials, 55 deg F for water-based materials, and not exceeding 95 deg F.

1.7 WARRANTY

A. Contractor shall warrant work as provided by the General and Supplementary Conditions and Division 01 Specifications.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Asphaltic Concrete: Asphalt mix design shall meet the requirements of the NDDOT Road and Bridge Standard Specifications Section 430.

2.2 ASPHALT MATERIALS

- A. Asphalt Cement and Bituminous Materials per ISPWC Section 805 and ACHD Section 805 Supplemental as required.
- B. The Contractor shall provide the Engineer with a Mix Design for approval prior to placement of Bituminous Paving Materials.
- C. Plant mix Bituminous Pavement shall be Type 3, unless otherwise specified or approved.
- D. Asphalt Tack Coat: per ISPWC Section 806 and ACHD Section 806 Supplemental as required..
- E. Asphalt Prime Coat: per ISPWC Section 807 and ACHD Section 807 Supplemental as required..
- F. Water: Potable.

2.3 AUXILIARY MATERIALS

- A. Sand: AASHTO M 29, Grade Nos. 2 or 3.
- B. Joint Sealant: AASHTO M 324, Type II of III.
- C. Pavement-Marking Paint: Alkyd-resin type, lead and chromate free, ready mixed, complying with AASHTO M 248; colors complying with FS TT-P-1952.
 - 1. Color: Per the plans.
- D. Glass Beads: AASHTO M 247, Type 1. Roadway pavement markings only.

2.4 PREFORMED THERMOPLASTIC PAVEMENT MARKINGS

A. Preformed sheets of thermoplastic meeting AASHTO M-249.

- 1. Color shall be manufactured to conform to standard traffic marking color requirements, ASTM D 6628. Color: White.
- 2. Skid resistance shall meet ASTM E 303, minimum initial BPN ≥45.
- 3. Thickness shall be 90 mil.
- 4. Preformed thermoplastic should be stored indoors at a minimum temperature of 50 deg. F.
- 5. Thermoplastic shall have glass beads integrated during the manufacturing process.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that Base Course below proposed pavement areas is dry and in suitable condition to begin paving.
- B. Proceed with paving only after unsatisfactory conditions have been corrected.
- C. Verify that utilities, and other items requiring a cut and installation beneath the asphalt surface have been completed and that asphalt surface has been repaired flush with adjacent asphalt prior to beginning installation.

3.2 PATCHING

- A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Re-compact existing unbound-aggregate base course and add additional material to form new subgrade.
- B. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hotmix asphalt paving at a rate of 0.10 gal/sq. yd.
 - 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- C. Patching: Fill excavated pavements with hot-mix asphalt base mix for full thickness of patch and, while still hot, compact flush with adjacent surface.

3.3 REPAIRS

- A. Leveling Course: Install and compact leveling course consisting of hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch in existing pavements.
 - 1. Install leveling wedges in compacted lifts not exceeding 3 inches thick.
- B. Crack and Joint Filling: Remove existing joint filler material from cracks or joints to a depth of 1/4 inch.
 - 1. Clean cracks and joints in existing hot-mix asphalt pavement.
 - 2. Use emulsified-asphalt slurry to seal cracks and joints less than 1/4 inch wide. Fill flush with surface of existing pavement and remove excess.
 - 3. Use hot-applied joint sealant to seal cracks and joints more than 1/4 inch

wide. Fill flush with surface of existing pavement and remove excess.

3.4 SURFACE PREPARATION

- A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared crushed surfacing below proposed pavement areas is ready to receive paving.
- B. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.10 gal/sq. yd.
 - 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- C. Surface Course: The surface course lift shall be placed as near project substantial completion as possible.
 - 1. Base course pavement shall be cleaned to remove all debris and dust.
 - 2. Visually inspect base course pavement for mechanical or chemical damage. All areas with chemical damage, i.e. dripped fuels, or mechanical damage shall be identified and marked with paint for review by the Engineer. All areas determined to require patching shall be patched per 3.2 of this Section prior to placement of surface course.
 - 3. Apply tack coat to base course prior to placement of surface course at a rate of 0.15 gal/sq. yd.

3.5 HOT-MIX ASPHALT PLACING

- A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
 - 1. Asphalt: Place hot-mix asphalt in lifts that meet NDDOT Section 403.
 - 2. Spread mix at minimum temperature as required by binder temperature/viscosity curve.
 - 3. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes unless otherwise indicated.
 - 4. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
 - 5. Follow standard paving temperatures as described in NDDOT 430.
- B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.
 - 1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete a section of asphalt base course before placing asphalt surface course.
- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hotmix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.6 JOINTS

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.
 - 1. Clean contact surfaces and apply tack coat to cold joints.
 - 2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
 - 3. Offset transverse joints, in successive courses, a minimum of 24 inches.
 - 4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time.
 - 5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
 - 6. Compact asphalt at joints to a density within 2 percent of specified course density.

3.7 COMPACTION

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.
 - 1. Complete compaction before mix temperature cools to 185 deg F.
- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density.
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hotmix asphalt is still warm.
- E. The Engineer will base acceptance of the density of hot mix asphalt on the average density of the pavement compared to the daily average maximum theoretical density. The Engineer will determine the density of pavement based on lots. A lot is equal to the amount of material, in tons, placed each production day. A sublot is defined as a single lift, one paver width wide, and 1,000 feet long. If a partial sublot is less than 500 feet, it will be included in the previous sublot. A partial sublot 500 feet or greater will be considered a separate sublot. The individual sublot densities will be averaged to determine the density of the pavement lot. If the average pavement density compared to the daily average maximum theoretical density is below 90.0%, remove and replace the pavement.
- F. When the ambient temperature is 60°F or higher, place mix with a minimum laydown temperature of 230°F. When the temperature is below 60°F, place mix with a minimum laydown temperature of 250°F

- G. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- H. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.
- I. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- J. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.8 INSTALLATION TOLERANCES

- A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:
 - 1. Base Course Asphalt Lift: Plus or minus 3/16-inch.
 - 2. Surface Course Asphalt Lift: Plus 3/16-inch, no minus.
- B. Pavement Surface Smoothness: Comply with Current Edition of the NDDOT Road and Bridge Standard Specifications Section 430. Compact each course to produce a surface smoothness within the following tolerances as determined by using a 16-foot straightedge applied transversely or longitudinally to paved areas:
 - 1. Base Course Asphalt Lift: 3/16 inch.
 - 2. Surface Course Asphalt Lift: 3/16 inch.
 - 3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 3/16 inch.

3.9 PAVEMENT MARKING

- A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with the Engineer.
- B. Apply per ISPWC Section 1104.
- C. Protect newly applied pavement-marking paint until it has fully cured.
- D. Preformed Thermoplastic Pavement Markings:
 - Ensure asphalt or concrete surface is free of moisture, grease, loose dirt or particulate matter, or other substances which may hinder the mechanical bond to the surface. The surface should be pre-heated to an adequate temperature, and after installation is complete, the thermoplastic should be allowed to cool sufficiently to not incur structural deformation, compression, movement, or dirt-pickup.
 - 2. Before installing read and follow the manufacturer's writing installation instructions.

3.10 FIELD QUALITY CONTROL

A. Testing Agency: Contractor will engage a third-party qualified testing

- agency to perform tests and inspections.
- B. Field inspection and testing will be performed under provisions of Division 1.
- C. Frequency of Tests: Density Tests: 1 per 2000 sq. ft.
- D. All paved surfaces shall be flooded with water in the presence of the Engineer to verify that all surfaces completely drain, and no low depressed areas exist. A minimum of 48 hours' notice shall be given.
- E. Excessive rock pockets and/or cold joints (surface irregularities) are not acceptable and shall be corrected in a manner acceptable to the Engineer at no cost to the Owner.
- F. Replace core holes with appropriate method as approved by the Engineer where core tests were taken.
- G. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.11 PROTECTION

A. Immediately after placement, protect pavement from mechanical and chemical damage until date of Substantial Completion.

3.12 DISPOSAL

- A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.
 - 1. Do not allow milled materials to accumulate on-site.

END OF SECTION 32 12 16

Section 32 16 00

Curbs, Gutters and Sidewalk

1 Part 1 - General

1.1 Work Included

A. The Contractor shall furnish all labor, materials and services necessary for, and incidental to, the completion of all work as shown on the drawings and specified herein. All machinery and equipment owned or controlled by the Contractor, which is proposed to use for the work, shall be of sufficient size to meet the requirements of the work and shall be such as to produce satisfactory work; all work shall be subject to the inspection and approval of the Engineer. The Contractor shall employ, at all times, a sufficient force of workman of such experience and ability that the work can be prosecuted in a satisfactory and workmanlike manner.

1.2 PLANT CERTIFICATION

A. All plants supplying concrete shall be certified by an approved plant certification program by the National Ready Mix Concrete Association, NDDOT (in the current construction season).

2 Part 2 – Materials/Products

2.1 Cementitious

A. PORTLAND CEMENT

Cement shall meet the current specifications of one of the following ASTM's.

- 1. ASTM C 150 Standard Specification for Portland Cement
- 2. ASTM C 595 Standard Specification for Blended Hydraulic Cements
- 3. ASTM C 1157 Standard Performance Specification for Hydraulic Cement
- B. Different brands of cement, or the same brand of cement from different mills, shall not be mixed during use without approval of the Engineer. Cement shall be stored in a suitable manner to prevent moisture damage; cement which is partially set or which contains lumps or cakes shall be rejected. Cements shall meet the following requirements unless written approval is provided by the Engineer.
- C. Fly Ash
- 1. Fly ash shall meet the requirements of ASTM C 618 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete. Fly Ash will be allowed as a cement replacement on a 1:1 ratio, by mass, up to a maximum of 30%. Substitution upon approval of the Engineer only.
- D. Slag Cement
 - Slag cement shall meet the requirements of ASTM C 989 Standard Specification for Slag Cement for Use in Concrete and Mortars. For machine placed concrete with slumps less than 1.5 inches, slag cement will be allowed as a cement replacement on a 1:1 ratio, by

mass, up to a maximum of 40%. For all other concrete mixtures, slag cement will be allowed as a cement replacement on a 1:1 ratio, by mass, up to a maximum of 30%. Substitution upon approval of the Engineer only.

2.2 Aggregates

A. Aggregates for all concrete mixes shall be provided with gradations considered well-graded by specification as determined by the most current NDDOT Standard Specifications for Road and Bridge Construction for Well-Graded Aggregates for concrete. Optimization techniques will be used to prepare the final aggregate gradations for workability and coarseness factor considerations.

B. DELETERIOUS REACTIONS

- Alkali Silica Potential Aggregate data shall be provided for all aggregates to be used in the concrete mixture to mitigate the risk of Alkali Silica Reaction (ASR) occurring in the concrete. One or more of the following methods shall be submitted for review by the Engineer.
- 2. Field history of the aggregate. This data shall represent at least 10 years of performance with similar cementitious materials and exposure.
- 3. ASTM C 1260 Standard Test Method for Potential Alkali Aggregate Reactivity (Mortar-Bar Method). This method shall be conducted with each aggregate separately to determine the potential reactivity. The maximum expansion shall be 0.1 percent. This data shall be current within 1 year from time of submittal.
- 4. ASTM C 1567 Standard Test Method for Determining the Potential Alkali Aggregate Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method). Fly Ash, Slag Cement, Silica fume or Lithium may be used to mitigate potential ASR. This method shall be conducted with each aggregate separately to determine the potential reactivity. The maximum expansion shall be 0.1 percent. This data shall be current within 1 year from time of submittal.
- ASTM C 1293 Standard Test Method for Determination of Length Change of Concrete Due to Alkali-Silica Reaction. This method shall be conducted with each aggregate separately to determine the potential reactivity. The maximum expansion shall be 0.04 percent. This data shall be current within 3 years from time of submittal. If supplementary cementitious materials are used in this testing for the mitigation of ASR the result must be less than 0.04 percent at 2 years.
- 6. ASTM C 295 Standard Guide for Petrographic Examination of Aggregates for Concrete. Petrographic analysis must indicate there is no risk of ASR occurring with the aggregate to be used in the mixture.
- 7. Limit the alkali content in the concrete to no more than 3 lbs. per cubic yard Na2O equivalent.

C. AGGREGATE MATERIAL PROPERTIES

- Fine Aggregate properties shall meet the requirements of Section 802 of the most current NDDOT Standard Specifications for Road and Bridge Construction with exceptions, the maximum limits of lightweight pieces of aggregate shall not exceed 1%.
- Coarse aggregate properties shall meet the requirements of Section 802 of the most current NDDOT Standard Specifications for Road and Bridge Construction with exceptions, the maximum percent weight of the plus No. 4 fraction of Shale shall not exceed 0.5%.

2.3 Water

A. Water shall meet ASTM C 1602 Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete or be potable.

2.4 Admixtures

All admixtures shall be non-chloride and shall not have chlorides added during the manufacturing process.

- A. AIR FNTRAINMENT
 - 1. An air entrainment admixture shall meet ASTM C 260 Standard Specification for Air- Entraining Admixtures for Concrete.
- B. WATER-REDUCING ADMIXTURES
 - If water-reducing admixtures are utilized in the concrete mixture they shall meet the requirements of ASTM C 494 Standard Specification for Chemical Admixtures.
- C. OTHER ADMIXTURES
 - 1. No other admixture shall be used unless approved by the Engineer.

3 Part 3 – Execution

3.1 Mixing

- A. Use of ready-mixed concrete shall meet all applicable requirements of ASTM C 94
 Standard Specification for Ready-Mix Concrete with exceptions as noted in the plans
 and these Standard Specifications. The size of the batch shall not exceed the
 manufacturer's rated capacity as shown on a metal rating plate that shall be attached
 in a prominent place on the truck mixer. When mixing, the drum shall rotate at a
 mixing speed for not less than 70-100 revolutions. All concrete hauling equipment shall
 be operated to deliver and discharge the required concrete mixture completely
 without segregation. The drum shall be completely emptied before receiving the
 material for the succeeding batch.
- Batch mix or job-site mixed concrete shall be mixed in a rotary batch mixer of a type acceptable to the Engineer and shall meet all requirements as specified in Section 155 of the most current NDDOT Standard Specifications for Road and Bridge Construction of Concrete Equipment. The volume of the mixed material for each batch shall not exceed the manufacturers rated capacity of the mixer. The batch material shall be delivered to the mixer accurately measured to the desired proportions and shall be continuously mixed for not less than 90 seconds after all materials including water are in the mixer, during which time the mixer shall rotate at the speed recommended by its manufacturer.
- C. Mix temperatures between batching and placement shall be maintained between 50°F

and 90°F.

3.2 AGITATING TRUCK TIME LIMITATIONS

A. The concrete transported in an agitating truck shall be completely discharged within 90 minutes after the introduction of the mixing water to the dry materials when ambient temperatures are less than or equal to 80°F. This time is reduced to 60 minutes when temperatures exceed 80°F.

3.3 NON-AGITATING TRUCK TIME LIMITATIONS

A. The concrete transported in a non-agitating truck shall be completely discharged within 45 minutes after the introduction of the mixing water to the dry materials when ambient temperatures are less than or equal to 80°F. This time is reduced to 30 minutes when temperatures exceed 80°F.

3.4 FIELD ADJUSTMENTS TO MIXED CONCRETE

A. The table below illustrates potential field adjustments the Contractor may administer in the field under authorization of the Engineer before truck discharging occurs. The Contractor will test each subsequent load of concrete to determine the concrete is within the specified limits. Placement of concrete will not be allowed until the Engineer has determined the concrete is within the limits. If two consecutive tests fail, the load will be rejected. The Engineer reserves the right to reject any loads not meeting specified limits.

Problem	Resolution	Specified Limits
Slump too low	* Contractor may "add water" one time prior to start of	Not to exceed 4" slump
	concrete discharge from the truck (water to be added before	
	testing).	
Slump too high	If first test fails, immediately re-test a new concrete sample	Not to exceed 4" slump
	from same truck. If 2 nd test fails, reject load.	
Problem	Resolution	Specified Limits
Air too high	If first test fails, immediately re-test a new concrete sample from same truck. If 2nd test fails, reject load.	** Between 5% and 8%
Air too low	* If first test fails, Contractor may perform one adjustment by adding air entrainment to load. Obtain new sample from adjusted concrete and test. If the sample of adjusted concrete fails, immediately re-test a new concrete sample from same truck. If 2nd test of the adjusted concrete fails, reject load.	** Between 5% and 8%

- 1. *Only one adjustment per load allowed. After adjustment, mixing must consist of at least 30 revolutions at mixing speed.
- 2. ** See project approved mix design.

3.5 PLACING CONCRETE

A. Prior to setting forms or placing concrete, the base material shall be accepted by the Engineer for concrete placement. The base material shall be satisfactorily graded to within a tolerance of +/- 0.02′ (1/4″) of final grade. The base material shall be smooth,

- uniformly compacted, clean and free from debris, ruts, waste concrete, frost, ice, and standing water. Concrete shall not be placed on frozen base material.
- B. All concrete pavement and curb and gutter shall be placed by slip-form operation. Fixed forms may be used in irregular areas, intersections, tapers, alleys, roundabouts, areas inaccessible to slip-form equipment or other areas approved by Engineer.
- C. If concrete placement is temporarily interrupted, with an elapsed time between placement loads of concrete greater than 45 minutes, a transverse construction joint shall be installed. This timeframe may be decreased if there is potential for a cold joint when adverse conditions are encountered such as in hot weather. While being placed, the concrete shall be uniformly vibrated so that the formation of a cold joint, voids, and/or honeycombing is prevented.
- D. The Engineer reserves the right to halt any concrete placement if, in the judgement of the Engineer, the Contractor has failed to comply with any portion of the plans or these Standard Specifications.

3.6 COLD WEATHER POURING

- A. A cold weather plan shall be submitted by the Contractor to the Engineer for approval. If the ambient temperature during placement or curing is predicted to fall below 40°F, the cold weather concrete plan shall be followed. The plan shall at a minimum include the following:
 - 1. Method for delivering concrete at a temperature above 55°F
 - 2. Method for protecting and measuring base temperature
 - 3. Method for measuring in-situ concrete temperature
 - 4. Method for maintaining concrete temperature above 50°F until concrete attains a compressive strength of 3000 psi.
- B. Concrete placement shall not occur if the ambient temperature during placement is less than 30°F or the temperature of the base material is greater than 20°F below the plastic concrete temperature.
- C. Calcium chloride, chemicals, or other materials may not be added to the concrete mix to prevent freezing. Concrete shall not be placed on a frozen base or subgrade. Use of combustion heaters shall be vented away from poured concrete. Any concrete damaged from cold weather shall be removed and replaced at Contractor's expense.

3.7 PROTECTING CONCRETE FROM RAIN DAMAGE

- A. The Contractor shall not place concrete when rain conditions appear imminent. The Contractor shall possess, on the project site, sufficient waterproof material, and the means to rapidly place it, to cover all unhardened concrete surface or any other concrete surface that may be damaged by rain. Concrete shall not be placed during rain that results in any standing water on the surface of the fresh concrete surface.
- B. Rain-damaged concrete shall be cored as directed by the Engineer and depth of damage determined by Engineer. When the depth of damage is 1/4 inch or less of the pavement thickness, if applicable, the damaged areas may be corrected by diamond grinding or as directed by the Engineer. Diamond grinding, and any other related activities shall be at the Contractor's expense. Engineer reserves right to reject any rain-damaged concrete.
- C. If depth of damage is greater than 1/4 inch, the slab shall be considered defective and replaced at the Contractor's expense.

3.8 UNCONTROLLED CRACKING

A. Concrete in which uncontrolled cracks occur shall be removed to the nearest planned longitudinal and transverse joints. The removal and replacement method shall be

approved by Engineer and at the Contractor's expense. The work shall include the complete removal and replacement of a quantity of material, to include dowel bar assemblies when applicable, as is determined necessary for acceptance of the material by the Engineer. Any damage caused during the removal and replacement process shall be restored at the Contractor's expense (including but not limited to base or subgrade). All removal and replacement work shall be in accordance with the requirements of these Specifications.

3.9 CONCRETE FINISHING

- A. Concrete shall be consolidated, leveled, finished, and cured within 45 minutes of it being placed on the grade.
- B. The addition of water to the surface of the concrete to assist in finishing operations is not allowed and will result in non-payment, replacement, and/or repair of the wetted area as determined by the Engineer. Failure to take acceptable precautions to prevent surface drying of the concrete will be cause for shut down of placing operations. Evaporation retarders shall not be used as a finishing aid without permission of the Engineer.
- C. Forms shall be left in place for at least 15 hours after placing the concrete, and the method of removing them shall not damage or mar the concrete.
- D. The finished surface of the pavement and curb & gutter shall conform to the grade, alignment, dimensions, and contour shown on the plans and typical sections. Immediately following the floating operation, the Contractor shall test the slab surface for trueness with a 10 -foot straightedge. The straightedge shall be placed parallel to the pavement centerline and be passed over the slab to reveal any high or depression areas. The high or depression areas shall be cut or filled as necessary with the long handled floats and the area checked again with the straightedge. Successive advances of the straightedge shall overlap by 1/2 the length of the straightedge. The entire surface shall be checked until all variations have been eliminated.
- E. All curb and gutter surfaces shall be finished true to line and grade without any irregularities of surface noticeable to the eye. The curb and gutter shall not depart from more than 1/4 of an inch from a 10 foot straight edge, placed on the curb parallel to the center line of the street, nor shall any part of the exposed surface present a wavy appearance.
- F. Any concrete areas with segregation, honeycombing, and/or voids shall be removed and replaced at the Contractor's expense

3.10 TESTING

A. The Concrete shall be tested at least once per day of placement or at the discretion of the Engineer. This testing shall include, Slump, Air Content, Temperature, Compressive strengths (1 cylinder at 7 days and 3 cylinders at 28 days) and gradations and property tests on aggregates. Changes to this frequency of testing may be altered by the Engineer. The Contractor shall cooperate in the making of such tests to the extent of allowing free access to the work for the selection of samples. The Contractor shall be responsible for all costs of quality control testing. The Owner shall be responsible for all costs of quality assurance testing.

End of Section

32 91 13 Soil Preparation

GENERAL

1.1 SUMMARY

- A. The work covered by this section consists of furnishing all labor, materials, equipment and supplies in performing all operations in connection with providing and installing planting soils in strict accordance with this section and applicable drawings. Work includes providing planting soils, hauling, providing and mixing required amendments, placement of soils, finish grading, leaching, and soil preparation.
- B. Any minor items of labor or materials not specifically noted on the drawings or specifications; but necessary for the proper completion of the work, shall be considered incidental to and are to be included in the work.
- C. Work under this section shall include coordination of all work with all other sections of these specifications.
- D. Section Includes:
 - 1. Soil analysis and recommendations
 - 2. Soil amendments
 - 3. Existing in-place surface soil
 - 4. Imported planting soil
 - 5. Soil leaching

1.2 DEFINITIONS

- A. Final Acceptance: When the Owner accepts the project as fully complete and takes ownership and maintenance responsibility.
- B. Finish Grade: Elevation of finished surface of planting soil.
- C. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- D. Planting Soil: Standardized topsoil; existing, native surface topsoil; existing, in-place surface soil; imported topsoil; or manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- E. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or top surface of a fill or backfill before planting soil is placed.
- F. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

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- G. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil, but in disturbed areas such as urban environments, the surface soil can be subsoil.
- H. Topsoil: The soil ordinarily moved in tillage or its equivalent in uncultivated soil. The "A" horizon which is the mineral horizon at the surface. This horizon is the one in which living organisms are most active and therefore is marked by the accumulation of humus.
- I. Weed: Any plant other than that specified for the project in the area where a specific plant is designated.

1.3 SUBMITTALS

- A. Product Certificates: For soil amendments and fertilizers, from manufacturer.
- B. Material Test Reports: For standardized ASTM D 5268 topsoil, existing native surface topsoil, existing in-place surface soil and imported or manufactured topsoil. Material Test Reports shall also provide amendment recommendations with minimum quality standards and volumes.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: The Landscape Contractor shall meet state and local license, insurance and bonding requirements, and is able to show proof of such upon demand.
 - 1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor fluent in English on Project site when work is in progress.
- B. Soil-Testing Laboratory Qualifications: An independent laboratory with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.
- C. Soil Analysis: For each un-amended soil type, furnish soil analysis and a written report by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; mineral and plant-nutrient content of the soil (N, P, K, Mg, Ca, S, Z, Mn, Cu, Fe, B) cation exchange capacity; sodium absorption ratio; soluble salts, deleterious material (including but not limited to problem salts, minerals, heavy metals, etc.); pH; and mineral and amendment recommendations.
 - Soil samples shall be taken per the instructions of the soil-testing laboratory; with depth, location, and number of samples to be taken. A minimum of three representative samples shall be taken from varied locations for each soil to be used or amended for planting purposes.
 - 2. Report suitability of tested soil for plant growth.
 - a. Based upon the test results, state recommendations for soil treatments and soil amendments to be incorporated. State recommendations in weight per volume per cu. yd. for nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory planting soil suitable for healthy, viable plants.
 - b. Report presence of problem salts, minerals, or heavy metals, including aluminum, arsenic, barium, cadmium, chromium, cobalt, lead, lithium, and vanadium. If such

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problem materials are present, provide additional recommendations for corrective action.

- D. Where toxic levels are reported and leaching of the material is required to reach acceptable levels, provide a work plan to leach soils. After leaching provide a second soil analysis confirming that toxic elements have been lowered to acceptable levels.
- E. Amendment Analysis: Where amendment is required by soils analysis provide test results verifying qualities specified in soils analysis.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Bulk Materials:

- 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants to be preserved.
- 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
- 3. Accompany each delivery of bulk fertilizers, and soil amendments with appropriate certificates.

PART 2 - PRODUCTS

2.1 INORGANIC SOIL AMENDMENTS

- A. Based on soil analysis one or more of the following inorganic amendments may be required.
 - 1. Sulfur
 - 2. Iron Sulfate
 - 3. Aluminum sulfate
 - 4. Perlite
 - 5. Agricultural Gypsum
 - 6. Utelite E-Soil® Products (expanded shale aggregate products) for use in high traffic areas, heavy clay soils, backfill and raised planters etc.
 - a. Utelite E-Soil® Soil Conditioner for heavy clay or compacted soils

2.2 ORGANIC SOIL AMENDMENTS

- A. Based on soil analyses one or more of the following organic soil amendments may be required.
- B. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1/2-inch sieve; soluble salt content of less than 4 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
 - 1. Organic Matter Content: 20 percent of dry weight.

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- C. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture and free of chips, stones, sticks, soil, or toxic materials.
 - 1. In lieu of decomposed wood derivatives, mix partially decomposed wood derivatives with ammonium nitrate at a minimum rate of 0.15 lb/cu. ft. of loose sawdust or ground bark, or with ammonium sulfate at a minimum rate of 0.25 lb/cu. ft. of loose sawdust or ground bark.
- D. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.
- E. Nutri-Mulch® All Purpose Compost

F. For Estimating and Bidding Purposes

1. Provide 20% by volume organic compost.

2.3 FERTILIZERS

- A. Based on soil analyses one or more of the following fertilizer components may be required.
 - 1. Bonemeal
 - 2. Superphosphate
 - 3. Commercial Fertilizer
 - 4. Slow-Release Fertilizer
 - 5. Chelated Iron
 - 6. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

B. For Estimating and Bidding Purposes

- 1. For the preparation on a volume basis, homogenously blend the following materials into clean soil. Rates are expressed per cubic yard:
 - a. Triple Phosphate (0-45-0) ¼ pound

2.4 PLANTING SOILS

- A. Planting Soil: **Existing**, in-place surface soil or native surface topsoil formed under natural conditions with the duff layer retained during excavation process and stockpiled on-site. Verify suitability of native surface topsoil to produce viable planting soil through <u>required soil analysis</u>. Clean soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.
 - 1. Supplement with approved imported planting soil when quantities are insufficient.
 - 2. Mix existing, native surface topsoil with the soil amendments and fertilizers <u>per the soil</u> analysis results to produce planting soil:
 - a. Ratio of Organic Compost to Topsoil by Volume: 20%.

b. pH: 6.5 - 7.8

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c. Soluble Salts: <4 ds/m or mmho/cmd. Sodium Absorption Ratio (SAR): 3-7

e. Sand: 20-70 f. Silt: 20-70 g. Clay: 10-20

- B. Planting Soil: **Imported** topsoil or manufactured topsoil from off-site sources. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches deep; do not obtain from bogs or marshes.
 - 1. Additional Properties of Imported Topsoil or Manufactured Topsoil: Screened and free of stones 1 inch or larger in any dimension (maximum 5% rock in total volume); free of roots, plants, sod, clods, clay lumps, pockets of coarse sand, paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials harmful to plant growth; free of weeds and invasive plants, not infested with nematodes, grubs, other pests, pest eggs, or other undesirable organisms and disease-causing plant pathogens; friable and with sufficient structure to give good tilth and aeration. Continuous, air-filled, pore-space content on a volume/volume basis shall be at least 15 percent when moisture is present at field capacity. Soil shall have a field capacity of at least 15 percent on a dry weight basis.
 - 2. Mix imported topsoil or manufactured topsoil with the following soil amendments per the soil analysis results to produce planting soil:
 - a. Ratio of Organic Compost to Topsoil by Volume: 20%.
 - b. pH: 6.5 7.8
 - c. Soluble Salts: <4 ds/m or mmho/cm
 - d. Sodium Absorption Ratio (SAR): 3-7
 - e. Sand: 20-70 f. Silt: 20-70 g. Clay: 10-20
- C. Lightweight On-Structure Planting Soil: Mix produced by modifying planting soil.
 - 1. Utelite E-Soil® Products per manufacturer's recommendations.
 - a. Utelite E-Soil® Root Zone Mix for backfill around trees and shrubs, planter mix and raised garden beds.

2.5 WATER FOR LEACHING

A. Culinary water or reclaimed water with very low soluble salts.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive planting soil for compliance with required grades, adjacent finished grades and coordination with other site work.

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- 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in areas to receive planting soil.
- 2. Do not mix or place soils or soil amendments in frozen, wet, or muddy conditions.
- 3. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
- 4. Uniformly moisten excessively dry soil that is not workable and which is too dusty.
- B. If contamination by foreign or deleterious material or liquid is present in subgrade soil within a planting area, remove the soil and contamination as directed by Owner's Representative and replace with new planting soil.
- C. Proceed with planting soil installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, existing trees, shrubs, and plantings from damage caused by planting soil placement operations.
 - 1. Protect grade stakes set by others until directed to remove them.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

C. Soil Leaching

- 1. High levels of soluble salts, high SAR levels and other elements will require leaching and follow-up agronomic testing to verify results prior to planting.
- 2. The landscape contractor will present a plan for the leaching process. Success of the leaching process will be confirmed by a soils analysis prior to acceptance of the soil for planting by the Owner's Representative.

D. Clearing and Grubbing

- 1. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
 - a. Do not remove trees, shrubs, and other vegetation indicated to remain.
 - b. Grind down stumps and remove roots, obstructions, and debris to a depth of **18** inches below exposed subgrade.
 - c. Use only hand methods for grubbing within protection zones.
 - d. Dispose of grubbed materials at an approved off-site location.

E. Grading/Soil Placement

- 1. General: Uniformly grade areas to a smooth surface and free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated on construction plans.
 - a. Provide a smooth transition between adjacent existing grades and new grades.
 - b. Insure positive surface drainage in all finish grading.

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- F. Newly Graded Subgrades: Loosen subgrade to a minimum depth of **12 inches**. Remove stones larger than **2 inches** in any dimension and sticks, roots, rubbish, and other extraneous matter and dispose of them at an approved off-site location.
 - 1. Thoroughly blend planting soil with amendments off-site before spreading or spread planting soil, apply soil amendments and fertilizer on the surface per soil testing recommendations, and thoroughly blend together by tilling.
 - a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.
 - 2. Spread planting soil per the construction plan cross sections, lines, and elevations. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
- G. Finish Grading: Slope grades to direct water away from buildings and to prevent ponding. Grade to within plus or minus 2 inches of adjacent finish surface to accommodate rock or bark mulch.
- H. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- I. Before planting, obtain Owner's Representative's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.
- J. During the contractor's maintenance period apply fertilizer that will provide actual nitrogen of at least 1 lb./1000 sq. ft. to turf area during the summer months.

3.3 CLEANUP AND PROTECTION

- A. During planting soil placement, keep adjacent paving, construction, and work area clean and in an orderly condition.
- B. Protect any existing or newly planted materials from damage due to planting soil placement operations and operations of other contractors or trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.
- C. Promptly remove soil overspill and debris created by planting soil placement from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- D. Remove nondegradable erosion-control measures at the Final Acceptance of the project.

END OF SECTION

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32 92 19 Seeding, Sodding, and Mulching

PART 1 - General

1.01 Description

This item shall consist of seeding, sodding, and mulching the areas shown on the plans or as directed by the Engineer.

PART 2 - Materials

2.01 Seed

Seed and seeding mixtures shall be free of all prohibited noxious weed seed and shall not contain more than 0.5% by weight of restricted noxious weeds seeds. Prohibited and restricted noxious weeds shall be those as classified by the State Seed Department.

All seed containers must be sealed and labeled to comply with existing North Dakota Seed Laws and Regulations or in accordance with U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act if shipped in Interstate Commerce.

Seed which has become wet, moldy, or otherwise damaged in transit or in storage will not be acceptable.

Seed mixture shall contain not less than the specified percent of Pure Live Seed and shall be uniformly mixed by weight to one of the following formula:

Class I (40 Lbs./Acre) (Pasture and Hay Land Areas)

Percent by weight	Kind of Grass (Rate of Application)	Percent Pure Live Seed
40	Brame Grass	80
40	Crested Wheat Grass	80
20	Slender or Intermediate Wheat Grass	75
Plus Cover Crop		

Class II (5 Lbs./100 S.Y.) (Lawn Areas)

Percent	Kind of Grass	Percent Pure	
by Weight	(Rate of Application)	Live Seed	
80	Kentucky Blue Grass	80	
10	Perennial Rye	80	
10	White Clover	80	

Class III (40 Lbs./Acre) (Level Areas)

Percent by Weight	Kind of Grass (Rate of Application)	Percent Pure Live Seed
100	Brome Grass	80
Plus Cover (

Class IV (40 Lbs./Acre) (For slopes 3:1 or more)

Percent by Weight	Kind of Grass (Rate of Application)	Percent Pure Live Seed
50	Brome Grass	80
50	Crested Wheat Grass	80
Plus Cover Crop		

Class V (20 Lbs./Acre) (Saline Areas)

Percent by Weight	Kind of Grass (Rate of Application)	Percent Pure Live Seed
40	Fairway Crested Wheat Grass	80
20	Slender Wheat Grass	75
40	Western Wheat Grass	75
Plus Cover Crop		

Class VI (10 Lbs./Acre) (Dense Nesting Cover)

Percent	a o, e. a.c.	
by Weight	(Rate of Application)	Live Seed
35	Intermediate Wheat Grass	75
20	Slender Wheat Grass	75
35	Alfalfa	85
10	Mixed Sweet Clover	85
Plus Cover Crop		

Class VII (40 Lbs./Acre) (Army Corps of Engineers)

Percent by Weight	Kind of Grass (Rate of Application)	Percent Pure Live Seed	Origin
30.68	Western Wheatgrass	85	WA
12.4	Green Needlegrass	98	MT
18.11	Oahe Intermediate Wheatgrass	90	WY
17.85	Tall Wheatgrass	91	WA
18.09	Slender Wheatgrass	97	CAN
Plus Cover (Crop		

When Class V seed mixture is specified, 60 pounds of ammonium nitrate (33.5% Nitrogen) per acre shall be spread on the soil prior to seeding or by means of fertilizer attachment on the drill. Ammonium nitrate shall not be mixed with the seed.

When Class I, III, IV, V, VI or VII seed mixture is specified, 20 pounds of oats seed per acre shall be added to the mixture if seeding is performed before July 15th, and if seeding is performed after July 15th, 30 pounds of rye seed per acre shall be added to the mixture.

If seed with the specified percentage of pure live seed cannot be obtained, additional seed may be used to bring the amount of live seed up to the amount specified.

Seed shall be furnished separately or in mixtures in standard containers with the seed name, lot number, net weight, percentages of purity and of germination and hard seed and percentage of maximum weed seed content clearly marked for duplicate signed copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within 6 months of date of delivery. This statement shall include: name and address of laboratory, date of test, lot number for each kind of seed and the results of tests as to name, percentages of purity and of germination, and percentage of weed content for each kind of seed furnished and, in case of a mixture, the proportions of each kind of seed.

2.02 Topsoil

Topsoil shall consist of loose, friable, loamy topsoil that is free of excess acid and alkali. It shall be free from objectionable amounts of sod, hard lumps, gravel, subsoil or other undesirable material which will prevent the formation of a suitable seedbed. Topsoil shall, prior to being stripped, have demonstrated by the occurrence upon it of healthy crops, grass or other vegetable growth that is of good quality, and that is reasonably well drained.

2.03 Soil For Repairs

The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be relatively free from large stones, roots, stumps, or other materials that will interfere with subsequent sowing of seed, sodding, or mulching, and shall be approved by the Engineer before being placed.

2.04 Sod

Sod furnished by the Contractor shall have a good cover of living or growing grass. This shall be interpreted to include grass that is seasonally dormant during the cold or dry seasons and capable of renewing growth after the dormant period. All sod shall be obtained from areas where the soil is reasonably fertile and contains a high percentage of loamy topsoil. Sod shall be cut or stripped from living, thickly matted turf relatively free of weeds or other undesirable foreign plants, large stones, roots, or other materials which might be detrimental to the development of the sod or to future maintenance. Any vegetation more than 6 inches in height shall be mowed to a height of 3 inches or less before sod is lifted. Sod shall have a uniform thickness of at least 2 inches.

Sod provided by the Contractor shall be approved by the Engineer.

2.04 Mulch Material

Acceptable mulch shall be the materials listed below or any approved locally available material that is similar to those specified. Low grade, musty, spoiled, partially rotted hay, straw, or other materials unfit for animal consumption will be acceptable. Mulch materials which contain matured seed of species which would volunteer and be detrimental to the proposed overseeding, or to surrounding land will not be acceptable. Straw or other mulch material which is fresh and/or excessively brittle, or which is in such an advanced stage of decomposition as to smother or retard the planted grass, will not be acceptable.

- a) <u>Hay:</u> Hay shall be native hay, sudan grass hay, broomsedge hay, legume hay, or similar hay or grass clippings.
- b) <u>Straw:</u> Straw shall be the threshed plant residue of oats, wheat, barley, or rye from which the grain has been removed.
- c) <u>Stalks:</u> Stalks shall be the whole or shredded stems of corn, cane, sorghum, flax, sunflowers, potato vines, or other coarse stemmy material.
- d) <u>Manure:</u> Manure shall be fresh or partially decomposed strawy stable manure containing not over 25% of solid material by volume.
- e) <u>Manufactured Mulch:</u> Cellulose fiber or wood pulp mulch shall be products commercially available for use in spray applications.
- f) <u>Asphalt Binder:</u> Asphalt Binder material shall conform to the requirements of A.S.T.M. D977, Type SS-1H or RS-1H, as appropriate.

Part 3-Construction Requirements

3.01 Seeding

Seeding shall be done at such times of the year when the climatic conditions of temperature and moisture are most adaptable for growth and work of this nature. It is preferred that seeding shall be accomplished before July 1st and after September 1st of each year.

The areas to be seeded shall be cleared of all debris, rank vegetation, and other material that is detrimental to the preparation of a seedbed. The areas thus cleared shall be shaped or bladed by approved equipment to the plan cross section, or to such cross section that best fits the existing conditions. The areas thus prepared shall be disced, harrowed, raked, or worked by some other approved method, into a reasonably smooth even seedbed. The surface of the prepared seedbed shall be firm enough to take and hold the seed without undue loss from high winds or ordinary rainfall. If rolling is necessary to secure this, it shall be done prior to the seeding and with an approved roller, the weight of which shall be dependent upon the particular soil conditions.

Seed shall be sown by means of a force feed drill with a grass seed attachment, except that on slopes steeper than 3:1 or on areas too small to be seeded with a force feed drill, seed may be sown by power sprayers, blowers, or other approved methods. All equipment shall be in good working order and shall be approved by the Engineer.

No seed shall be sown during winds strong enough to prevent it from being properly embedded into the surface.

Seed shall not be sown into frozen ground or standing water.

3.02 Sodding

The sod shall be cut with approved sod cutters to such a thickness that after it has been transported and placed on the prepared bed, but before it has been compacted, it shall have a uniform thickness of not less than 2 inches. Sod sections or strips shall be cut in uniform widths, not less than 10 inches, and in lengths of not less than 18 inches, but of such length as may be readily lifted without breaking, tearing, or loss of soil. Where strips are required, the sod must be rolled without damage with the grass folded inside. The Contractor may be required to mow high grass before cutting sod.

The sod shall be transplanted within 24 hours from the time it is stripped, unless circumstances beyond the Contractor's control make storing necessary. In such cases, sod shall be stacked, kept moist, and protected from exposure to the air and sun and shall be kept from freezing. Sod shall be cut and moved only when the soil moisture conditions are such that favorable results can be expected. Where the soil is too dry, permission to cut sod may be granted only after it has been watered sufficiently to moisten the soil to the depth the sod is to be cut.

Sodding shall be performed only during the seasons when satisfactory results can be expected. Frozen sod shall not be used and sod shall not be placed upon frozen soil. Sod may be transplanted during periods of drought with the approval of the Engineer, provided the sod bed is watered to moisten the soil to a depth of at least 4 inches immediately prior to laying the sod.

The sod shall be moist and shall be placed on a moist earth bed. Pitchforks shall not be used to handle sod, and dumping from vehicles shall not be permitted. The sod shall be carefully placed by hand, edge-to-edge and with staggered joints, in rows at right angles to the slopes, commencing at the base of the area to be sodded and working upward. The sod shall immediately be pressed firmly into contact with the sod bed by tamping or rolling with approved equipment to provide a true and even surface, and insure knitting without displacement of the sod or deformation of the surfaces of sodded areas. Where the sod may be displaced during sodding operations, the workmen when replacing it shall work from ladders or treated planks to prevent further displacement. Screened soil of good quality shall be used to fill all cracks

between sods. The quantity of the fill soil shall not cause smothering of the grass. Where the grades are such that the flow of water will be from paved surfaces across sodded areas, the surface of the soil in the sod after compaction shall be set approximately 1 inch below the pavement edge. Where the flow will be over the sodded areas and onto the paved surfaces around manholes and inlets, the surface of the soil in the sod after compaction shall be placed flush with the pavement edges.

On slopes steeper than 3:1 and in V-Shaped or flat bottom ditches or gutters, the sod shall be pegged with wooden pegs not less than 12 inches in length and have a cross sectional area of not less than 3/4 square inch. The pegs shall be driven flush with the surface of the sod. Adequate water and watering equipment must be on hand before sodding begins, and sod shall be kept moist until it has become established and it's continued growth assured. In all cases, watering shall be done in a manner which will avoid erosion from the application of excessive quantities and will avoid damage to the furnished surface.

The newly placed sod shall be kept in good condition during the care period following placement. The care period after placement of the sod shall be 14 days duration for sod placed during the growing season before July 15th, and after September 15th; and shall be 21 days duration for sod placed between July 15th and September 15th.

The time between October 15th of any year and April 15th of the following year shall not be considered to be a part of the required care period for sod. Sod placed after October 15th of any year, or sod placed at a time when the care period for that sod extends past October 15th shall show evidence of established growth after April 15th of the following year before its care period will be considered concluded.

Water shall be applied to the sod during the care period according to the following schedule:

Immediately after sod placement	5 gals./sq. yd.
7 days after sod placement	5 gals./sq. yd.
14 days after sod placement	5 gals./sq. yd.

For sod placed between July 15th and September 15th, an additional 5 gallons per square yard shall be applied 21 days after sod placement.

Water shall be applied by sprinkling or any method approved by the Engineer that prevents wasting the water by runoff from the sod area. If necessary to prevent runoff several hours of applications of the water may be required. The amount of water to be applied may be reduced by the Engineer if in his opinion there has been enough rainfall to warrant a reduction.

The Contractor shall furnish and replace without any compensation any sod that dies or is damaged to the extent replacement is required during the care period. Replacement sod shall be installed under the same specification requirements as those for the original sod being replaced, including the care period.

Water will be considered incidental to the items "Sodding".

All sodded areas shall be protected against traffic or other use by warning signs or barricades approved by the Engineer.

The Contractor shall mow the sodded areas with approved mowing equipment, depending upon climatic and growth conditions and the needs for mowing specific areas. In the event that weeds or other undesirable vegetation are permitted to grow to such an extent that, either cut or uncut, they threatened to smother the sodded species, they shall be mowed and the clippings raked and removed from the area.

When the surface has become gullied or otherwise damaged during the period covered by this contract, the affected areas shall be repaired to reestablish the grade and the condition of the soil, as directed by the Engineer, and shall then be resodded.

3.02 Mulching

Before spreading mulch, all large clods, stumps, stones, brush, roots, and other foreign material shall be removed from the area to be mulched. Mulch shall be applied immediately after seeding. The spreading of the mulch may be by hand methods, blower, or other mechanical methods, provided a uniform covering is obtained.

Mulch materials shall be furnished, hauled, and evenly applied on the area shown on the plans or designated by the Engineer. Straw or hay shall be spread over the surface to form a uniform thickness at the rate of 2 to 3 tons per acre to provide a loose depth of not less than 1-1/2 inches nor more than3 inches. Other organic material shall be spread at the rate directed by the Engineer. Mulch may be blown on the slopes and the use of cutters in the equipment for this purpose will be permitted to the extent that at least 95% of the mulch in place on the slope shall be 6 inches or more in length. When mulches applied by the blowing method are cut, the loose depth in place shall not be less than 1 inch nor more than 2 inches.

The mulch shall be held in place by light discing, a very thin covering of topsoil, small brush, pins, stakes, wire mesh, asphalt binder, or other adhesive material approved by the Engineer. Where mulches have been secured by either of the asphalt binder methods, it will not be permissible to walk on the slopes after the binder has been applied. The Contractor is warned that in the application of asphalt binder material he must take every precaution to guard against damaging or disfiguring structures or property on or adjacent to the areas worked and that he will be held responsible for any such damage resulting from his operations.

If the "Peg and String" method is used, the mulch shall be secured by the use of stakes or wire pins driven into the ground on 5 foot centers or less. Binder twine shall be strung between adjacent stakes in straight lines and crisscrossed diagonally over the mulch, after which the stakes shall be firmly driven nearly flush to the ground to draw the twine down tight onto the mulch.

The Contractor shall care for the mulched areas until final acceptance of the project. Such care shall consist of providing protection against traffic or other use by placing warning signs as approved by the Engineer, and erecting and barricades that may be necessary. The Contractor shall be required to repair or replace any mulching that is defective or becomes damaged until

the project is finally accepted. When in the judgement of the Engineer, such defects or damages are the result of poor workmanship or failure to meet the requirements of the specifications, the cost of the necessary repairs or replacement shall be borne by the Contractor. However, once the Contractor has completed the mulching of any area in accordance with the provisions of the specifications and to the satisfaction of the Engineer, no additional work at his expense will be required, but subsequent repairs and replacements deemed necessary by the Engineer shall be made by the Contractor and will be paid for as additional or extra work.

If the "Asphalt Spray" method is used, all mulched surfaces shall be sprayed with asphalt binder material so that the surface has a uniform appearance. The binder shall be uniformly applied to the mulch at the rate of approximately 8.0 gallons per 1,000 square feet, or as directed by the Engineer, with a minimum of 6.0 gallons and a maximum of 10 gallons per 1,000 square feet depending on the type of mulch and the effectiveness of the binder securing it. Bituminous binder material may be sprayed on the mulched slope areas from either the top or the bottom of the slope. An approved spray nozzle shall be used. The nozzle shall be operated at a distance of not less than 4 feet from the surface of the mulch and uniform distribution of the bituminous material shall be required. A pump or an air compressor of adequate capacity shall be used to insure uniform distribution of the bituminous material.

If the "Asphalt Mix" method is used, the mulch shall be applied by blowing, and the asphalt binder material shall be sprayed into the mulch as it leaves the blower. The binder shall be uniformly applied to the mulch at the rate of approximately 8.0 gallons per 1,000 square feet or as directed by the Engineer, with a minimum of 6.0 gallons and a maximum of 10 gallons per 1,000 square feet depending on the type of mulch and effectiveness of the binder securing it.

-END OF SECTION-

13th Ave W Roadway Improvements & Detention Pond 8

25-001 January 2025

Part 4: Supplemental Information



- ENVIRONMENTAL
- GEOTECHNICAL
- MATERIALS
- FORENSICS

REPORT OF GEOTECHNICAL EXPLORATION

Williston Square Development Work Order #1 Williston, North Dakota

AET No. 37-20560

Date:

April 2, 2020

Prepared for:

City of Williston 22 East Broadway Williston, North Dakota 58801

www.amengtest.com





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April 2, 2020

City of Williston 22 East Broadway Williston, North Dakota 58801

Attn: Mr. David Tuan

RE: Geotechnical Exploration

Williston Square Development

Work Order #1

Williston, North Dakota AET No. 37-20560

Greetings Mr. Tuan:

American Engineering Testing, Inc. (AET) is pleased to present the results of our subsurface exploration program and geotechnical engineering review for the Williston Square Development, Work Order #1 project in Williston, North Dakota. These services were performed according to our proposal to you dated January 8, 2020.

We are submitting one electronic copy of the report to you. Additional copies can be sent out at your request. Once the laboratory testing is completed, we will issue the final report.

Please contact me if you have any questions about the report. I can also be contacted for arranging construction observation and testing services during construction.

Sincerely,

American Engineering Testing, Inc.

Harvey T. Fitzgerald, P.E.

Engineer II

Phone: (701) 572-3324 hfitzgerald@amengtest.com

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SIGNATURE PAGE

Prepared for:

City of Williston 22 East Broadway Williston, North Dakota 58801

Attn: Mr. David Tuan

Prepared by:

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Engineer II

Reviewed by:

Joh C. Howell, M.S., P.E. Senior Geotechnical Engineer

Gillette Manager



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APPENDIX B – Geotechnical Report Limitations and Guidelines for Use

1.0 INTRODUCTION

You are proposing to develop the former Sloulin Field International Airport in Williston, North Dakota. To assist planning and design, you have authorized American Engineering Testing, Inc. (AET) to conduct a subsurface exploration program at the site, conduct soil laboratory testing, and perform a geotechnical engineering review for the project. This report presents the results of the above services and provides our engineering recommendations based on this data.

2.0 SCOPE OF SERVICES

AET's services were performed according to our proposal to you dated January 8, 2020, which you authorized on February 13, 2020. The authorized scope consists of the following.

- Sixteen (16) standard penetration test borings to depths of 16.5 feet below existing grade at each location.
- Soil laboratory testing
- Geotechnical engineering review based on the data and preparation of this report

These services are intended for geotechnical purposes only. The scope is not intended to explore for the presence or extent of environmental contamination in the soil or groundwater.

3.0 PROJECT INFORMATION

The project consists of developing and constructing city streets across the former Sloulin Field International Airport in Williston, North Dakota. Construction consists of extending 16th Avenue West (between 26th Street West and 42nd Street West), 42nd Street West (between 16th Avenue West and 32nd Avenue West), 32nd Avenue West (between 37th Street West and 42nd Street West), and 34th Street West (between Highway 2 and the proposed civic center). We summarize the existing site conditions and proposed construction in the table below.

Table 1. Existing Site Conditions & Proposed Construction

Streets	Existing Condition	Approximate Length (feet)	Proposed Construction (year)
16 th Avenue West	The street is currently undeveloped, will run north and south across former Sloulin Field International Airport. Crosses a small drainage about 1,375 feet north of 26 th Street	5,220	Construction of a 3-lane street including asphaltic concrete pavement, Portland cement concrete curb & gutter, and sidewalks (2020)

Streets	Existing Condition	Approximate Length (feet)	Proposed Construction (year)	
42 nd Street West	The street is surfaced with asphaltic concrete pavement from 32 nd Avenue West to the entrance to the Municipal Golf Course. The street then turns to gravel to the airport property. The remaining alignment is undeveloped across the runway. The street will cross the old runway and taxiway	5,230	Reconstruction including widening to a 3-lane street and asphaltic concrete pavement, Portland cement concrete curb & gutter, and sidewalks (2021)	
32 nd Avenue West	The street is currently surface with asphaltic concrete pavement and is about 22 feet wide.	1,535	Reconstruction including widening to a 3-lane street and asphaltic concrete pavement, Portland cement concrete curb & gutter, and sidewalks (2021)	
34 th Street West	The location of the proposed street will run along the east portion of the existing Airport Road and will continue east across the locations of several of the former buildings and former aprons associated with the former Sloulin Field International Airport.	1,600	New street construction and reconstruction of a 5-lane street including asphaltic concrete pavement, Portland cement concrete curb & gutter, and sidewalks (2020)	

We understand the asphaltic concrete millings and base course material from the airport pavements will be used during construction. The elevation changes along the 16th Avenue West and 42nd Street West alignments will result in cuts and fills on the order of 5 feet, and retaining walls, on the order of 5 feet in height, might be necessary along 16th Avenue West. We understand there will be some reinforced concrete culverts along the alignment that will typically extend 3 to 6 feet below finished grades. The site soil will be reused for structural fill as is typical in the area.

The above stated information represents our understanding of the proposed construction. This information is an integral part of our engineering review. It is important that you contact us if there are changes from that described so that we can evaluate whether modifications to our recommendations are appropriate.

4.0 SUBSURFACE EXPLORATION AND TESTING

4.1 Field Exploration Program

The subsurface exploration program conducted for the project consisted of sixteen (16) standard

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penetration test borings. Alliance Consulting provided the number of borings, the locations, and the boring depths. The logs of the borings and details of the methods used appear in Appendix A. The logs contain information concerning soil layering, soil classification, geologic origins, and moisture condition. A density description or consistency is also noted for the natural soils, which is based on the standard penetration resistance (N-value). The boring locations are shown on Figure 1 in Appendix A. The borings were staked in the field by Alliance Consulting.

4.2 Laboratory Testing

The laboratory test program included natural moisture content, relative density, Atterberg Limits, gradation (sieve analysis), moisture-density relationships (Proctor), California Bearing Ratio (CBR) tests, soil pH, resistivity, and soluble sulfates. The test results appear in Appendix A on the individual boring logs adjacent to the samples upon which they were performed, or on the data sheets following the logs.

5.0 SITE CONDITIONS

5.1 Surface Observations

Borings B-1 through B-3, B-15, and B-16 were located along 32nd Avenue West and 34th Street West, which were surfaced with asphaltic concrete pavement. Borings B-4 and B-5 were located along 42nd Street West, which was surfaced with gravel. The remaining borings were located on the former Sloulin Field International Airport, which was surfaced with prairie grass.

5.2 Subsurface Soils/Geology

The site geology primarily consists of glacial outwash and till, primarily lean clay and sand with occasional pockets of gravels and cobbles. Fill was encountered below the pavement sections for Borings B-1 through B-5, B-15, and B-16, and near the former airfield pavements in Borings B-6 through B-8. Frost extended to approximate depths ranging from 0 to 4.5 feet. Below the frost line, the soils were generally moist, the relative consistency of the cohesive soils ranged from soft to hard, and the relative density of the coarse-grained soils ranged from loose to very dense.

5.3 Groundwater

At the time of drilling, we encountered groundwater in Borings B-8, B-12, and B-15 at depths ranging from 7.8 to 14 feet below the existing grade. It should be noted our subsurface exploration

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occurred in February and March, and seasonal changes and locally heavy precipitation could change groundwater conditions. The contractor shall be prepared to address any changes in groundwater elevations that may have occurred between the time of the field exploration and the time of construction. We do not anticipate groundwater will affect construction.

6.0 RECOMMENDATIONS

6.1 Approach Discussion

The following geotechnical recommendations are presented to assist the planning, design, and construction of the street projects stated in Section 3.0 Project Information. Our recommendations are based on the results of our boring-based field investigation, field and laboratory testing, our experience in the area with similar soil conditions, and our understanding of the proposed construction. We specifically outline geotechnical design criteria, opinions, and recommendations regarding the soil conditions encountered. We also rely on a geotechnical continuity, communication between all project team members specific to risk- and cost-based decisions, and good construction practices to achieve the desired project outcome for City of Williston and Alliance Consulting. Therefore, our recommendations must be reviewed at the time civil design and construction plans are finalized to verify their applicability to the proposed project.

Exploration only allows observation of a small portion of the site subsurface conditions. Subsurface variations are possible between exploration locations and may not be apparent until construction. Where such variations exist, they may impact the opinions and recommendations presented in this report, as well as construction timing and costs. If design plans change, or if the subsurface conditions encountered during construction vary from those observed during our field evaluation, we must be notified to review the report recommendations and make necessary revisions.

6.2 Utility Construction

6.2.1 Discussion

We understand reinforced concrete culverts will be installed during construction. We anticipate excavations up to 8 feet in depth will be required for the proposed utility work. At this depth, the utilities will be in clayey and sandy soils. We provide detailed subsurface soil conditions on the boring logs in Appendix A.

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Conventional construction equipment such as tracked excavators should be able to make the required trench excavations within the site soils along the proposed utility alignments. We did encounter groundwater during our subsurface exploration at depths ranging from 7.8 to 14 feet below the existing grade; however, it should be noted that our exploration occurred in February and March, and seasonal changes and locally heavy precipitation could change groundwater conditions. The earthwork contractor should be prepared for dewatering the excavations and have equipment available that will lower and maintain the groundwater level a minimum of two (2) feet below the base of the excavations.

6.2.2 Trench Excavation

If excavation faces are not retained, the excavations should maintain maximum allowable slopes in accordance with OSHA Regulations (Standards 29 CFR), Part 1926, Subpart P, "Excavations" (can be found on www.osha.gov). Even with the required OSHA sloping, water seepage or surface runoff can potentially induce side slope erosion or running which could require slope maintenance.

The firm lean clay and medium dense sandy soil classifies as Type B and C soils, respectively, under the OSHA guidelines. Temporary excavation slopes may be required for utility trenches. Excavations less than 20 feet in depth shall have a maximum allowable slope of 1H:1V and 1½H:1V for Type B and C soils, respectively. Deeper excavations and/or in saturated soils or below the groundwater table should be considered on an individual basis. Water levels, due to climatic conditions should be evaluated at the time of construction. Construction vibrations can cause excavations to slough or cave. If the above trench layback recommendations are not feasible, due to space limitations or other factors, the OSHA rules should be consulted for alternative trench stabilization methods. Trench boxes or shoring in compliance with OSHA rules may be acceptable alternatives and is common practice in municipal projects.

6.2.3 Utility Subgrade Preparation

Excavate soil to the proposed utility subgrade elevations. Remove any unsuitable material, including soft and/or organic soil, if encountered. Soil disturbance negatively impacts the soil's performance. Remove any disturbed soil below the proposed utilities. If soil is disturbed, moisture condition and recompact the top 12 inches of soil as General Structural Fill as described in Table 2. located in Section 6.3 Materials and Compaction.

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6.2.4 Utility Backfill Considerations

We anticipate that the site soil excavated for utility construction will be re-used for trench backfill. The subsurface soil generally consisted of lean clay and sandy soils. At the time of our subsurface exploration, the natural moisture contents of the lean clay soil were at or above the optimum moisture content. Based on our experience with similar soils in the area, the excavated site soils for the new utility lines will require processing and moisture conditioning to bring the trench spoils close to the optimum moisture content before their reuse as trench backfill. Compact utility trenches in accordance with Table 2. located in Section 6.3 Materials and Compaction.

6.2.4 Pipe Bedding and Backfill

The on-site sand may be used as pipe bedding, if the material is free from clods, frozen material, or stones larger than 1 inch in their maximum dimension. Pipe bedding in areas below the water table shall consist of free draining, non-plastic, imported or on-site sand material. In addition, we recommend the following:

- Place utility pipes on at least 6 inches of bedding placed over firm, undisturbed native soil, controlled fill, stabilization bedding, or as specified by the pipe manufacturer's specifications.
- Place pipe bedding and compact it from the pipe invert to 6 inches above the top of the pipe with tamping bars and/or plate compactors to render the backfill in a firm and unyielding conditions. Backfill and compact around each side of the pipe simultaneously to minimize lateral shifting.
- Thoroughly place and compact bedding below pipe haunches or the zone between the pipe invert and the spring line. To achieve backfilling, the distance between the side of the pipe at the spring line and the trench wall should be at least 12 inches.

6.3 Materials and Compaction

The native soils and existing pavement materials can be reused during construction. We provide materials and compaction specifications in the table below.

Table 2. Materials and Compaction Specifications

Material	Allowable Use	Material Specifications	Minimum Compaction Requirements (ASTM D1557)	Moisture Content (% of optimum)
General Structural Fill	Subgrade preparation and embankment	 Soil classified as GM, GW, GC, SM, SC, SW, CL, or ML according to the USCS May not contain particles larger than 6" in median diameter Soil must be reasonably free from deleterious substances such as wood, metal, plastic, waste, etc. 	92%	± 3%
Utility Trench Backfill	Utility Trench Backfill	 Soil classified as GM, GW, GC, SM, SC, SW, CL, or ML according to the USCS May not contain particles larger than 6" in median diameter Soil must be reasonably free from deleterious substances such as wood, metal, plastic, waste, etc. 	92% (below 3 feet of the top of the pavement) 95% (from below the bottom of pavement to 3 feet below)	± 3%
Granular Structural Fill	Over- excavations and general structural fill	 Soil classified as GM or GW according to the USCS May not contain particles larger than 4" in median diameter Soil must contain less than 3% (by weight) of organics, vegetation, wood, metal, plastic, or other deleterious substances 	98%	-4% to +2%
Aggregate Base Course	Pavement aggregate base course, granular structural fill, and general structural fill	Aggregate meeting the requirements of Class 5 Aggregate in Section 816, Aggregates, of the North Dakota Department of Transportation's Standards Specifications for Road and Bridge Construction, 2014 edition.	98%	-4% to +2%

6.4 Testing Frequencies

We recommend performing the following tests at the recommended frequencies.

• Utility Trench Backfill – one (1) compaction test every 150 linear feet, or 2 per trench, whichever results in the greater number of tests, per each 8-inch lift of backfill.

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• **Pavements** – one (1) compaction test every 500 square yards of pavement area on the subgrade, embankment fill, subbase, and base course layer as applicable, per 8-inch lift.

To verify that construction conforms to the intent of this report, we recommend retaining American Engineering Testing, Inc. to observe, test, and record the following.

- Site Preparation including grubbing, stripping, and excavating.
- Earthwork Observations including monitoring and recording deviations from subsurface soil conditions as presented in the Boring Logs in Appendix A.
- Observe and approve all excavations and over-excavations prior to placing backfill/fill materials
- Approve additional excavation, replacement, or stabilization if unsuitable soil is identified by the geotechnical engineer during excavation.

6.5 Pavements

6.5.1 Discussion

The following geotechnical recommendations are presented to assist the planning, design, and construction of the street projects stated in Section 3.0 Project Information. The existing pavement sections in Borings B-1 through B-3, B-15, and B-16 consisted of about 4 to 5 inches of asphaltic concrete pavement and 5.5 inches of Portland cement concrete pavement overlying 1.5 to 7 inches of aggregate base course. We understand Alliance Consulting, LLC. plans to utilize a pavement section consisting of asphaltic concrete with a salvaged base course overlying a geosynthetic geogrid and separation fabric. We have provided asphaltic concrete pavement recommendations in the following sections.

6.5.2 Subgrade Preparation

Prepare the subgrade soil as follows.

- Remove any unsuitable material, including soft and/or organic soil, if encountered. Soil
 disturbance negatively impacts the soil's performance. Disturbed soil is not allowed below
 the pavement or utilities. If soil is disturbed, moisture condition and recompact the top 12inches of soil as General Structural Fill as described in Table 2. <u>Material Specifications</u>
 and <u>Compaction Specifications</u> located in Section 6.3 Materials and Compaction.
- Moisture conditioning of the soil prior to replacement will be required. If soft or unstable subgrade soil is encountered, over-excavation criteria shall be determined during

- construction with American Engineering Testing, Inc., Alliance Consulting, LLC., The City of Williston, and the contractor.
- Place and compact soil in level lifts, not more that 8-inches in loose thickness, up to planned grades. Compact pavement and subgrade materials in accordance with Table 2. located in Section 6.3 Materials and Compaction.
- Grade subgrade such that surface water drains away from the centerline at a minimum of 2% slope.

6.5.3 Traffic Estimates and ESAL Calculations

Mr. Thomas Timpson, P.E., a representative of Alliance Consulting, LLC., provided a draft memorandum titled *Preliminary Sloulin Field Transportation Assessment*, from SRF Consulting, dated December 7, 2018, which detailed the anticipated Average Annual Daily Traffic (AADT) for the year 2040. The AADT values provided in the draft memorandum consisted of 12,300 for 16th Avenue West, 42nd Street West, and 32nd Avenue West (Traffic Loading #1), and an ADDT value of 3,200 for 34th Street West (Traffic Loading #2). We assume the AADT is for both directions of travel. We have assumed AADTs of 8,275 and 2,150, with 5% being truck traffic, for Traffic Loading #1 and #2, respectively, with an annual growth rate of 2% over a 20-year design life. Based on the growth rate and the traffic estimates detailed above, we calculated the following 18-kip Equivalent Single Axel Load (ESALs).

Table 3. ESALs Calculations

Traffic Loading	Asphaltic Concrete Pavement (ESALs)	
Traffic Loading #1	2,171,019	
Traffic Loading #2	1,070,615	

It should be noted that the amount of truck traffic significantly increases the amount of EASLs, which controls the pavement design. We provide our pavement design parameters in Table 4 below. The City of Williston and Alliance Consulting, LLC. must review these assumptions and recommend changes, if necessary.

Table 4. Pavement Design Parameters

Design Parameter	Value Used	Reference
Reliability	80%	Regional typical value
Standard deviation	0.45	Regional typical value
Design serviceability loss	2.5	Regional typical value

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Design Parameter	Value Used	Reference
New asphalt layer coefficient	0.42	Regional typical value
Salvaged base layer coefficient ¹	0.12	Regional typical value
Resilient modulus	17,250 psi	Based on CBR Value

¹Based on using the airfield pavement materials from the former Sloulin Field International Airport.

6.5.4 Section Thicknesses

We have performed our pavement design referencing the American Association of State Highway Transportation Official's (AASHTO) *Design of Pavement Structures, 1993 edition.* The computations assume the materials and construction comply with the specifications presented in the NDDOT's *Standard Specifications for Road and Bridge Construction, 2014 edition* (NDDOT). Based on the provided traffic loading, the CBR value, and our analysis, we present our recommended asphaltic concrete pavement sections for both traffic loadings in Table 5 below.

Table 5. Recommended Pavement Sections

Traffic Loading	Asphaltic Concrete (inches)	Salvaged Base Course (inches)	Total
Traffic Loading #1	4	8*	10
Traffic Loading #2	4	8*	10

^{*}Based on mechanically stabilizing the salvaged base course using a geosynthetic separation material and geogrid, such as Tensar's TX5, or approved equivalent.

Asphaltic concrete should be obtained from an approved mix design conforming to Section 430 – Hot Mix Asphalt, of the NDDOT. Asphaltic concrete material should be placed in a maximum 2-inch lifts and compacted in accordance with Section 430.

Salvaged base course may include a minimum of 30 percent of asphaltic concrete pavement from the Sloulin Field Airfield pavement and the remaining portion may be composed of virgin aggregate or the aggregate base course from the airfield pavement. Salvaged base course should meet the requirements in Section 817 – Salvaged Base Course, of the NDDOT.

The geosynthetic separation material and the geosynthetic geogrid shall meet the requirements of Type S and Type G, respectively, in Section 709 – Geosynthetics, of the NDDOT.

6.5.5 Pavement Maintenance

Perform crack and surface maintenance on all pavement surfaces every 3 to 5 years to reduce the potential for surface water infiltration into the underlying pavement subgrade. Surface and subgrade, crushed surfacing, and asphalt surfaces shall slope at no less than 2% to an appropriate stormwater disposal system or other appropriate location that does not impact adjacent buildings or properties. The pavement's life will be dependent on achieving adequate drainage throughout the section and especially at the subgrade. Water that ponds at the pavement subgrade surface can induce heaving during the freeze-thaw process, which can readily damage the pavement. Never allow inverted crowns at the subgrade or pavement surfaces without center concrete gutters designed to have an asphalt overlap.

6.6 Lateral Earth Pressures

We understand retaining walls might be constructed along the southern portion 16th Avenue West (near Borings B-12 to B-14). The upper five feet of the soil in these locations primarily consisted of clayey soils. Backfill adjacent to the retaining structures should consist of a granular material, such as the on-site silty to poorly-graded sands, or aggregate meeting the requirements of Class 7 Aggregate in Section 816, Aggregates, of the NDDOT.

Design retaining structures to resist both lateral earth pressures from the retaining soil adjacent to the structure as well as hydrostatic pressures from retaining water (if undrained, not recommended). Also, lateral surcharge loads from equipment adjacent to the structure must be accounted for in the structural wall design. Lateral earth pressures are presented in Table 6 below.

Table 6. Lateral Earth Pressure Parameters

Earth Pressure Condition	Coefficient for Soil Type	Equivalent Fluid Pressure (pcf)
	Silty Sand ¹ -0.333	45
Active (K _a)	Poorly-Graded Sand ² -0.271	36
, ,	Class $7^3 - 0.260$	37
	Silty Sand -0.500	67
At-Rest (K _o)	Poorly-Graded Sand – 0.426	57
` ,	Class $7 - 0.412$	58
	Silty Sand – 3.000	382
Passive (K _p)	Poorly-Graded Sand – 3.690	469
. 1	Class $7 - 3.852$	521

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¹Silty Sand (Coefficient of Friction μ =0.35, Internal Angle of Friction ϕ =30°, Unit Weight = 134 pcf) ²Poorly-Graded Sand (Coefficient of Friction μ =0.38, Internal Angle of Friction ϕ =35°, Unit Weight = 134 pcf) ¹Class 7 (Coefficient of Friction μ =0.40, Internal Angle of Friction ϕ =36°, Unit Weight = 140 pcf)

The above equivalent fluid pressures assume fully drained conditions and no hydrostatic forces acting on the wall. Backfill behind retaining walls should be backfilled with drainage aggregate vertically connected to a drain system. The above equivalent fluid pressures assume the top surface of backfill adjacent to the retaining structures slopes down and away from the structure a minimum of 5% for drainage. Lateral surcharge pressure due to equipment, slopes, storage loads, etc. are not included in the above lateral earth pressure recommendations. Use the lateral earth pressures coefficient of 0.5, acting over the entire below-grade wall height, to estimate the lateral surcharge loads from equipment and slopes behind and above walls.

7.0 CONSTRUCTION CONSIDERATIONS

7.1 Potential Difficulties

7.1.1 Runoff Water in Excavation

Water can be expected to collect in the excavation bottom during times of inclement weather or snow melt. To allow observation of the excavation bottom, to reduce the potential for soil disturbance, and to facilitate filling operations, we recommend water be removed from within the excavation during construction. Based on the soils encountered, we anticipate the groundwater can be handled with conventional sump pumping.

7.1.2 Disturbance of Soils

The on-site soils can be disturbed under construction traffic, especially if the soils are wet. If soils become disturbed, they should be subcut to the underlying undisturbed soils. The subcut soils can then be dried and recompacted back into place, or they should be removed and replaced with drier imported fill.

7.1.3 Wet Weather/Soil Construction

The lean clay subgrade soil may be susceptible to pumping or rutting from heavy loads such as rubber-tired equipment or vehicles any time of the year when it becomes wet. Ideally, perform earthwork construction during dry weather conditions; however, if wet soil conditions occur during construction, we recommend the following.

- Earthwork should not be performed immediately after rainfall or until soil can dry sufficiently to allow construction traffic without disturbing the subgrade.
- If the subgrade becomes wet or if areas begin to "pump", it may be necessary to over-excavate the soil. Over-excavation criteria shall be determined during construction with American Engineering Testing, Inc., Interstate Engineering, Inc., and the contractor.

Based on our laboratory testing, the natural moisture content of the subsurface soil varied across the site. Moisture conditioning and soil processing might be necessary during construction.

7.1.4 Soil Chemistry Information

American Engineering Testing, Inc. analyzed soil samples for water soluble sulfates, resistivity, and pH in the site soil to provide information for Portland cement concrete and buried metals. Sulfate attack is a deterioration resulting from chemical reactions occurring when concrete components react with sulfate ions (SO₄²-) present in solution in contact with concrete. Table 7 below summarizes our laboratory testing.

Table 7. Soil Chemistry Information

Boring # (depth)	Water Soluble Sulfates (ppm)	Resistivity (ohm-cm)	рН
B-7 (1'-5')	3,450	530	8.1
B-13 (1'-5')	1,010	4,050	8.3

Based on the results shown in the table above, concrete in contact with the on-site soil classifies as exposure class S2 according to ACI 318 Table 19.3.1.1. To achieve the required protection against sulfate related corrosion, we recommend specifying Type V cement, a maximum water-to-cement ratio of 0.45 (by weight, normal weight concrete), and a minimum compressive strength, f'c, of 4,500 pounds per square inch (psi). Details can be found in the above ACI reference and in the Portland Cement Association publication "Design and Control of Concrete Mixtures".

According to *Corrosion Life of Steel Foundation Products*, the soil ranges from moderately corrosive to highly corrosive to steel. We recommend buried metals be designed for corrosion.

7.1.5 Cobbles and Boulders

During our subsurface exploration, we encountered cobbles and boulders in Borings B-3 and B-6. This may make excavating procedures somewhat more difficult than normal if they are encountered.

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7.2 Observation and Testing

The recommendations in this report are based on the subsurface conditions found at our test boring locations. Since the soil conditions can be expected to vary away from the soil boring locations, we recommend on-site observation by a geotechnical engineer/technician during construction to evaluate these potential changes. Soil density testing should also be performed on new fill placed in order to document that project specifications for compaction have been satisfied.

8.0 LIMITATIONS

Within the limitations of scope, budget, and schedule, we have endeavored to provide our services according to generally accepted geotechnical engineering practices at this time and location. Other than this, no warranty, express or implied, is intended.

Important information regarding risk management and proper use of this report is given in Appendix B entitled "Geotechnical Report Limitations and Guidelines for Use."

AMERICAN ENGINEERING TESTING, INC.

Appendix A

Geotechnical Field Exploration and Testing
Boring Log Notes
Unified Soil Classification System
Figure 1 – Boring Locations
Subsurface Boring Logs
Sieve Analysis Tests
Atterberg Limits Tests
Moisture-Density Relationship Tests
California Bearing Ratio Tests

Appendix A Geotechnical Field Exploration and Testing Report No. 37-20560

A.1 FIELD EXPLORATION

The subsurface conditions at the site were explored by drilling and sampling sixteen (16) standard penetration test borings. The locations of the borings appear on Figure 1, preceding the Subsurface Boring Logs in this appendix.

A.2 SAMPLING METHODS

A.2.1 Split-Spoon Samples (SS) - Calibrated to N60 Values

Standard penetration (split-spoon) samples were collected in general accordance with ASTM: D1586 with one primary modification. The ASTM test method consists of driving a 2-inch O.D. split-barrel sampler into the in-situ soil with a 140-pound hammer dropped from a height of 30 inches. The sampler is driven a total of 18 inches into the soil. After an initial set of 6 inches, the number of hammer blows to drive the sampler the final 12 inches is known as the standard penetration resistance or N-value. Our method uses a modified hammer weight, which is determined by measuring the system energy using a Pile Driving Analyzer (PDA) and an instrumented rod.

In the past, standard penetration N-value tests were performed using a rope and cathead for the lift and drop system. The energy transferred to the split-spoon sampler was typically limited to about 60% of its potential energy due to the friction inherent in this system. This converted energy then provides what is known as an N_{60} blow count.

The most recent drill rigs incorporate an automatic hammer lift and drop system, which has higher energy efficiency and subsequently results in lower N-values than the traditional N₆₀ values. By using the PDA energy measurement equipment, we are able to determine actual energy generated by the drop hammer. With the various hammer systems available, we have found highly variable energies ranging from 55% to over 100%. Therefore, the intent of AET's hammer calibrations is to vary the hammer weight such that hammer energies lie within about 60% to 65% of the theoretical energy of a 140-pound weight falling 30 inches. The current ASTM procedure acknowledges the wide variation in N-values, stating that N-values of 100% or more have been observed. Although we have not yet determined the statistical measurement uncertainty of our calibrated method to date, we can state that the accuracy deviation of the N-values using this method is significantly better than the standard ASTM Method.

A.2.2 Disturbed Samples (DS)/Spin-up Samples (SU)

Sample types described as "DS" or "SU" on the boring logs are disturbed samples, which are taken from the flights of the auger. Because the auger disturbs the samples, possible soil layering and contact depths should be considered approximate.

A.2.3 Sampling Limitations

Unless actually observed in a sample, contacts between soil layers are estimated based on the spacing of samples and the action of drilling tools. Cobbles, boulders, and other large objects generally cannot be recovered from test borings, and they may be present in the ground even if they are not noted on the boring logs.

Determining the thickness of "topsoil" layers is usually limited, due to variations in topsoil definition, sample recovery, and other factors. Visual-manual description often relies on color for determination, and transitioning changes can account for significant variation in thickness judgment. Accordingly, the topsoil thickness presented on the logs should not be the sole basis for calculating topsoil stripping depths and volumes. If more accurate information is needed relating to thickness and topsoil quality definition, alternate methods of sample retrieval and testing should be employed.

A.3 CLASSIFICATION METHODS

Soil descriptions shown on the boring logs are based on the Unified Soil Classification (USC) system. The USC system is described in ASTM: D2487 and D2488. Where laboratory classification tests (sieve analysis or Atterberg Limits) have been performed, accurate classifications per ASTM: D2487 are possible. Otherwise, soil descriptions shown on the boring logs are visual-manual judgments. Charts are attached which provide information on the USC system, the descriptive terminology, and the symbols used on the boring logs.

The boring logs include descriptions of apparent geology. The geologic depositional origin of each soil layer is interpreted primarily by observation of the soil samples, which can be limited. Observations of the surrounding topography, vegetation, and development can sometimes aid this judgment.

Appendix A Geotechnical Field Exploration and Testing Report No. 37-20560

A.4 WATER LEVEL MEASUREMENTS

The ground water level measurements are shown at the bottom of the boring logs. The following information appears under "Water Level Measurements" on the logs:

- Date and Time of measurement
- Sampled Depth: lowest depth of soil sampling at the time of measurement
- Casing Depth: depth to bottom of casing or hollow-stem auger at time of measurement
- Cave-in Depth: depth at which measuring tape stops in the borehole
- Water Level: depth in the borehole where free water is encountered
- Drilling Fluid Level: same as Water Level, except that the liquid in the borehole is drilling fluid

The true location of the water table at the boring locations may be different than the water levels measured in the boreholes. This is possible because there are several factors that can affect the water level measurements in the borehole. Some of these factors include: permeability of each soil layer in profile, presence of perched water, amount of time between water level readings, presence of drilling fluid, weather conditions, and use of borehole casing.

A.5 LABORATORY TEST METHODS

A.5.1 Water Content Tests

Conducted per AET Procedure 01-LAB-010, which is performed in general accordance with ASTM: D2216 and AASHTO: T265.

A.5.2 Atterberg Limits Tests

Conducted per AET Procedure 01-LAB-030, which is performed in general accordance with ASTM: D4318 and AASHTO: T89, T90.

A.5.3 Sieve Analysis of Soils (thru #200 Sieve)

Conducted per AET Procedure 01-LAB-040, which is performed in general conformance with ASTM: D6913, Method A.

A.5.4 Modified Proctor Test

Conducted per AET Procedure 20-SOI-004, which is performed in general accordance with ASTM: D1557 and AASHTO: T180.

A.5.5 California Bearing Ratio of Laboratory-Compacted Soils

Conducted per AET Procedure 20-SOI-012, which is performed in general accordance with ASTM: D1883.

A.6 TEST STANDARD LIMITATIONS

Field and laboratory testing is done in general conformance with the described procedures. Compliance with any other standards referenced within the specified standard is neither inferred nor implied.

A.7 SAMPLE STORAGE

Unless notified to do otherwise, we routinely retain representative samples of the soils recovered from the borings for a period of 30 days.

DRILLING AND SAMPLING SYMBOLS

Symbol Definition

AR: Sample of material obtained from cuttings blown out the top of the borehole during air rotary procedure.

B, H, N: Size of flush-joint casing

CAS: Pipe casing, number indicates nominal diameter in

inches

COT: Clean-out tube

DC: Drive casing; number indicates diameter in inches

DM: Drilling mud or bentonite slurry

DR: Driller (initials)

DS: Disturbed sample from auger flights

DP: Direct push drilling; a 2.125-inch OD outer casing with an inner 1½ inch ID plastic tube is

driven continuously into the ground.

FA: Flight auger; number indicates outside diameter in

inches

HA: Hand auger; number indicates outside diameter

HSA: Hollow stem auger; number indicates inside diameter

in inches

LG: Field logger (initials)

MC: Column used to describe moisture condition of

samples and for the ground water level symbols

N (BPF): Standard penetration resistance (N-value) in blows per

foot (see notes)

NQ: NQ wireline core barrel PQ: PQ wireline core barrel

RDA: Rotary drilling with compressed air and roller or drag

bit.

RDF: Rotary drilling with drilling fluid and roller or drag bit

REC: In split-spoon (see notes), direct push and thin-walled

tube sampling, the recovered length (in inches) of sample. In rock coring, the length of core recovered (expressed as percent of the total core run). Zero

indicates no sample recovered.

SS: Standard split-spoon sampler (steel; 1.5" is inside diameter; 2" outside diameter); unless indicated

diameter; 2" outside diameter); unless indicated otherwise

otherwise

SU Spin-up sample from hollow stem auger

TW: Thin-walled tube; number indicates inside diameter in

inches

WASH: Sample of material obtained by screening returning

rotary drilling fluid or by which has collected inside the borehole after "falling" through drilling fluid

WH: Sampler advanced by static weight of drill rod and

hammer

WR: Sampler advanced by static weight of drill rod

94mm: 94-millimeter wireline core barrel

▼: Water level directly measured in boring

TEST SYMBOLS

Symbol Definition

CONS: One-dimensional consolidation test

DEN: Dry density, pcf DST: Direct shear test

E: Pressuremeter Modulus, tsf

HYD: Hydrometer analysis LL: Liquid Limit, %

LP: Pressuremeter Limit Pressure, tsf

OC: Organic Content, %

PERM: Coefficient of permeability (K) test; F - Field;

L - Laboratory

PL: Plastic Limit, %

q_p: Pocket Penetrometer strength, tsf (<u>approximate</u>)

 $\begin{array}{ll} q_c \colon & \text{Static cone bearing pressure, tsf} \\ q_u \colon & \text{Unconfined compressive strength, psf} \end{array}$

R: Electrical Resistivity, ohm-cms
RQD: Rock Quality Designation of Rock Core, in percent

(aggregate length of core pieces 4" or more in length

as a percent of total core run)

SA: Sieve analysis

TRX: Triaxial compression test

VSR: Vane shear strength, remolded (field), psf
VSU: Vane shear strength, undisturbed (field), psf
WC: Water content, as percent of dry weight
%-200: Percent of material finer than #200 sieve

STANDARD PENETRATION TEST NOTES (Calibrated Hammer Weight)

The standard penetration test consists of driving a split-spoon sampler with a drop hammer (calibrated weight varies to provide N_{60} values) and counting the number of blows applied in each of three 6" increments of penetration. If the sampler is driven less than 18" (usually in highly resistant material), permitted in ASTM: D1586, the blows for each complete 6" increment and for each partial increment is on the boring log. For partial increments, the number of blows is shown to the nearest 0.1' below the slash.

The length of sample recovered, as shown on the "REC" column, may be greater than the distance indicated in the N column. The disparity is because the N-value is recorded below the initial 6" set (unless partial penetration defined in ASTM: D1586 is encountered) whereas the length of sample recovered is for the entire sampler drive (which may even extend more than 18").

UNIFIED SOIL CLASSIFICATION SYSTEM ASTM Designations: D 2487, D2488

AMERICAN ENGINEERING TESTING, INC.



