2026 Utility and Street Improvement Project

City of Dickinson, ND

Apex Project Number 22.107.0010

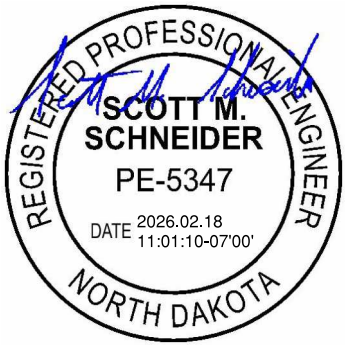
City of Dickinson Project Number 202605

February 2026

Apex Engineering Group, Inc.
204 Sims St – Suite 201
Dickinson, ND 58601

Certification

I hereby certify that the attached specifications were prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer in the State of North Dakota.



Scott M. Schneider

Signature

Scott M. Schneider

Typed or Printed Name

02/18/2026

Date

PE-5347

License Number

2026 Utility and
Street Improvement Project
City of Dickinson, North Dakota

Apex Project #22.107.0010
City of Dickinson Project #202605

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2026 Utility and
Street Improvement Project
City of Dickinson, North Dakota

Apex Project #22.107.0010
City of Dickinson Project #202605

Section 00030 – ADVERTISEMENT FOR BIDS

Sealed bids for the construction of 2026 Utility and Street Improvement Project, according to the drawings and specifications on file in the office of the City of Dickinson, North Dakota will be received by the City Administrator's office at the Attention of Sylvia Miller for the City of Dickinson, North Dakota at its office in City Hall (38 1st Street West, Dickinson, ND 58601) until March 12, 2026 at 10:00 AM Mountain Time at which time bids will be publicly opened and read aloud. The Contract Documents may be examined at the following locations:

Apex Engineering Group, Inc. – 204 Sims Street – Suite 201, Dickinson, ND 58601
Fargo-Moorhead Builder's Exchange – 1010 Page Drive, Fargo, ND 58103
Bismarck Mandan Builder's Exchange – 4251 Morning Star Dr S, Mandan, ND 58554
Dickinson Builder's Exchange – 314 3rd W Ave, Dickinson, ND 58601
City of Dickinson Engineering – 38 1st Street West, Dickinson, ND 58601
Minot Builder's Exchange – 2424 Burdick Expressway E, Minot, ND 58701

The Contract Documents are available for download from the QuestCDN.com web site for $50.00 (QuestCDN Project #10053923). Bidders may also obtain hard copies of the Contract Documents from the office of Apex Engineering Group, Inc., 204 Sims Street – Suite 201, Dickinson, ND 58601 upon payment of a non-refundable fee of $250.00.

This Project will consist of the following approximate quantities and types of work (not all bid items are listed):

Construction of approximately 4,100 LF of 6" to 8" watermain and associated valves, fittings and appurtenances; 80 water service lines; 1,050 LF of 8" sanitary sewer pipe, 1,300 LF of 15" sanitary sewer pipe, 720 LF of 15" to 30" RCP storm sewer; storm sewer inlets and manholes; 38,100 SY of bituminous and concrete removal; 14,700 LF of curb removal; 16,200 TON Aggregate Base Course CL 5; 6,800 TON Superpave FAA 43; 14,100 LF curb and gutter; 5,500 SY sidewalk concrete; 3,000 SY driveway concrete; traffic control; erosion control; and incidental items.

Bids will be received as a Unit Price bid. The Owner intends to award the Bid based on the lowest bid. The Owner reserves the right to reject any and all Bids.

Each Bid shall be accompanied by a separate envelope containing a Bidder's Bond in a sum equal to five percent (5%) of the full amount of the Bid, executed by the Bidder as principal and by a surety company authorized to do business in this state, conditioned that if the principal's Bid is accepted and the contract awarded to the principal, the principal, within ten (10) days after Notice of Award, shall execute and effect a contract in accordance with the terms of his Bid and a Contractor's Bond as required by law and the regulations and determinations of the governing body. The Bid Bond of the three lowest Bidders will be retained until the contract has been awarded and executed, but not longer than sixty (60) days. The Bid security is a guarantee that the Bidder will enter into contract for the work described

in the Proposal. The bidder may submit a Bid Bond, certified check, or cashier's check payable to the City of Dickinson, North Dakota.

All Bidders shall have a valid North Dakota Contractor's license of the appropriate Class for the work, as required by Section 43-07-05 (NDCC). Bidders shall enclose a copy of the license or Certificate of Renewal in the same envelope as the Bidder's Bond, as required under Section 43-07-12 (NDCC). Failure to do so will render the Bid invalid.

Receipt of all Addenda issued during bidding shall be acknowledged by the Bidder on the outside of the Bid Envelope. Failure to acknowledge any Addenda issued during bidding shall render the Bid invalid.

No Bid will be read or considered unless it fully complies with the Bond and license requirements. Any deficient Bid will be resealed and returned to the Bidder immediately.

The successful Bidder shall be required to furnish both a Performance Bond and Payment Bond in the full amount of the Contract.

A Pre-Bid Conference will be held on February 27, 2026, at 10:00 PM Mountain Time at City Hall (38 1st Street West, Dickinson, ND 58601). A Microsoft Teams link is available upon request.

This project anticipates funding from the Drinking Water State Revolving Fund program. Bidder's attention is called to the SRF requirements in the bid package.

Bidders on this work will be required to comply with American Iron and Steel requirements of the Consolidated Appropriations Act, 2014. The requirements for bidders and contractors under this regulation are explained in the specifications.

Bidders are required to comply with Davis-Bacon prevailing wage requirements.

Bidders on this work will be required to comply with Title 40 CFR Part 33– Participation by Disadvantaged Business Enterprises in the United States Environmental Protection Agency Programs. The requirements for bidders and contractors under this regulation concern utilization of Minority Business Enterprises (MBE), Women's Business Enterprises (WBE), and Small Business Enterprises (SBE) and are explained in the specifications.

The goal for MBE is 2% of the total dollar value of the project. The goal for WBE is 3% of the total dollar value of the project. To demonstrate a good faith effort to comply, bidders must include the MBE/WBE subcontractor solicitation form in the bid package.

Bidders are required to comply with Build America, Buy America Act requirements.

The Work under this Contract shall achieve Substantial Completion by October 16, 2026, and Final Completion by October 30, 2026.

ALL QUESTIONS REGARDING THE CONTRACT DOCUMENTS SHALL BE DIRECTED TO THE OFFICE OF: Apex Engineering Group, Inc., Scott Schneider, PE at 701-264-3926 or by email at Scott.Schneider@ApexEngGroup.com. All questions must be received in writing or by email on or before eight (8) days prior to the bid opening. Responses to technical questions will be issued by addendum within six (6) days prior to the bid opening.

Dated this 18th day of February 2026.

Dustin Dassinger, City Administrator
Dickinson, North Dakota

Published February 18th, February 25th, and March 4th.

Section 00100 - Instructions to Bidders

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 where the bidding procedures are to be administered.

B. *Successful Bidder* – The lowest, responsible, and responsive Bidder to whom Owner (on the basis of Owner's evaluation) makes an award.

C. Other terms used in the Bidding documents and not defined elsewhere have the following meanings, which are applicable to both the singular and plural thereof:

1. *Base Bid* – The sum stated in the Bid for which Bidder offers to perform work that is described in the Bidding Documents as Base, to which work may be added or from which work may be deleted for sums stated in the Alternate Bid.

2. *Alternate Bid* – The amount stated in the Bid to be added to or deducted from the amount of the Base Bid, if accepted.

3. *Furnished* – Shall mean to turn over to the Contractor at the job site for installation by the Contractor

4. *Provide* – Shall mean furnished and installed in place by the Contractor.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents may be obtained from the Issuing Office in the number and for the deposited sum and in the format stated in the advertisement or invitation to bid. The deposit will not be refunded.

2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within five (5) days of Owner's request, Bidder shall submit written evidence establishing its qualifications such as financial data, previous experience, present commitments, and the following additional information:

A. Each Bid must contain evidence of Bidder's qualification to do business in the State where the Project is located.

B. Each Bid must contain a copy of the Contractor's License or Certificate of Renewal issued by the Secretary of State enclosed in the Bid Bond envelope. No Contract shall be awarded to any Contractor without a Contractor's License of the appropriate Class. The Contractor must be a holder of said License a minimum of ten (10) days prior to the date set for receiving Bids. No Bid will be considered without this information and will be returned immediately to the Bidder.

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.

3.04 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 4 – SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

4.01 *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.

4.02 *Existing Site Conditions*

A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Supplementary Conditions identify:

a. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.

b. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

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. Copies of reports and drawings referenced above are included within the specifications. 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.

B. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

4.03 *Site Visit and Testing by Bidders*

A. Bidder shall conduct the required Site visit during normal working hours, and shall not disturb any ongoing operations at the Site.

B. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder 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.

C. Bidder shall 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.

D. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.04 *Owner's Safety Program*

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

4.05 *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 5 – BIDDER'S REPRESENTATIONS

5.01 It is the responsibility of each Bidder before submitting a Bid to:

A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;

B. visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;

D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;

E. consider 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 Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;

F. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;

G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;

H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;

I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and

J. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 6 – PRE-BID CONFERENCE

6.01 A Pre-Bid Conference will be held on February 27, 2026, at 10:00 AM Mountain Time at City Hall (38 1st Street West, Dickinson, ND 58601). A Microsoft Teams link is available upon request. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising

at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all parties recorded as having received the Bidding Documents. Questions received less than ten days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, supplement, or change the Bidding Documents.

ARTICLE 8 – BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of five percent (5%) of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified check, bank money order, or a Bid bond (on the form included in the Bidding Documents) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.