					Soil Classification
Criteria fo	r Assigning Group Sy	mbols and Group Nar	nes Using Laboratory Tests ^A	Group Symbol	Group Name ^B
Coarse-Grained Soils More	Gravels More than 50% coarse	Clean Gravels Less than 5%	Cu≥4 and 1≤Cc≤3 ^E	GW	Well graded gravel ^F
than 50% retained on	fraction retained on No. 4 sieve	fines ^C	Cu<4 and/or 1>Cc>3 ^E	GP	Poorly graded gravel ^F
No. 200 sieve	on ito. I sieve	Gravels with Fines more	Fines classify as ML or MH	GM	Silty gravel ^{F.G.H}
		than 12% fines ^C	Fines classify as CL or CH	GC	Clayey gravel ^{F.G.H}
	Sands 50% or more of coarse	Clean Sands Less than 5%	Cu≥6 and 1≤Cc≤3 ^E	SW	Well-graded sand ^I
	fraction passes No. 4 sieve	fines ^D	Cu<6 and 1>Cc>3 ^E	SP	Poorly-graded sand ^I
		Sands with Fines more	Fines classify as ML or MH	SM	Silty sand ^{G.H.I}
		than 12% fines D	Fines classify as CL or CH	SC	Clayey sand ^{G.H.I}
Fine-Grained Soils 50% or	Silts and Clays Liquid limit less	inorganic	PI>7 and plots on or above "A" line ^J	CL	Lean clay ^{K.L.M}
more passes the No. 200	than 50		PI<4 or plots below "A" line ^J	ML	Silt ^{K.L.M}
sieve		organic	Liquid limit-oven dried <0.75	OL	Organic clay ^{K.L.M.N}
(see Plasticity Chart below)			Liquid limit – not dried		Organic silt ^{K.L.M.O}
chart oclow)	Silts and Clays Liquid limit 50	inorganic	PI plots on or above "A" line	СН	Fat clay ^{K.L.M}
	or more		PI plots below "A" line	МН	Elastic silt ^{K.L.M}
		organic	Liquid limit–oven dried <0.75	ОН	Organic clay ^{K.L.M.P}
			Liquid limit – not dried		Organic silt ^{K.L.M.Q}
Highly organic soil			Primarily organic matter, dark in color, and organic in odor	PT	Peat ^R

^ABased on the material passing the 3-in (75-mm) sieve.

BIf field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^CGravels with 5 to 12% fines require dual symbols:

GW-GM well-graded gravel with silt GW-GC well-graded gravel with clay GP-GM poorly graded gravel with silt GP-GC poorly graded gravel with clay DS ands with 5 to 12% fines require dual

symbols: SW-SM well-graded sand with silt SW-SC well-graded sand with clay

SP-SM poorly graded sand with silt SP-SC poorly graded sand with clay

$$^{E}Cu = D_{60} / D_{10}, \quad Cc = \frac{(D_{30})^{2}}{D_{10} \times D_{60}}$$

 F If soil contains \geq 15% sand, add "with sand" to group name.

^GIf fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

HIf fines are organic, add "with organic fines" to group name.

^IIf soil contains ≥15% gravel, add "with gravel" to group name.

JIf Atterberg limits plot is hatched area,

soil is a CL-ML silty clay.

KIf soil contains 15 to 29% plus No. 200 add "with sand" or "with gravel", whichever is predominant.

^LIf soil contains ≥30% plus No. 200, predominantly sand, add "sandy" to group name.

MIf soil contains ≥30% plus No. 200, predominantly gravel, add "gravelly" to group name.

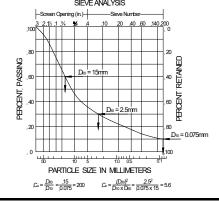
^NPl≥4 and plots on or above "A" line.

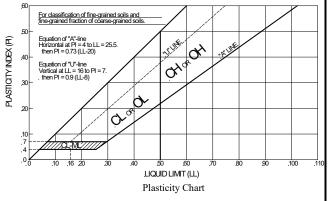
^oPl<4 or plots below "A" line.

PPI plots on or above "A" line.

QPI plots below "A" line.

^RFiber Content description shown below.

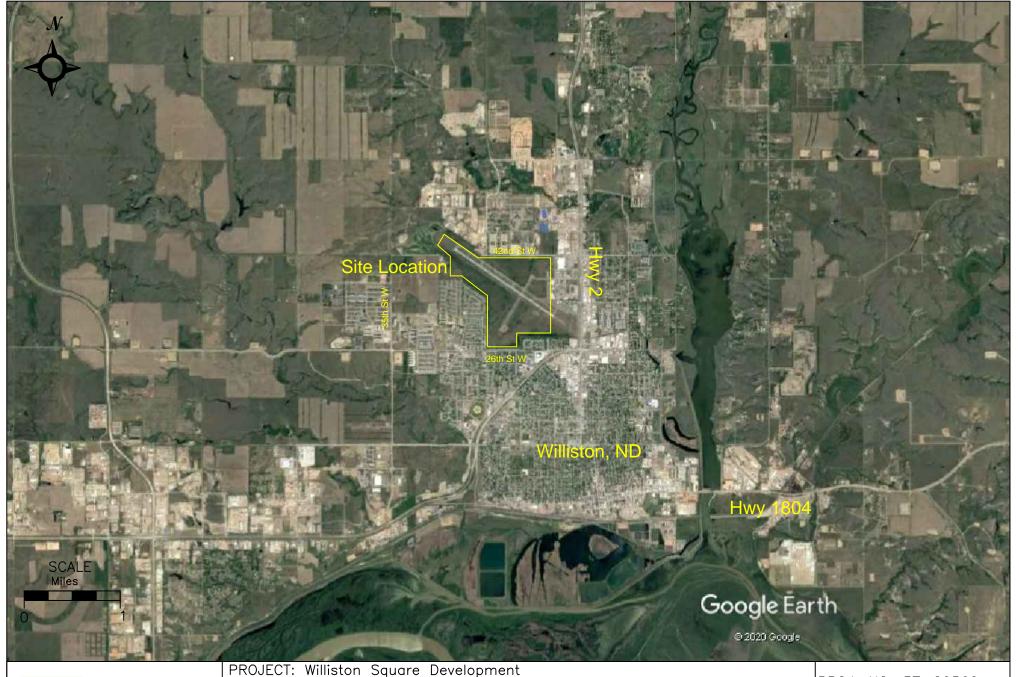




ADDITIONAL TERMINOLOGY NOTES USED BY AET FOR SOIL IDENTIFICATION AND DESCRIPTION

ADDITIONAL TERMINOLOGI NOTES USED BY A	LI TOK SOIL IDENTIFICATION A	AND DESCRIPTION	
Grain Size Term Over 12" Cobbles Over 12" Cobbles Over 12" Gravel #4 sieve to 3" Sand #200 to #4 sieve Fines (silt & clay) Pass #200 sieve	Gravel Percentages Term Percent A Little Gravel 3% - 14% With Gravel 15% - 29% Gravelly 30% - 50%	Consistency of Plastic Soils Term N-Value, BPF Very Soft less than 2 Soft 2 - 4 Firm 5 - 8 Stiff 9 - 15 Very Stiff 16 - 30 Hard Greater than 30	Relative Density of Non-Plastic Soils Term N-Value, BPF Very Loose 0 - 4 Loose 5 - 10 Medium Dense 11 - 30 Dense 31 - 50 Very Dense Greater than 50
Moisture/Frost Condition	Layering Notes	Fiber Content of Peat	Organic/Roots Description (if no lab tests)
(MC Column) D (Dry): Absence of moisture, dusty, dry to	Laminations: Layers less than ½" thick of	Fiber Content <u>Term</u> (<u>Visual Estimate</u>)	Soils are described as <u>organic</u> , if soil is not peat and is judged to have sufficient organic fines

Fines (silt & cla	y) Pass #200 sieve			Hard	Greater than 30	very ber	Greater than 50
Moisture/Frost C	ondition	Layering No	tes	Fiber Content	of Peat	Organic/Ro	ots Description (if no lab tests)
	(MC Column)	Laminations:	Layers less than		Fiber Content	Soils are des	scribed as <i>organic</i> , if soil is not peat
D (Dry):	Absence of moisture, dusty, dry to		½" thick of	Term	(Visual Estimate)	and is judged	d to have sufficient organic fines
	touch.		differing material			content to in	fluence the soil properties. <u>Slightly</u>
M (Moist):	Damp, although free water not		or color.	Fibric Peat:	Greater than 67%	organic used	d for borderline cases.
	visible. Soil may still have a high			Hemic Peat:	33 - 67%		
	water content (over "optimum").	Lenses:	Pockets or layers	Sapric Peat:	Less than 33%	With roots:	Judged to have sufficient quantity
W (Wet/	Free water visible intended to		greater than ½"	•			of roots to influence the soil
Waterbearing):	describe non-plastic soils.		thick of differing				properties.
۵,	Waterbearing usually relates to		material or color.			Trace roots:	Small roots present, but not judged
	sands and sand with silt.						to be in sufficient quantity to
F (Frozen):	Soil frozen						significantly affect soil properties.



AMERICAN ENGINEERING TESTING, INC.

PROJECT: Williston Square Development Williston, North Dakota

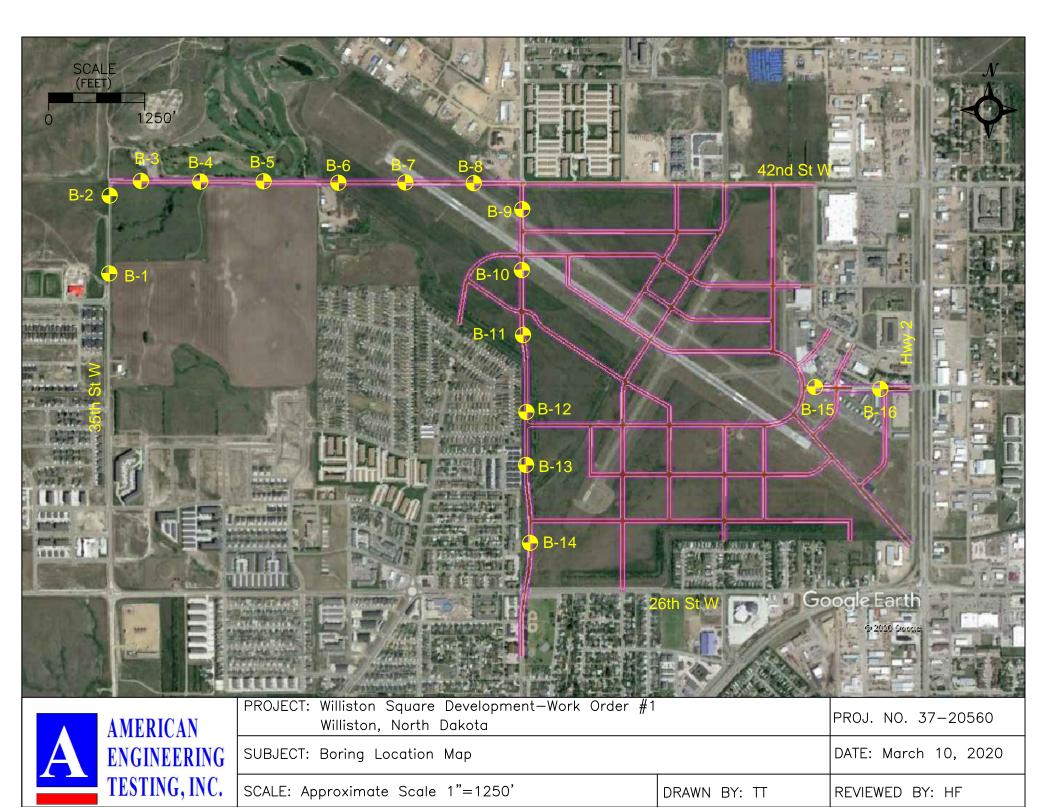
SUBJECT: Site Vicinity Map

SCALE: Approximate Scale 1"=1 Mile

PROJ. NO. 37-20560

DATE: March 10, 2020

DRAWN BY: TT REVIEWED BY: HF





AET N	No: 37-20560		_			Lo	og of	Boı	ring No	o		B-1 (p. 1 o	of 1)	
Projec	t: Williston Square	Developm	ent; Will	liston, l	ND										
DEPTH IN FEET	Surface Elevation MATERIAL I	DESCRIPTIO)N		GEOLOGY	N	МС	SA T	MPLE TYPE	REC IN.	FIELI	DEN	BORAT	ORY PL	TEST %-#2
1 - 2 -	ASPHALT (4 inches) FILL, silty sand, a little gr LEAN CLAY with sand, a stiff, grey, moist (CL)				ROAD FILL TILL	22	М		SS	20	13				
3 - 4 -	Becomes stiff at 3.5 feet					27	М	M	SS	4	9				
5 — 6 —						8	M		SS	14	15				
7 — 8 — 9 —	Becomes very stiff at 7.5 fe	eet				20	М		МС						
10 -	Becomes stiff at 11 feet					13	М	M	SS	1					
12 – 13 –	December sum at 11 rect														
14 —						10	M	A	SS	14					
15 —	D. 44 C	D :				9	М	M	SS	16					
	Bottom of	DOLING													
DEP'	TH: DRILLING METHOD			WATE	ER LEVEL MEA	 SURF	 EMEN	∐ TS				Ι,	JOTE	DEE	
		DATE	TIME	SAMPL DEPT			/E-IN PTH	_	ORILLIN UID LE	NG.	WATI LEVE		NOTE: THE A		
1	6.5 3.25" HSA	3/3/20	11:42	16.5		_	PTH 4.0	FL		VEL	Non	_	SHEET		
		3/3/20	11:42	10.5) -	14	t.U		-	\dashv	TAOU		XPLA		
BORING	G LETED: 3/3/20									\perp			ERMIN		
COMPI	LETED: 3/3/20 B LG: CS Rig: CME 55											+		IS LO	



AET 1	No: 37-20560					Lo	og of	Bo	ring N	0		B-2 (p. 1 o	of 1)	
Projec	et: Williston Square	Developn	nent; Wil	liston, N	ND										
DEPTH IN FEET	Surface Elevation				GEOLOGY		MC	SA	MPLE	REC	FIELI	O & LA	BORA 7	ГORY	TEST
FEET	MATERIAL I	DESCRIPTIO	ON			N	MC]]	MPLE TYPE	ĪN.	WC	DEN	LL	PL	% -#2
	ASPHALT (4.5 inches)				ROAD			\mathbb{N}							
1 -	FILL, silty sand, a little gr FILL lean clay with sand a			_/ 🚃	FILL	27	M	$ \chi $	SS	16	4				
	brown, moist	and trace gi	ravei,	/ 💥											
2 —	FILL, silty sand, a little gr	avel, tan, n	noist					\vdash							
3 —								\prod							
3	CANDALLEAN OF AN	11,1	1 1		THE	47	M	IXI	SS	24	15				36
4 —	SANDY LEAN CLAY, a of clayey sand, hard to ver	little grave v stiff, brov	el, lenses wn. moist		TILL										
	(CL)	,	,					H							
5 —								\square							
6 -						16	M	X	SS	16	9		24	15	
								Н							
7 —															
0								\square							
8 —	LEAN CLAY with sand, a	a little grav	el, very			50/.2	NR	X	SS	NR					
9 —	hard to stiff, brown, moist	(CL)						Ш							
10 —								\forall							
11 —						13	M	X	SS	16					
11								Ш							
12 —															
								\forall							
13 —						8	M	X	SS	16					
14 —								\square							
15 —								H							
16 —						12	M	X	SS	18					
10 -	7							\square							
	Bottom of	Boring													
DEP	TH: DRILLING METHOD			WATE	R LEVEL MEA	L ASURF	L EMEN	⊥⊥⊥ TS				١,	IOTE:	DEEL	D T
		DATE	TIME	SAMPL DEPT		_	/E-IN PTH	_	ORILLIN UID LE	NG	WATE LEVE		NOTE: THE A		
1	16.5 3.25" HSA							FL	UID LĒ	VEL					
		3/3/20	13:16	16.5	-	14	4.2		-		Non		SHEET		
BUDIN	IG.												XPLA]		
COMP	IG LETED: 3/3/20												ERMIN		
DR: T	B LG: CS Rig: CME 55			<u> </u>									TH	IS LO	Ú



AET	No: 37-20560					Lo	og of	Bo	ring No	o		B-3 (p. 1 o	f 1)	
Projec	ct: Williston Square	Developn	nent; Will	liston, I	ND										
DEPTH IN FEET	Surface Elevation				GEOLOGY	N	MC	SA	AMPLE FYPE	REC	FIELI) & LA	BORA	ORY '	TEST
FEET		DESCRIPTIO	ON			1	IVIC		TYPE	IN.	WC	DEN	LL	PL	% -#2
	ASPHALT (5 inches) \FILL, silty sand, a little gr	avel brow	n	T ****	ROAD FILL			M							
1 -	SANDY LEAN CLAY, a				WEATHERED	45	M	X	SS	20	9				
2 -	tan, moist (CL)				TILL			\square							
2	CLAYEY SAND, dense, 1	rown moi	ict (SC)		TILL	1		H							
3 –	CLATET SAND, dense,	orown, mor	ist (SC)		TILL	25		M	aa	2.4					1
4 -						35	M	$ \Lambda $	SS	24	8				36
	LEAN CLAY, with sand, cobbles, stiff to very stiff,	a little grav brown, mo	vel, trace ist (CL)					Н							
5 –			,					\square							
6 -	-					11	M	X	SS	18	10				
								Н							
7 -	-														
8 -								M		_					
						43	M	X	SS	3					
9 –	-							\vdash							
10 -	-							Ш							
						16	M	M	SS	15					
11 -	_						111	\mathbb{N}	55	13					
12 -	-														
								H							
13 -						21	M	X	SS	14					
14 -	_							\mathbb{H}							
1.5															
15 -								M							
16 -	_					11	M	$ \lambda $	SS	16					
	Bottom of	Boring		<i></i>				\Box							
DEI	TH: DRILLING METHOD			WATI	ER LEVEL MEA	L SURE	L EMEN'	TS				Т,	NOTE:	DEEE	рт
		DATE	TIME	SAMPL DEPT		1	/E-IN PTH	_	ORILLIN UID LE	IG.	WATI LEVE		THE A		
	16.5 3.25" HSA	3/3/20	14:40	16.5			4.6	FL	UID LE	VEL	Non	_	SHEET		
		3/3/20	14.40	10.5	-	12	T.U			\dashv	11011		XPLA]		
BORIN	NG PLETED: 3/3/20									+			ERMIN		
COMP								-		-			тц	IS LO	C



AET N	No: 37-20560		_			Lo	og of	Во	ring No	o		B-4 (p. 1 o	of 1)	
Projec	t: Williston Square	Developm	ent; Will	liston, I	ND										
DEPTH	Surface Elevation				GEOLOGY			SA	AMPLE.	REC	FIELI	O & LA	BORA	TORY	TES
DEPTH IN FEET	MATERIAL I	DESCRIPTIO	N N		GLOLOGI	N	MC	51	AMPLE FYPE	ĬÑ.	WC	DEN	LL	PL	% -#
1 -	FILL, sandy lean clay, wit	th gravel, ta	n, frozen		FILL	40	F	\bigvee	SS	14	8				
2 —	FILL, silty sand, trace gra	vel, tan, mo	ist					$\overline{\square}$							
3 —						50/.7	M	\bigvee	SS	12	4		NP	NP	
4 —								\triangle							
5 —						50/.1	NID	\bigvee	SS	NR	3				
6 —						50/.1	1410	\triangle	SS	111					
7 - 8 -	LEAN CLAY, trace grave moist (CL)	el, very stiff	grey,		WEATHEREI TILL										
9 –						20	M		MC	12					
10 —	LEAN CLAY with sand, to very stiff, brown, moist (C	trace gravel L)	, stiff to		TILL			7							
11 -						14	M	\bigwedge	SS	14					
12 -								<u> </u>							
13 -						13	M	\bigwedge	SS	14					
15 —															
16 –						16	M	\mathbb{X}	SS	16					
	Bottom of	Boring													
DEP	TH: DRILLING METHOD			WATE	ER LEVEL MEA	 SURF	L MEN	L TS				Ι,	JOTE .	DEFE	7D. T.
		DATE	TIME	SAMPL DEPT		1	E-IN PTH	_	DRILLIN UID LE	NG.	WATI LEVE		NOTE: THE A		
1	6.5 3.25" HSA	3/3/20	16:51	16.5		+	РТН 1.6	FL		VEL	Non		SHEET		
		3/3/20	10:51	10.5	-	12	1.0			+	11011		XPLA		
BORIN	G LETED: 3/3/20									\dashv			ERMIN		
DR: T						1						-	TH	IS LO	G



AET N	-		_			Lo	og of	Bo	ring No	o		В-5 (p. 1 o	11)	
Projec	t: Williston Square	Developm	nent; Willi	iston,	ND										
DEPTH IN FEET	Surface Elevation				GEOLOGY	N	MC	SA	MPLE	REC	FIELI) & LA	BORA'	ΓORY	TES
FEET	MATERIAL I			14747		1	IVIC		ГҮРЕ	IN.	WC	DEN	LL	PL	% -#
1 -	FILL, clayey sand, a little	gravel, bro	wn, frozen		FILL	34	F	M	SS	18	7				
2 – 3 – 4 –	SANDY LEAN CLAY a frozen (CL/SC)	little gravel	l, brown,		WEATHERE TILL	24	F		SS	20	14				
5 - 6 -	CLAYEY SAND, brown,	loose, moi	st (SC)			4	M	X = X	SS	14	12				
7 - 8 -	CLAYEY SAND, a little dense, brown, moist (SC)	gravel, med	dium		TILL	22	M		SS	18					
9 – 10 – 11 –	POORLY-GRADED SAI	ND trace o	pravel		GLACIAL	15	M		SS	16					
12 - 13 - 14 -	medium dense, light brown	a, moist (SI))		OUTWASH	16	М	X	SS	16					
15 — 16 —	LEAN CLAY with sand, a	a little grav	el, hard,		TILL	31	М	X	SS	14					
	brown, moist (CL) Bottom of	Boring													
DEP	TH: DRILLING METHOD			WAT	 ER LEVEL MEA	 ASURE	 EMFN	∐ rs							<u></u>
	6.5 3.25" HSA	DATE 3/3/20	TIME 17:30	SAMPI DEPT 16.5	LED CASING THE DEPTH	CAV DE	/E-IN PTH		ORILLIN UID LE -	NG VEL	WATI LEVE Non	ER EL e	NOTE: THE A SHEET	TTAC	CHEI R Aì
BORING COMPI DR: TI	G LETED: 3/3/20 B LG: CS Rig: CME 55												EXPLA ERMIN		GY (



AET	No: 37-20560					Lo	g of	Bo	ring N	o		B-6	(p. 1 o	of 1)	
Projec	et: Williston Square	Developm	— ient; Will	iston, l	ND										
DEPTH IN FEET	Surface Elevation				GEOLOGY	N	MC	SA	MPLE	REC	FIELI	D & LA	BORA	FORY	TESTS
FEET	MATERIAL I			V/2//	TORGOY	11	IVIC		ГҮРЕ	IN.	WC	DEN	LL	PL	% -#200
1 -	TOPSOIL, clayey sand, w gravel, brown, frozen (3 in Sandy LEAN CLAY with frozen at 2 feet (CL)	ches)			TOPSOIL TOPSOIL OR FILL	34	F	M	SS	24					
2 -	Becomes firm and moist at	2 feet													
3 -						7	M	M	SS	18	19		27	17	
4 -								\mathbb{A}							
6 -	CLAYEY SAND with little grained gravel, medium der				GLACIAL OUTWASH	15	M	M	SS	6	4				
7 -	SANDY LEAN CLAY, a	little grave	1, trace		TILL	-									
8 -	cobbles and bolders, very s	stiff, tan, m	oist (CL)			24	M		SS	16	9				64.6
9 –															
10 -	Becomes stiff at 10 feet					13	M		MC	12	11	110			
11 -															
13 -						14	M	M	SS	14					
14 -							141	А	55	11					
15 -						12	M	M	CC	1.4					
16 -						12	M	М	SS	14					
	Bottom of	Boring													

DEF	PTH: DRILLING METHOD	DATE	TDAT		ER LEVEL MEA			_	ORILLIN	lG	WATI		NOTE:		
1	16.5 3.25" HSA	DATE 2/20/20	14:00	SAMPI DEPT		+	E-IN PTH 4.0	FĹ	ORILLIN UID LE	VEL	WATI		THE A		
		2/20/20	14:00	10.5	-	12	t.U		-		Non		EXPLA		
BORIN	IG LETED: 2/20/20											T	ERMIN	OLO	GY ON
DR: T													TH	IS LO	G

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AET 1	No: 37-20560		_			Lo	og of	Boı	ring N	o		B-7 (p. 1 o	f 1)	
Projec	et: Williston Square	Developm	nent; Will	liston, l	ND										
DEPTH IN FEET	Surface Elevation				GEOLOGY	N	MC	SA	MPLE TYPE	REC	FIELI	O & LA	BORA	FORY	TEST
FËÈT	MATERIAL			1.41	TO DO OVI	1	IVIC		YPE	IN.	WC	DEN	LL	PL	% -#2
1 —	TOPSOIL, lean clay with inches) FILL, sandy lean clay, a 1 frozen to 4.3 feet		`		TOPSOIL FILL	51	F		SS	24	15		34	13	59
2 —															
3 —						25	F		SS	23	14				
4 —								\square							
5 —						12	M	M	SS	18	14				
6 —						12	IVI	A	33	10	14				
7 —	LEAN CLAY, with sand, stiff, tan, moist (CL)	iron oxide	staining,		FINE ALLUVIUM										
8 —						15	M	X	SS	14					
9 —															
10 —						12	M	M	SS	16					
11 -	LEAN CLAY, with lamin	nations of si	lt and		FINE	- 12	111	A	55	10					
12 —	trace fine grained sand and firm to stiff, grey, moist (d iron oxide CL)	staining,		ALLUVIUM										
13 —						6	M	X	SS	20					
14 —															
15 -						8	W	M	SS	21					
16 —	Bottom of	Boring						N							
		S													
DEP	TH: DRILLING METHOD			WAT	 ER LEVEL ME <i>l</i>	 ASURI	L EMEN'	TS			<u> </u>	<u> </u>	OTE:	REFE	 R T
1	16.5 2.75" IIGA	DATE	TIME	SAMPI DEPT	ED CASING H DEPTH	CAV	VE-IN PTH	FI	ORILLIN UID LE	NG VFI	WATI LEVE		THE A		
J	16.5 3.25" HSA	2/20/20	15:00	16.5			4.2	I'L	OID LE	▼ LiL	Non	_	SHEET		
													XPLA	NATIO	ON (
BORIN COMP	IG LETED: 2/20/20											T.	ERMIN	OLO	GY (
DR: T		5											TH	IS LO	G



AET	No: 37-20560					Lo	og of	Bo	ring No	0		B-8_(p. 1 o	of 1)	
Proje	ct: Williston Square	Developm	– ient; Will	liston, N	D										
DEPTH IN FEET	Surface Elevation MATERIAL I	DESCRIPTIC	 DN		GEOLOGY	N	MC	SA	AMPLE FYPE	REC IN.	FIELI	1	BORA	1	TESTS %-#200
1 -	TOPSOIL with trace roots (2 inches) FILL, clayey sand, a little				TOPSOIL FILL	90	F	M	SS	20					
2 -	FILL, clayey sand, a nule	gravei, tan,	, irozen					Д	22						
3 -	FILL, lean clay with sand, brown, frozen	a little gra	vel,			24	F	M	SS	24	14				
4 -								Д							
6 -						14	F	\bigvee	SS	18	14				
7 -															
8 -						13	M	M	SS	16					
9 -															
11 -						20	M		MC	12					
12 -															
13 -						10	M	M	SS	6					
15 -	LEAN CLAY with sand, a iron oxide staining, soft, but	a little grav	el, trace t (CL)	7	TILL										
16 -	Bottom of	Doning				4	WB	X	SS	6					
	Bottom of	Богінд													
i 															
DE	PTH: DRILLING METHOD	DATE	TIME		R LEVEL MEA			_	ORILLIN	NG	WATI		NOTE:		
	16.5 3.25" HSA	DATE 2/20/20	16:50	SAMPLE DEPTH	CASING DEPTH		/E-IN PTH 4.3	FĹ	ORILLIN UID LE	VEL	WATH LEVE		THE A		
		2/20/20	10:50	10.5	-	12	1.3		-		14.(XPLA		
BORIN	NG PLETED: 2/20/20									\dashv					GY ON
DR: T													TH	IS LO	G

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AET	No: 37-20560					Lo	og of	Bot	ring No	0.		B-9 (p. 1 o	f 1)	
Projec	-	Developm	— ient; Will	liston, l	ND		8 91					`			
DEPTH IN FEET	Surface ElevationMATERIAL I	DESCRIPTIO	 DN		GEOLOGY	N	МС	SA T	MPLE YPE	REC IN.	FIELI		BORAT		ΓESTS %-#200
1 -	TOPSOIL, sandy lean clar brown, frozen (2 inches) SANDY LEAN CLAY, a	little grave	1. trace		TOPSOIL TILL	75	F	M	SS	24					
2 -	lignite, iron oxide pockets, 4.3 feet (CL)	stiff, brow	n, frozen t	o ////											
3 -						21	F	\bigvee	SS	22					
5 -								\square							
6 -	Becomes stiff and moist at	4.3 feet				9	M	\bigvee	SS	18	15				
7 —	_														
8 -						9	M	\mathbb{N}	SS	16					
10 -															
11 -						9	M		SS	16					
12 -	-														
13 -						9	M	\mathbb{N}	SS	18					
15 -	-														
16 –						14	M	\mathbb{N}	SS	18					
	Bottom of	Boring													
DEF	PTH: DRILLING METHOD			1	ER LEVEL MEA				N T		*** -		NOTE:	REFE	R TO
1	16.5 3.25" HSA	DATE	TIME	SAMPI DEPT	ED CASING H DEPTH	DE	E-IN PTH	FL	ORILLIN UID LE	VEL	WATE LEVE		THE A		
		2/21/20	10:29	16.5	5 -	14	1.6		-		Non		SHEET		
RODIN	IG												XPLA]		
I	NG LETED: 2/21/20											T	ERMIN TH	IOLOC IS LOC	
DR: T	B LG: CS Rig: CME 55	,											IH	12 LO	J

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AET No: 37-20560							Log of Boring No. B-10 (p. 1 of 1)								
Projec	et: Williston Square	Developm	— ient; Wil	liston, I	ND										
DEPTH IN FEET	Surface Elevation	DESCRIPTIO	 DN		GEOLOGY	N	МС	SA	AMPLE FYPE	REC IN.	FIELI	D & LA	BORAT		TESTS %-#200
1 -	TOP SOIL sandy lean clabrown, frozen (2 inches) SANDY LEAN CLAY, a lignite, iron oxide pockets,	little grave	l, trace		TOPSOIL TILL	34	F	M	SS	24	16		33	9	59.9
2 -	(ČL)	,	,												
3 - 4 -						12	F		SS	22	15				
5 —	Becomes stiff and moist at	5 feet													
6 -						10	M		SS	16	15				
7 -															
8 -						12	M		MC	12					
10 -	Becomes firm at 10 feet														
11 -	Becomes firm at 10 feet					7	M		SS	14					
12 —															
13 -						5	M		SS	18					
15 -	Becomes soft at 15 feet														
16 —						4	M	M	SS	16					
1	Bottom of	Boring													
	DDH I DIG I COMMON			***	D I DAME S. C.	- CI ID-) (E) "								
DEF	DEPTH: DRILLING METHOD DATE TO		TIME		ER LEVEL MEA					lG	G WATER EL LEVEL		NOTE: REFER		
1	16.5 3.25" HSA				AMPLED CASING DEPTH		E-IN PTH			VEL			THE ATTACHE SHEETS FOR A		
		2/21/20	11:30	16.5	· -	12	14.2				LANATION OF				
BORIN	IG LETED: 2/21/20													GY ON	
DR: T												\dashv	TH	IS LO	G

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AET 1	-					Lo	og of	Bo	ring No	o	B-11 (p. 1 of 1)					
Projec	et: Williston Square	Developm	nent; Will	iston,	ND											
DEPTH IN FEET	Surface Elevation GEOLOGY						MC	SA	MPLE	REC) & LA	BORAT	TORY '	TEST	
FËÈT	MATERIAL I			1.47	TO DO OV	N	.,,,		ГҮРЕ	IN.	WC	DEN	LL	PL	% -#2	
1 —	TOPSOIL, sandy lean cla brown, frozen (1 inch) SILTY SAND, trace roots lenses of lean clay, tan, fro	s, a little gra			TOPSOIL WEATHERED TILL	30	F		SS	24						
2 —	CLAYEY SAND, a little		e cobbles,					H								
3 —	loose, brown, moist (SC)	<i>C</i>	ŕ			9	M	M	SS	18	7				21	
4 — 5 —	SANDY LEAN CLAY, a lignite, iron oxide pockets, (CL)	little grave hard, brow	el, trace vn, moist		TILL											
6 —						35	M		SS	16	5					
7 — 8 —	CLAYEY SAND, a little	gravel, iron	oxide					\								
9 –	staining, medium dense, br	rown, moist	t (SC)			28	M	A	SS	18	8					
10 —	Becomes dense at 10 feet	Becomes dense at 10 feet							SS	20						
11 -						37	M	Д	33	20						
13 —	LEAN CLAY with sand, a lignite, iron oxide pockets,	a little grav , stiff, brow	rel, trace rn, moist			11	M	M	SS	18						
14 —	(CL)							Δ								
15 — 16 —						12	M	M	SS	16						
	Bottom of	Boring						/ \								
DEP	TH: DRILLING METHOD				ER LEVEL MEA								NOTE:	REFE	R T	
16.5 3.25" HSA		DATE	TIME	SAMPI DEPT	ED CASING H DEPTH	CAV DE	/E-IN PTH	FL	ORILLIN UID LE	IG VEL	WATE LEVE	ER EL			HEL	
		2/21/20	15:11	16.5	5 -	13	3.8		-		Non	one SHE		SHEETS FOR		
													XPLA			
BORIN COMP	IG LETED: 2/21/20											T	ERMIN			
DR: T	B LG: CS Rig: CME 55	5											TH	IS LO	G	



AET No: 37-20560								Log of Boring No. B-12 (p. 1 of						of 1)		
Proje	ct: Williston Square	Developm	– ient; Will	iston,	ND											
DEPTH IN FEET	Surface Elevation				GEOLOGY	N	MC	SA	AMPLE	REC) & LA	BORA	1	$\overline{}$	
FÉÈT				['A 1	TORGOU	1			ГҮРЕ	IN.	WC	DEN	LL	PL	%-#200	
1 -	TOPSOIL, lean clay with at 1 foot, dark brown (2.7 f	sand, with feet)	roots, wet	\(\frac{\lambda \ \ \frac{\lambda}{\lambda}	TOPSOIL	4	F		SS	22						
3 -	SANDY LEAN CLAY, a	little grave	l, soft,	: <u>**</u> : ;; ;; ;	WEATHERE	D		\mathbb{H}								
4 -	brown, wet (CL)				TILL	3	WB	X	SS	14	19					
5 -	Becomes firm at 5 feet								99	1.5						
6 -						5	M	A	SS	16	14					
8 -	SANDY LEAN CLAY, a lignite, iron oxide pockets, brown, very moist (CL)	l, trace y stiff,		TILL		<u> </u>		CC	10							
9 -						6	M	\mathbb{A}	SS	18						
10 -								\mathbb{H}								
11 -						9	<u>M</u>	Д	SS	16						
12 -	Becomes moist at 12.5 feet	t						M								
14 -						8	M	A	SS	16						
15 -								M								
16 -	Bottom of	Boring				21	M	И	SS	18						
	Doubli of	5														
DE	DEPTH: DRILLING METHOD				ER LEVEL ME			_					NOTE: REFER TO			
	16.5 3.25" HSA DATE		TIME	SAMPI DEPT	ED CASING H DEPTH	CAV DE	CAVE-IN DRILL DEPTH FLUID L		ORILLIN UID LE	IG VEL	WATI LEVE			ATTACHED		
	2/21/20			16.5	5 -	1.	13.9 -				11.1	L	SHEETS FOR AN			
	2/21/20			16.5	5 -	1	0.7		-		7.8		XPLA]			
BORIN COMP	BORING COMPLETED: 2/21/20											T			GY ON	
DR: T	CB LG: CS Rig: CME 55												TH	IS LO	G	

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AET No: 37-20560									Log of Boring No. B-13 (p. 1 of 1)								
Projec	-	Developm	— ient; Willi	ston,	ND												
DEPTH IN FEET	Surface Elevation				GEOI	LOGY	N	MC	SA	MPLE TYPE	REC	FIELI	O & LA	LABORATORY TE			
FEET	MATERIAL I			1°.A 7			IN	IVIC]	ГҮРЕ	IN.	WC	DEN	LL	PL	% -#200	
	TOPSOIL, lean clay with brown, frozen (9.5 inches)			17 . 34 1	TOPSO			_	M	~~							
1 -	SANDY LEAN CLAY, a roots, firm to stiff, brown,	little grave frozen to 1	1, trace.5 feet then		WEAT TILL	HERED	21	F	$ \Lambda $	SS	22	15		23	13	50.5	
2 —	moist (CL)								H								
3 -									M								
4 -					5	M	X	SS	20	10							
							Н										
5 —					1.0) (C	10	1.2	104	22	10				
6 -					10	M		MC	12	13	124	22	10				
7 —	SANDY LEAN CLAY, a	little orave	1 trace		TILL												
8 -	lignite, iron oxide pockets, (CL)	stiff, brow	n, moist						M								
	(CL)						6	M	M	SS	10						
9 -																	
10 -									M								
11 -							13	M	M	SS	18						
12 —																	
13 —									H								
13							12	M	X	SS	16						
14 —																	
15 —									\forall								
16 —							11	M	X	SS	12						
	Bottom of 1	Boring															
DEP	TH: DRILLING METHOD			WAT	 ER LEVI	EL MEA	 SURF	MEN	[] ГЅ				Ι,	JOTE	DEFE	D TO	
			SAMPI DEPT		ASING DEPTH			г –	ORILLIN UID LE	IG VEI	WATI LEVE		NOTE: REFER THE ATTACH				
<u> </u>	16.5 3.25" HSA 2/21/20 18:01		16.5		-		CAVE-IN DRILLII DEPTH FLUID LE			, LL	Non		SHEETS FOR AN				
	PORNA						EXPLANAT										
BORING COMPLETED: 2/21/20							TERMINOLOG										
DR: T	B LG: CS Rig: CME 55					THIS LO					12 LO	J					

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AET	No: 37-20560			Lo	Log of Boring No. B-14 (p. 1 of 1)							of 1)				
Projec		Developm	— ient; Will	iston, l	ND											
DEPTH IN FEET	Surface ElevationMATERIAL I	DESCRIPTIO	 DN		GE	EOLOGY	N	МС	SA	MPLE YPE	REC IN.	FIELI	DEN	BORAT		TESTS %-#200
1 -	TOPSOIL, sandy lean clay gravel, dark brown, frozen SANDY LEAN CLAY, a cobbles, hard, brown, frozen (CI)	(9.4 inchest little grave	s) 1, trace	t	· l	PSOIL ATHERED L	33	F	M	SS	24	13				
3 -	(CL) Varies between stiff, very s between 2.5 and 13 feet	stiff, and ha	ard				12	F	M	SS	18	7				
4 -									\triangle							
6 -					21	M	\bigvee	SS	16							
7 -								•								
9 -							53	M		MC	12	7	118			
10 -							24	M	M	SS	14					
11 -									\triangle							
13 -	SANDY LEAN CLAY, a lignite, iron oxide pockets, moist (CL)	little grave very stiff,	l, trace brown,		TIL	L	21	М	M	SS	16					
15 -							23	NR	M	SS	NR					
10 -	Bottom of 1	Boring							/\							
DEI	EPTH: DRILLING METHOD					EVEL MEA	SURE	MEN	ΓS				1	NOTE:	REFE	R TO
-	16.5 3.25" HSA	DATE	TIME	SAMPI DEPT		CASING DEPTH		E-IN PTH	FL	ORILLIN UID LE	VEL	WATE		THE A		
	2/21/20 19:11		16.5	9	-	14.1 -				Non		SHEETS FOR AN EXPLANATION OF				
I	BORING COMPLETED: 2/21/20												T	ERMIN TH		
DR: T												TH	IS LO	G		

03/2011

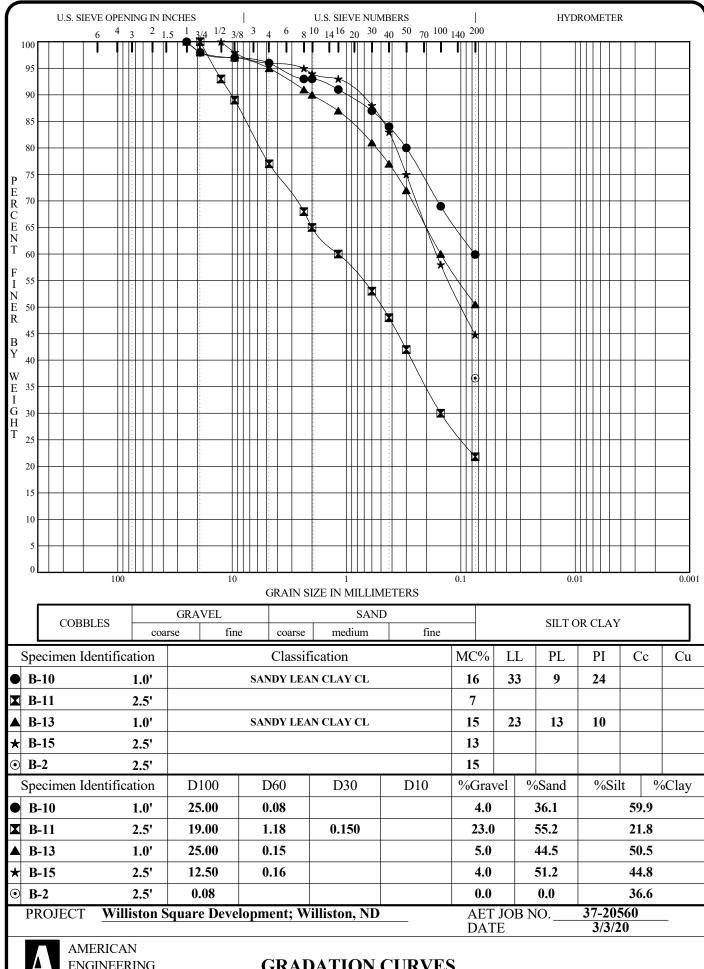


AET No: 37-20560							Log of Boring No. B-15 (p. 1 of 1)							of 1)	
Projec	et: Williston Square	Developn	nent; Will	liston, N	D										
DEPTH IN FEET	Surface Elevation GEOLOGY						MC	SA	AMPLE	REC	FIELI) & LA	BORAT	ORY	TEST
FEET	MATERIAL I	DESCRIPTIO	ON			N	MC		ГҮРЕ	IN.	WC	DEN	LL	PL	% -#2
	ASPHALT (5 inches)				ROAD	-		М							
1 -	FILL, silty sand, a little gr	ravel, brow	n, moist		FILL	58	M	X	SS	10	3				
2 —															
3 —	FILL, clayey sand, a little	gravel, gre	ey, moist			32	M	M	SS	24	13				44
4 –								Λ							
5 —	LEAN CLAY with sand, to odor, stiff, dark brown, mo		organic		FINE ALLUVIUM	9	M	M	SS	14	21		31	21	
6 -							171	Д	55	17	21		31	21	
7 —															
8 -	SANDY LEAN CLAY, fi moist to wet (CL)	irm to soft,	grey,			7	M	X	SS	12					
9 —															
10 -						3	W	M	SS	16					
11 -							<u> </u>	\triangle	55	10					
12 —															
13 -	POORLY-GRADED SA	ND trace o	oravel		COARSE	7	W		SS	18					
14 —	\loose, brown, wet (SP) LEAN CLAY with sand,				ALLUVIUM FILL										
15 —	moist (CL)	3	,			18	NR		MC	NR					
16 —	D # 6	D :				10	IVIC		- WIC	IVIC					
	Bottom of	Boring													
DEP	TH: DRILLING METHOD			WATE	R LEVEL MEA	ASURE	EMEN'	TS					JOTE:	REFE	ER T
16.5 3.25" HSA		DATE	TIME	SAMPLE DEPTH	ED CASING DEPTH	CAV	/E-IN PTH	FI FI	ORILLIN UID LE	NG VEL	WATI LEVE		NOTE: REFE		
		3/4/20	14:03	16.5	-	+	3.2		- -		11.6		SHEET	S FO	R Al
		1 - 2											XPLA	NATIO	ON (
BORIN COMPI	G LETED: 3/4/20											T	ERMIN	IOLO	GY (
DR: T		,						\vdash					TH	IS LO	G

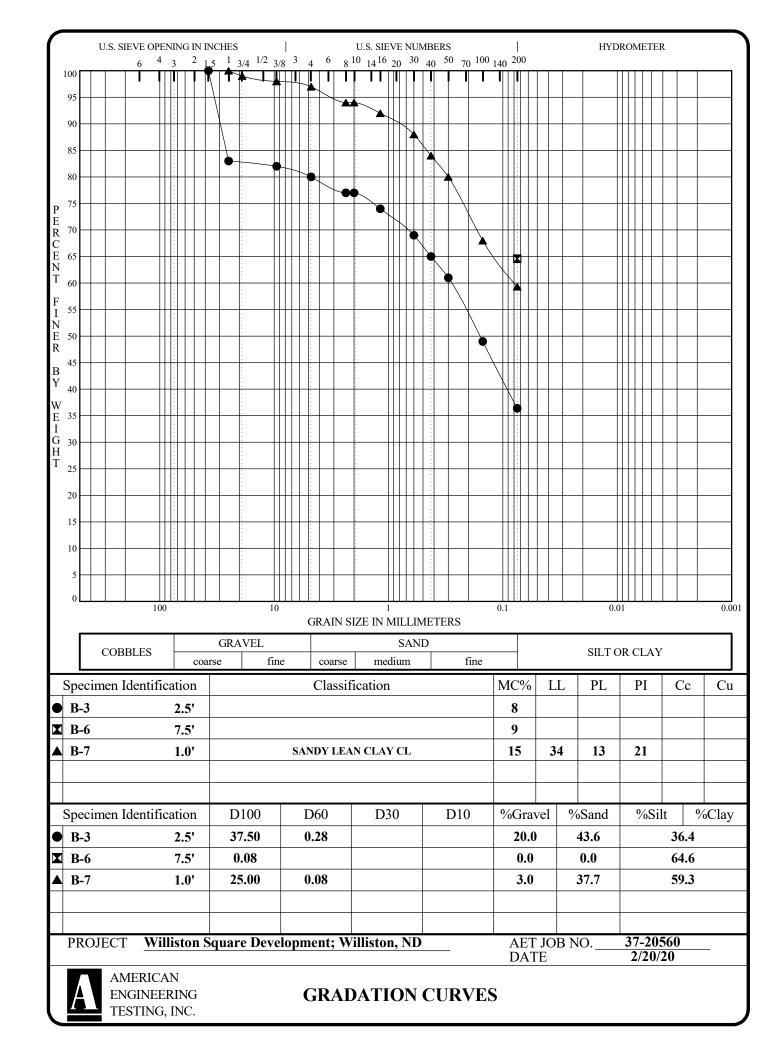


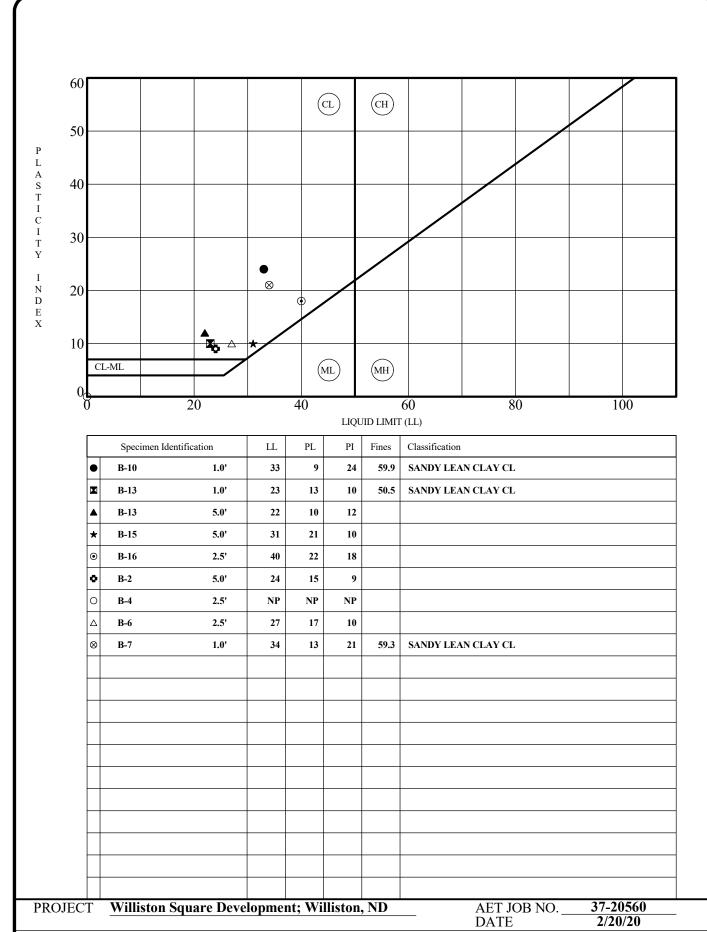
AET 1	No: 37-20560		Log of Boring No. B-16 (p. 1 of 1												
Projec	-	Developm	— nent; Will	iston, l	ND										
DEPTH IN FEET	Surface Elevation MATERIAL I	DESCRIPTIO	DN		GEOLOGY	N	MC	SA T	MPLE YPE	REC IN.	FIELI		BORAT		TESTS %-#200
1 -	FILL, sandy lean clay, a litymoist FILL, silty sand, a little grant	ttle gravel,			ROAD FILL	36	M	M	SS	16	7				
3 —	LEAN CLAY with sand, s moist (CL)	stiff, brown	ı, very		TILL	15	M		SS	24	32		40	22	
4 — 5 —															
6 —	POORLY-GRADED SAN medium dense to loose, bro		GLACIAL OUTWASH	11	M		SS	16	3						
7 — 8 —						14	M	M	SS	14					
9 —															
10 -						9	W		SS	16					
12 — 13 —	Becomes very dense at 12.5	5 feet				50	W	M	SS	14					
14 — 15 —	Becomes loose at 15 feet														
16 —		n :				5	NR	X	SS	NR					
	Bottom of I	Boring													
DEP	DEPTH: DRILLING METHOD			WATI	ER LEVEL ME	ASURE	MEN'	TS		<u> </u>	l	1	NOTE:	REFE	R TO
1	16.5 3.25" HSA		10:00	SAMPI DEPT 16.5			E-IN PTH -	FL	ORILLIN UID LE	VEL	WATE LEVE Non	e	THE A SHEET XPLA	S FOI	R AN
BORIN COMPI DR: T	LETED: 3/4/20											T		IOLOG	GY ON

03/2011









AMERICAN ENGINEERING TESTING, INC.



99 26th Street East Dickinson, ND 58601 (701) 483-4288 Toll Free: (800) 972-6364

5051 Owan Ind. Park Rd. Bldg. 2, Unit 2 Williston, ND 58801 (701) 774-6610

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Report No: PTR:20-02956-S1

Issue No: 1

Proctor Report

Client: WILLISTON, CITY OF

CC:

Project: Williston Square Development

Sloulin Field

Williston ND 37-20560

Date of Issue: Reviewed By:

Testing, Inc.

Field ID:

3/17/2020

Harvey Fitzgerald

Engineer II

Sample Details

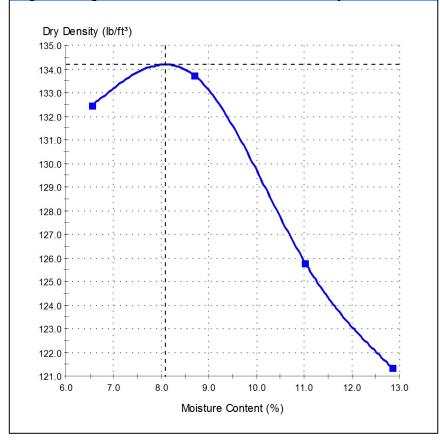
Job No:

Sample ID: 20-02956-S1

Date Sampled: 3/3/2020 Sampling Method: Cuttings

Location: 1-5 feet in depth Sampled By: Colton Shepard

Dry Density - Moisture Content Relationship



Test Results

B-1@1-5 ft.

AASHTO T 180

Maximum Dry Density

(lb/ft³):

Optimum Moisture Content

(%):

Method:

Tested By: Date Tested: **Spring Squires**

3/16/2020

134.2



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Report No: PTR:20-03019-S1

Issue No: 1

Proctor Report

Client: WILLISTON, CITY OF

Williston Square Development

Sloulin Field

Williston ND

37-20560

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Date of Issue:

3/17/2020 Harvey Fitzgerald

Reviewed By:

Engineer II

Sample Details

Project:

Job No:

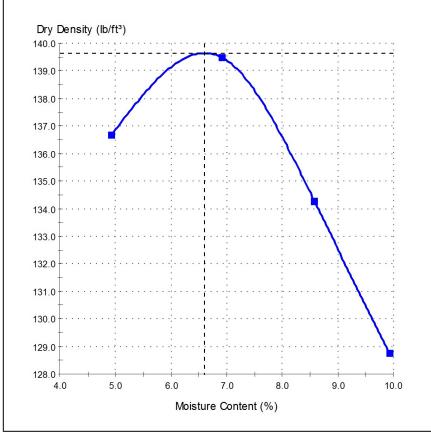
Sample ID: 20-03019-S1

Date Sampled: 3/3/2020 Sampling Method: Cuttings

Location: 1-5 feet in depth Sampled By: Colton Shepard

Dry Density - Moisture Content Relationship

CC:



Test Results

AASHTO T 180

139.6

Maximum Dry Density

B-4 @ 1-5 ft.

(lb/ft³):

Field ID:

Optimum Moisture Content

(%):

Method:

Spring Squires Tested By: 3/17/2020 Date Tested:



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Report No: PTR:20-02255-S1

Issue No: 1

Proctor Report

Client: WILLISTON, CITY OF

CC:

Williston Square Development Project:

Sloulin Field

Williston ND

37-20560

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Testing, Inc.

Field ID:

Date of Issue: Reviewed By:

3/16/2020 Harvey Fitzgerald

Engineer II

Sample Details

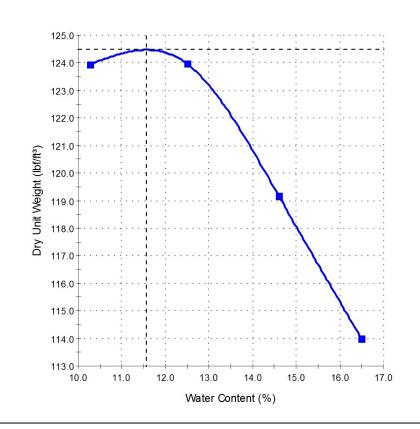
Job No:

Sample ID: 20-02255-S1

Date Sampled: 2/23/2020 Sampling Method: Cuttings

Sandy Lean Clay Material: Location: 1-5 feet in depth Harvey Fitzgerald Sampled By:

Dry Unit Weight - Water Content Relationship



Test Results

B-7 @ 1-5 ft

AASHTO T180

Maximum Dry Unit Weight (lbf/ft3): 124.5 Optimum Water Content (%): 11.6 Method: Preparation Method: Moist

Tested By: Spring Squires Date Tested: 2/28/2020



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Report No: PTR:20-02293-S1

Issue No: 1

Proctor Report

Client: WILLISTON, CITY OF

CC:

Field ID:

Project: Williston Square Development

Sloulin Field

Williston ND

Job No: 37-20560

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Date of Issue: Reviewed By:

B-10 @ 1-5 ft.

3/16/2020 Harvey Fitzgerald

Engineer II

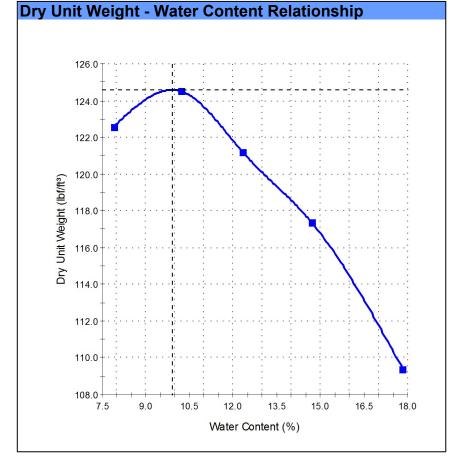
Sample Details

Sample ID: 20-02293-S1

Date Sampled: 2/23/2020 **Sampling Method:** Cuttings

Material:Sandy Lean ClayLocation:1-5 feet in depthSampled By:Harvey Fitzgerald

Harvey Fitzgerald



Test Results

AASHTO T180

Maximum Dry Unit Weight (lbf/ft³): 124.6
Optimum Water Content (%): 9.9
Method: A
Preparation Method: Moist

Tested By: Spring Squires
Date Tested: 2/28/2020



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Report No: PTR:20-02297-S1

Issue No: 1

Proctor Report

Client: WILLISTON, CITY OF

Williston Square Development Project:

Sloulin Field

Williston ND

Job No: 37-20560

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Testing, Inc. Date of Issue:

B-13 @ 1-5 ft.

Reviewed By:

Field ID:

3/16/2020 Harvey Fitzgerald

Engineer II

Sample Details

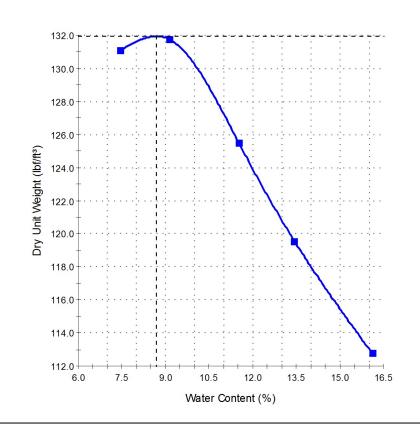
Sample ID: 20-02297-S1

Date Sampled: 2/23/2020 Sampling Method: Cuttings

Sandy Lean Clay Material: Location: 1-5 feet in depth Harvey Fitzgerald Sampled By:

Dry Unit Weight - Water Content Relationship

CC:



Test Results

AASHTO T180

Maximum Dry Unit Weight (lbf/ft3): 131.9 Optimum Water Content (%): 8.7 Method: Preparation Method: Moist

Tested By: Spring Squires Date Tested: 2/28/2020



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www.amengtest.com

Report No: PTR:20-03019-S2

Issue No: 1

Proctor Report

Client: WILLISTON, CITY OF

CC:

Project: Williston Square Development

Sloulin Field

Williston ND 37-20560

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Date of Issue: 3/17/2020 Reviewed By:

Harvey Fitzgerald Engineer II

Sample Details

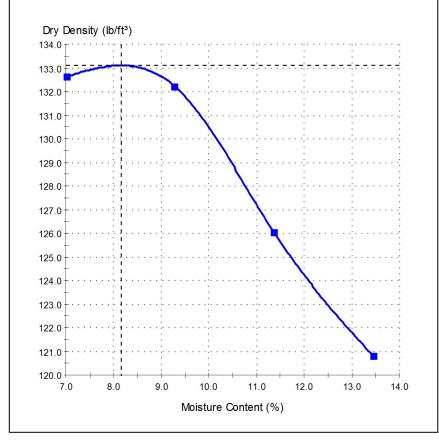
Job No:

Sample ID: 20-03019-S2

Date Sampled: 3/3/2020 Sampling Method: Cuttings

Location: 1-5 feet in depth C lt n She ar Sampled By:





Test Results

AASHTO T 180

Maximum Dry Density

B-16 @ 1-5 ft.

(lb/ft³):

Field ID:

Optimum Moisture Content

(%):

Method:

Spring Squires Tested By: Date Tested:

3/17/2020

133.1

Project: Williston Square Development

Client: City of Williston Project Number: 37-20560

Lab Number: B-1

Date Tested: 3/27/2020 By: JF Specified Compaction: 95%

Method of Compaction: AASHTO T180, Method A

Sample Identification: B-1 @ 1-5 feet Sample Classification: CLAYEY SAND (SC) Percent Passing #4 (4.75mm) Screen: 97%

Maximum Dry Density (psf): 134.2 Optimum Moisture Content: 8.1 %

SOIL CONSTANTS

Test Point One =

Descentage of Proster O

Percentage of Proctor = 91.9%

CBR = 7.9

Test Dry Density = 123.3 pcf

Test Specimen Remolded @ 7.7% Moisture Test Performed @ 13.7% Moisture (Top 1")

Percent Swell = 1.1% Soak Time = 104 hrs Surcharge = 150 psf Test Point Two = ♦

Percentage of Proctor = 97.3%

CBR = 17.0

Test Dry Density = 130.6 pcf

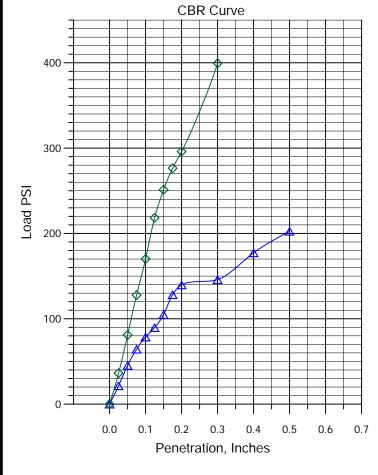
Test Specimen Remolded @ 7.3% Moisture

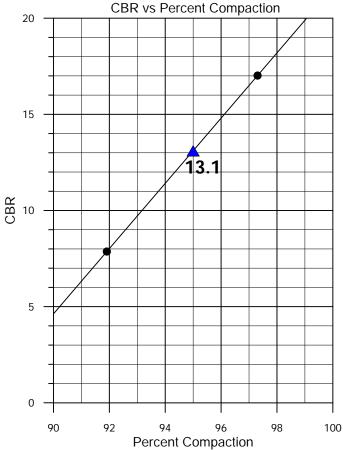
Test Performed @ 10.7% Moisture (Top 1")

Percent Swell = 0.3%

Soak Time = 104 hrs

Surcharge = 150 psf





Reviewed by: Hamy Forgerol



Project: Williston Square Development

Client: City of Williston Project Number: 37-20560

Lab Number: B-4

Date Tested: 3/27/2020 By: JF Specified Compaction: 95%

Method of Compaction: AASHTO T180, Method A

Sample Identification: B-4 @ 1-5 feet Sample Classification: SILTY SAND (SM) Percent Passing #4 (4.75 mm) Screen: 79%

Maximum Dry Density (psf): 139.6 Optimum Moisture Content: 6.6 %

SOIL CONSTANTS

Test Point One = ∇
Percentage of Proctor = 97.1%
CBR = 17.3
Test Dry Density = 135.5 pcf
Test Specimen Remolded @ 6.1% Moisture
Test Performed @ 8.2% Moisture (Top 1")
Percent Swell = 0.1%

Percent Swell = 0.1% Soak Time = 104 hrs Surcharge = 150 psf Test Point Two = ♦

Percentage of Proctor = 93.1%

CBR = 13.1

Test Dry Density = 129.9 pcf

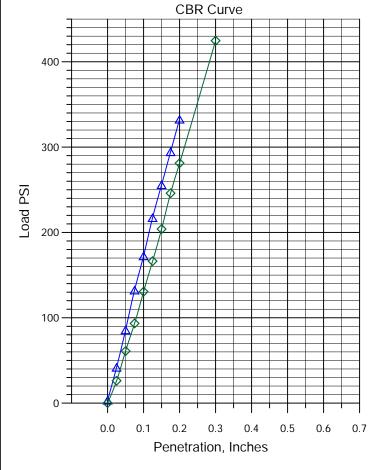
Test Specimen Remolded @ 7.2% Moisture

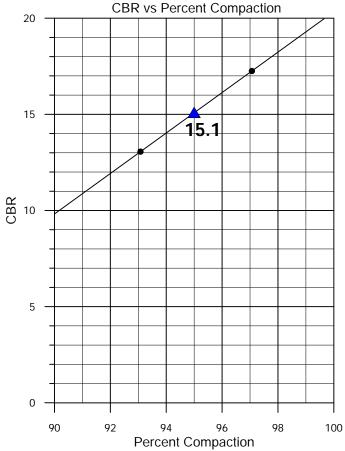
Test Performed @ 7.3% Moisture (Top 1")

Percent Swell = 0.2%

Soak Time = 104 hrs

Surcharge = 150 psf





Reviewed by: Harry Forgeral



Project: Williston Square Development

Client: City of Williston Project Number: 37-20560

Lab Number: B-7

Date Tested: 3/9/2020 By: JF Specified Compaction: 95%

Method of Compaction: AASHTO T180, Method A

Sample Identification: B-7 @ 1-5 feet

Sample Classification: Dark brown Sandy LEAN CLAY

Percent Passing 3/4" (19mm) Screen: 99%

Maximum Dry Density (psf): 124.5 Optimum Moisture Content: 11.6 %

SOIL CONSTANTS

Percentage of Proctor = 93.8%

CBR = 12.3

Test Dry Density = 116.7 pcf

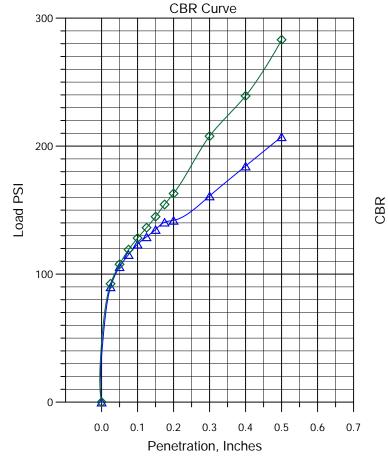
Test Specimen Remolded @ 11.4% Moisture Test Performed @ 20.3% Moisture (Top 1")

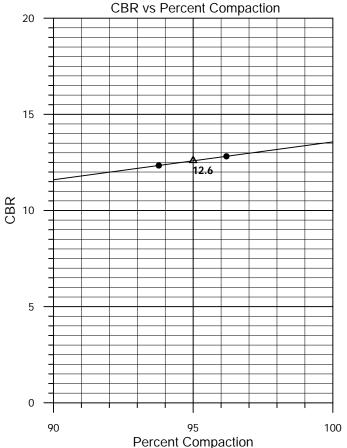
Percent Swell = 2.9% Soak Time = 104 hrs

Surcharge = 150 psf

Test Point Two = ♦ Percentage of Proctor = 96.2% CBR = 12.8Test Dry Density = 119.8 pcf Test Specimen Remolded @ 11.4% Moisture Test Performed @ 18.1% Moisture (Top 1") Percent Swell = 2.3%

Soak Time = 104 hrs Surcharge = 150 psf





Reviewed by: Harry Fotgeral



Project: Williston Square Development

Client: City of Williston Project Number: 37-20560

Lab Number: B-10

Date Tested: 3/9/2020 By: JF Specified Compaction: 95%

Method of Compaction: AASHTO T180, Method A Sample Identification: B-10 @ 1-5 feet

Sample Classification: Brown Sandy LEAN CLAY

Percent Passing 3/4" (19mm) Screen: 98%

Maximum Dry Density (psf): 124.6 Optimum Moisture Content: 9.9 %

SOIL CONSTANTS

Percentage of Proctor = 95.5%

CBR = 11.6

Test Dry Density = 118.9 pcf

Test Specimen Remolded @ 10.4% Moisture Test Performed @ 22.5% Moisture (Top 1")

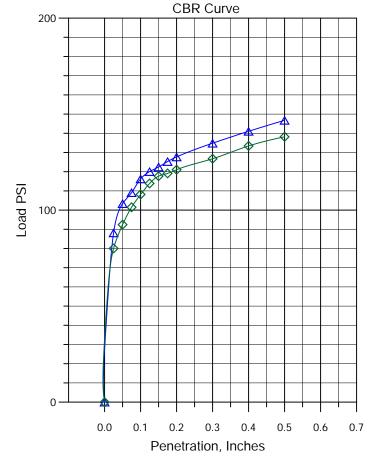
Percent Swell = 1.6% Soak Time = 104 hrs Surcharge = 150 psf

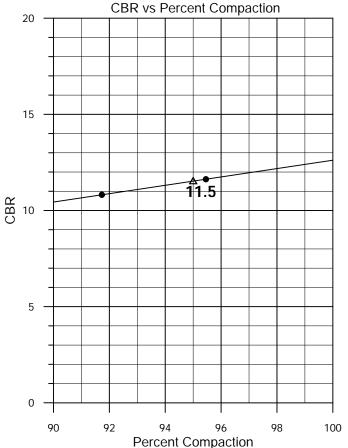
Test Point Two = ♦ Percentage of Proctor = 91.7% CBR = 10.8

Test Dry Density = 114.3 pcf

Test Specimen Remolded @ 10.4% Moisture Test Performed @ 23.2% Moisture (Top 1")

Percent Swell = 5.7% Soak Time = 104 hrs Surcharge = 150 psf







Project: Williston Square Development

Client: City of Williston Project Number: 37-20560

Lab Number: B-13

Date Tested: 3/9/2020 By: JF Specified Compaction: 95%

Method of Compaction: AASHTO T180, Method A

Sample Identification: B-13 @ 1-5 feet

Sample Classification: Brown Sandy LEAN CLAY

Percent Passing 3/4" (19mm) Screen: 98%

Maximum Dry Density (psf): 131.9 Optimum Moisture Content: 8.7 %

SOIL CONSTANTS

Percentage of Proctor = 90.3%

CBR = 18.3

Test Dry Density = 119.2 pcf

Test Specimen Remolded @ 8.9% Moisture Test Performed @ 12.5% Moisture (Top 1")

Percent Swell = 0.7%

Soak Time = 104 hrs

Surcharge = 150 psf

Test Point Two = ♦

Percentage of Proctor = 96.2%

CBR = 19.1

Test Dry Density = 126.9 pcf

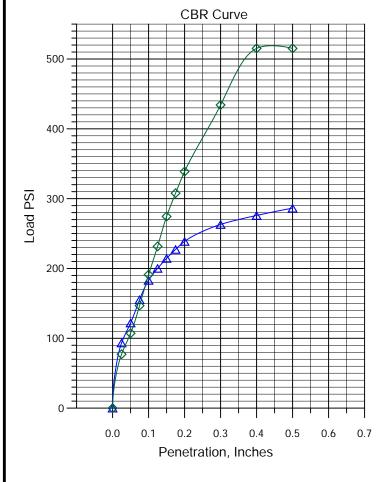
Test Specimen Remolded @ 8.9% Moisture

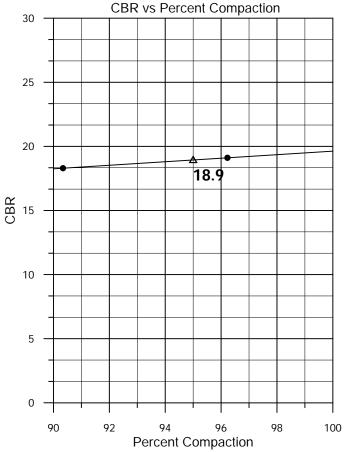
Test Performed @ 11.3% Moisture (Top 1")

Percent Swell = 0.3%

Soak Time = 104 hrs

Surcharge = 150 psf





Reviewed by: Harry Fotgeral



Project: Williston Square Development

Client: City of Williston Project Number: 37-20560

Lab Number: B-16

Date Tested: 3/27/2020 By: JF Specified Compaction: 95%

Method of Compaction: AASHTO T180, Method A

Sample Identification: B-16 @ 1-5 feet Sample Classification: CLAYEY SAND (SC) Percent Passing #4 (4.75mm) Screen: 84%

Maximum Dry Density (psf): 133.1 Optimum Moisture Content: 8.2 %

SOIL CONSTANTS

Test Point One = ∇
Percentage of Proctor = 95.8%
CBR = 15.7
Test Dry Density = 127.5 pcf
Test Specimen Remolded @ 7.6%

Test Specimen Remolded @ 7.6% Moisture Test Performed @ 9.2% Moisture (Top 1")

Percent Swell = 0.2% Soak Time = 104 hrs Surcharge = 150 psf Test Point Two = ♦

Percentage of Proctor = 92.3%

CBR = 12.2

Test Dry Density = 122.8 pcf

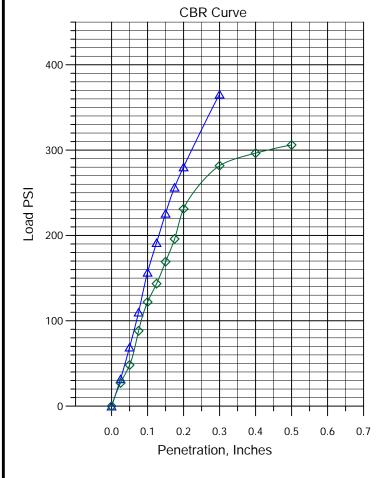
Test Specimen Remolded @ 8.0% Moisture

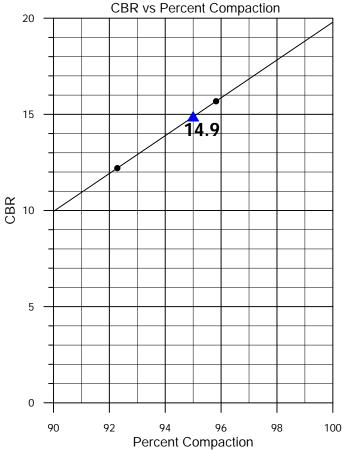
Test Performed @ 10.8% Moisture (Top 1")

Percent Swell = 0.2%

Soak Time = 104 hrs

Surcharge = 150 psf





Reviewed by: Harry Fotgerol



Report of Geotechnical Exploration

Williston Square Development – Work Order #1; Williston, North Dakota April 2, 2020 Report No. 37-20560

AMERICAN ENGINEERING TESTING, INC.

Appendix B

Geotechnical Report Limitations and Guidelines for Use

Appendix B Geotechnical Report Limitations and Guidelines for Use Report No. 37-20560

B.1 REFERENCE

This appendix provides information to help you manage your risks relating to subsurface problems which are caused by construction delays, cost overruns, claims, and disputes. This information was developed and provided by GBA¹, of which, we are a member firm.

B.2 RISK MANAGEMENT INFORMATION

B.2.1 Understand the Geotechnical Engineering Services Provided for this Report

Geotechnical engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical engineering services is typically a geotechnical engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

B.2.2 Geotechnical Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared solely for the client.

Likewise, geotechnical engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. If you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

B.2.3 Read the Full Report

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety.

Geoprofessional Business Association, 1300 Piccard Drive, LL14, Rockville, MD 20850 Telephone: 301/565-2733: www.geoprofessional.org, 2019

Appendix B Geotechnical Report Limitations and Guidelines for Use Report No. 37-20560

Do not rely on an executive summary. Do not read selective elements only. Read and refer to the report in full.

B.2.4 You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- · project ownership.

As a general rule, always inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

B.2.5 Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

B.2.6 This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations only after observing actual subsurface conditions exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.

B.2.7 This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

B.2.8 Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical engineering report, along with any attachments or appendices, with your contract documents, but be certain to note conspicuously that you've included the material for information purposes only. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, only from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and be sure to allow enough time to permit them to do so.

Appendix B Geotechnical Report Limitations and Guidelines for Use Report No. 37-20560

Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

B.2.9 Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. Read these provisions closely. Ask questions. Your geotechnical engineer should respond fully and frankly.

B.2.10 Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical engineering study. For that reason, a geotechnical engineering report does not usually provide environmental findings, conclusions, or recommendations, e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Unanticipated subsurface environmental problems have led to project failures. If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

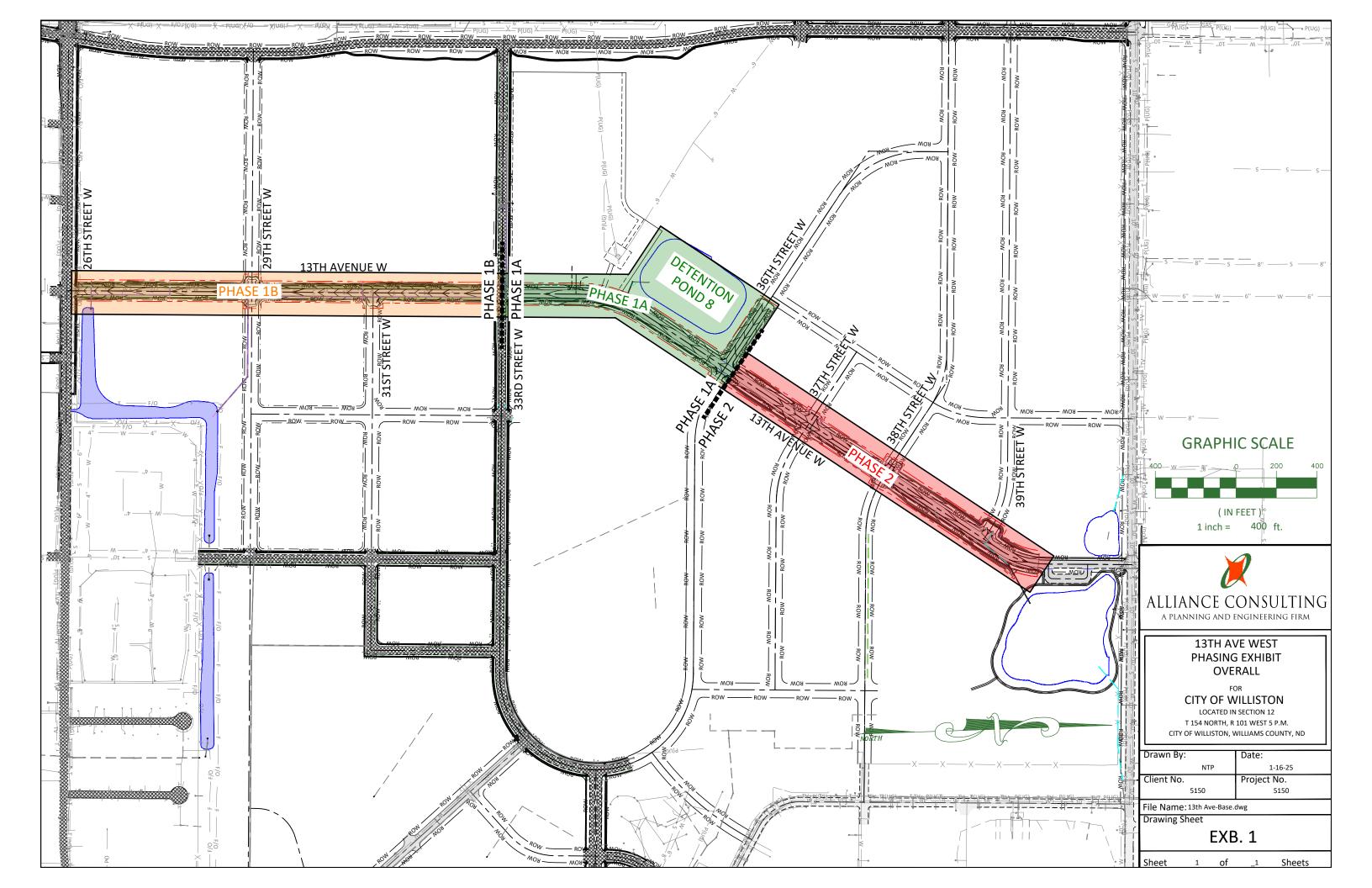
B.2.11 Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

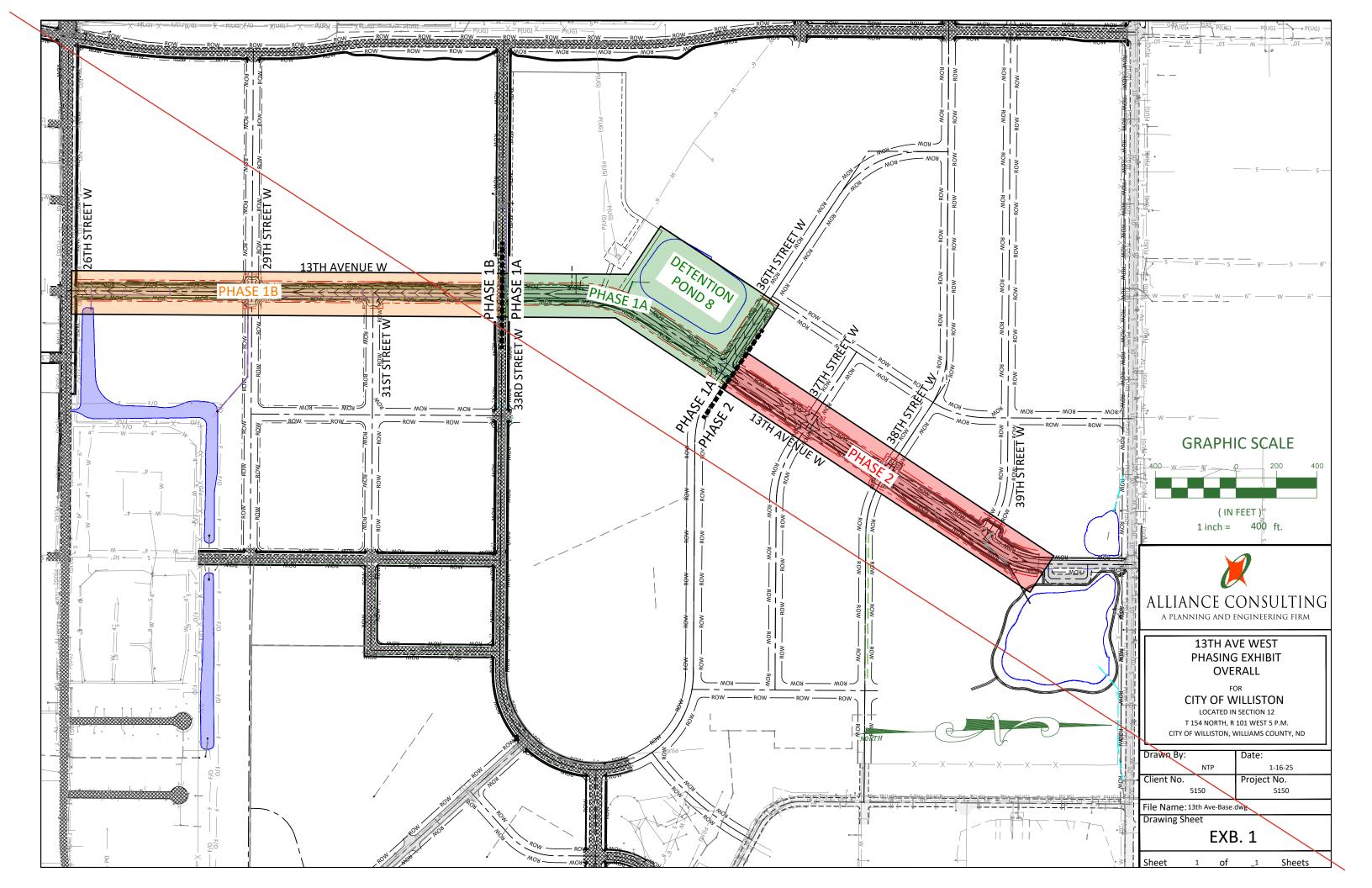
While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. Geotechnical engineers are not building-envelope or mold specialists.

13th Ave W Roadway Improvements & Detention Pond 8

25-001 January 2025

Part 5: Construction Documents





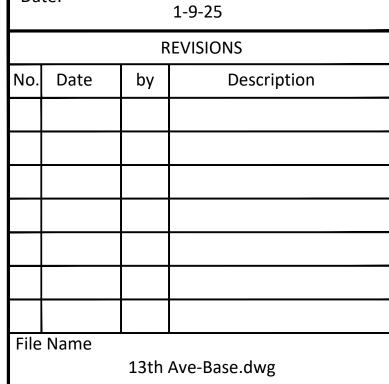
PROJECT LOCATION **13TH AVE W ROADWAY**

WILLISTON SQUARE

13TH AVE WEST ROADWAY CONSTRUCTION FOR

CITY OF WILLISTON LOCATED IN WILLISTON CITY, ND





1 inch = 400 ft.



2303 N CORAL CANYON BLVD SUITE 201, WASHINGTON, UT 84780 435-673-8060

NORTH DAKOTA 621 26th STREET W. WILLISTON, ND 58801 701-572-8100

13TH AVE WEST **COVER SHEET**

CITY OF WILLISTON

LOCATED IN SEC 11 & 12 T 154 NORTH, R 101 WEST 5 P.M. CITY OF WILLISTON, WILLIAMS COUNTY, ND



Drawn By:	Scale:	
NTP	1"=400'	
Client No.	Project No.	
5150	5150	
Drawing Sheet		
C100		

1 of _88 Sheets

PROJECT DRAWING INDEX SHEET NO. DESCRIPTION **COVER SHEET CONSTRUCTION NOTES CONTROL MAP ROADWAY SECTIONS** C103-C104 **TOP SOIL** C105-C106 C107-C108 **OVERALL GRADING** C203-C210 13TH AVE W ROADWAY PLAN AND PROFILES 36TH ST W ROADWAY PLAN AND PROFILE 37TH & 38TH ST W ROADWAY PLAN AND PROFILES 39TH ST W ROADWAY PLAN AND PROFILE C214-C215 STORM DRAIN SECTIONS C300-C301 13TH AVE SEWER AND WATER PLAN AND PROFILE 36TH ST W SEWER & WATER PLAN AND PROFILE 37TH ST W & 38TH ST W SEWER & WATER SECTIONS 39TH ST W SEWER & WATER SECTION C313-C315 SEWER SUPPLEMENTAL SHEETS POWER OVERALL C400-C401 POWER C402-C407 WIRING DIAGRAMS PAVING AND STRIPING OVERALL C500-C501 C502-C503 ROAD SECTIONS 13TH AVE WEST PAVING AND STRIPING C504-C514 C600-C607 DETAILS

WILLISTON <u> Alianniiseautus</u> **FUTURE** DETENTION POND 6A



L1.1-L1.5

L2.0-L2.7

MOUNTRAIL WILLIAMS ELECTRIC COOPERATIVE: WILLISTON HEADQUARTERS P.O BOX 1346 218 58th St W WILLISTON, ND 58802 PHONE: (701) 577-3765

LANDSCAPING

IRRIGATION

MONTANA-DAKOTA UTILITIES CO. 220 2nd AVE.EAST PHONE: (701) 572-1600 EMER. (800) 638-3278

NORTHWEST COMMUNICATIONS COOPERATIVE (NCC) 111 RAILROAD AVENUE PO BOX 38 RAY, ND 58849

PHONE: 801-245-5884

CABLE TV:

MIDCONTINENT COMMUNICATIONS 1102 9th AVE. W WILLISTON, ND 58802 PHONE: (701) 572-3709 CONTACT: AARON KIETZMANN aaron kietzmann@mmi.net

TELECOMMUNICATIONS: NEMONT.

PHONE: (701) 572-4900 CONTACT: RYAN OLSON ryan.olson@nemont.coop

ENGINEER-

621 26th Street W

WILLISTON, ND 58801

PHONE: (701) 572-8100

FAX: (701) 512-6110

CITY OF WILLISTON 1121 5th STREET EAST WILLISTON, ND 58801

PHONE: (701) 334-2223 CONTACT: DAVID JUMA

CONTACT: JAMES HAMMON ENGINEER: DELOSS HAMMON

ALLIANCE CONSULTING

GENERAL NOTES:

- 1. Unless shown otherwise on these plans, all construction shall conform to the codes and ordinances of Williston City, the State of North Dakota Administrative Codes, "The International Plumbing Code", and the "International Building Code" latest editions as administered by Williston City.
- 2. The Benchmark for this project is a NGS Cap Williston Reset 2 Located East of the Little Muddy River at and Elevation 2068.50. For the Localized Control see sheet C102.
- 3. Existing contour and finish contour interval is 2 feet.
- 4. Any necessary design modifications shall be approved by the design engineer.
- 5. All grading to be within ±0.1' of proposed elevation.

CONSTRUCTION NOTES:

- 1. The general notes apply to the site improvements projects in its entirety, unless noted otherwise. Construction notes that have been included sheet by sheet shall be considered additional notes applicable to that sheet.
- 2. Provide a One (1) Week notice to engineer, owner, and property owners prior to beginning construction.
- 3. The contractor shall be responsible for traffic control. Streets under construction must be protected at key areas with barricades over weekends and holidays. The contractor shall provide all required traffic control for all work. Contractor shall maintain home owner access and through traffic at all times, unless prior approval is obtained from City and Engineer.
- 4. The utilities shown on these drawing are approximate locations. The use of utility locations and depths shown hereon for construction purposes is prohibited. The exact location and depth of all utilities shall be determined on site before construction commences. If the Contractor fails to locate utilities relative to the construction area the contractor is fully responsible for any and all resulting damages.
- 5. Existing utility infrastructure shown is conceptual ONLY. It is the Contractors responsibility to locate all existing utilities infrastructure throughout the project. This includes all materials, equipment, means and methods.
- 6. All salvage materials shall become the property of the owner. Excess excavated material including pipe, stumps, roots, and any other items the owner does not wish to salvage shall become the contractor property and shall be removed from the site and disposed of properly, incidental to the contract with no additional compensation awarded for such.
- 7. The contractor shall not disrupt any property monumentation outside the immediate construction areas. In the event that monumentation needs to be reestablished, the engineer's surveyor shall reestablish them on any hourly rate basis at the contractor's expense.
- 8. Ground Water may be encountered. Provide and maintain adequate dewatering equipment to remove and dispose of surface and groundwater entering the trench. Comply with all N.D. Department of health requirements. If ground water is encountered, rock bedding shall be placed under pipe. Clay Dams may only be used on Sewer lines if ground water is encountered to prevent leakage along the entire main line. Ground water mitigation is incidental to the contract per the contract pay item.
- 9. Maintain existing drainage- including rain events through construction.
- 10.Stakes and Marks will be set only at the onset of the project and shall constitute the field control for the Contractor's use in establishing all necessary control to perform the work. The contractor shall preserve all stakes and marks. The Contractor shall hire the Engineer and Pay \$200/HR (plus travel and all reimbursable expenses) to reset any destroyed or disturbed stakes and marks. Before the survey crew leaves the site the Contractor shall determine the meaning of all stakes, measurements, and marks. Provide 48 hour notice to the engineer for staking requests.
- 11. Coordinate support of utility crossings and/or existing utility relocations with Utility Company, Traffic Control Issues with the Owners, and Mobility issues with other construction sites in the Area.
- 12. Notify Engineer and Owner at least 48 hours in advance of temporary disruption of water or sewer services. Owner must APPROVE disruption of service prior to commencement.
- 13. Where existing Utility wires (Telephone, Electric, Fiber Optic, etc.) are located adjacent to or above the proposed pipeline, provide temporary support and install main piping under existing wires. Any decision to have the existing utilities moved will be at the Contractor's Expense. Request the Utility Company provide an on-site representative to inspect the excavation and temporary support of Utility wires to ensure they concur with the temporary support.
- 14. Contractor shall submit a traffic control plan to the engineer for approval prior to distrupting service or commencing construction.
- 15.Limit all work to within the Construction Limits or the Right-of-Way.
- 16.Maintain Ingress/Egress access to Individual Property at all times. Coordinate detours and temporary closures with each Property Owner, Keep duration of all closures and detours to a minimum.
- 17. Remove, Store, and Replace any existing traffic signs disturbed by construction. Any signs damaged or lost as a result shall be replaced by the Contractors.
- 18. Miscellaneous items such as and not limited to Mailboxes, Street Lights, Traffic Lights, Signs, Fences, Poles. Etc. Shall be Protected or Removed and Reinstalled by the Contractors. Contractor is responsible for all Miscellaneous items through out the duration of the project.
- 19. Protection or removal and replacement of Trees, Shrubs, and Landscaping shall be coordinated with the Engineer and the Property Owner.
- 20.All equipment necessary for the proper Construction of Pipelines shall be on the Project, In good, mechanical working condition before construction is permitted to Start.
- 21. The contractor shall be responsible for meeting OSHA standards for their construction site.
- 22. Prior to any construction, the contractor shall field verify the location, elevations, size, and material of the existing water and sewer mains at the points of connection. Required exploration excavation shall be incidental to the contract and no additional compensation shall be awarded for
- 23. City personnel operates valves outside of construction zone, contractor is able to operate *new* valves inside construction zone with approval from the owner.
- 24. After installation of the utilities and cleanup items, make a written request to the engineer for a final inspection. Any deficiencies found will promptly be corrected before final payment will be made.
- 25.Locate and Protect all existing Drainage Facilities, SWPP, and Culverts.
- 26. All disturbed fill areas require a 12" sub-grade preparation at 95% of a modified proctor.
- 27.All excavation and grading shall be in accordance with the requirements of the City of Williston [701-577-6368], of the "International Building Code", 2021 edition, and the specifications.
- 28.All excavation, grading, and fill operations within the building area should be observed by the Field Engineer to verify Subsoil conditions, and determine adequacy of site preparation, suitability of fill materials and compliance with compaction requirements.
- 29. Prior to and during compaction operations, all backfill material shall have the required moisture content uniform throughout each layer.
- 30.In the event of a conflict between the engineered drawings and City of Williston Engineering Specifications the most stringent condition will prevail.
- 31. The construction of the development must comply with all conditions of approval.
- 32.Contractor is responsible & required to obtain their own NDDEQ/NOI permits.
- 33. The protection, temporary support, adjustment, or relocation of any utilities and structure (overhead, underground, or surface) required for installation of improvements shall be coordinated with the owner of each utility before construction commences. All costs associated with said work shall be incidental to the contract and no additional compensation shall be awarded for such.

CONSTRUCTION NOTES:

- 34. All grading areas requiring fill will be a minimum of 95%, plus or minus 3% optimum moisture, of a modified proctor and considered structural fill, unless otherwise specified by the Engineer. No stockpiling of material.
- 35. No equipment is allowed on paved surface and all haul roads/routes shall be reclaimed following construction completion.
- 36. A temporary construction easement will be provided for work on pads adjacent to roadway construction.
- 37. Contractor to have nonworking supervision onsite at all times when construction activities are taking place. Supervisor shall be higher than foreman level; capable to make decisions on behalf of the contractor.

UTILITY NOTES:

- 1. All products that may come into contact with water intended for use in a public water system shall meet American National Standards Institute (ANSI) and National Sanitation Foundation (NSF) Standards. A product shall be considered meeting these standards if it is certified by NSF, under writers laboratories (UL) or other organizations accredited by ANSI to test and certify such products.
- 2. All water mains 12" in Diameter and smaller shall be SDR-21, Class 200 PVC pipe meeting the requirements of ASTM D2241 or AWWA C900, DS1 8 pipe 235 PSI. Each length of water line pipe shall be a standard laying Length of 20 feet. Random Lengths (with the exception of 20' lengths that must be cut to Facilitate fitting connections) are not acceptable.
- 3. 1" and 2 " Water Services shall be ASTM D2239 High Density Polyethylene, SIDR-7, Class 200. Service saddles shall be full circle stainless steel, Romac 306 or Approved Equal. Corporation Stops shall be Ford FB-1001, or Approved equal. Curb Stops shall be Ford B66-444M, or approved equal. Rise Rod shall not be installed in Curb Stop Box. HDPE service lines shall be constructed without pipe joints. Installation of water service shall include cost of service saddle. Curb Stop and all other materials and labor necessary to install and reconnect the water serve to each property.
- 4. Unless otherwise explicitly specified, all water line fittings and valves shall be ductile iron and mechanically restrained (Megalugs or Approved Equal) with a minimum working pressure of 350 PSI. All valves shall be epoxy coated.
- 5. Mechanical Joint Restraints and Thrust Blocks shall be installed in accordance with the respective detail included in this planset, unless specifically noted otherwise. Precast blocks will be acceptable as approved by the engineer.
- 6. All nuts and bolts used in any water line restraint, fitting or valves shall be 316 stainless steel.
- 7. The minimum cover for water lines shall be 7.5 feet, unless authorized by the City Engineer. Water lines shall be laid to the grade and elevations indicated on the drawings.
- 8. The contractor shall hydrostatic and leak test all new water mains in accordance with City Engineer specification section 404, water main, Hydrostatic pressure shall be a minimum of 150 PSI for a two-Hour duration. All testing shall be witnessed by the Engineer's resident project representative. Water services shall not be put into service until the adequate disinfection, pressure, and leak testing has been preformed on the water mains.
- 9. All water line piping, fittings and relevant appurtenance, including existing piping that is to remain but was disturbed during construction, shall be disinfected according to the latest edition of AWWA C651- Disinfection of water mains. Two or more successive sets of samples, taken at 24-hour intervals, shall indicate microbiologically satisfactory water before the facility is placed into operations. All testing shall be the responsibility of the contractor and shall be considered incidental to all other items.
- 10. Ductile iron fittings shall be manufactured in accordance with ANSI/AWWA C110/A21.10 or ANSI/AWWA C153. Ductile Iron fittings shall have cement mortar lining and seal coating in accordance with ANSI/AWWA C104/A21.04 All buried ductile fittings and fire hydrant barrels shall be wrapped with tube-form 8 mil low-density polyethylene wrap per ANSI/AWWA C105/A21.5. Installation methods shall be per ANSI/AWWA C105/A21.5 dipra's "Polyethylene Encasement" Brochure. All wrap joints shall be taped per AWWA C105.
- 11. Water mains shall be laid at least 10 feet horizontally from any existing or proposed gravity sanitary or storm sewer as measured from the outside of pipe, unless authorized by the City Engineer.
- 12. If it is not possible to maintain horizontal separation from the sanitary sewer line, the water main shall be in a separate trench or on an undisturbed earth shelf at an elevation so that the bottom of the water main is at least 18 inches above the top of the gravity sewer.
- 13. Water mains crossing sewer shall be laid to provide minimum vertical separation of 18 inches from sewer lines as measured from the outside of pipe. When it is not possible to maintain vertical sepration of 18 inches, the sewer materials shall be water works Grade 150 PSI pressure pipe meeting AWWA standards.
- 14.No Water Pipe shall pass through or come in contact with any part of a Sewer Manhole.
- 15. Adjust all Structures to Finish Grade and provide concrete collar where required per plan.
- 16.All required fittings not included on the bid form shall be installed and considered incidental to the water main with no additional compensation awarded for such; Contractor is to plan accordingly.
- 17. After installation of the utilities and cleanup items, make a written request to the engineer for a final inspection. Any deficiencies found will promptly be corrected before final payment will be made.
- 18. The Owner/Engineer retains the right to relocate the Hydrant and Valves for best fit along the water mainline for the appropriate location.
- 19. The contractor is responsible to repair existing trench settlement. Limits of removal and sub-grad repair directed by the engineer in the field. Contractor to provide pavement sections per the water main pavement patch.
- 20. All removed hydrants must be delivered to the City of Williston for re-commission
- 21. Dowels will be used in the Sidewalk Repairs.
- 22. During the service line replacements the Contractor is responsible to replace any sidewalk, curb, lawn, etc. items that are disturbed during construction. This is apart of the service line pay item. The contractor shall remove and replace to the existing conditions prior to completing
- 23.The Contractor is responsible for all trench stabilization, including de-watering and trench shoring. Any damage to asphalt, base, curb, landscaping etc. as a result of inadequate trench stabilization shall be the contractor's responsibly, and shall be replaced by the contractor at no cost to the owner.
- 24. The Owner has the Right to extend prices on all Bid items.
- 25. The Contractor is responsible to verify lateral depths prior to water line installation. Any modifications will be the contractors responsibility
- 26.All Sanitary Sewer/Water Main crossing shall be installed with a minimum of 18" vertical separation between pipe outside walls. All Water mains shall be installed above sanitary sewer when possible. Water mains installed above and within 5 feet of a Sanitary Sewer main, and all Water mains installed below a Sanitary sewer main shall have a full 20 foot length of Water main pipe centered on the Sanitary Sewer main. When Water mains are installed beneath an existing Sewer main the Sewer main shall be replaced by a full 20 foot length of Sewer main pipe centered over the Water main unless others wise direct by the Engineer/Owner.
- 27.Insulation shall be 4" thick and be installed whenever the Watermain passes within 2 feet of a Storm sewer. The Insulation shall extend a minimum of 4 feet beyond the outer walls of the storm sewer. Insulation shall be installed whenever there is less than 7.5 feet of cover from the finished grade to the top of pipe.
- 28. Contractor is responsible & required to coordinate with all utility companies to locate, work with and work around exiting & new utilities. The contractor shall relocate any miscellaneous utilities during the construction project.
- 29. All water fitting's shall be wrapped with plastic prior to backfill.
- 30.All water stubs 8"-12" require blow offs. Blow offs are considered incidental to the project. Contractor is to plan accordingly.
- 31.All fire hydrants shall be inspected by City Engineering personnel prior to installation. Any fire hydrants found to be noncompliant shall be removed from the project immediately. The 2-1/2" nozzle shall be 7352 threads and the 4" pumper nozzle shall be 40,500.
- 32.All mechanically restrained joint fittings shall be torqued to manufacturers specifications with a torque wrench
- 33. Contractor is to verify continuity of tracer wires and repair as necessary.

DEMOLITION & PAVING NOTES:

- 1. Demolition shall include removal of all Foundations, Footings, Cables, Wires, Pipes, Roots, Runway Light Bases & Conduit, Etc. Associated with all surface or subsurface items subject to demolition. All items subject to demolition shall be hauled to a landfill approved by the Engineer. Bidders shall satisfy themselves of all work involved in the removal of all items subject to demolition. Submission of a bid shall constitute incontrovertible evidence that bidder understands and has included in his bid all items affecting cost, progress or performance of the work.
- 2. Edges of Asphalt or Concrete subject to removal shall be saw cut vertically through the entire depth of the
- 3. At contractor's option, Asphalt subject to removal may be milled and stockpiled on site.
- 4. Removal and replacement of existing concrete curb and sidewalk at curb stops shall be limited to two segments defined by existing control joints. The contractor is responsible to protect adjacent concrete curb and sidewalk during construction. Any adjacent curb or sidewalk segments damaged during construction will be replaced at the sole expense of the Contractor, with no adjustment in price.
- 5. Asphalt millings shall be placed on onsite stockpile. Coordinate with the City and Engineer for location.
- 6. Curb and sidewalk installation shall be in accordance with the City of Williston Standard Details except as explicitly noted on the plans or in the project manual.
- 7. Place a type II Joint between slab or sidewalk, and back of curb installations.
- 8. Tree Removal is the responsibility of Contractor.
- 9. Owner will privde dump site, contractor will provide transportation for demolition material. No fees shall apply at dump sites, however handler is required to have NDDEQ & C.O.W waste handler permits.

TEMPORARY EROSION AND SEDIMENT CONTROL NOTES

- 1. Provide and Maintain all Erosion Control Measures, Plans, Permits, Maintenance, Expenses, Etc.
- 2. All temporary erosion and sediment control devices shall be installed, monitored, and maintained until final turf cover has been established and accepted by the City.
- Inspections shall be performed by the Contractor at Least Once Every 14 Calendar Days and within 24 Hours After a Storm Event of 0.25" or More. Inspections shall be documented in Writing and shall Include: Date and Time, Name of Inspector, Findings, Corrective Actions Taken, and Dates and Amounts of Rainfalls.
- All Erosion Prevention and Sediment Control devices must be repaired, replaced, or supplemented when they become nonfunctional or the sediment reaches 1/3 of the height of the device. These repairs must be made within 24 hour of Discovery, or as soon as field conditions allows.

Sediment tracked on the street shall be removed within 24 hours using a street sweeper with pick-up

- 5. Provide Temporary Erosion Protection or Permanent cover for the Exposed soil areas where activities have been completed or temporarily cease within 21 day of ceasing earth moving activities.
- 7. All temporary Erosion and Sediment control devices must be removed by the Contractor when final turf
- cover is established and acceptable to the Owner. Berm Bags are Required on all existing Catch Basins.
- 9. SWPPP must be onsite, and accessible as per the NDDOT. 10. It is the contractors responsibility to identify all and any SWPPP staging areas.
 - DUST CONTROL NOTES

THESE DUST CONTROL MEASURES MUST BE OBSERVED AT ALL TIMES:

- Apply water by means of trucks, hoses and/or sprinklers at sufficient frequency and quantity, prior to conducting, during and after earthmoving activities.
- 2. Pre-apply water to the depth of the proposed cuts, or equipment penetration.
- 3. Apply water as necessary and prior to expected wind events.
- 4. Operate haul vehicles appropriately in order to minimize fugitive dust and apply water as necessary during loading operations.
- 5. The Contractor shall provide suitable equipment to control dust and air pollution caused by construction operations. The contractor shall also provide suitable mud and dirt containment to maintain clean conditions on the work site, access roadways and adjacent properties.
- Owner will provide water for construction at no cost to contractor. Contractor to coordinate with owner to get construction meter installed.
- 7. Contractor shall obtain grading permit from Development Services at not cost to contractor.
- 8. SWPPP permit will be required.

Date: 1-9-25 REVISIONS No. Date Description File Name 13th Ave-Base.dwg



2303 N CORAL CANYON BLVD

WASHINGTON, UT 84780

435-673-8060

SUITE 201,

13TH AVE WEST **ROADWAY CONSTRUCTION** NOTES

NORTH DAKOTA

621 26th STREET W.

WILLISTON, ND 58801

701-572-8100

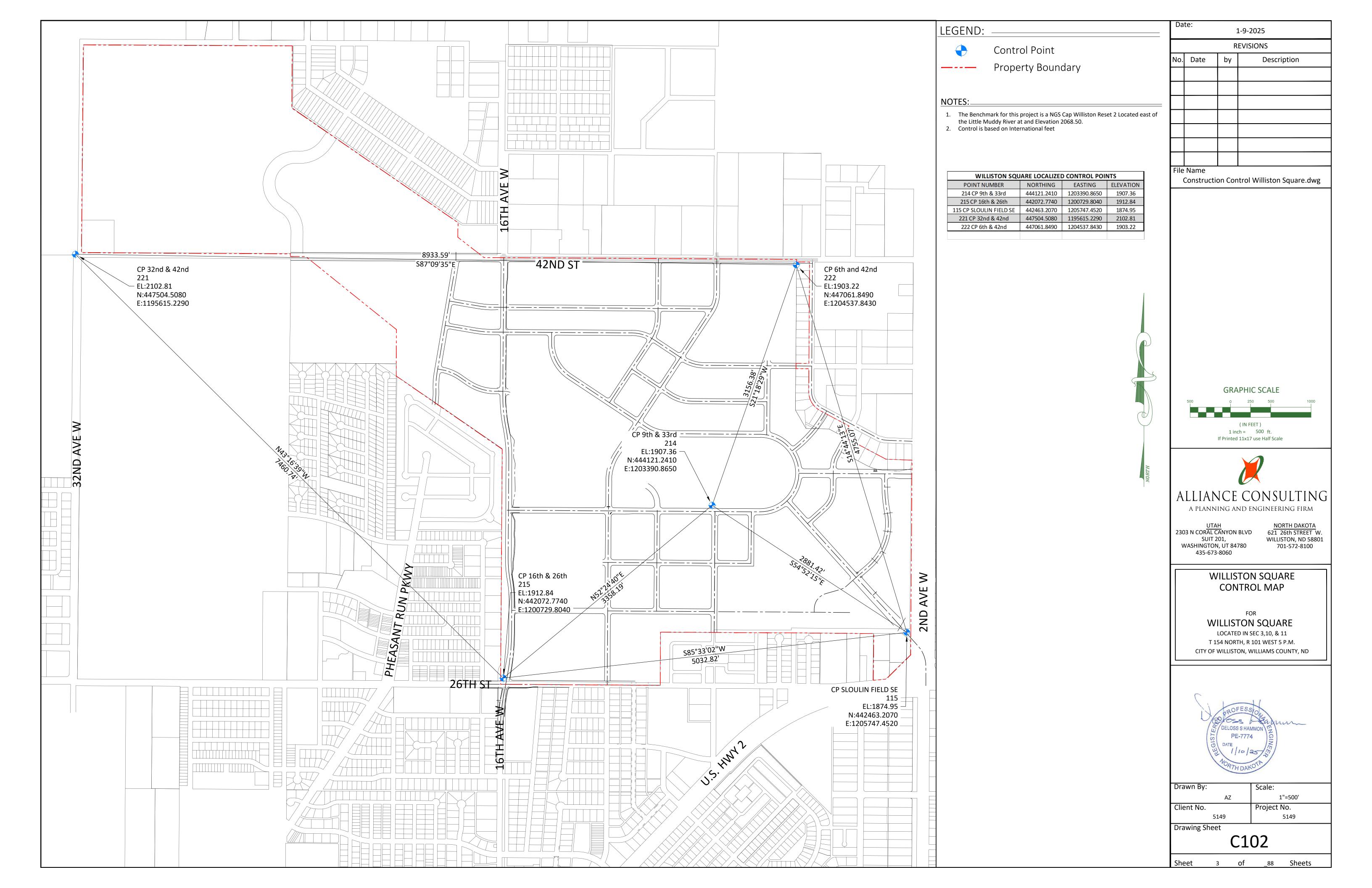
FOR CITY OF WILLISTON LOCATED IN SEC 11 & 12 T 154 NORTH, R 101 WEST 5 P.M. CITY OF WILLISTON, WILLIAMS COUNTY, ND

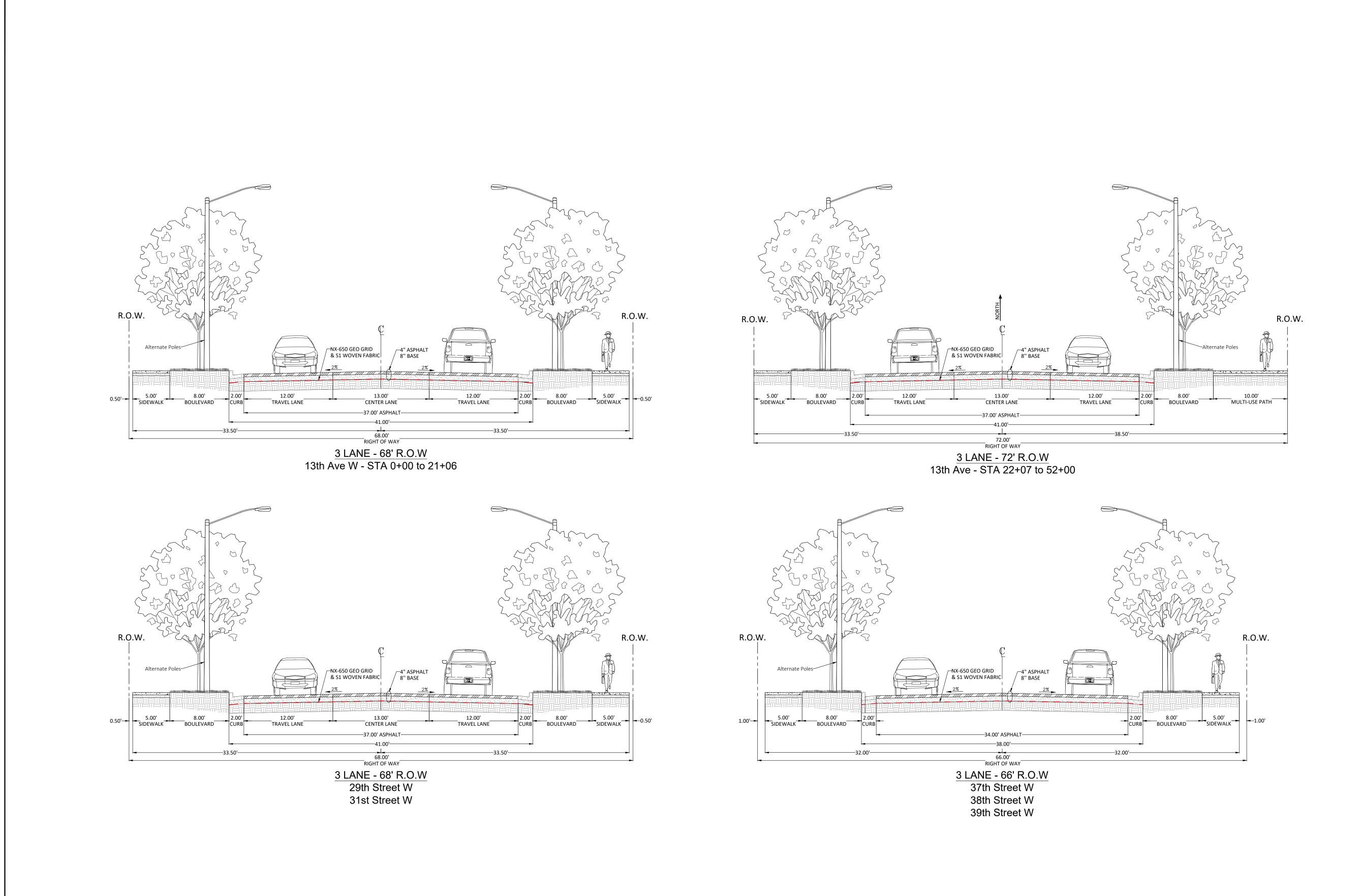


Drawn By: Scale: NTP NONE Client No. Project No. 5149 5149 Drawing Sheet

C101

88 Sheets





Date:

1-9-25

REVISIONS

No. Date by Description

File Name

13th Ave-Paving.dwg

| SCALE: 1"=1500' | 29th, St. | 38th St. | 3



UTAH 2303 N CORAL CANYON BLVD SUITE 201, WASHINGTON, UT 84780 435-673-8060

NORTH DAKOTA 621 26th STREET W. WILLISTON, ND 58801 701-572-8100

13th AVE WEST ROADWAY SECTIONS

WILLISTON SQUARE
LOCATED IN SEC 11

T 154 NORTH, R 101 WEST 5 P.M. CITY OF WILLISTON, WILLIAMS COUNTY, ND



Drawn By:

CR

N/A

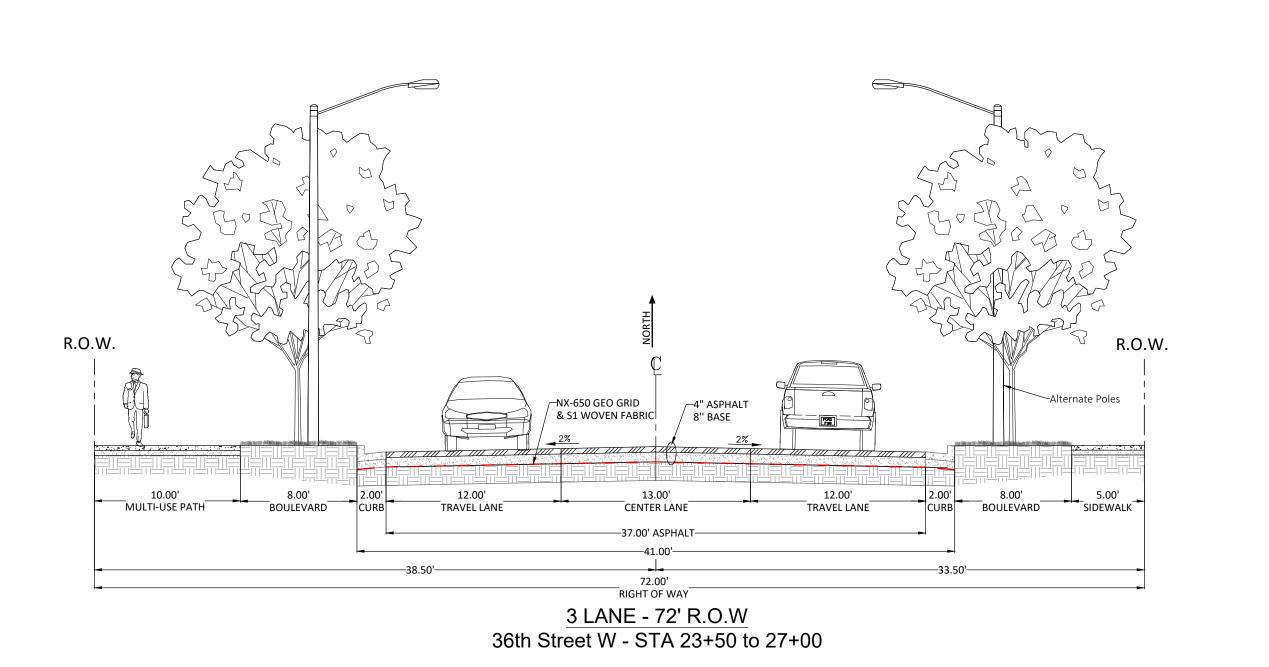
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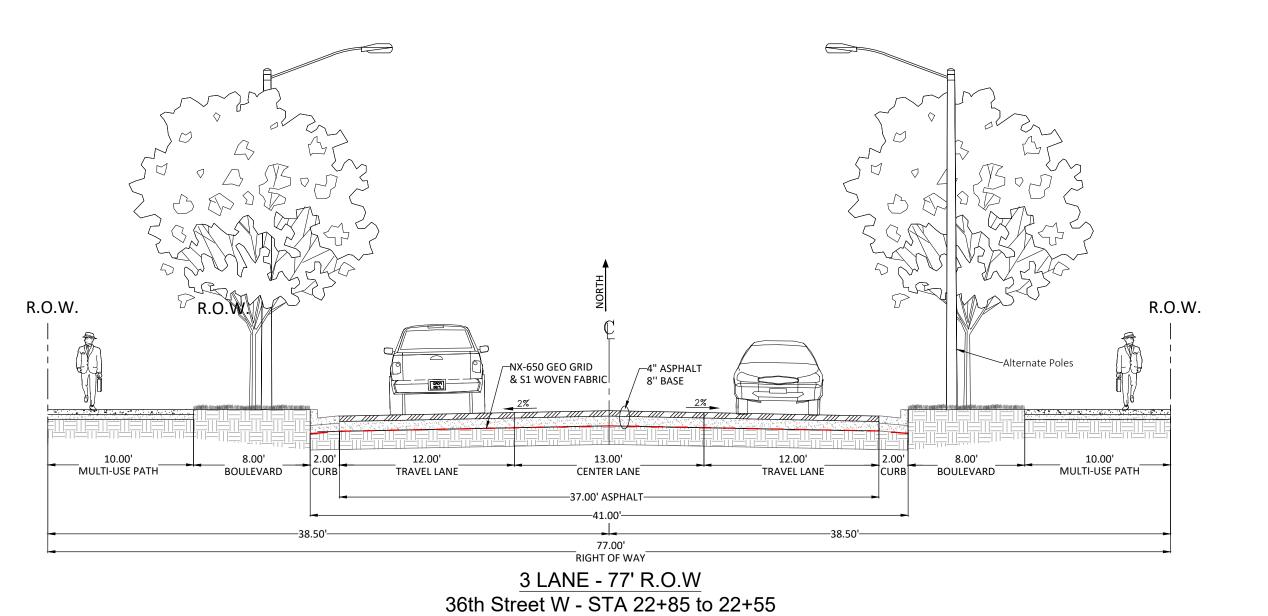
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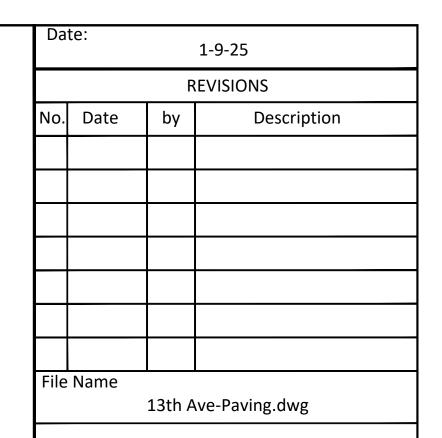
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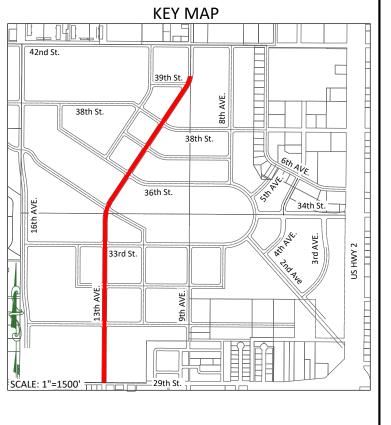
C103

4 of _88 Sheets











SUITE 201, WASHINGTON, UT 84780 435-673-8060

UTAH
2303 N CORAL CANYON BLVD
SUITE 201,
WASHINGTON, UT 84780

MORTH DAKOTA
621 26th STREET W.
WILLISTON, ND 58801
701-572-8100

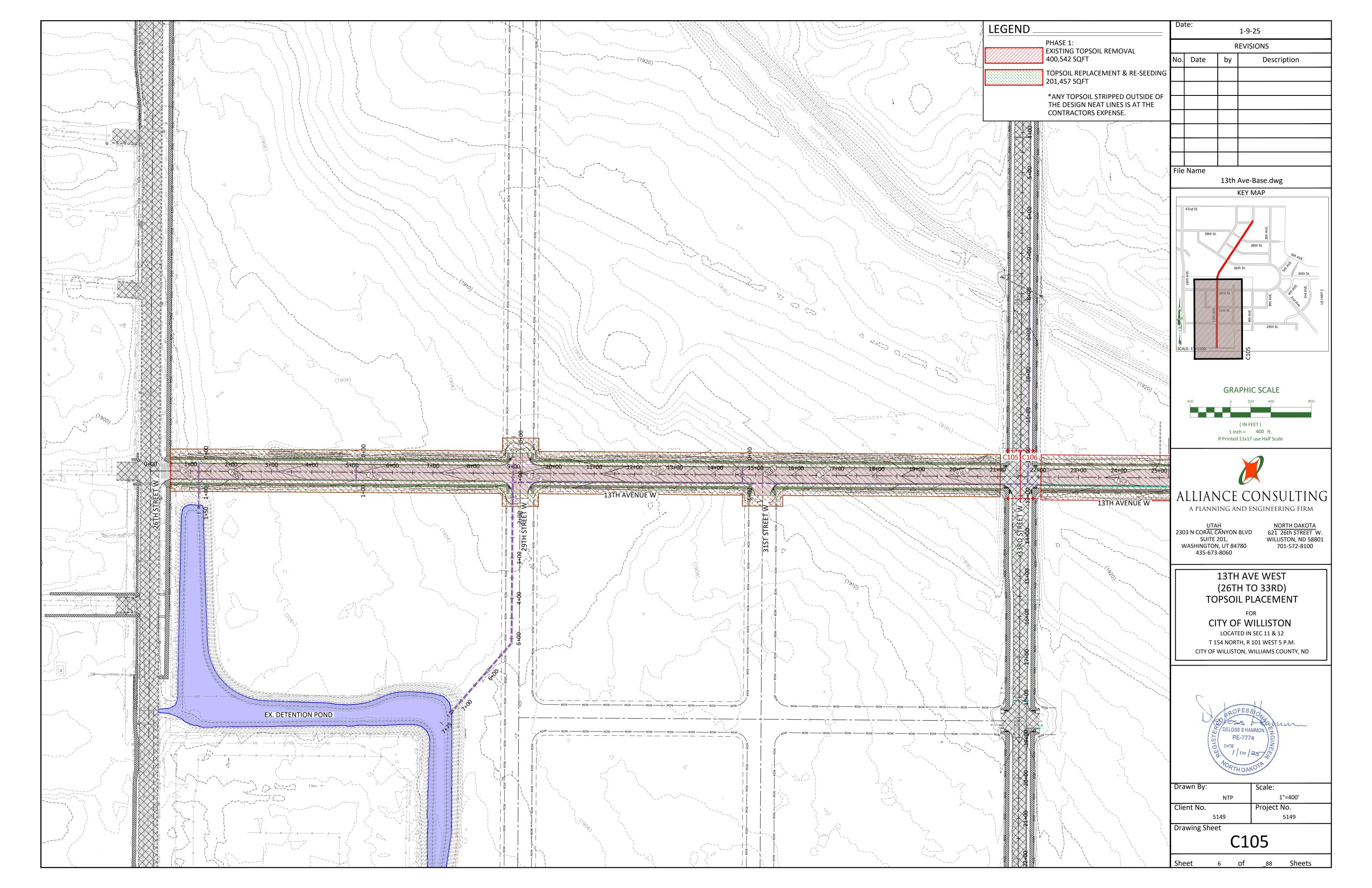
36TH ST WEST **ROADWAY SECTIONS**

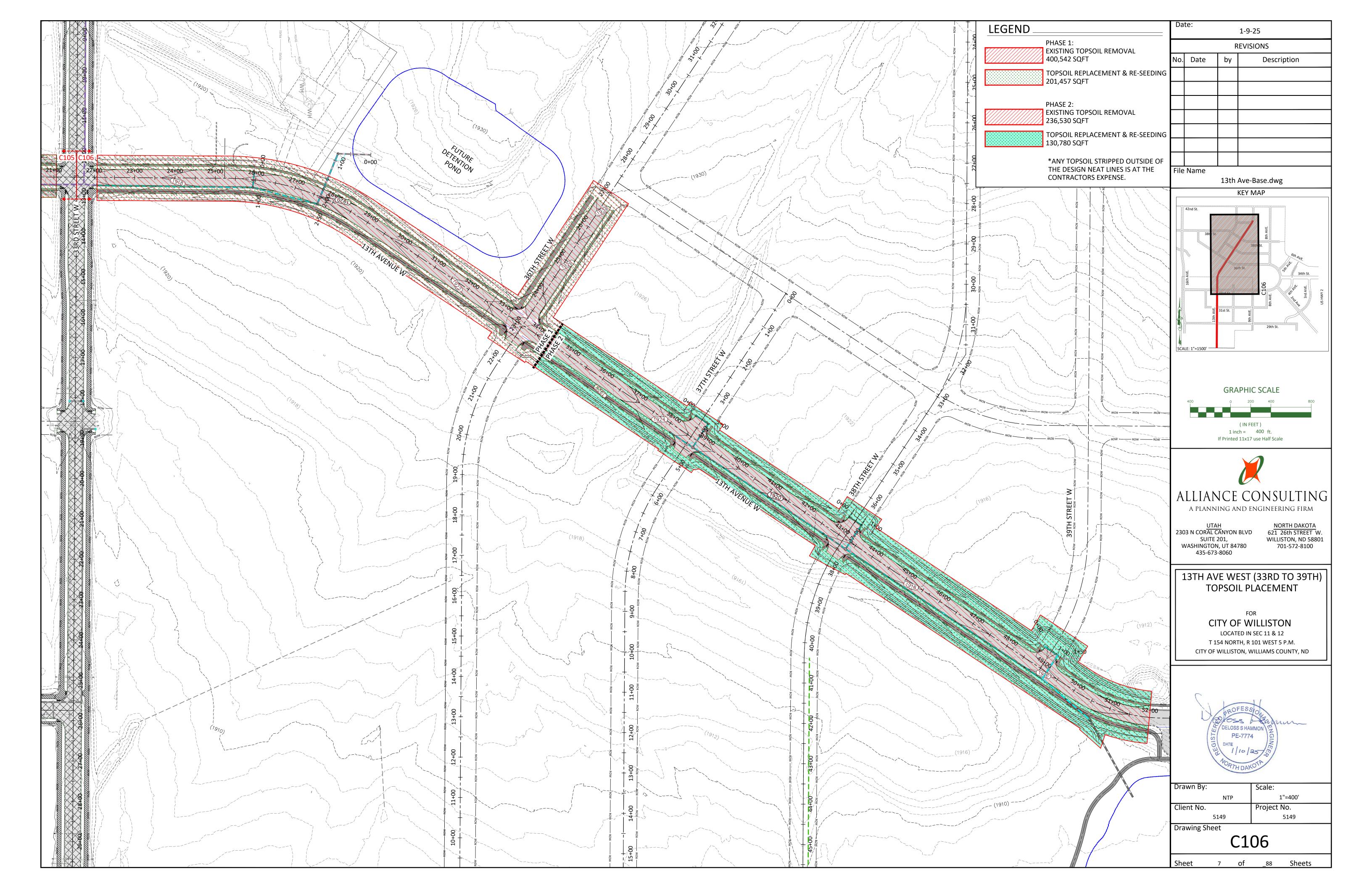
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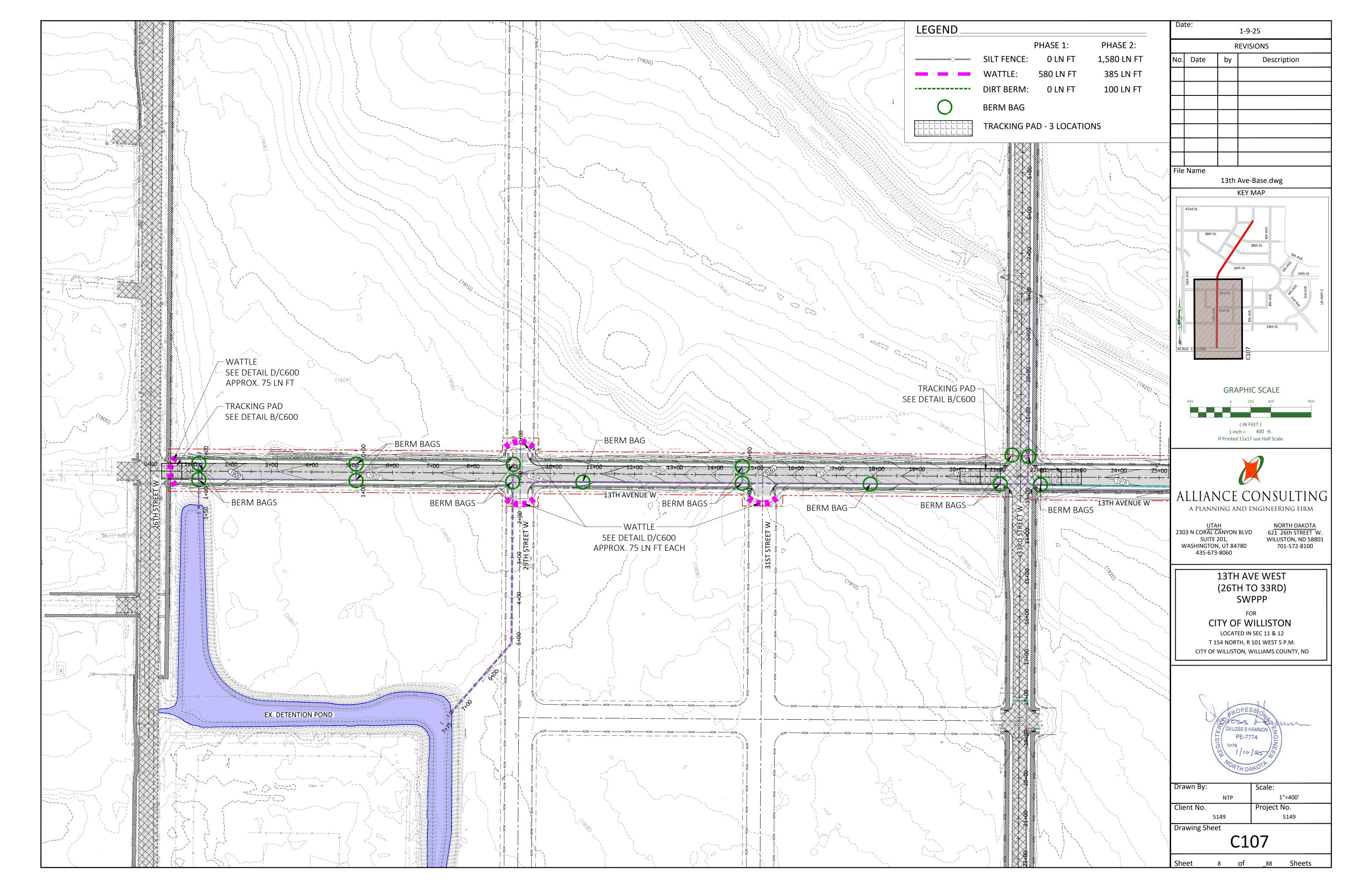
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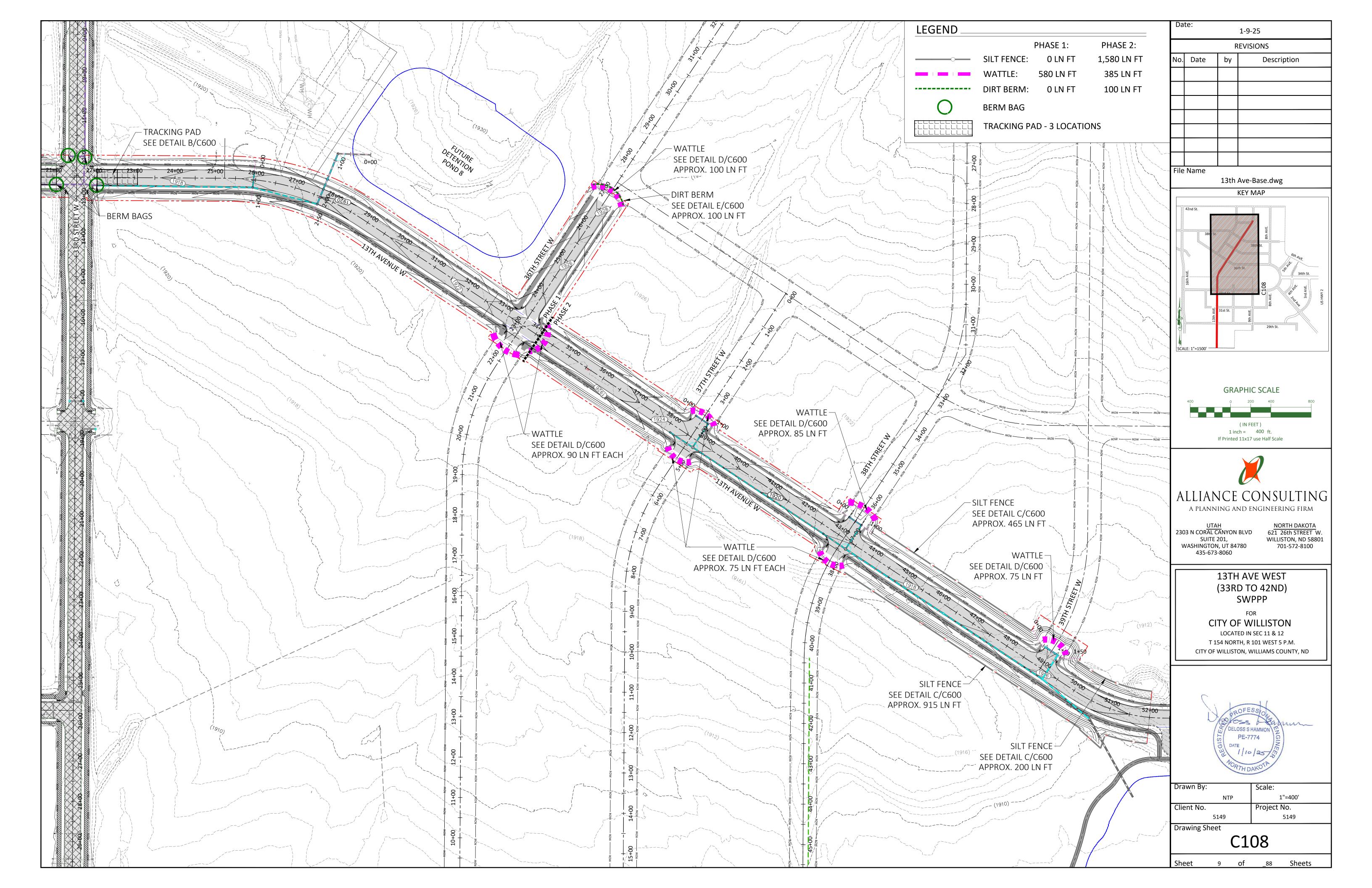
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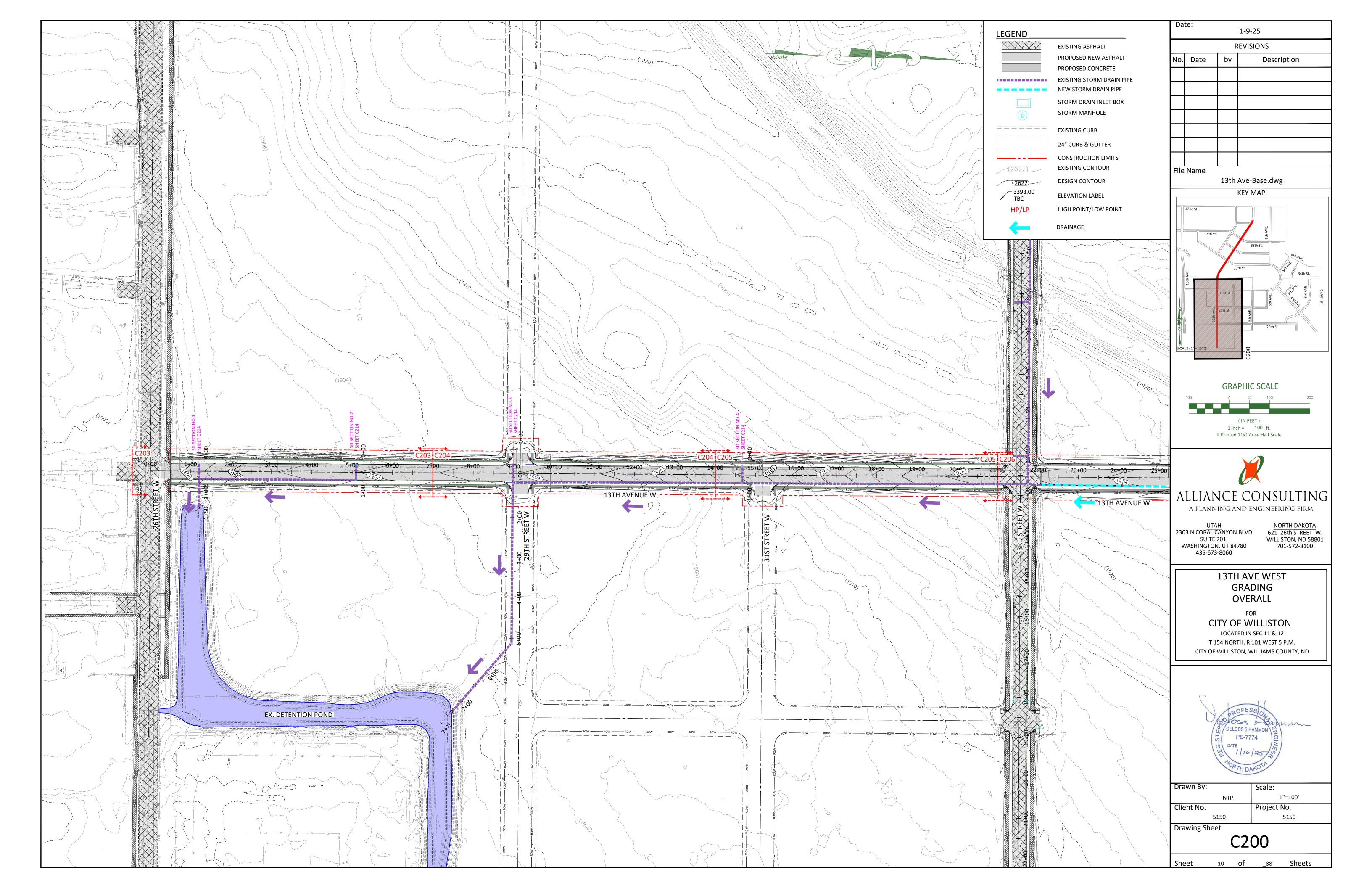
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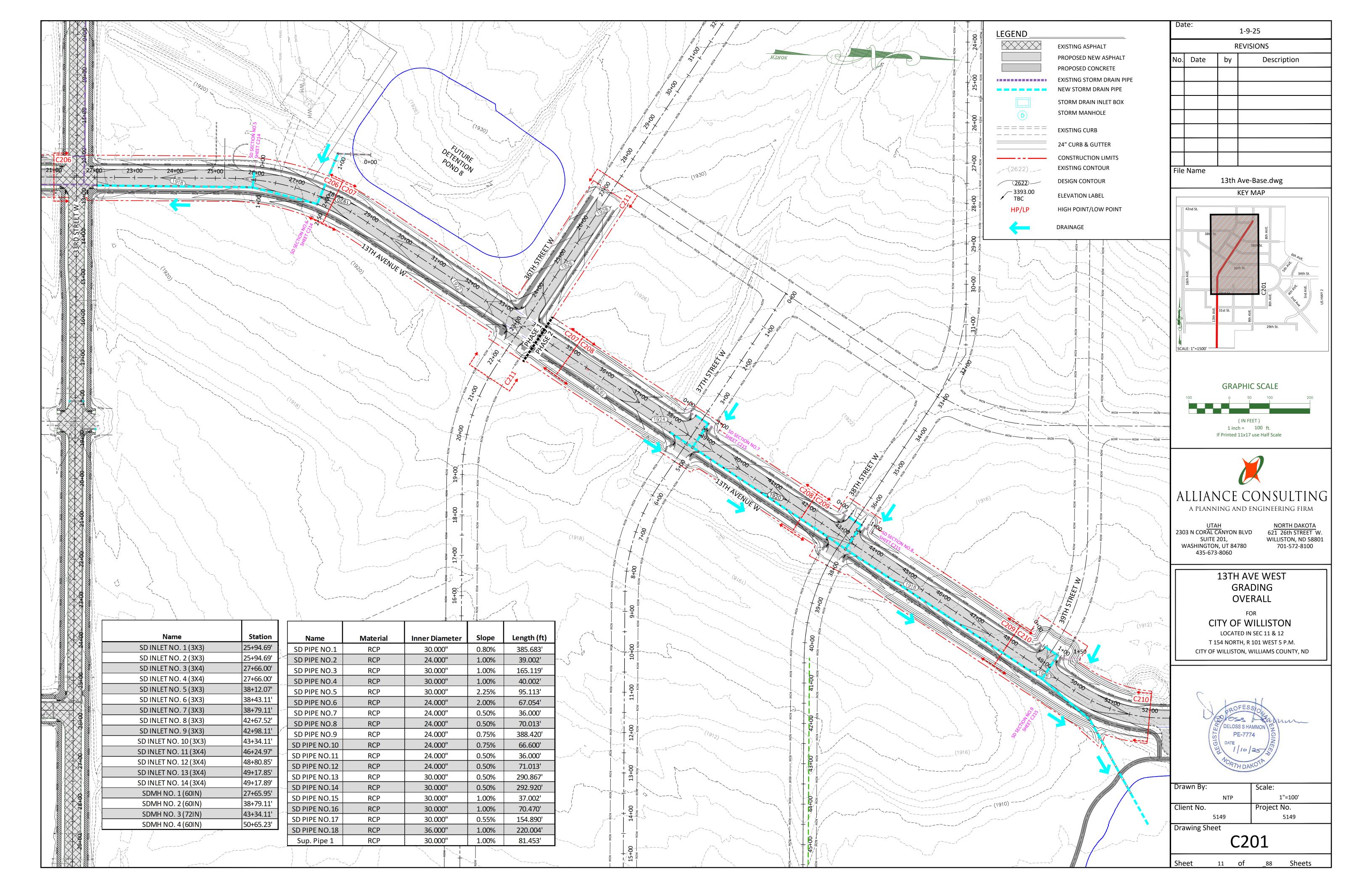