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 Documents, 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 Documents 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. Such forfeiture shall 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 seven 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 seven days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

9.01 The number of days within which, or the dates by which, Milestones are to be achieved and the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

10.01 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 11 – SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or "or-equal" items. In cases in which the Contract allows

the Contractor to request that Engineer authorize the use of a substitute or "or-equal" item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract. The procedure for submission of any such application by the Contractor and consideration by the Engineer is set forth in the General Conditions and may be supplemented in Division 01.

11.02 All prices that Bidder sets forth in its Bid shall 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 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.

12.02 Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.

12.03 The apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers proposed for the Work.

If requested by Owner, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. 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, in which case apparent Successful Bidder shall submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

12.04 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, Suppliers, or other individuals or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.

ARTICLE 13 – PREPARATION OF BID

13.01 The Bid Form is included with the Bidding Documents.

A. All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall 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."

13.02 A Bid by a corporation shall 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 shall be shown.

13.03 A Bid by a limited liability company shall 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 shall be shown.

13.04 A Bid by an individual shall show the Bidder's name and official address.

13.05 A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.

13.06 All names shall be printed in ink below the signatures.

13.07 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.

13.08 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.

13.09 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 – BASIS OF BID

14.01 *Unit Price*

A. Bidders shall 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.

14.02 *Allowances*

A. For cash allowances the Bid price shall 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.

ARTICLE 15 – SUBMITTAL OF BID

15.01 With each copy of the Bidding Documents, a Bidder is furnished 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 7 of the Bid Form.

Required in Separate Bid Security Envelope (Bid Envelope will not be opened without these documents):

A. Required Bid security (5%)

B. North Dakota Contractor's License valid 10 days before bid opening

Required in Bid Envelope with Bid Form (Section 00300):

C. Bidder's Subcontractor/Supplier List (Section 00410)

D. Bidder's Qualification Statement (Section 00420)

E. MBE/WBE Subcontractor Solicitation Information Form

F. Certification Regarding Debarment, Suspension, and Other Responsibility Matters Form

Receipt of all Addenda issued during bidding shall be acknowledged by the Bidder on the outside of the Bid Envelope. Failure to acknowledge any Addenda issued during bidding shall render the Bid invalid.

15.02 A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall 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 shall 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 shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED."

15.03 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 16 – MODIFICATION AND WITHDRAWAL OF BID

16.01 A 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.

16.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 16.01 and submit a new Bid prior to the date and time for the opening of Bids.

16.03 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, that Bidder may withdraw its Bid,

and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 – OPENING OF BIDS

17.01 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 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 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 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. 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, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.

19.02 If Owner awards the contract for the Work, such award shall be to the responsible Bidder submitting the lowest responsive bid.

19.03 Evaluation of Bids

A. In evaluating Bids, Owner will consider whether or not 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.

19.04 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.

19.05 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 20 – BONDS AND INSURANCE

20.01 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 and insurance. When the Successful Bidder delivers the Agreement (executed by Successful Bidder) to Owner, it shall be accompanied by required bonds and insurance documentation.

ARTICLE 21 – SIGNING OF AGREEMENT

When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder shall 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 ten days thereafter, Owner shall 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.

ARTICLE 22 – AMERICAN IRON AND STEEL (AIS) REQUIREMENTS

22.01 The Contractor acknowledges that it understand the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund that have statutory requirements commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contractor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the Purchases or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owned to the State by the Purchaser). While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

One of the certification forms found in Section 00820 shall be used as documentation of compliance with the AIS requirements.

ARTICLE 23 – BUILD AMERICA, BUY AMERICA (BABA) REQUIREMENTS

23.01 The Contractor acknowledges that it understands the goods and services under this Agreement are being funded with federal monies and have statutory requirements commonly known as "Build America, Buy America;" that requires all of the iron and steel, manufactured products, and construction materials used in the project to be produced in the United States ("Build America, Buy America Requirements") including iron and steel, manufactured products, and construction materials provided by the Contractor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the Owner and Funding Authority (a) the Contractor has reviewed and understands the Build America, Buy America Requirements, (b) all of the iron and steel, manufactured products, and construction materials used in the project will be and/or have been produced in the United States in a manner that complies with the Build America, Buy America Requirements, unless a waiver of the requirements is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the Build America, Buy America Requirements, as may be requested by the Owner or Funding Authority. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph

by the Contractor shall permit the Owner or Funding Authority to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the Owner or Funding Authority resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the Funding Authority or any damages owed to the Funding Authority by the Owner). If the Contractor has no direct contractual privity with the Funding Authority, as a lender or awardee to the Owner for the funding of its project, the Owner and Contractor agree that the Funding Authority is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the Funding Authority.

END OF SECTION

2026 Utility and
Street Improvement Project
City of Dickinson, North Dakota

Apex Project #22.107.0010
City of Dickinson Project #202605

Section 00300 - BID FORM

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

City of Dickinson, ND
Attn: Sylvia Miller
38 1st Street West
Dickinson, ND 58601

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 and 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 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. 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.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged:

Addendum No.	Addendum Date	Addendum No.	Addendum Date

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface

or subsurface structures at the Site (except Underground Facilities) that have been identified in SC-4.02 as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in SC-4.06 as containing reliable "technical data."

E. Bidder has considered the information known to Bidder; 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 Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.

F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.

G. 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.

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.

I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

A. 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;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. "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;

2. “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;

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.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

ITEM	DESCRIPTION	UNIT	TOTAL QTY	UNIT COST	TOTAL COST
1	GENERAL CONDITIONS	LSUM	1		
2	MOBILIZATION	LSUM	1		
3	CLEARING & GRUBBING	LSUM	1		
4	TRAFFIC CONTROL	LSUM	1		
5	REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	SY	8,653		
6	REMOVAL OF CURB AND GUTTER	LF	14,813		
7	REMOVAL OF BITUMINOUS SURFACING	SY	29,194		
8	REMOVAL OF CONCRETE PAVEMENT	SY	459		
9	MILLING PAVEMENT SURFACE	SY	3,693		
10	REMOVAL OF RETAINING WALL	LF	50		
11	REMOVAL OF STEPS	EA	1		
12	DEMOLITION OF PARKING LOT	LSUM	1		
13	ROCK EXCAVATION	CY	100		
14	REMOVAL OF AC PIPE	LF	820		
15	REMOVE AND SALVAGE HYDRANT	EA	10		
16	REMOVE AND SALVAGE GV (ALL SIZES)	EA	17		
17	EXPLORATORY EXC. SAN. SERVICE	EA	2		
18	EXPLORATORY EXC. WATER SERV.	EA	3		
19	SANITARY SEWER MANHOLE 48IN	EA	1		
20	SANITARY SEWER MAIN REPAIR AT MH	EA	2		
21	SANITARY SEWER MAIN REPAIR	EA	2		
22	CONNECT TO EXTG SAN. MH	EA	13		
23	CONNECT TO EXTG. SAN. MAIN	EA	2		
24	SEWER SERVICE - 519 3RD AVE E	LSUM	1		

25	SEWER SERVICE - 529 3RD AVE E	LSUM	1		
26	8IN X 6IN SEWER WYE BRANCH	EA	18		
27	8IN X 4IN SEWER WYE BRANCH	EA	6		
28	15IN X 6IN SEWER WYE BRANCH	EA	22		
29	15IN X 4IN SEWER WYE BRANCH	EA	2		
30	15IN SANITARY SEWER PIPE SDR 26	LF	1305		
31	8IN SANITARY SEWER PIPE SDR 35	LF	1061		
32	6IN SEWER SERVICE PIPE	LF	733		
33	4IN SEWER SERVICE PIPE	LF	105		
34	SANITARY SEWER TEMPORARY BYPASS	LSUM	1		
35	BORE WATER SERVICE LINE	LF	190		
36	8" X 8" CROSS	EA	1		
37	8" X 6" REDUCER	EA	6		
38	8" X 3" TEE	EA	1		
39	8" X 6" TEE	EA	1		
40	CURB STOP & BOX 2IN	EA	2		
41	CURB STOP & BOX 1IN	EA	79		
42	GATE VALVE & BOX 8IN	EA	12		
43	GATE VALVE & BOX 6IN	EA	18		
44	GATE VALVE & BOX 3IN	EA	1		
45	WATERMAIN 8IN PVC	LF	2837		
46	WATERMAIN 6IN PVC	LF	1387		
47	WATERMAIN 3IN PVC	LF	41		
48	SADDLE & CORP 8"	EA	46		
49	SADDLE & CORP 6"	EA	25		
50	SADDLE & CORP 4"	EA	1		
51	FLUSHING SADDLE & CORP 8"	EA	2		
52	FLUSHING SADDLE & CORP 6"	EA	2		
53	WATER SERVICE LINE 2IN POLY	LF	40		
54	WATER SERVICE LINE 1IN POLY	LF	2257		
55	RECONNECT SERVICE LINE	EA	2		
56	WATER MAIN CONNECTION (ALL SIZES)	EA	17		
57	VERTICAL OFFSET CONNECT TO EXISTING WM	EA	9		
58	HORIZONTAL OFFSET WM	EA	4		
59	VERTICAL OFFSET CROSSING WM	EA	6		
60	6IN HYDRANT EXTENSION	EA	1		
61	12IN HYDRANT EXTENSION	EA	1		
62	6IN HYDRANT X 7.0' & TEE	EA	1		
63	6IN HYDRANT X 7.5' & TEE	EA	1		
64	6IN HYDRANT X 8.0' & TEE	EA	9		