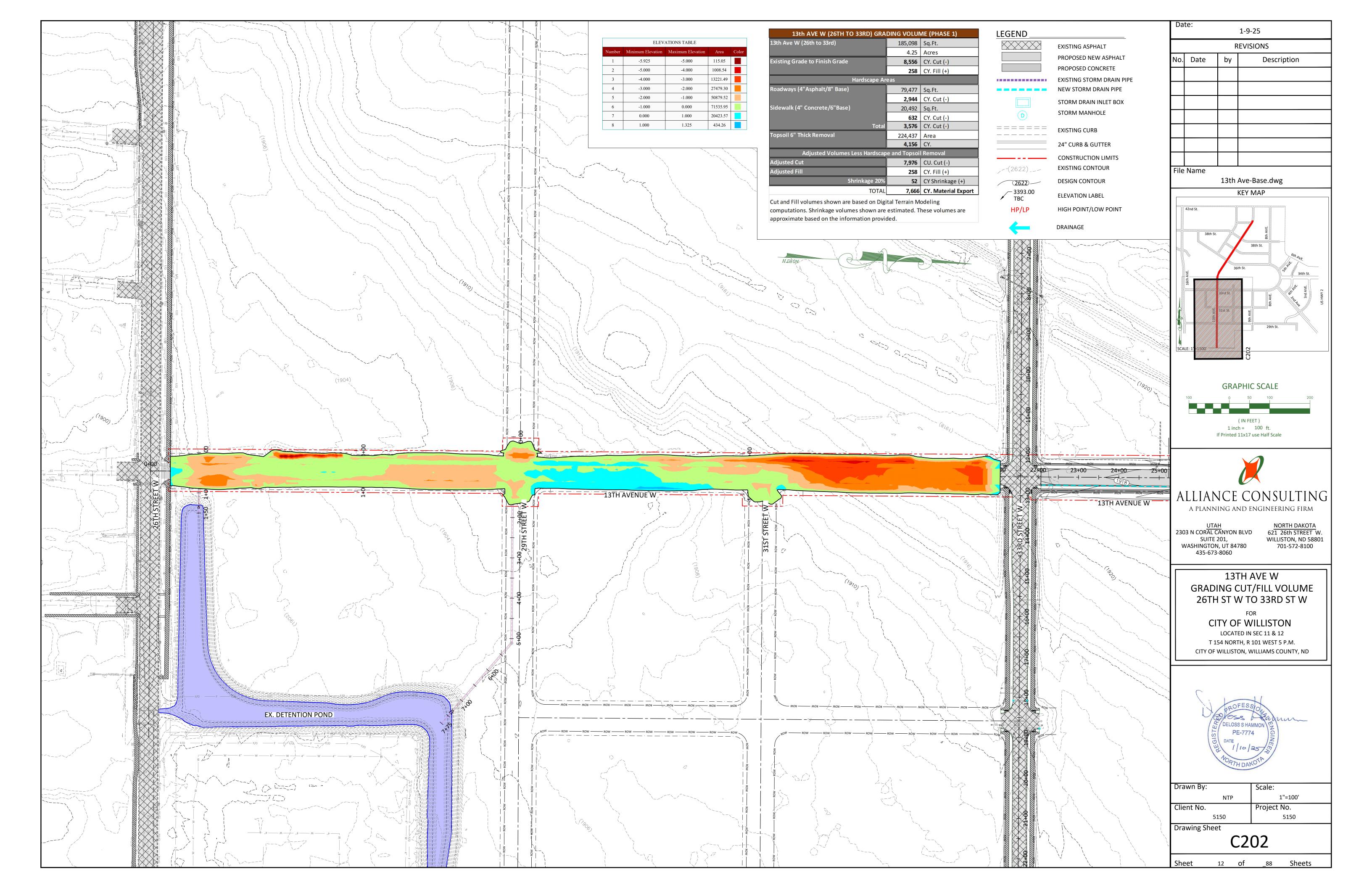


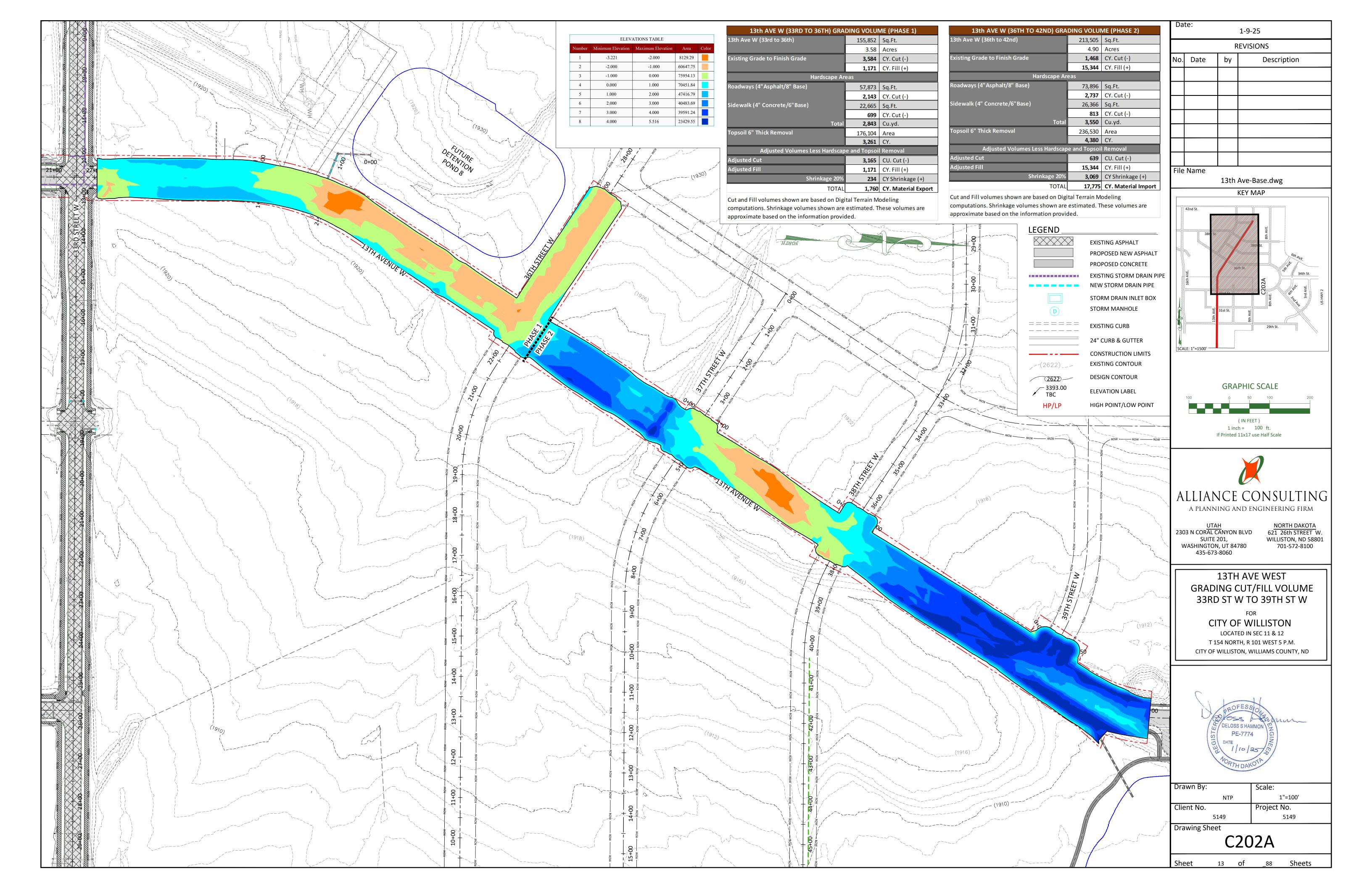


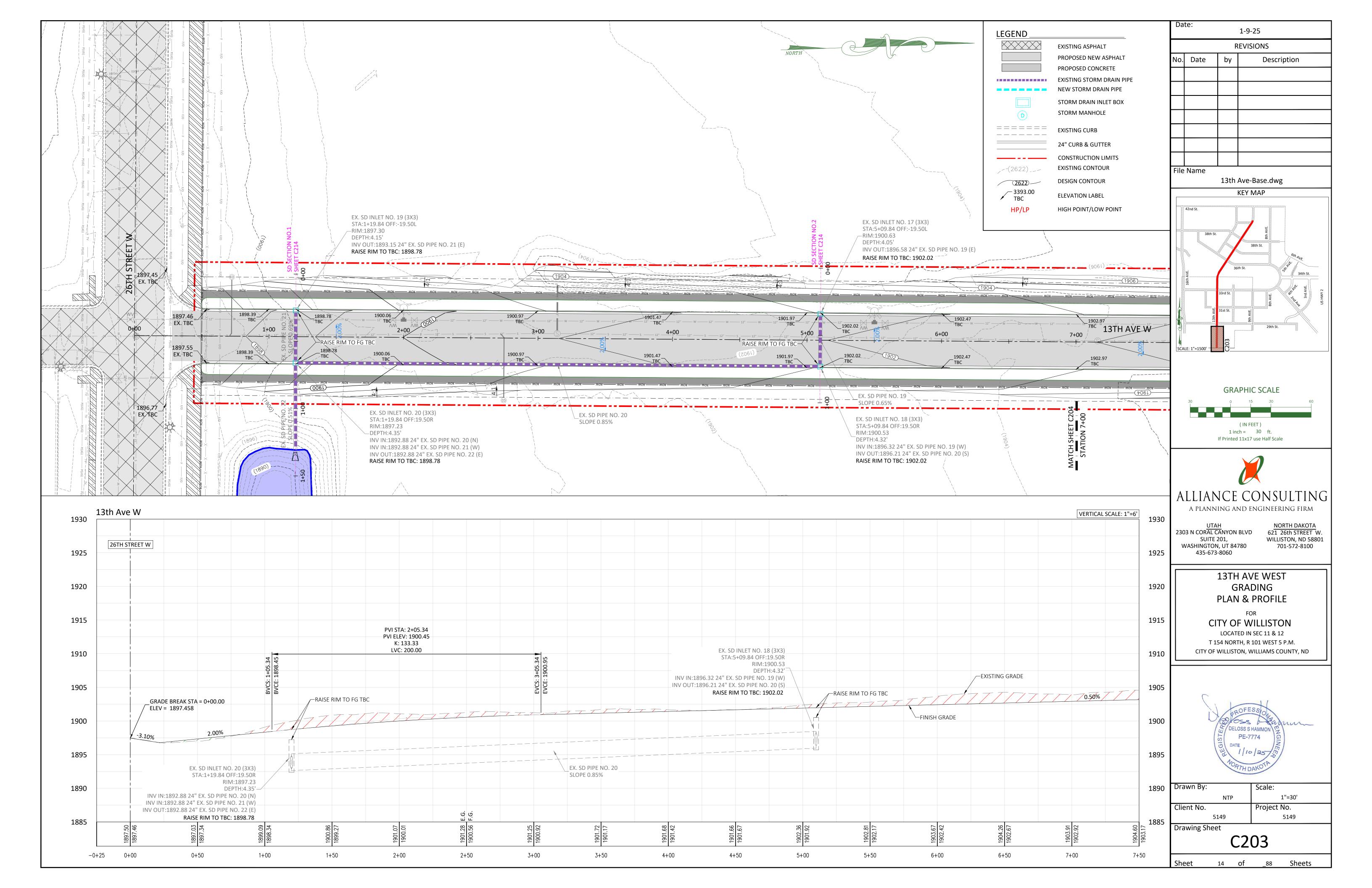


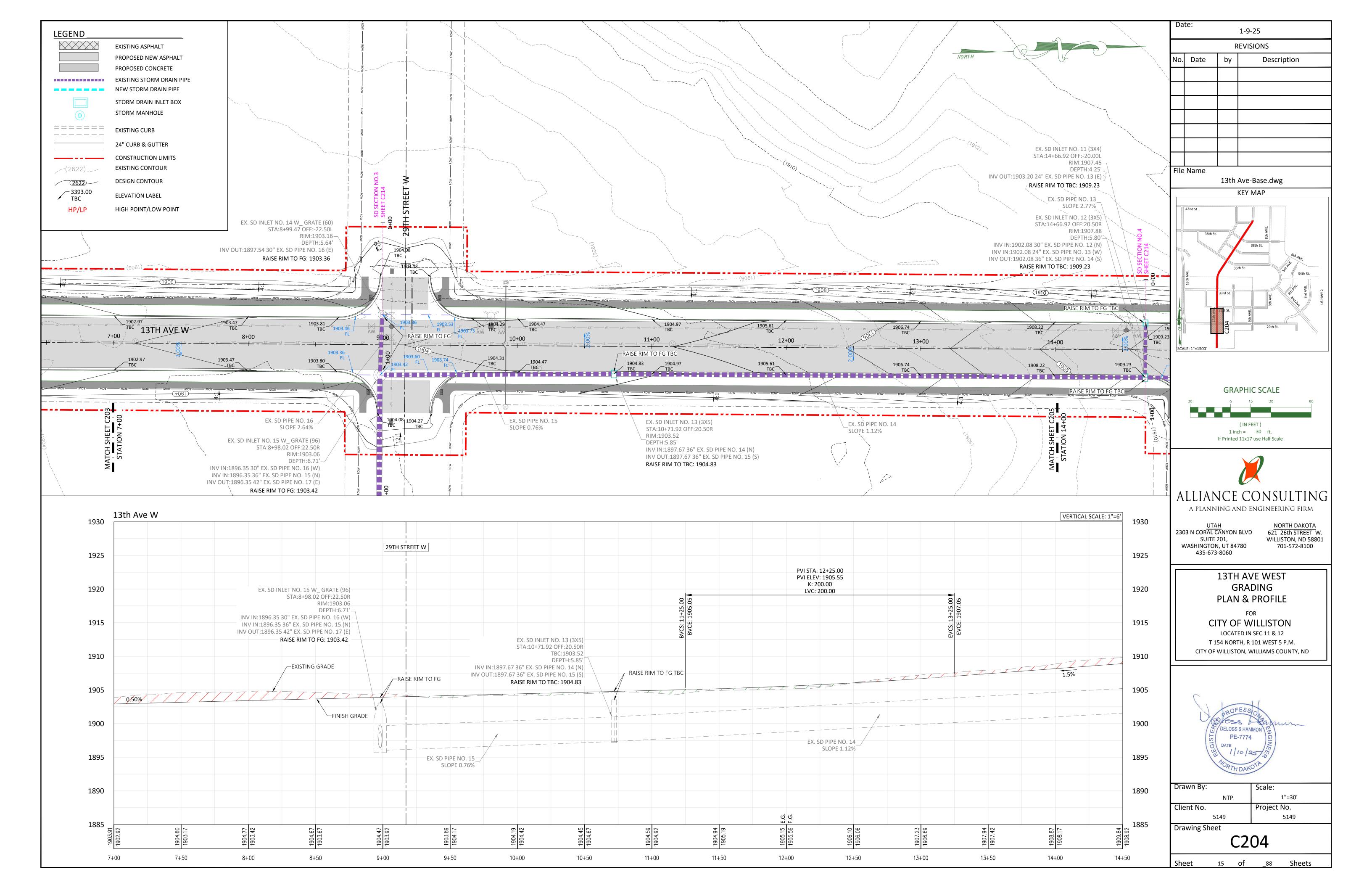


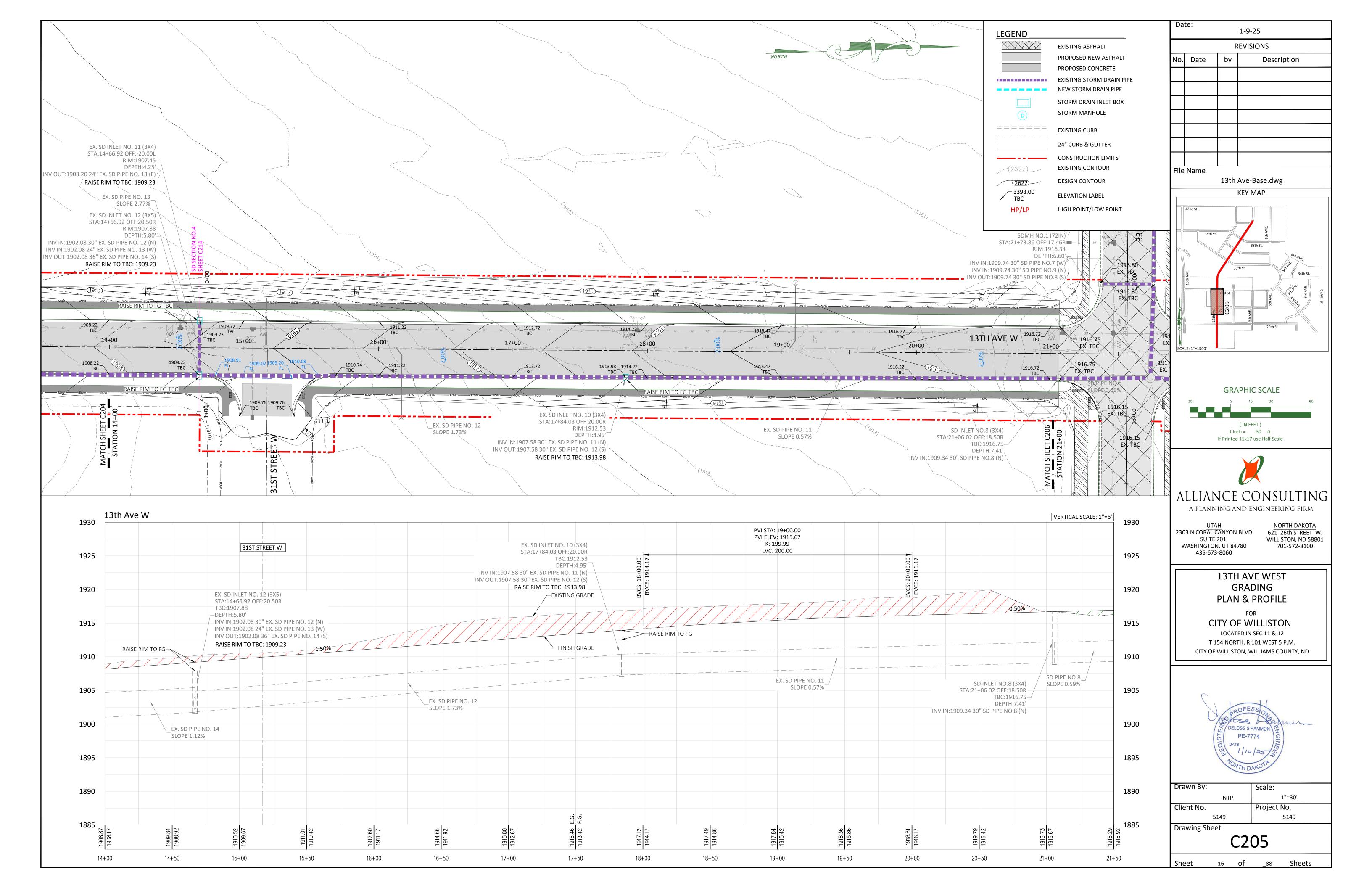


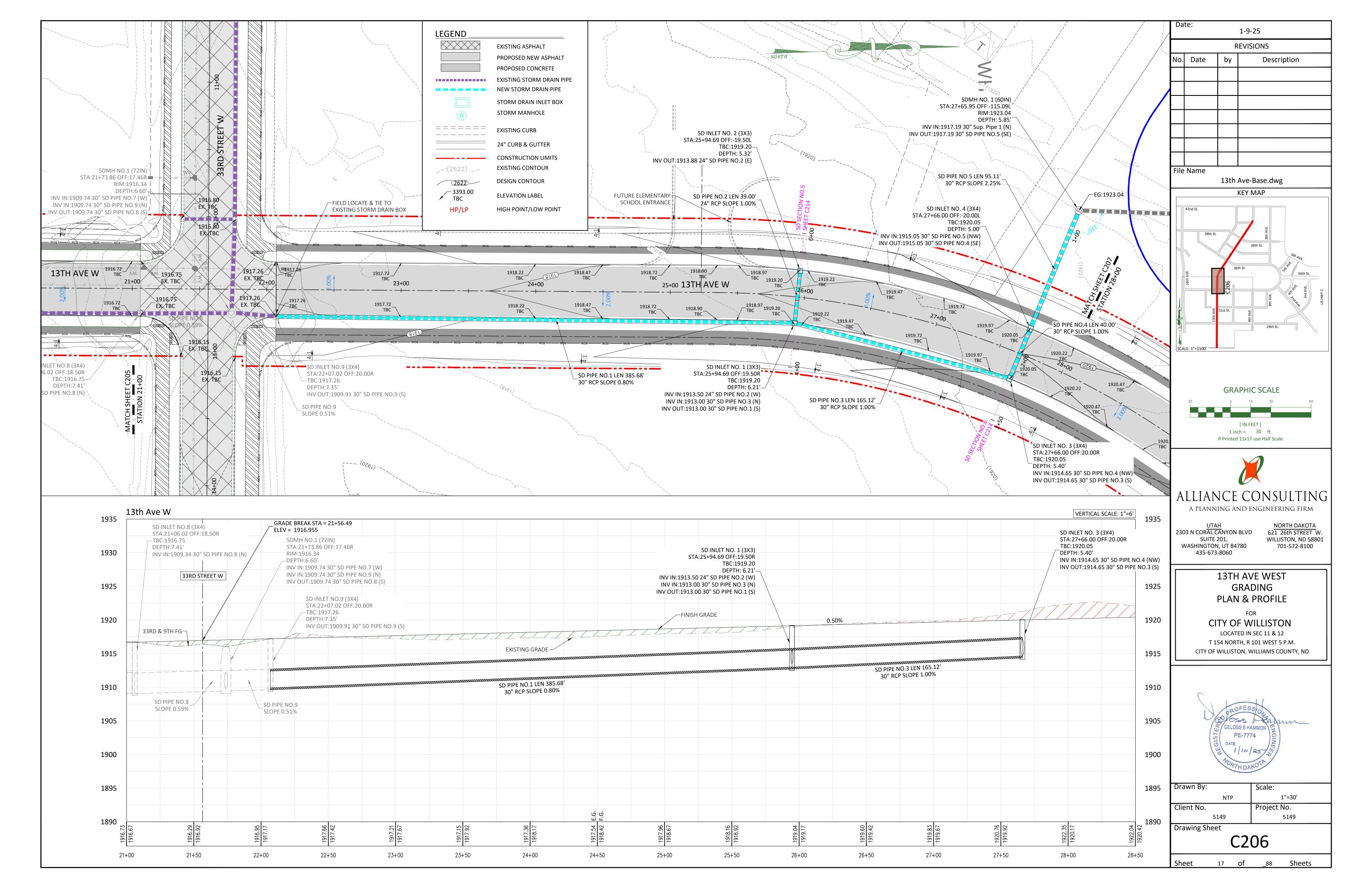


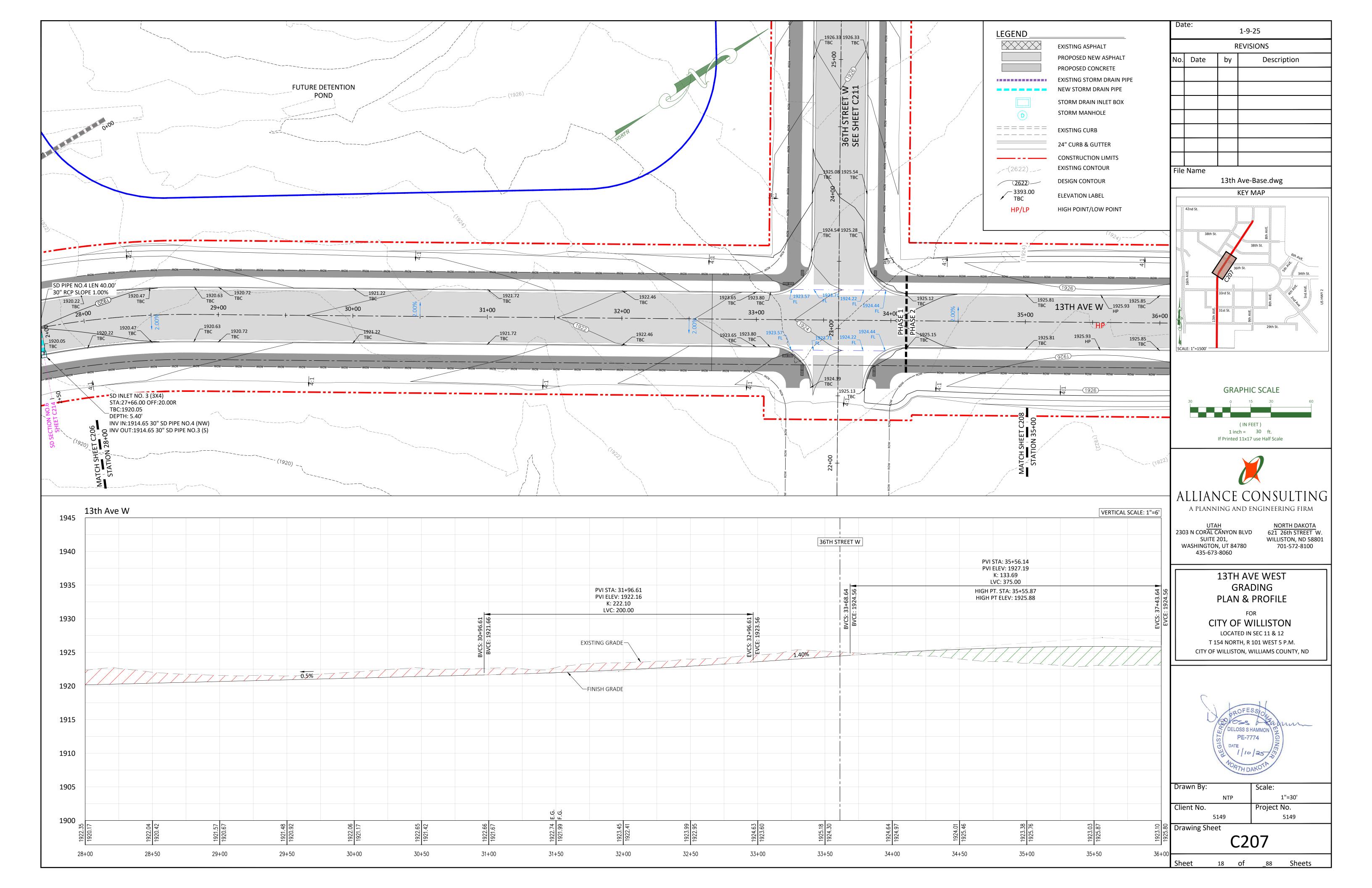


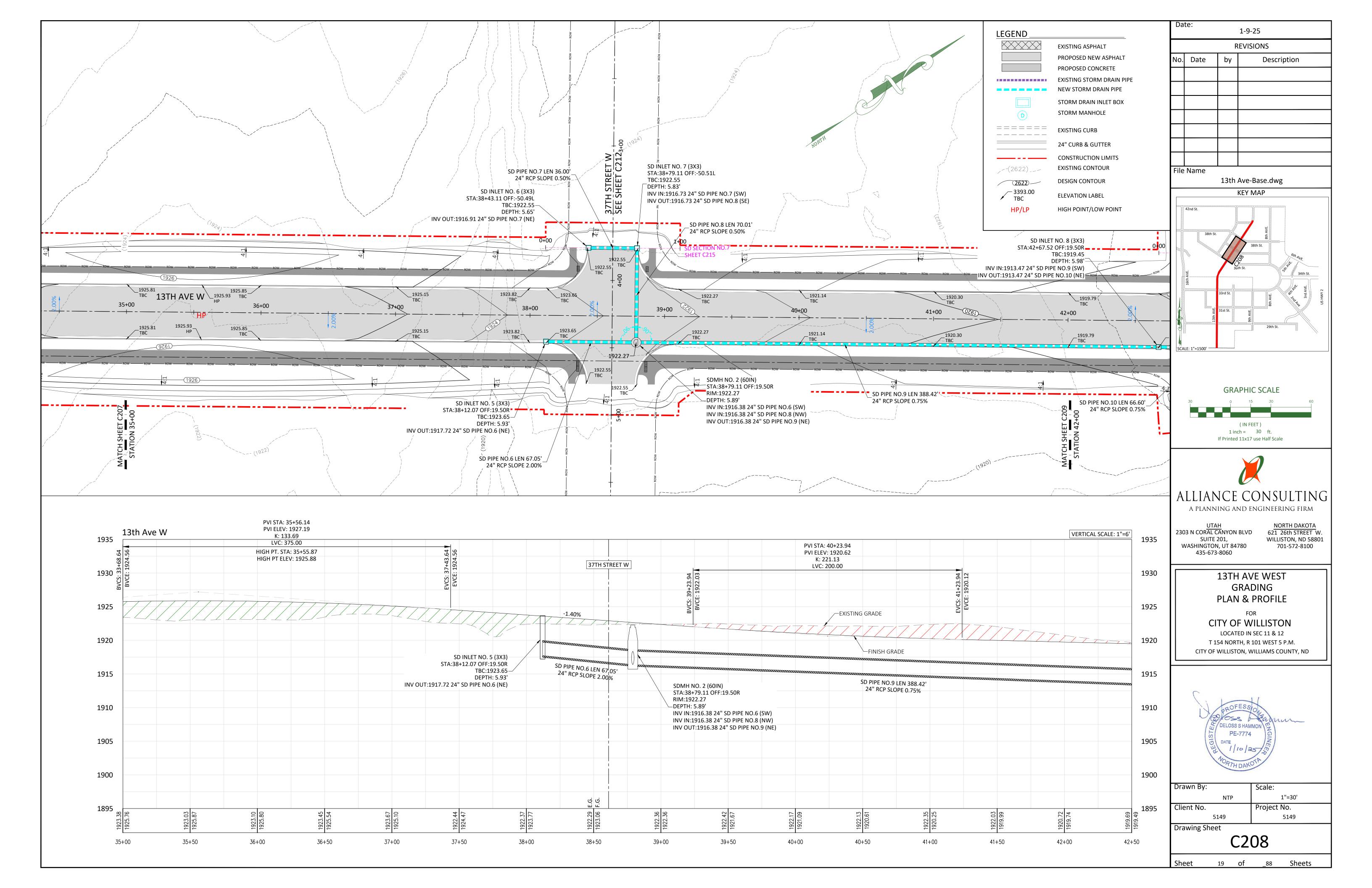


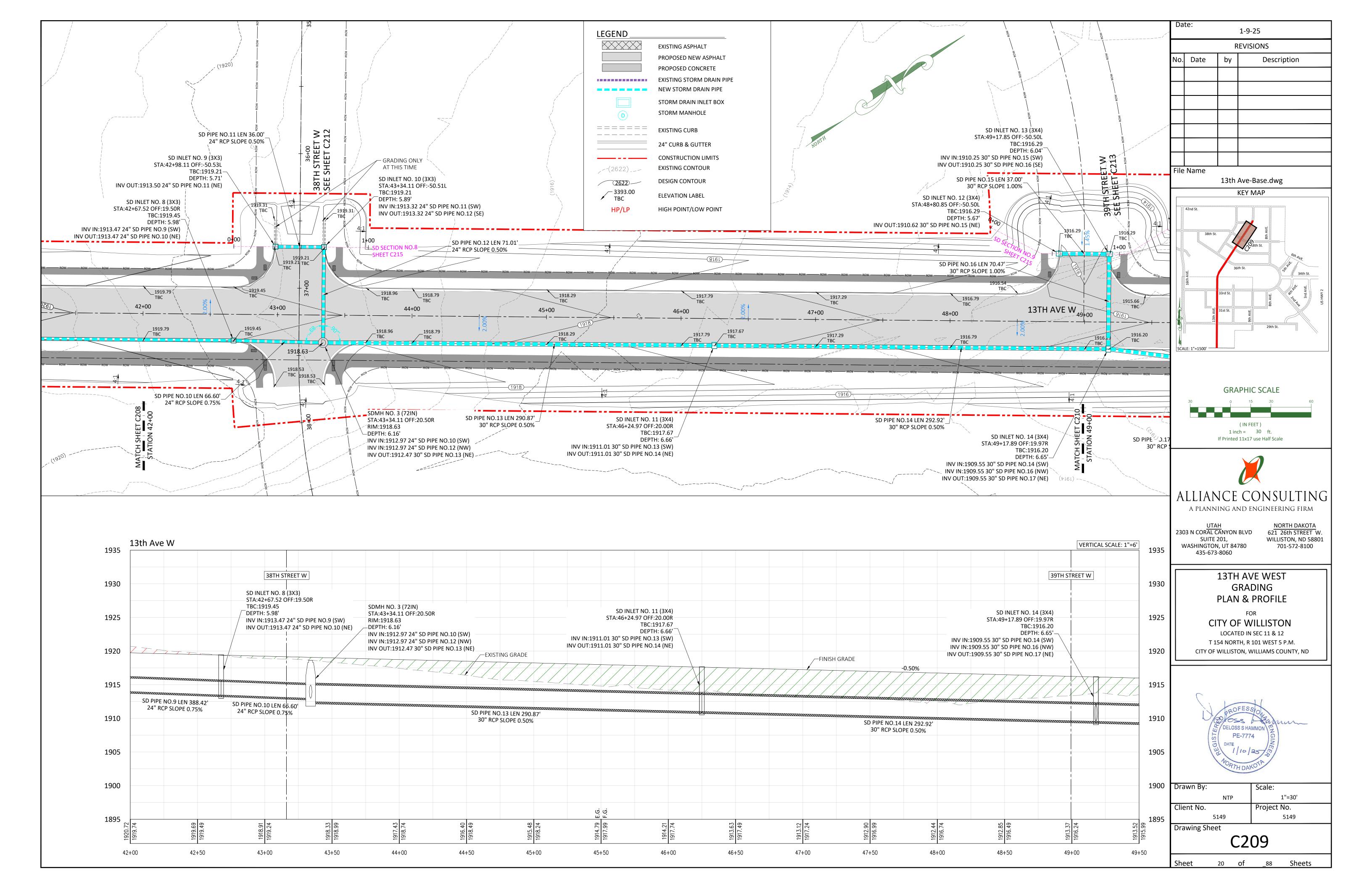


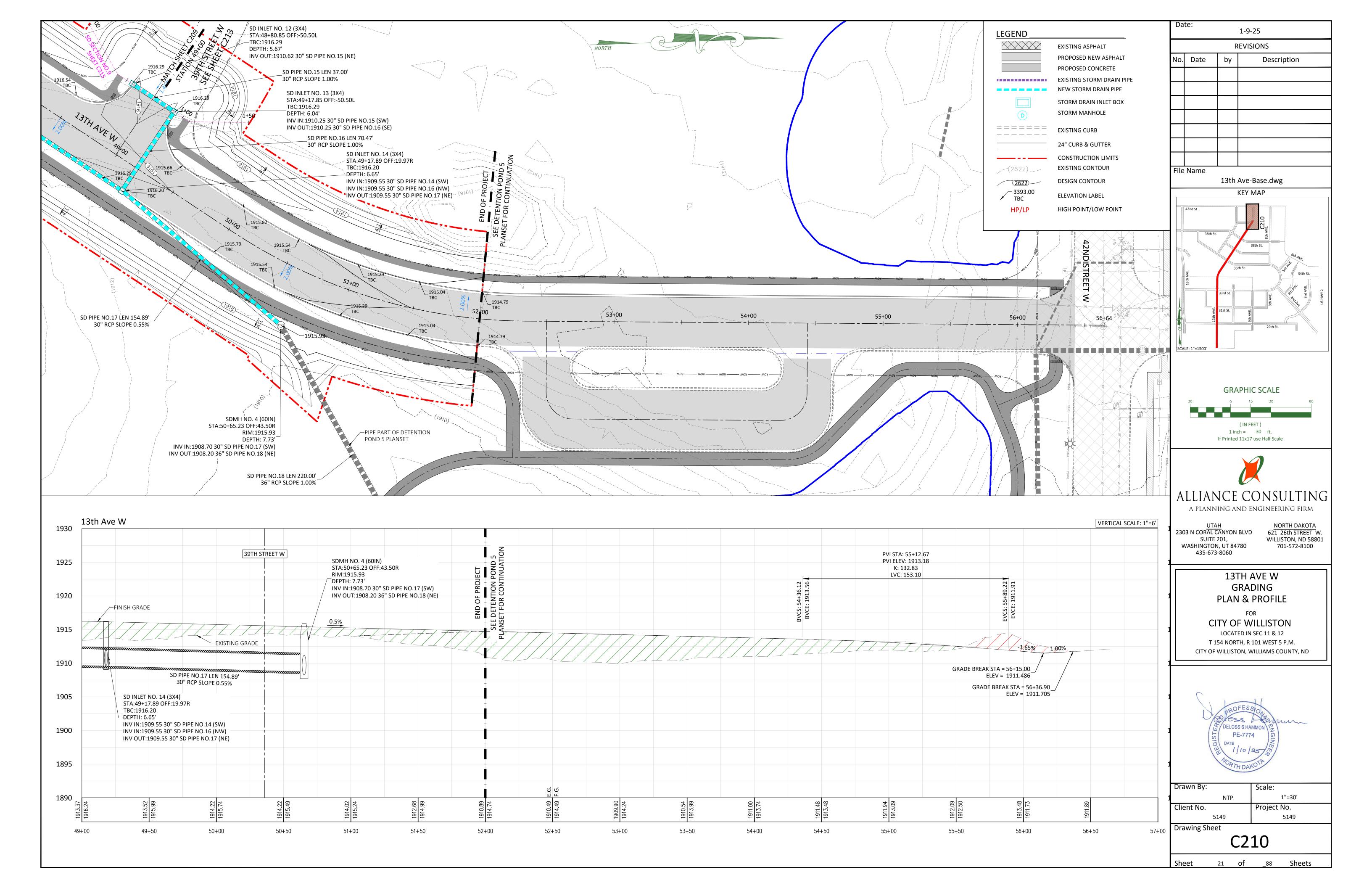


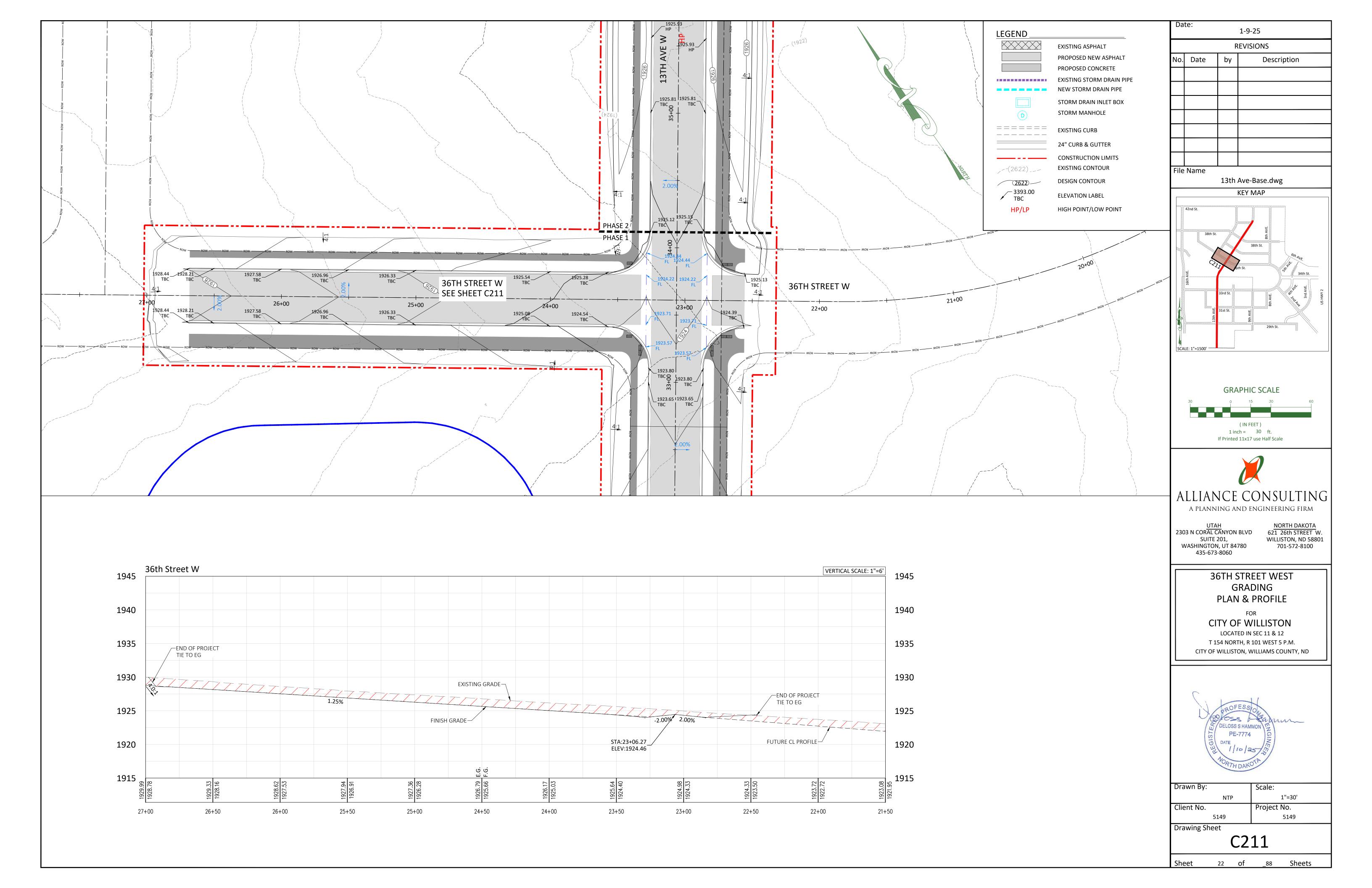


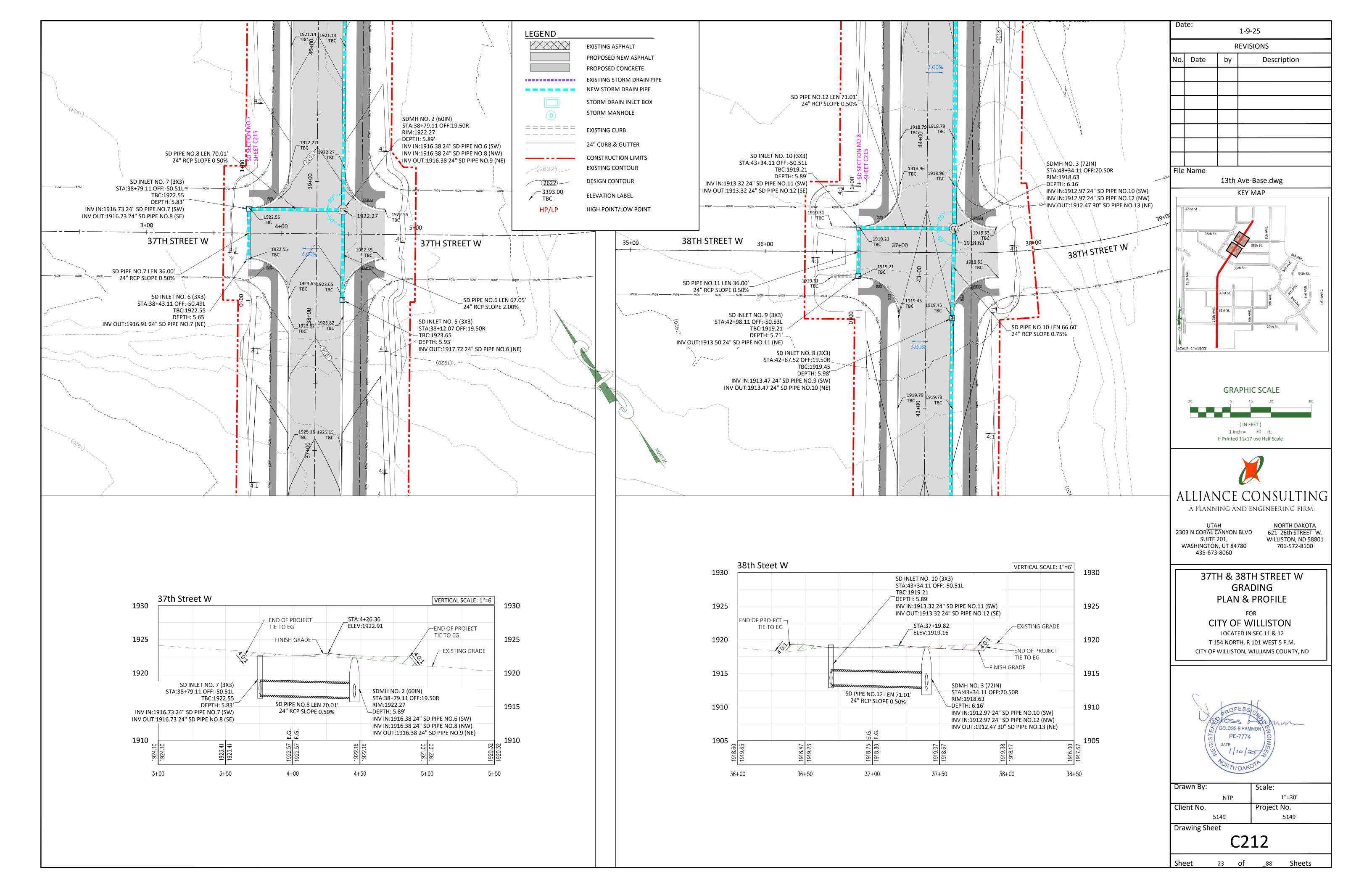


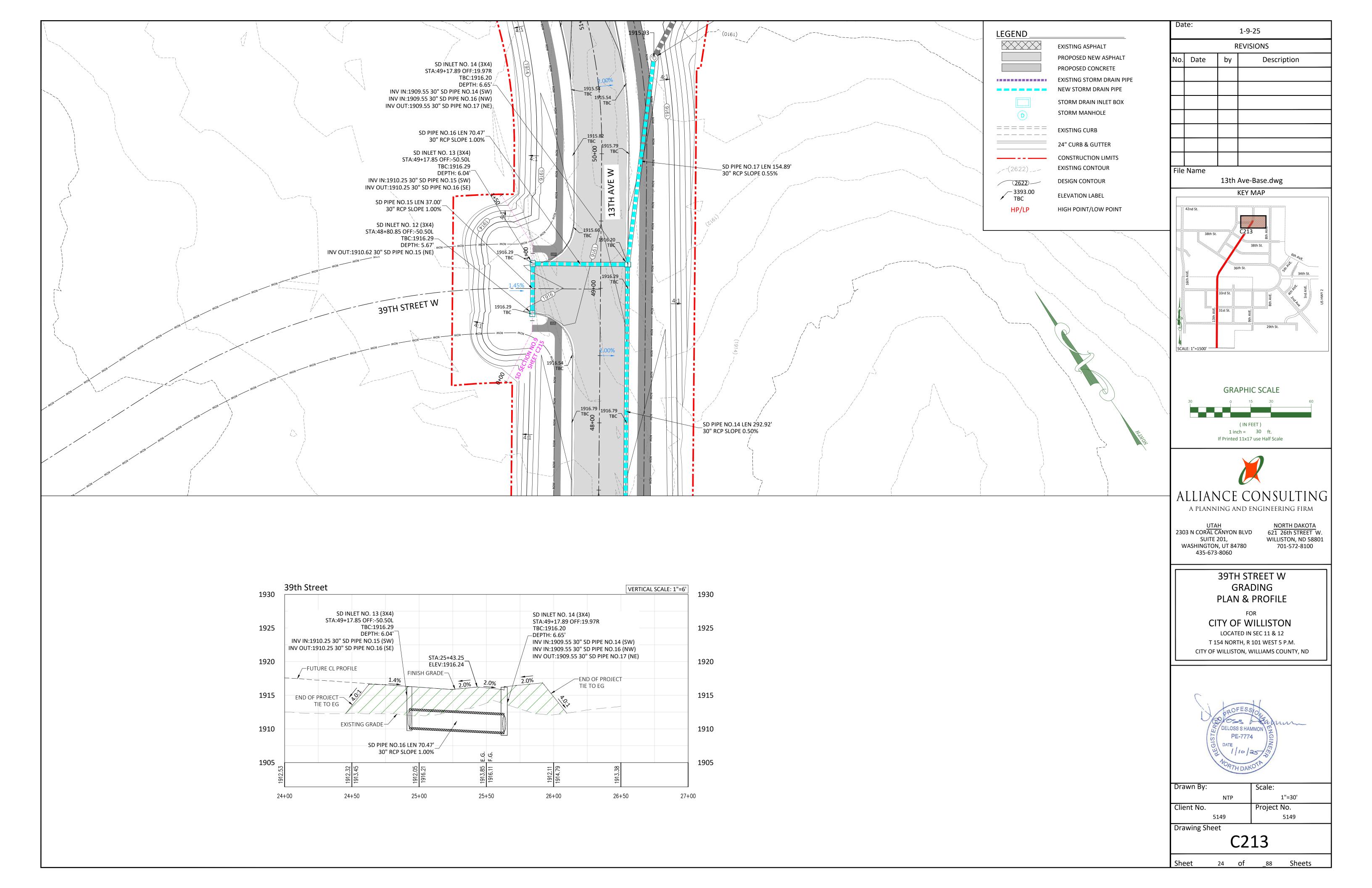


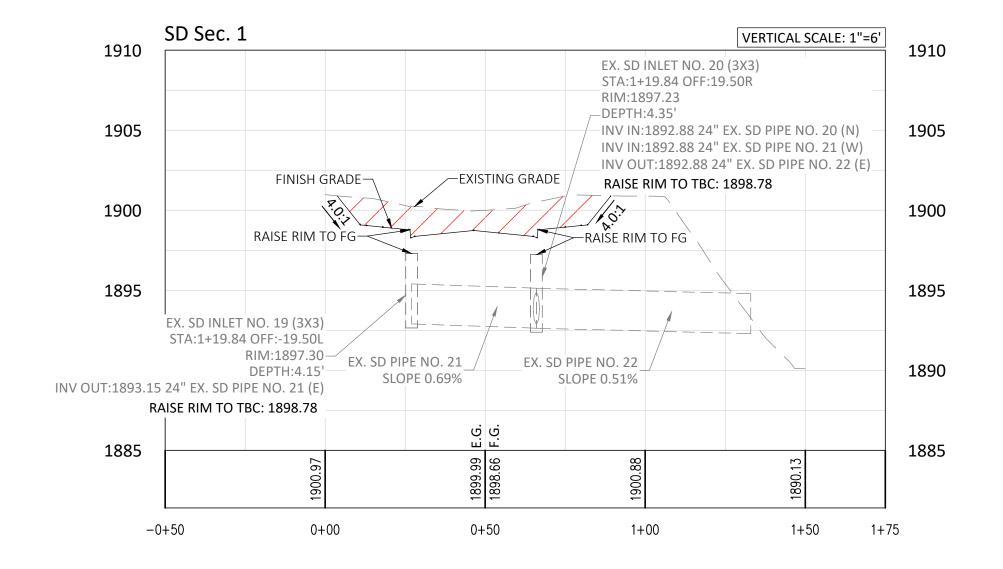


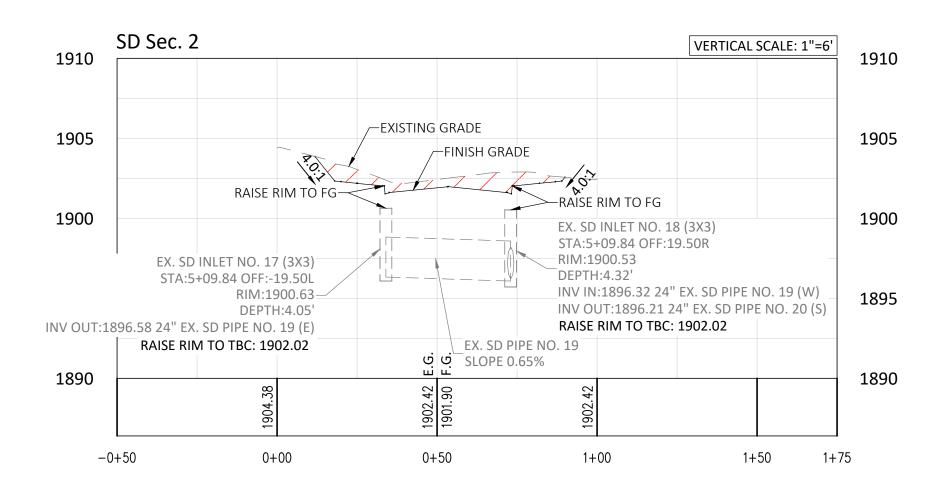


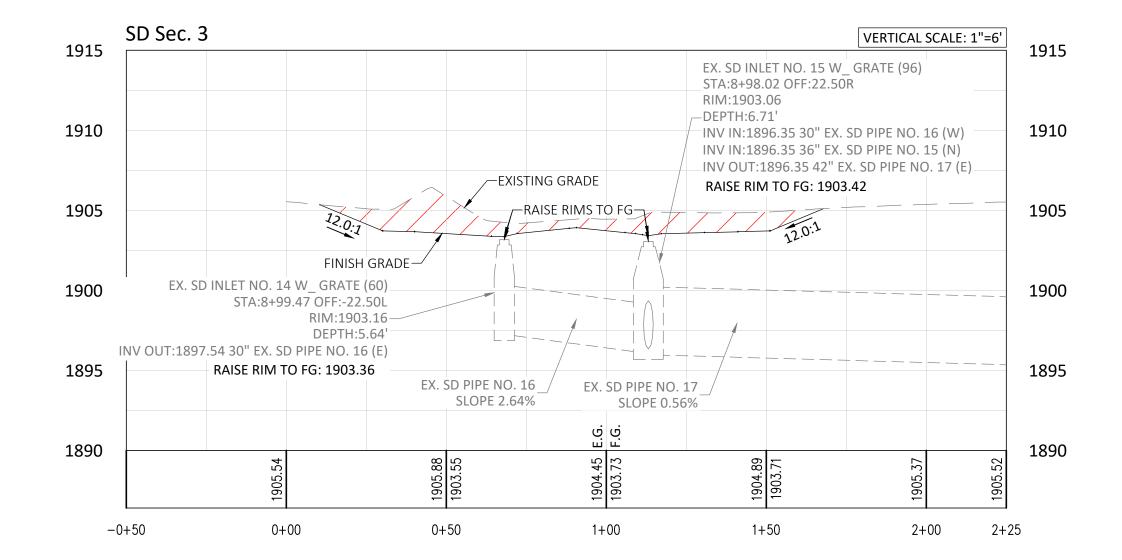


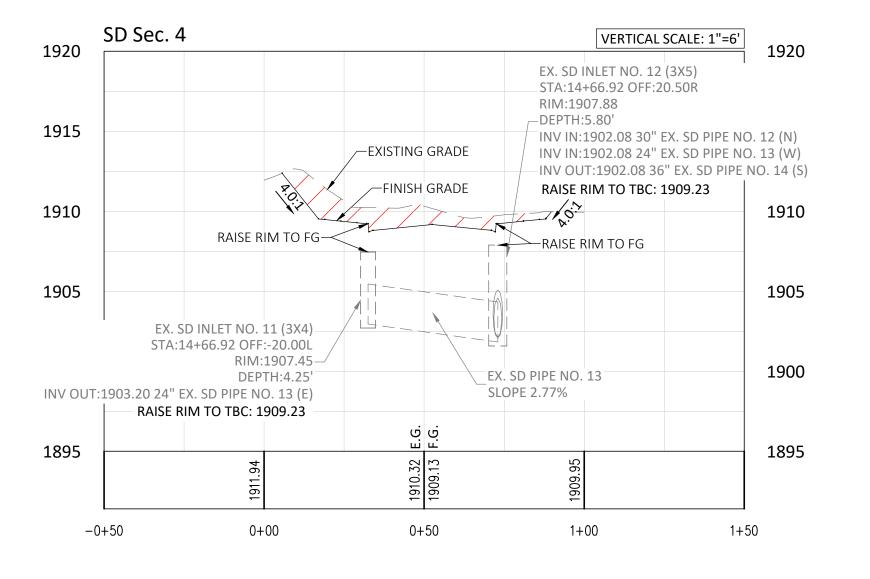


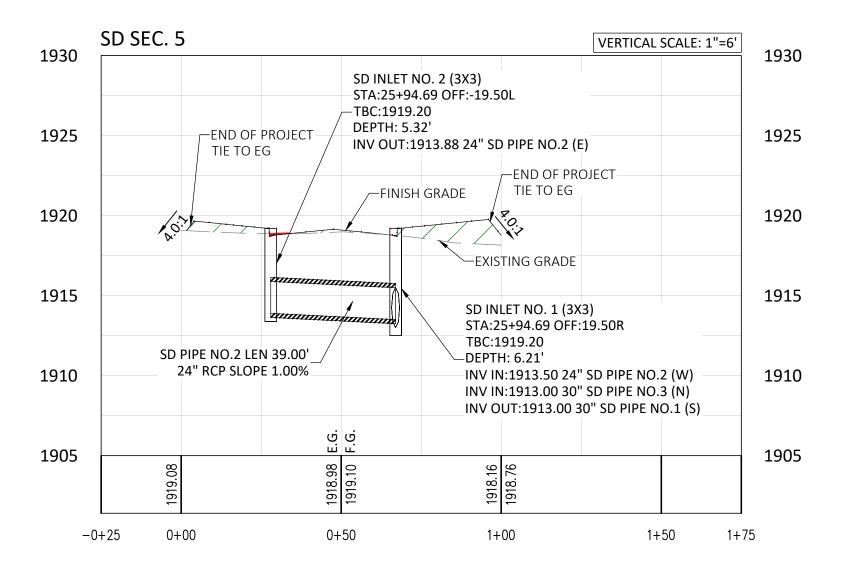


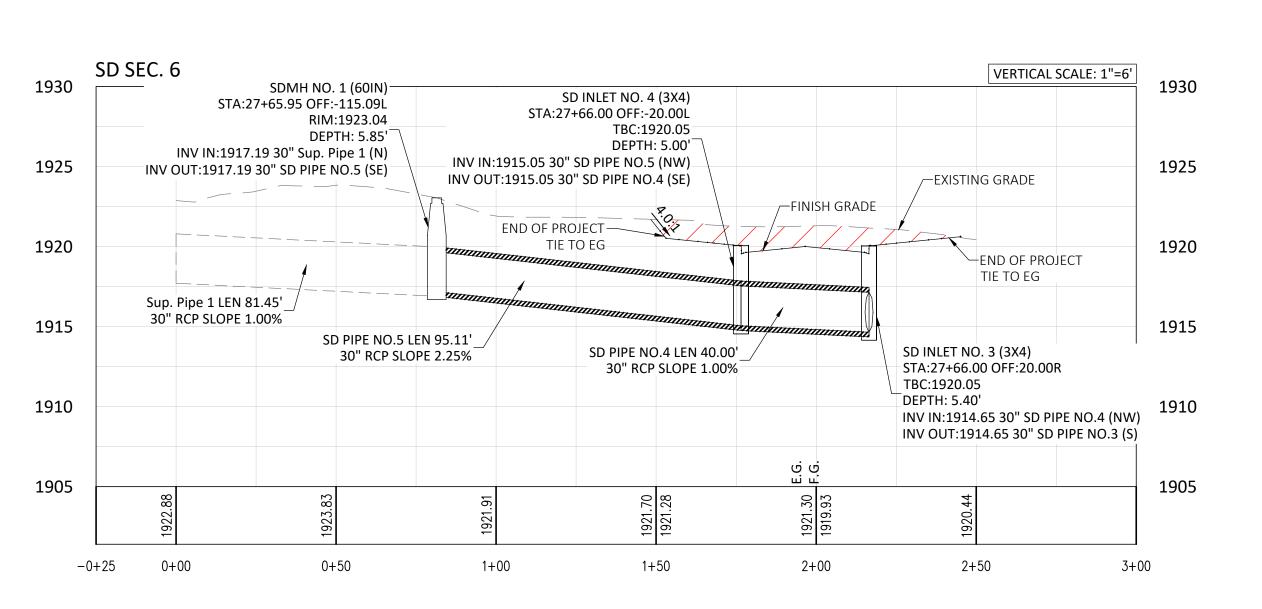


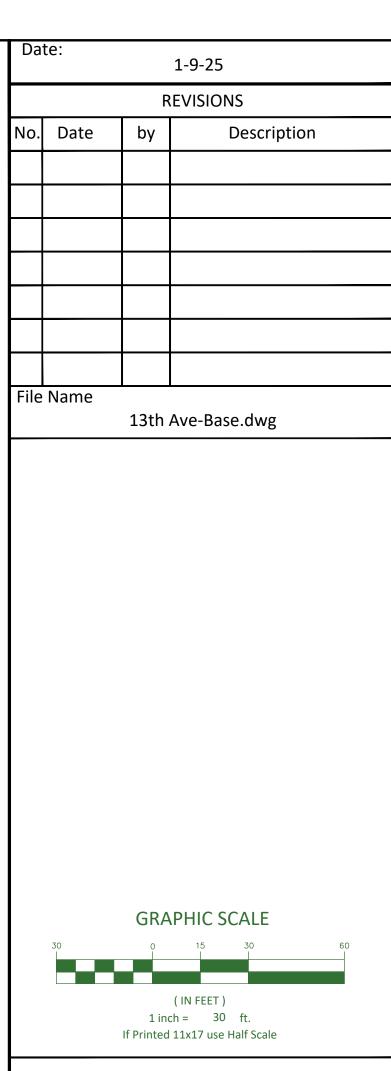














701-572-8100

WASHINGTON, UT 84780

435-673-8060

STORM DRAIN
SECTIONS 1-6

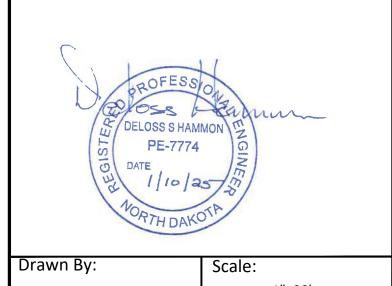
FOR
CITY OF WILLISTON

CITY OF WILLISTON

LOCATED IN SEC 11 & 12

T 154 NORTH, R 101 WEST 5 P.M.

CITY OF WILLISTON, WILLIAMS COUNTY, ND

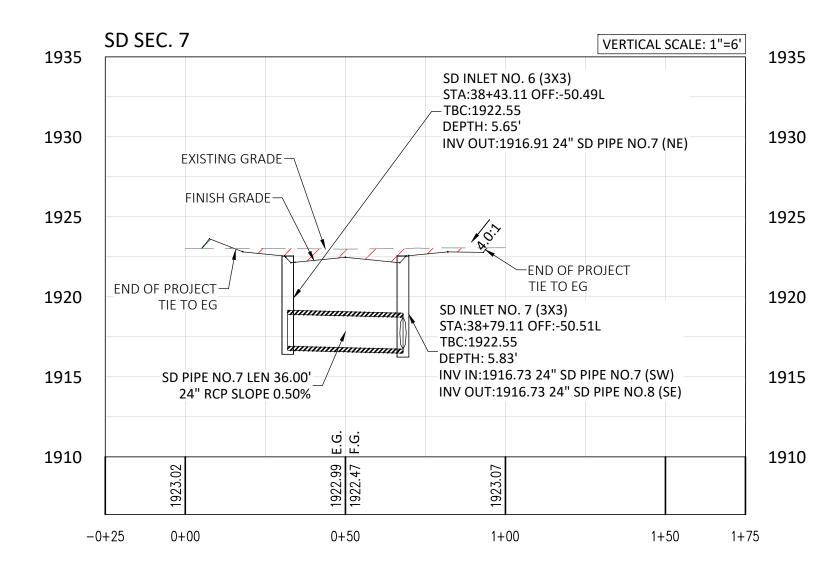


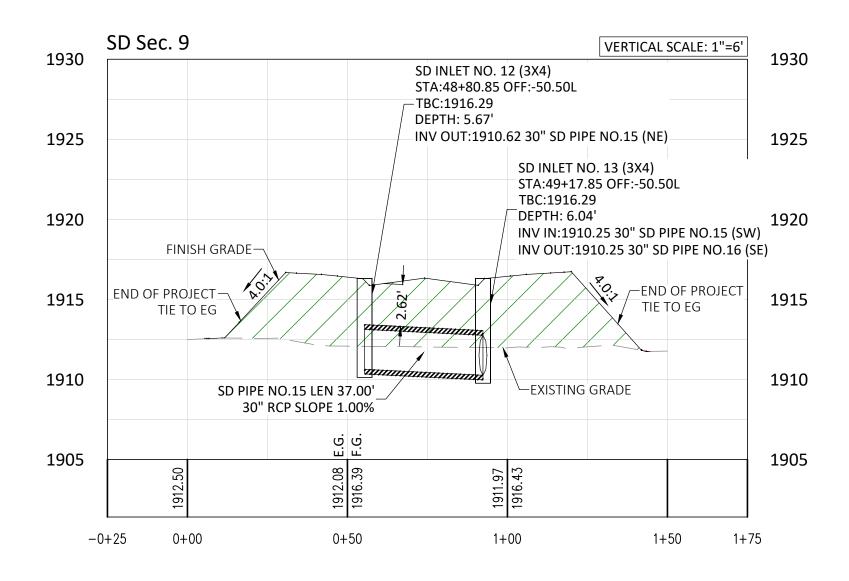
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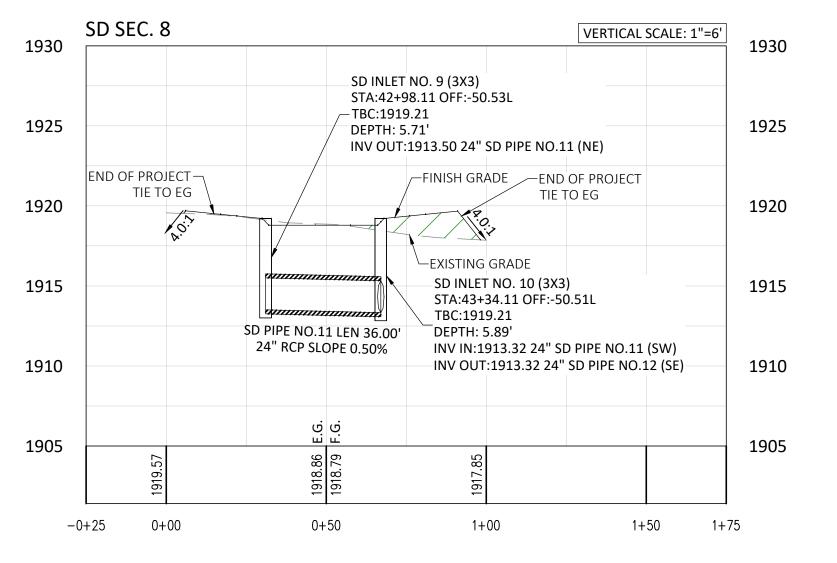
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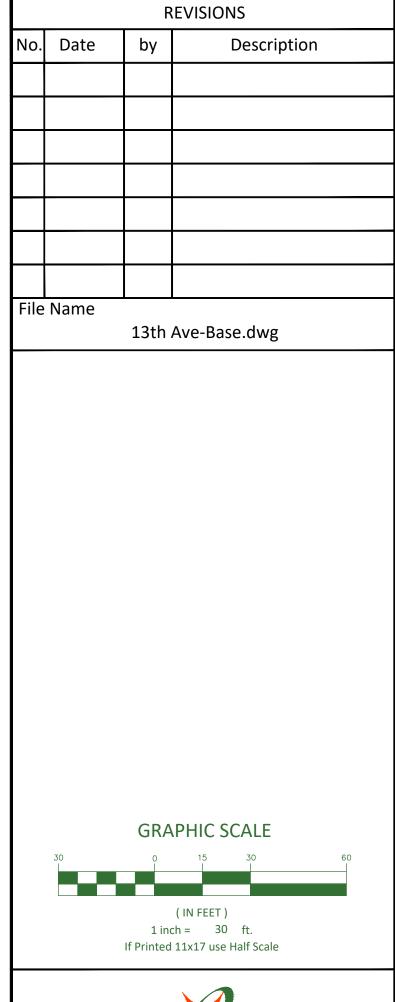
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of 88 Sheets









1-9-25

Date:



2303 N CORAL CANYON BLVD 621 26th STREET W. SUITE 201, WASHINGTON, UT 84780 435-673-8060

NORTH DAKOTA WILLISTON, ND 58801 701-572-8100

STORM DRAIN SECTIONS 7-9

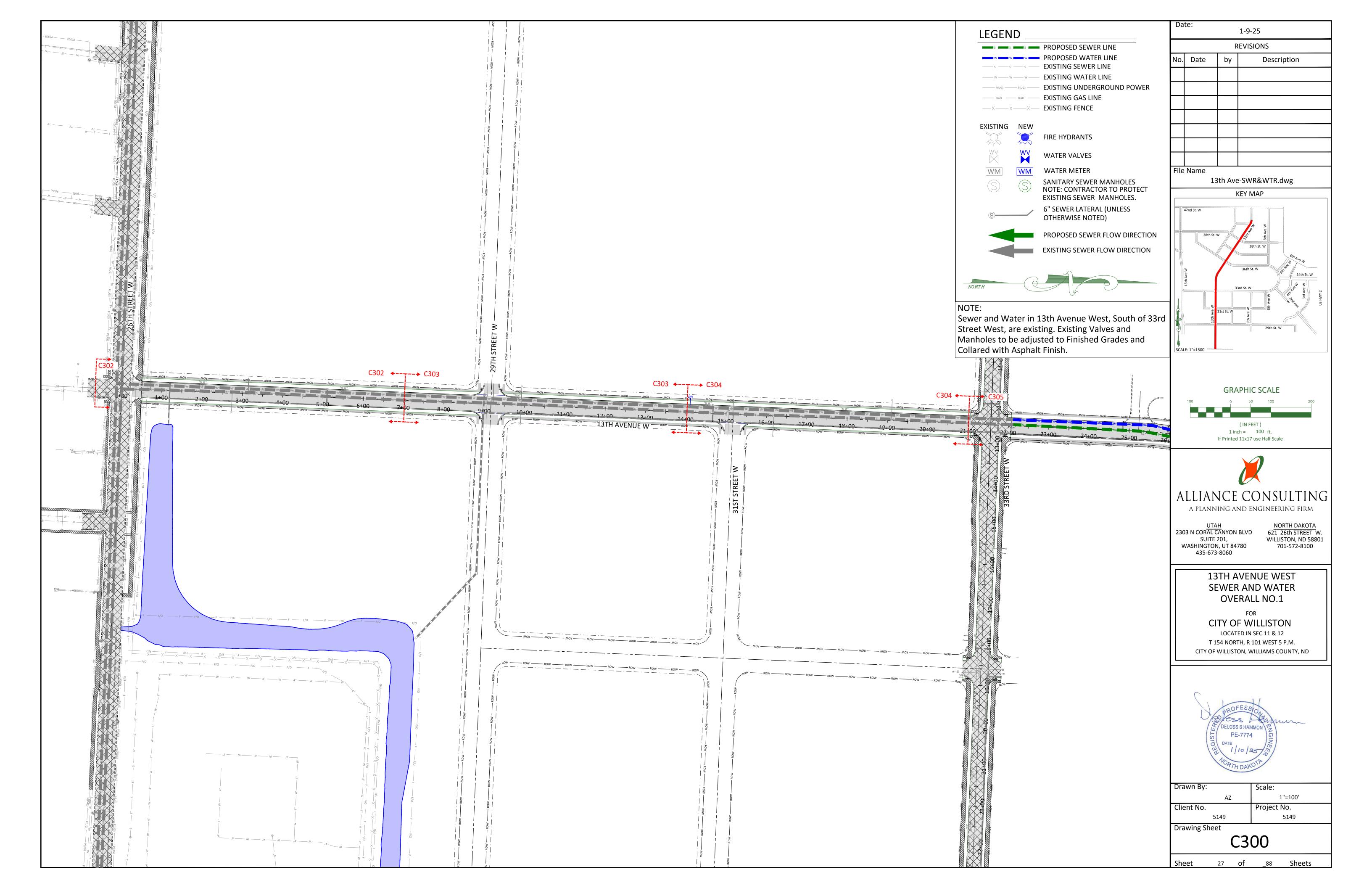
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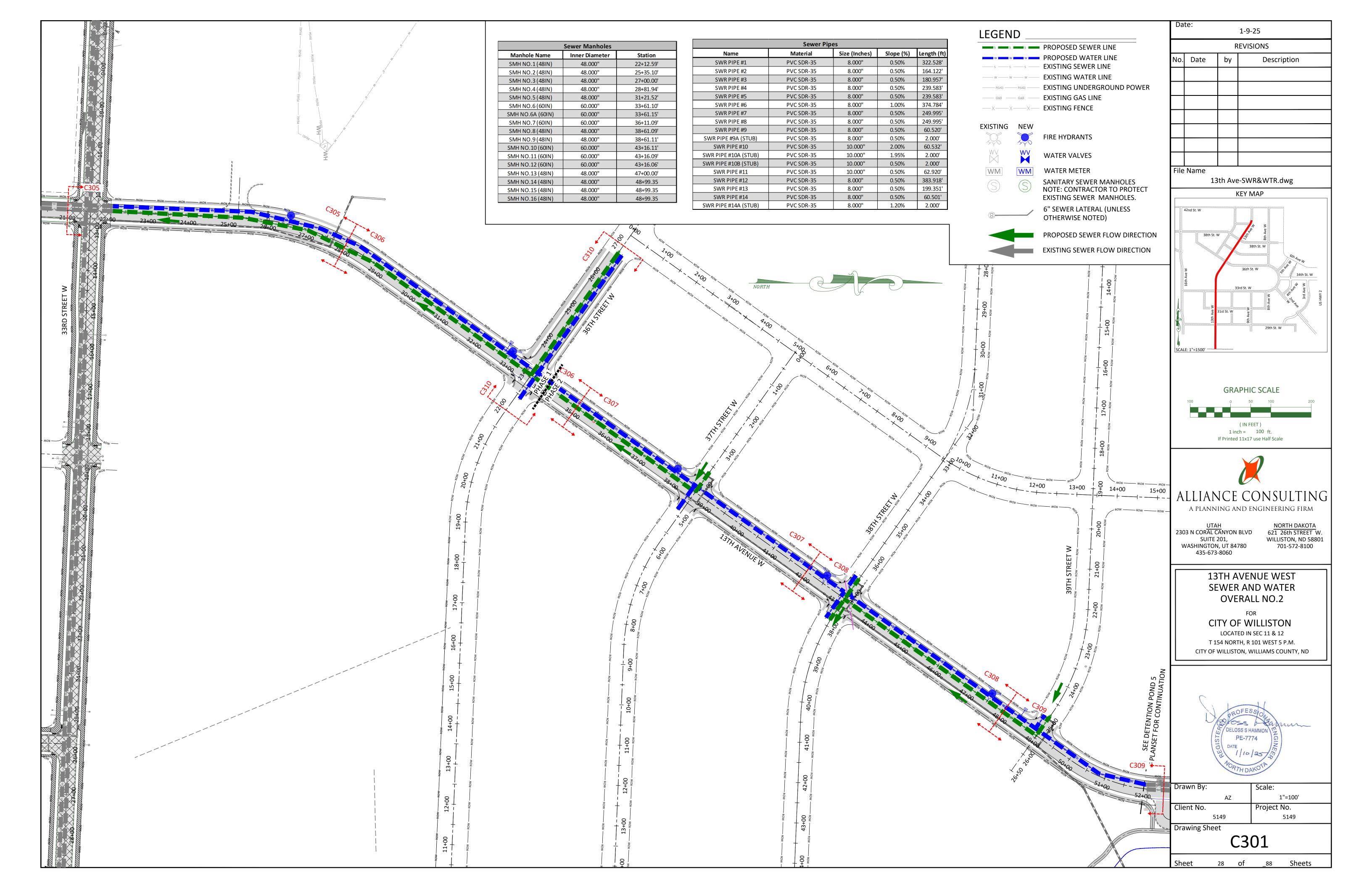


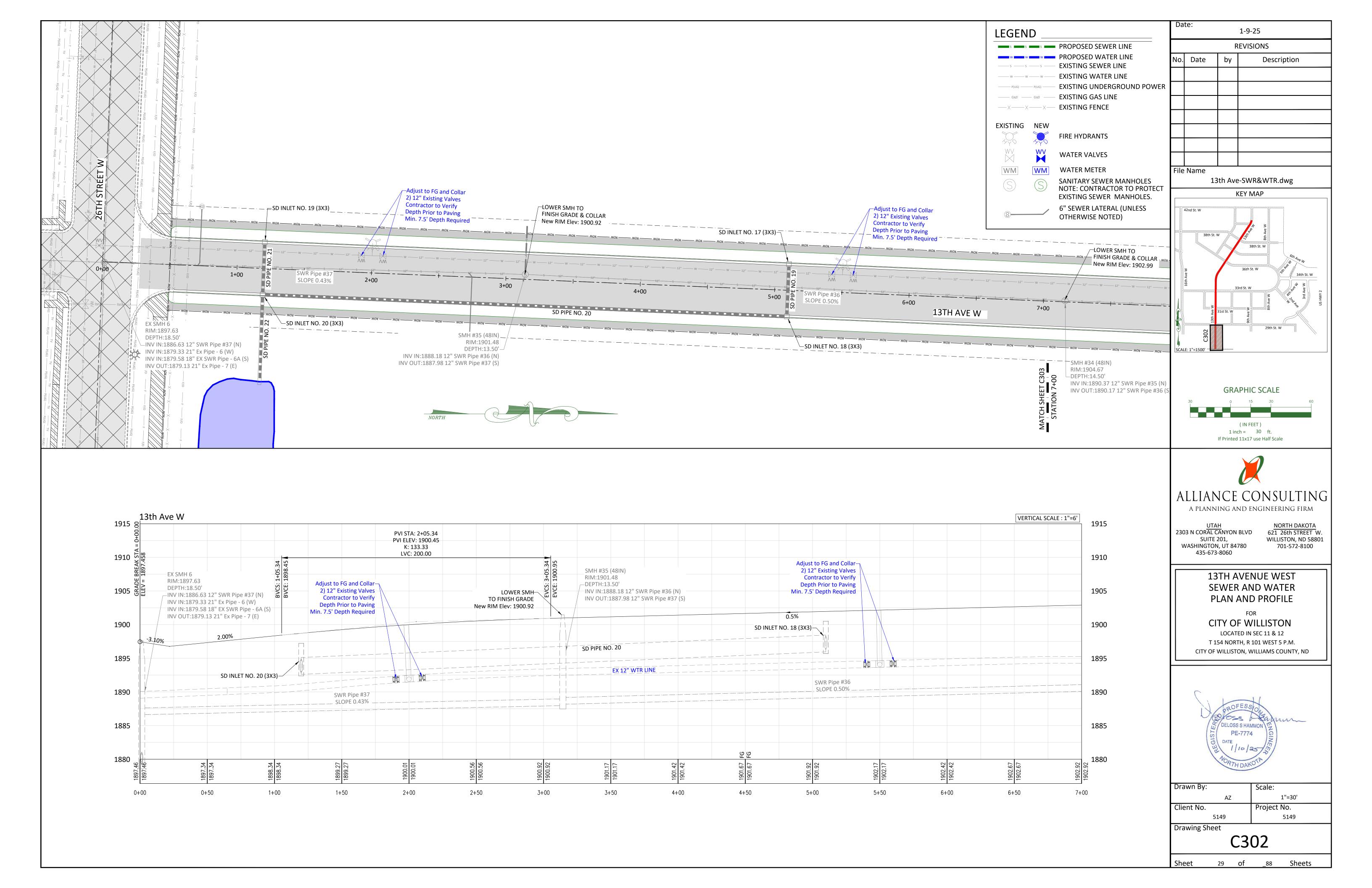
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	5149	5149	
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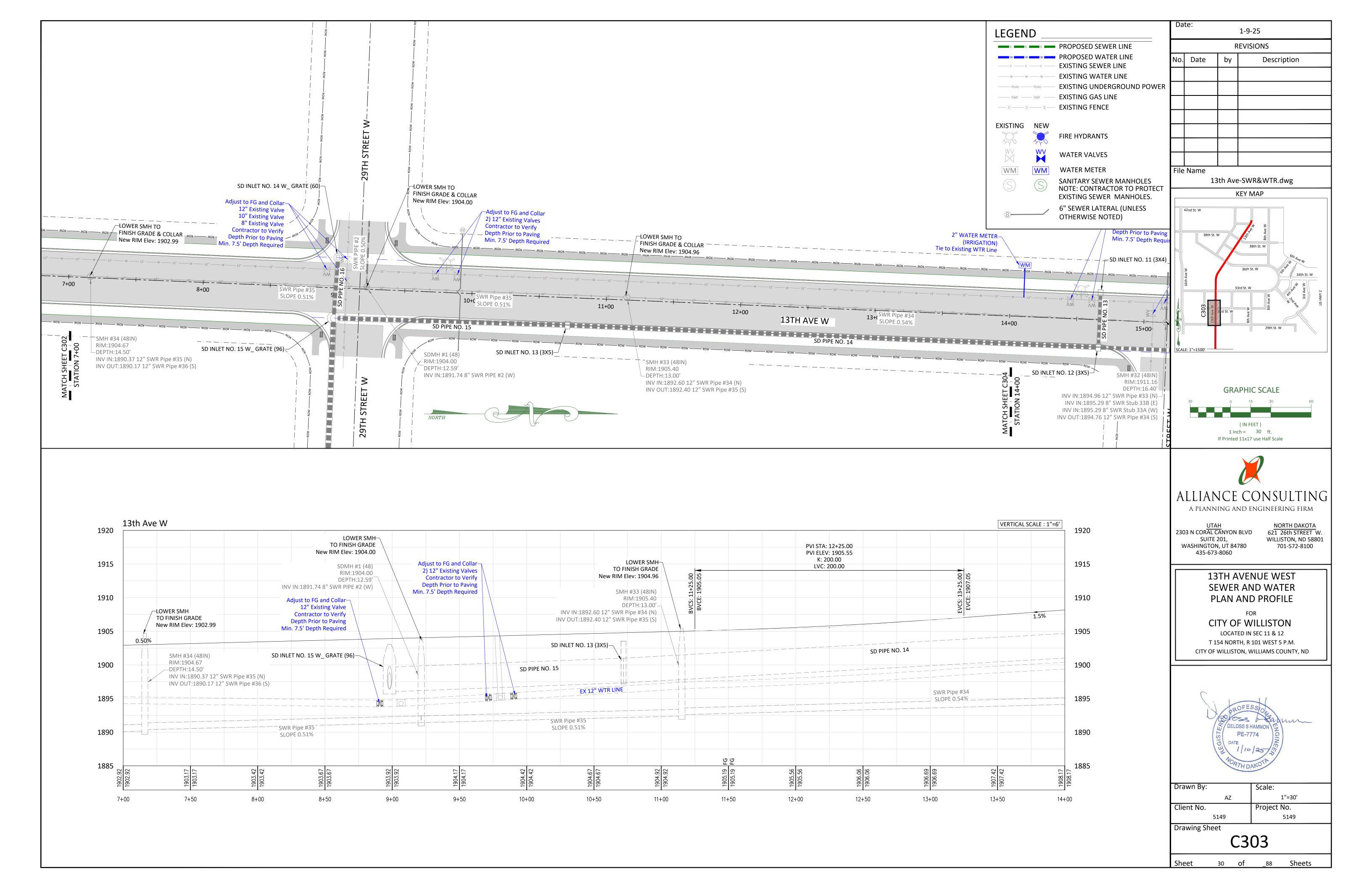
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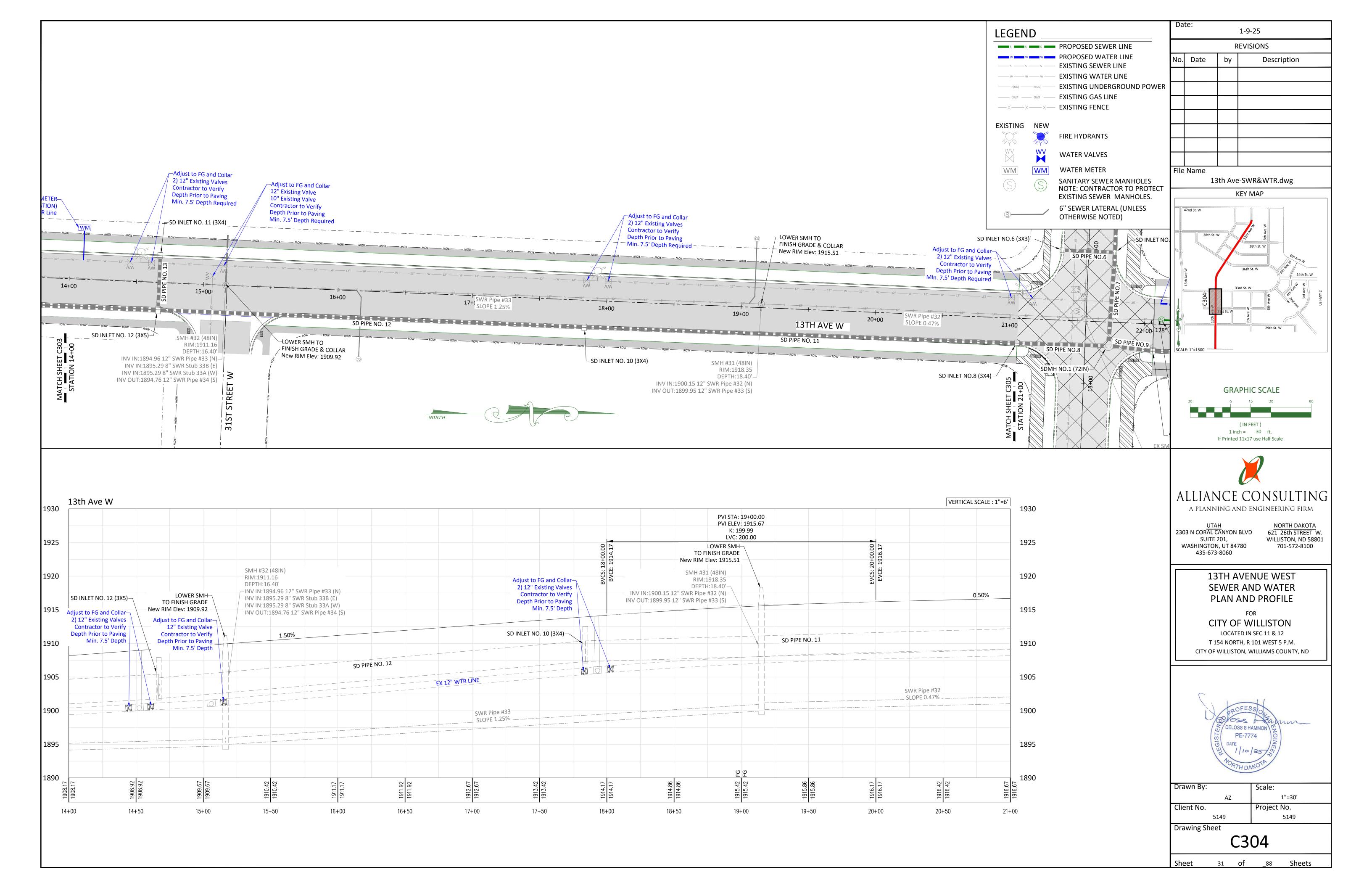
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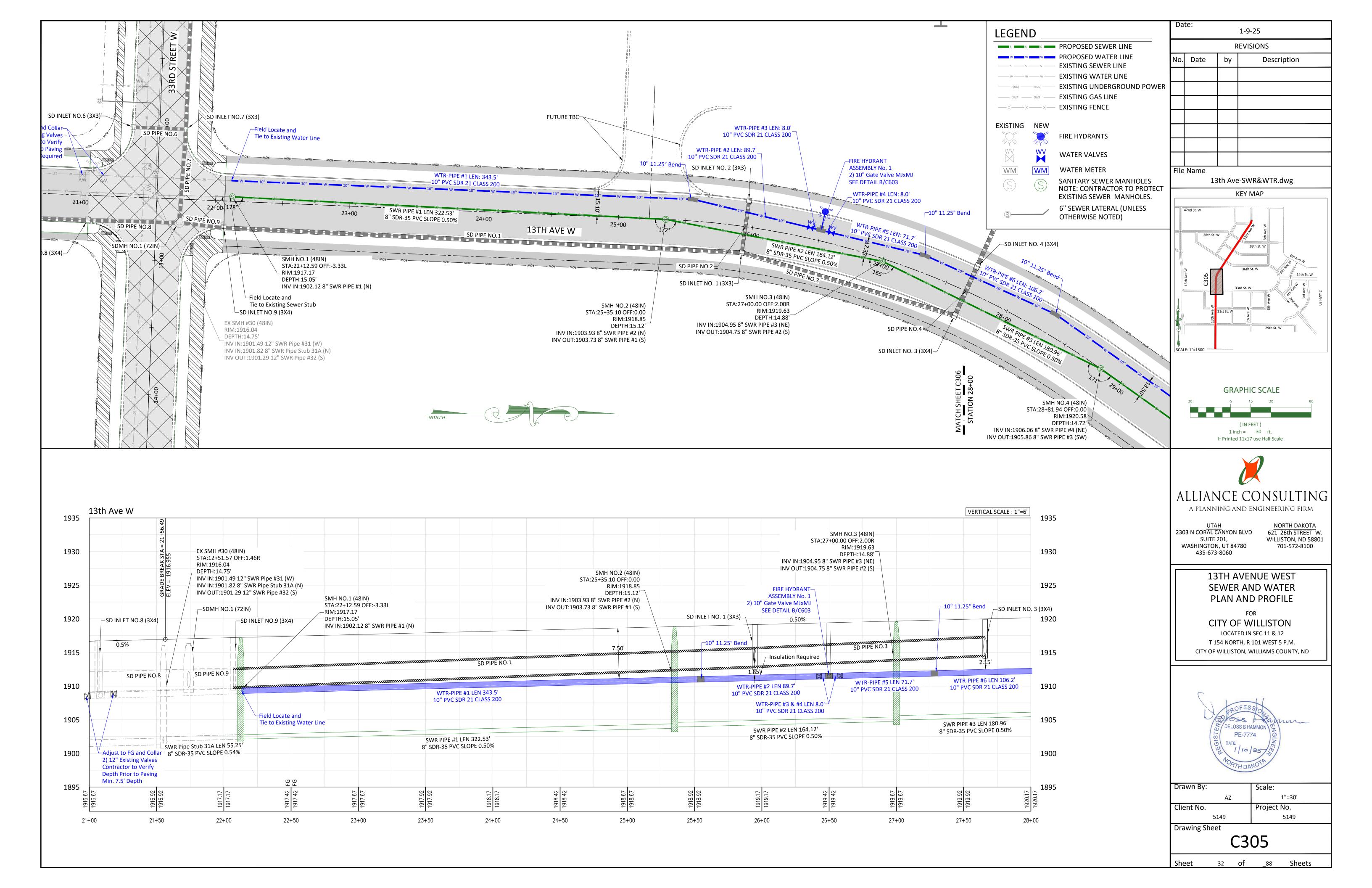