65	TYPE A - LEAD SERVICE REPLACEMENT	EA	7		
66	TYPE B - LEAD SERVICE REPLACEMENT	EA	6		
67	TYPE C - LEAD SERVICE REPLACEMENT	EA	2		
68	WATERMAIN CONNECTION 5TH & BROADWAY	EA	1		
69	REGRADE SEWER SERVICE	LF	300		
70	SANITARY SEWER SERVICE CROSSING	EA	53		
71	STORM SEWER CROSSING	EA	6		
72	LOWER WATER SERVICE	EA	10		
73	CURB STOP BOX	EA	10		
74	LEAD SERV. LINE REPLACEMENT - MOBILIZATION	EA	3		
75	4" THICK INSULATION	SY	400		
76	STORM SEWER PIPE - 15IN RCP	LF	77		
77	STORM SEWER PIPE - 18IN RCP	LF	30		
78	STORM SEWER PIPE - 24IN RCP	LF	4		
79	STORM SEWER PIPE - 30IN RCP	LF	613		
80	MANHOLE 48IN	EA	1		
81	MANHOLE 60IN	EA	1		
82	MANHOLE 72IN	EA	1		
83	INLET - TYPE 2	EA	1		
84	INLET - TYPE 2 DOUBLE	EA	3		
85	30IN RCP FES	EA	1		
86	RIPRAP CLASS I	LSUM	1		
87	MANHOLE CASTING TO GRADE	EA	23		
88	INLET CASTING TO GRADE	EA	9		
89	GATE VALVE BOX TO GRADE	EA	17		
90	MANHOLE CASTING - NEW	EA	4		
91	SEEDING	SY	10,161		
92	HYDRAULIC MULCH	SY	10,161		
93	TEMPORARY COVER CROP	SY	10,161		
94	TOPSOIL -IMPORTED	CY	241		
95	INLET PROTECTION-SPECIAL TEMPORARY	EA	17		
96	SUBGRADE PREPARATION 12 IN	SY	34,404		
97	GEOSYNTHETIC MATERIAL TYPE G	SY	30,863		
98	GEOTEXTILE FABRIC R1	SY	3,541		
99	AGGREGATE BASE COURSE CLASS 5	TON	8,241		
100	SALVAGED BASE COURSE	TON	6,500		
101	SUPERPAVE FAA 43	TON	6,910		
102	ASPHALT CEMENT (PG58H-34)	TON	413		
103	CURB & GUTTER - TYPE I	LF	14,363		
104	VALLEY GUTTER	SY	379		

105	SIDEWALK CONCRETE 4IN	SY	5,529		
106	DRIVEWAY CONCRETE 6IN	SY	2,369		
107	DRIVEWAY CONCRETE 8IN	SY	644		
108	DETECTABLE WARNING PANELS	SF	548		
109	SIDEWALK TRENCH DRAIN	LF	29		
110	CURB-TYPE I	LF	116		
111	RETAINING WALL	LF	50		
112	ROUTE & SEAL	LF	500		
113	ASPHALT PAVEMENT REPAIR	SY	150		
114	WATERING	EA	3		
			TOTAL BID COST:		

5.02 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 Bid items will be based on actual quantities, determined as provided in the Contract Documents.

5.03 Unit Prices have been computed in accordance with Paragraph 13.03.B of the General Conditions.

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that all underground and concrete and roadway reconstruction on 3rd Ave East from 2nd Street East through the north side of the intersection of 3rd Street East will be substantially complete on or before August 15, 2026.

6.02 Bidder agrees that the Work will be substantially complete on or before October 16, 2026, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before October 30, 2026.

6.03 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

Items A and B Listed Below are Required in Separate Bid Security Envelope (Bid Envelope will not be opened without these documents):

A. Required Bid security (5%)

B. North Dakota Contractor's License valid 10 days before Bid opening

Items C, D, E, and F Listed Below are Required in Bid Envelope with Bid Form (Section 00300):

C. Bidder's Subcontractor/Supplier List (Section 00410)

D. Bidder's Qualification Statement (Section 00420)

E. MBE/WBE Subcontractor Solicitation Information Form

F. Certification Regarding Debarment, Suspension, and Other Responsibility Matters Form

Acknowledgement of Addenda on Bid Envelope

ARTICLE 8 – DEFINED TERMS

8.01 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.

Bid Submittal

BIDDER: *[Indicate correct name of bidding entity]*

_____

By:
[Signature] _____

[Printed name] _____
(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:
[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

_____

_____

_____

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

_____

Bidder's License No.: _____
(where applicable)

NOTE TO USER: Use in those states or other jurisdictions where applicable or required.

2026 Utility and
Street Improvement Project
City of Dickinson, North Dakota

Apex Project #22.107.0010
City of Dickinson Project #202605

Section 00410 - BIDDER'S SUBCONTRACTOR/SUPPLIER LIST

The undersigned hereby submits, as part of this Bid, this list of all subcontractors and the nature of Work or products to be supplied by each. This list is only inclusive of the Subcontractors/Suppliers that will be completing Work or supplying materials totaling 1% or more of the total Bid.

Subcontractor/Supplier	Address Phone Number	Nature of Work/Supply	Amount ($)

Company Name

Authorized Signature

Section 00420 - BIDDER'S QUALIFICATION STATEMENT

The undersigned hereby certifies, as a part of this Bid, that we or the subcontractor named below maintain a permanent place of business; have experience with projects of similar size and type; and have the financial resources to properly execute this Contract.

As evidence of this experience, the following projects are submitted for review.

1. Five (5) projects completed within the last five (5) years that are similar in size and type.
2. Final construction costs of the five (5) referenced projects.
3. Contract dates of the five (5) referenced projects.
4. Project references, including Owner contact information and project details.

No.	Owner Information	Construction Cost	Contract Start and Completion Dates	Reference Phone Number	Detailed Project Information
1					
2					
3					
4					
5					

_____
Company Name

_____
Authorized Signature

BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER *(Name and Address)*:

SURETY *(Name, and Address of Principal Place of Business)*:

OWNER *(Name and Address)*:

BID

Bid Due Date:

Description *(Project Name— Include Location)*:

BOND

Bond Number:

Date:

Penal sum _____ $ _____

(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER	**SURETY**
_____ (Seal)	_____ (Seal)
Bidder's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	By: _____
Signature	Signature (Attach Power of Attorney)
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	Attest: _____
Signature	Signature
_____	_____
Title	Title

Note: Addresses are to be used for giving any required notice.
Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.

2. Default of Bidder shall occur 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 shall 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 shall not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.

6. No suit or action shall 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 shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall 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 Registered or Certified Mail, return receipt requested, postage pre-paid, and shall 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 shall 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 shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

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

THIS AGREEMENT is by and between **City of Dickinson, North Dakota** ("Owner") and

("Contractor").

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: Pavement reconstruction with storm sewer, sanitary sewer, watermain, and service line replacements.

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **2026 Utility and Street Improvement Project, City Project #202605**

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by Apex Engineering Group.

3.02 The Owner has retained Apex Engineering Group ("Engineer") to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time 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.

4.02 *Contract Times: Dates*

A. All underground and concrete and roadway reconstruction on 3rd Ave East from 2nd Street East through the north side of the intersection of 3rd Street East will be substantially complete on or before August 15, 2026.

B. The Work will be substantially completed on or before October 16, 2026, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before October 30, 2026.

4.03 *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 times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. 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 $5,000 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A 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 Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner $500 for each day that expires after such time until the Work is completed and ready for final payment.
3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

ARTICLE 5 – 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, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

ARTICLE 6 – 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 account of the Contract Price on the basis of Contractor's Applications for Payment on or about the third (3rd) Monday 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. Ninety (90) percent of Work completed (with the balance being retainage). If the Work has been 50 percent 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. Ninety (90) percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to ninety-five (95) percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less one hundred (100) percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

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

ARTICLE 7 – INTEREST

7.01 All amounts not paid when due shall bear interest at the maximum rate allowed by law in the location of the project.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.

B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. 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 Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

F. 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.

G. 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.

H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

J. 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.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

A. The Contract Documents consist of the following:

1. This Agreement (pages 1 to ___, inclusive).
2. Performance bond (pages ___ to ___, inclusive).
3. Payment bond (pages ___ to ___, inclusive).
4. Other bonds.
    a. ___ (pages ___ to ___, inclusive).
5. General Conditions (pages ___ to ___, inclusive).
6. Supplementary Conditions (pages ___ to ___, inclusive).
7. Specifications as listed in the table of contents of the Project Manual.
8. Drawings (not attached but incorporated by reference) consisting of ___ sheets with each sheet bearing the following general title: ___ **[or]** the Drawings listed on the attached sheet index.
9. Addenda (numbers ___ to ___, inclusive).
10. Exhibits to this Agreement (enumerated as follows):
    a. Contractor's Bid (pages ___ to ___, inclusive).
11. 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.

B. The documents listed in Paragraph 9.01.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 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto 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 Documents.

10.03 *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.

10.04 *Severability*

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall 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.

10.05 *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 10.05:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. "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.

10.06 *Other Provisions*

A. Owner stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, 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 have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

OWNER:	CONTRACTOR:
_____	_____
By: _____	By: _____
Title: _____	Title: _____
	(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)
Attest: _____	Attest: _____
Title: _____	Title: _____
Address for giving notices:	Address for giving notices:
_____	_____
_____	_____
_____	_____
	License No.: _____ *(where applicable)*
(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)	*NOTE TO USER: Use in those states or other jurisdictions where applicable or required.*

PERFORMANCE BOND

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*:

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location)*:

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:

Amount:

Modifications to this Bond Form: ☐ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

_____ *(seal)*
Contractor's Name and Corporate Seal

By: _____
Signature

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

SURETY

_____ *(seal)*
Surety's Name and Corporate Seal

By: _____
Signature *(attach power of attorney)*

_____
Print Name

_____
Title

Attest: _____
Signature

_____
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 shall be considered plural where applicable.

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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 shall 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 shall 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 shall 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 shall 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 shall 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 shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall 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 shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

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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 may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall 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 shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall 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 shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall 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 shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

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PAYMENT BOND

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*:

CONSTRUCTION CONTRACT

Effective Date of the Agreement:
Amount:
Description *(name and location)*:

BOND

Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount:
Modifications to this Bond Form: ☐ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

_____ *(seal)*
Contractor's Name and Corporate Seal

By: _____
Signature

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

SURETY

_____ *(seal)*
Surety's Name and Corporate Seal

By: _____
Signature *(attach power of attorney)*

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

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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 shall 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 shall 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 shall 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 shall 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 shall 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 shall 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 satisfy 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.

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12. No suit or action shall 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 shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall 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 shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall 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:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
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;
4. A brief description of the labor, materials, or equipment furnished;
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;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
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 shall be 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 shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

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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

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ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

Issued and Published Jointly by

ACEC
AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

National Society of Professional Engineers®

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To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC's Guide to the Preparation of Supplementary Conditions (EJCDC® C-800, 2013 Edition). The full EJCDC Construction series of documents is discussed in the Commentary on the 2013 EJCDC Construction Documents (EJCDC® C-001, 2013 Edition).

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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.

1. *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 form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting 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, or both; 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, or both; 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; or (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

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regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer has declined to address. 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), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. ("CERCLA"); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. ("RCRA"); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree 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 the 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. *Engineer*—The individual or entity named as such in the Agreement.

21. *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.

22. *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. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.

23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

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25. *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.

26. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

27. *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.

28. *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.

29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

30. *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.

31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.

32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or "RPR" includes any assistants or field staff of Resident Project Representative.

33. *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.

34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals and the performance of related construction activities.

35. *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.

36. *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.

37. *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 furnished by Owner which are designated for the use of Contractor.

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38. *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.

39. *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.

40. *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 thereof.

41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.

42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.

43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, 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.

44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.

45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

46. *Unit Price Work*—Work to be paid for on the basis of unit prices.

47. *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.

48. *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.

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1.02 *Terminology*

A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives*:

1. 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*:

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*:

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents; or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

c. 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 15.04).

E. *Furnish, Install, Perform, Provide*:

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean 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, shall mean 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, shall mean 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

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"furnish," "install," "perform," or "provide," then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

F. 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 Bonds and Evidence of Insurance*

A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Contractor's Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.

C. *Evidence of Owner's Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), 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 executed 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 specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:

1. 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.

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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 *Initial 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 for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. 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.

3. 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.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.

B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items 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 items, or from those established in applicable transmittal protocols.

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ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one 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 or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall 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.

3.02 *Reference Standards*

A. Standards Specifications, Codes, Laws and Regulations

1. 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, shall mean 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, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, 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, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, 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 Documents issued pursuant to Paragraph 11.01.

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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 Documents issued pursuant to Paragraph 11.01.

3. 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*:

1. 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 shall 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 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 thereunder.

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 give written notice to Owner and Contractor 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.

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3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers shall not:

1. 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 editions, 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 shall preclude 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 thirtieth 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 sixtieth day after the day of Bid opening or the thirtieth 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 shall 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.

1. 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.

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2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall 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 shall 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 the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the 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. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall 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 utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and

4. acts of war or terrorism.

D. 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.

E. Paragraph 8.03 governs 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.

F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times 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.

G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

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ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor 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; 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 7.12, 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 at law; 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

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materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall 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 known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); 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 upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. 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; or

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.

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 either:

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; or

2. is of such a nature as to require a change in the Drawings or Specifications; or

3. differs materially from that shown or indicated in the Contract Documents; or

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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 the necessity of Owner's obtaining 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 above; 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. *Possible Price and Times Adjustments*:

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, 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 conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

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; or

    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

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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 as 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, or both, then any such adjustment shall 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, or both, 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.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;

c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

d. 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 in the Contract Documents, or was not shown or indicated 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), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

C. *Engineer's Review*: Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; 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 advise Owner in writing of Engineer's findings, conclusions, and

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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. *Possible Price and Times Adjustments*:

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, 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. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;

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;

c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and

d. 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, or both, then any such adjustment shall 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, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and

2. 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 Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer,

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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; or
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, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, 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.

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

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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 or 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.H shall obligate 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 shall obligate 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 all of Contractor's obligations under the Contract. These bonds shall 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 Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.

B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond

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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 shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.

D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.

E. 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.

F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

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. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is maintaining the policies, coverages, and endorsements 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 and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements 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 and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

E. 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

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to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

F. If either party does not purchase or maintain all of 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.

G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.

H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect 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 shall be adjusted accordingly.

I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.

J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

A. *Workers' Compensation*: Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.

2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).

3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

4. Foreign voluntary worker compensation (if applicable).

B. *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:

1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.

2. claims for damages insured by reasonably available personal injury liability coverage.

3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.

C. *Commercial General Liability—Form and Content*: Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage:

a. Such insurance shall be maintained for three years after final payment.

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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, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.

3. Broad form property damage coverage.

4. Severability of interest.

5. Underground, explosion, and collapse coverage.

6. Personal injury coverage.

7. 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); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.

8. 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.

D. *Automobile liability*: Contractor shall purchase and maintain automobile liability insurance against claims 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 shall be written on an occurrence basis.

E. *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. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.

F. *Contractor's pollution liability insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.

H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial

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Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.

I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:

1. include at least the specific coverages provided in this Article.

2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.

3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.

4. remain in effect at least until final payment (and longer if expressly required in this Article) 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 Documents.

5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed 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.

J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

B. 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.

6.05 *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 full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."

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2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.

3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.

4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).

6. extend to cover damage or loss to insured property while in transit.

7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.

8. allow for the waiver of the insurer's subrogation rights, as set forth below.

9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.

10. not include a co-insurance clause.

11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.

12. include performance/hot testing and start-up.

13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.

B. *Notice of Cancellation or Change*: All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this

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Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed 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.

C. *Deductibles*: The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.

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 notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.

E. *Additional Insurance*: 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 6.05, it may do so at Contractor's expense.

F. *Insurance of Other Property*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers 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. 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 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 Subcontractors, all individuals or entities identified in the Supplementary Conditions as 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. None of the above waivers shall extend 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. 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:

1. loss 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,

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arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner 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.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.

D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work 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 any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 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 6.05 shall 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, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *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. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

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B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *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 at all times maintain good discipline and order at the Site.

B. 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 shall 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.

7.03 *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 shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall 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 shall 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.

7.04 *"Or Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, 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 material or equipment, or items from other proposed suppliers under the circumstances described below.

1. If Engineer in its sole discretion determines that 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, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:

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a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it 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) it has a proven record of performance and availability of responsive service; and

4) it is not objectionable to Owner.

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) it 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 shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.

E. *Treatment as a Substitution Request*: If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 *Substitutes*

A. Unless the specification or description of an item of material or equipment 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 material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.

1. 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 material or equipment from anyone other than Contractor.

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2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.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 material or equipment that Contractor seeks to furnish or use. The application:

    a. shall 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 that specified, and

        3) be suited to the same use as that 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 that specified, and

        2) available engineering, sales, maintenance, repair, and replacement services.

    d. shall 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

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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 shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.

B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities 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, Supplier, or other individual or entity 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 five days.

E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. 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, Suppliers, or other individuals or entities 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, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.

F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, 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, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

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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 fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.

J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.

K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.

L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.

N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor

2. shall create 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.

7.07 *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 a particular 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 shall be disclosed by Owner 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

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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.

7.08 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. 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

7.09 *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.

7.10 *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. Except where otherwise expressly required by applicable Laws and Regulations, 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 shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Owner or Contractor may give 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

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any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *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.

7.12 *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. 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.

B. 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. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when 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.

C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

D. 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.

E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.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

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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).

F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

G. Contractor's duties and responsibilities for safety and protection shall 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.

7.13 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of 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 threatened 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 thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements*:

1. Before submitting a Shop Drawing or Sample, Contractor shall have:

a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

c. determined and verified 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

d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall 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.

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3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings*:

a. Contractor shall submit the number of copies required in the Specifications.

b. Data shown on the Shop Drawings will 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.D.

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.D.

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. *Other Submittals*: Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.

D. *Engineer's Review*:

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. 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, conform to the information given in 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 shall 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

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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.

5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 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, shall 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, Sample, or other submittal shall 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.D.4.

E. *Resubmittal Procedures*:

1. 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 submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

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 and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper 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.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

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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. any inspection, test, or approval by others; or
8. any correction of defective Work by Owner.

D. 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 shall 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 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 performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury 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 shall 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.

C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

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7.19 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.

B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

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 utility work at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. 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

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alter others' work with the written consent of Engineer and the others whose work will be affected.

D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, 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.

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; and

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 at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner 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, or both. 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 shall 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. When applicable, any such equitable adjustment in Contract Price shall 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 is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

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. 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 to Contractor, and assign to such other contractor or utility owner the Owner's contractual

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rights against Contractor with respect to the breach of the obligations set forth in this paragraph.

C. 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 to Contractor.

D. 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 shall 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.

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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 Documents (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

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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 10.08. 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 *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 Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.

B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.

C. Engineer's authority as to Change Orders is set forth in Article 11.

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

10.06 *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.

10.07 *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.

10.08 *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, shall create, impose, or give rise to any duty in

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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 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 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *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 (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

1. *Change Orders*:

a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.

b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not 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, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.

2. *Work Change Directives*: 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

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governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: 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. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *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. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes 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 shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate 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.

11.03 *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.

11.04 *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 shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall 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); or

2. 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 11.04.C.2); or

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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 11.04.C).

C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall 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 shall be 15 percent;

b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five 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 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.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 five 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 shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;

d. no fee shall 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 will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *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 shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.