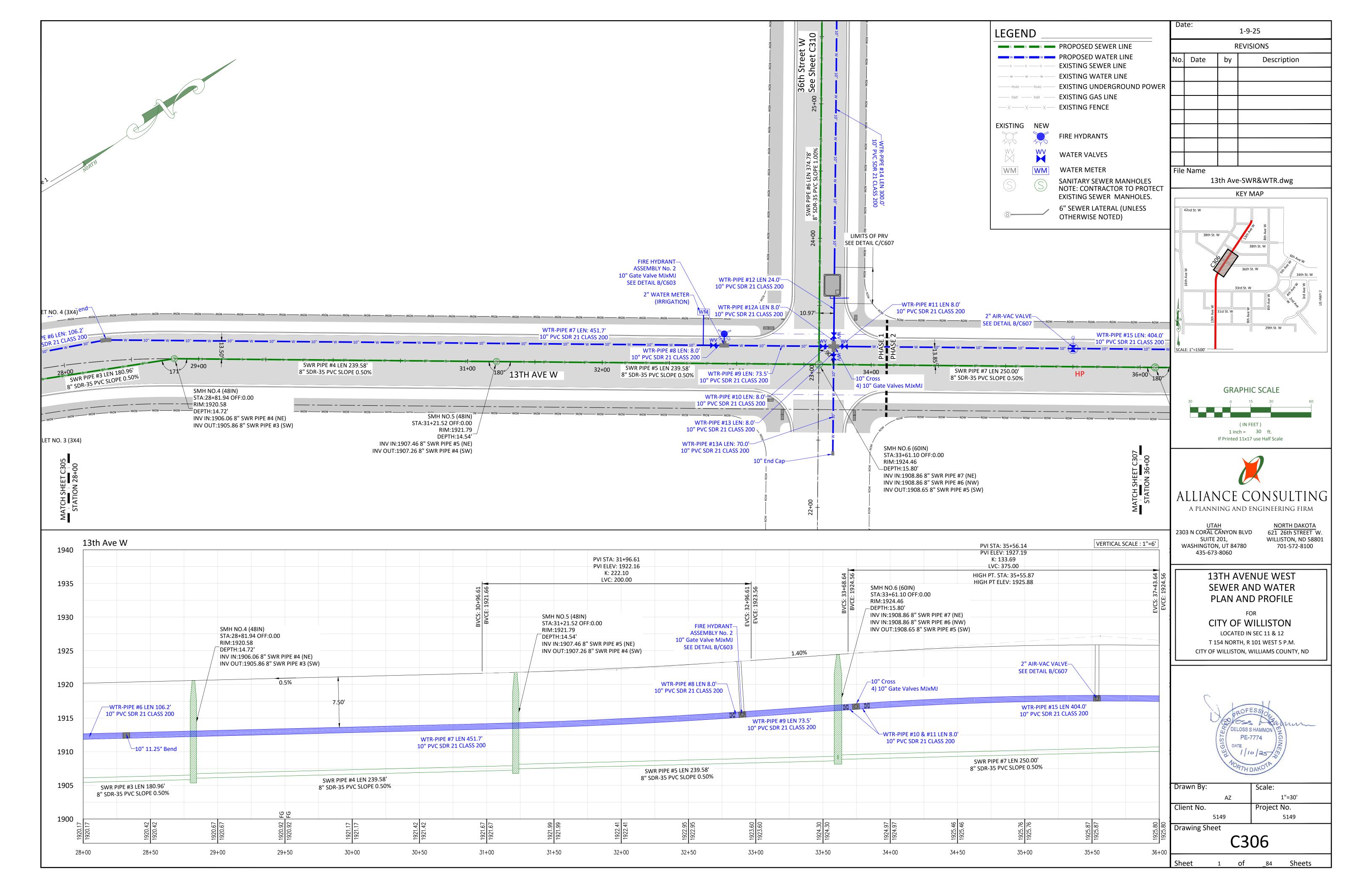


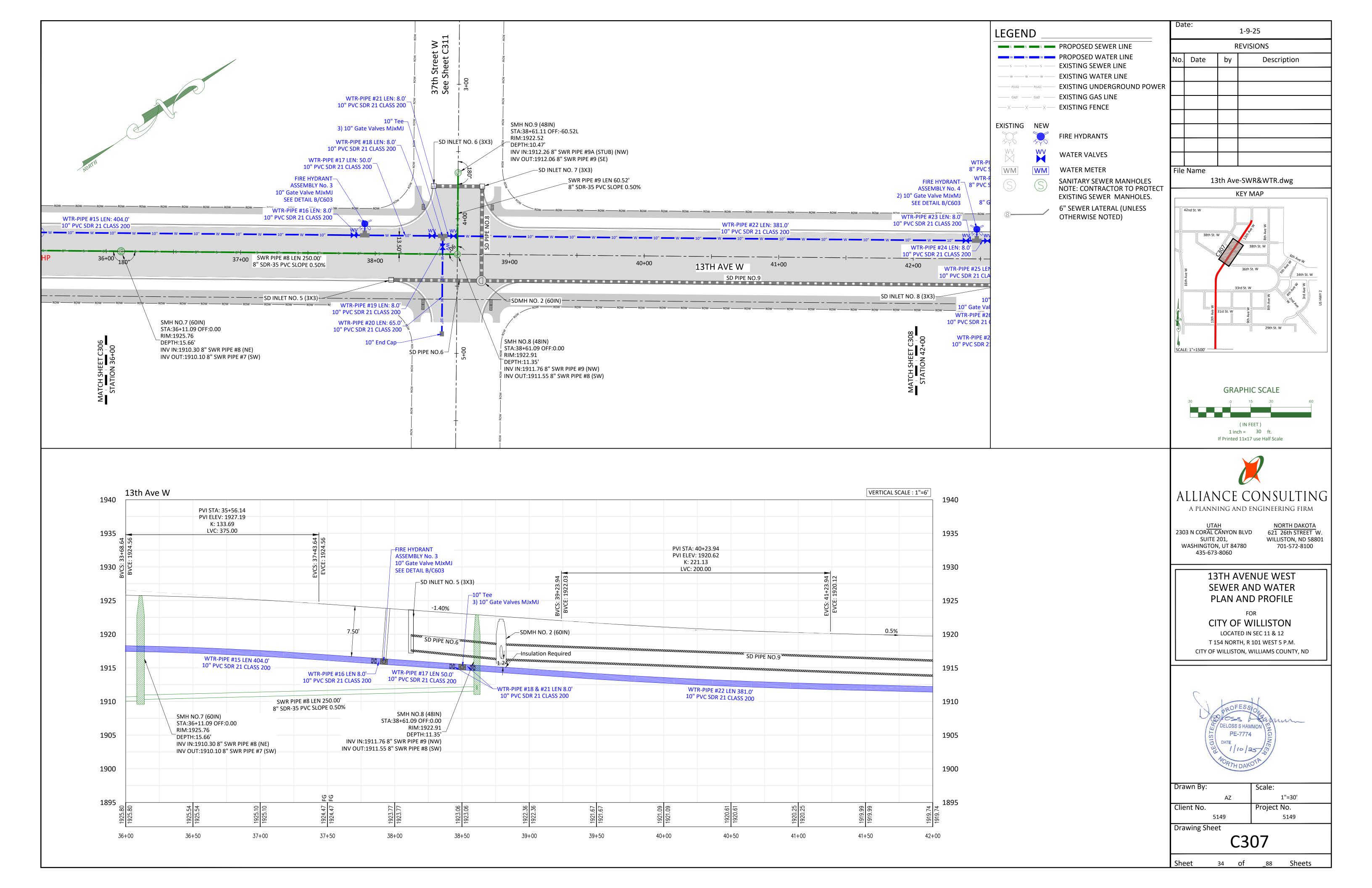


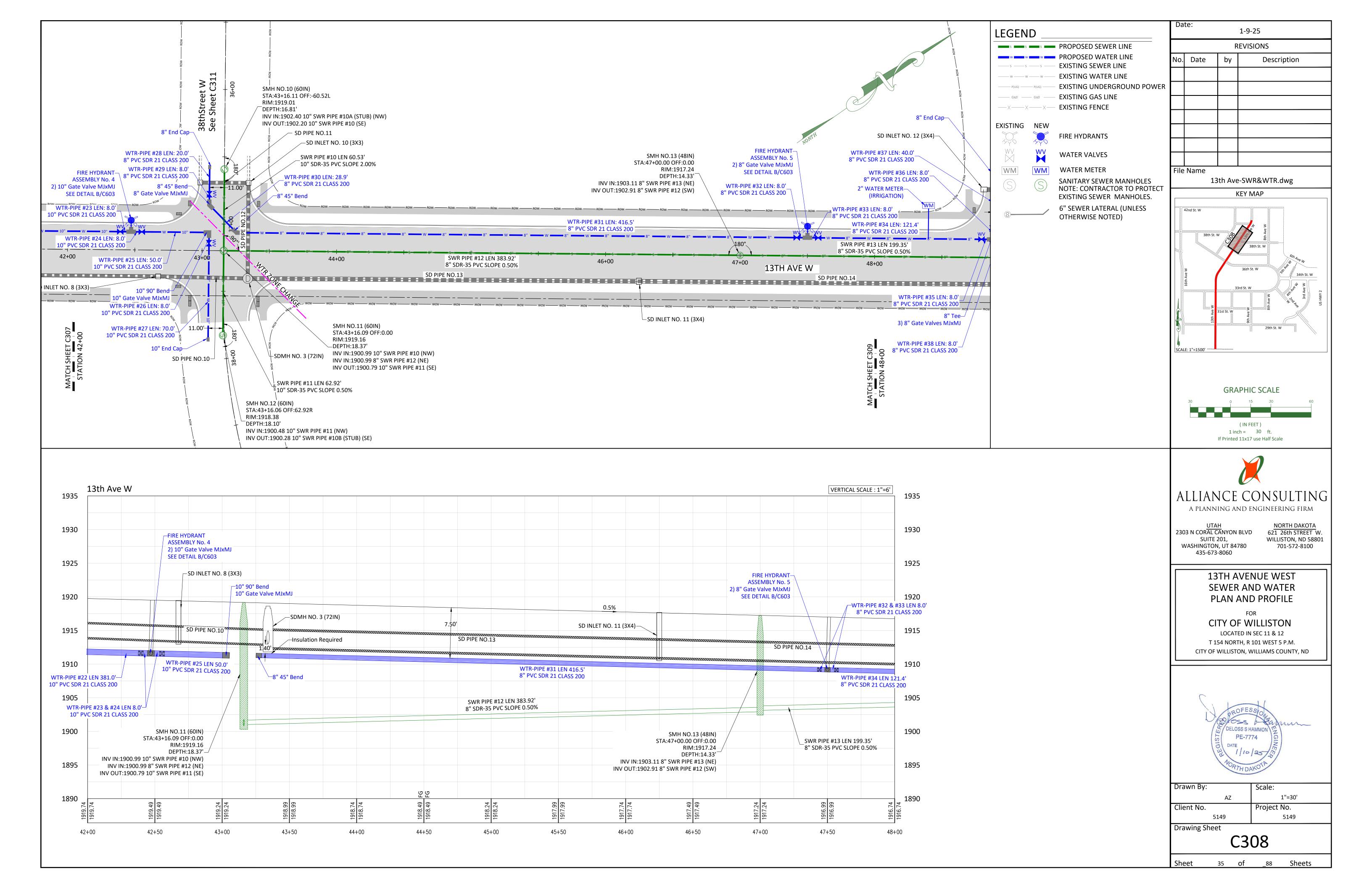


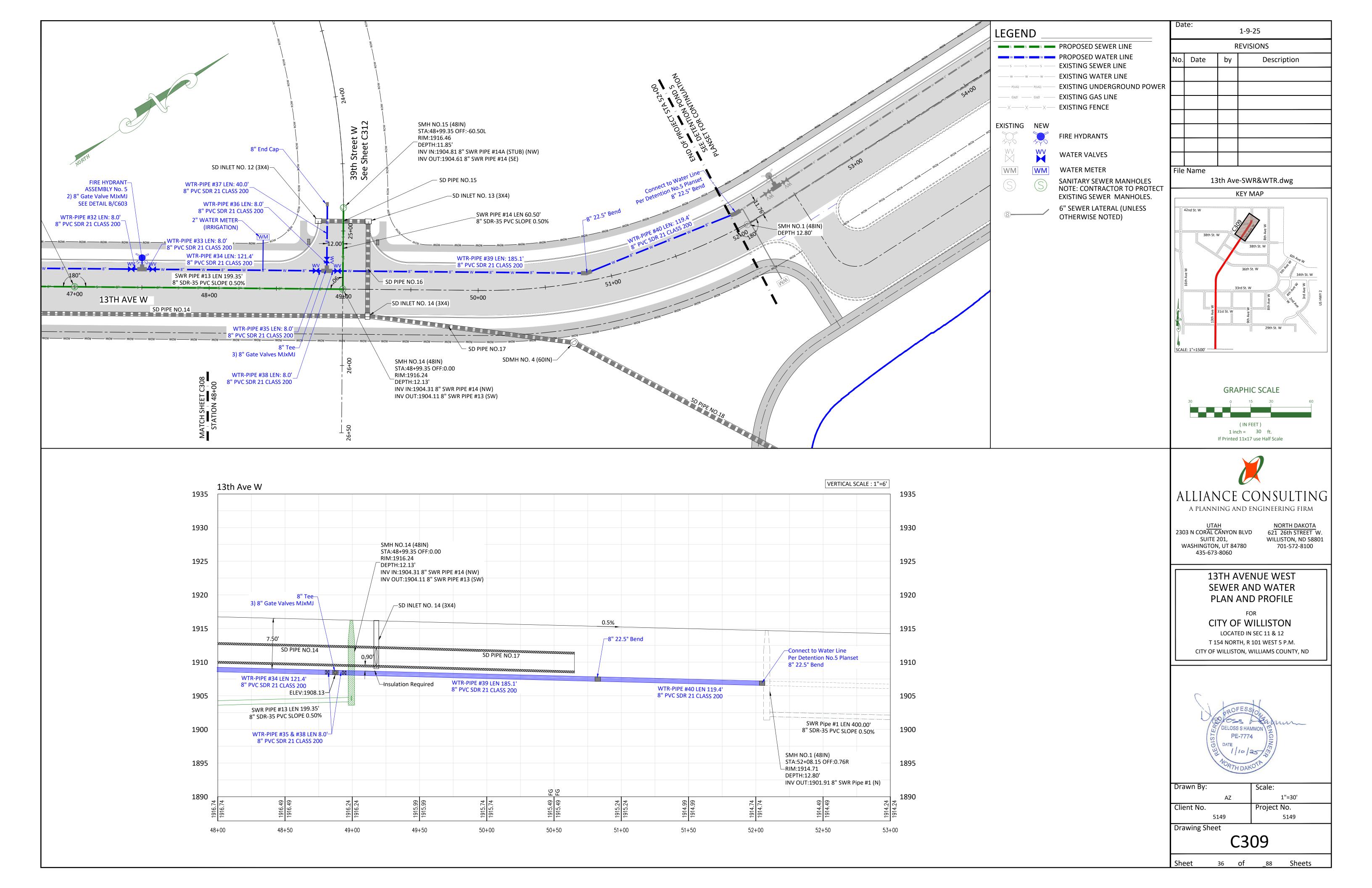


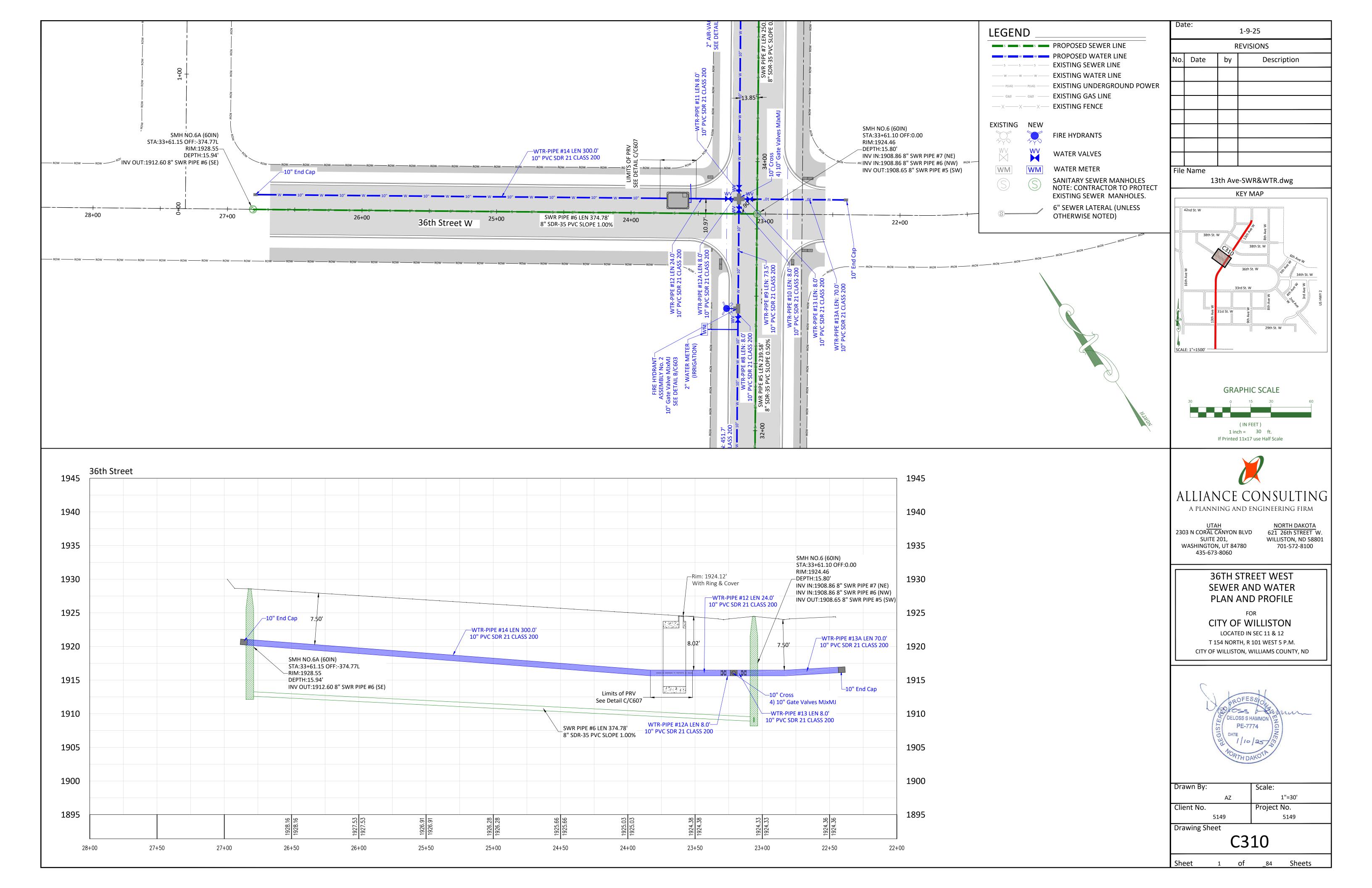


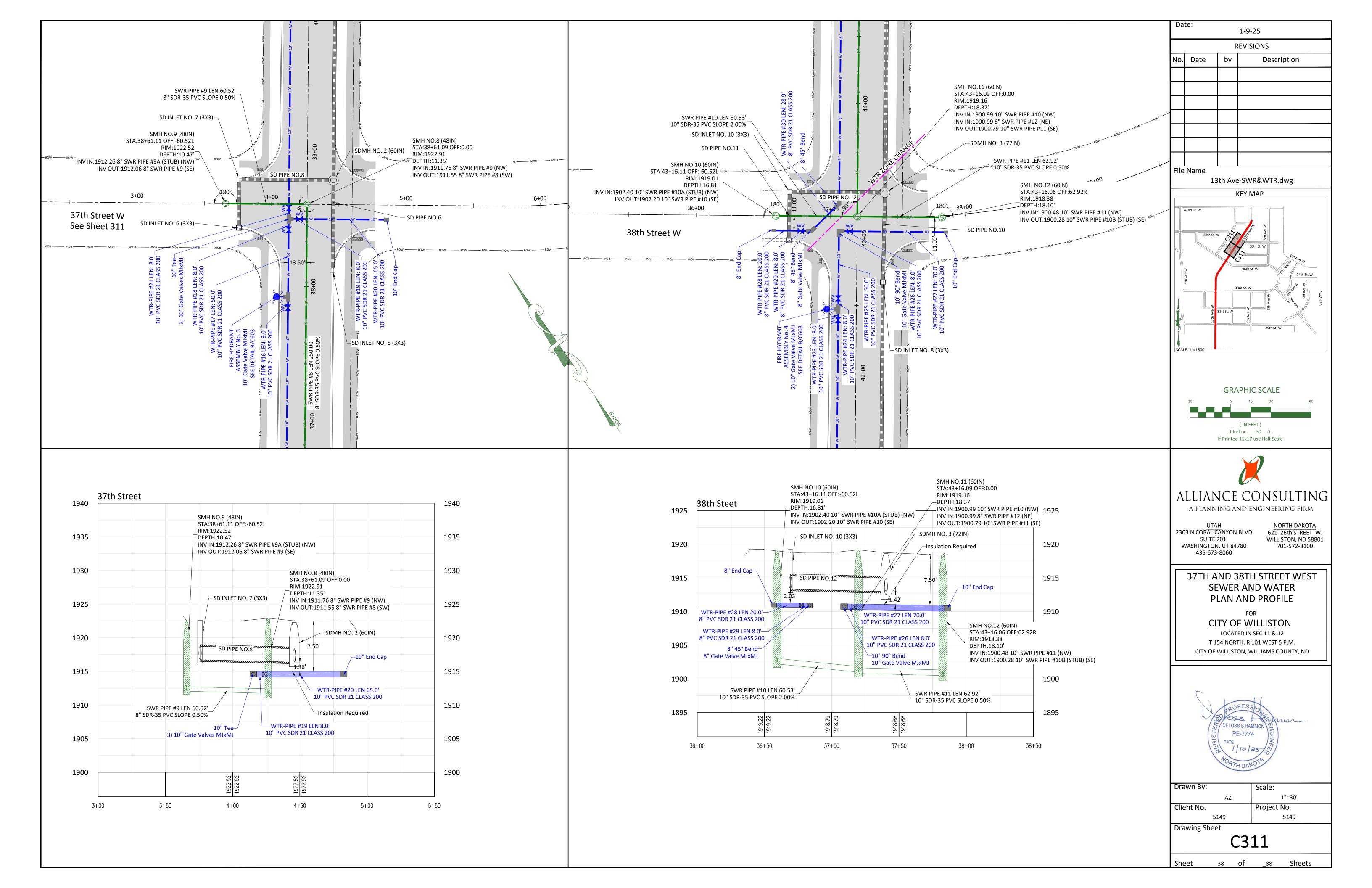


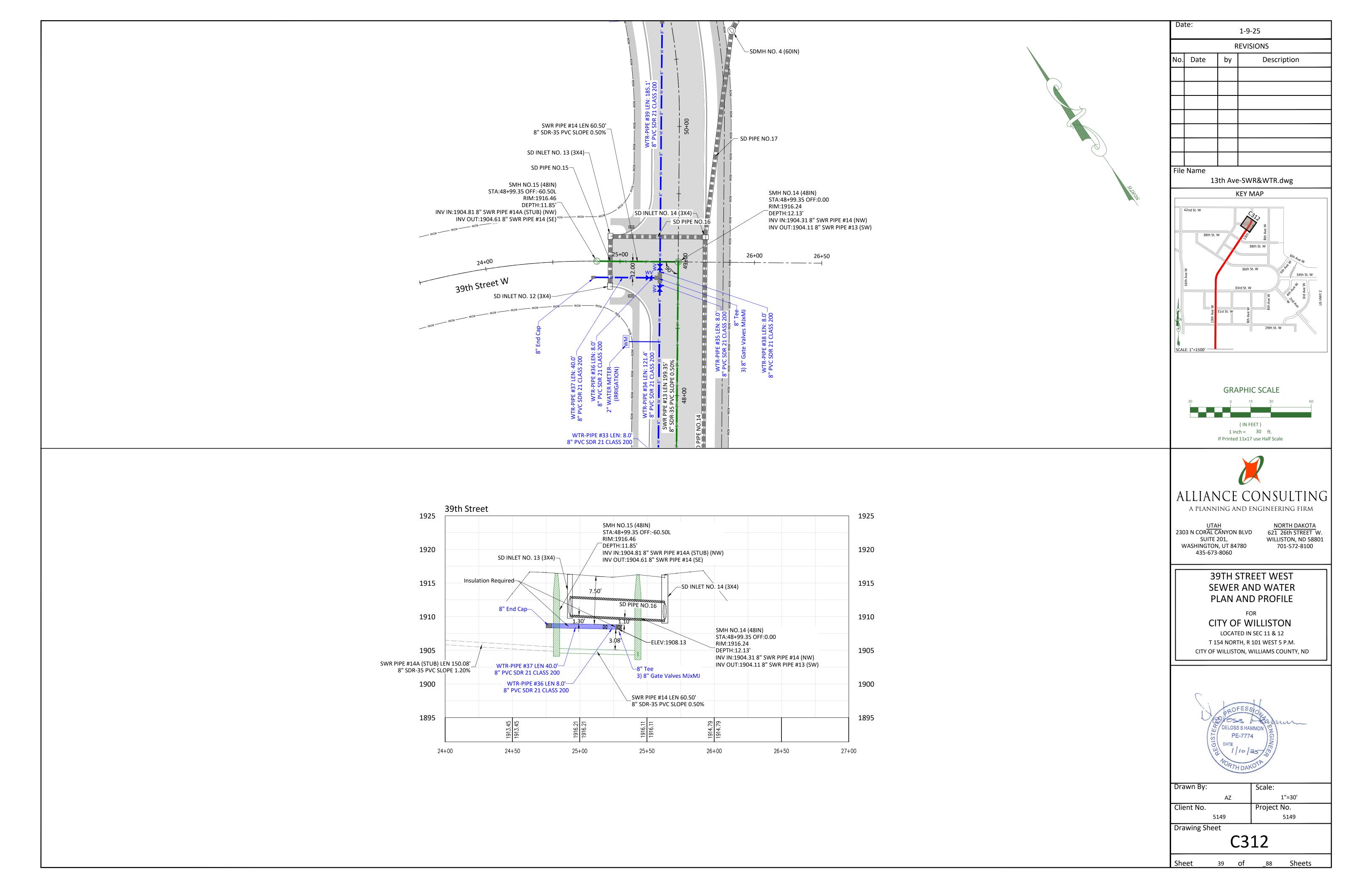


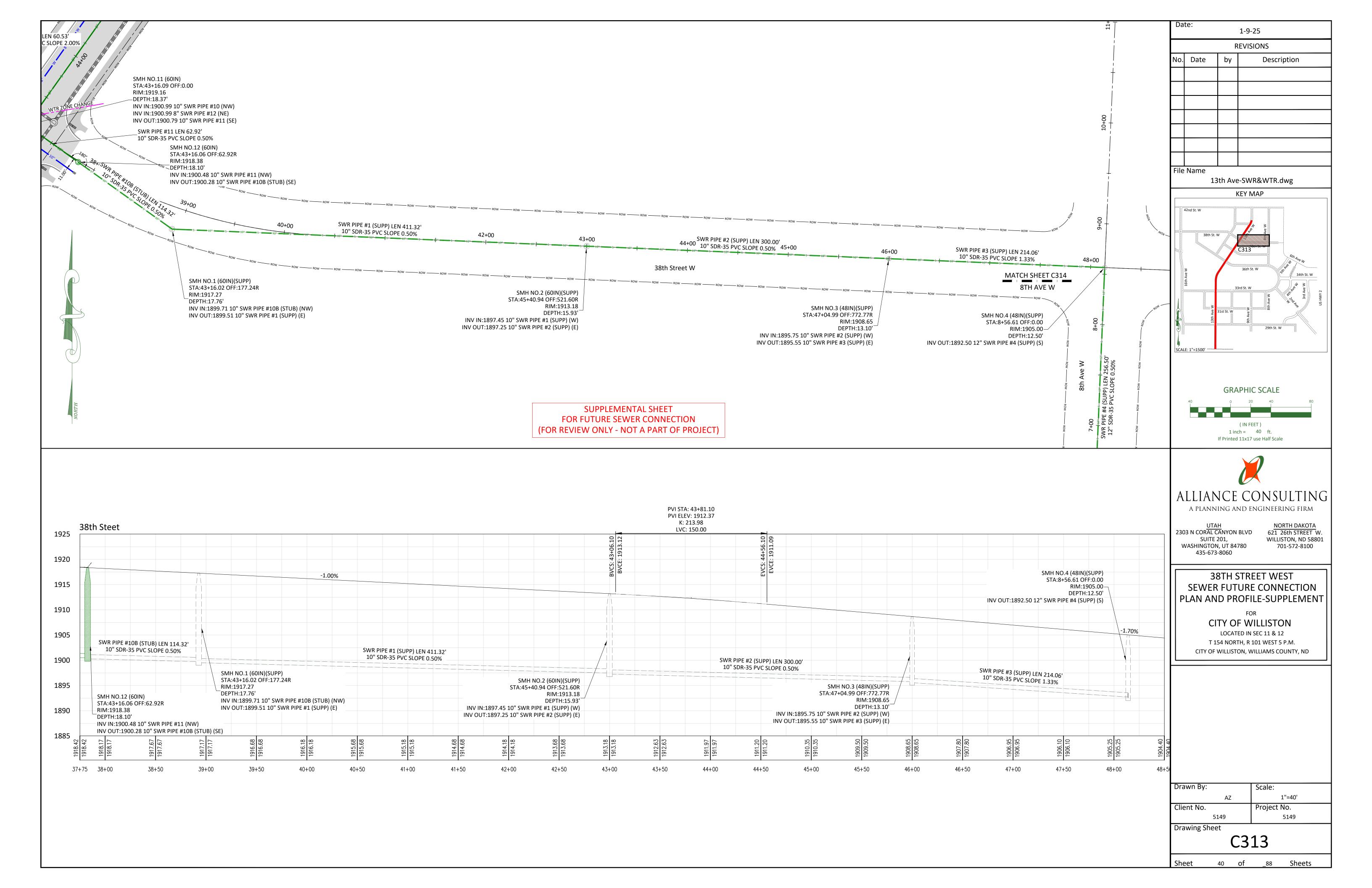


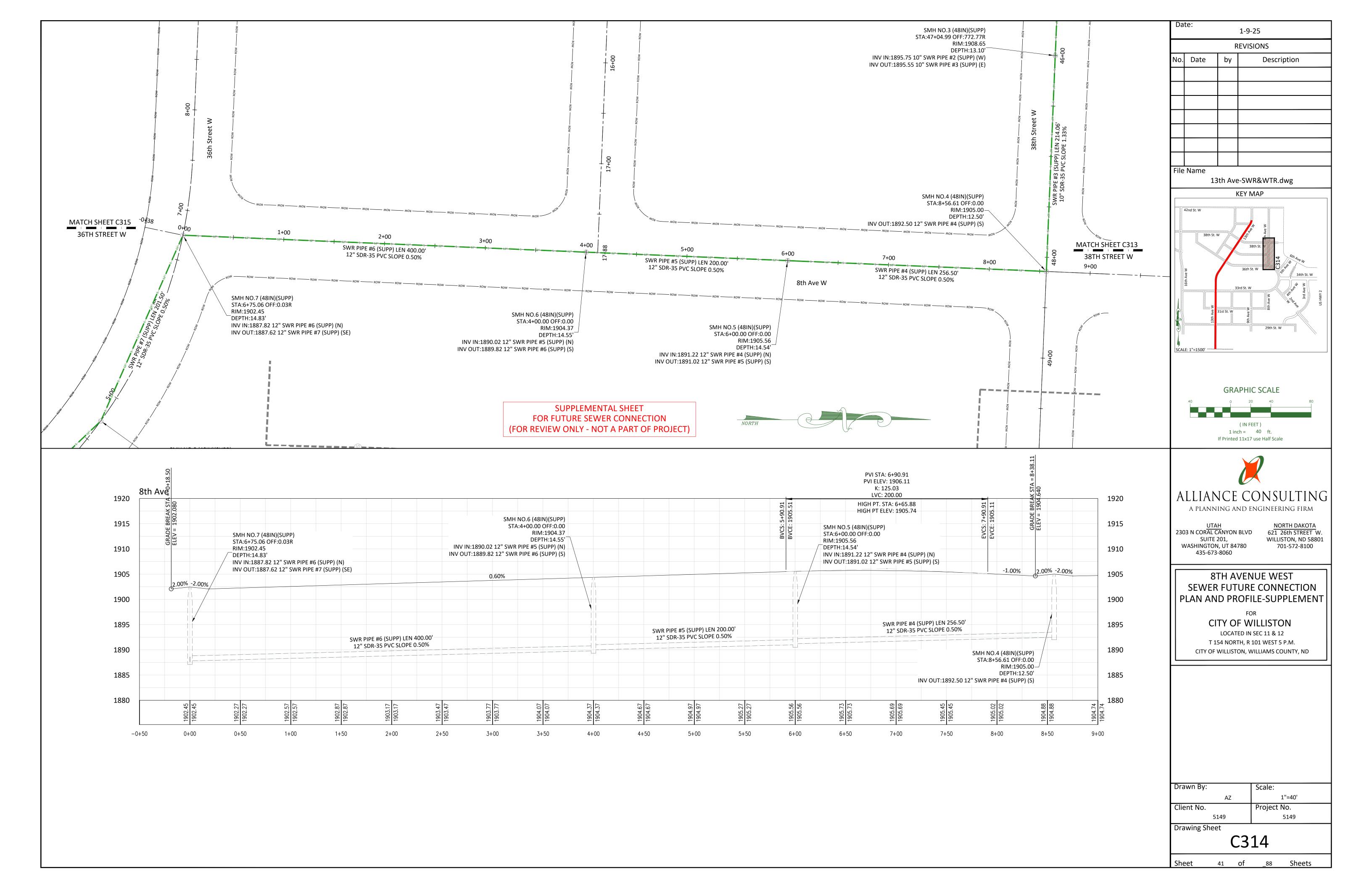


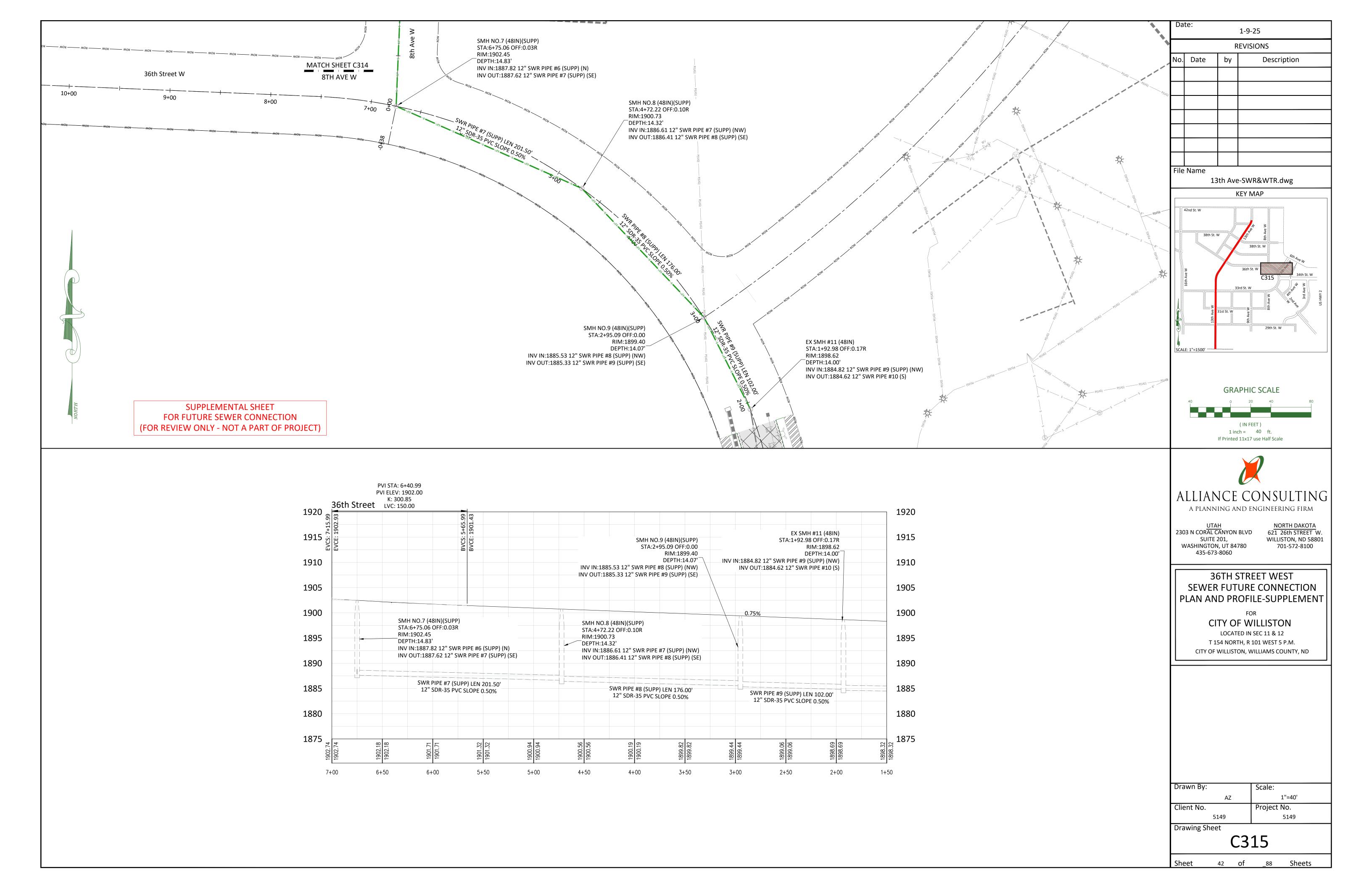


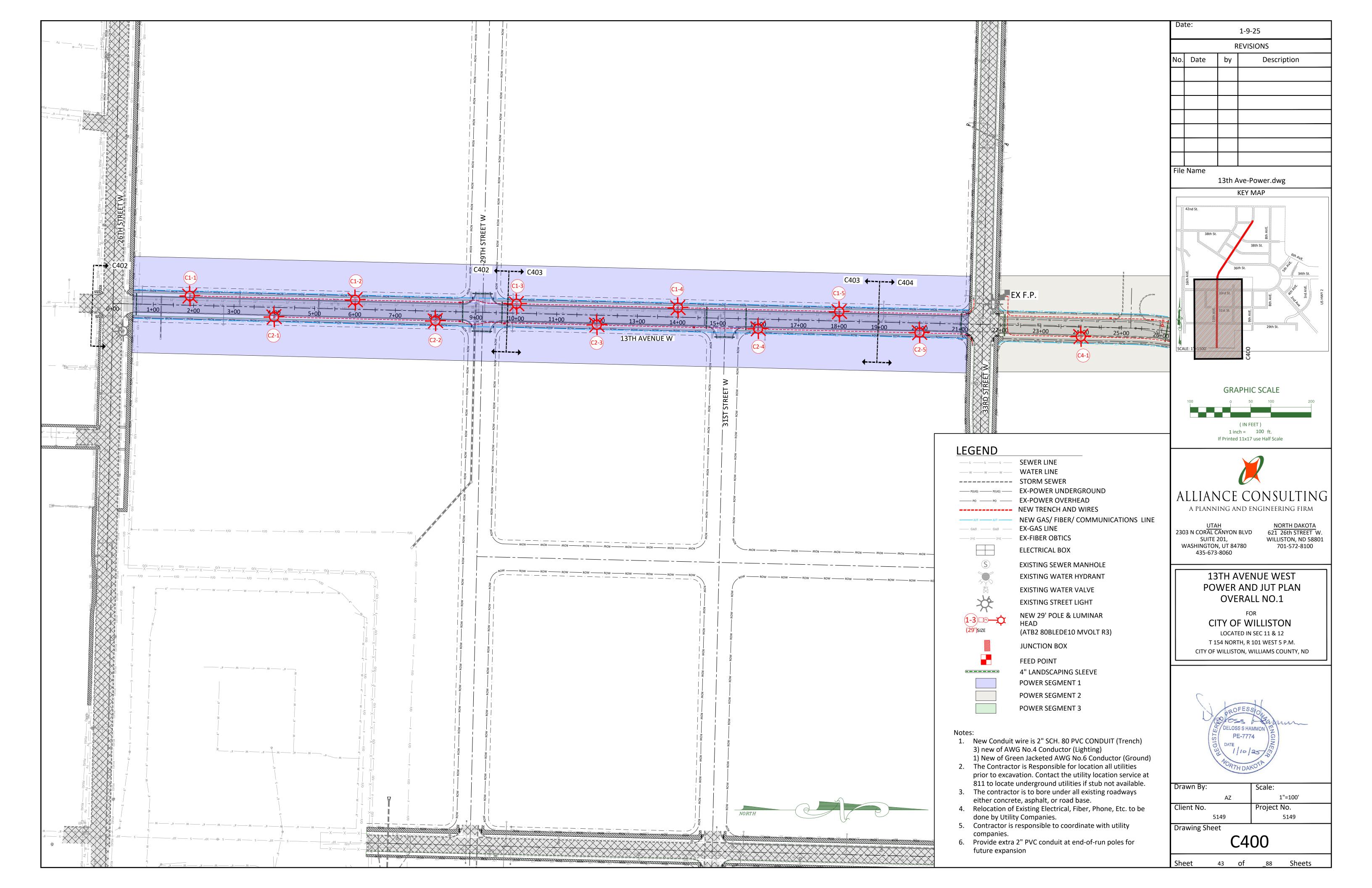


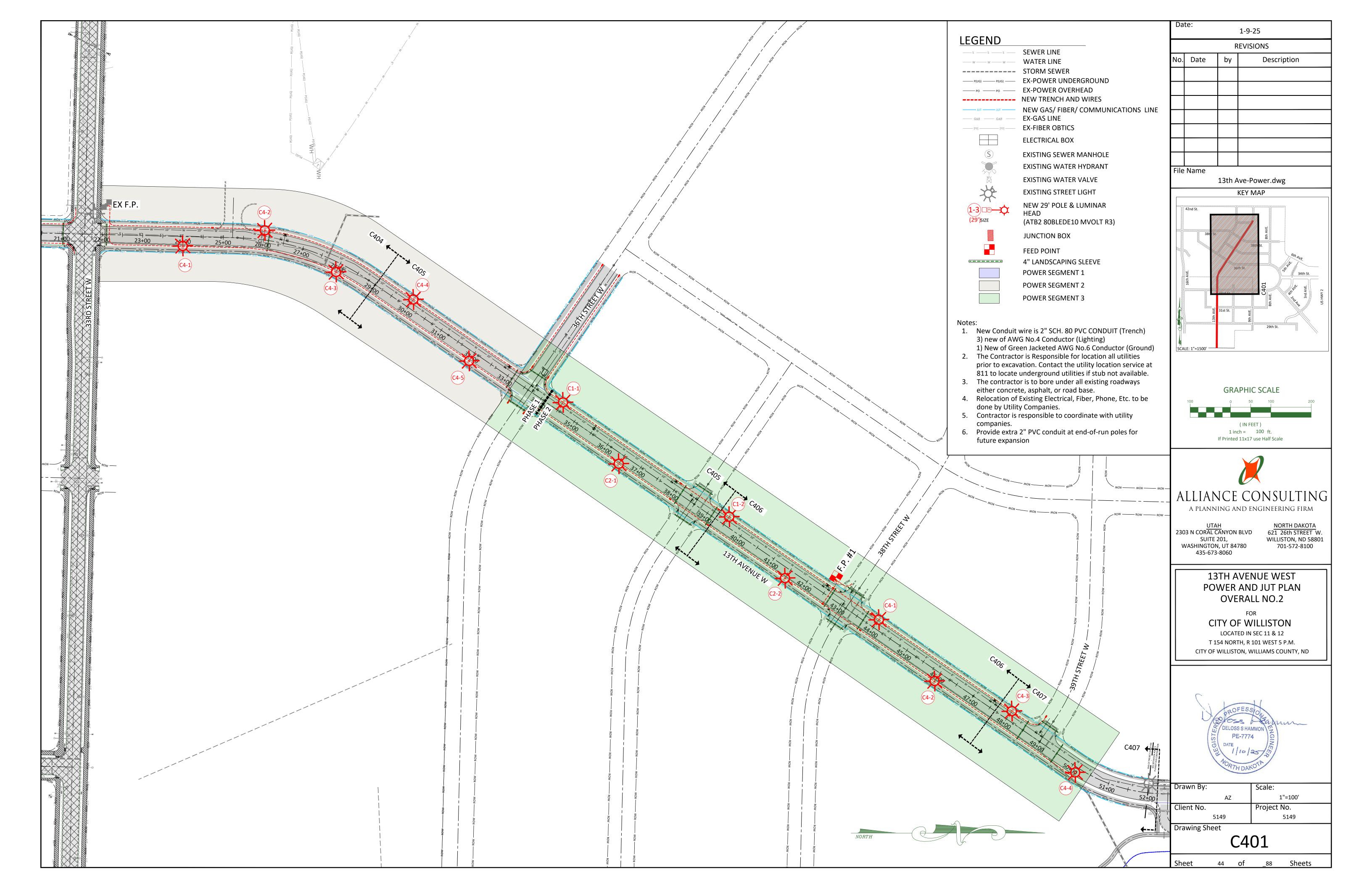


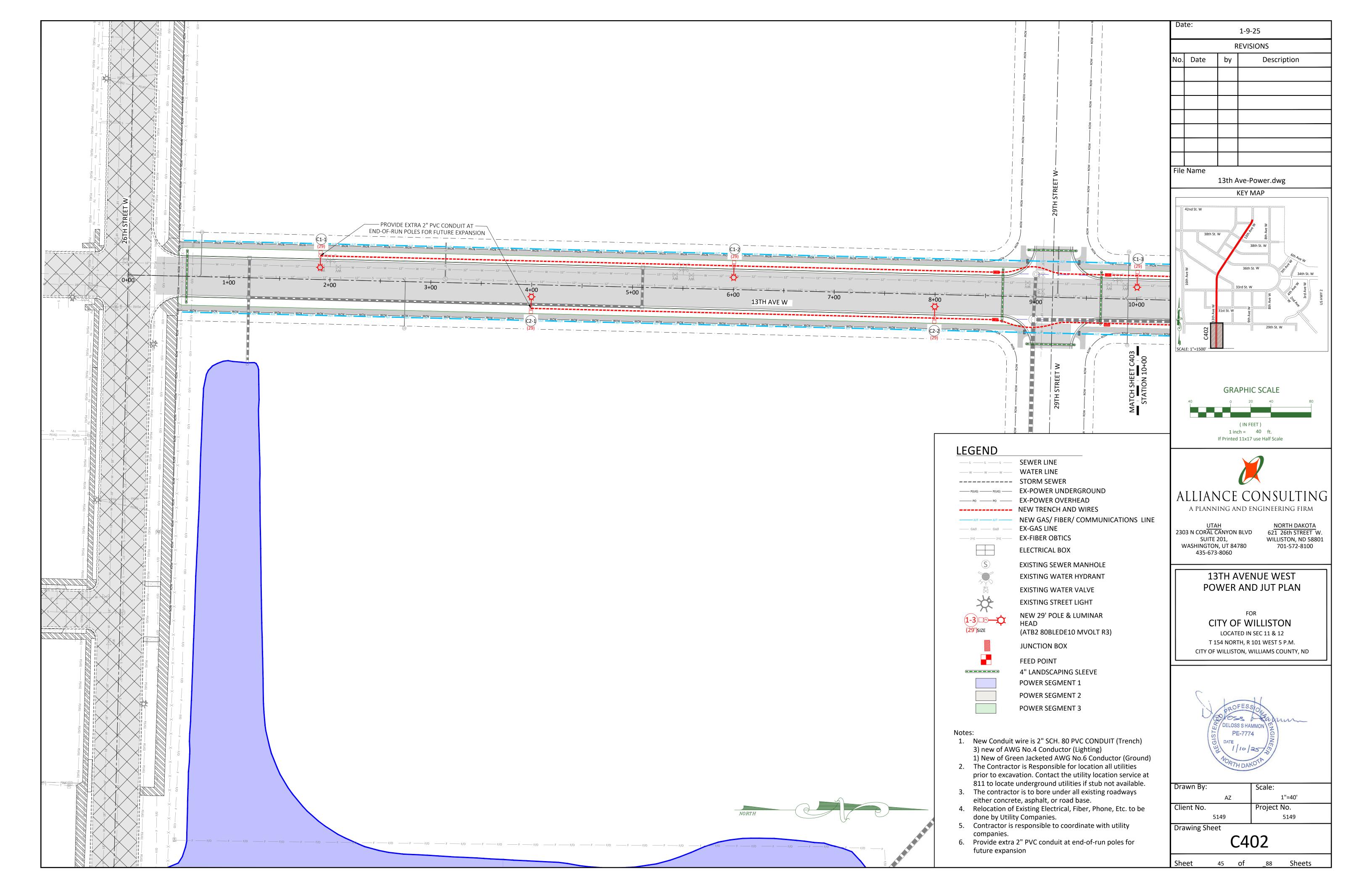


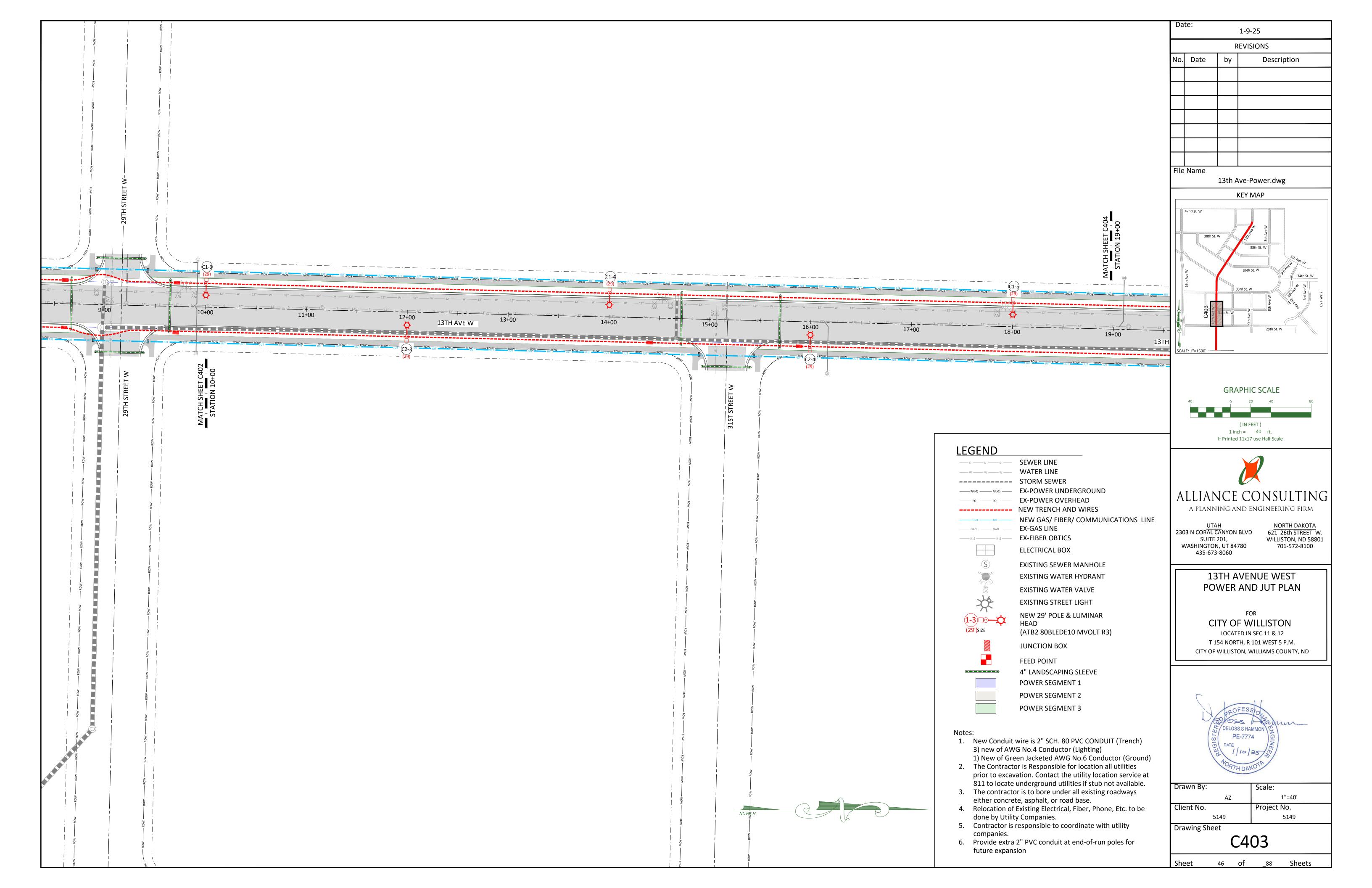


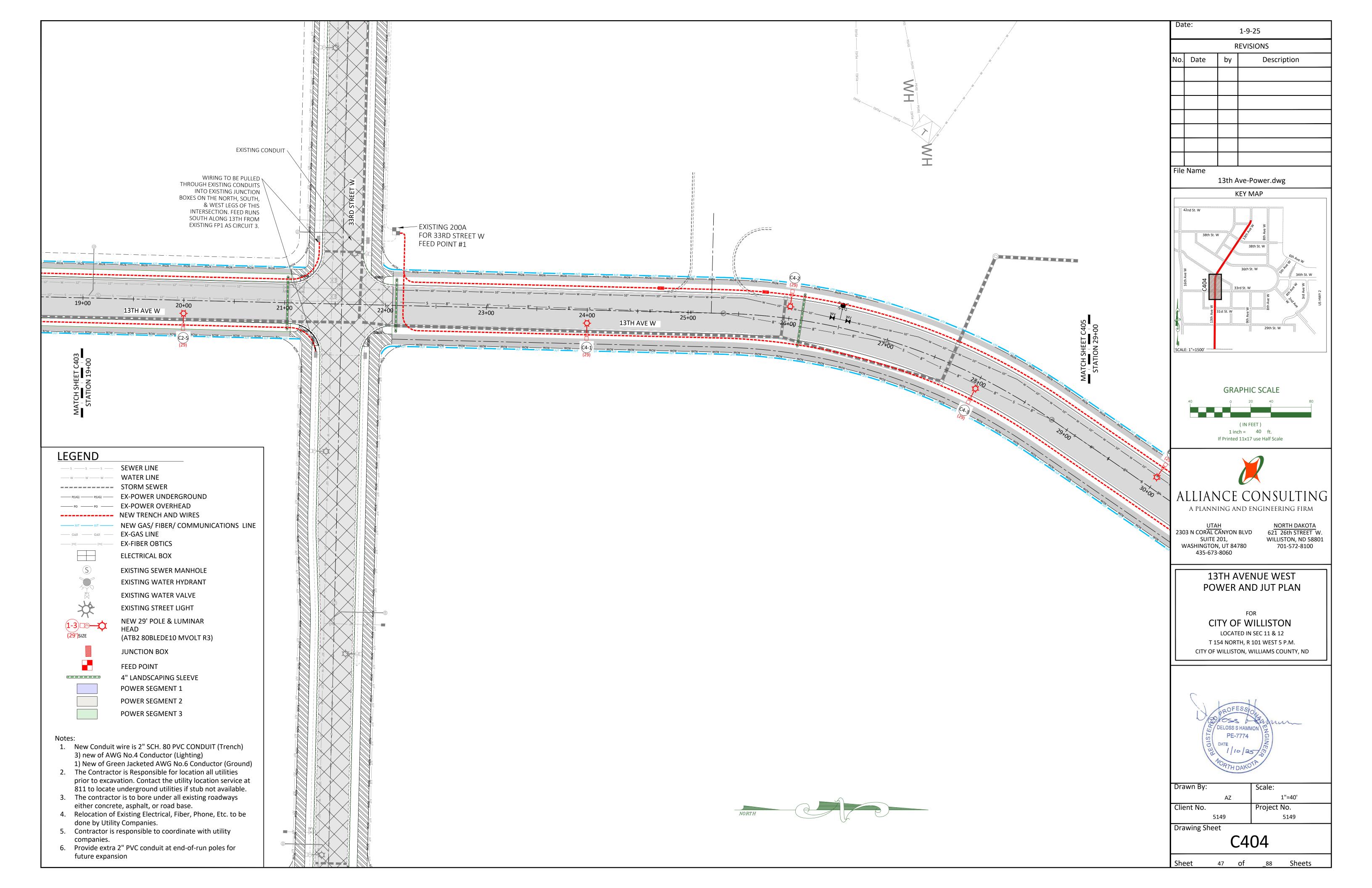


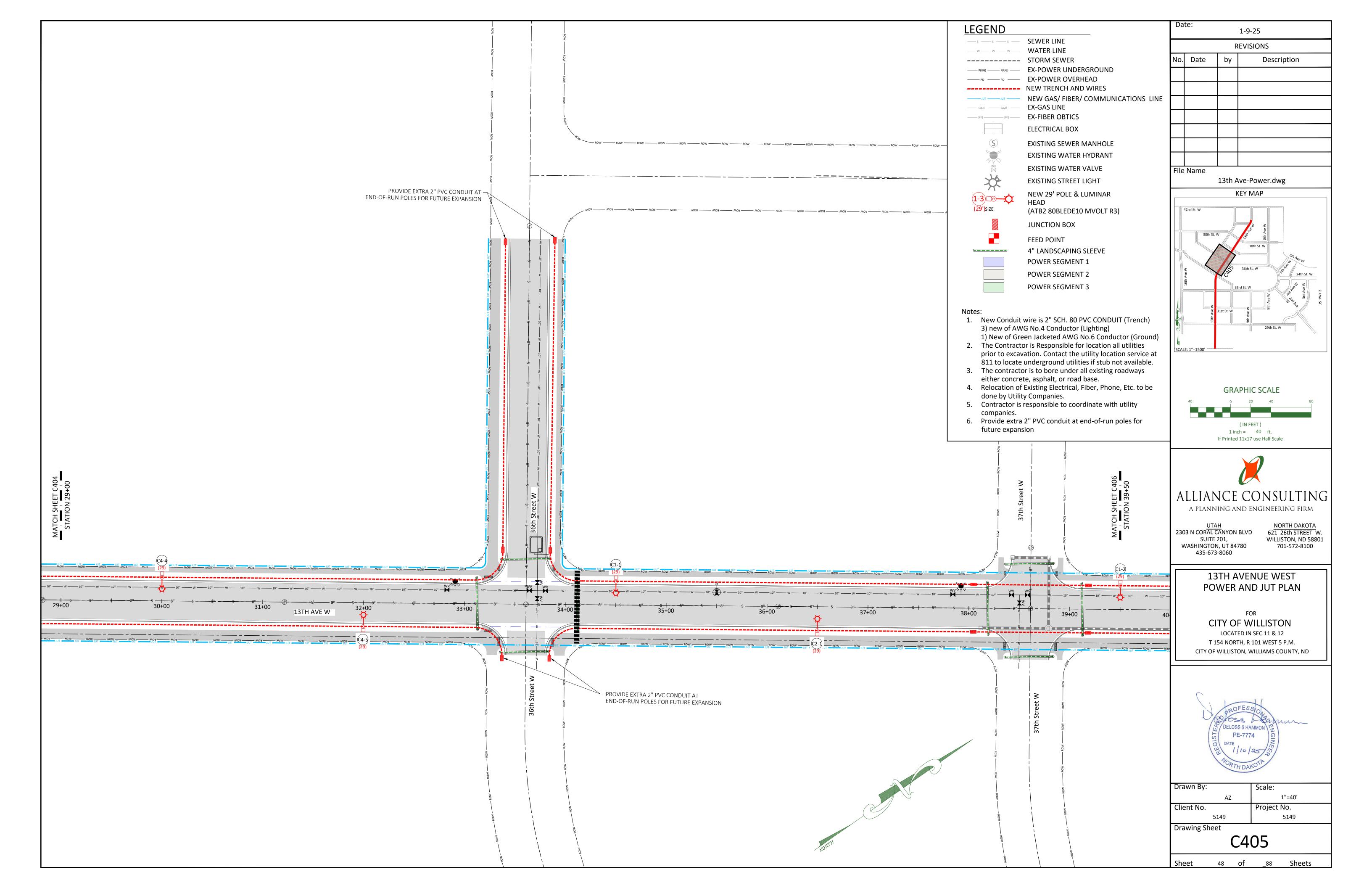


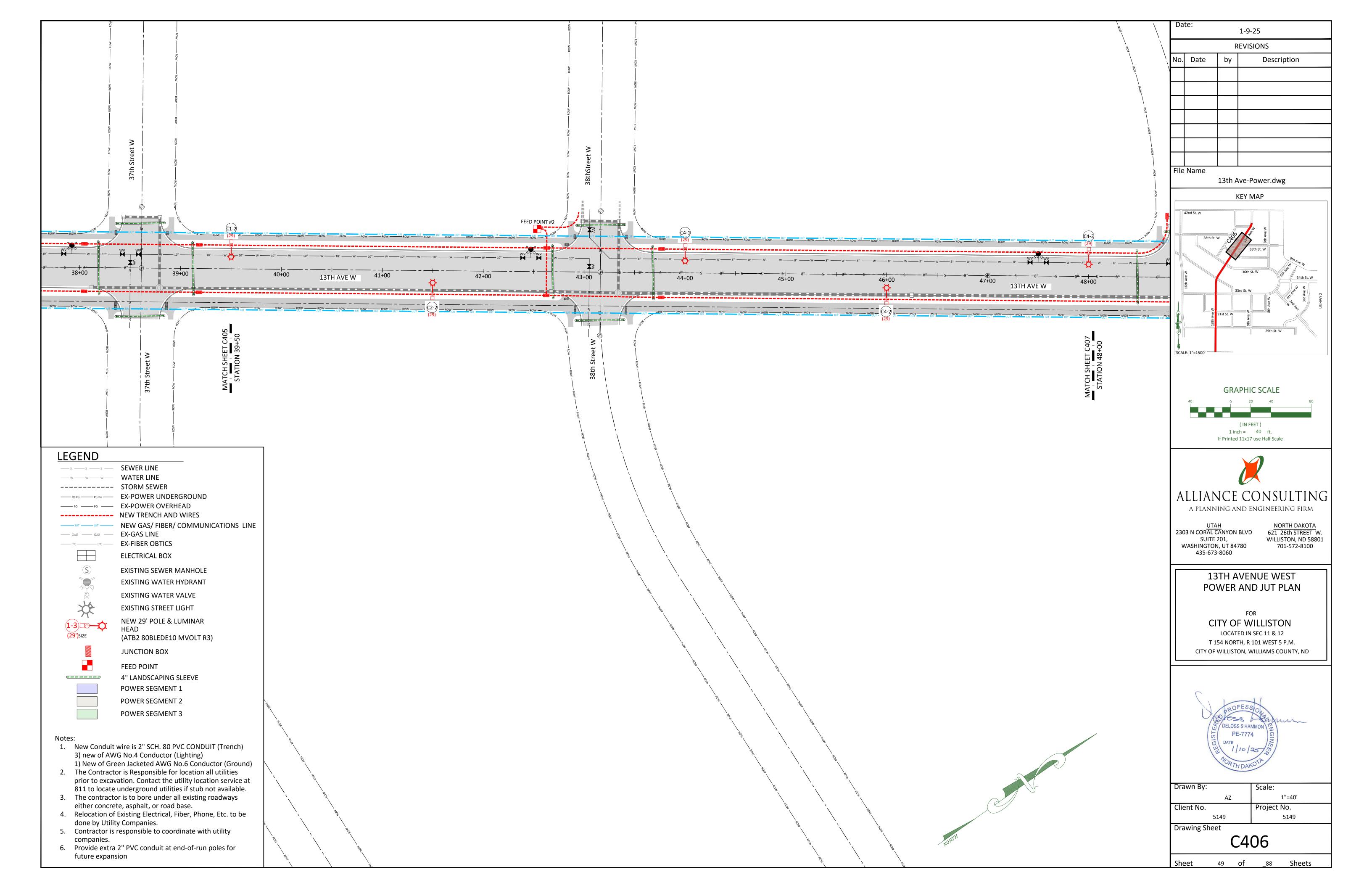


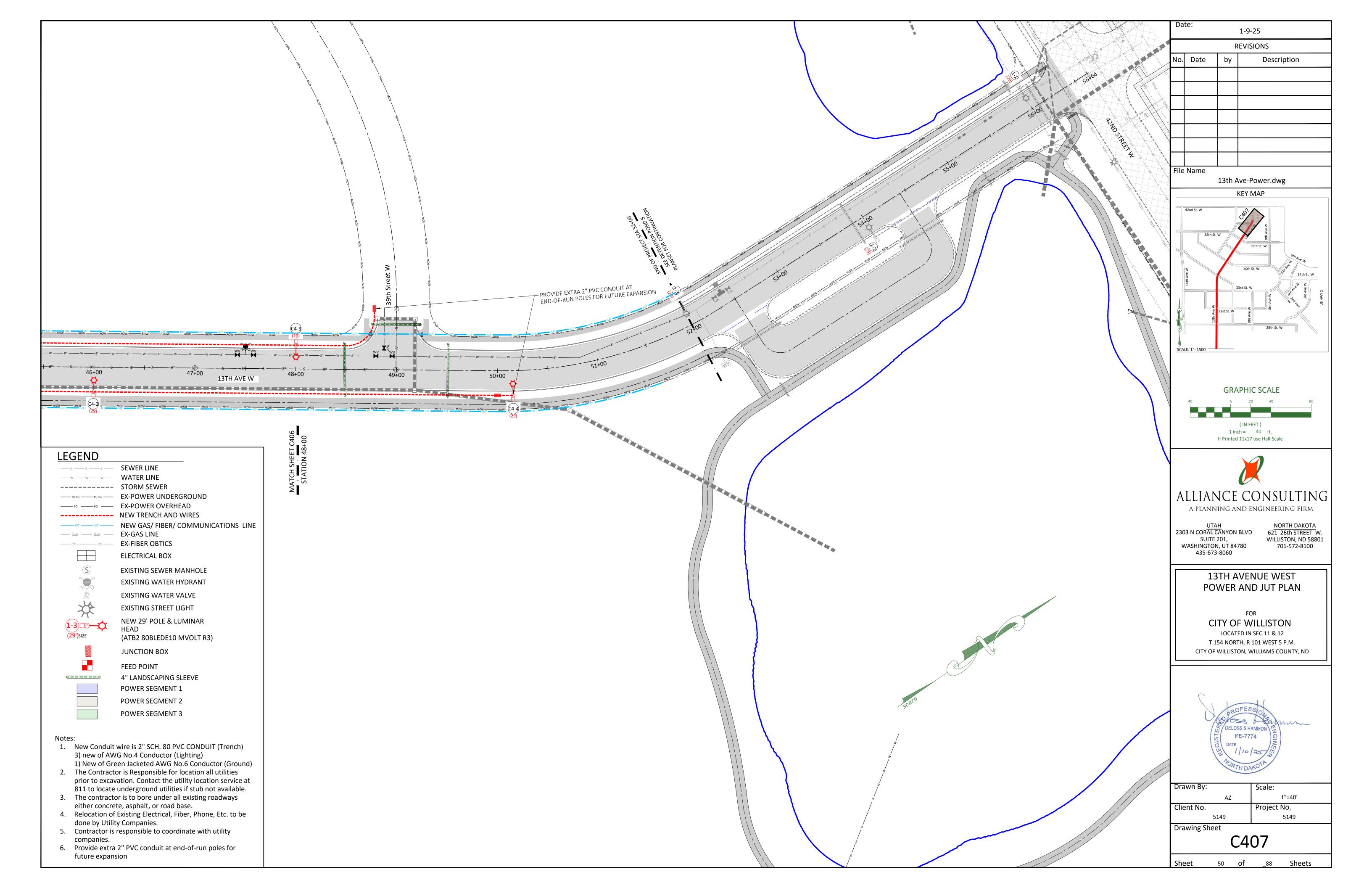


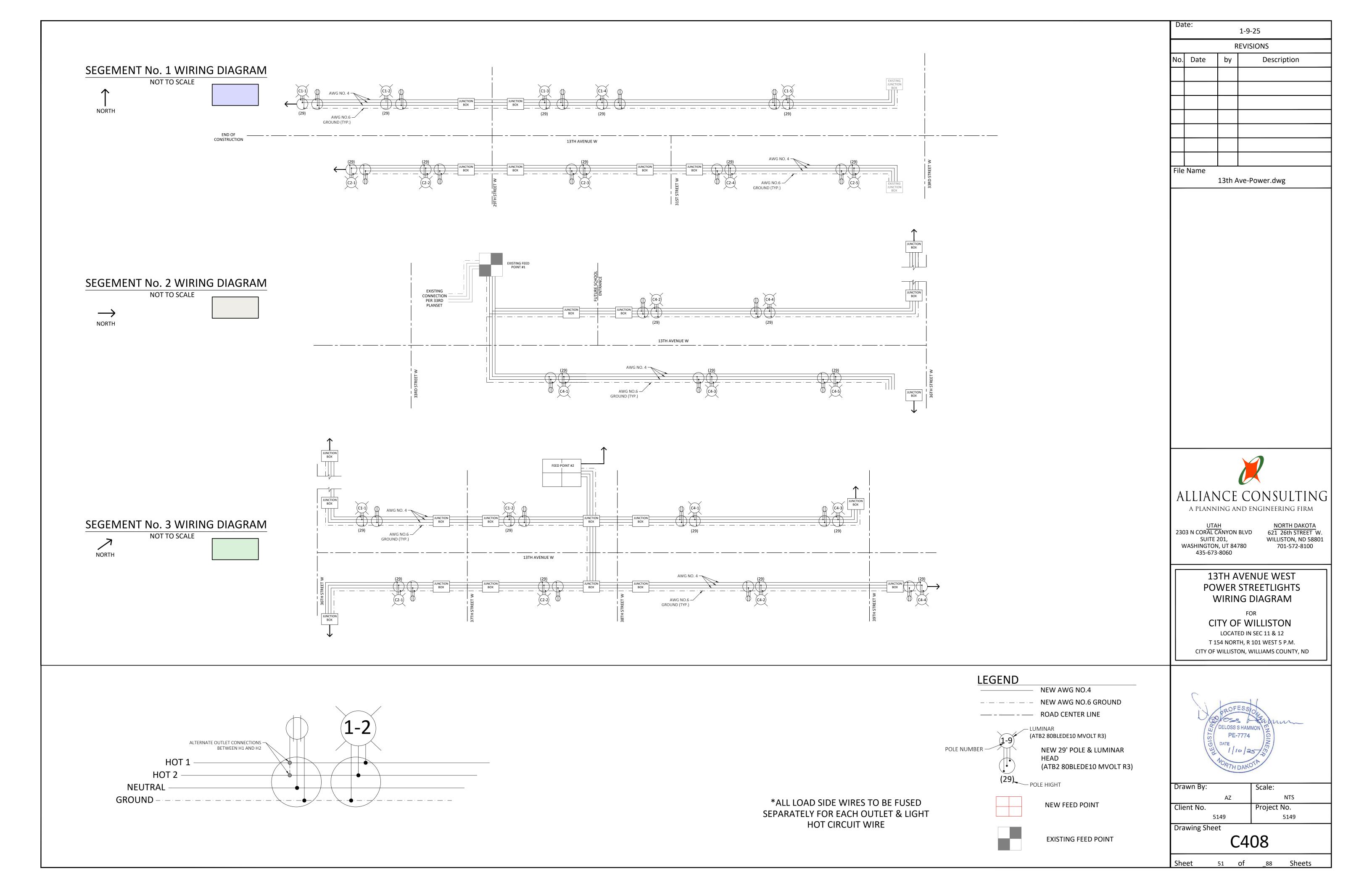


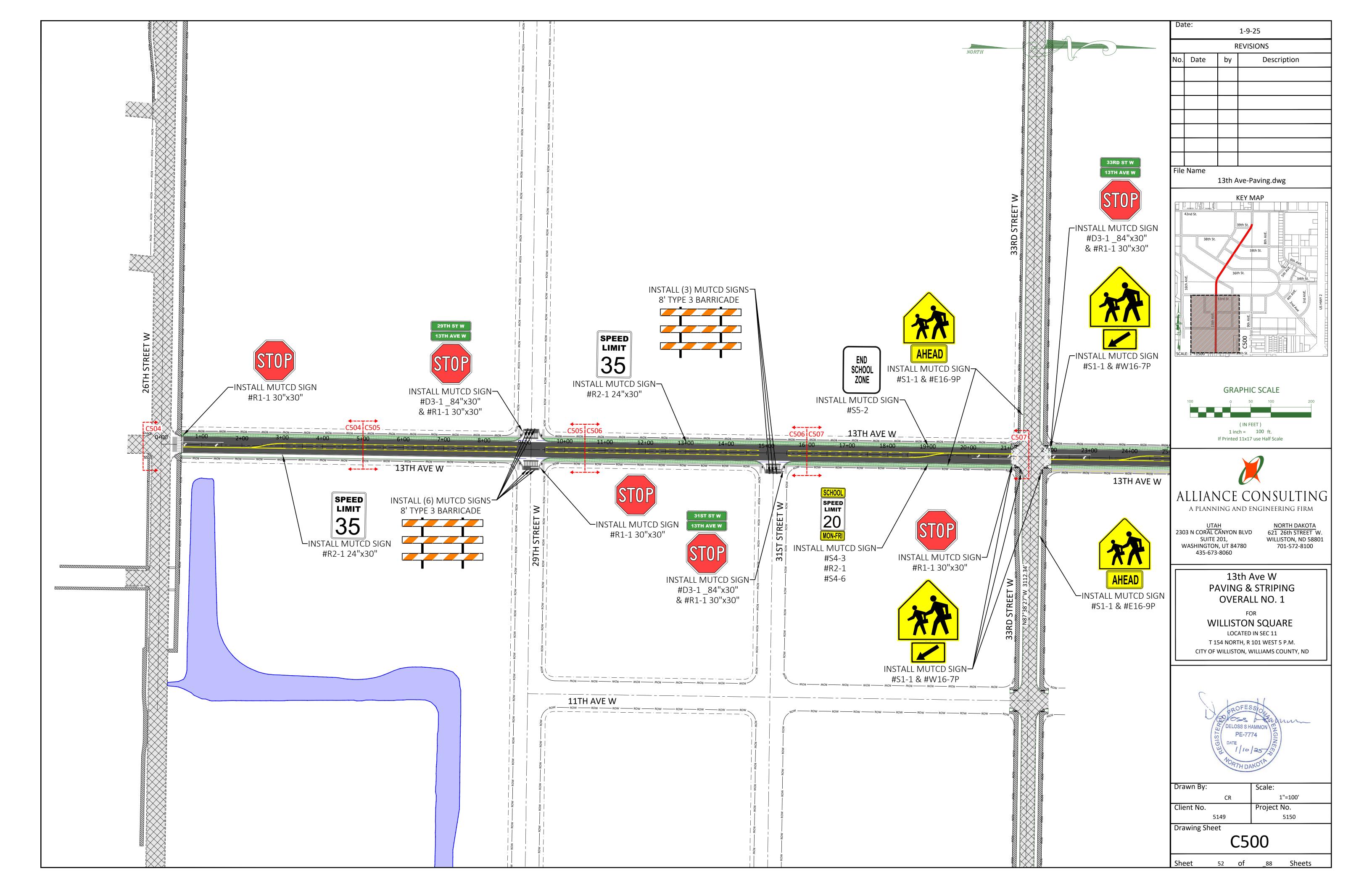


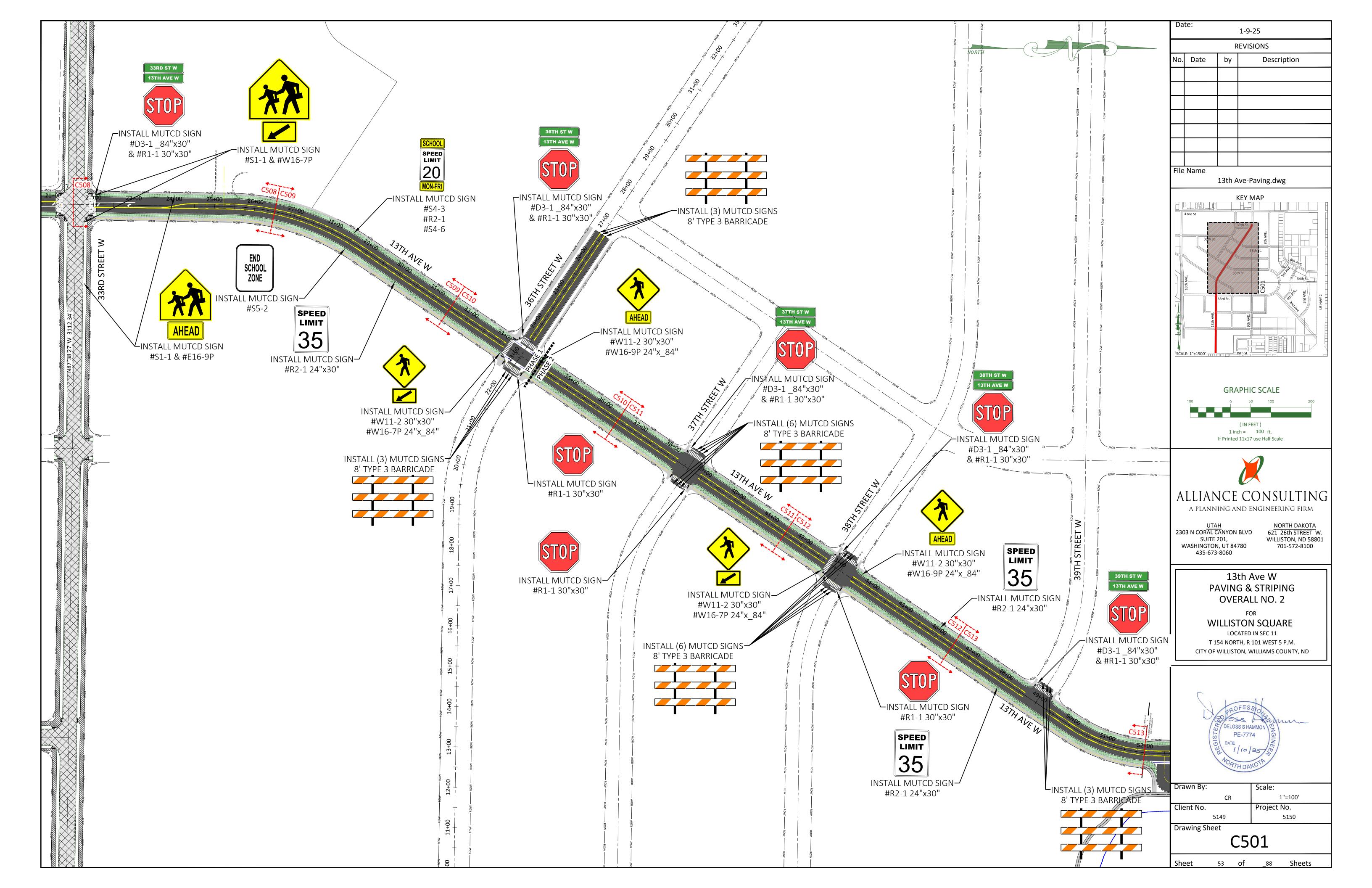


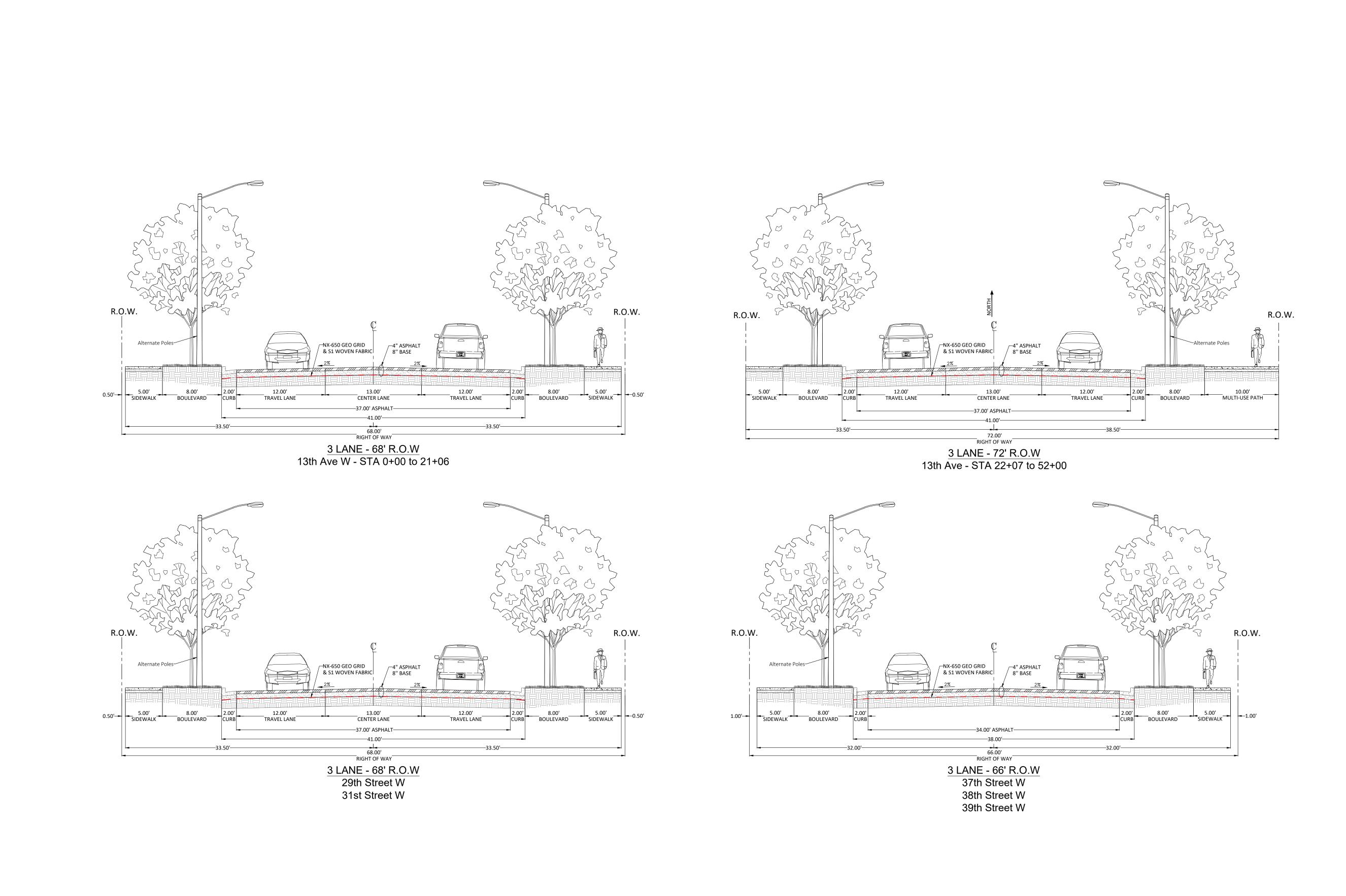


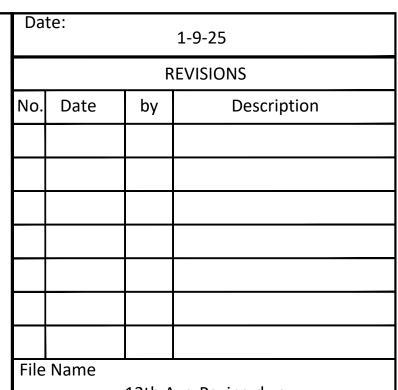




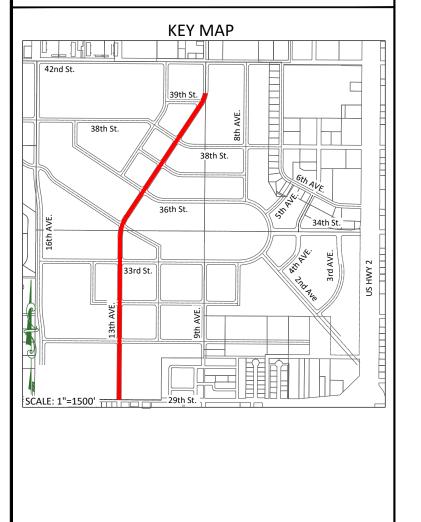








13th Ave-Paving.dwg





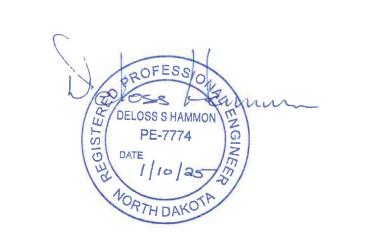
UTAH 2303 N CORAL CANYON BLVD SUITE 201, WASHINGTON, UT 84780 435-673-8060

> 13th AVE WEST ROADWAY SECTIONS

NORTH DAKOTA 621 26th STREET W. WILLISTON, ND 58801 701-572-8100

FOR
WILLISTON SQUARE
LOCATED IN SEC 11

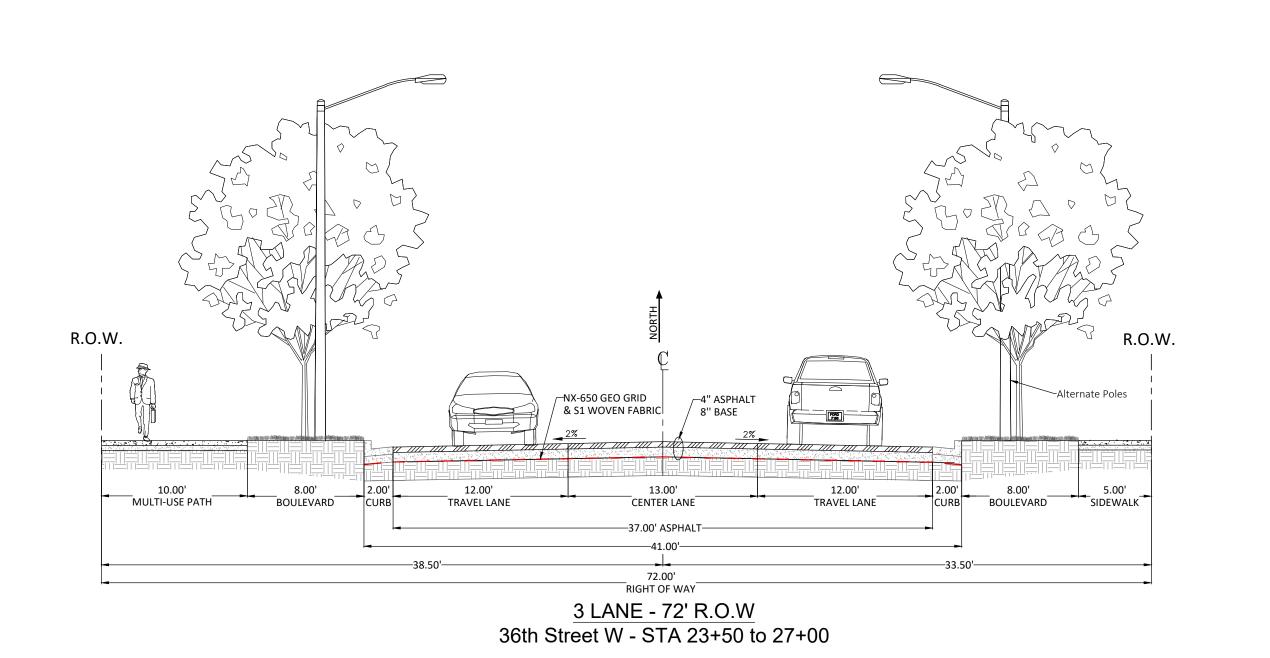
T 154 NORTH, R 101 WEST 5 P.M. CITY OF WILLISTON, WILLIAMS COUNTY, ND

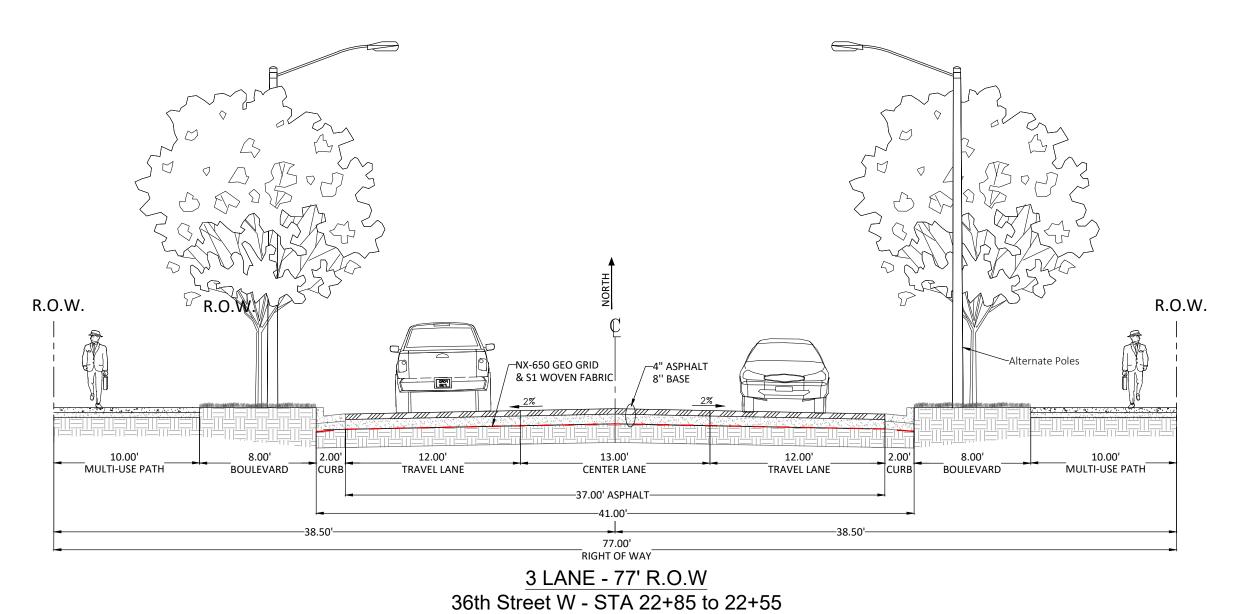


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	CR	N/A
Client No.		Project No.
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Drawing She	et	
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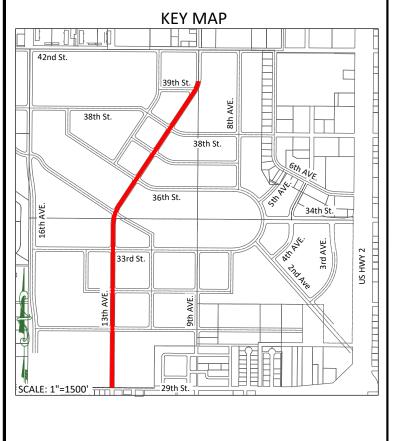
C502

eet 54 of _88 Sheets





1-9-25 **REVISIONS** Description File Name 13th Ave-Paving.dwg





UTAH
2303 N CORAL CANYON BLVD
SUITE 201,
WASHINGTON, UT 84780

MORTH DAKOTA
621 26th STREET W.
WILLISTON, ND 58801
701-572-8100 WASHINGTON, UT 84780 435-673-8060

36TH ST WEST **ROADWAY SECTIONS**

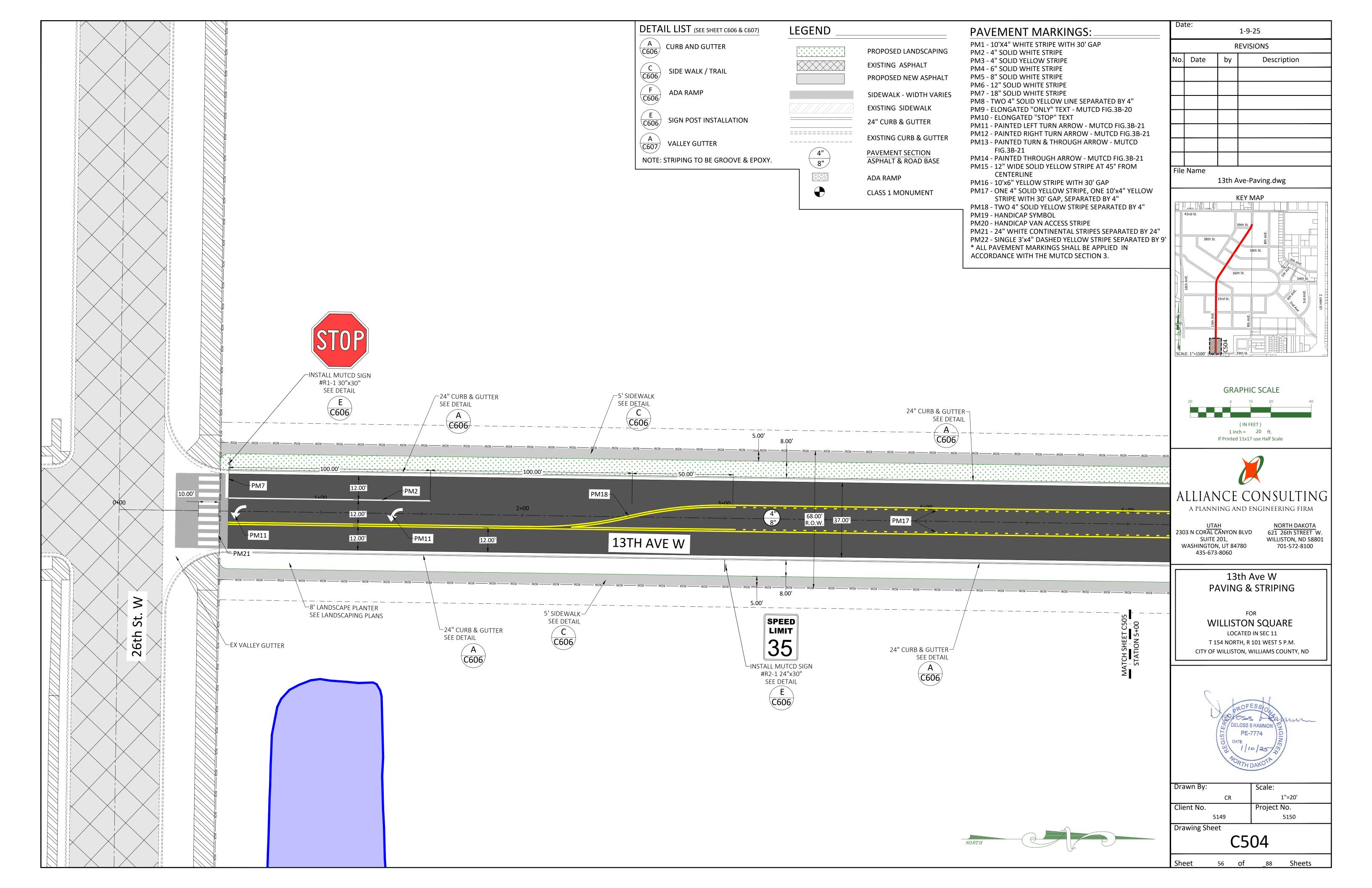
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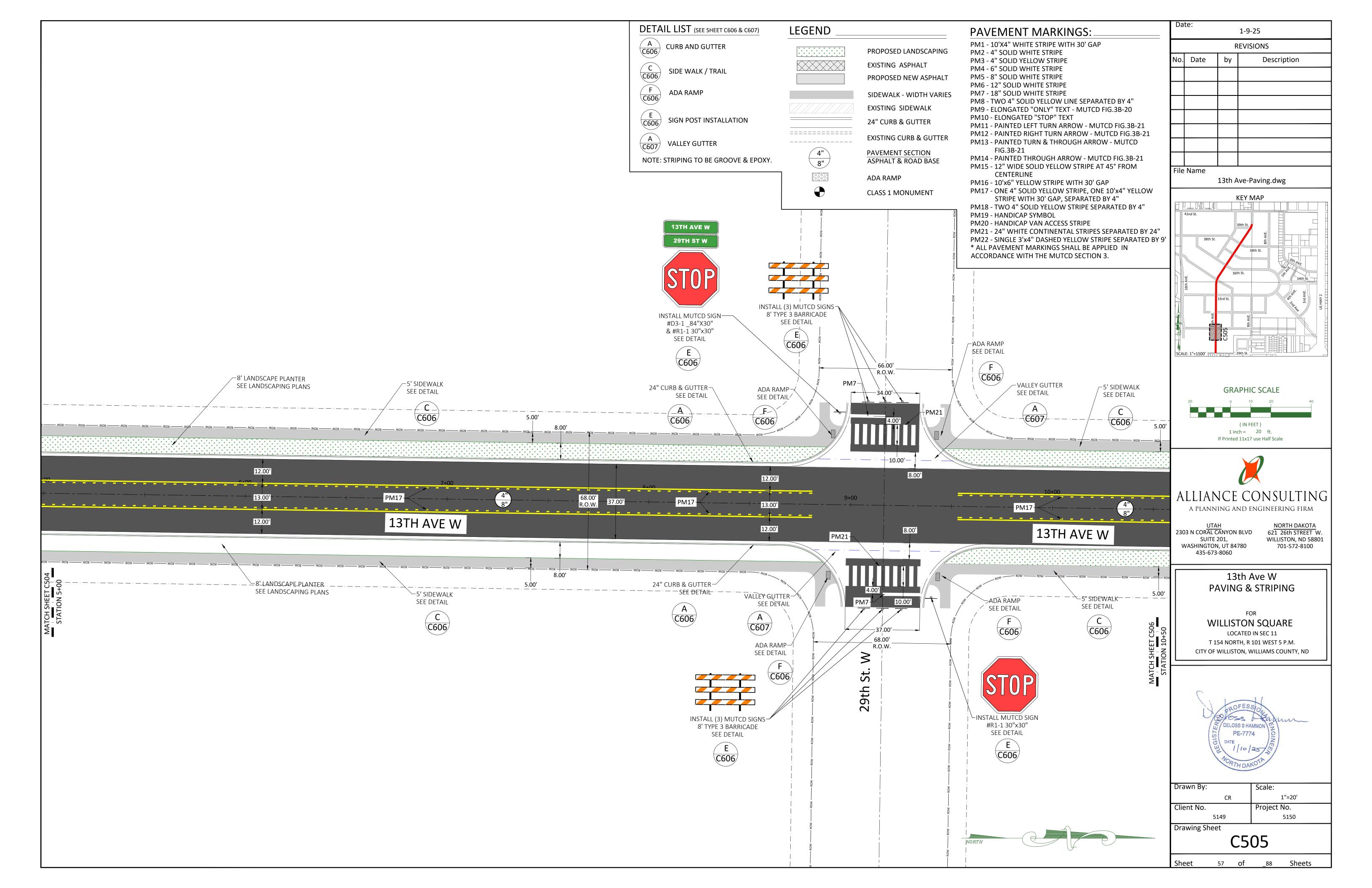