B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

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the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures*: Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. 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. The supporting data shall 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. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.

2. *Engineer's Action*: Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall 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.

3. *Binding Decision*: Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

B. *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 that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. changes in the 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 11.02, (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 in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

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B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *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 shall be submitted 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; and

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.

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 shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, 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 shall 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 shall 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 shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal

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and decision process shall 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 shall 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 shall 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 shall be incorporated in a Change Order 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. 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 shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall 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. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing

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Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall 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 shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall 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, who 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 shall 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 for services specifically related to the Work.

5. Supplemental costs including 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, and hand tools not owned by the workers, 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.

    c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the 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 property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or

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indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall 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 shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety 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. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. 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.

5. 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*: When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

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.

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B. *Cash Allowances*: Contractor agrees that:

1. 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

2. 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 on account of any of the foregoing will be valid.

C. *Contingency Allowance*: Contractor agrees that a 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 on account of Work covered by allowances, and the Contract Price shall 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, subject to the provisions of the following paragraph.

E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;

2. there is no corresponding adjustment with respect to any other item of Work; and

3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

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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 will 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 therewith 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 shall 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 shall 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 shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to

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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 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 shall 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 special 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.

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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, or both, 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 shall 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 rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven 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.

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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 on account of 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. 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 shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and 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.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*:

1. 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

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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, or

   b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

   c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

   d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, 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

   e. 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.

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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 on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of 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 that would constitute a default by Contractor and therefore justify a termination for cause has occurred;

    j. liquidated 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;

    l. there are other items entitling 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 shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

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3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.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 seven 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 shall 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 seven 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.

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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:

1. 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 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 6.05 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*:

1. 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 7.11), and other documents, Contractor may make application for final payment.

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2. The final Application for Payment shall 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 disputes that Contractor believes are unsettled; 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 Application and Acceptance*:

1. 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 ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall 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. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. 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. *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.

D. *Payment Becomes Due*: Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

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15.07 *Waiver of Claims*

A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.

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 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 terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then 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 other adjacent areas;

2. correct such defective Work;

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, 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 therefrom.

B. If 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 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 correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).

C. 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.

D. 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.

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

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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, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall 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) ten 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) 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 seven 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

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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 shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

A. Upon seven 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):

1. 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;

2. 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 on account of loss of anticipated overhead, profits, or revenue, 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 seven 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, seven 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.

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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; and

2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising 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; or

2. agree with the other party to submit the dispute to another dispute resolution process; or

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 Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

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.

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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 shall not constitute a waiver of that provision, nor shall 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 or completion of the Contract or termination 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 *Headings*

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

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Section 00810 - SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC C-700 (2013 Edition). All provisions which are not so amended or supplemented remain in full force and effect.

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 thereto.

SC-2.02 Delete Paragraph 2.02.A in its entirety and insert the following in its place:

Owner shall furnish to Contractor up to two (2) printed or hard copies of the Drawings and Project Manual and one set in electronic format. Additional copies will be furnished upon request at the cost of reproduction.

SC-3.03 Add Paragraph 3.03.B.2:

The following will be the order the Contract Documents will take precedence in resolving and conflict, error, ambiguity, or discrepancy within the Contract Documents themselves:

1. The Plans
2. Measurement and Payment
3. Special Provisions
4. The remaining specifications
5. Supplemental Conditions
6. General Conditions

SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.B:

C. The following reports of explorations and tests of subsurface conditions at or contiguous to the Site are known to Owner:

1. **Geotechnical Exploration Report – 202605 Street & Utility Project**
   Braun Intertec Project B2505794

Copies of reports and drawings referenced above are included in the project specifications. These reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 5.03.B of the General Conditions has been identified and established in Paragraph 5.03 of 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.

The reports and drawings identified above are not part of the Contract Documents, but the "technical data" contained therein upon which Contractor may rely, as expressly identified and established above, are incorporated in the Contract Documents by reference. Contractor is not entitled to rely upon any other information and data known to or identified by Owner or Engineer.

SC-5.05.A.1 Delete 5.05.A.1 and replace with the following:

Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others. The subsurface utility information in these contract documents is Utility Quality Level D in accordance to the guideline of CI/ASCE 38-02 entitled, "Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data"; and

SC 5.06 Delete Paragraphs 5.06.A and 5.06.B in their entirety and insert the following:

A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.

B. Not Used.

SC 6.03 Add the following new paragraph immediately after Paragraph 6.03.J:

K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation and related coverage under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

State:		Statutory
Federal, if applicable (e.g., Longshoreman's):		Statutory
Jones Act coverage, if applicable:		
Bodily injury by accident, each accident	$	N/A
Bodily injury by disease, aggregate	$	N/A
Employer's Liability:		
Bodily injury, each accident	$	1,000,000
Bodily injury by disease, each employee	$	1,000,000
Bodily injury/disease aggregate	$	1,000,000
For work performed in monopolistic states, stop-gap liability coverage shall be endorsed to either the worker's compensation or commercial general liability policy with a minimum limit of:	$	N/A

Foreign voluntary worker compensation Statutory

2. Contractor's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

General Aggregate	$ 2,000,000
Products - Completed Operations Aggregate	$ 2,000,000
Personal and Advertising Injury	$ 1,000,000
Each Occurrence (Bodily Injury and Property Damage)	$ 1,000,000

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Bodily Injury:	
Each person	$ 1,000,000
Each accident	$ 1,000,000
Property Damage:	
Each accident	$ 2,000,000
or	
Combined Single Limit of	$ 2,000,000

4. Excess or Umbrella Liability:

Per Occurrence	$ 5,000,000
General Aggregate	$ 5,000,000

5. Contractor's Pollution Liability:

Each Occurrence	$ N/A
General Aggregate	$ N/A

☒ If box is checked, Contractor is not required to provide Contractor's Pollution Liability insurance under this Contract

6. Additional Insureds: In addition to Owner and Engineer, include as additional insureds the following: N/A

7. Contractor's Professional Liability:

Each Claim	$ N/A
Annual Aggregate	$ N/A

8. Other Insurance Requirements: N/A

SC-7.02.B. Amend the first and second sentences of Paragraph 7.02.B to state "…all Work at the Site shall be performed during regular working hours, Monday through Saturday. Contractor will not perform Work on a Sunday, any legal holiday, or during certain community celebrations and events."

SC-7.02.B. Add the following new subparagraphs immediately after Paragraph 7.02.B:

1. Regular working hours will be *7:00 a.m. to 8:00 p.m.*
2. Owner's legal holidays are *New Year's Day, Martin Luther King Jr. Day, Presidents Day, Good Friday, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving, and Christmas.*

SC-7.02.C. Add the following new paragraph immediately after Paragraph 7.02.B:

C. Owner 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-7.08 Revise 7.08.A to read as follows:

A. Owner has applied and paid for permits listed in Section 01010 – Summary of Work. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all other construction permits and licenses. 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

SC-8.02 Delete Paragraph 8.02.A in its entirety and replace with the following:

A. Owner intends to contract with others for the performance of other work at or adjacent to the Site.

1. The Contractor shall have authority and responsibility for coordination of the various contractors and work forces at the Site. The Contractor shall keep the Engineer well informed of progress, milestones, and schedule that relate to the work of others performing work at the site.

2. The following other work will be performed at the site:

    a. Other private utilities (gas, communications, etc.) may also be required to upgrade or relocate facilities to accommodate the Contractors work. The Contractor shall coordinate such activities and assume adequate time within the project schedule to allow for this work.

3. The extent of such authority and responsibilities is limited to the notification, coordination, and communicating with others as it relates to their work. The Contractor shall not direct or have control over other work. The Contractor shall immediately notify the Engineer if the work of others will cause delay or other adverse impact to the project, beyond what could be reasonably assumed or expected with the nature of Work.

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

B. The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.

1. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.

2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.

3. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.

4. 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 proper execution of the Work.

5. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.

6. Shop Drawings and Samples:

a. Record date of receipt of Samples and Contractor-approved Shop Drawings.

b. Receive Samples which are furnished at the Site by Contractor and notify Engineer of availability of Samples for examination.

c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.

7. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.

8. Review of Work and Rejection of Defective Work:

   a. Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.

   b. Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

9. Inspections, Tests, and System Start-ups:

   a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.

   b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.

10. Records:

    a. Prepare a daily report or keep a diary or logbook, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.

b. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.

c. Maintain records for use in preparing Project documentation.

11. Reports:

a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.

b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.

c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.

12. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

13. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.

14. Completion:

a. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.

b. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.

c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.

C. The RPR shall 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 Contractor's work.

5. 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. Accept Shop Drawing or Sample submittals from anyone other than Contractor.

8. Authorize Owner to occupy the Project in whole or in part.

SC 13.01.B Delete Paragraph 13.01.B.5.c in its entirety and insert the following in its place:

c. Construction Equipment and Machinery:

i. Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work. Payment for idle time of equipment will not be made without prior written agreement with the Engineer

ii. Costs for equipment and machinery owned by Contractor will be paid at a rate shown for such equipment in the most recent version of *The Rental Rate Blue Book* as published by Primedia Information Inc. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs. Costs will include 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, shall cease to accrue when the use thereof is no longer necessary for the changed Work. Equipment or machinery with a value of less than $1,000.00 will be considered small tools.

SC-13.03 Add the following to Paragraph 13.03

F. Additional compensation or changes to unit prices will not be made for escalation of fuel prices.

SC-14.02 Add the following to 14.02 following Paragraph F:

G. The Contractor shall pay for tests and associated costs to the Owner that fail to meet the specified standards. All costs associated with failing tests shall be deducted from the contract and withheld from following payments which may be due to the contractor.

SC-15.01 Delete 15.01.D and replace with the following:

D. Payment Becomes Due:

1. Thirty (30) days after the presentation of the Application for Payment to Owner with Engineer's recommendations and funding agency concurrence, the amount recommended will (subject to the provisions of Paragraph 14.02D) become due and will be paid by the Owner to the Contractor.

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

1. 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 re-inspection or re-testing, including the cost of time, travel and living expenses, shall 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 Article 15.

SC-15.08 Revise 15.08.C to read as follows:

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 a separate substantial completion, in accordance with 14.05 of the General Conditions, was requested by the contractor and executed by all parties.

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

SC-17.02 Arbitration

A. All matters subject to final resolution under this Article will be decided by arbitration in accordance with the rules of a mutually agreed upon arbitration agency subject to the conditions and limitations of this paragraph. This agreement to arbitrate and any other agreement or consent to arbitrate entered into 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 arbitrator or arbitration provider, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in this Article, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event shall 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. The demand for arbitration should include specific reference to Paragraph SC-17.02.D below.

C. No arbitration arising out of or relating to the Contract shall 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 is necessary if complete relief is to be afforded among those who are already parties to the arbitration; and
2. 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.

D. The award rendered by the arbitrator(s) shall be consistent with the agreement of the parties, in writing, and include a concise breakdown of the award, and a written explanation of the award specifically citing the Contract provisions deemed applicable and relied on in making the award.

E. 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.

F. The fees and expenses of the arbitrators and any arbitration service shall be paid by the Contractor.

END OF SECTION

Section 00820 – DWSRF/CWSRF SPECIFICATIONS AND CONTRACT REQUIREMENTS

This project is funded through the North Dakota Drinking Water and Clean Water State Revolving Fund Program. Contract requirements for minority participation, wage rates and reporting must be followed.

MEMORANDUM

TO: City and Consulting Engineers

FROM: Elizabeth Tokach Duran, P.E.
CWSRF Program Manager
Division of Municipal Facilities
701-328-5256
etokachduran@nd.gov

Shannon Fisher, P.E.
DWSRF Program Manager
Division of Municipal Facilities
701-328-5220
smfisher@nd.gov

RE: Clean Water and Drinking Water State Revolving Fund (SRF) Projects

DATE: July 2025

The required federal language to be included in bid advertisements and specifications for SRF projects has been revised. Effective immediately, the enclosed revised documents must be used for most SRF projects. Please contact the SRF program manager prior to use to verify that the correct project categories are used.

Project requirements are based on the following project categories:

- All CWSRF/DWSRF Projects
- CWSRF Treatment Works and all DWSRF Projects
- SRF Equivalency Projects

A digital version of the specifications package can be downloaded from our website at:

https://deq.nd.gov/Publications/MF/SRF_Specification_Package.pdf?v=2

LANGUAGE REQUIRED FOR BIDS

Include in the bid advertisement the following language for all DWSRF and CWSRF projects:

> ***This project anticipates funding from the Drinking Water and/or Clean Water State Revolving Fund program. Bidder's attention is called to the SRF requirements in the bid package.***

Also Include in the bid advertisement the following language for all DWSRF and CWSRF treatment works projects:

> ***Bidders on this work will be required to comply with American Iron and Steel requirements of the Consolidated Appropriations Act, 2014. The requirements for bidders and contractors under this regulation are explained in the specifications.***
>
> ***Bidders are required to comply with Davis-Bacon prevailing wage requirements.***

Also include in the bid advertisement the following language for equivalency projects:

> ***Bidders on this work will be required to comply with Title 40 CFR Part 33– Participation by Disadvantaged Business Enterprises in the United States Environmental Protection Agency Programs. The requirements for bidders and contractors under this regulation concern utilization of Minority Business Enterprises (MBE), Women's Business Enterprises (WBE), and Small Business Enterprises (SBE) and are explained in the specifications.***
>
> ***The goal for MBE is 2% of the total dollar value of the project. The goal for WBE is 3% of the total dollar value of the project. To demonstrate a good faith effort to comply, bidders must include the MBE/WBE subcontractor solicitation form in the bid package.***
>
> ***Bidders are required to comply with Build America, Buy America Act requirements.***

CONTRACTOR'S NAME, ADDRESS & TELEPHONE NUMBER

Return to:

U.S. Department of Labor for OFCCP
Southwest and Rocky Mountain
Region Federal Building, Room 840
525 South Griffin St.
Dallas, TX 75202

EMPLOYER ID NUMBER OF CONTRACTOR:_____

CONTRACT INFORMATION

PROJECT AND LOCATION:				
Dollar Amount of Contract	Estimated Start Date	Estimated Completion Date	Contract No.	Geographical Area

NOTIFICATION OF SUBCONTRACTS AWARDED (>$10,000)

Subcontractor's Name, Address, & Phone Number	Employer ID Number of Subcontractor	Estimated $ Amount of Subcontract	Estimated Start Date	Estimated Completion Date

CIVIL RIGHTS LAWS

Because of the extraordinary reach of the civil rights laws, all assistance recipients must comply with these “super crosscutters.” Pursuant to EPA’s regulations on “Nondiscrimination in Programs receiving Federal Assistance from the Environmental Protection Agency,” the SRF agency must agree, and require all assistance recipients to agree, not to discriminate on the basis of race, color, national origin or sex. 40 C.F.R. Part 7.

Recipients of federal assistance are required to collect and maintain information to show compliance with the laws. This information includes a list of discrimination complaints, reports of any compliance reviews conducted by other agencies, descriptions of any pending discrimination-based lawsuits, and data on the racial, ethnic, national origin, sex, and handicap characteristics of populations served. If there is "reason to believe" that discrimination may be occurring based on this review, the matter will be referred to the EPA Regional Director of Civil Rights for appropriate action.

The following four laws prohibit discrimination in the provision of services or benefits, on the basis of race, color, national origin, sex, handicap or age, in programs or activities receiving federal financial assistance. If, for example, a municipality receives SRF assistance to build a wastewater treatment plant, it may not decline to provide service from that plant to a particular neighborhood because of its racial composition. As the preface to this section noted, Title VI, the Rehabilitation Act, and the Age Discrimination Act were amended in 1988 to clarify that their anti-discrimination provisions apply to the entire operations of an assistance recipient, not just to the specific program, project, or activity that is the objective of the assistance. The reach of these statutes and Section 13, which contains language instructing EPA to treat its sex discrimination provisions in a manner similar to the Civil Rights Act, extends beyond that of other cross-cutting authorities.

The following excerpts from the four laws demonstrate their prohibition of various forms of discrimination that are prohibited in federally assisted programs and activities:

Title VI of the Civil Rights Act of 1964
No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.

Section 13 of the Federal Water Pollution Control Act Amendments of 1972 (CWSRF only)
No person in the United States shall, on the ground of sex be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity receiving federal assistance under… the federal Water Pollution Control Act…

Section 504 of the Rehabilitation Act of 1973
(n)o otherwise qualified individual with a disability in the United States . . . shall, solely by reason of his or her disability, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity receiving federal financial assistance…

Age Discrimination Act of 1975
(n)o person in the United States shall, on the basis of age, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity receiving financial assistance.

DISCOVERY OF ARCHAEOLOGICAL AND OTHER HISTORICAL ITEMS

In the event of an archaeological find during any phase of construction, the following procedure will be followed:

(1) Construction shall be halted, with as little disruption to the archaeological site as possible.

(2) The Contractor shall notify the Owner who shall contact local law enforcement. Local law enforcement shall provide notification to the State Historical Preservation Officer in accordance with North Dakota Administrative Code (NDAC) 40-02-03-03.

(3) The State Historical Preservation Officer may decide to have an archaeologist inspect the site and make recommendations about the steps needed to protect the site, before construction is resumed.

(4) The entire event should be handled as expediently as possible in order to hold the loss in construction time to a minimum while still protecting archaeological finds.

A similar procedure should be followed with regard to more recent historical resources. Should any artifacts, housing sites, etc., be uncovered, the same procedure should be followed as for an archaeological find.

In the event archaeological/historical data are evaluated to meet National Register criteria, the Advisory Council on Historic Preservation may be notified and asked to comment.

BONDING REQUIREMENTS

Bonding requirements must meet the minimums established in 2 CFR 200:

(1) A bid guarantee from each bidder equivalent to five percent of the bid price. The “bid guarantee” must consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of the bid, execute such contractual documents as may be required within the time specified.

(2) A performance bond on the part of the contractor for 100 percent of the contract price. A “performance bond” is one executed in connection with a contract to secure fulfillment of all the contractor’s requirements under such contract.

(3) A payment bond on the part of the contractor for 100 percent of the contract price. A “payment bond” is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and materials in the execution of the work provided for in the contract.

WILLIAMS-STEIGER OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

A. AUTHORITY

(1) The contractor is subject to the provisions of the Williams-Steiger Occupational Safety and Health Act of 1970.

(2) These construction documents and the joint and several phases of construction hereby contemplated are to be governed, at all times, by applicable provisions of the Federal law(s) , including but not limited to the latest amendment of the following:

a. Williams-Steiger Occupational Safety and Health Act of 1970, Public Law 94-596;

b. Part 1910 - Occupational Safety and Health Standards, Chapter XVII ofTitle 29, Code of Federal Regulations;

c. Part 1926 - Safety and Health Regulations for Construction, Chapter XVII of Title 29, Code of Federal Regulations.

B. SAFETY AND HEALTH PROGRAM REQUIREMENTS

(1) This project, its prime contractor and its subcontractors, shall at all times be governed by Chapter XVII of Title 29, Code of Federal Regulations, Part 1926 - Safety and Health Regulations for Construction (29 CFR 22801), as amended to date.