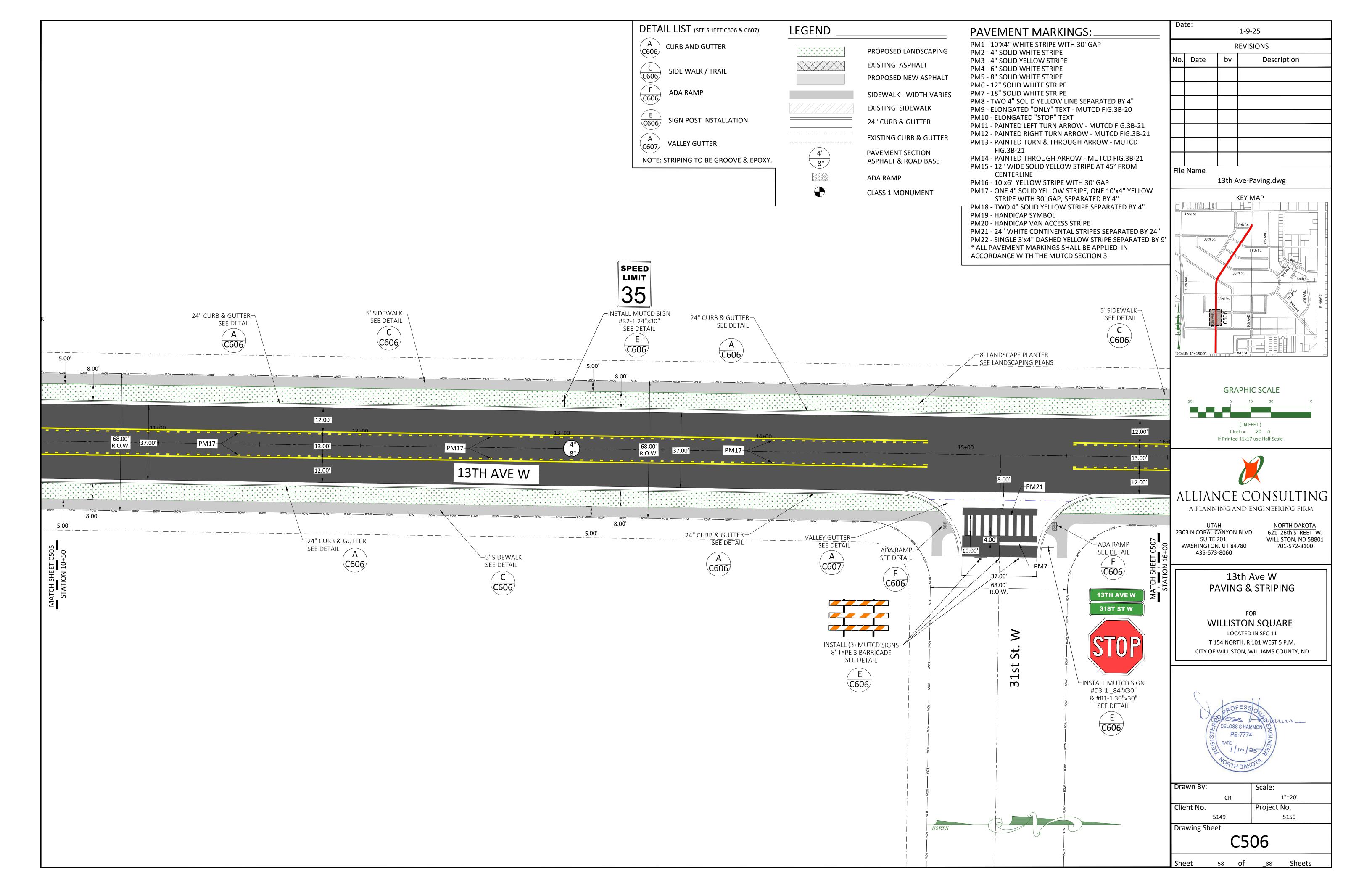
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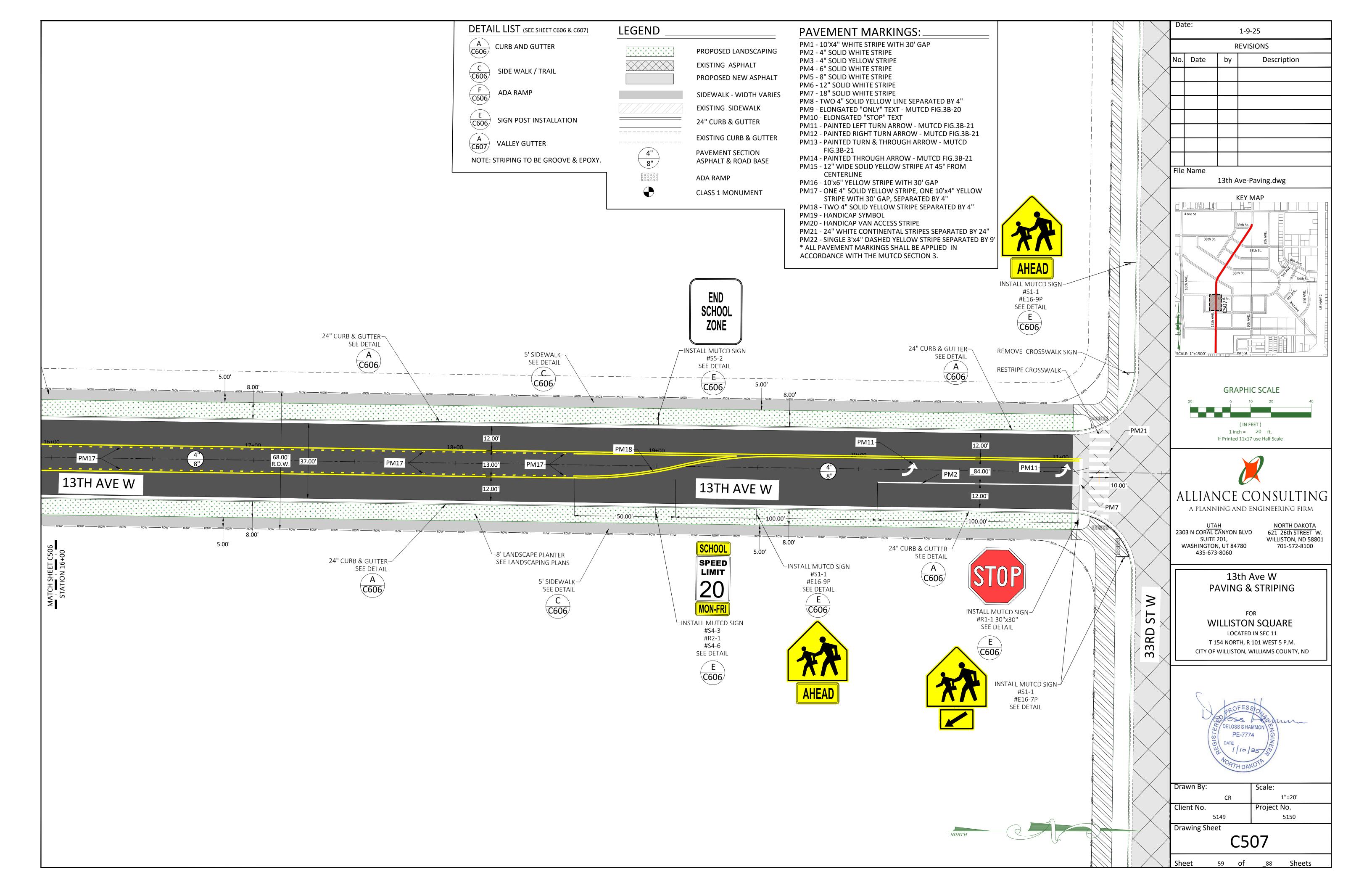
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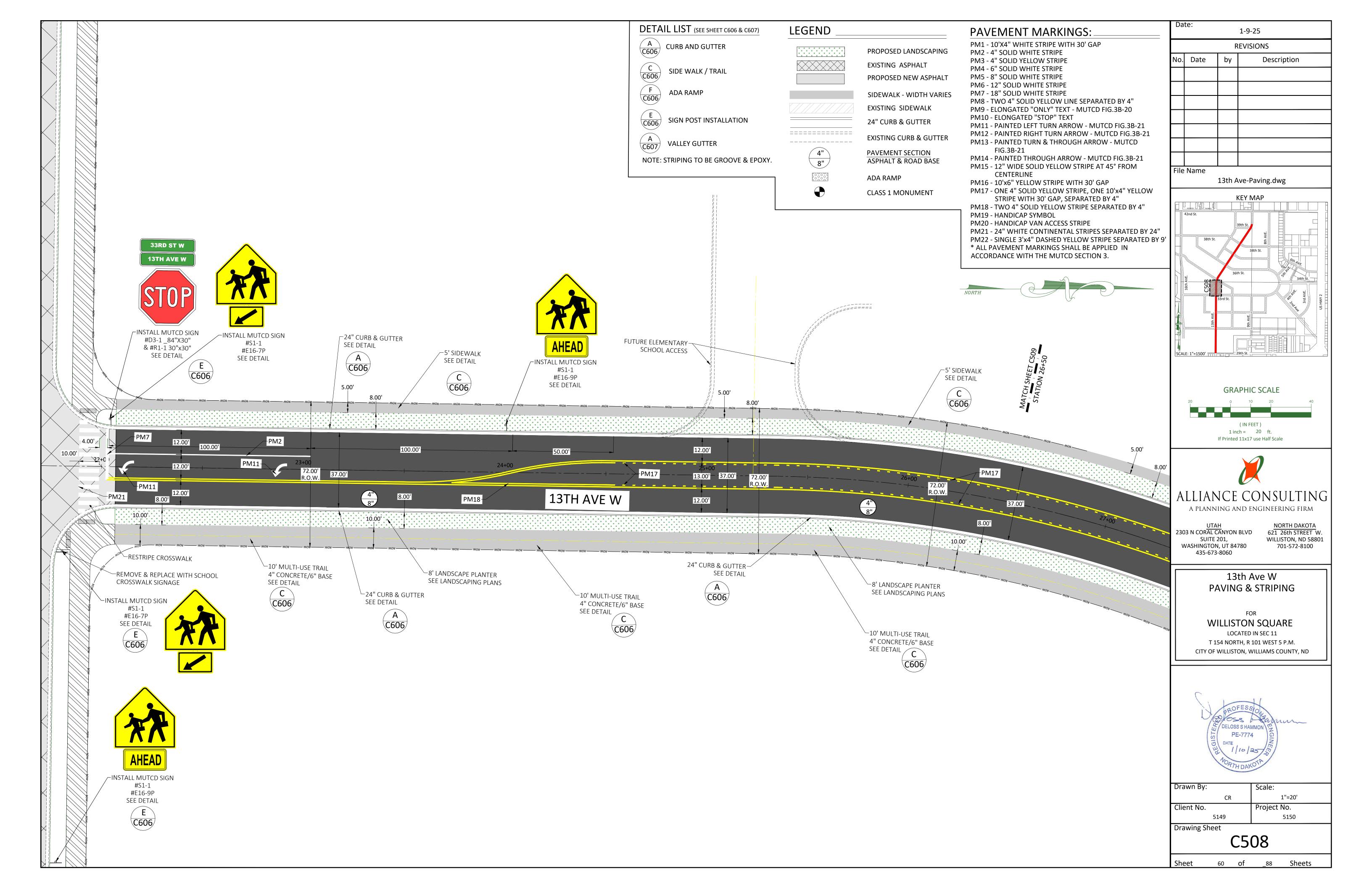
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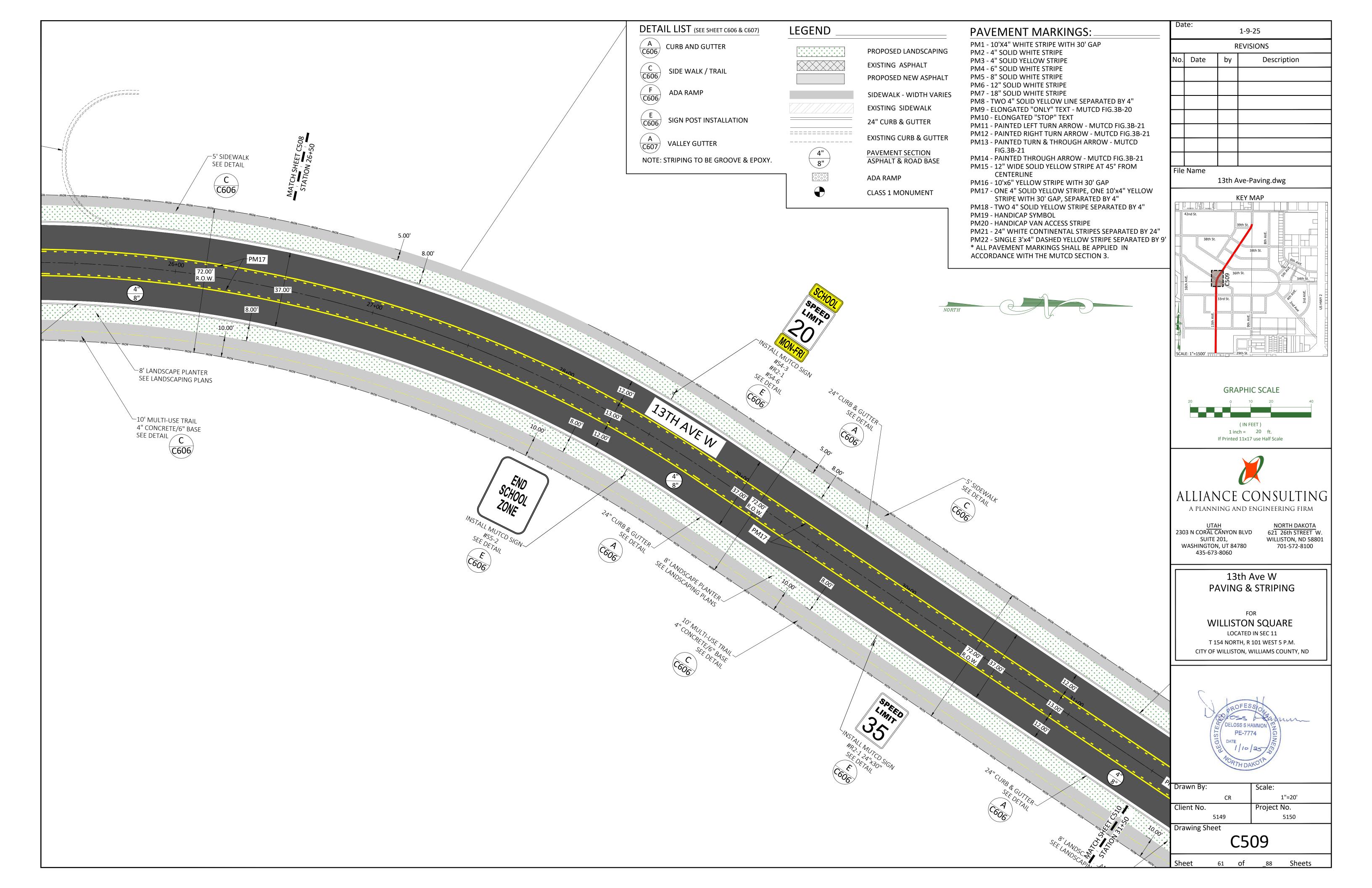


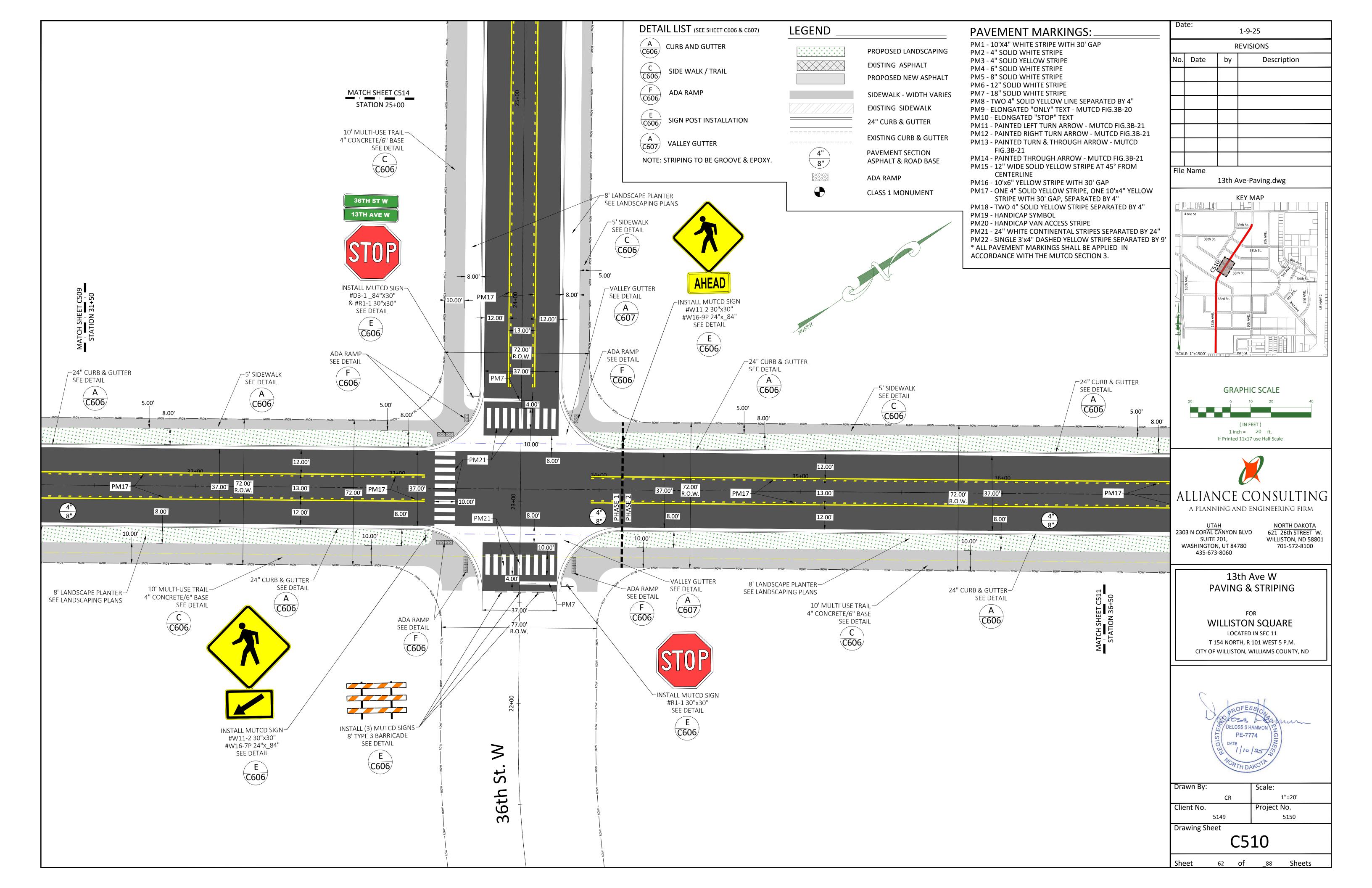


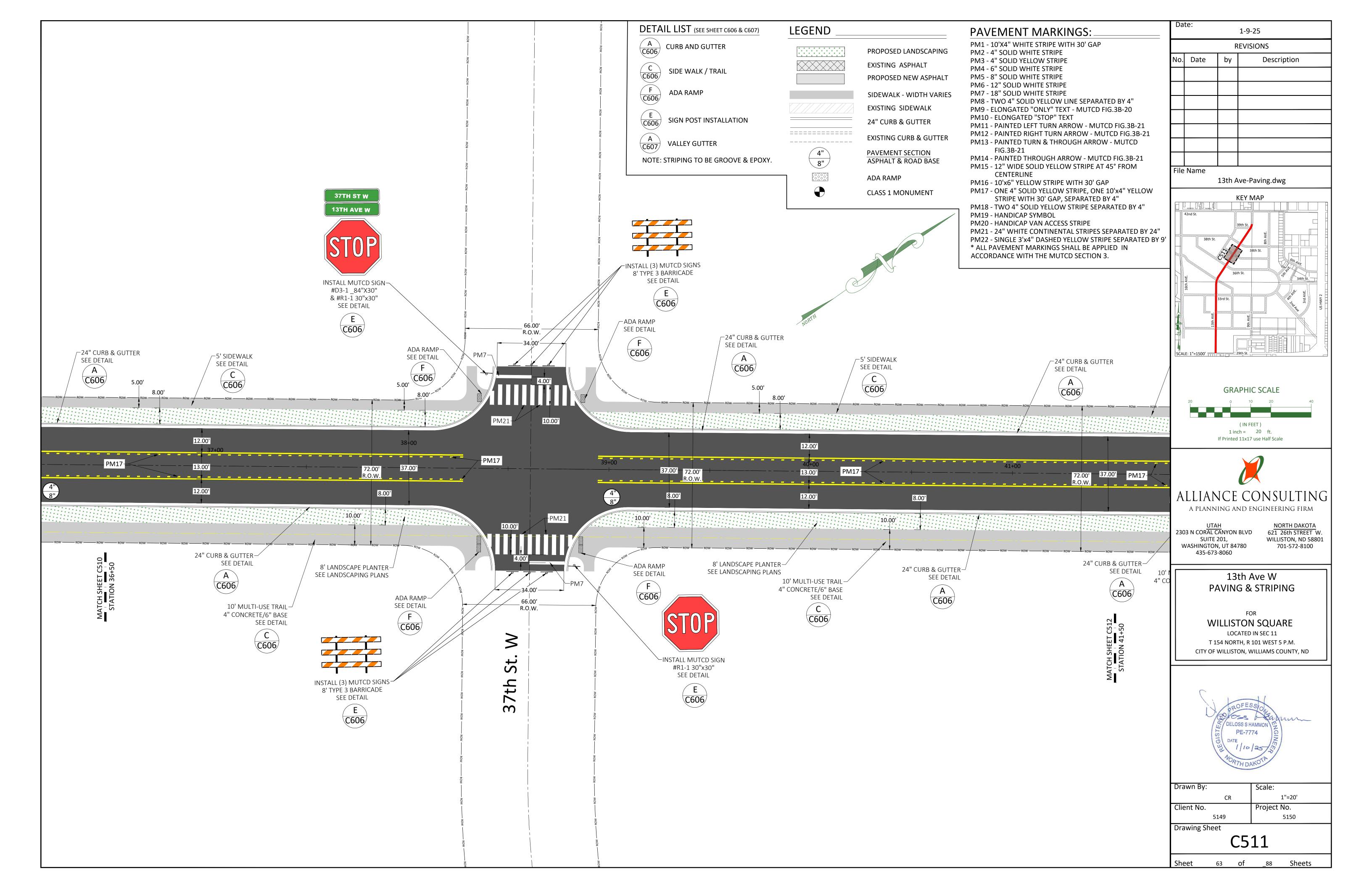


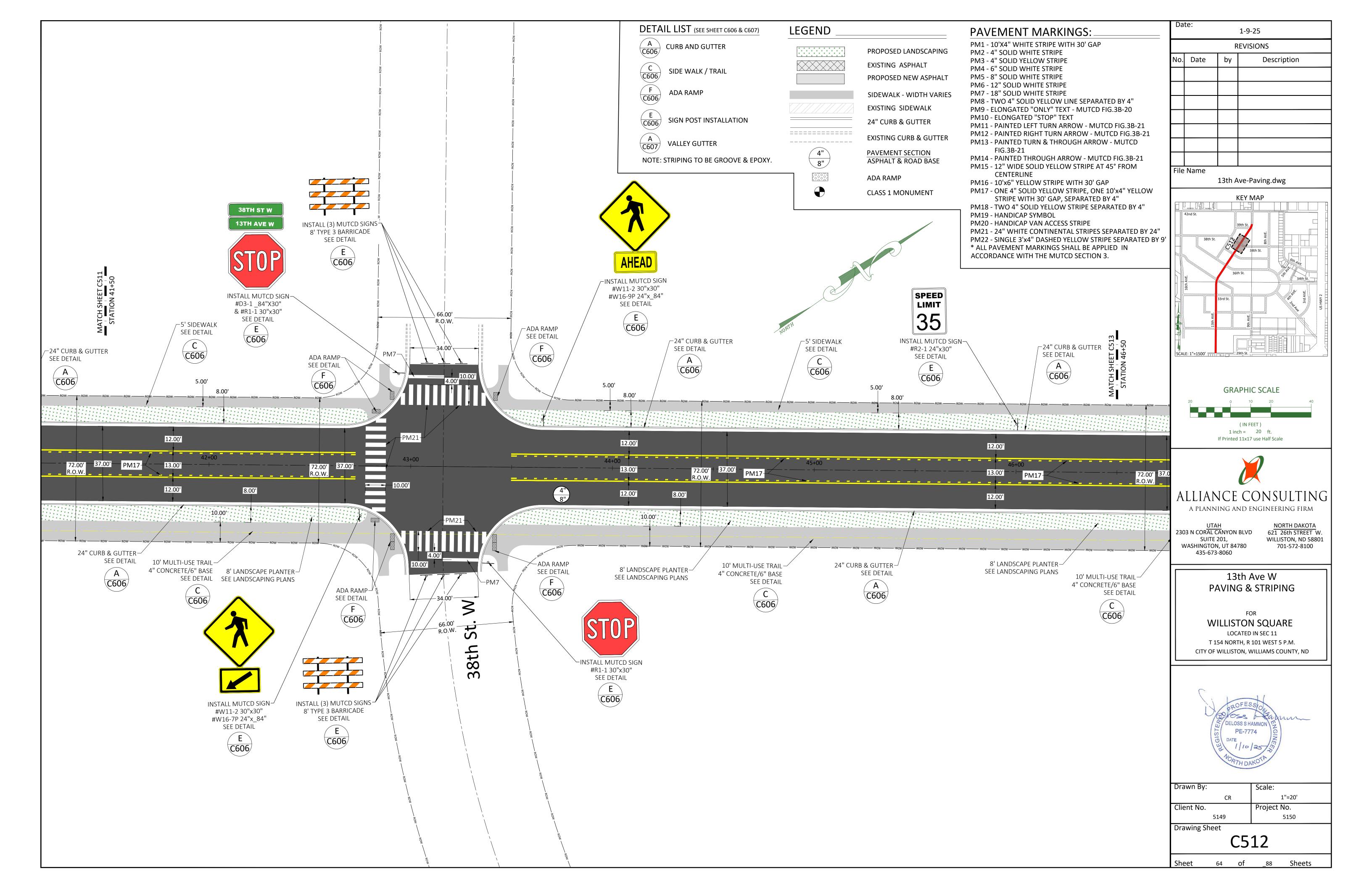


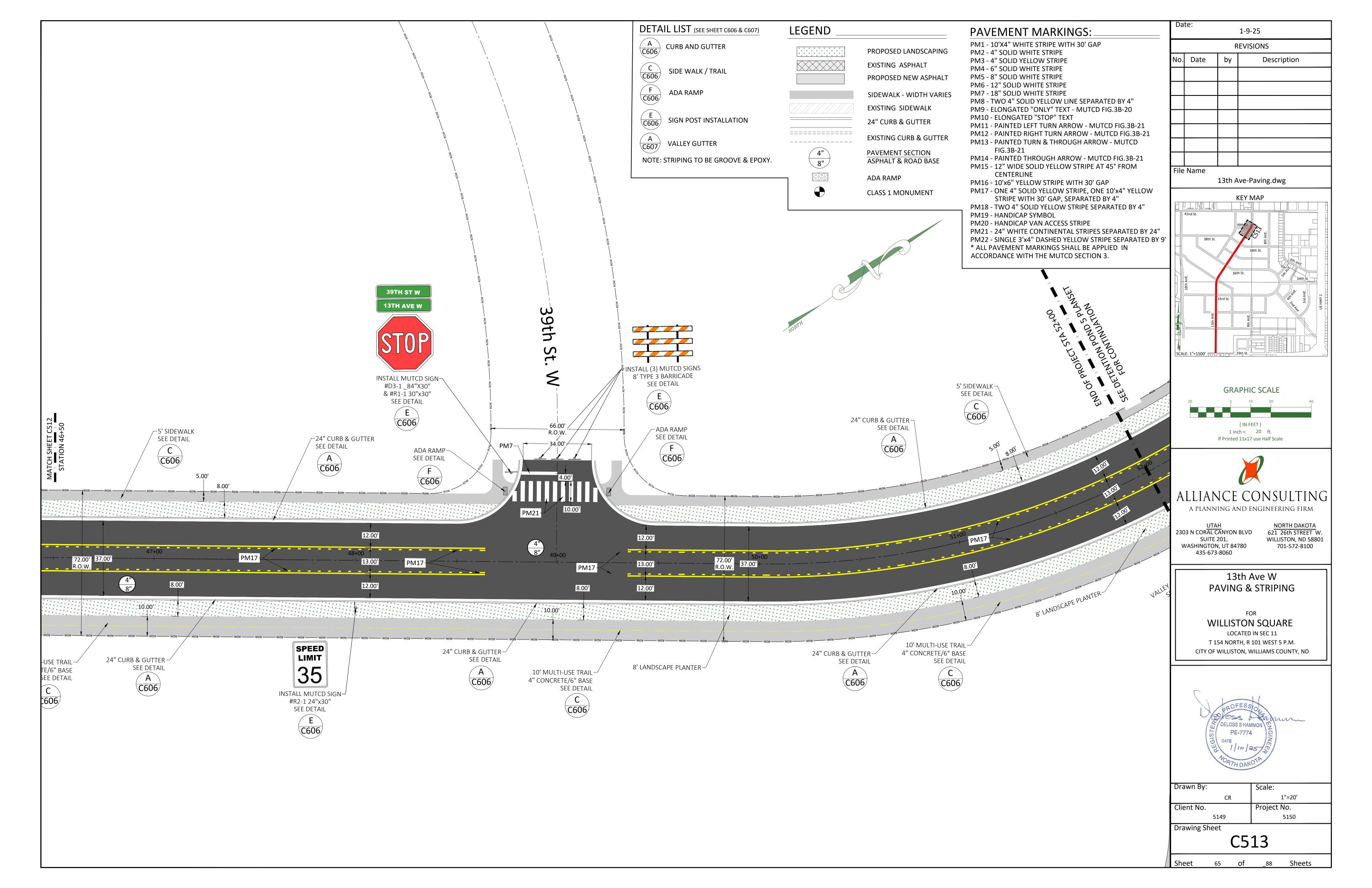


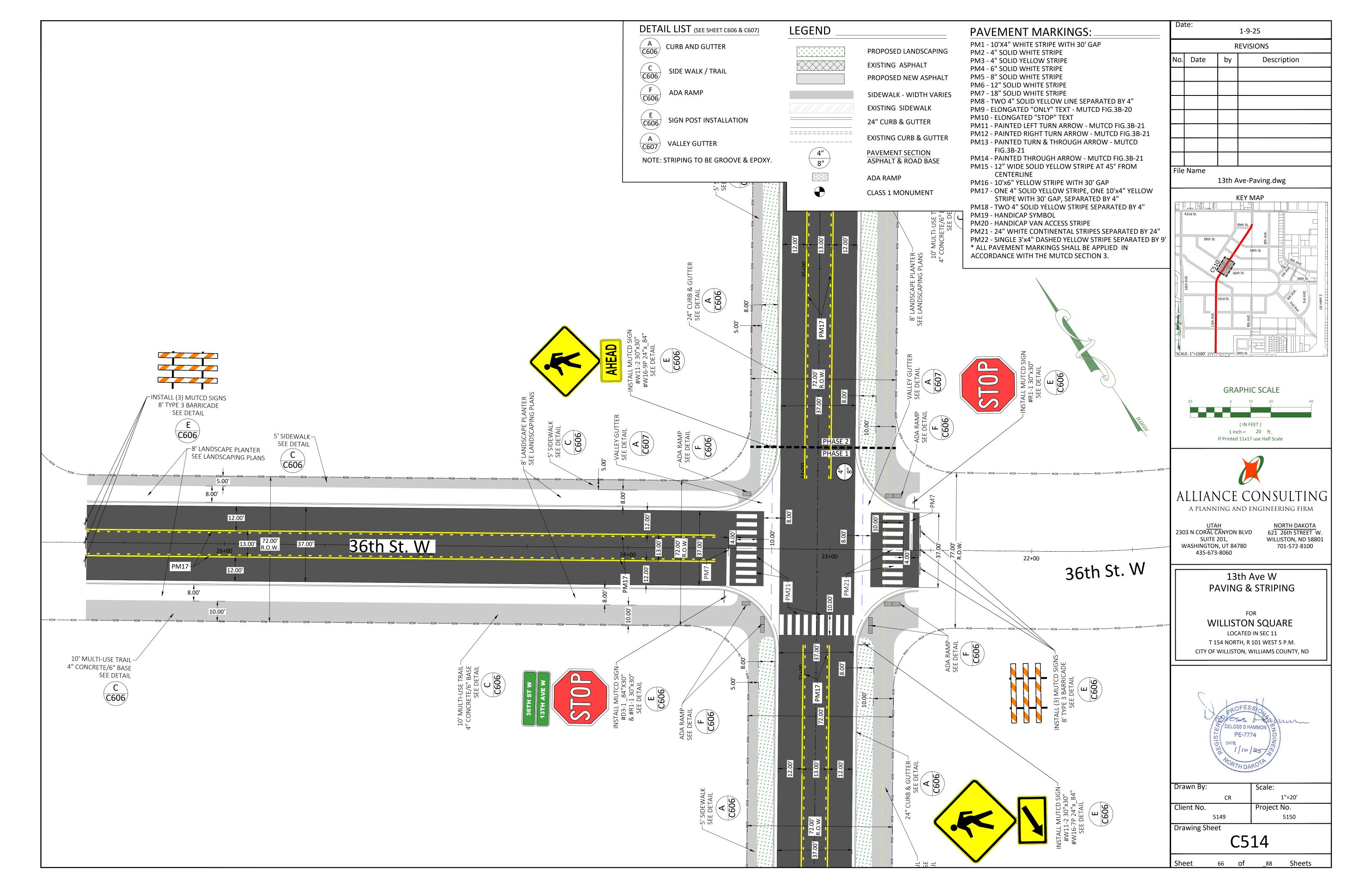


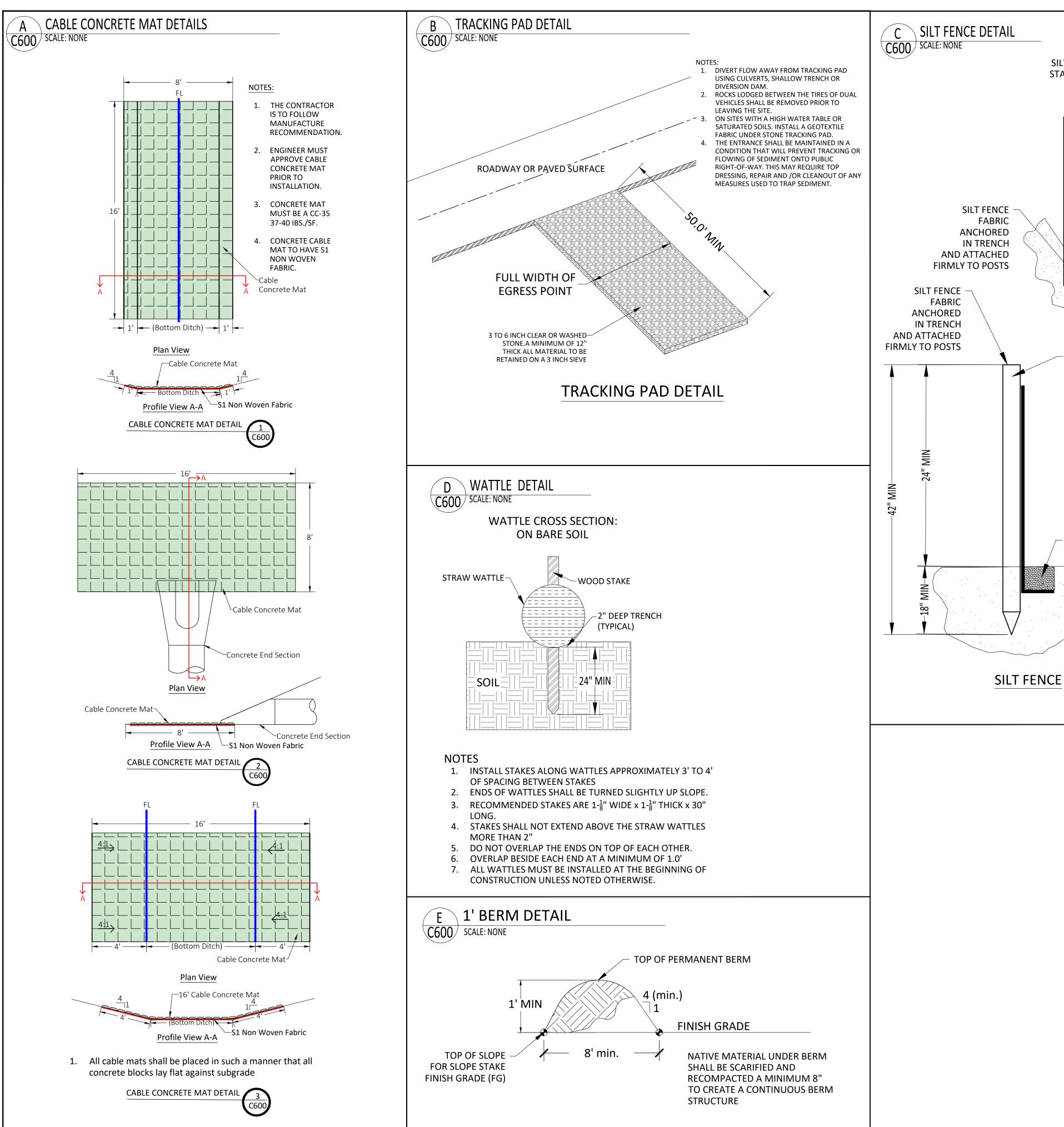


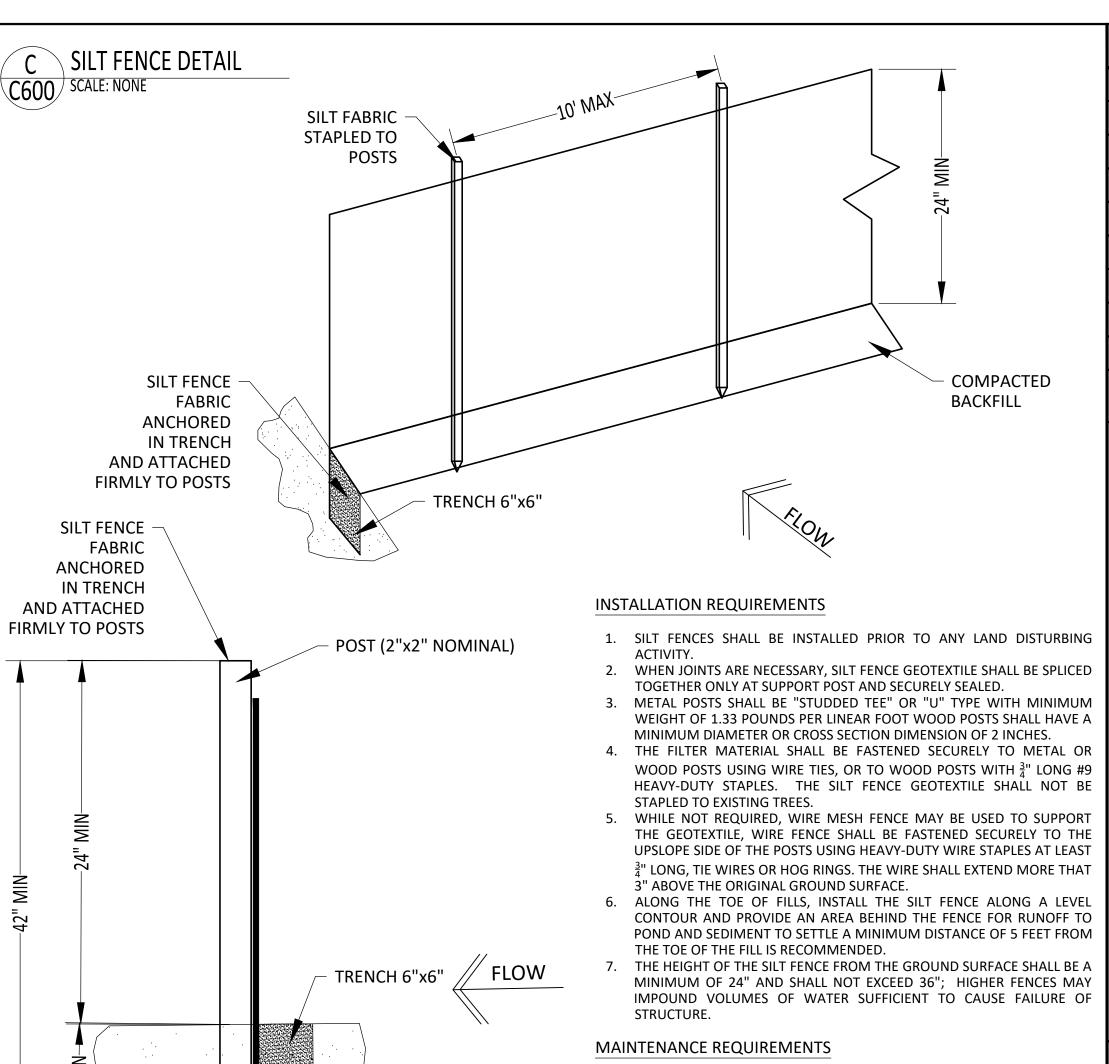


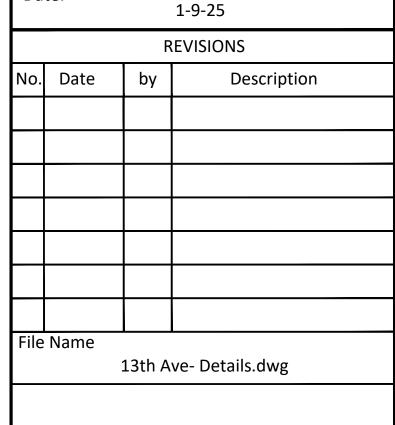


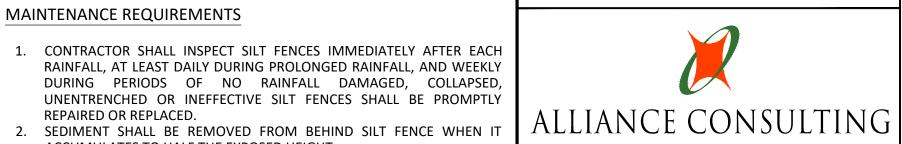












A PLANNING AND ENGINEERING FIRM

2303 N CORAL CANYON BLVD SUIT 201, WASHINGTON, UT 84780 435-673-8060

1. CONTRACTOR SHALL INSPECT SILT FENCES IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY

3. SILT FENCES SHALL BE REMOVED WHEN ADEQUATE VEGETATION COVER

ACCUMULATES TO HALF THE EXPOSED HEIGHT.

IS ATTAINED AS APPROVED BY THE CITY.

DURING PERIODS OF NO RAINFALL DAMAGED, COLLAPSED, UNENTRENCHED OR INEFFECTIVE SILT FENCES SHALL BE PROMPTLY

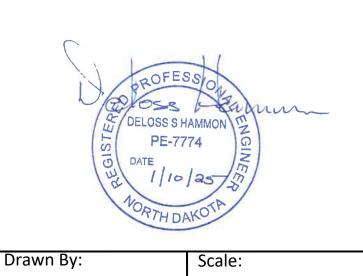
> NORTH DAKOTA 621 26th STREET W. WILLISTON, ND 58801 701-572-8100

13TH AVENUE WEST DETAILS

WILLISTON SQUARE

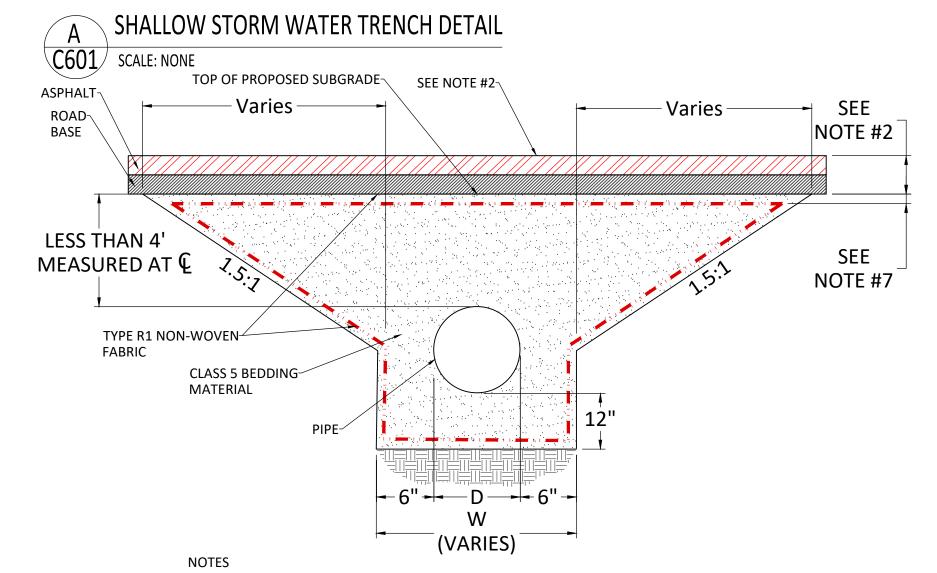
LOCATED IN SEC 11 & 12 T 154 NORTH, R 101 WEST 5 P.M.

CITY OF WILLISTON, WILLIAMS COUNTY, ND



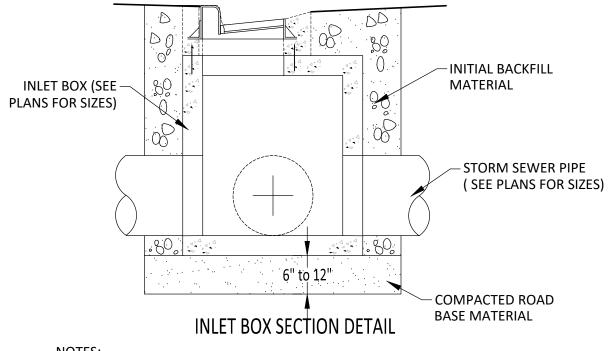
Drawn By:	Scale:
CR	NONE
Client No.	Project No.
5149	5149
Drawing Sheet	
C6	00

67 of _88 Sheets



- 1. MINIMUM THICKNESS OF ASPHALT AND BASE SHALL BE AS OUTLINED IN THE STANDARD UTILITY TRENCH PATCH. IN NO CASE SHALL THE THICKNESS BE LESS THAN THE EXISTING. SEE DETAIL E1-D2
- 2. FOUNDATION MATERIAL SHALL BE USED WHEN TRENCH BOTTOM IS UNSTABLE.
- 3. MINIMUM COMPACTION SHALL BE 95%, WHEN APPROVED FLOWABLE FILL OR SLURRY IS USED COMPACTION TESTING WILL NOT BE REQUIRED.
- 4. WHERE ROAD SECTION HAS A DESIGNED GRANULAR SUB-BASE, IT SHALL BE REPLACE IN KIND OR WITH ROAD BASE GRAVEL.
- 5. 24 HOUR NOTICE REQUIRED ON ALL INSPECTIONS.
- 6. ALL TRENCH BACKFILL SHALL MEET MIN. COMPACTION REQUIREMENTS.
- 7. ENSURE MIN 4" CLASS 5 BASE BETWEEN FABRIC AND TOP OF SUBGRADE

B INLET BOX SECTION DETAIL C601 SCALE: NONE



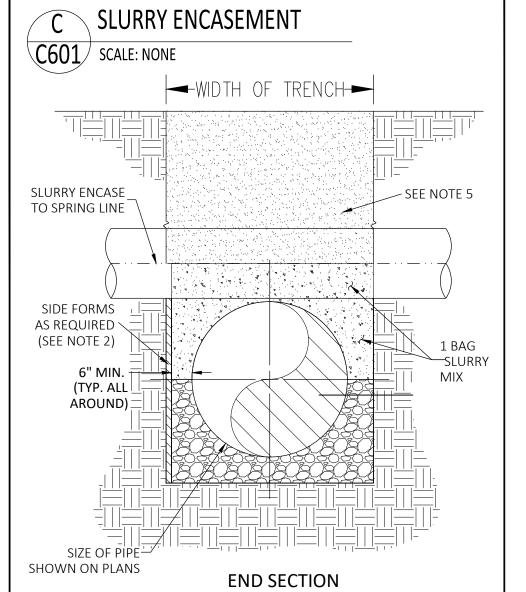
NOTES:

- 1. SEE TABLE FOR BACKFILL MATERIAL REQUIREMENTS.
- 2. SEE CONSTRUCTION NOTES FOR BACKFILL PROCEDURES AND COMPACTION REQUIREMENTS. 3. BEDDING MATERIAL MUST BE IMPORTED SAND OR APPROVED ONSITE SAND
- 4. WRAP JOINTS ON CONCRETE PIPES IN TYPE S1 GEOTEXTILE FABRIC.
- 5. ALL BOXES REQUIRE MASKING AAND FABRIC AROUND ALL JOINTS.

BACKFILL MATERIALS FOR TRENCHES

CIEVE CIZE	PERCENT PASSING FOR:							
SIEVE SIZE	FOUNDATION MATERIAL*	BEDDING MATERIAL	INITIAL BACKFILL MATERIAL	FINAL BACKFILL MATERIAL				
2.00-IN	100			NATIVE MATERIAL				
0.75-IN	5-15		100	WHICH CONTAINS NO SOD,				
NO. 4	0-5	100	40-70	VEGETATION, ROCKS LARGER THAN 8.00-IN IN				
NO. 50		5-15	20-50	DIA., ASPHALT OR CONCRETE CHUNKS, ETC.				
NO. 100		0-5	5-30					

* TO BE USED ONLY WHEN THE TRENCH BOTTOM IS UNSTABLE.



NOTES:

> STORM WATER TRENCH DETAIL

VARIES

6" to 12" ⊺

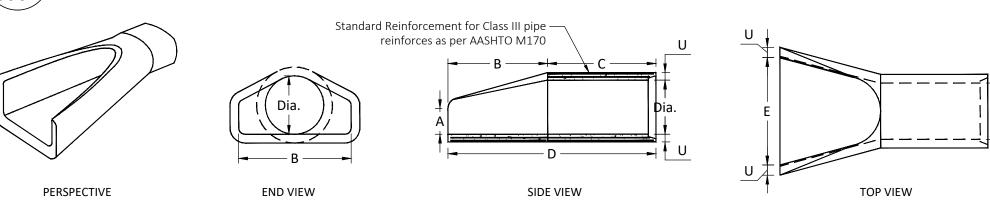
(MIN) PIPE SECTION DETAIL

C601 SCALE: NONE

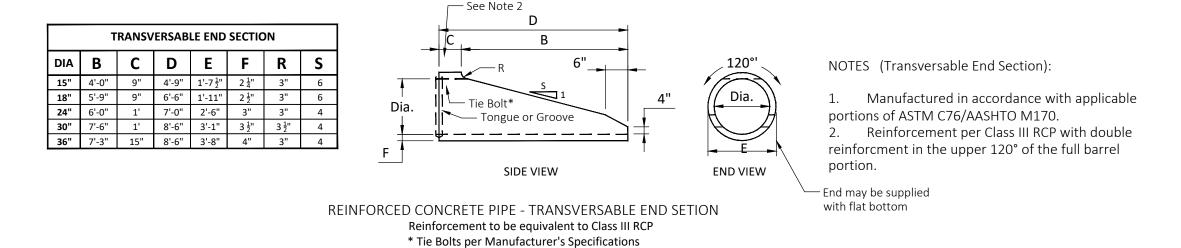
VARIES

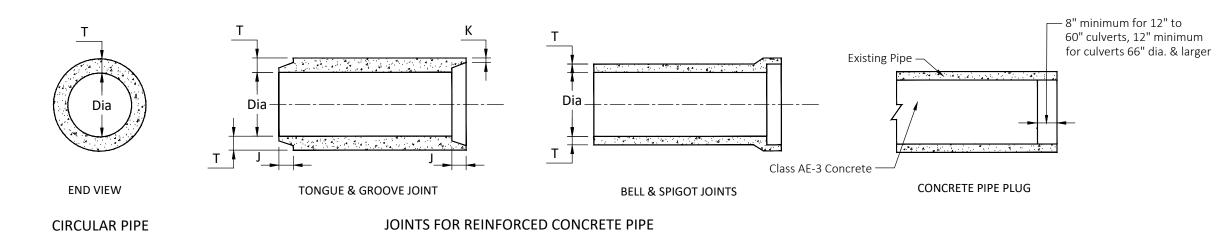
- THIS DETAIL SHALL BE REQUIRED WHEN NEW OR EXISTING PIPE INSTALLATIONS WILL BE SUBJECT TO DAMAGE ANYTIME IN THE FUTURE DUE TO LACK OF PROPER COVER OR WHEN MINIMUM SEPARATION BETWEEN CROSSING OR ADJACENT UTILITIES CAN NOT BE MAINTAINED, AS DETERMINED BY THE ENGINEER.
- 2. FOR PIPE OVER 18" I.D., WOOD, METAL, OR GYPSUM BOARD FORMS MUST BE USED TO FORM THE SIDES OF THE ENCASEMENT. GYPSUM BOARD FORMS MAY BE LEFT IN THE GROUND BELOW THE TOP OF THE ENCASEMENT. THIS SHALL BE OPTIONAL WITH POURING AGAINST TRENCH WALLS FOR ENCASEMENT OF 18" AND SMALLER PIPE.
- FOR ALL SITUATIONS WHERE SIDE FORMS ARE USED, TRENCH WALLS SHALL BE OVER-EXCAVATED TO ALLOW SUFFICIENT ROOM TO OPERATE PROPER MECHANICAL COMPACTION EQUIPMENT.
- SLURRY WHICH SPILLS BEYOND 12" FROM THE SIDES OF THE PIPE FOR ANY REASON SHALL BE REMOVED BACK TO THE PROPER LINE PRIOR TO BACKFILLING.
- 5. COVER TO BE APPROVED BY ENGINEER.
- THE SLURRY ENCASEMENT SHALL HAVE A MINIMUM THICKNESS ON ALL SIDES OF 6"

REINFORCED CONCRETE PIPE CULVERTS AND END SECTIONS - (ROUND PIPE) SCALE: NONE



REINFORCED CONCRETE PIPE - FLARED END SECTION Reinforcement to be equivalent to Class III RCP





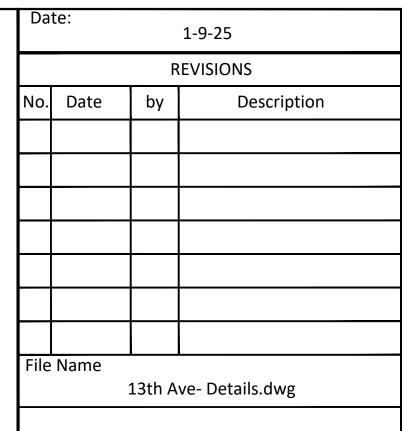
All	All Classifications of Round Concrete Pipe								
Internal Dia. of pipe in inches	Cross-Sectional Water Area	Weight per lin. foot of pipe Std. Wall	Joint J Groove End Min/Max	Joint K Tongue End Min.	Minimum Wall Thickness (T)				
DIA	Sq. Ft.	Lbs.	ln.	ln.	ln.				
12	0.79	92	1 5" - 2 3"	<u>3</u> "	2"				
15	1.23	127	$1\frac{5}{8}$ " - $2\frac{3}{8}$ " $1\frac{3}{4}$ " - $2\frac{3}{4}$ "	3" 4 7" 8	2 <u>1</u> "				
18	1.77	168	$1\frac{7}{8}$ " - $2\frac{7}{8}$ "	1"	2 ½"				
21	2.40	214	$1\frac{7}{8}" - 3\frac{1}{8}"$ $2\frac{3}{4}" - 3\frac{3}{4}"$	1 ½"	2 3 "				
24	3.14	265	2 ³ / ₄ " - 3 ³ / ₄ "	1 ½"	3"				
27	3.98	322	2 3 " - 4"	1 ½"	3 <u>1</u> "				
30	4.91	384	3 ½" - 4 ½"	1 ½"	3 ½" 3 ¾"				
33	5.94	452	3 ½" - 4 ½"	1 ½"	3 3"				
36	7.07	524	3 1 - 4 1 -	1 ½"	4"				
42	9.62	685	3 3 - 4 3 -	$1\frac{3}{4}$ "	4 ½"				
48	12.57	685	3 5 - 4 3	1 7"	5"				
54	15.90	1070	4 ½" - 5 ½"	2"	5 ½"				
60	19.63	1296	4 ½" - 5 ½"	2 ½"	6"				
				F	. 1				

		TERM	INAL DIN	IENSIONS	,	
DIA	Α	В	С	D	E	U
12	0'-4"	2'-0"	4'-0 ⁷ / ₈ "	6'-0 ⁷ / ₈ "	2'-0"	2"
15	0'-6"	2'-3"	3'-10"	6'-1"	2'-6"	2 ½"
18	0'-9"	2'-3"	3'-10"	6'-1"	3'-0"	2 ½"
21	0'-9"	3'-0"	3'-1"	6'-1"	3'-6"	2 ³ / ₄ "
24	0'-9 ½"	3'-7 ½"	2'-6"	6'-1 ¹ / ₂ "	4'-0"	3"
27	0'-10 ½"	4'-0"	2'-1 ½"	6'-1 ¹ / ₂ "	4'-6"	3 ½"
30	1'-0"	4'-6"	1'-7 ³ / ₄ "	6'-1 ³ "	5'-0"	3 ½"
36	1'-3"	5'-3"	2'-9"	8'-0"	6'-0"	4"
42	1'-9"	5'-3"	2'-9"	8'-0"	6'-6"	4 ½"
48	2'-0"	6'-0"	2'-0"	8'-0"	7'-0"	5"
54	2'-3"	5'-5"	2'-9 ¹ / ₄ "	8'-2 ½"	7'-6"	5 ½"
60	2'-11"	5'-0"	3'-3"	8'-3"	8'-0"	5"
66	2'-6"	6'-0"	2'-3"	8'-3"	8'-6"	5 ½"
72	3'-0"	6'-6"	1'-9"	8'-3"	9'-0"	6"
78	3'-0"	7'-6"	1'-9"	9'-3"	9'-6"	6 ½"
84	3'-0"	7'-6 ½"	1'-9"	9'-3 ½"	10'-0"	6 ½"
90	3'-5"	7'-3 ½"	2'-0"	9'-3 ½"	11'-0"	6 ½"

All reinforcing steel shall meet AASHTO M170 requirements. 2. All circular, longitudinal, and elliptical reinforcement shall be assembled and securely fastened in cage fashion so as to maintain reinforcement in exact shape and correct positions within the forms. Laying length of pipe: 12" to 66" (incl.) = not less than 4 feet

66" to 108" (incl.) = not less than 6 feet 4. Joints shall be sealed with rubber gaskets or with sealer approved by the engineer whenever pipe are specified for storm drain or sanitary

5. For Class IV and Class V reinforced concrete pipe and end section sizes which do not have reinforcement specified by AASHTO M170, shop drawings and design calculations shall be prepared and sealed by a Professional Engineer and submitted for the Engineer's review.





2303 N CORAL CANYON BLVD SUIT 201, WASHINGTON, UT 84780 435-673-8060

NORTH DAKOTA 621 26th STREET W. WILLISTON, ND 58801 701-572-8100

13TH AVENUE WEST DETAILS

WILLISTON SQUARE

LOCATED IN SEC 11 & 12 T 154 NORTH, R 101 WEST 5 P.M. CITY OF WILLISTON, WILLIAMS COUNTY, ND



Drawn By:	Scale:					
CR	NONE					
Client No.	Project No.					
5149	5149					
Drawing Sheet						
C601						
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_/ASPHALT

BASE

FINAL BACKFILL MATERIAL

- INITIAL BACKFILL MATERIAL

BEDDING MATERIAL

FOR SIZES)

STORM SEWER PIPE (SEE PLANS

- SEE TABLE FOR BACKFILL MATERIAL REQUIREMENTS.
- 2. SEE CONSTRUCTION NOTES FOR BACKFILL PROCEDURES AND COMPACTION REQUIREMENTS.
- 3. BEDDING MATERIAL MUST BE IMPORTED SAND OR APPROVED
- ONSITE SAND MATERIAL.
- 4. INSULATION REQUIREMENT FOR LESS THAN 6.5' DEPTH: 4" MINIMUM RIGID FOAM INSULATION.

BACKELLI MATERIALS EOR SEWER TRENCHES

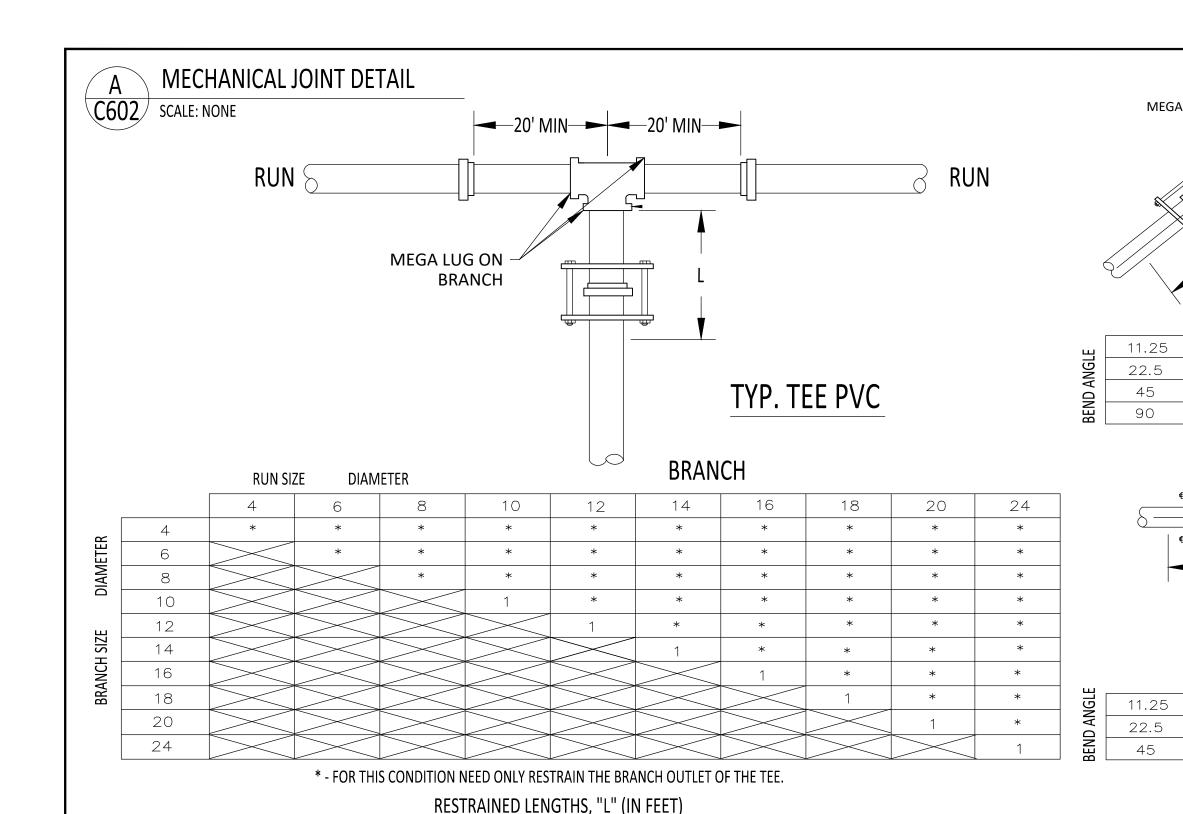
BACKFILL MATERIALS FOR SEWER TRENCHES							
CIEVE CIZE		PERCENT PASSING	FOR:				
SIEVE SIZE	FOUNDATION MATERIAL*	BEDDING MATERIAL	INITIAL BACKFILL MATERIAL	FINAL BACKFILL MATERIAL			
2.00-IN	100			NATIVE MATERIAL			
0.75-IN	5-15		100	WHICH CONTAINS NO SOD,			
NO. 4	0-5	100	40-70	VEGETATION, ROCKS LARGER THAN 8.00-IN IN			
NO. 50		5-15	20-50	DIA., ASPHALT OR CONCRETE CHUNKS, ETC.			
NO. 100		0-5	5-30	, 2			

* TO BE USED ONLY WHEN THE TRENCH BOTTOM IS UNSTABLE

Drawn By:	Scale:					
CR	NONE					
Client No.	Project No.					
5149	5149					
Drawing Sheet						
C601						

68 **o**f 88

Sheet



TYP. BENDS FOR PVC

- 1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND
- 2. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION ON GENERAL NOTES FOR USE OF RESTRAINED JOINT LENGTHS.

HARNESS WITH PUSH-ON PIPE PER CITY SPECIFICATION.

3. ALL CAST FITTINGS AND RESTRAINT GLAND LOCATIONS SHALL BE WRAPPED AND SEALED WITH A POLY VINYL

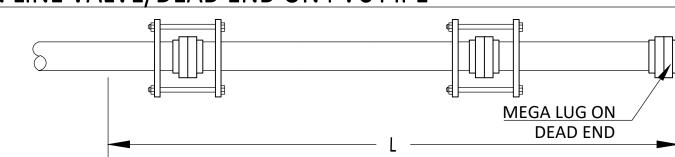
10	12	14	16	18	20
2	3	3	3	4	4
4	5	5	6	7	7
8	9	11	12	13	15
19	22	26	28	31	34

VERTICAL DOWN BEND-PVC

- 1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH-ON PIPE PER CITY SPECIFICATION.
- 2. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION ON GENERAL NOTES FOR USE OF RESTRAINED JOINT LENGTHS.
- 3. ALL CAST FITTINGS AND RESTRAINT GLAND LOCATIONS SHALL BE WRAPPED AND SEALED WITH A POLY VINYL WRAP SYSTEM.

	4	6	8	10	12	14	16	18	20
.25	3	5	6	7	8	10	11	12	13
2.5	6	9	12	14	17	19	22	24	26
5	13	18	24	29	34	40	44	49	54
RESTRAINED LENGTHS, "L" (IN FEET)									

IN LINE VALVE/DEAD END ON PVC PIPE



- ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH-ON PIPE PER CITY SPECIFICATION.
- 2. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION ON GENERAL NOTES FOR USE OF RESTRAINED JOINT
- 3. ALL CAST FITTINGS AND RESTRAINT GLAND LOCATIONS SHALL BE WRAPPED AND SEALED WITH A POLY VINYL WRAP

E SIZ	E IN INCHES							
	6	8	10	12	14	16	18	20
7	37	49	59	71	83	92	102	113

RESTRAINED LENGTHS, "L" (IN FEET)

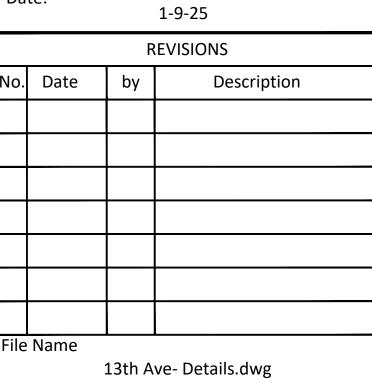
RESTRAINED JOINT LENGTHS USAGE GENERAL NOTES

RESTRAINED LENGTH CALCULATIONS ARE BASED ON THE FOLLOWING DESIGN TYPICALLY USED WITH BACKFILL IN THE CITY OF WILLISTON, ND.

- SEVEN AND HALF (7.5) FEET MINIMUM DEPTH OF COVER.
- 2. A SAFETY FACTOR OF 1.5

27

- 3. SOIL TYPE SANDY CLAY
- 4. TYPE 5 TRENCH COMPACTION FROM FOUR (4) INCHES MINIMUM UNDER THE PIPE TO THE CENTER LINE OF THE PIPE, AND COMPACTED GRANULAR OR SELECTED MATERIAL FROM THE CENTER LINE OF THE PIPE TO THE TOP OF THE PIPE (90 PERCENT STANDARD PROCTOR DENSITY, AASHTO T-99).
- 5. 150 PSI TEST PRESSURES FOR FOUR (4) THROUGH SIXTEEN (16) INCH SIZE PIPES. IF ACTUAL CONDITIONS DIFFER FROM THOSE LISTED ABOVE OR THE REQUIRED RESTRAINED LENGTH CANNOT BE MET, THE RESTRAINED JOINT LENGTH SHALL BE DETERMINED BY THE WATER ENGINEER.



- 1. RESTRAIN THE TWO MECHANICAL JOINTS ON THE RUN SIDES OF THE TEE. THERE SHOULD BE A FULL 20' LENGTH OF PIPE INSTALLED ON EACH SIDE OF
- 2. ALL JOINTS WITHIN THE LENGTH "L" ON THE BRANCH MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS ON PUSH-ON
- 3. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION ON GENERAL NOTES FOR USE OF RESTRAINED JOINT LENGTHS.
- 4. ALL CAST FITTINGS AND RESTRAINT GLAND LOCATIONS SHALL BE WRAPPED AND SEALED WITH A POLY-VINYL WRAP SYSTEM

THRUST BLOCK DETAIL

NOTES:

MINIMUM THRUST AREA BASED ON WATER PRESSURE OF - 200 PSI & SOIL BEARING CAPACITY OF - 6,000 PSF

FITTING	PIPE SIZE	AREA SQ.FT.	L x D AT FACE	FITTING	PIPE SIZE	AREA SQ.FT.	L x D AT FACE
	4"	1.3	24"x8"		4"	0.4	7"x8"
90°	6"	2.6	30"x12"	22.5°	6"	0.7	8"x12"
BEND -	8"	4.6	40"x16"	22.5 OR	8"	1.3	12"x16"
BLIND	10"	6.8	48"x20"	11.25°	10"	1.9	14"x20"
	12"	9.7	58"x24"	BEND	12"	2.7	20"x20
	14"	13.0	66"x28"	DEIVE	14"	3.6	18"x28"
	16"	16.8	75"x32"		16"	4.6	21"x32"
	4"	0.7	12"x8"		4"	0.9	16"x8"
	6"	1.4	16"x12"		6"	1.9	22"x12"
45°	8"	2.5	22"x16"	CAPPED	8"	3.2	28"x16"
BEND	10"	3.7	26"x20"	END or	10"	4.8	34"x20"
or WYE	12"	5.2	32"x24"	TEE	12"	6.8	40"x24"
	14"	7.0	36"x28"		14"	9.2	48"x28"
	16"	9.1	41"x32"		16"	11.9	54"x32"

CONCRETE NOT TO ENCROACH ON PIPE

LBS. PER SQUARE FOOT.

REQUIRED.

THE ENGINEER.

ENGINEER.

ENGINEER.

IN EACH QUADRANT

4. IN POOR SOILS SPECIAL DESIGN IS

BARREL, BUT TO BEAR ON FITTING ONLY.

2. CONCRETE TO BE (3,000 psi COMPRESSIVE

3. CALCULATED ON 200 LB. TEST PRESSURE &

5. ALL THRUST BLOCK BEARING FACES SHALL

DEPARTMENT REQUIRED FOR USE OF

FOR SANDY CLAY, FOR SOFTER SOILS

8. THRUST BLOCKING FOR FITTINGS LARGE

THRUST BLOCKS SHALL BE DESIGNED BY

THAN 16" SHALL BE DESIGNED BY THE

9. VOLUME OF CONCRETE IN VERTICAL BEND ANCHORS TO BE DETERMINED BY THE

10. FOR CROSSES, USE VALUE FOR 45° BEND

FITTING USE VALUE FOR LARGEST SIZE 12. ECOLOGY BLOCKS CAN BE UTILIZED AS

11. WHERE PIPE SIZE DIFFERS IN ANY ONE

APPROVED BY THE ENGINEER.

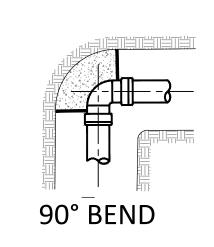
6. PRIOR APPROVAL FROM THE WATER

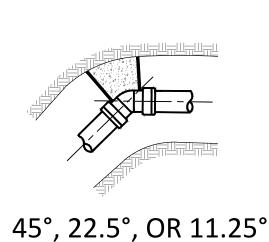
7. SOIL BEARING CAPACITY USED IS THAT

CONCRETE THRUST BLOCKS.

BE POURED AGAINST UNDISTURBED SOIL OR APPROVED COMPACTED BACKFILL.

ALLOWABLE BEARING PRESSURE OF 6,000





BEND

MEGA LUG ON

45

JOINT

DIAMETER

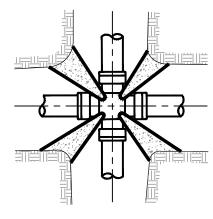
12

DIAMETER

BEND ANGLE

15

RESTRAINED LENGTHS, "L" (IN FEET)



CROSS SEE NOTE 4

WATER NOTES:

- All water mains 12" Ø and smaller shall be PVC SDR-21 Class 200, unless otherwise noted.
- 2. All water lines shall maintain 1 foot minimum separation between adjacent water pipes.
- All water fittings shall be approved by Williston City Public Works prior to purchase and installation. 4. The City requires both thrust blocking, and Mechanical
- Joints on new pipeline installation. All thrust restraints to be considered incidental to water
- line installation. All water lines shall have 12 gage locator wire attached to top of pipe. Wire shall surface at all valves and water
- Detectable warning tape shall be installed 1' above the
- 8. Backfill materials shall conform to the requirements outlined in detail.
- 9. Bedding materials shall be placed and compacted in horizontal lifts not to exceed 6-in in compacted thickness. Initial backfill materials shall be placed carefully in 8-in non-compacted horizontal lifts and compacted to a depth of 12-in above the top of the pipe. Final backfill materials shall be placed in 12-in compacted horizontal lifts up to the existing ground surface.
- 10. Prior to and during compaction operations, all backfill material shall have the required moisture content uniform throughout each layer.
- 11. The Contractor is responsible for conducting pressure testing, for flushing and disinfecting the entire water distribution system as per Williston City specifications.

- 12. Insulation shall be installed whenever the water main or water services passes within 2 feet beneath a storm sewer, and shall extend a minimum of 4 feet beyond the outer walls of storm sewer and be 4" thick minimum.
- 13. Water mains shall be disinfected by following these guidelines, refer to:http://www.dot.ca.gov/hq/esc/ sdsee/wwe/documents/Disinfecting_Water_Mains.pdf
- 14. Any collapsing of trench or items that fall into the trench ie (Asphalt, base, curb, landscaping etc.) shall be the contractor responsibly, and shall be replaced by the contractor at no cost to the owner.
- 15. All fittings to be torque wrenched to manufacturer specifications.
- 16. Contractor required to have appropriate equipment to meet manufacturer and City specifications.
- 17. All hydrant threads to be verified by City before installation.
- 18. All pipe terminations to be marked with a painted 2x4 a minimum 36" from finish grade with rebar indicator to find end for future hook up.
- 19. All metal fittings shall be wrapped in plastic.

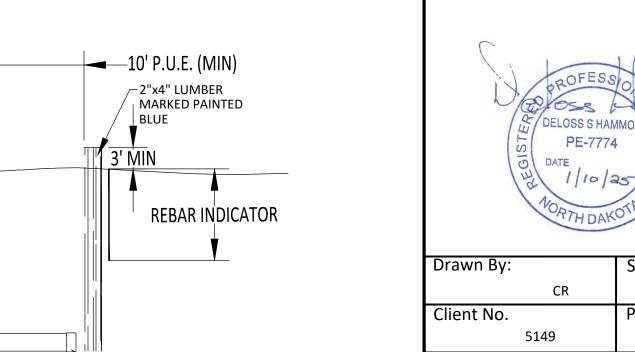


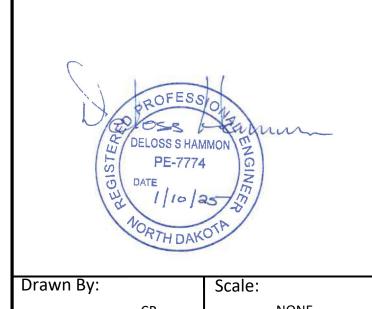
NORTH DAKOTA 2303 N CORAL CANYON BLVD 621 26th STREET W. SUIT 201, WILLISTON, ND 58801 WASHINGTON, UT 84780 701-572-8100 435-673-8060

13TH AVENUE WEST **DETAILS**

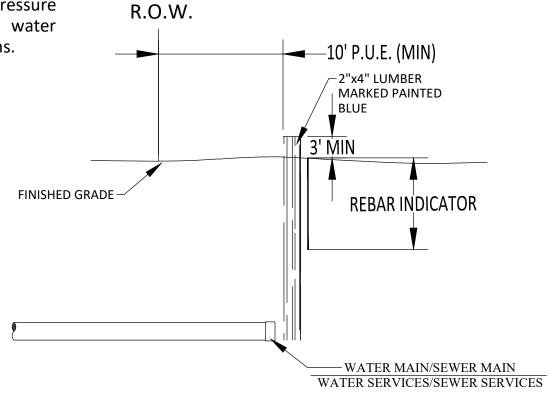
WILLISTON SQUARE

LOCATED IN SEC 11 & 12 T 154 NORTH, R 101 WEST 5 P.M. CITY OF WILLISTON, WILLIAMS COUNTY, ND

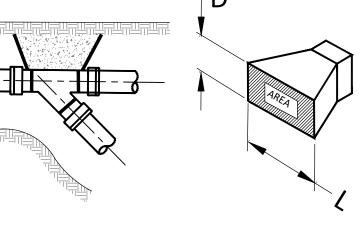


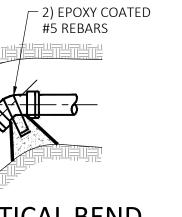


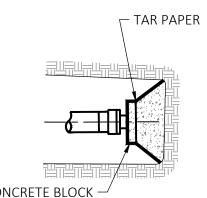
NONE Project No. 5149 Drawing Sheet C602 69 of _88 Sheets



TEE or WYE

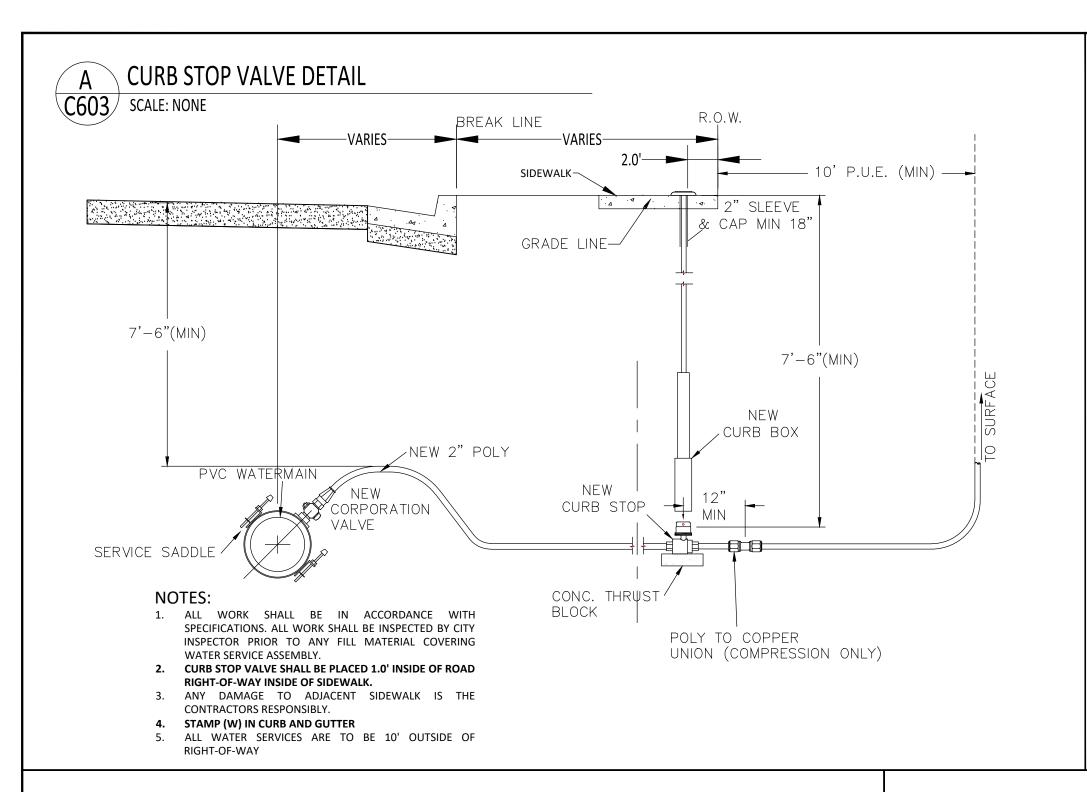


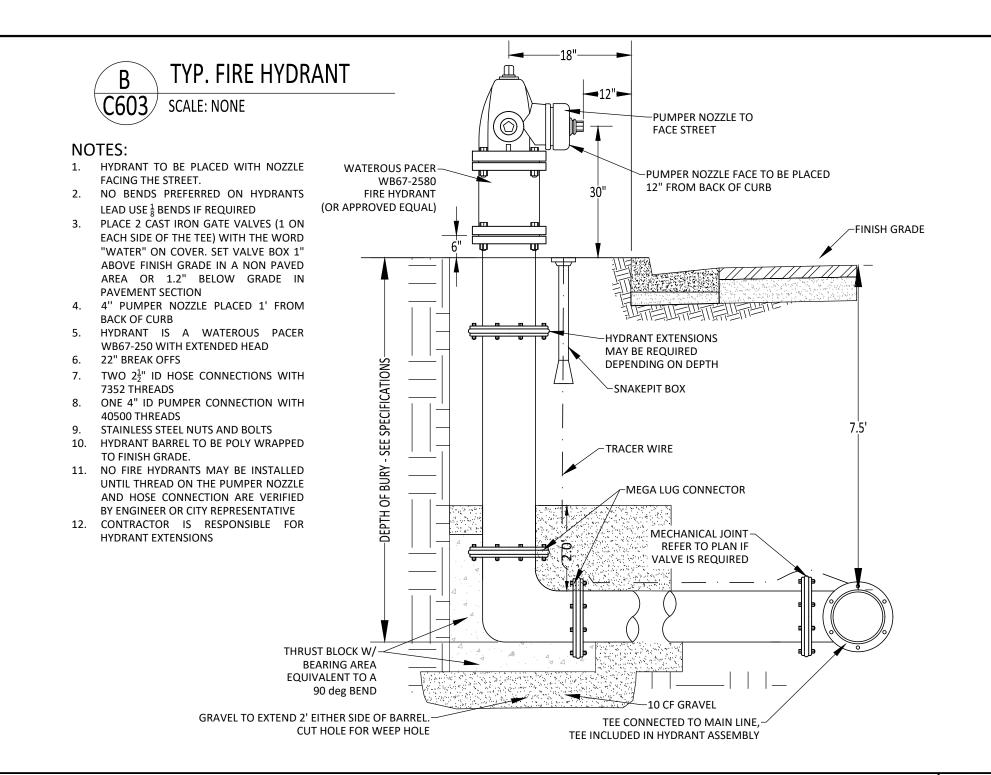


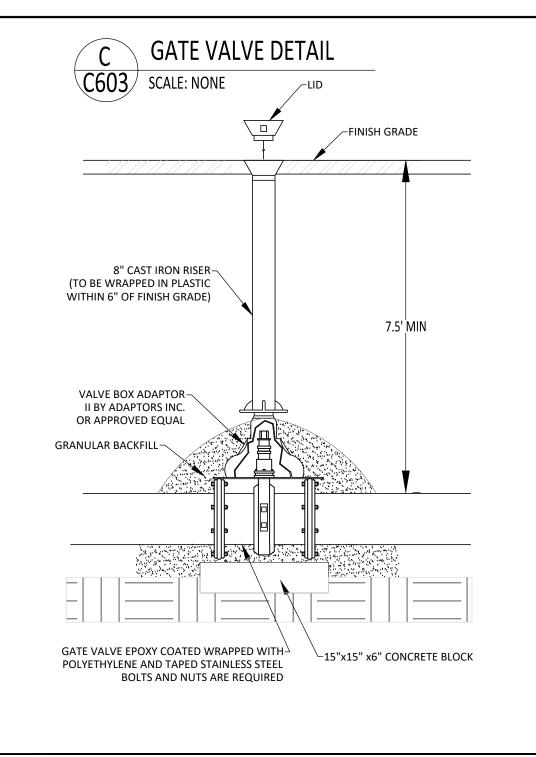


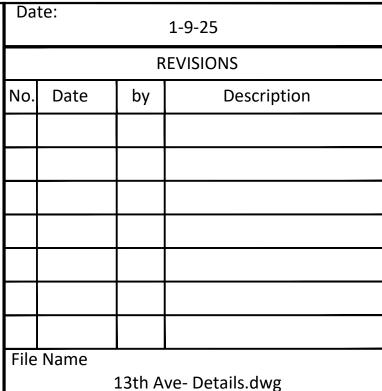
VERTICAL BEND

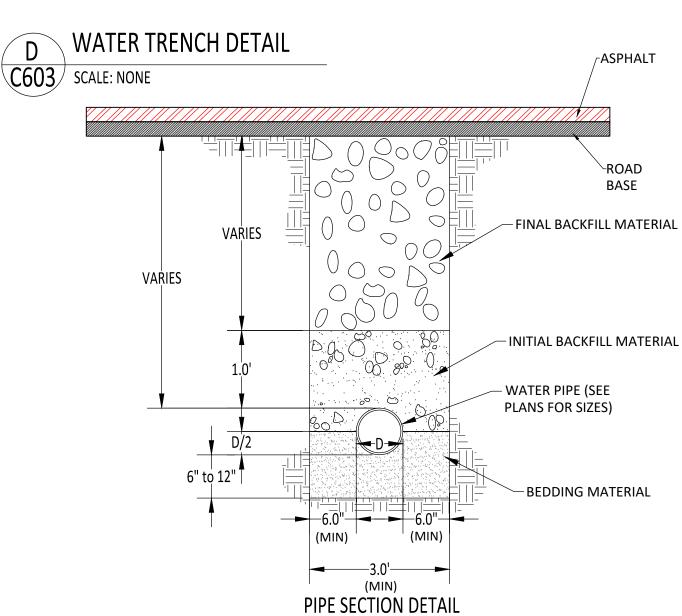
CONCRETE BLOCK PLUGGED END











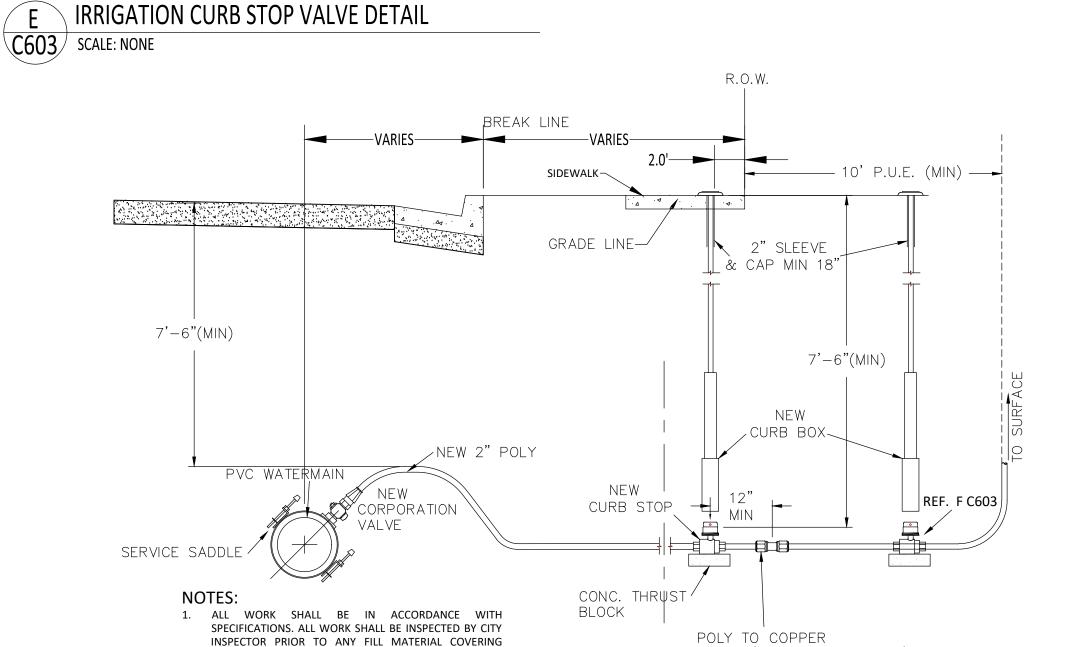
NOTES:

- 1. SEE TABLE FOR BACKFILL MATERIAL REQUIREMENTS.
- 2. SEE CONSTRUCTION NOTES FOR BACKFILL PROCEDURES AND COMPACTION REQUIREMENTS.
- 3. BEDDING MATERIAL MUST BE IMPORTED SAND OR APPROVED ONSITE SAND MATERIAL.
- 4. INSULATION REQUIREMENT FOR LESS THAN 6.5' DEPTH: 4" MINIMUM RIGID FOAM INSULATION.

BACKFILL MATERIALS FOR SEWER TRENCHES

015) /5 0175	PERCENT PASSING FOR:						
SIEVE SIZE	FOUNDATION MATERIAL*	BEDDING MATERIAL	INITIAL BACKFILL MATERIAL	FINAL BACKFILL MATERIAL			
2.00-IN	100			NATIVE MATERIAL			
0.75-IN	5-15		100	WHICH CONTAINS NO SOD,			
NO. 4	0-5	100	40-70	VEGETATION, ROCKS LARGER THAN 8.00-IN IN			
NO. 50		5-15	20-50	DIA., ASPHALT OR CONCRETE CHUNKS, ETC.			
NO. 100		0-5	5-30	,			

* TO BE USED ONLY WHEN THE TRENCH BOTTOM IS UNSTABLE.



WATER SERVICE ASSEMBLY.

CONTRACTORS RESPONSIBLY.

4. STAMP (W) IN CURB AND GUTTER

RIGHT-OF-WAY

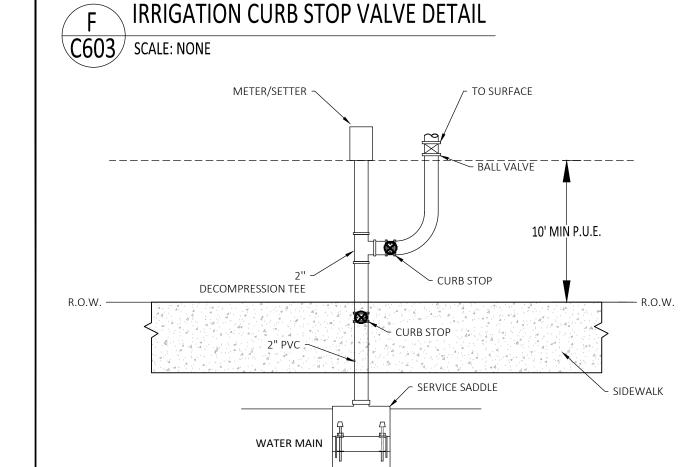
RIGHT-OF-WAY INSIDE OF SIDEWALK.

2. CURB STOP VALVE SHALL BE PLACED 1.0' INSIDE OF ROAD

3. ANY DAMAGE TO ADJACENT SIDEWALK IS THE

5. ALL WATER SERVICES ARE TO BE 10' OUTSIDE OF

UNION (COMPRESSION ONLY)





NORTH DAKOTA

621 26th STREET W.

WILLISTON, ND 58801

701-572-8100

UTAH 2303 N CORAL CANYON BLVD SUIT 201, WASHINGTON, UT 84780 435-673-8060

13TH AVENUE WEST DETAILS

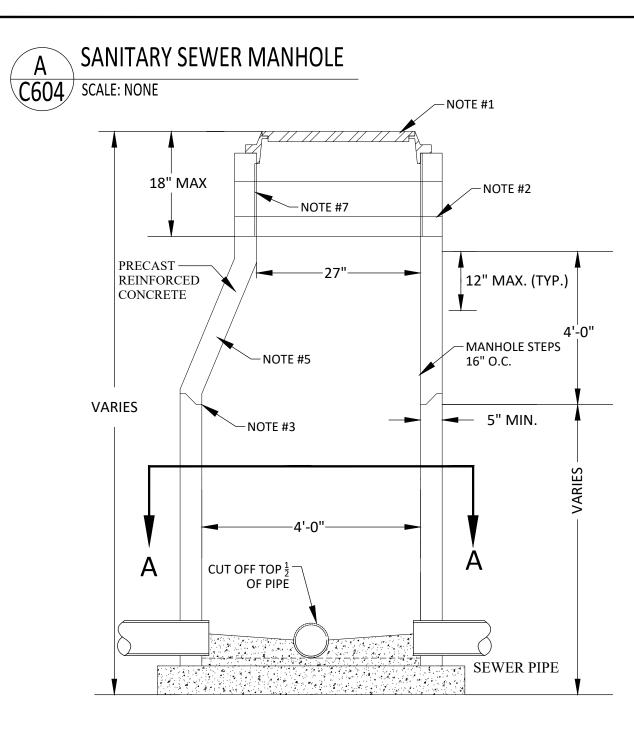
FOR WILLISTON SQUARE

LOCATED IN SEC 11 & 12
T 154 NORTH, R 101 WEST 5 P.M.

T 154 NORTH, R 101 WEST 5 P.M. CITY OF WILLISTON, WILLIAMS COUNTY, ND

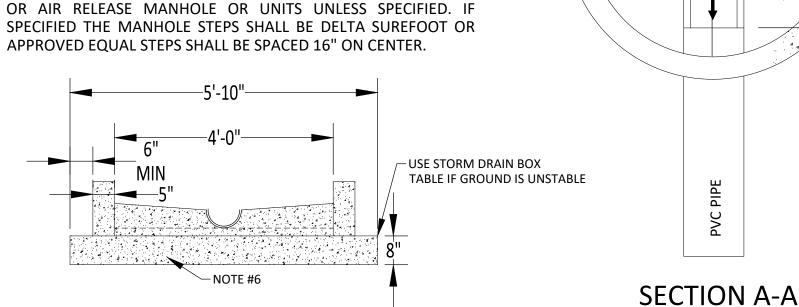


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	CR		NONE
Client No.		Project I	No.
51	49		5149
Drawing Sheet	ţ		
	C6	03	
Sheet 7	70 of	88	Sheets



1. MANHOLE CASTING AND COVER SHALL BE NON-GASKETED WITH

- TWO OPEN, NON-SEALED PICK HOLES.
- ALLOWANCE FOR ADJUSTMENT 0" TO 6" PER LIFT 18" MAX CRETEX P2 GASKETED JOINT FOR 48" MANHOLES. CRETEX CX-4 JOINT FOR ALL OTHER SIZES OF MANHOLES OR EXTERIOR SEAL BY PRESS-SEAL GASKET CORP. EZ WRAP AND EZ STIK NO.4 PRIMER CRETEX SPECIALTY PROJECTS "MAC WRAP" OR AN APPROVED EQUAL.
- 4. PRECAST MANHOLE BASE SHALL BE USED, FLOOR SHALL BE GROUTED AND SLOPED, AS SHOWN, FROM 1/2 THE DIAMETER OF
- MANHOLE TOP SECTION SHALL BE ECCENTRIC FOR 48" MANHOLES.
- 6. CAST IN PLACE MANHOLE BASE SHALL BE DIMENSIONED AS SHOWN UNLESS OTHERWISE INDICATED BASE SHALL BE REINFORCED WITH NO.4 REBAR SPACED 15" ON CENTER BOTH
- EXTERNAL MANHOLE CHIMNEY SEAL AS MANUFACTURED BY CRETEX OR AN APPROVED EQUAL IF SPECIFIED.
- 8. STEPS SHALL NOT BE PLACED IN SANITARY SEWER, STORM SEWER OR AIR RELEASE MANHOLE OR UNITS UNLESS SPECIFIED. IF SPECIFIED THE MANHOLE STEPS SHALL BE DELTA SUREFOOT OR



−2"x4" LUMBER MARKED PAINTED

TEMPORARY PLUG OR

CAP DURING INITIAL

CONSTRUCTION (AIR

∠2"x4" LUMBER

GREEN

MARKED PAINTED

REBAR INDICATOR

TEMPORARY PLUG OR

CAP DURING INITIAL CONSTRUCTION (AIR

REBAR INDICATOR

GREEN

18" MIN. PIPE OPENING FLOW, SLOPE 18" MIN. PIPE OPENING

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TYPICAL SEWER MANHOLE

-PVC WATER MAIN

USE "WYE" FITTING-

PVC WATER MAIN-

-45 DEG BEND

STAMPED (S) IN CURB-

45 DEG BEND

PVC SEWER MAIN

STAMPED (S) IN CURB-

7.5' MIN

1% MIN SLOPE

1% MIN SLOPE

-6" PVC LATERAL (UNLESS

NOTED OTHERWISE

CENTER FULL 20' LENGTH OF PIPE

ACROSS WATER LINE

~6" PVC LATERAL (UNLESS

NOTED OTHERWISE

SEWER SERVICE LATERAL

7.5' MIN

C604 SCALE: NONE

NOTES

CLEAN OUT REQUIRED AT 100' MAX.

2. ALL WATER AND SEWER LATERALS TO

3. ALL MARKERS AND FENCE POSTS

4. STAMP CURB AND GUTTER OVER

TO GROUND LEVEL.

USE "WYE" FITTING-

PVC SEWER MAIN-

SERVICE WITH AN (S).

BE SEPARATED 10' HORIZONTALLY.

SPACING AND AT CHANGE IN

DIRECTION, WHERE TOTAL

SHALL BE PLACED PERPENDICULARLY

AGGREGATE CHANGE EXCEEDS 135'



R.O.W.

P.U.E.

6.0' MINIMUM (UNLESS NOTED OTHERWISE)

P.U.E.

6.0' MINIMUM (UNLESS

NOTED OTHERWISE)

TYPE 2

Crossing Water Main

__(10.0' MIN)____

__(10.0' MIN)____

-VARIES-

6.5' MIN

TYPE 1

-VARIES-

VARIES

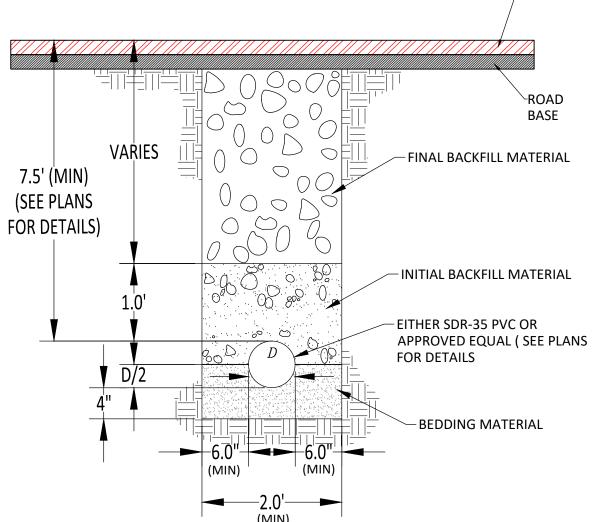
(6.5' MIN)

R.O.W.

SIDEWALK-

SIDEWALK-

SEWER TRENCH DETAIL C604 SCALE: NONE



NOTES:

- SEE TABLE FOR BACKFILL MATERIAL REQUIREMENTS.
- 2. SEE CONSTRUCTION NOTES FOR BACKFILL PROCEDURES AND COMPACTION REQUIREMENTS.
- 3. BEDDING MATERIAL MUST BE IMPORTED SAND OR APPROVED ONSITE SAND MATERIAL.
- 4. INSULATION REQUIREMENT FOR LESS THAN 6.5' DEPTH: 4" MINIMUM RIGID FOAM INSULATION.

BACKFILL MATERIALS FOR SEWER TRENCHES

CIEVE CIZE	PERCENT PASSING FOR:							
SIEVE SIZE	FOUNDATION MATERIAL*	DACKELL		FINAL BACKFILL MATERIAL				
2.00-IN	100			NATIVE MATERIAL				
0.75-IN	5-15		100	WHICH CONTAINS NO SOD,				
NO. 4	0-5	100	40-70	VEGETATION, ROCKS LARGER THAN 8.00-IN IN				
NO. 50		5-15	20-50	DIA., ASPHALT OR CONCRETE CHUNKS, ETC.				
NO. 100		0-5	5-30					

* TO BE USED ONLY WHEN THE TRENCH BOTTOM IS UNSTABLE

SEWER NOTES:

CASPHALT

- 1. All Sewer pipe are SDR-35 and size indicated on the plan, unless otherwise noted.
- 2. All sewer fittings shall be approved by Williston City prior to purchase and installation.
- 3. Backfill materials shall conform to the requirements outlined in detail.
- 4. Bedding materials shall be placed and compacted in horizontal lifts not to exceed 6-in in compacted thickness. Initial backfill materials shall be placed carefully in 8-in non-compacted horizontal lifts and compacted to a depth of 12-in above the top of the pipe. Final backfill materials shall be placed in 12-in compacted horizontal lifts up to the existing ground surface.
- 5. Minimum compaction shall be 95%. When approved flowable fill or slurry is used compaction testing will not be required.
- 6. Prior to and during compaction operations, all backfill material shall have the required moisture content uniform throughout each layer.
- Insulation shall be installed whenever the sewer main or sewer services or force main passes within 2 feet beneath a storm sewer, and shall extend a minimum of 4 feet beyond the outer walls of storm sewer.
- 8. The Contractor is responsible for conducting displacement, air or exfiltration, deflection testing on all newly installed sewer pipe. The contractor is also responsible for conducting leakage test on all newly installed manholes.
- 9. Following inspection, all newly installed sewer lines and manholes shall be flushed by the
- 10. Insulation shall be installed whenever the sewer main is less than 6.5' feet beneath the surface, will require freeze protection wrapping, and shall extend a minimum of 4 feet beyond the outer walls of the sewer main line.
- 11. Insulation shall be a 4" minimum Rigid Foam Board.
- 12. 2"x4" Board placed 3' minimum from ground surface with Rebar attached below surface of 2"x4" to help locate end for future hookup.



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13TH AVENUE WEST DETAILS

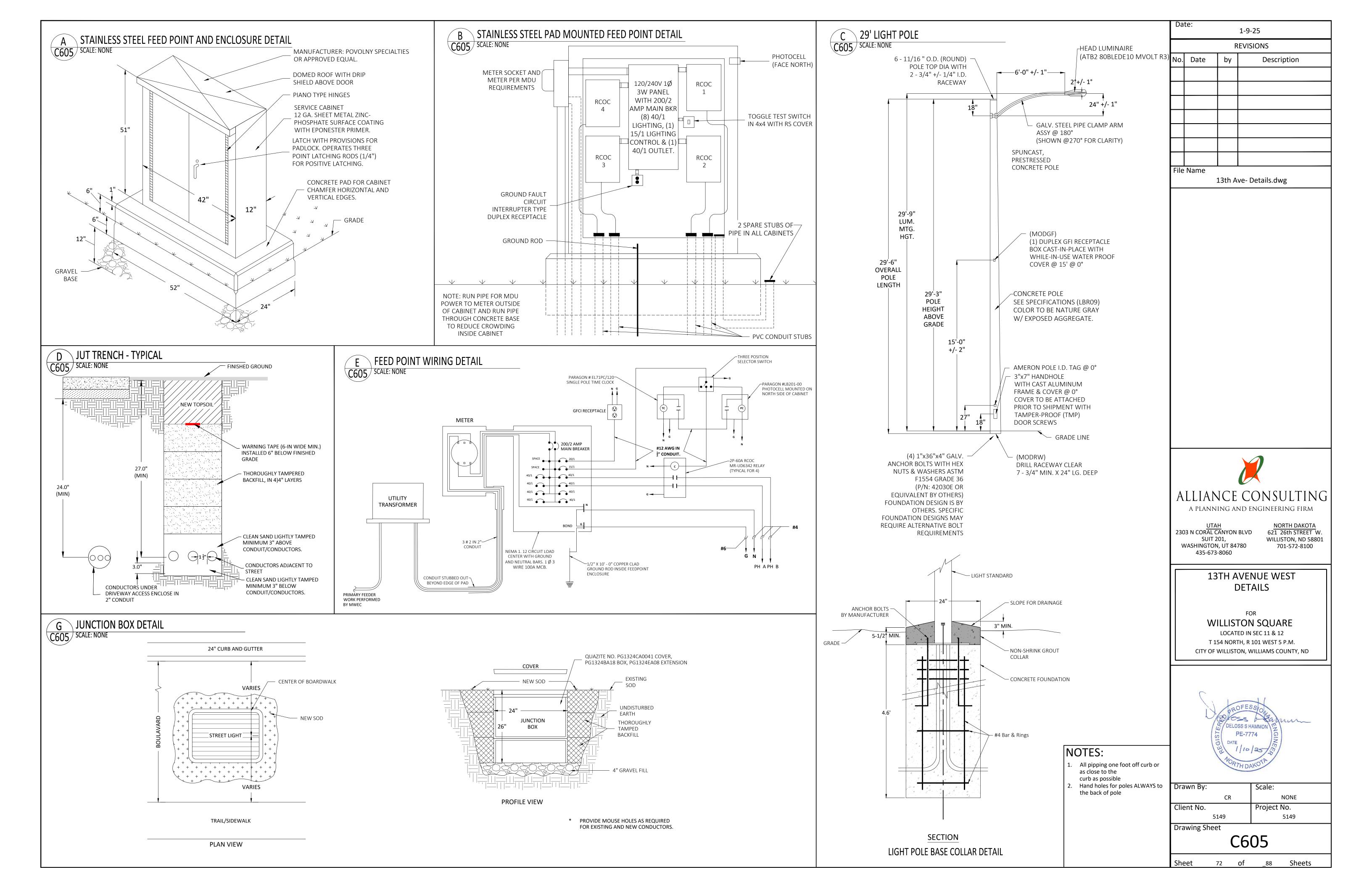
WILLISTON SQUARE

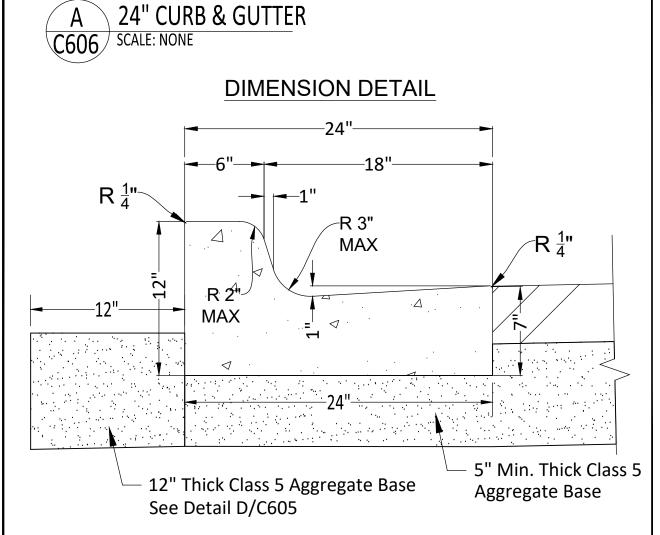
LOCATED IN SEC 11 & 12 T 154 NORTH, R 101 WEST 5 P.M. CITY OF WILLISTON, WILLIAMS COUNTY, ND



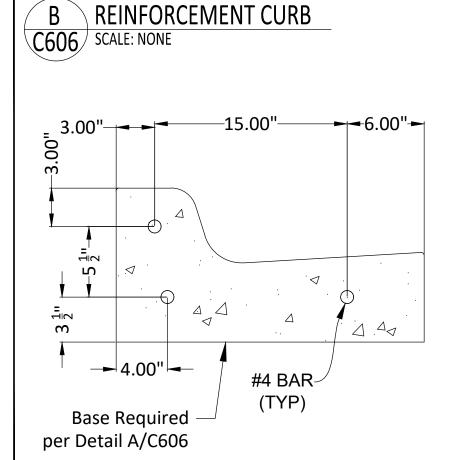
Drawn By: Scale: CR NONE Client No. Project No. 5149 5149 Drawing Sheet C604

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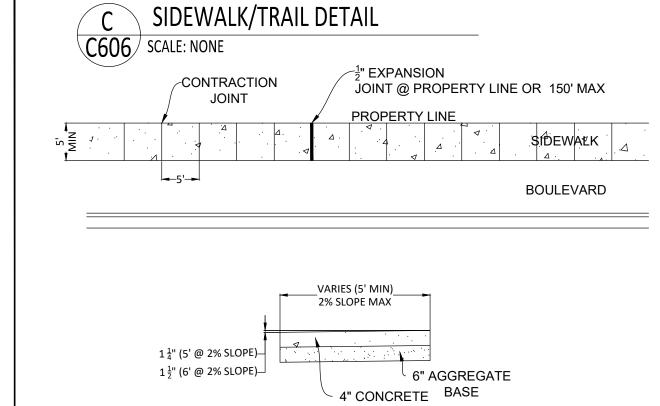


E SIGN POST AND MOUNTING DETAILS



REINFORCEMENT DETAIL

(when specified)



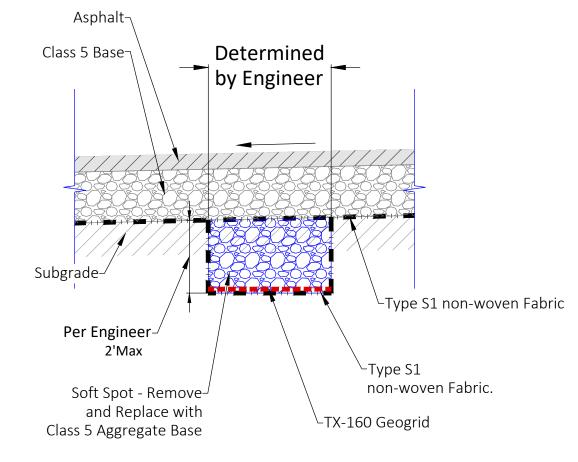
GENERAL NOTES:

- 1. CROSS SLOPE SHALL BE $\frac{1}{4}$ INCH RISE PER FOOT FROM TOP OF CURB (SLOPE NOT TO EXCEED $\frac{1}{2}$ INCH RISE PER
- 2. UNTREATED BASE COURSE SHALL BE PLACED UNDER SIDEWALK AND COMPACTED TO A MIN. OF 95%

SIDEWALK

- COMPACTION OF UNTREATED BASE NOT LESS THAN 6 INCHES. 3. USE CLASS "A" CONCRETE
- 4. SIDEWALK SURFACE TO HAVE A MEDIUM BROOM FINISH.
- 5. WHERE SIDEWALKS CROSS DRIVEWAYS, MINIMUM THICKNESS SHALL BE AS FOLLOWS:
- 5.1. RESIDENTIAL 6" FOR SIDEWALK, 6" FOR ROADBASE. 6. FIBER EXPANSION JOINTS SHALL BE PLACED AT BOTH ENDS OF DRIVEWAY.
- 7. FIBER EXPANSION JOINTS SHALL ALSO BE PLACED BETWEEN DRIVEWAY AND BACK OF SIDEWALK.
- 8. FIBER EXPANSION JOINT SPACING SHALL BE 20' ON SIDEWALK AND 24' ON TRAIL. 9. SCORE JOINT SPACING SHALL BE 5' ON SIDEWALK AND 6' ON TRAIL

SOFT SPOT REPAIR SCALE: NONE



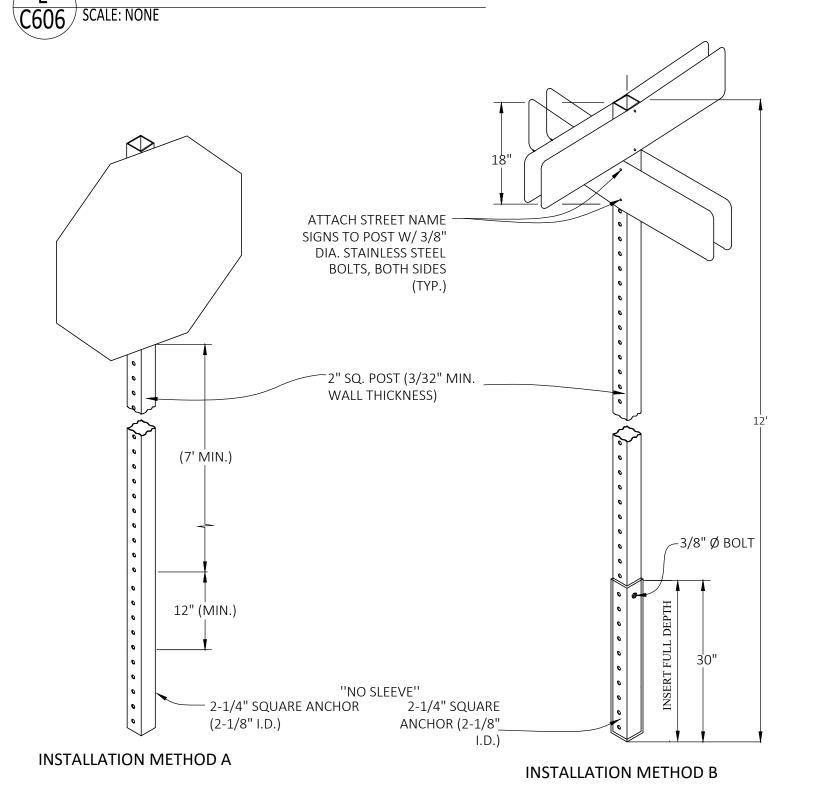
GENERAL NOTES:

- 1. Over excavate saturated clay material "soft spot" to a maximum of 2'.
- 2. Place geotextile fabric Type S1 and Geogrid TX-160 in over excavated area.
- 3. Overlap geotextile and Geogrid TX-160 fabric per manufacturer specification.
- 4. Place aggregate base (Class 5 Material) over geotextile fabric Type S1 with 12 inch lift and 6" lifts thereafter between compaction. No wheeled vehicles to be used on first lift of Class 5
- 5. Proof roll all roadway and repaired soft spots before paving to insure proper conditions.
- 6. Soft spot repair items are indeterminate and will be paid at the engineers discretion as actual ,measured, quantity of work is approved and performed .

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ADA RAMP - CORNER C606 SCALE: NONE



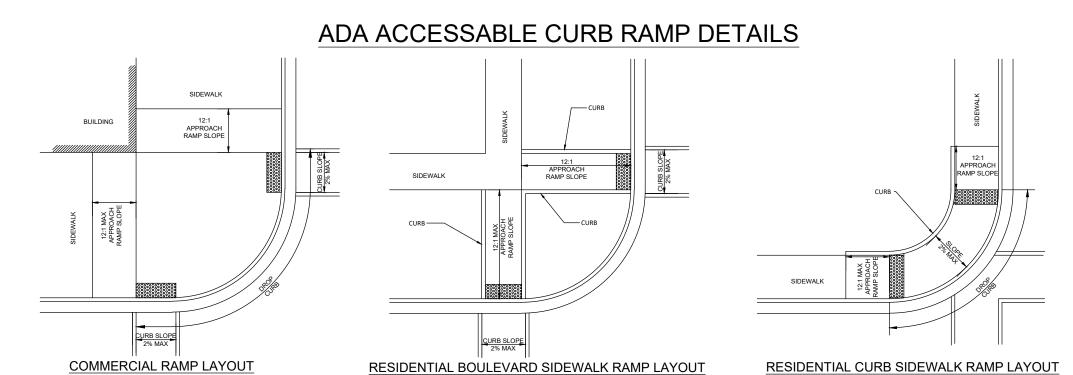
→ 1-1/2" .390" DIAMETER HOLE -4 REQUIRED A.S.

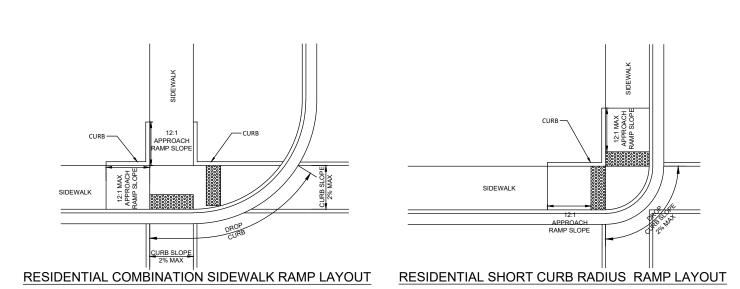
3/16" THICK WALL DIM. TOLERANCE +1/16',-0" SIGN ANCHOR DETAIL 30" <u>†</u> 1/2" W 2-1/2" ± 1/64"

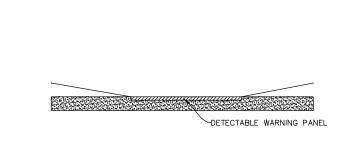
____ 1/4" RADIUS

NOTES:

- 1- POST TYPE SHALL BE "QUICK PUNCH".
- 2- ANCHORS SHALL HAVE 3/16" MIN. WALL THICKNESS.
- 3- ALL POSTS & ANCHORS SHALL BE GALVANIZED STEEL.
- 4- CAP BRACKET USED ON APPROVAL ONLY. CONTACT CITY STREET DEPARTMENT FOR TYPE & SIZE.
- 5- SIGNS SHALL HAVE 9" HEIGHT WITH 6" LETTERING AND SOLID GREEN BACKING WITHOUT WHITE BOARDERS.







DETECTABLE WARNING PANEL PALCEMENT DETAIL

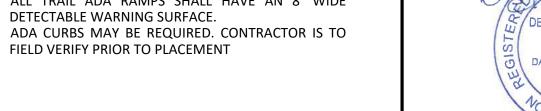
ETECTABLE WARNING PANEL

	SLOPE TABLE							
	ITEM	MAX. RUNNING SLOPE *	MAX. CROSS SLOPE *					
Т	TURNING SPACE	2%	2% (c)					
R	RAMP	8.33% (a)	2% (c)					
С	CLEAR SPACE	5% (b)	2% (c)					
S	SIDEWALK	STREET GRADE	2%					

- * RUNNING SLOPE IS IN THE DIRECTION OF PEDESTRIAN TRAVEL. CROSS SLOPE IS PERPENDICULAR TO
- PEDESTRIAN TRAVEL (a) LENGTH OF RUNNING SLOPE FOR PARALLEL RAMPS IS NOT REQUIRED TO EXCEED 15FT.
- SLOPE ACROSS ENTIRE CURB CUT. WARP CUTTER PAN TO MEET REQUITED CLEAR SPACE SLOPE AT CURB CUT.
- (c) DO NOT EXCEED THE ROADWAY PROFILE GRADE FOR THE CROSS SLOPE AT CROSSWALKS WITHOUT STOP OR YIELD CONTROL AND AT MID-BLOCK CROSSWALKS.

(b) MAINTAIN CONSISTENCY OF CLEAR SPACE RUNNING

- 1. DIMENSIONS SHOWN IN THE SLOPE TABLE ON ARE NOT SUBJECT TO CONVENTIONAL INDUSTRY TOLERANCES. CONSTRUCT SIDEWALKS AND RAMPS SUCH THAT THE MAXIMUM OR MINIMUM VALUES ARE NOT EXCEEDED. WORK THAT EXCEEDS THOSE VALUES WILL NOT BE ACCEPTED.
- 2. PROVIDE DETECTABLE WARNING SURFACE FOR FULL
- WIDTH OF CURB CUT. 3. LOCATE DETECTABLE WARNING SURFACE SO THE CORNERS NEAREST THE STREET ARE WITHIN 1 INCH
- OF THE BACK OF CURB. 4. RAMP GRADE BREAK MUST BE PERPENDICULAR TO
- THE RUNNING SLOPE. 5. CLEAR SPACE AND TURNING SPACE SIZE: 4 FT MIN. X 4
- FT MIN. 6. CROSSWALK DELINEATION IF REQUIRED ON PROJECT
- STRIPING PLAN. 7. ALL TRAIL ADA RAMPS SHALL HAVE AN 8' WIDE
- DETECTABLE WARNING SURFACE. 8. ADA CURBS MAY BE REQUIRED. CONTRACTOR IS TO





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621 26th STREET W.

DETAILS

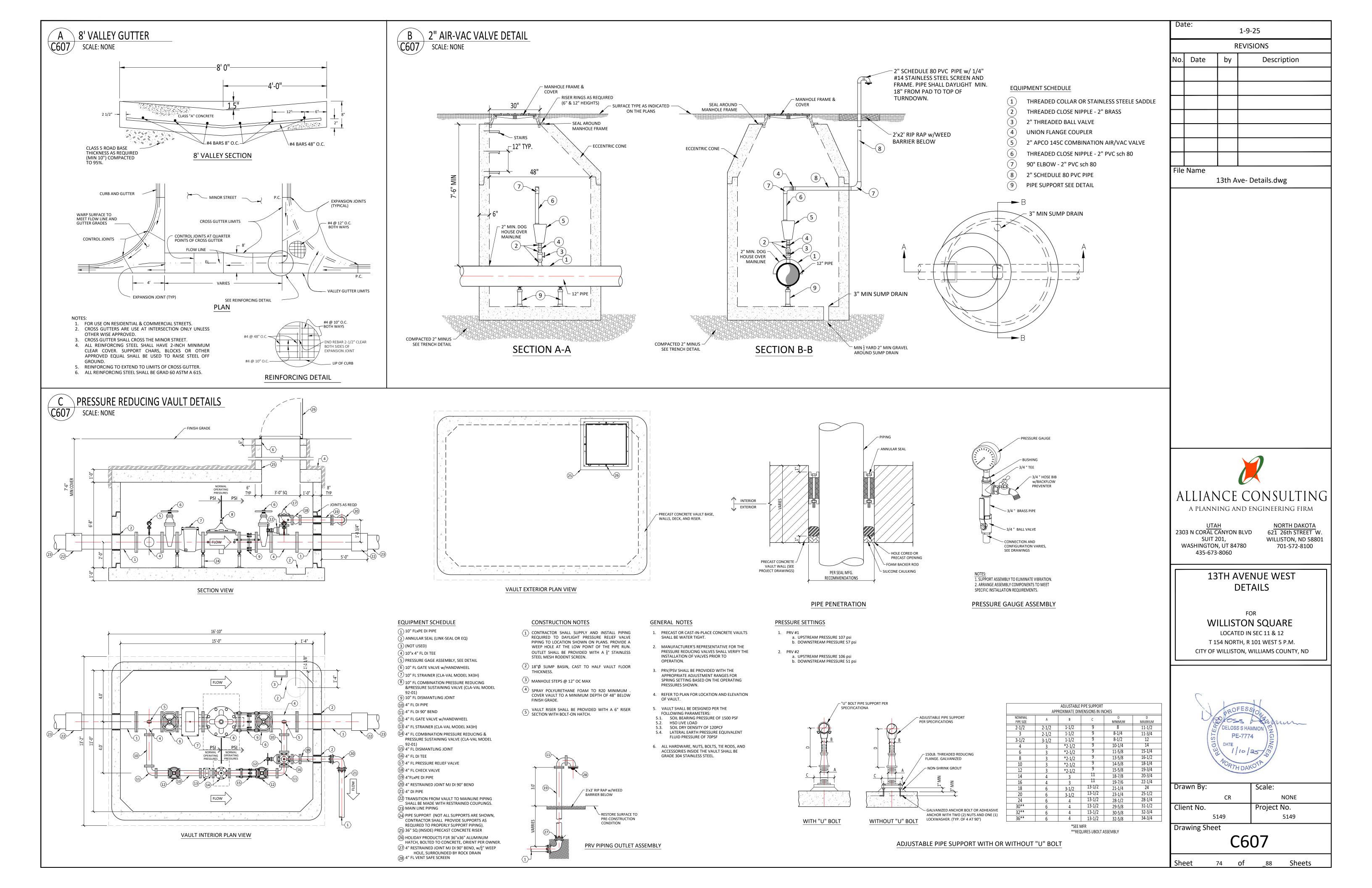
13TH AVENUE WEST

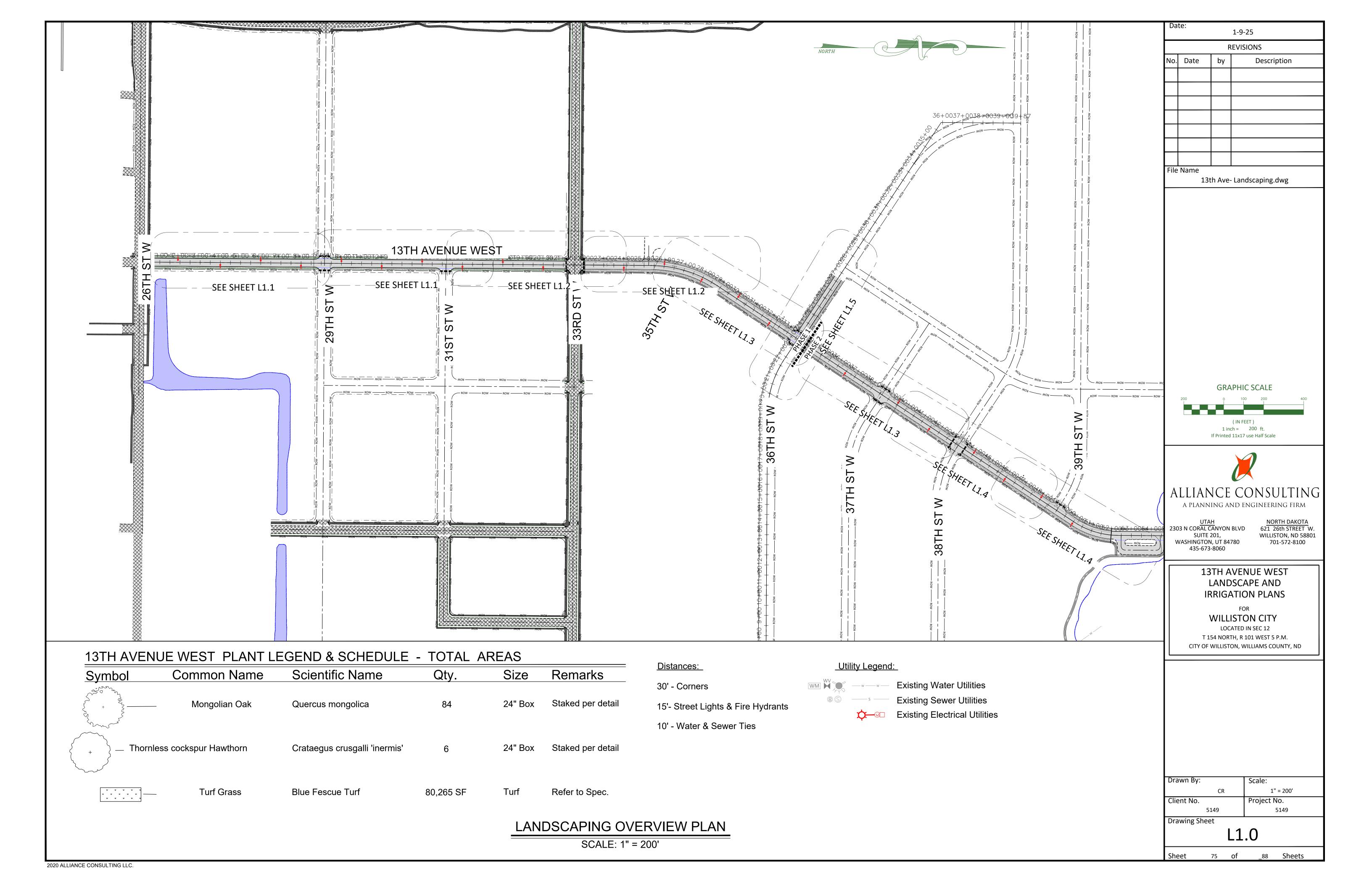
WILLISTON SQUARE

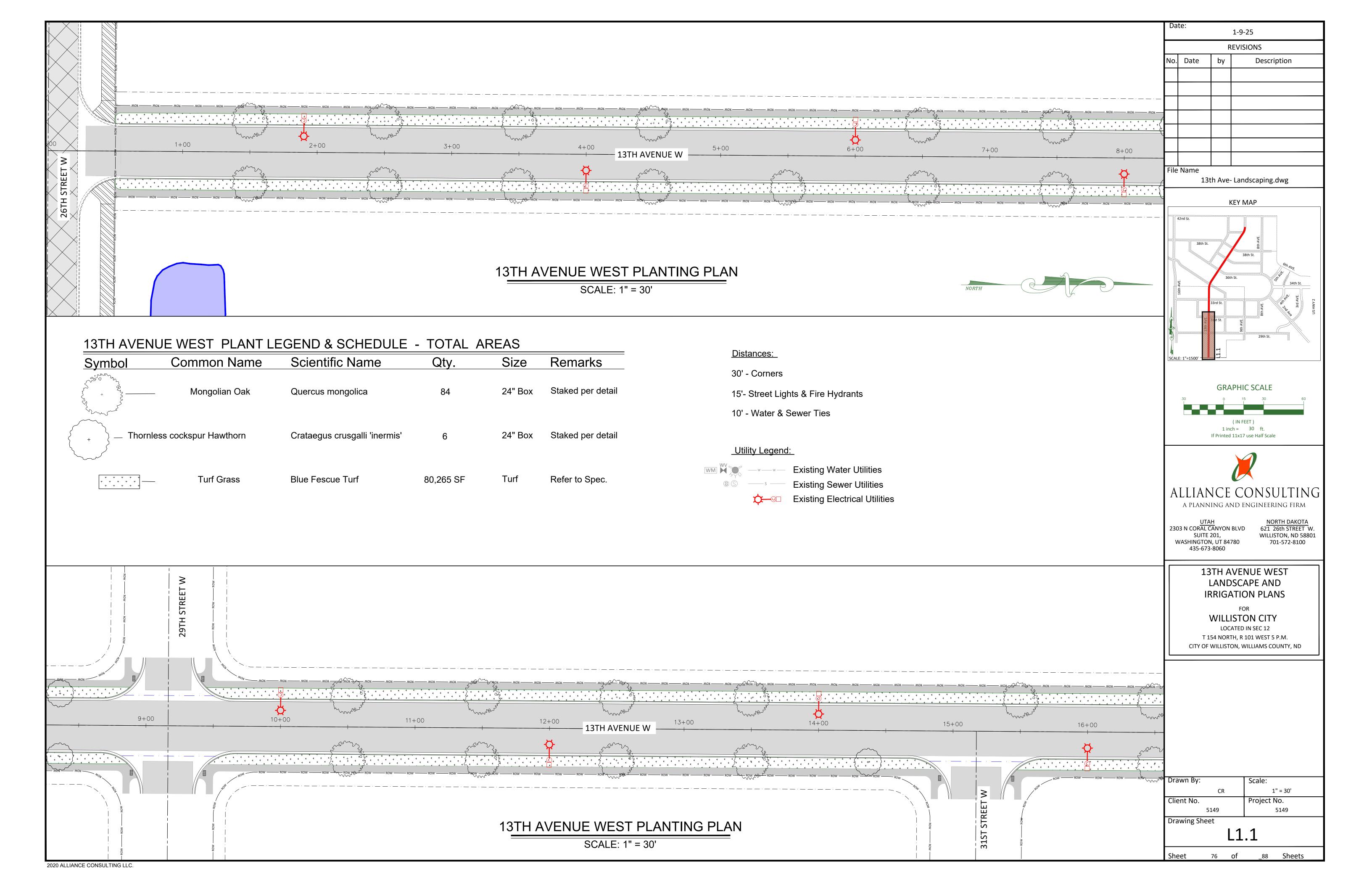
LOCATED IN SEC 11 & 12 T 154 NORTH, R 101 WEST 5 P.M. CITY OF WILLISTON, WILLIAMS COUNTY, ND

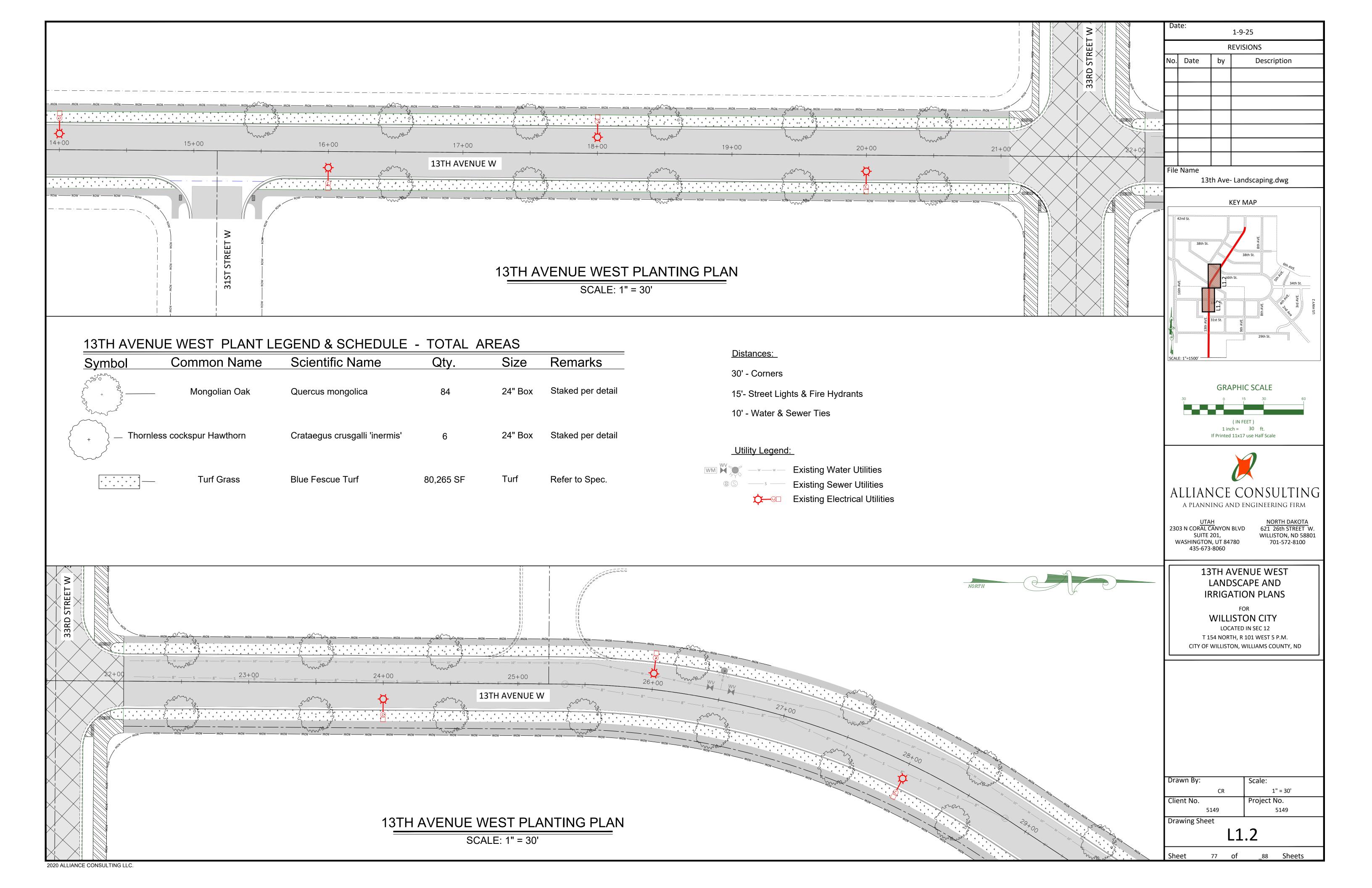


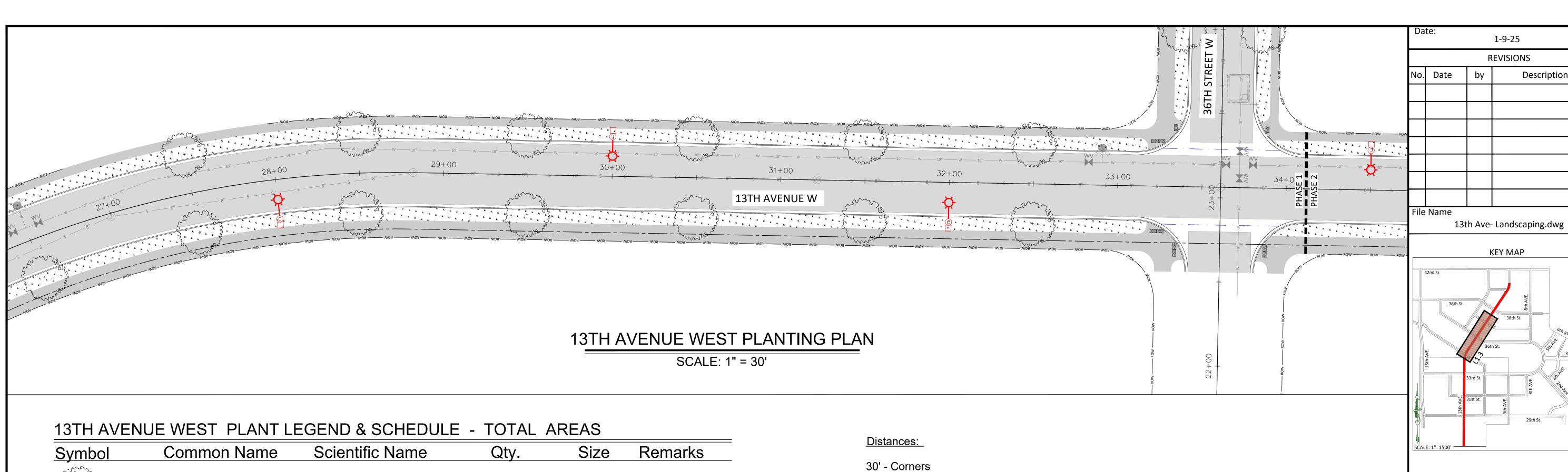
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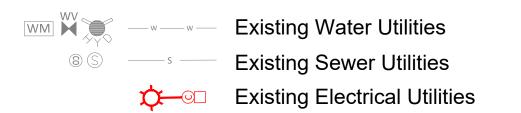


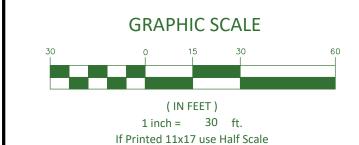


<u>Symbol</u>	Common Name	Scientific Name	Qty.	Size	Remarks
+ 62	_ Mongolian Oak	Quercus mongolica	84	24" Box	Staked per detail
ThornI	ess cockspur Hawthorn	Crataegus crusgalli 'inermis'	6	24" Box	Staked per detail
* * * * * * * * * * * * * * * * * * *	Turf Grass	Blue Fescue Turf	80,265 SF	Turf	Refer to Spec.

- 15'- Street Lights & Fire Hydrants
- 10' Water & Sewer Ties

Utility Legend:





1-9-25

REVISIONS

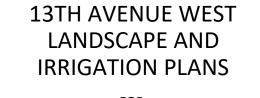
KEY MAP

Description



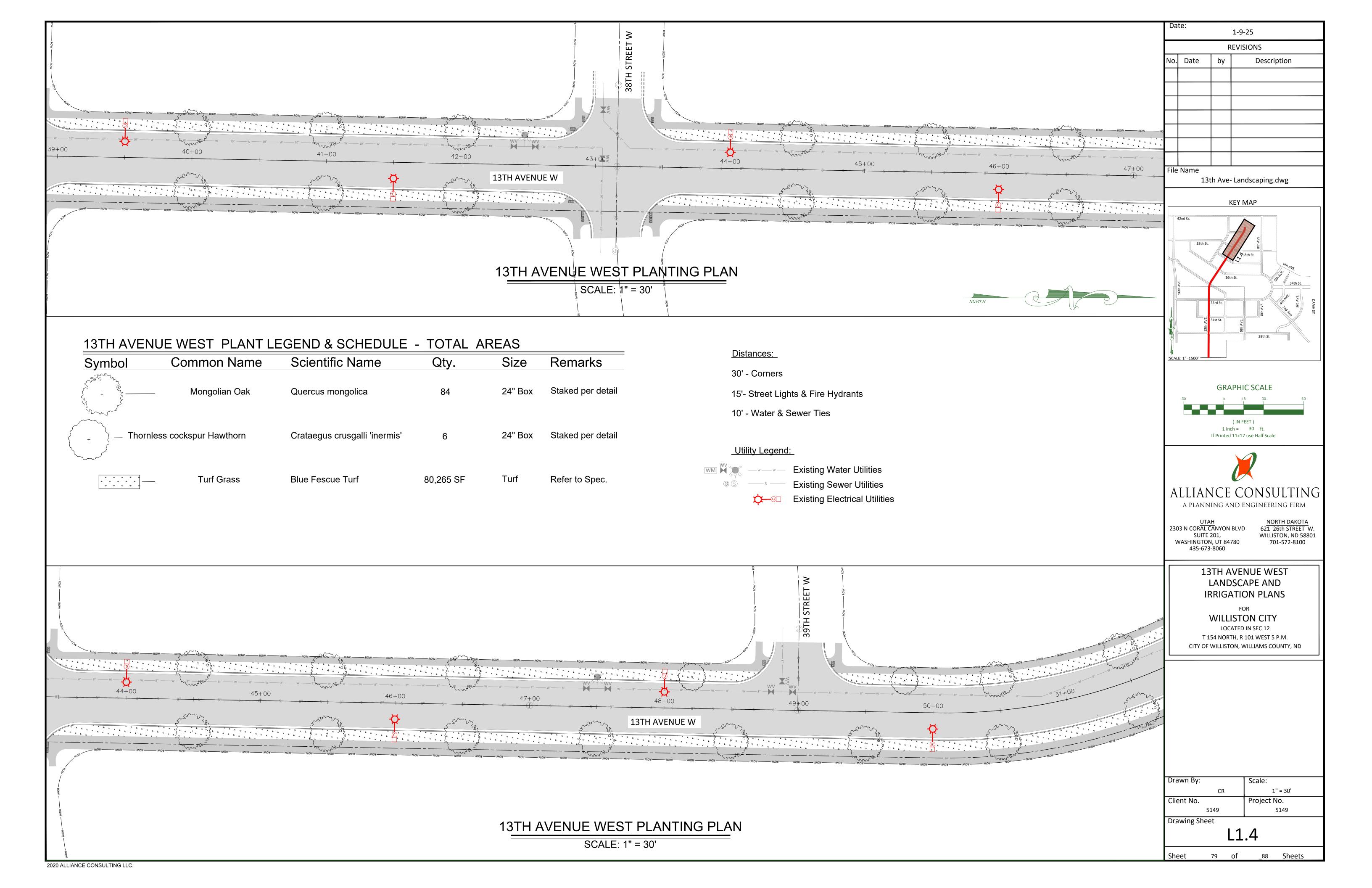
2303 N CORAL CANYON BLVD SUITE 201, WASHINGTON, UT 84780 435-673-8060

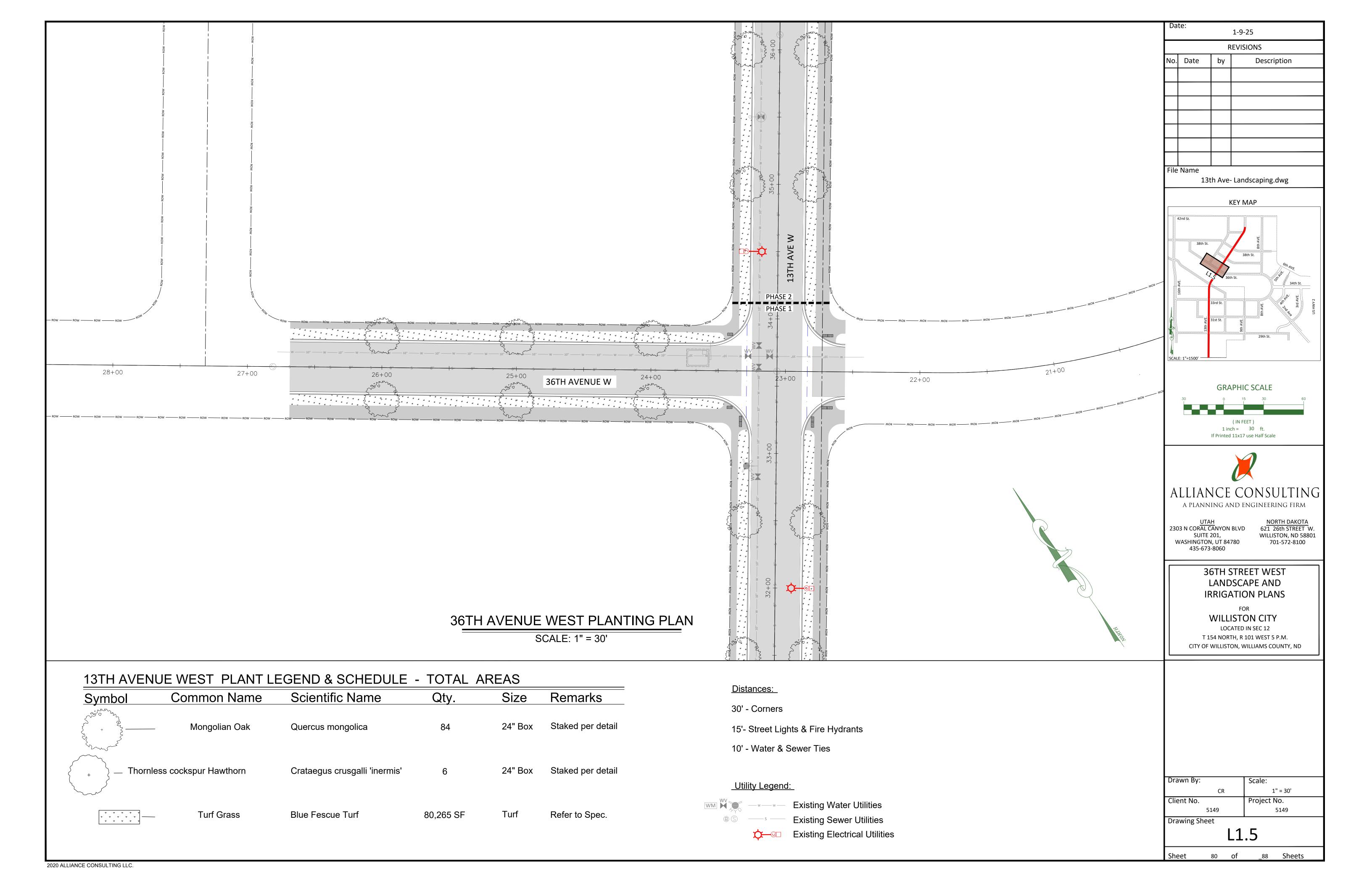
NORTH DAKOTA 621 26th STREET W. WILLISTON, ND 58801 701-572-8100

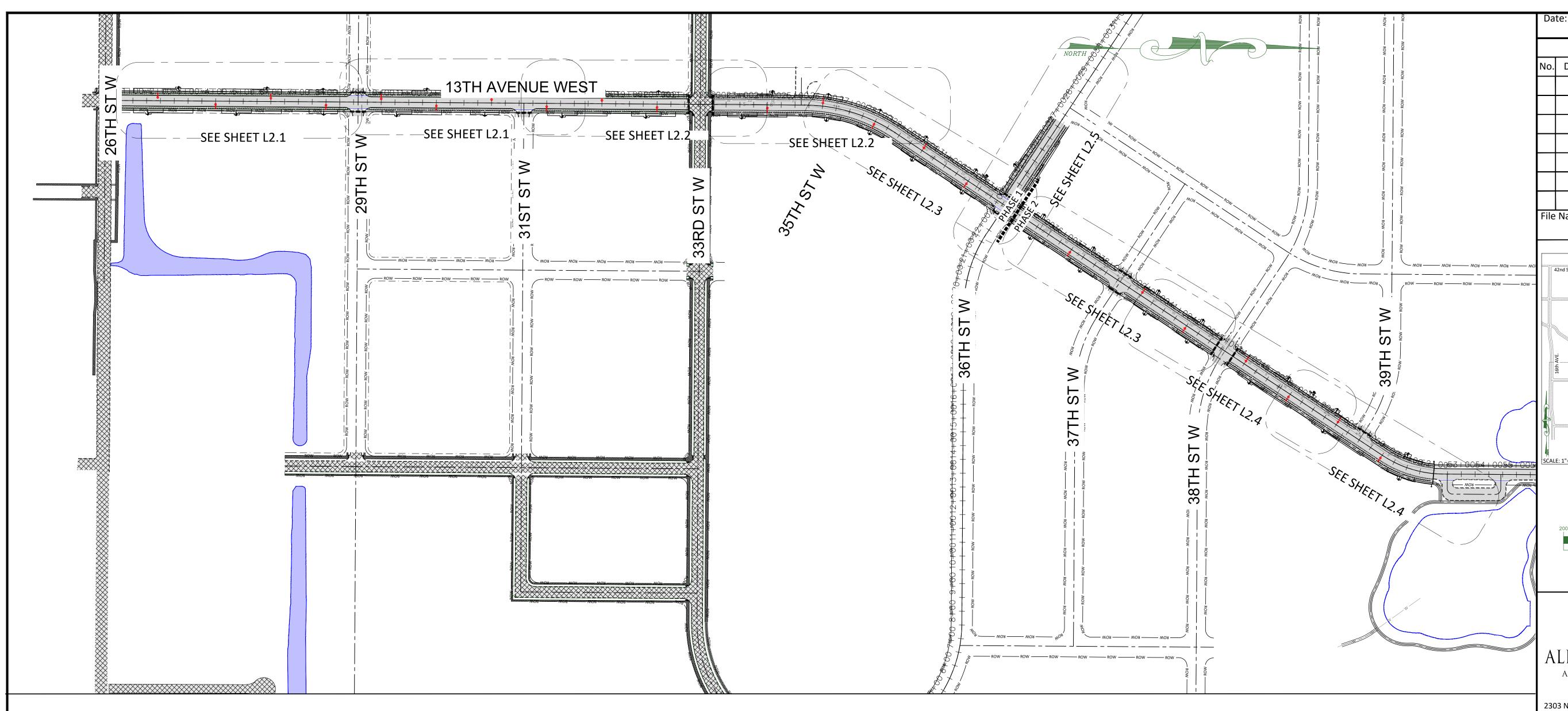


WILLISTON CITY LOCATED IN SEC 12

80W	
13TH AVENUE WEST PLANTING PLAN	
SCALE: 1" = 30'	Sheet 78 of _88 Sheets







IRRIGATION LEGEND

SYM	MANUF.	DESCRIPTION
M	Approved	1 1/2" Meter As Per City Standards. Refer to APWA Details for Installation.
7	Wilkins	1 1/2" Reduced Pressure Principle Assembly Backflow Device with 90 Degree Elbows, Ball Valves w/ SS Handles — Model #975 XL (Or Approved Equal)
	Mueller	Line Size Stop & Waste Valve. Install as per local code. Install w/ Lockable Lid.
C	Rain Bird	ESP-LXME-48-120V (48 STATION) REFER TO DETAIL I-13
•	Rain Bird	PESB — Series Valve, See Plan For Size (Or Approved Equal).
M	Approved	Line Size Gate Valve
PB	Approved	Irrigation Controller Wire Pull Box — Install as shown or at a 200' max interval.
	Signature	1" Quick Coupler
A	Approved	Manual Drain Valve. Installed at low point on main and drip lines. Refer to plans and details.
Ф	Rain Bird	1804—SAM—PRS—4" Pop—Up Head (bottom inlet only) w/8'—180 Deg. Nozzle
	Approved	2" SCH 40 PVC Mainline
	Approved	SCH 40 PVC Lateral Line, Size as noted on plan. Minimum of 1" Size.
	Approved	4" SCH 40 PVC Sleeve.
	Toro	1" Blue Stripe Hose (Or Approved Equal).

IRRIGATION OVERVIEW PLAN

SCALE: 1" = 200'

	Da	te:		1-9-25
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	1 116		:h Ave-	Landscaping.dwg
			K	CEY MAP
- ROW -			36tt 33rd St.	38th Str. 34th Str. 34th Str. 34th Str. 34th AVE. 34th AVE. 34th AVE. 34th AVE. 35th A
—————————————————————————————————————				
/ \			CD^	PHIC SCALE
		200	OKA 	100 200 400
				(IN FEET) ch = 200 ft. 11x17 use Half Scale

ALLIANCE CONSULTING

UTAH
2303 N CORAL CANYON BLVD
SUITE 201,
WASHINGTON, UT 84780
435-673-8060

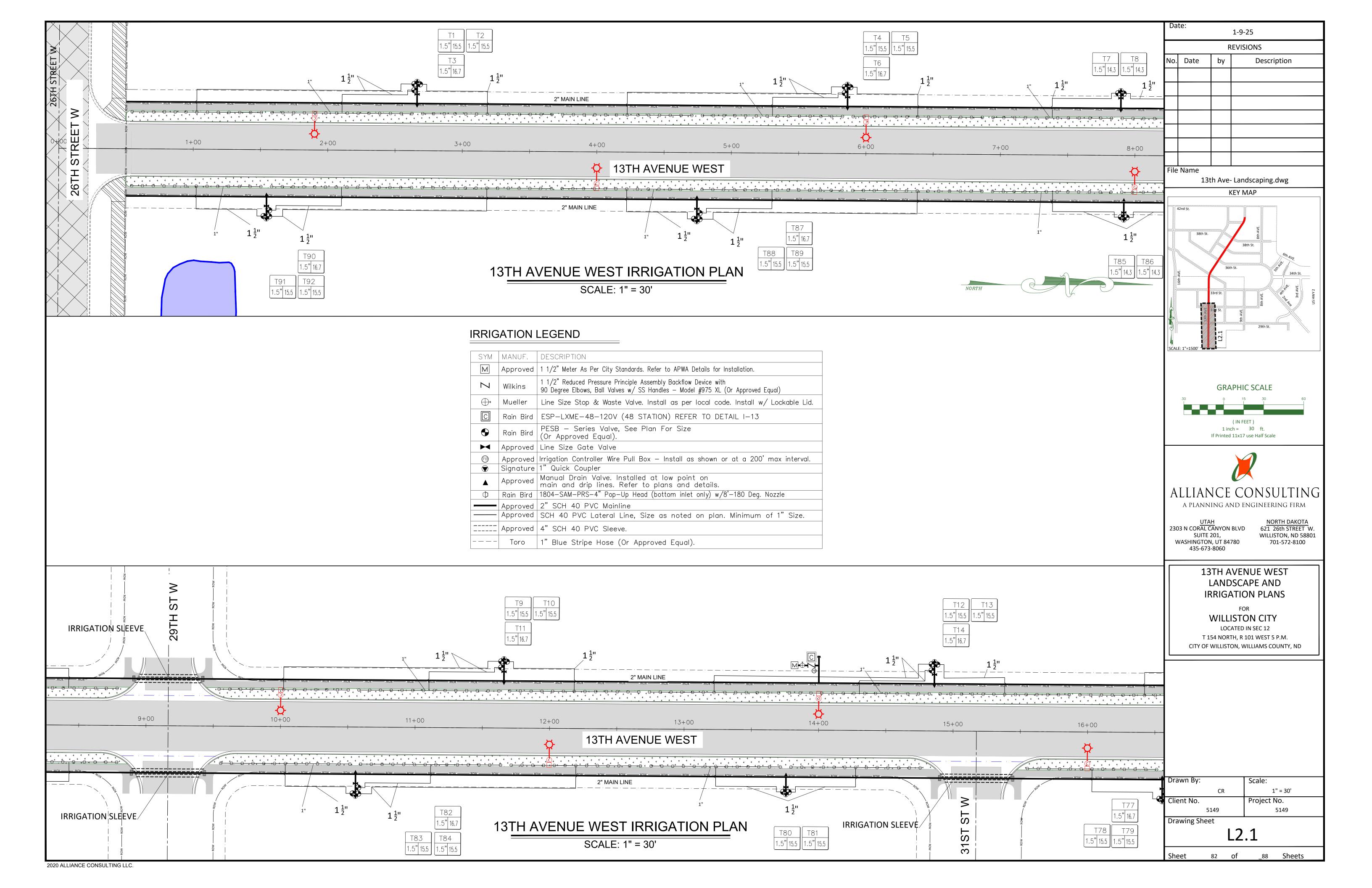
NORTH DAKOTA
621 26th STREET W.
WILLISTON, ND 58801
701-572-8100

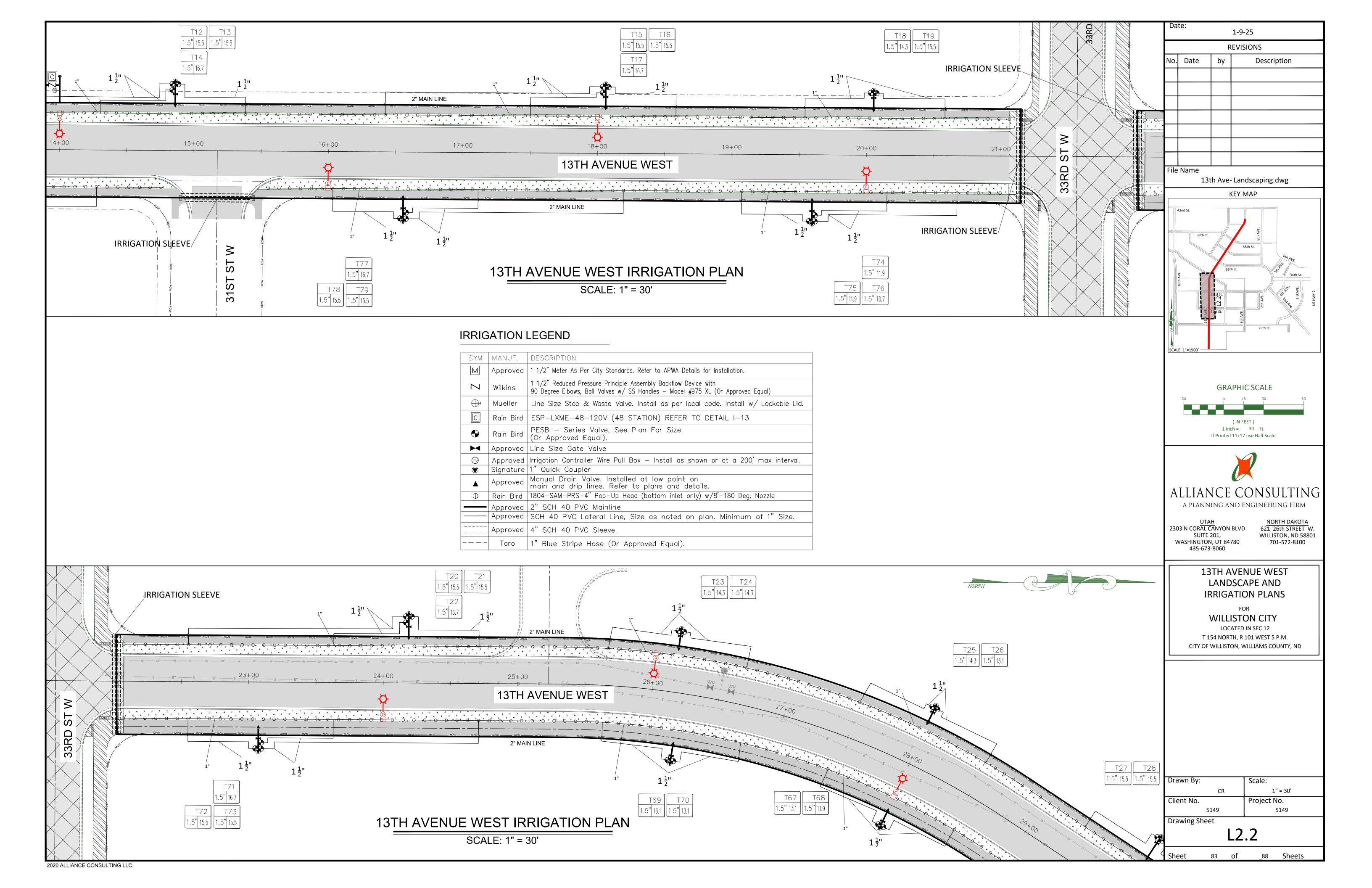
13TH AVENUE WEST LANDSCAPE AND IRRIGATION PLANS

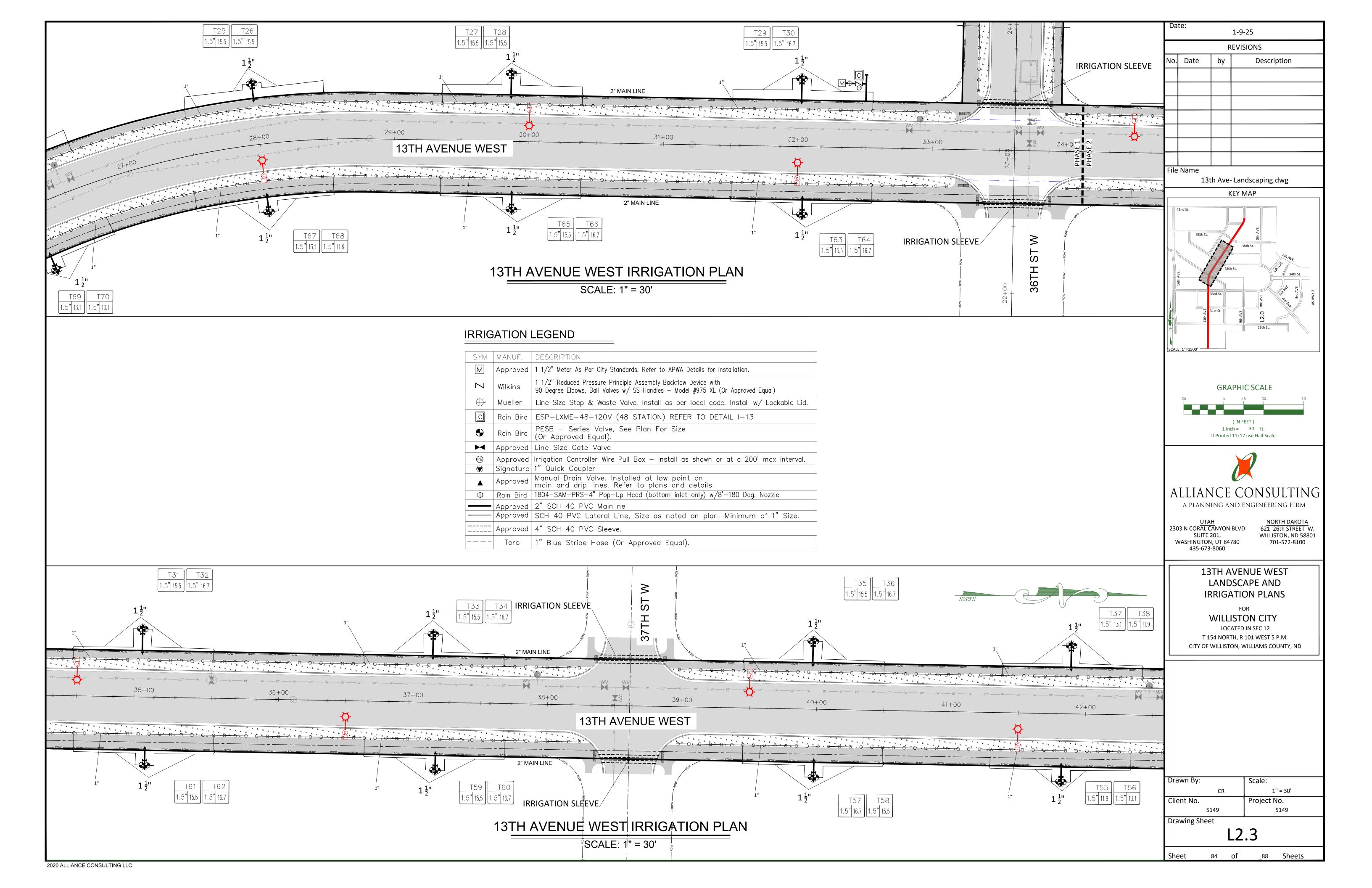
WILLISTON CITY **LOCATED IN SEC 12** T 154 NORTH, R 101 WEST 5 P.M. CITY OF WILLISTON, WILLIAMS COUNTY, ND

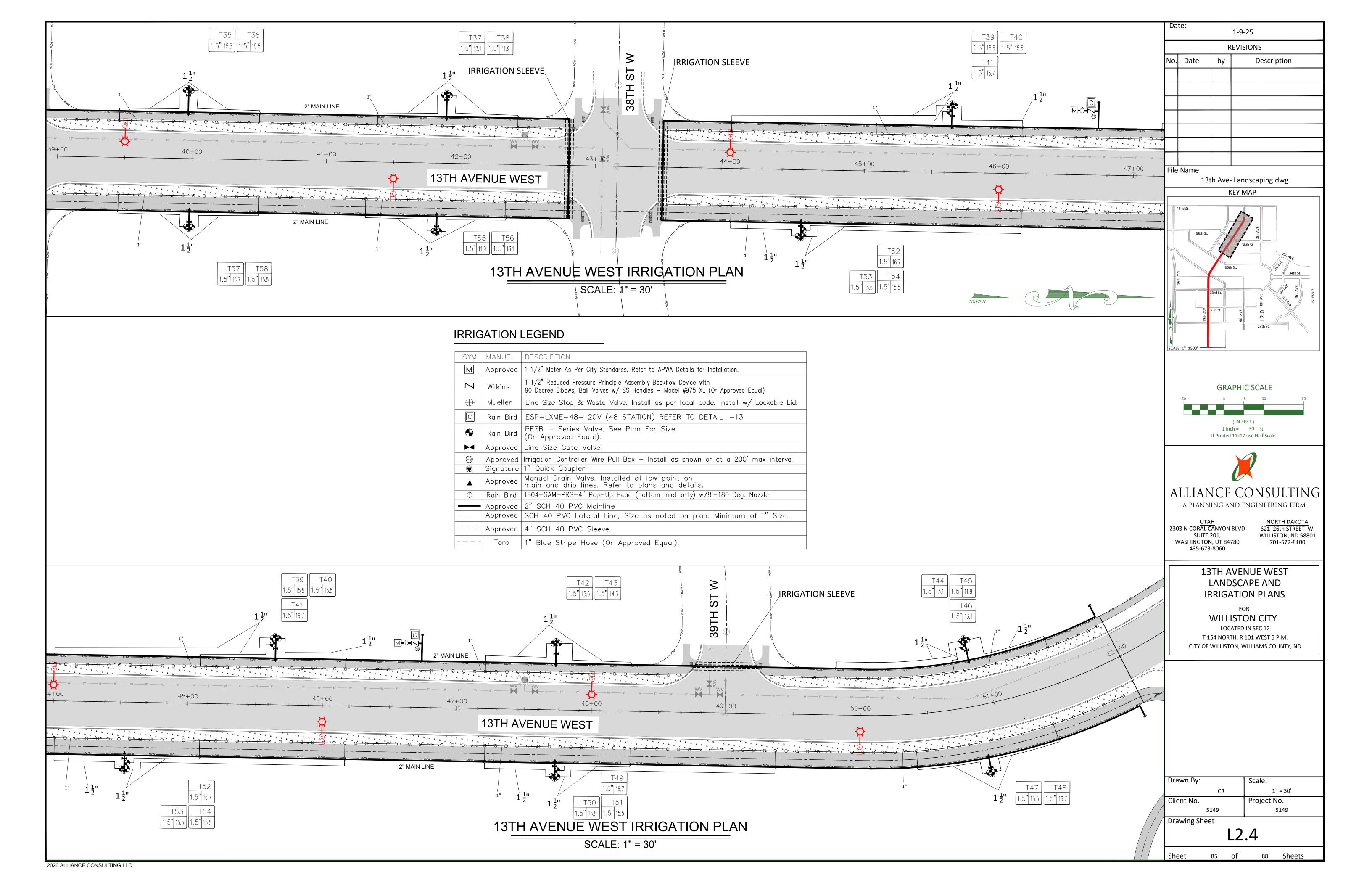
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Client No.	Project No.
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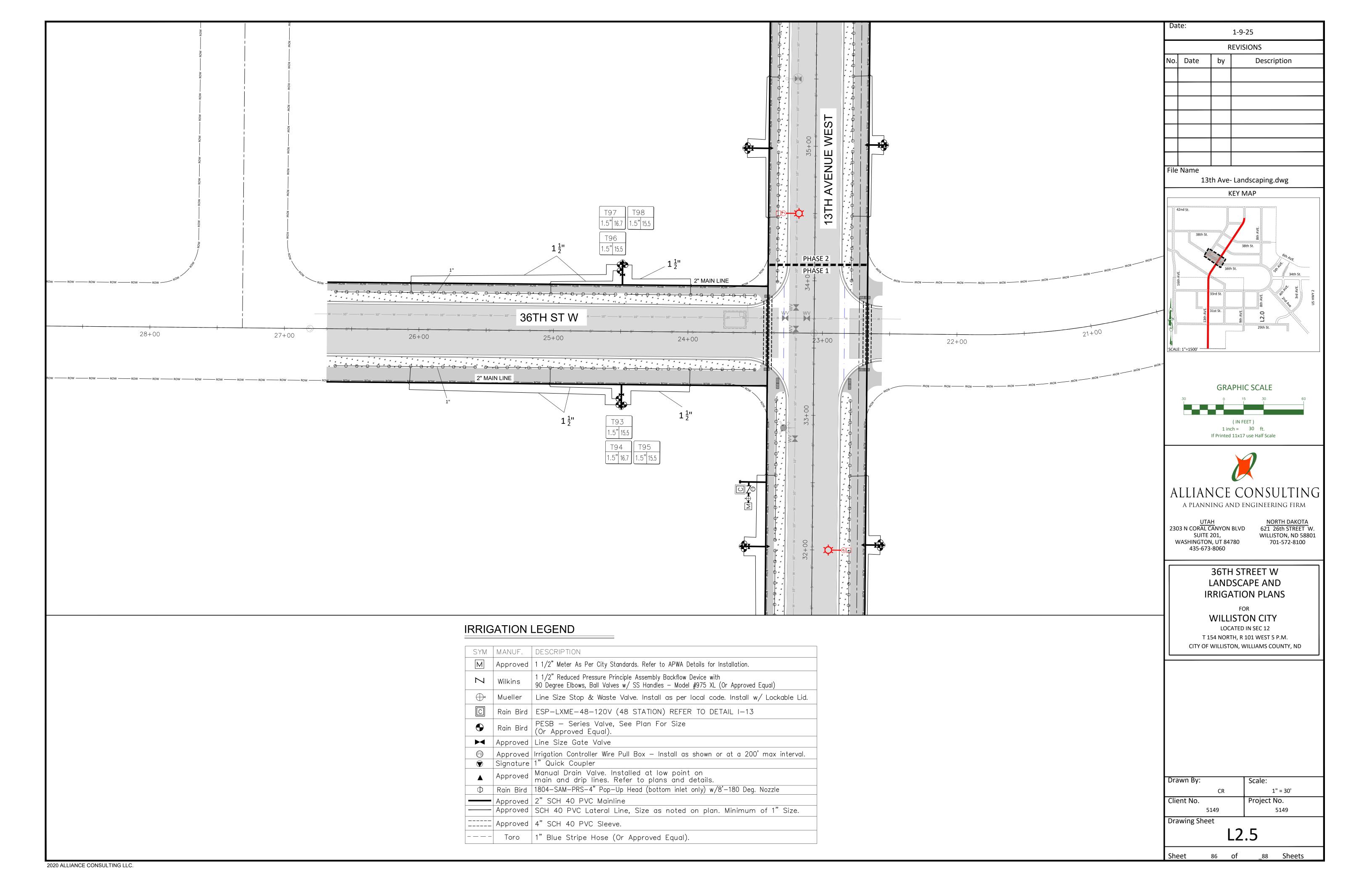
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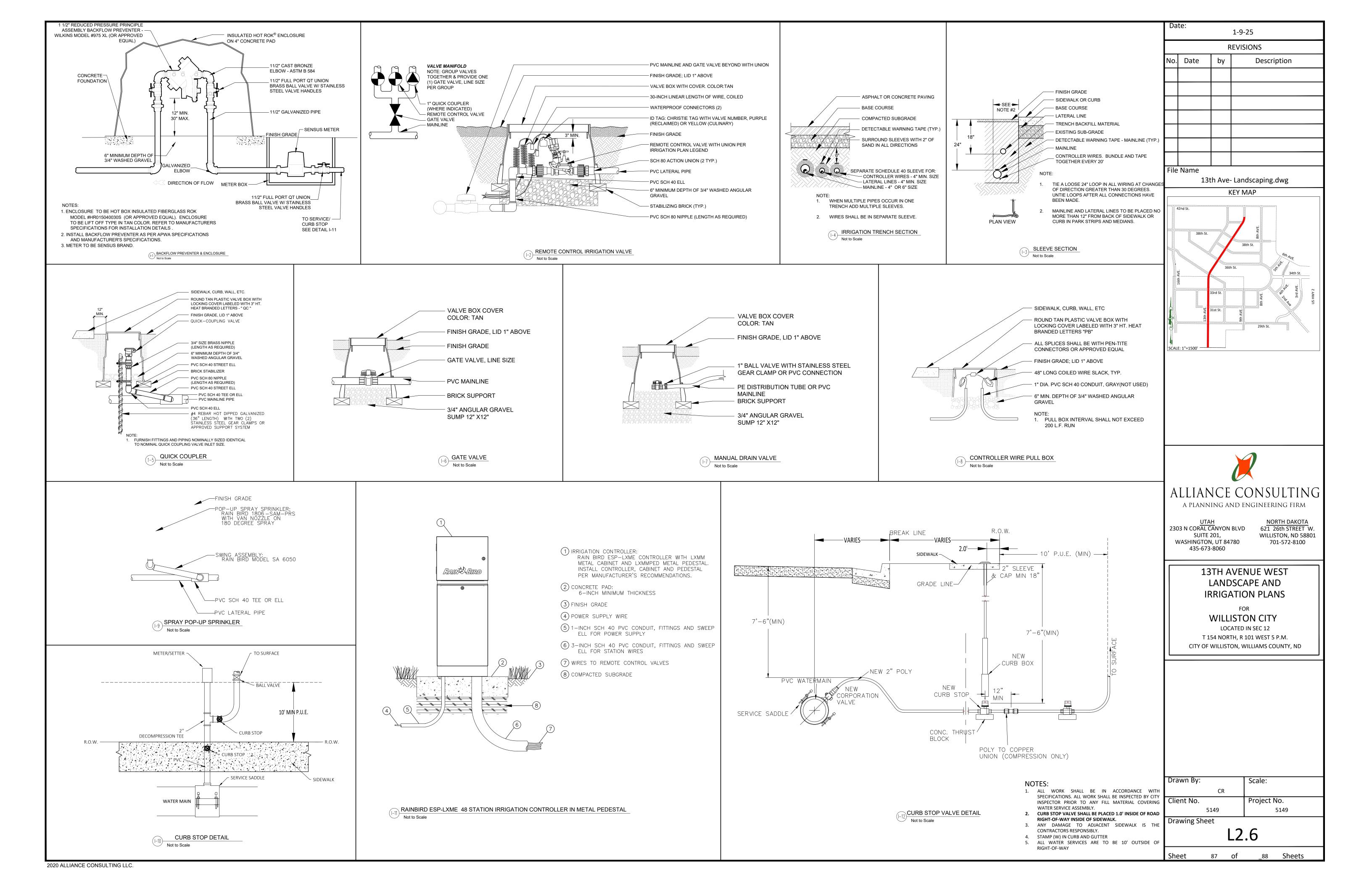












IRRIGATION NOTES:

- 1. THESE DRAWINGS ARE <u>DIAGRAMMATIC ONLY.</u> CONTRACTOR TO FIELD VERIFY DRAWINGS PRIOR TO ANY INSTALLATION OR ORDERING OF MATERIALS. NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES BETWEEN DRAWINGS AND SITE. IF CONTRACTOR FAILS TO NOTIFY LANDSCAPE ARCHITECT, HE ASSUMES FULL RESPONSIBILITY FOR ANY NECESSARY ALTERATIONS TO THE SYSTEM.
- 2. ALL MATERIALS USED SHALL BE INSTALLED PER PLAN AND MANUFACTURER'S SPECIFICATIONS. DEVIATIONS FROM DRAWINGS OR MATERIALS USED SHALL BE APPROVED BY OWNER'S REPRESENTATIVE OR LANDSCAPE ARCHITECT.
- 3. IRRIGATION SYSTEM DESIGN IS BASED ON MAX FLOW OF 50 G.P.M. WITH AT LEAST 45 P.S.I. AT VALVES. CONTRACTOR TO FIELD VERIFY PRESSURE PRIOR TO STARTING IRRIGATION INSTALLATION. NOTIFY CONSULTANT OF ANY DIFFERENCE FROM STATED PRESSURE. IF CONTRACTOR FAILS TO NOTIFY CONSULTANT HE ASSUMES FULL RESPONSIBILITY FOR ANY SYSTEM ALTERATIONS.
- 4. CONTRACTOR SHALL CONNECT AT IRRIGATION P.O.C. AFTER WATER METER AND BEGIN A 2" SCHEDULE 40 PVC IRRIGATION MAIN LINE FOR THE SPRINKLER SYSTEM
- 5. USE #14 GAUGE UNDERGROUND DIRECT BURIAL WIRE WITH "PEN TITE" WIRE CONNECTORS OR APPROVED EQUAL, FOR ALL VALVE CONNECTIONS. ALL SPLICES MUST BE PLACED IN VALVE BOXES.
- 6. IRRIGATION CONTRACTOR RESPONSIBLE FOR ALL LANDSCAPE SLEEVING. CONTRACTOR TO COORDINATE SLEEVING INSTALLATION WITH CONCRETE FLATWORK AND PAVING. ALL SLEEVES TO BE EXTENDED AT LEAST 3" BEYOND CONCRETE STRUCTURES OR 12" BEYOND ASPHALT PAVEMENTS. ALL HARDSCAPE 4'-0" OR WIDER TO BE SLEEVED.
- 7. CONTRACTOR SHALL INSTALL ALL PIPING AND WIRING UNDER PAVED AREAS IN SLEEVES AS SHOWN ON PLANS. WIRE SHALL BE SLEEVED SEPARATELY FROM PIPING.
- 8. LOCATE ALL IRRIGATION EQUIPMENT AND VALVE BOXES IN LANDSCAPE AREAS (SOME LINES AND EQUIPMENT ARE SCHEMATIC). LOCATE THESE ITEMS IN GRASS AREAS.
- 9. LOCATE VALVE BOXES IN GRANULAR LANDSCAPE AREAS (NOT IN GRASS) ADJACENT TO TO WALKWAYS AND/OR CURBS WHENEVER POSSIBLE.
- 10. ALL TREES LOCATED WITHIN IRRIGATED TURF AREAS WILL HAVE NO ADDITIONAL IRRIGATION SYSTEM PROVIDED TO THEM. TREES LOCATED WITHIN AREAS SHOWN AS HYDROSEEDED ZONES WILL HAVE SUPPLEMENTAL IRRIGATION PROVIDED AS PER PLAN. SEE TREE PLANTING AND IRRIGATION DETAILS FOR ADDITIONAL INFORMATION.
- 11. ALL MAIN LINE AND LATERAL LINE PIPE SHALL BE PVC SCHEDULE 40. ALL PIPE FITTINGS SHALL BE SCHEDULE 40, EXCEPT WHERE SPECIFIED AS SCHEDULE 80 IN DETAILS. INSTALL ALL PRESSURE LINES AT A MINIMUM DEPTH OF 24". INSTALL LATERAL LINES AT A MINIMUM DEPTH OF 18". INSTALL TORO 1" BLUE STRIPE XERIGATION HOSE (OR APPROVED EQUAL) AND RAINBIRD DT—025 (OR APPROVED EQUAL) ABOVE TOPSOIL AND WEED BARRIER FABRIC. STAKE TUBING AT A MAX OF 8' INTERVALS.
- 12. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT SITE CONDITIONS AND EXISTING IRRIGATION SYSTEM (IF ANY). CONTRACTOR SHALL VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO EXCAVATION. SHOULD DAMAGE BE INCURRED, THE CONTRACTOR SHALL REPAIR THE DAMAGE TO ITS ORIGINAL CONDITION AT HIS OWN EXPENSE.