(2) To implement the program and to provide safe and healthful working conditions for all persons, general project safety meetings will be conducted at the site at least once each month during the course of construction, by the construction superintendent or his/her designated safety officer. Notice of such meeting shall be issued not less than three (3) days prior, stating the exact time, location, and agenda to be included. Attendance by the owner, architect, general foreman, shop steward(s), and trades, or their designated representatives, witnessed in writing as such, shall be mandatory.

(3) To further implement the program, each trade shall conduct a short gang meeting, not less than once a week, to review project safety requirements mandatory for all persons during the coming week. The gang foreman shall report the agenda and specific items covered to the project superintendent, who shall incorporate these items in his/her daily log or report.

(4) The prime contractor and all subcontractors shall immediately report all accidents, injuries, or health hazards to the owner and architect, or their designated representatives, in writing. This shall not obviate any mandatory reporting under the provisions of the Occupational Safety and Health Act of 1970.

(5) This program shall become a part of the contract documents and the contract between the owner and prime contractor, prime contractor and all subcontractors, as though fully written therein.

DAVIS-BACON WAGE RATE REQUIREMENTS

The contractor acknowledges that by entering into this contract with a contracting agency, funded by an Environmental Protection Agency assistance agreement (grant), the contractor agrees to comply with the following terms and conditions in accordance with 29 CFR 5.5, if this contract is for activities covered under Davis-Bacon and Related Acts (DBRA) and exceeds (or will exceed) $2,000. Definitions for many of the terms used below are provided in 29 CFR 5.2.

For the purposes of this clause, non-Federal entities that enter into contracts with contractors are considered "contracting agencies". Contracting agencies may be EPA grant recipients and/or subrecipients at any tier (including borrowers). "Contracting officers" work for contracting agencies.

(a) Required Contract Clauses

(1) Minimum Wages

(i) Wage rates and fringe benefits

All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

As provided in paragraphs (d) and (e) of this section, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act (40 U.S.C. 3141(2)(B)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(v) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph (a)(4) of this section.

Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph (a)(1)(iii) of this section) and the Davis-Bacon poster (WH–1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii) Frequently recurring classifications

(A) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in 29 CFR Part 1, a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph (a)(1)(iii) of this section, provided that:

(1) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(2) The classification is used in the area by the construction industry; and

(3) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(B) The Administrator will establish wage rates for such classifications in accordance with paragraph (a)(1)(iii)(A)(*3*) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

(iii) Conformance

(A) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is used in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(C) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30–day period that additional time is necessary.

(D) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to *DBAconformance@dol.gov,* refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30–day period that additional time is necessary.

(E) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division under paragraphs (a)(1)(iii)(C) and (D) of this section. The contractor must furnish a written copy of such determination to each affected worker, or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph (a)(1)(iii)(C) or (D) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iv) Fringe benefits not expressed as an hourly rate

Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(v) Unfunded plans

If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(vi) Interest

In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

(2) Withholding

(i) Withholding requirements

The EPA, grant recipient, subrecipient at any tier, and/or contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in paragraph (a) of this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2).

The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work (or otherwise working in construction or development of the project under a development statute) all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph (a)(3)(iv) of this section, the **EPA, grant recipient, subrecipient at any tier,**

and/or contracting agency may on its own initiative and after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(ii) Priority to withheld funds

The Department has priority to funds withheld or to be withheld in accordance with paragraph (a)(2)(i) or (b)(3)(i) of this section, or both, over claims to those funds by:

(A) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(B) A contracting agency for its reprocurement costs;

(C) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(D) A contractor's assignee(s);

(E) A contractor's successor(s); or

(F) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

(3) Records and certified payrolls

(i) Basic record requirements

(A) Length of record retention

All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(B) Information required

Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(C) Additional records relating to fringe benefits

Whenever the Secretary of Labor has found under paragraph (a)(1)(v) of this section that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

(D) *Additional records relating to apprenticeship.* Contractors with apprentices working under

approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

(ii) Certified payroll requirements

(A) Frequency and method of submission

The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts- covered work is performed, certified payrolls to the **contracting agency** if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the certified payrolls to the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records, for transmission to the **contracting agency**. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(B) Information required

The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph (a)(3)(i)(B) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH–347 or in any other format desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division website at https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347/.pdf or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the sponsoring government agency (or the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records).

(C) Statement of Compliance

Each certified payroll submitted must be accompanied by a “Statement of Compliance,” signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(1) That the certified payroll for the payroll period contains the information required to be provided under paragraph (a)(3)(ii) of this section, the appropriate information and basic records are being maintained under paragraph (a)(3)(i) of this section, and such information and records are correct and complete;

(2) That each laborer or mechanic (including each helper and apprentice) working on the

contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR part 3; and

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

(D) Use of Optional Form WH–347

The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(C) of this section.

(E) Signature

The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(F) Falsification

The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 3729.

(G) Length of certified payroll retention

The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

(iii) Contracts, subcontracts, and related documents

The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

(iv) Required disclosures and access

(A) Required record disclosures and access to workers

The contractor or subcontractor must make the records required under paragraphs (a)(3)(i) through (iii) of this section, and any other documents that **the EPA, recipient, or subrecipient at any tier, and/or contracting agency**, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the **EPA, recipient, or subrecipient at any tier, and/or contracting agency**, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(B) Sanctions for non-compliance with records and worker access requirements

If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such

workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under 29 CFR part 6 any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(C) Required information disclosures

Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to the **Environmental Protection Agency** if the agency is a party to the contract, or to the Wage and Hour Division of the Department of Labor. If the Federal agency is not such a party to the contract, the contractor, subcontractor, or both, must, upon request, provide the full Social Security number and last known address, telephone number, and email address of each covered worker to the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records, for transmission to the **EPA, recipient, or subrecipient at any tier, contracting agency**, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

(4) Apprentices and Equal Employment Opportunity

(i) Apprentices

(A) Rate of pay

Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(B) Fringe benefits

Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

(C) Apprenticeship ratio

The allowable ratio of apprentices to journey workers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph (a)(4)(i)(D) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph (a)(4)(i)(A) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(D) Reciprocity of ratios and wage rates

Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journey worker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

(ii) Equal employment opportunity

The use of apprentices and journey workers under this part must be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) **is reserved**

(6) Subcontracts

The contractor or subcontractor must insert in any subcontracts the clauses contained in paragraphs (a)(1) through (11) of this section or a link to the **DBRA Requirements for Contractors and Subcontractors Under EPA Grants** document on EPA's Contract Provisions for Davis-Bacon and Related Acts webpage, along with the applicable wage determination(s) and such other clauses or contract modifications as the Environmental Protection Agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate.

(7) is reserved

(8) is reserved

(9) is reserved

(10) Certification of Eligibility

(i) By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of 40 U.S.C. 3144(b) or § 5.12(a).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of 40 U.S.C. 3144(b) or § 5.12(a).

(iii) The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, 18 U.S.C. 1001.

(11)Anti-Retaliation

It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

(i) Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

(ii) Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

(iii) Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or 29 CFR part 1 or 3; or

(iv) Informing any other person about their rights under the DBA, Related Acts, this part, or 29 CFR part 1 or 3.

CONTRACT PROVISIONS FOR CONTRACTS IN EXCESS OF $100,000

Under the Davis-Bacon and Related Acts (DBRA), all contracts awarded under EPA assistance agreements (grants) in excess of $100,000 that involve the employment of mechanics or laborers require contractors and subcontractors to comply with the overtime provisions of the Contract Wage Hours and Safety Standards Act (CWHSSA) at 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations in 29 CFR Part 5 and 2 CFR 200 Appendix II(E). By accepting this contract, you agree to comply with the requirements of CWHSSA described below, in addition to the DBRA Requirements for Contractors Under EPA Grants.

These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence. For the purposes of this provision, the terms “laborers and mechanics” include watchpersons and guards.

(b) Contract Work Hours and Safety Standards Act (CWHSSA).

(1) Overtime requirements

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; Liability for Unpaid Wages; Liquidated Damages

In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall

be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of $31 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1).

(3) Withholding for Unpaid Wages and Liquidated Damages

(i) Withholding process.

The EPA, recipient, or subrecipient at any tier, and/or contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this paragraph (b) on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

(ii) Priority to withheld funds

The Department has priority to funds withheld or to be withheld in accordance with paragraph (a)(2)(i) or (b)(3)(i) of this section, or both, over claims to those funds by:

(A) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(B) A contracting agency for its reprocurement costs;

(C) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(D) A contractor's assignee(s);

(E) A contractor's successor(s); or

(F) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

(4) Subcontracts

The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs (b)(1) through (5) of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (5). In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

(5) Anti-Retaliation

It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

(i) Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

(ii) Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

(iii) Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

(iv) Informing any other person about their rights under CWHSSA or this part.

"General Decision Number: ND20260042 01/16/2026

Superseded General Decision Number: ND20250042

State: North Dakota

Construction Type: Heavy
HEAVY CONSTRUCTION PROJECTS

County: Stark County in North Dakota.