- 13. THE OWNER RESERVES THE RIGHT TO REFUSE MATERIAL OR WORK WHICH DOES NOT CONFORM TO THESE DRAWINGS AND SPECIFICATIONS. REJECTED WORK SHALL BE REMOVED AND CORRECTED AS SOON AS POSSIBLE AT CONTRACTOR'S EXPENSE.
- 14. CONTRACTOR TO PROVIDE, INSTALL, AND SET UP ONE (1) 48 STATION RAIN BIRD CONTROLLER MODEL #ESP-LXME-48-120V, IN A METAL PEDESTAL LOCATION AS PER OWNER OR OWNERS REPRESENTATIVE. CONTROLLER SHALL BE HARDWIRED TO 110 POWER OUTLET (REFER TO INSTALLATION DETAILS).
- 15. PRIOR TO OWNER APPROVAL, CONTRACTOR SHALL COMPLETE THE FOLLOWING:

 A. ALL IRRIGATION EQUIPMENT (INCLUDING PIPE LINES AND SLEEVES) TO BE

 DOCUMENTED FROM 2 STATIONARY POINTS.
 - B. LABEL AND LAMINATE VALVE SCHEDULE, ATTACH TO INSIDE OF CONTROLLER.
 C. ALL IRRIGATION HEADS TO BE ADJUSTED TO THE PROPER HEIGHT.
- 16. CONTRACTOR SHALL ADJUST THE PERFORMANCE OF THE IRRIGATION SYSTEM FOR OPTIMUM PLANT GROWTH BASED ON ACTUAL SITE CONDITIONS, INCLUDING SOIL TYPES, SLOPE OR OTHER VARIABLES THAT MAY DEVIATE FROM PROJECT PLANS. NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES BETWEEN PROJECT PLANS AND ACTUAL SITE CONDITION PRIOR TO INSTALLATION.
- 17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING THE INSTALLATION OF A FULLY AUTOMATED IRRIGATION SYSTEM PRIOR TO STARTING PLANTING. IF THE IRRIGATION SYSTEM IS INTERRUPTED FOR ANY REASON THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTINUE MANUAL WATERING OF ALL PLANT MATERIAL UNTIL THE IRRIGATION SYSTEM IS FULLY OPERATIVE.
- 18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WATER SERVICE CONNECTIONS TO THE IRRIGATION POINT OF CONNECTION OR METER. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL CONNECTIONS INCLUDING THE IRRIGATION WATER METER AND ALL CONNECTIONS DOWN STREAM OF THE WATER METER.
- 19. REFER TO IRRIGATION SPECIFICATIONS AND DETAILS FOR INSTALLATION PROCEDURES
- 20. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL PIPING NECESSARY TO PROVIDE A COMPLETE AND FULLY OPERATIONAL IRRIGATION SYSTEM INCLUDING ALL SUB-LATERAL PIPING TO EACH PLANT EMITTER AS SPECIFIED AND DETAILED WHETHER OR NOT PIPING IS SHOWN ON PLANS.
- 21. REFER TO GENERAL CONSTRUCTION NOTES FOR ADDITIONAL CONSIDERATIONS
 THAT RELATE TO SCOPE OF WORK WITHIN THIS SECTION.
- 22. IRRIGATION CONTRACTOR SHALL PROVIDE 100% HEAD TO HEAD COVERAGE IN ALL GRASS AREAS. FIELD ADJUST HEAD LOCATIONS AS REQUIRED. ACTUAL SITE CONDITIONS MAY VARY FROM DRAWINGS AND NECESSITATE ADJUSTMENT OF HEAD LAYOUT, NOZZLES, OR QUANTITIES OF HEADS AT NO ADDITIONAL COST TO THE OWNER.
- 23. ALL IRRIGATION SPRAY HEADS/ROTORS LOCATED NEXT TO EXISTING OR PROPOSED CURBS, WALLS, WALKS, AND MOWSTRIPS, SHALL BE LOCATED 1" AWAY FROM AND 1/4" BELOW THESE STRUCTURES.
- 24. THE IRRIGATION CLOCK SHALL BE SET TO RUN BETWEEN THE OPERATIONAL HOURS OF 10:00PM TO 6:00AM. CONTRACTOR SHALL COORDINATE WITH CITY STAFF REGARDING THE IRRIGATION SYSTEM AND ALL OPERATIONS PRIOR TO ACCEPTANCE AND FINAL HANDOVER TO THE CITY/OWNER.

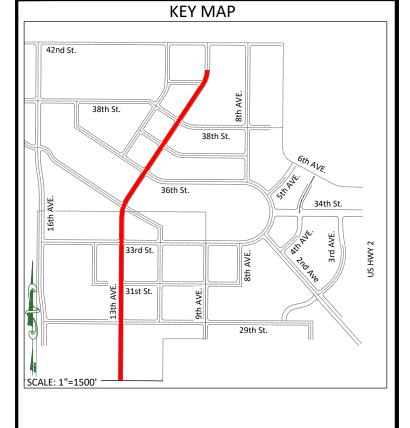
13TH AVE ZONE & FLOW CHART

ZONE I.D.	GPM	VALVE SIZE												
T1	15.5	1.5"	T20	15.5	1.5"	T39	15.5	1.5"	T58	15.5	1.5"	T77	16.7	1.5"
T2	15.5	1.5"	T21	16.7	1.5"	T40	15.5	1.5"	T59	15.5	1.5"	T78	15.5	1.5"
Т3	16.7	1.5"	T22	15.5	1.5"	T41	16.7	1.5"	T60	16.7	1.5"	T79	15.5	1.5"
T4	15.5	1.5"	T23	14.3	1.5"	T42	15.5	1.5"	T61	15.5	1.5"	T80	15.5	1.5"
T5	15.5	1.5"	T24	14.3	1.5"	T43	14.3	1.5"	T62	16.7	1.5"	T81	15.5	1.5"
Т6	16.7	1.5"	T25	14.3	1.5"	T44	13.1	1.5"	T63	15.5	1.5"	T82	16.7	1.5"
T7	14.3	1.5"	T26	13.1	1.5"	T45	11.9	1.5"	T64	16.7	1.5"	T83	15.5	1.5"
Т8	14.3	1.5"	T27	15.5	1.5"	T46	13.1	1.5"	T65	15.5	1.5"	T84	15.5	1.5"
Т9	15.5	1.5"	T28	15.5	1.5"	T47	15.5	1.5"	T66	16.7	1.5"	T85	14.3	1.5"
T10	15.5	1.5"	T29	15.5	1.5"	T48	16.7	1.5"	T67	13.1	1.5"	T86	14.3	1.5"
T11	16.7	1.5"	T30	16.7	1.5"	T49	16.7	1.5"	T68	11.9	1.5"	T87	16.7	1.5"
T12	15.5	1.5"	T31	15.5	1.5"	T50	15.5	1.5"	T69	13.1	1.5"	T88	15.5	1.5"
T13	15.5	1.5"	T32	16.7	1.5"	T51	15.5	1.5"	T70	13.1	1.5"	T89	15.5	1.5"
T14	16.7	1.5"	T33	15.5	1.5"	T52	16.7	1.5"	T71	16.7	1.5"	T90	16.7	1.5"
T15	15.5	1.5"	T34	16.7	1.5"	T53	15.5	1.5"	T72	15.5	1.5"	T91	15.5	1.5"
T16	15.5	1.5"	T35	15.5	1.5"	T54	15.5	1.5"	T73	15.5	1.5"	T92	15.5	1.5"
T17	16.7	1.5"	T36	16.7	1.5"	T55	11.9	1.5"	T74	11.9	1.5"	T93	15.5	1.5"
T18	14.3	1.5"	T37	13.1	1.5"	T56	13.1	1.5"	T75	11.9	1.5"	T94	16.7	1.5"
T19	15.5	1.5"	T38	11.9	1.5"	T57	16.7	1.5"	T76	10.7	1.5"	T95	15.5	1.5"

ZONE I.D.	GPM	VALVE SIZE
Т96	15.5	1.5"
T97	16.7	1.5"
T98	15.5	1.5"

Da	Date: 1-9-25						
		R	REVISIONS				
No.	Date	by	Description				
File	Name						

13th Ave- Landscaping.dwg





UTAH 2303 N CORAL CANYON BLVD SUITE 201, WASHINGTON, UT 84780 435-673-8060

NORTH DAKOTA 621 26th STREET W. WILLISTON, ND 58801 701-572-8100

13TH AVENUE WEST
LANDSCAPE AND
IRRIGATION PLANS
FOR

WILLISTON CITY

LOCATED IN SEC 12

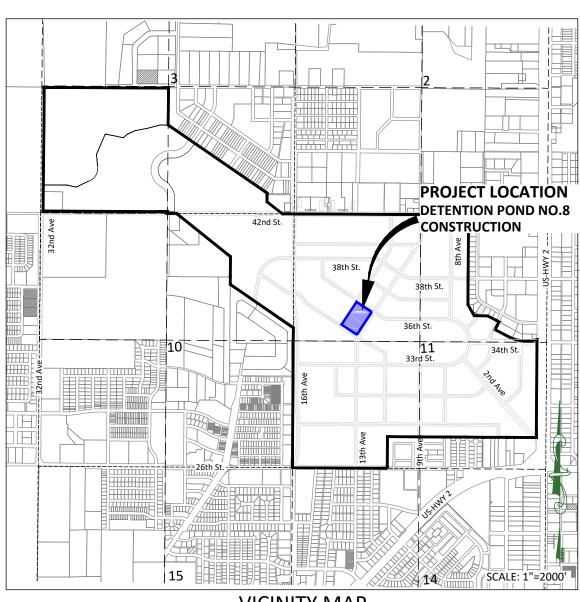
T 154 NORTH, R 101 WEST 5 P.M.

CITY OF WILLISTON, WILLIAMS COUNTY, ND

Drawn By:	Scale:			
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Client No.	Project No.			
5149	5149			
Drawing Sheet				
127				

L2.7

eet 88 of _88 Sheets



VICINITY MAP
WILLISTON SQUARE

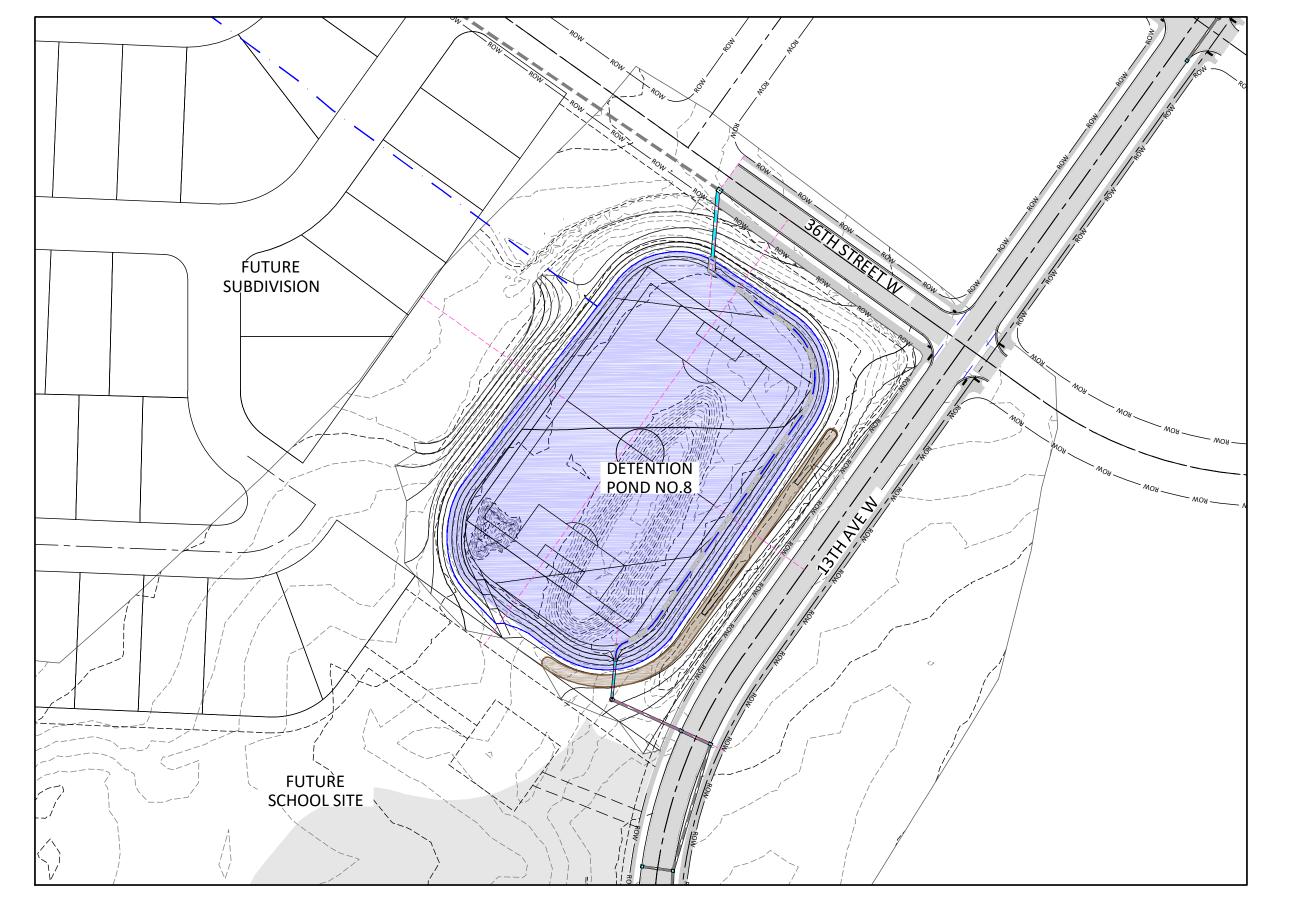
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NO.	SHEET	DESCRIPTION			
1	C100	COVER SHEET			
2	C101	CONSTRUCTION NOTES			
3	C102	CONTROL MAP			
4	C103	DUST AND SWPPP/EROSION CONTROL PLAN			
5	C104	TOPSOIL AND RE-SEEDING OVERALL			
6	C200	OVERALL GRADING			
7	C201	OVERALL VOLUME CUT/FILL			
8	C202	DETENTION POND NO. 8 GRADING PLAN AND PROFILE			
9	C203	DETENTION POND NO. 8 GRADING PLAN AND PROFILE			
10	C204	DETENTION POND NO. 8 STORM DRAIN PLAN AND PROFILE			
11	C300	DETAILS			
12	C301	DETAILS			

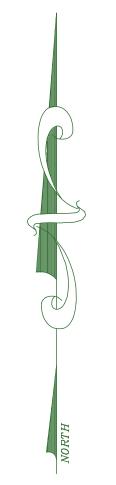
DETENTION POND NO.8 CONSTRUCTION

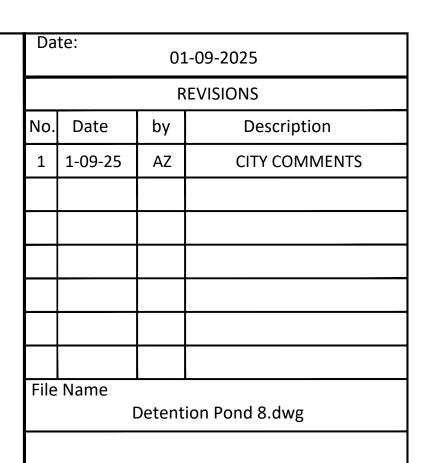
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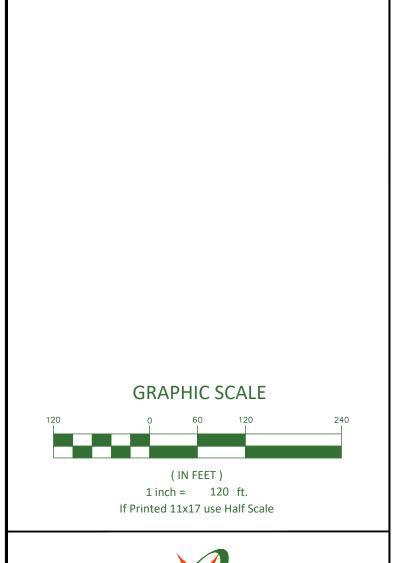
CITY OF WILLISTON LOCATED IN WILLISTON CITY, ND













DETENTION POND NO.8

COVER SHEET

CITY OF WILLISTON

LOCATED IN SEC 11 & 12

T 154 NORTH, R 101 WEST 5 P.M.

CITY OF WILLISTON, WILLIAMS COUNTY, ND

<u>UTAH</u> <u>NORT</u>

2303 N CORAL CANYON BLVD SUITE 201, WASHINGTON, UT 84780 435-673-8060

NORTH DAKOTA 621 26th STREET W. WILLISTON, ND 58801 701-572-8100



ENGINEER

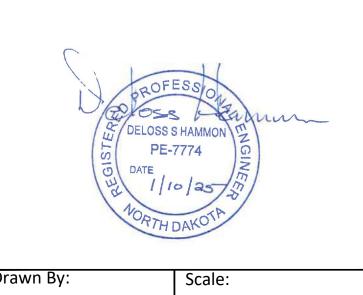
ALLIANCE CONSULTING
621 26th Street W
WILLISTON, ND 58801
PHONE: (701) 572-8100
FAX: (701) 512-6110
CONTACT: JAMES HAMMON
ENGINEER: DELOSS HAMMON



CITY

CITY OF WILLISTON
1121 5th STREET EAST
WILLISTON, ND 58801
PHONE: (701) 334-2223
CONTACT: DAVID JUMA





 Drawn By:
 Scale:

 CC
 1"=120'

 Client No.
 Project No.

 5149
 5149

Drawing Sheet C100

of _12 Sheets

UTILITIES —

MOUNTRAIL WILLIAMS ELECTRIC COOPERATIVE:
WILLISTON HEADQUARTERS
P.O BOX 1346
218 58th St W
WILLISTON, ND 58802

PHONE: (701) 577-3765

MONTANA-DAKOTA UTILITIES CO.
220 2nd AVE FAST

DNTANA-DAKOTA UTILITIES CO. 220 2nd AVE.EAST PHONE: (701) 572-1600 EMER. (800) 638-3278

NORTHWEST COMMUNICATIONS COOPERATIVE (NCC)
111 RAILROAD AVENUE
PO BOX 38
RAY, ND 58849
PHONE: 801-245-5884

CABLE TV:

MIDCONTINENT COMMUNICATIONS 1102 9th AVE. W WILLISTON, ND 58802 PHONE: (701) 572-3709 CONTACT: AARON KIETZMANN aaron_kietzmann@mmi.net

TELECOMMUNICATIONS: NEMONT.

PHONE: (701) 572-4900 CONTACT: RYAN OLSON ryan.olson@nemont.coop

GENERAL NOTES:

- 1. Unless shown otherwise on these plans, all construction shall conform to the codes and ordinances of Williston City, the State of North Dakota Administrative Codes, "The International Plumbing Code", and the "International Building Code" latest editions as administered by Williston City.
- 2. The Benchmark for this project is a NGS Cap Williston Reset 2 Located East of the Little Muddy River at and Elevation 2068.50. For the Localized Control see sheet C102.
- 3. Existing contour and finish contour interval is 1 feet.
- 4. Any necessary design modifications shall be approved by the design engineer.
- 5. All grading to be within ±0.1' of proposed elevation.

CONSTRUCTION NOTES:

- 1. The general notes apply to the site improvements projects in its entirety, unless noted otherwise. Construction notes that have been included sheet by sheet shall be considered additional notes applicable to that sheet.
- 2. Provide a One (1) Week notice to engineer, owner, and property owners prior to beginning construction.
- 3. The contractor shall be responsible for traffic control. Streets under construction must be protected at key areas with barricades over weekends and holidays. The contractor shall provide all required traffic control for all work. Contractor shall maintain home owner access and through traffic at all times, unless prior approval is obtained from City and Engineer.
- 4. The utilities shown on these drawing are approximate locations. The use of utility locations and depths shown hereon for construction purposes is prohibited. The exact location and depth of all utilities shall be determined on site before construction commences. If the Contractor fails to locate utilities relative to the construction area the contractor is fully responsible for any and all resulting damages.
- 5. Existing utility infrastructure shown is conceptual ONLY. It is the Contractors responsibility to locate all existing utilities infrastructure throughout the project. This includes all materials, equipment, means and methods.
- 6. All salvage materials shall become the property of the owner. Excess excavated material including pipe, stumps, roots, and any other items the owner does not wish to salvage shall become the contractor property and shall be removed from the site and disposed of properly, incidental to the contract with no additional compensation awarded for such.
- 7. The contractor shall not disrupt any property monumentation outside the immediate construction areas. In the event that monumentation needs to be reestablished, the engineer's surveyor shall reestablish them on any hourly rate basis at the contractor's expense.
- 8. Ground Water may be encountered. Provide and maintain adequate dewatering equipment to remove and dispose of surface and groundwater entering the trench. Comply with all N.D. Department of health requirements. If ground water is encountered, rock bedding shall be placed under pipe. Clay Dams may only be used on Sewer lines if ground water is encountered to prevent leakage along the entire main line. Ground water mitigation is incidental to the contract per the contract pay item.
- 9. Maintain existing drainage- including rain events through construction.
- 10.Stakes and Marks will be set only at the onset of the project and shall constitute the field control for the Contractor's use in establishing all necessary control to perform the work. The contractor shall preserve all stakes and marks. The Contractor shall hire the Engineer and Pay \$200/HR (plus travel and all reimbursable expenses) to reset any destroyed or disturbed stakes and marks. Before the survey crew leaves the site the Contractor shall determine the meaning of all stakes, measurements, and marks. Provide 48 hour notice to the engineer for staking requests.
- 11. Coordinate support of utility crossings and/or existing utility relocations with Utility Company, Traffic Control Issues with the Owners, and Mobility issues with other construction sites in the Area.
- 12. Notify Engineer and Owner at least <u>48</u> hours in advance of temporary disruption of water or sewer services. Owner must APPROVE disruption of service prior to commencement.
- 13. Where existing Utility wires (Telephone, Electric, Fiber Optic, etc.) are located adjacent to or above the proposed pipeline, provide temporary support and install main piping under existing wires. Any decision to have the existing utilities moved will be at the Contractor's Expense. Request the Utility Company provide an on-site representative to inspect the excavation and temporary support of Utility wires to ensure they concur with the temporary support.
- 14. Contractor shall submit a traffic control plan to the engineer for approval prior to distrupting service or commencing construction.
- 15.Limit all work to within the Construction Limits or the Right-of-Way.
- 16.Maintain Ingress/Egress access to Individual Property at all times. Coordinate detours and temporary closures with each Property Owner, Keep duration of all closures and detours to a minimum.
- 17. Remove, Store, and Replace any existing traffic signs disturbed by construction. Any signs damaged or lost as a result shall be replaced by the Contractors.
- 18. Miscellaneous items such as and not limited to Mailboxes, Street Lights, Traffic Lights, Signs, Fences, Poles. Etc. Shall be Protected or Removed and Reinstalled by the Contractors. Contractor is responsible for all Miscellaneous items through out the duration of the project.
- 19. Protection or removal and replacement of Trees, Shrubs, and Landscaping shall be coordinated with the Engineer and the Property Owner.
- 20.All equipment necessary for the proper Construction of Pipelines shall be on the Project, In good, mechanical working condition before construction is permitted to Start.
- 21. The contractor shall be responsible for meeting OSHA standards for their construction site.
- 22.Prior to any construction, the contractor shall field verify the location, elevations, size, and material of the existing water and sewer mains at the points of connection. Required exploration excavation shall be incidental to the contract and no additional compensation shall be awarded for such
- 23.City personnel operates valves outside of construction zone, contractor is able to operate *new* valves inside construction zone with approval from the owner.
- 24. After installation of the utilities and cleanup items, make a written request to the engineer for a final inspection. Any deficiencies found will promptly be corrected before final payment will be made.
- 25.Locate and Protect all existing Drainage Facilities, SWPP, and Culverts.
- 26.All disturbed fill areas require a 12" sub-grade preparation at 95% of a modified proctor.
- 27.All excavation and grading shall be in accordance with the requirements of the City of Williston [701-577-6368], of the "International Building Code", 2011 edition, and the specifications.
- 28.All excavation, grading, and fill operations within the building area should be observed by the Field Engineer to verify Subsoil conditions, and determine adequacy of site preparation, suitability of fill materials and compliance with compaction requirements.
- 29. Prior to and during compaction operations, all backfill material shall have the required moisture content uniform throughout each layer.
- 30.In the event of a conflict between the engineered drawings and City of Williston Engineering Specifications the most stringent condition will prevail.
- 31. The construction of the development must comply with all conditions of approval.
- 32.Contractor is responsible & required to obtain their own NDDEQ/NOI permits.
- 33. The protection, temporary support, adjustment, or relocation of any utilities and structure (overhead, underground, or surface) required for installation of improvements shall be coordinated with the owner of each utility before construction commences. All costs associated with said work shall be incidental to the contract and no additional compensation shall be awarded for such.

CONSTRUCTION NOTES:

- 34. All grading areas requiring fill will be a minimum of 95% of a modified proctor and considered structural fill, unless otherwise specified by the Engineer. Contractor is to moisture condition, rework 12", and place and compact all materials. No stockpiling of material.
- 35. Contractor to use asphalt millings on site, placing any unused millin's in stockpile adjacent to project.
- 36. No equipment is allowed on paved surface and all haul roads/routes shall be reclaimed following construction completion.
- 37. A temporary construction easement will be provided for work on pads adjacent to roadway construction.
- 38. Contractor to have nonworking supervision onsite at all times when construction activities are taking place. Supervisor shall be higher than foreman level; capable to make decisions on behalf of the contractor.

TEMPORARY EROSION AND SEDIMENT CONTROL NOTES

- 1. Provide and Maintain all Erosion Control Measures, Plans, Permits, Maintenance, Expenses, Etc.
- 2. All temporary erosion and sediment control devices shall be installed, monitored, and maintained until final turf cover has been established and accepted by the City.
- 3. Inspections shall be performed by the Contractor at Least Once Every 14 Calendar Days and within 24 Hours After a Storm Event of 0.5" or More. Inspections shall be documented in Writing and shall Include: Date and Time, Name of Inspector, Findings, Corrective Actions Taken, and Dates and Amounts of Rainfalls.
- 4. All Erosion Prevention and Sediment Control devices must be repaired, replaced, or supplemented when they become nonfunctional or the sediment reaches 1/3 of the height of the device. These repairs must be made within 24 hour of Discovery, or as soon as field conditions allows.
- 5. Provide Temporary Erosion Protection or Permanent cover for the Exposed soil areas where activities have been completed or temporarily cease within 21 day of ceasing earth moving activities.
- 6. Sediment tracked on the street shall be removed within 24 hours using a street sweeper with pick-up broom.
- 7. All temporary Erosion and Sediment control devices must be removed by the Contractor when final turf cover is established and acceptable to the Owner.
- 8. Berm Bags are Required on all existing Catch Basins.
- SWPPP must be onsite, and accessible as per the NDDOT.
- 10. It is the contractors responsibility to identify all and any SWPPP staging areas.

DUST CONTROL NOTES

THESE DUST CONTROL MEASURES MUST BE OBSERVED AT ALL TIMES:

- 1. Apply water by means of trucks, hoses and/or sprinklers at sufficient frequency and quantity, prior to conducting, during and after earthmoving activities.
- 2. Pre-apply water to the depth of the proposed cuts, or equipment penetration.
- 3. Apply water as necessary and prior to expected wind events.
- 4. Operate haul vehicles appropriately in order to minimize fugitive dust and apply water as necessary during loading operations.
- 5. The Contractor shall provide suitable equipment to control dust and air pollution caused by construction operations. The contractor shall also provide suitable mud and dirt containment to maintain clean conditions on the work site, access roadways and adjacent properties.
- 6. Owner will provide water for construction at no cost to contractor. Contractor to coordinate with owner to get construction meter installed.
- 7. Contractor shall obtain grading permit from Development Services at not cost to contractor.
- 8. SWPPP permit will be required.

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		R	EVISIONS				
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1	1-09-25	AZ	CITY COMMENTS				
File	Name						
	Detention Pond 8.dwg						



UTAH 2303 N CORAL CANYON BLVD SUITE 201, WASHINGTON, UT 84780 435-673-8060

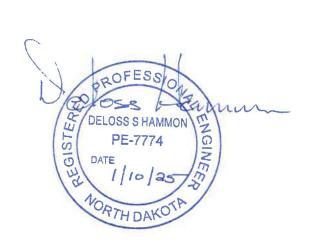
CONSTRUCTION NOTES

621 26th STREET W.

WILLISTON, ND 58801

701-572-8100

FOR
CITY OF WILLISTON
LOCATED IN SEC 11 & 12
T 154 NORTH, R 101 WEST 5 P.M.
CITY OF WILLISTON, WILLIAMS COUNTY, ND



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Scale:

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Client No.

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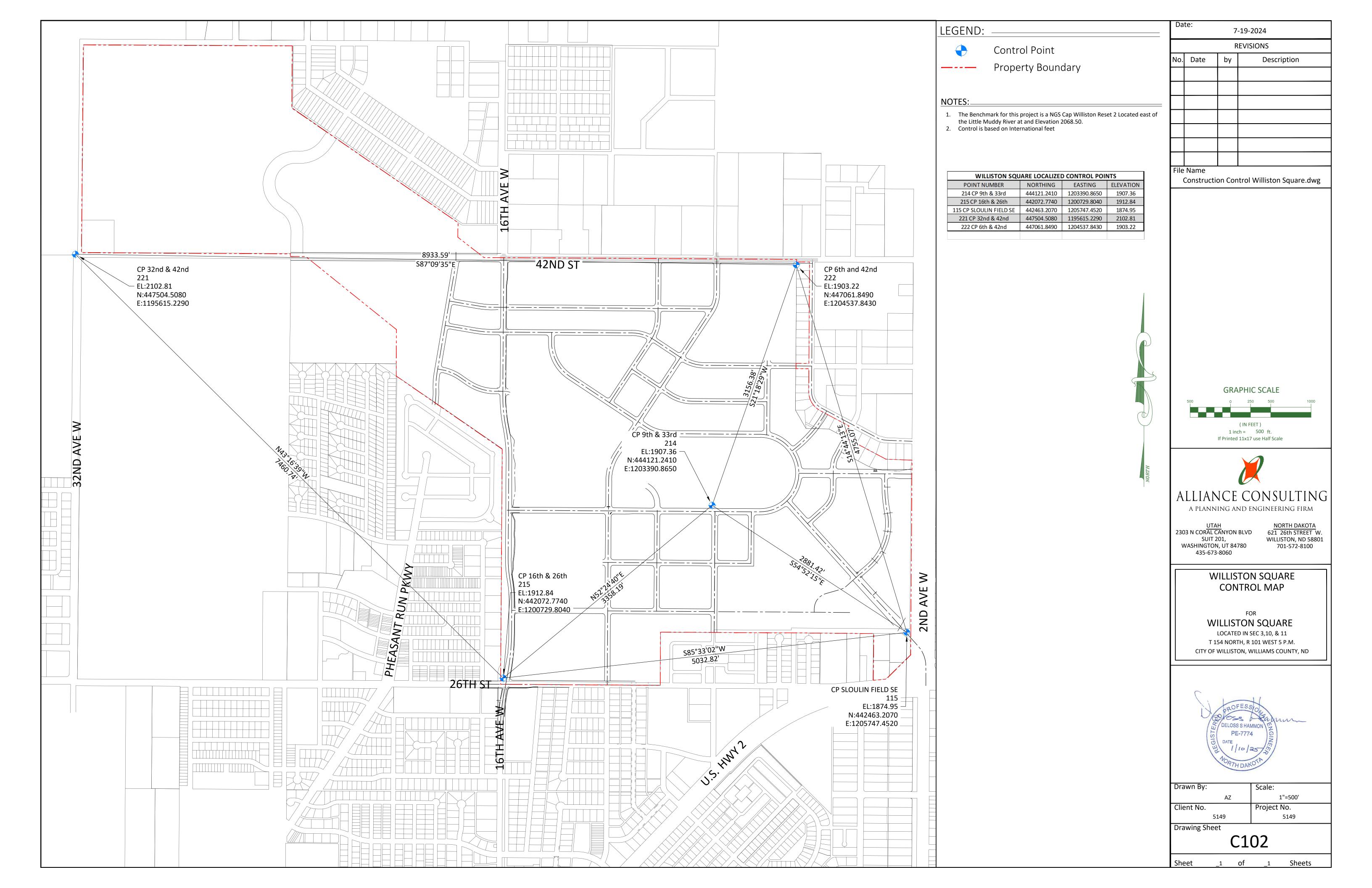
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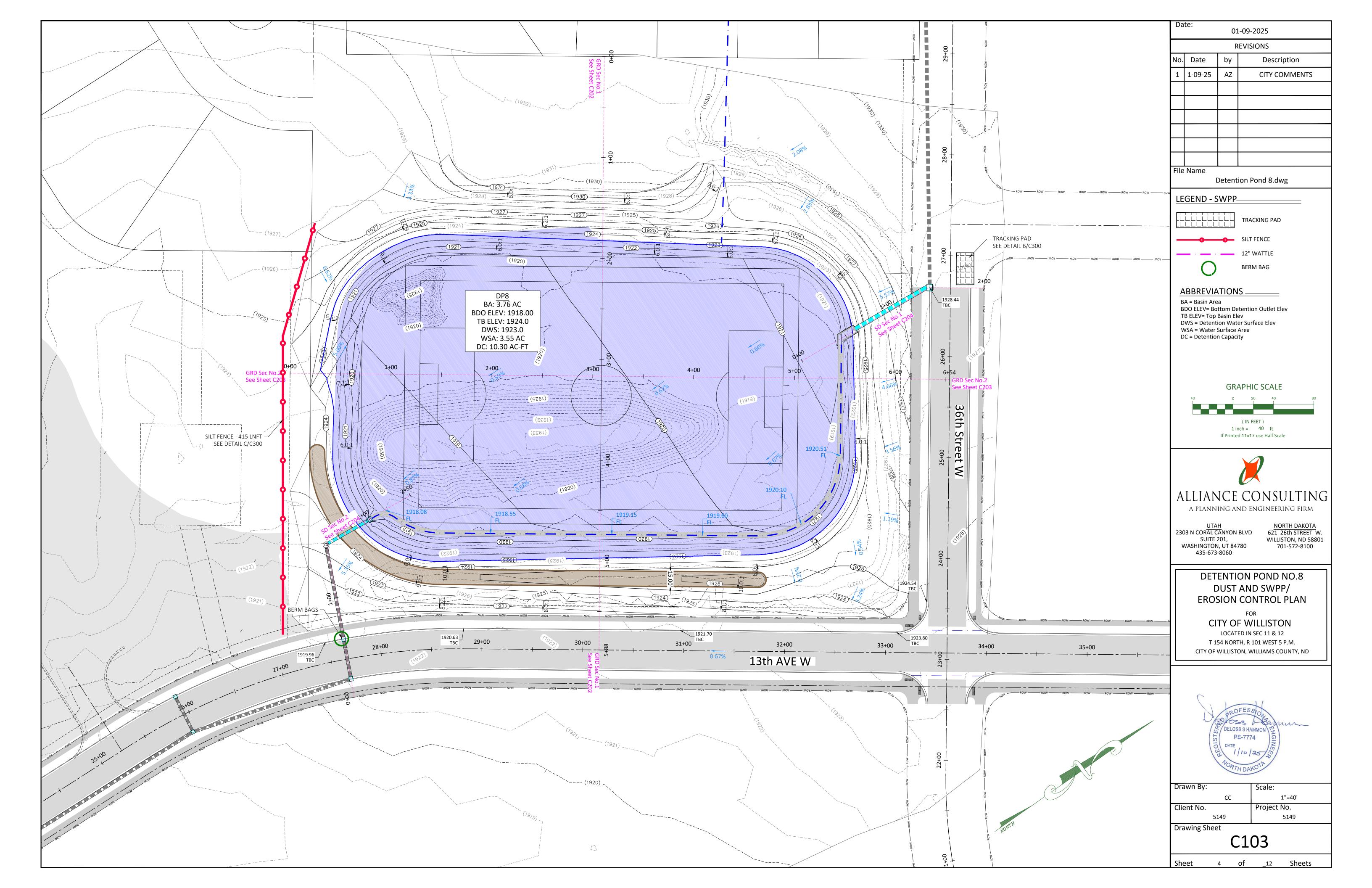
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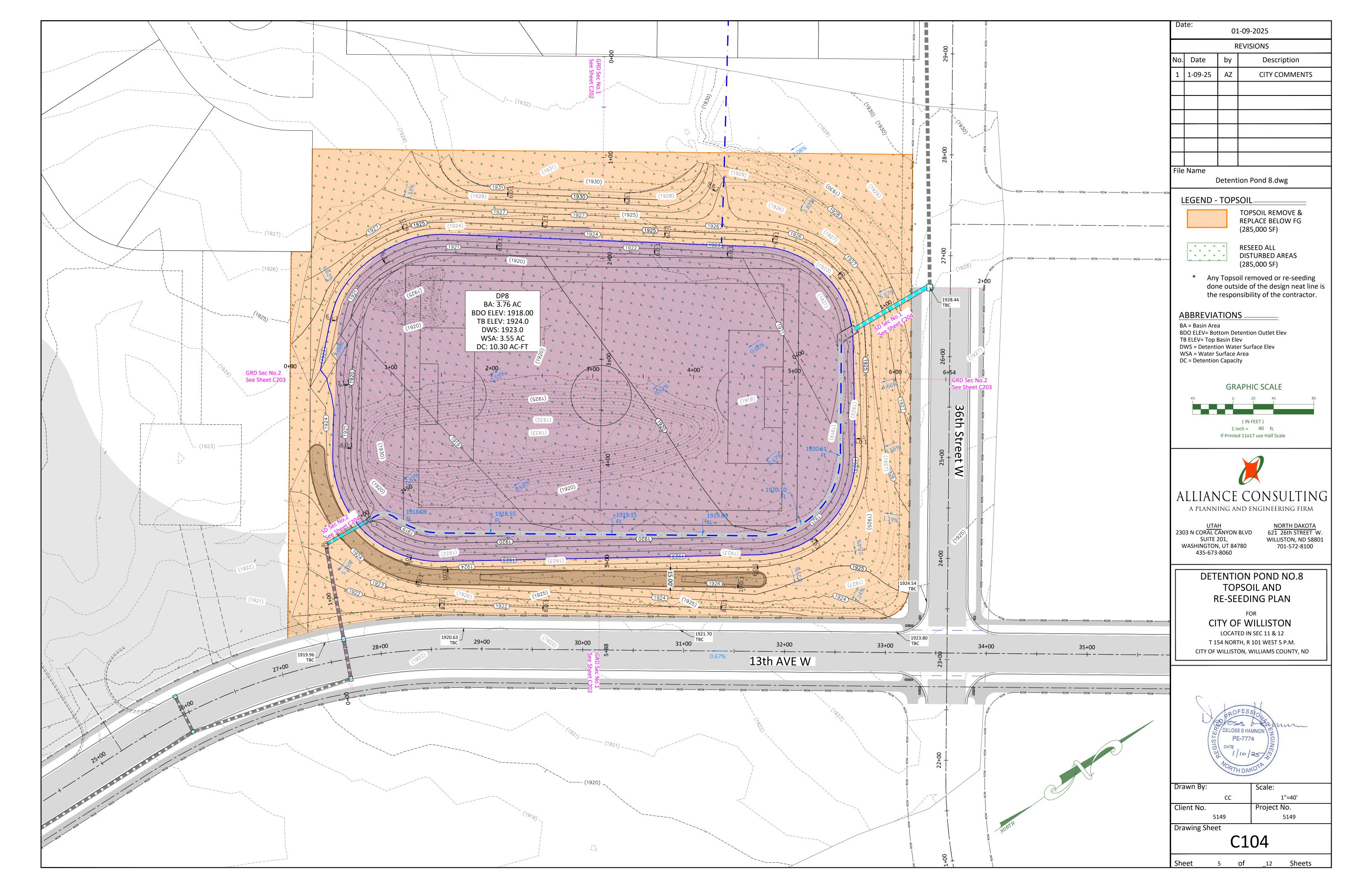
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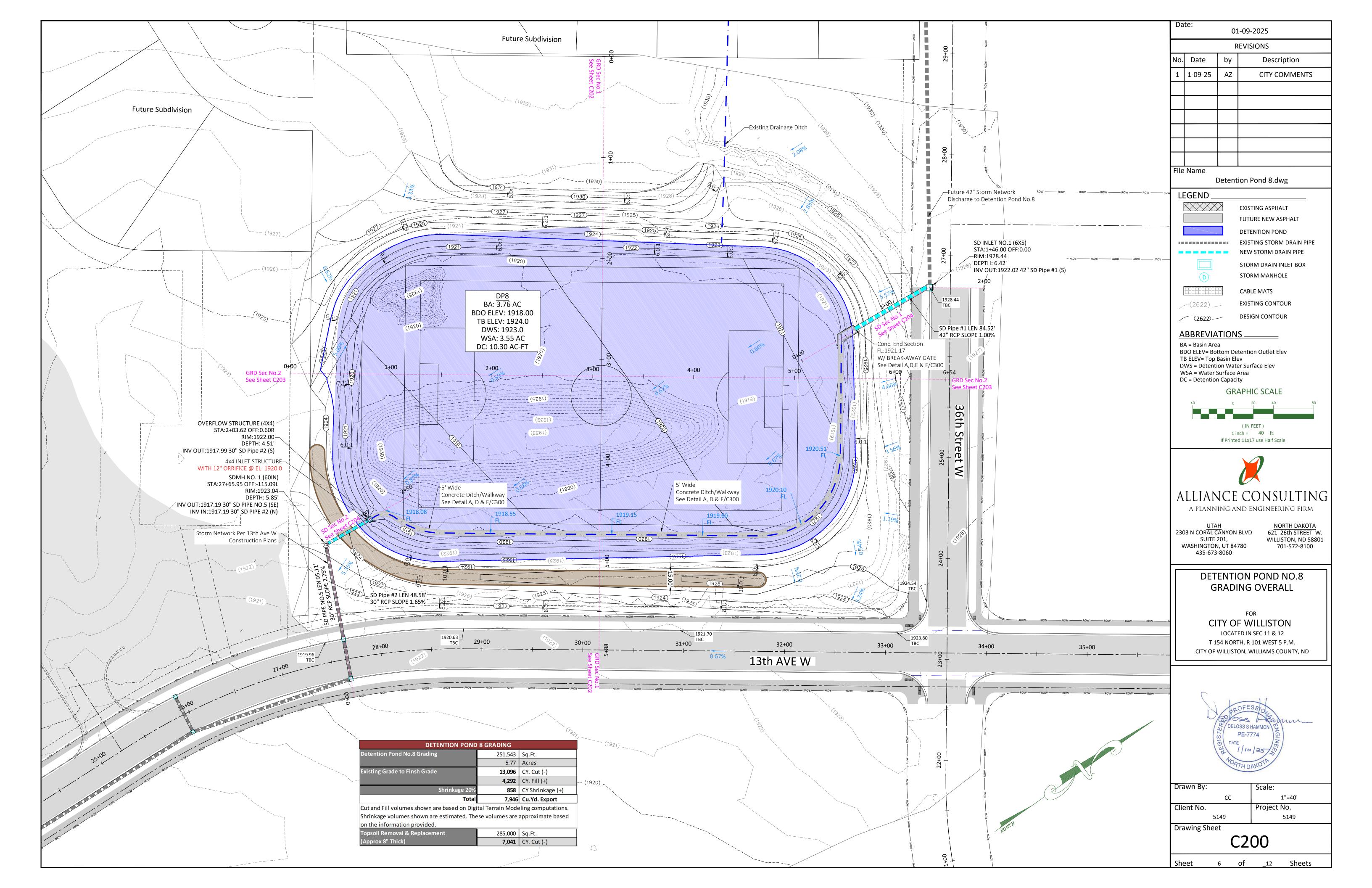
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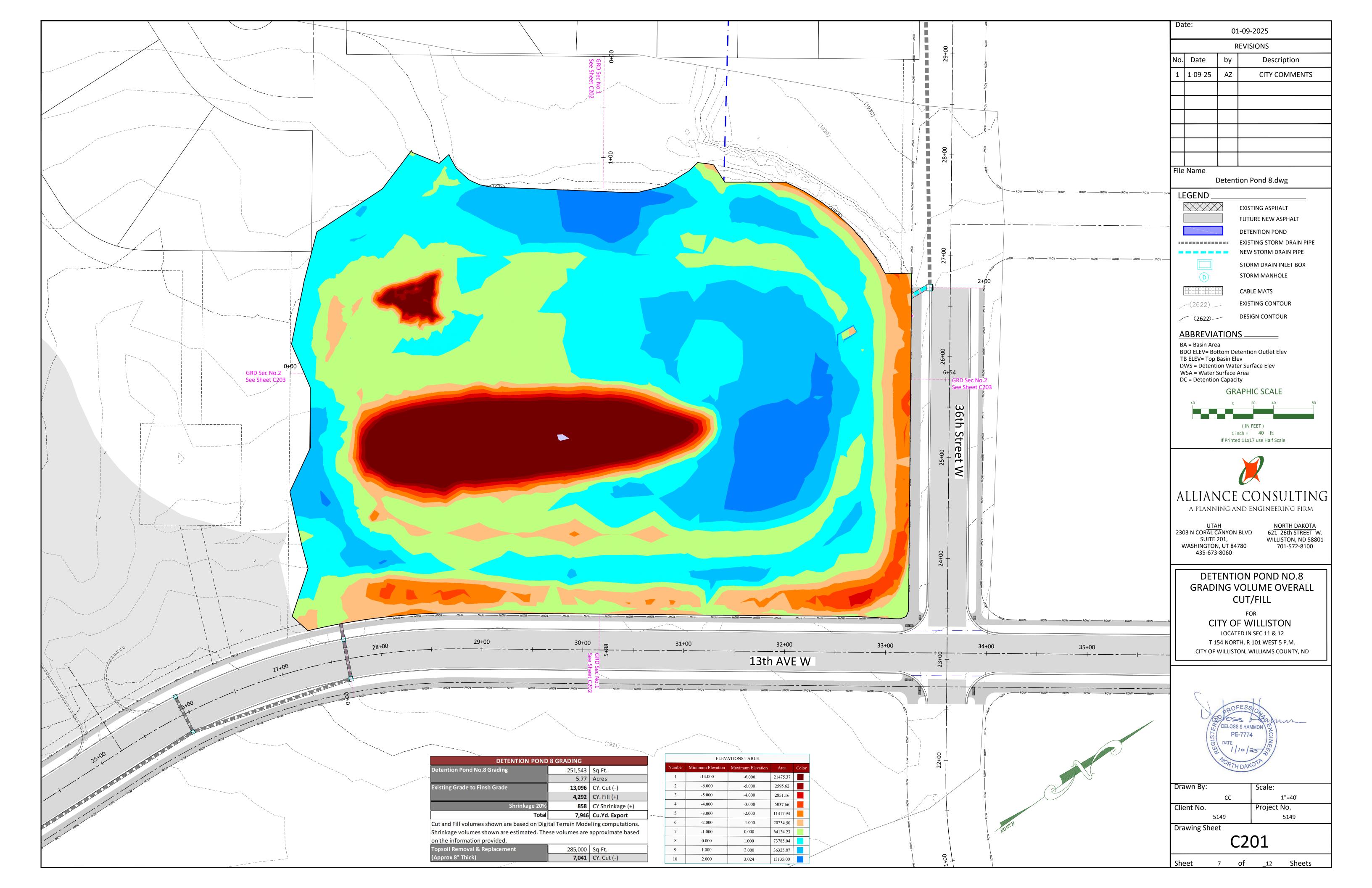
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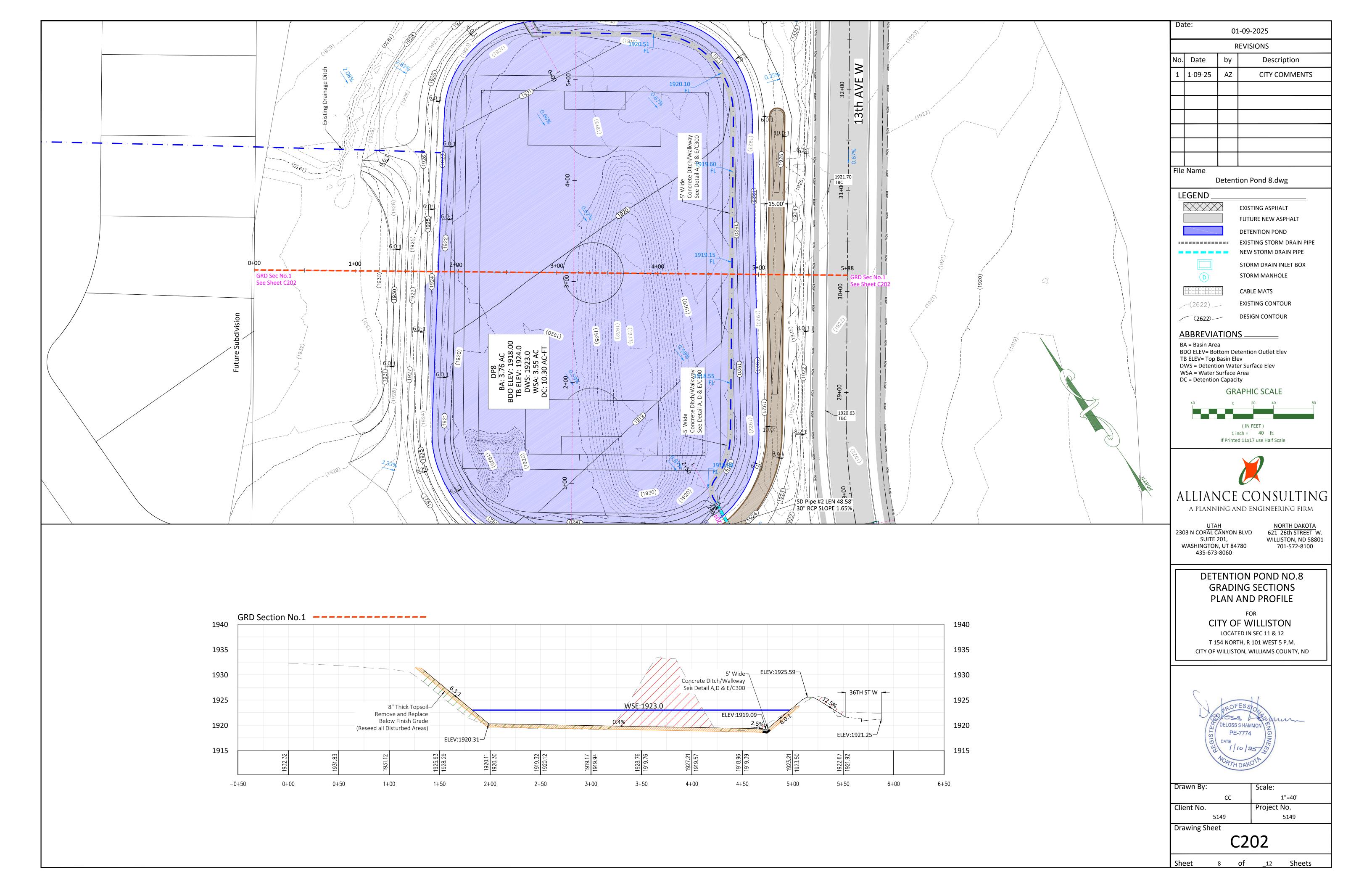


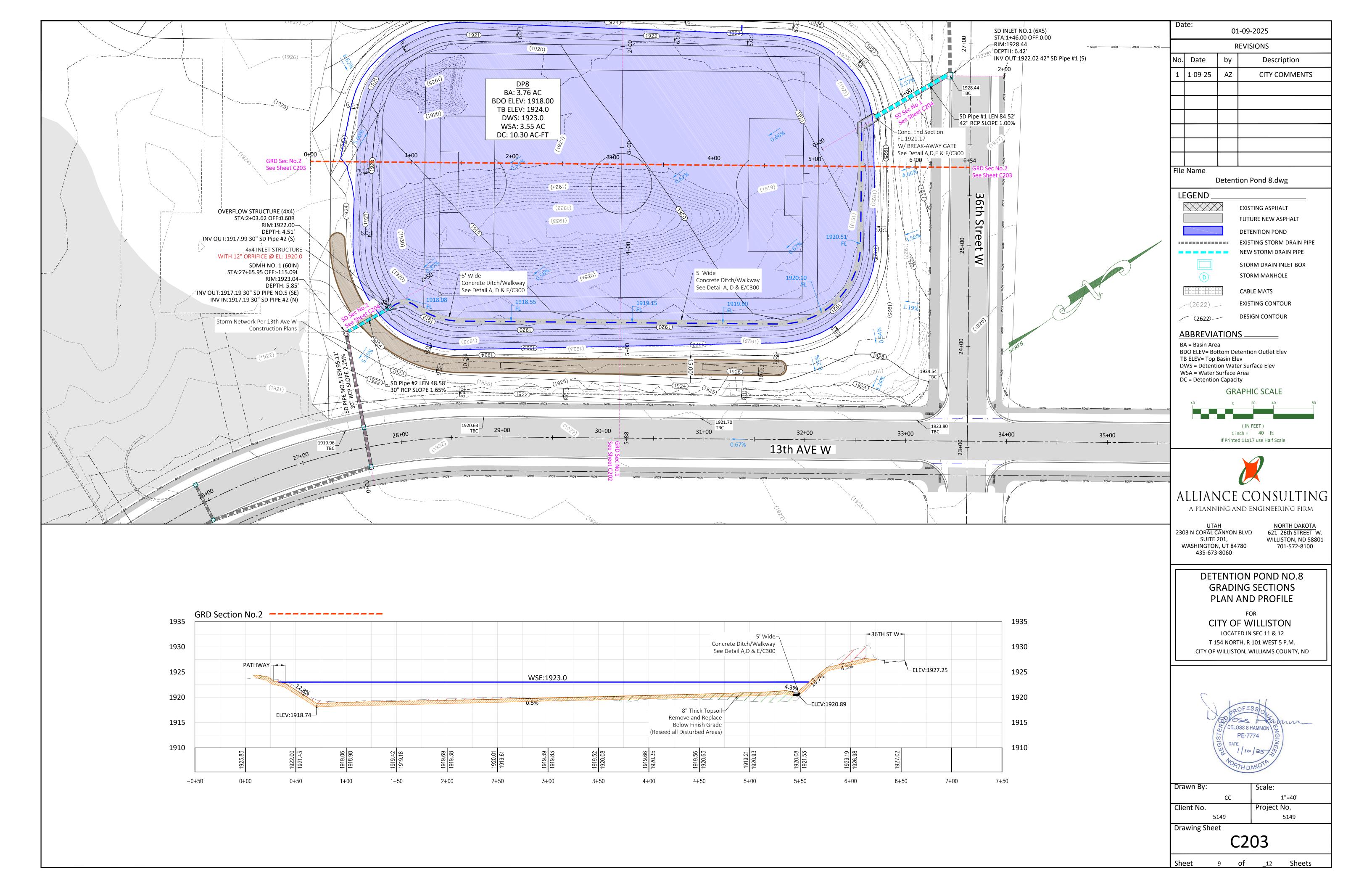


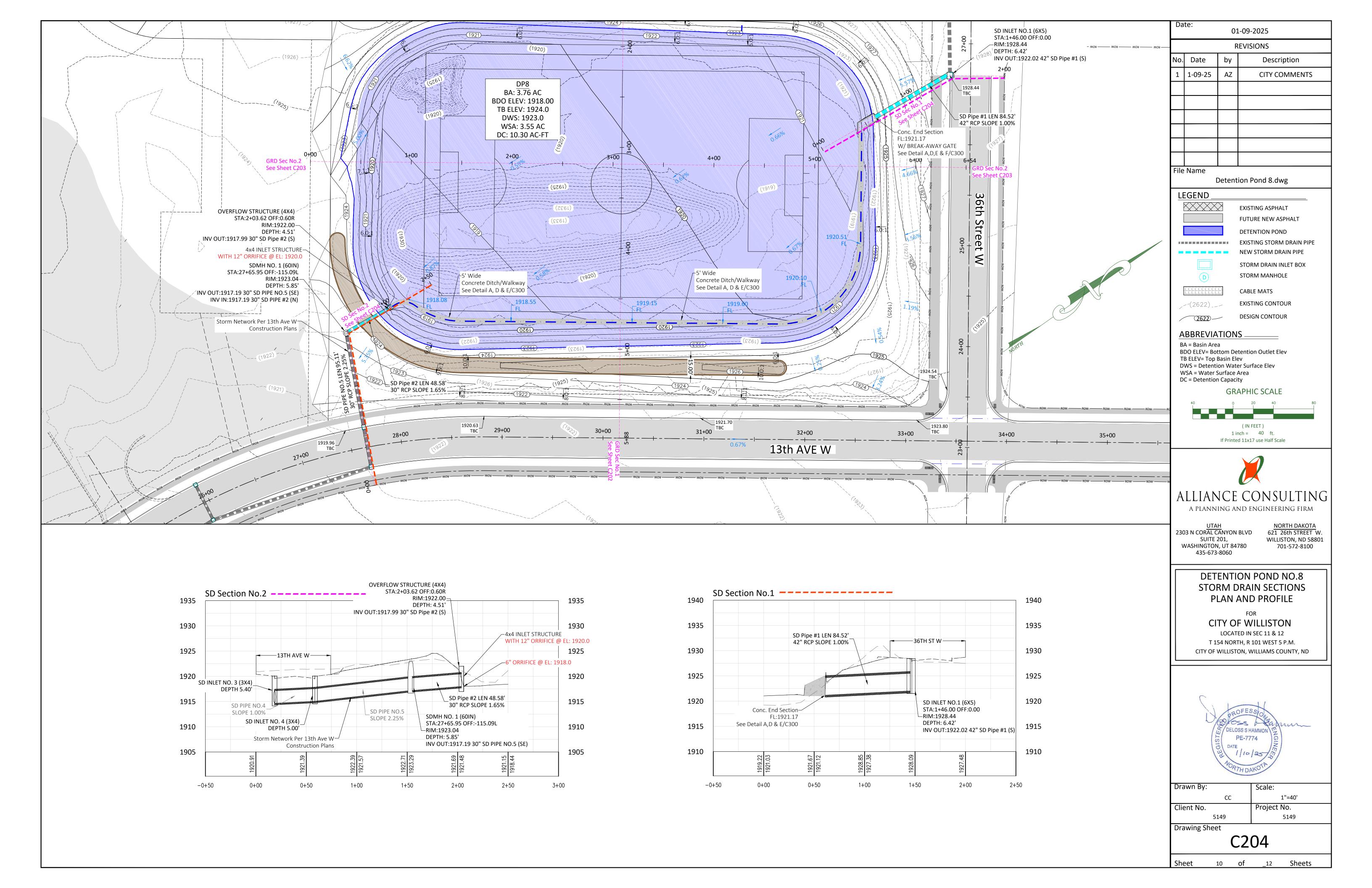


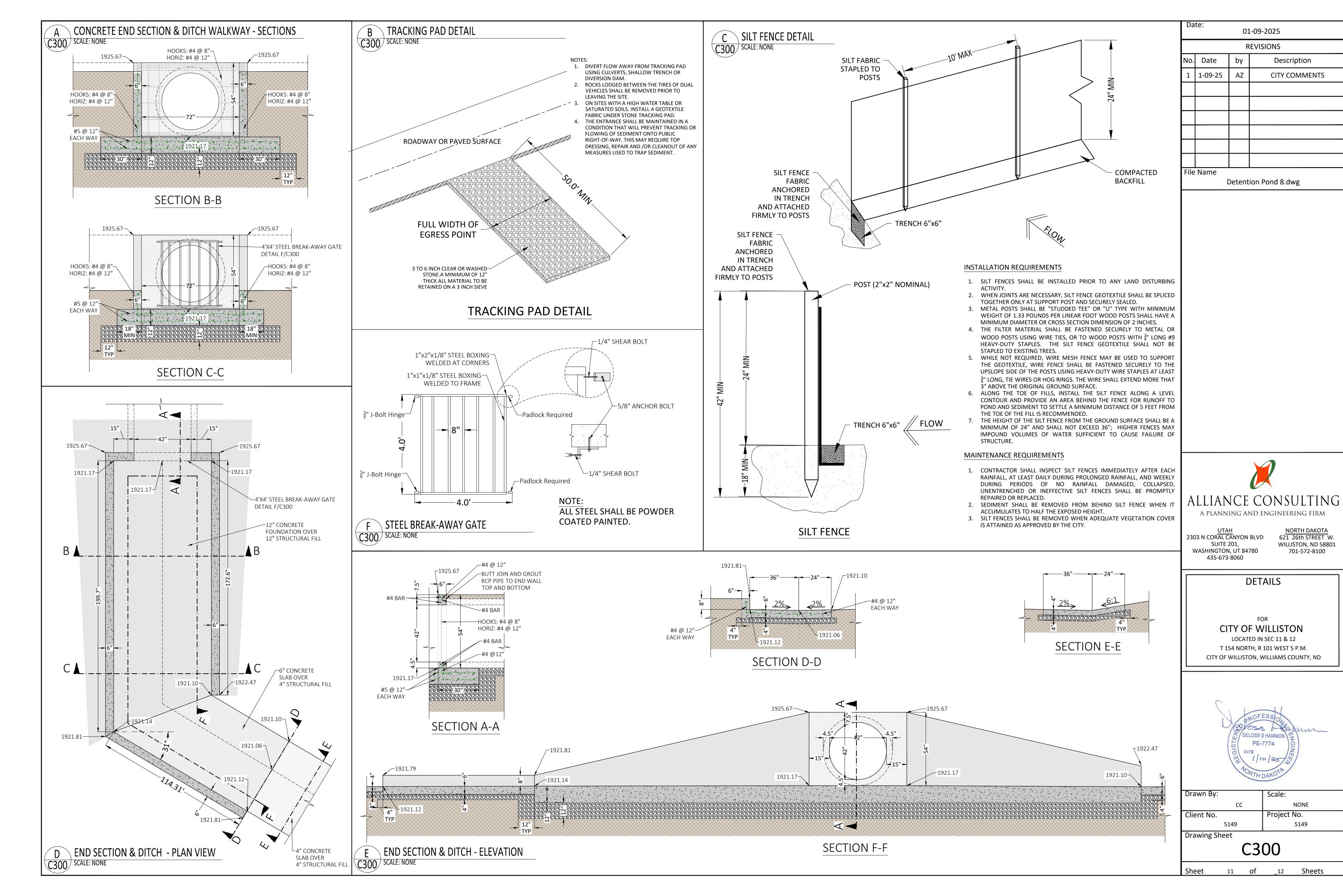










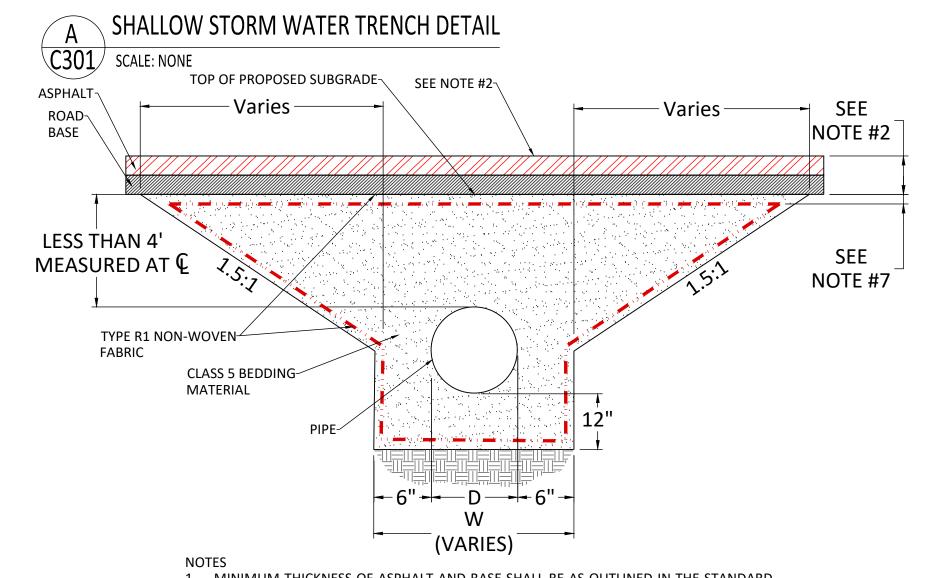


NORTH DAKOTA

701-572-8100

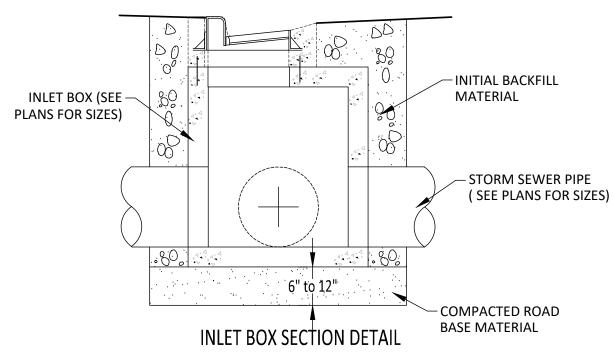
NONE

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- 1. MINIMUM THICKNESS OF ASPHALT AND BASE SHALL BE AS OUTLINED IN THE STANDARD UTILITY TRENCH PATCH. IN NO CASE SHALL THE THICKNESS BE LESS THAN THE EXISTING. SEE DETAIL E1-D2
- 2. FOUNDATION MATERIAL SHALL BE USED WHEN TRENCH BOTTOM IS UNSTABLE.
- 3. MINIMUM COMPACTION SHALL BE 95%, WHEN APPROVED FLOWABLE FILL OR SLURRY IS USED COMPACTION TESTING WILL NOT BE REQUIRED.
- 4. WHERE ROAD SECTION HAS A DESIGNED GRANULAR SUB-BASE, IT SHALL BE REPLACE IN KIND OR WITH ROAD BASE GRAVEL.
- 5. 24 HOUR NOTICE REQUIRED ON ALL INSPECTIONS.
- 6. ALL TRENCH BACKFILL SHALL MEET MIN. COMPACTION REQUIREMENTS.
- 7. ENSURE MIN 4" CLASS 5 BASE BETWEEN FABRIC AND TOP OF SUBGRADE

B INLET BOX SECTION DETAIL C301 SCALE: NONE



NOTES:

- 1. SEE TABLE FOR BACKFILL MATERIAL REQUIREMENTS.
- 2. SEE CONSTRUCTION NOTES FOR BACKFILL PROCEDURES AND COMPACTION REQUIREMENTS.
- 3. BEDDING MATERIAL MUST BE IMPORTED SAND OR APPROVED ONSITE SAND
- 4. WRAP JOINTS ON CONCRETE PIPES IN TYPE S1 GEOTEXTILE FABRIC. 5. ALL BOXES REQUIRE MASKING AAND FABRIC AROUND ALL JOINTS.

BACKFILL MATERIALS FOR TRENCHES

CIEVE CIZE	PERCENT PASSING FOR:					
SIEVE SIZE	FOUNDATION MATERIAL*	BEDDING MATERIAL	INITIAL BACKFILL MATERIAL	FINAL BACKFILL MATERIAL		
2.00-IN	100			NATIVE MATERIAL		
0.75-IN	5-15		100	WHICH CONTAINS NO SOD,		
NO. 4	0-5	100	40-70	VEGETATION, ROCKS LARGER THAN 8.00-IN IN		
NO. 50		5-15	20-50	DIA., ASPHALT OR CONCRETE CHUNKS, ETC.		
NO. 100		0-5	5-30			

* TO BE USED ONLY WHEN THE TRENCH BOTTOM IS UNSTABLE.

C SLURRY ENCASEMENT C301 SCALE: NONE -WIDTH OF TRENCH-SLURRY ENCASE TO SPRING LINE SIDE FORMS AS REQUIRED \ (SEE NOTE 2) SLURRY 6" MIN. (TYP. ALL AROUND) SIZE OF PIPE-

NOTES:

STORM WATER TRENCH DETAIL

(MIN) PIPE SECTION DETAIL

VARIES

C301 SCALE: NONE

VARIES

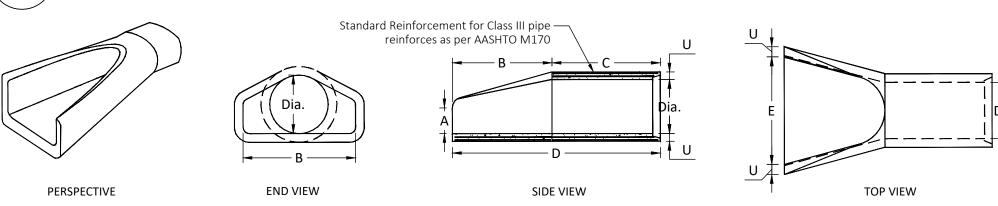
SHOWN ON PLANS

THIS DETAIL SHALL BE REQUIRED WHEN NEW OR EXISTING PIPE INSTALLATIONS WILL BE SUBJECT TO DAMAGE ANYTIME IN THE FUTURE DUE TO LACK OF PROPER COVER OR WHEN MINIMUM SEPARATION BETWEEN CROSSING OR ADJACENT UTILITIES CAN NOT BE MAINTAINED, AS DETERMINED BY THE ENGINEER.

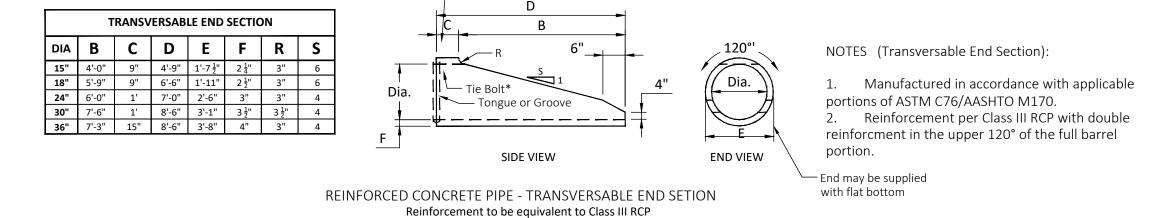
END SECTION

- FOR PIPE OVER 18" I.D., WOOD, METAL, OR GYPSUM BOARD FORMS MUST BE USED TO FORM THE SIDES OF THE ENCASEMENT. GYPSUM BOARD FORMS MAY BE LEFT IN THE GROUND BELOW THE TOP OF THE ENCASEMENT. THIS SHALL BE OPTIONAL WITH POURING AGAINST TRENCH WALLS FOR ENCASEMENT OF 18" AND SMALLER PIPE.
- FOR ALL SITUATIONS WHERE SIDE FORMS ARE USED, TRENCH WALLS SHALL BE OVER-EXCAVATED TO ALLOW SUFFICIENT ROOM TO OPERATE PROPER MECHANICAL COMPACTION EQUIPMENT.
- SLURRY WHICH SPILLS BEYOND 12" FROM THE SIDES OF THE PIPE FOR ANY REASON SHALL BE REMOVED BACK TO THE PROPER LINE PRIOR TO
- BACKFILLING. COVER TO BE APPROVED BY ENGINEER.
- THE SLURRY ENCASEMENT SHALL HAVE A MINIMUM THICKNESS ON ALL SIDES OF 6"

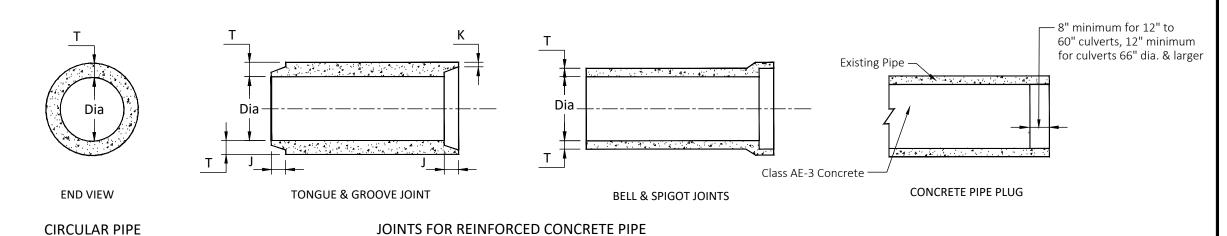
D REINFORCED CONCRETE PIPE CULVERTS AND END SECTIONS - (ROUND PIPE) C301 SCALE: NONE



REINFORCED CONCRETE PIPE - FLARED END SECTION Reinforcement to be equivalent to Class III RCP



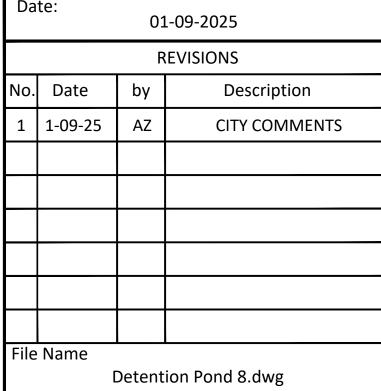
* Tie Bolts per Manufacturer's Specifications



All	Classific	ations o	f Round	Concrete	e Pipe
Internal Dia. of pipe in inches	Cross-Sectional Water Area	Weight per lin. foot of pipe Std. Wall	Joint J Groove End Min/Max	Joint K Tongue End Min.	Minimum Wall Thickness (T)
DIA	Sq. Ft.	Lbs.	ln.	ln.	ln.
12	0.79	92	1 ½" - 2 ½"	<u>3</u> " 4	2"
15	1.23	127	$1\frac{3}{4}$ " - $2\frac{3}{4}$ "	<u>7</u> 11	2 ½"
18	1.77	168	1 7 - 2 7	1"	2 ½"
21	2.40	214	1 7 - 3 1 "	1 ½"	2 <u>3</u> "
24	3.14	265	2 ³ " - 3 ³ "	1 ½"	3"
27	3.98	322	2 ³ / ₄ " - 4"	1 ½"	3 <u>1</u> "
30	4.91	384	3 ½" - 4 ½"	1 ½"	3 ½"
33	5.94	452	3 ½" - 4 ½"	1 ½"	3 <u>3</u> "
36	7.07	524	3 ½" - 4 ½"	1 ½"	4"
42	9.62	685	3 3" - 4 3"	1 ³ / ₄ "	4 ½"
48	12.57	685	3 ½" - 4 ¾"	1 7 "	5"
54	15.90	1070	4 ½" - 5 ½"	2"	5 ½"
60	19.63	1296	4 ½" - 5 ½"	2 ½"	6"
66	23.76	1542	5" - 6"	2 5"	6 ½"
72	28.27	1810	5 \frac{5}{8}" - 6 \frac{3}{4}"	2 ⁷ / ₈ "	7"
78	33.18	2098	6 ½" - 7 ½"	2 7 "	7 ½"

FLARED END SECTION TERMINAL DIMENSIONS							
							DIA A B C D E L
12	0'-4"	2'-0"	4'-0 ⁷ / ₈ "	6'-0 ⁷ / ₈ "	2'-0"	2"	
15	0'-6"	2'-3"	3'-10"	6'-1"	2'-6"	2 ½"	
18	0'-9"	2'-3"	3'-10"	6'-1"	3'-0"	2 ½"	
21	0'-9"	3'-0"	3'-1"	6'-1"	3'-6"	2 ³ / ₄ "	
24	0'-9 ¹ / ₂ "	3'-7 ¹ / ₂ "	2'-6"	6'-1 ¹ / ₂ "	4'-0"	3"	
27	0'-10 ½"	4'-0"	2'-1 ½"	6'-1 ¹ / ₂ "	4'-6"	3 ½"	
30	1'-0"	4'-6"	1'-7 ³ / ₄ "	6'-1 ³ / ₄ "	5'-0"	3 ½"	
36	1'-3"	5'-3"	2'-9"	8'-0"	6'-0"	4"	
42	1'-9"	5'-3"	2'-9"	8'-0"	6'-6"	4 ½"	
48	2'-0"	6'-0"	2'-0"	8'-0"	7'-0"	5"	
54	2'-3"	5'-5"	2'-9 ¹ / ₄ "	8'-2 ½"	7'-6"	5 ½"	
60	2'-11"	5'-0"	3'-3"	8'-3"	8'-0"	5"	
66	2'-6"	6'-0"	2'-3"	8'-3"	8'-6"	5 ½"	
72	3'-0"	6'-6"	1'-9"	8'-3"	9'-0"	6"	
78	3'-0"	7'-6"	1'-9"	9'-3"	9'-6"	6 ½"	
84	3'-0"	7'-6 ½"	1'-9"	9'-3 ½"	10'-0"	6 ½"	
90	3'-5"	7'-3 ½"	2'-0"	9'-3 ½"	11'-0"	6 ½"	

- All reinforcing steel shall meet AASHTO M170 requirements. 2. All circular, longitudinal, and elliptical reinforcement shall be assembled and securely fastened in cage fashion so as to maintain reinforcement in exact shape and correct positions within the forms. Laying length of pipe: 12" to 66" (incl.) = not less than 4 feet
- 66" to 108" (incl.) = not less than 6 feet 4. Joints shall be sealed with rubber gaskets or with sealer approved by the engineer whenever pipe are specified for storm drain or sanitary
- 5. For Class IV and Class V reinforced concrete pipe and end section sizes which do not have reinforcement specified by AASHTO M170, shop drawings and design calculations shall be prepared and sealed by a Professional Engineer and submitted for the Engineer's review.





NORTH DAKOTA

621 26th STREET W.

WILLISTON, ND 58801

701-572-8100

2303 N CORAL CANYON BLVD SUITE 201, WASHINGTON, UT 84780 435-673-8060

DETAILS

CITY OF WILLISTON LOCATED IN SEC 11 & 12 T 154 NORTH, R 101 WEST 5 P.M. CITY OF WILLISTON, WILLIAMS COUNTY, ND



TH DAKO				
Drawn By:	Scale:			
CC	NONE			
Client No.	Project No.			
5149	5149			
Drawing Sheet	•			
C301				

12 of _12 Sheets

NOTES:

_/ASPHALT

BASE

-FINAL BACKFILL MATERIAL

- INITIAL BACKFILL MATERIAL

BEDDING MATERIAL

STORM SEWER PIPE (SEE PLANS

- 1. SEE TABLE FOR BACKFILL MATERIAL REQUIREMENTS.
- 2. SEE CONSTRUCTION NOTES FOR BACKFILL PROCEDURES AND COMPACTION REQUIREMENTS.
- 3. BEDDING MATERIAL MUST BE IMPORTED SAND OR APPROVED ONSITE SAND MATERIAL.
- 4. INSULATION REQUIREMENT FOR LESS THAN 6.5' DEPTH: 4" MINIMUM RIGID FOAM INSULATION.

DACKELLI MATEDIALS EOD SEWED TDENICHES

	PERCENT PASSING FOR:					
SIEVE SIZE	FOUNDATION MATERIAL*	BEDDING MATERIAL	INITIAL BACKFILL MATERIAL	FINAL BACKFILL MATERIAL		
2.00-IN	100			NATIVE MATERIAL		
0.75-IN	5-15		100	NATIVE MATERIA WHICH CONTAIN NO SOD, VEGETATION, ROCKS LARGER THAN 8.00-IN IN DIA., ASPHALT OF CONCRETE CHUNKS, ETC.		
NO. 4	0-5	100	40-70			
NO. 50		5-15	20-50			
NO. 100		0-5	5-30	3.13.11(3), 2.16.		

* TO BE USED ONLY WHEN THE TRENCH BOTTOM IS UNSTABLE.