HEAVY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	01/02/2026
1	01/16/2026

CARP1091-005 05/01/2024

	Rates	Fringes
CARPENTER	$ 35.87	25.10

ELEC0714-017 07/01/2024

	Rates	Fringes
ELECTRICIAN	$ 44.98	13.21+11.5%

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* ENGI0049-041 10/01/2025

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
Backhoe/Excavator/Trackhoe	$ 34.85	22.45
Forklift	$ 35.00	22.45
Loader	$ 35.25	22.45

IRON0512-044 04/28/2024

	Rates	Fringes
IRONWORKER, REINFORCING	$ 39.80	24.47

LABO0563-008 05/01/2023

	Rates	Fringes
LABORERS (Pipeline: Laborer-Common)	$ 30.80	20.45

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* UAVG-ND-0002 01/01/2023

	Rates	Fringes
OPERATOR: Roller	$ 31.40	20.25

SUND2017-005 07/31/2020

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 23.69	0.00
LABORER: Pipelayer	$ 26.63	9.96
LABORER: Common or General, Excluding Pipeline Work	$ 20.43	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader	$ 30.51	15.60

OPERATOR: Bulldozer.....$ 28.80 14.93

OPERATOR: Crane.....$ 29.23 16.49

OPERATOR: Grader/Blade.....$ 22.19 11.00

TRUCK DRIVER: Dump Truck.....$ 31.95 18.80

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least $13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example:

PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION"

AMERICAN IRON AND STEEL (AIS) REQUIREMENTS

The Contractor acknowledges that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund that have statutory requirements commonly known as “American Iron and Steel;” that requires all of the iron and steel products used in the project to be produced in the United States (“American Iron and Steel Requirement”) including iron and steel products provided by the Contactor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney’s fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser). While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

One of the following certification forms should be used as documentation of compliance with the AIS requirements.

Sample Certification for AIS

The following information is provided as a sample letter of certification for AIS compliance. Documentation must be provided on company letterhead.

Date

Company Name

Company Address

City, State Zip

Subject: American Iron and Steel Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the following products and/or materials shipped/provided to the subject project are in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. Xxxx
2. Xxxx
3. Xxxx

Such process took place at the following location:

_____

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

Sample Step Certification for AIS

The following information is provided as a sample letter of step certification for AIS compliance. Documentation must be provided on company letterhead.

Date

Company Name

Company Address

City, State Zip

Subject: American Iron and Steel Step Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the (melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. Xxxx
2. Xxxx
3. Xxxx

Such process took place at the following location:

_____

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

LEAD SERVICE LINE REPLACEMENT (DWSRF)

The memo *Implementing Lead Service Line Replacement Projects Funded by the Drinking Water State Revolving Fund* dated May 1, 2024 and issued by the Environmental Project Agency outlines the following requirements that apply to lead service line replacements (LSLR) depending on the project type:

Stand-alone LSLR
Stand-alone LSLR projects refers to projects that are solely replacing lead service lines and are not conducting additional construction or activities that would disturb the service line, such as main replacement or meter replacement. All LSLRs conducted through a stand-alone LSLR project must replace the full lead service line (i.e., the customer-owned and system-owned portions) unless a portion has already been replaced or is concurrently being replaced with another funding source. The entire length of each property's lead service line must be replaced at the same time except where it is impractical due to access constraints or local requirements that prevent the same organization from completing the full LSLR at the same time. The time between starting and completing full LSLR should be as short as possible and should not exceed three months.

LSLR in Conjunction with Planned Infrastructure Projects
All DWSRF-funded projects involving LSLR implemented in conjunction with other planned infrastructure projects that affect the service line must plan to replace the full service line. Planned infrastructure work includes water infrastructure or capital improvement projects that do not solely replace lead service lines. Examples include, but are not limited to, water main replacement, meter replacement, and transportation-related construction projects. A partial LSLR may only be funded by the SRF where the water system shows all of the following: that the partial LSLR is done in conjunction with planned infrastructure work, that disturbance to the service line is unavoidable because of the planned infrastructure work, and that the water system has documented customer refusal showing it cannot gain access to that property to conduct a full LSLR following multiple attempts. Refusals may consist of any of the following: a refusal signed by the customer, documentation of a verbal statement refusing replacement, or documentation of no response after multiple attempts to reach the customer regarding full LSLR.

LSLR in Conjunction with Emergency Infrastructure Repair or Replacement
Emergency repair and replacement of drinking water transmission and distribution infrastructure can necessitate unexpected replacement of lead service lines. Under such circumstances, DWSRF-funded borrowers must offer to replace the full lead service line. However, the borrower may use DWSRF funding to pay for emergency partial LSLR if full replacement is not possible due to a documented customer refusal. Refusals may consist of any of the following: a refusal signed by the customer, documentation of a verbal statement refusing replacement, or documentation of no response after multiple attempts to reach the customer regarding full LSLR.

ADMINISTRATION OF THE CLEAN AIR ACT AND THE FEDERAL WATER POLLUTION CONTROL ACT WITH RESPECT TO FEDERAL CONTRACTS, GRANTS, OR LOANS

Both the CAA and the CWA prohibit federal agencies from procuring goods or services from—or extending assistance by way of grant, loan or contract to — persons who have been convicted of violations of either law. Executive Order No. 11738 was issued to coordinate enforcement of these provisions by conferring certain responsibilities on the EPA Administrator. Under section 2(b) of Executive Order No. 11738, the Administrator

> *shall… designate facilities which have given rise to a conviction for an offense under (the criminal provisions of the CAA and the CWA).*

The Executive Order also prohibits federal agencies from extending assistance to facilities that are not in compliance with either Act. Section 3(b) of Executive Order No. 11738 provides that:

> *(N)o federal agency authorized to extend federal assistance by way of grant, loan or contract shall extend such assistance in any case in which it is to be used to support any activity or program involving the use of a facility then designated by the Administrator pursuant to section 2.*

The prohibition of section 3(b) does not apply if the purpose of the assistance is to remedy the cause of the CAA or CWA violation.

GUIDANCE FOR UTILIZATION OF SMALL, MINORITY AND WOMEN BUSINESS ENTERPRISES REQUIREMENTS

The North Dakota Drinking Water State Revolving Fund (DWSRF) and Clean Water State Revolving Fund (CWSRF), receive federal funds from the U.S. Environmental Protection Agency (EPA) to provide low interest rate loans to finance water infrastructure projects. As a condition of federal grant awards, EPA regulations require that loan recipients and sub-recipients (i.e., prime contractors and subcontractors) make a good-faith effort to award a fair share of work to DBE's who are minority business enterprises (MBE's) and women's business enterprises (WBE's). DBE requirements can be found in 40 CFR Part 33.

To ensure compliance with EPA's DBE requirements, both **Project Owners (Loan Recipients)** and **Prime Contractors must** undertake the good faith efforts to provide opportunities for DBE companies to participate in procurements. EPA regulations require evidence of the demonstration of the six good faith efforts in trying to achieve the DBE participation goals. DWSRF and CWSRF negotiated DBE participation goals with EPA of **2%** for MBEs and **3%** for WBEs. The DBE goals are not a quota.

Good Faith Efforts – 40 CFR 33.301

The following good faith efforts which apply to the procurement categories involving EPA financial assistance funds can be found in **40 CFR, Subpart C, Part 33** of EPA's Disadvantaged Business Enterprise Program Rule.

1. Ensure DBE's are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities.
2. Search DBE lists for potential subcontracts/suppliers.
    a. The DBE lists are updated frequently, so search on-line for the most current list.
    b. Contact at least one DBE for each subcontract/supplier needed.
3. Provide notice to DBE organizations of opportunities to bid.
4. Arrange time frames for contracts and establish delivery schedules in a way that encourages and facilitates participation by DBEs in the competitive process.
5. Divide total requirements into smaller tasks or quantities and using DBE prime contractors and subcontractors when feasible to permit maximum DBE participation.
6. Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.
7. Use the services and assistance of the Small Business Administration (SBA), Department of Transportation (DOT) and Minority Business Development Agency of the U. S. Department of Commerce.
8. If the Prime Contractor awards subcontracts, require the prime contractor to take these same Good Faith Efforts.

TO PROVIDE PROCUREMENT OPPORTUNITIES TO DBE FIRMS, THE PROJECT OWNER SHOULD:

- Conduct pre-bid meetings to inform potential bidders/contractors about DBE requirements and provide guidance in undertaking the required good faith efforts found at 40 CFR 33.301.
- When appropriate invite DBE companies to meetings, conferences, etc., to inform them of procurement opportunities.
- Use listings of certified DBEs from the U.S. Small Business Administration (SBA), North Dakota Department of Transportation (NDDOT), and EPA's Office of Small Business Programs (OSBP) etc, to solicit DBE companies as prime contractors whenever they are potential. The SBA maintains a list that can be found at the following link http://dsbs.sba.gov/search/dsp_dsbs.cfm. The NDDOT

maintains a list which can be found at the following link http://dotnd.diversitycompliance.com. EPA's OSBP maintains a list located on EPA's OSBP Home Page (http://www.epa.gov/smallbusiness/).

Procurement, Recordkeeping and Reporting

1. **PROJECT OWNERS ARE REQUIRED TO:**
    A. Ensure all prime contractors apply the Good Faith Efforts and submit required forms as listed below.
    B. Project Owners must require its prime contractor to pay its subcontractor for satisfactory performance no more than 30 days from the prime contractor's receipt of payment from the project owner/recipient. 40 CFR 33.302(a)
    C. Maintain copies of all DBE documentation and forms.

2. **PRIME CONTRACTORS ARE REQUIRED TO:**
    A. Notify the loan recipient in writing prior to any termination of a DBE subcontractor by the prime contractor. 40 CFR 33.302(b)
    B. Follow the six good faith efforts if soliciting a replacement subcontractor after a DBE subcontractor fails to complete work under the subcontract for any reason. 40 CFR 33.302(c)
    C. Follow the six good faith efforts for all subcontract and/or supplier procurements even if the prime contractor has achieved its fair share objectives. 40 CFR 33.302(d)

3. **All SRF loan recipients are required to create and maintain a bidders list in accordance with 40 CFR, Subpart E, Part 33** of EPA's Disadvantaged Business Enterprise Program rule, (40 CFR 33.501(b). The bidder's list must include all companies that bid/quote on prime contracts and/or bid/quote on subcontracts and supplies for SRF funded projects (including DBEs and non-DBEs). The bidder's list must include the following prime and subcontractor information (40 CFR 33.501): entity's name and the name of the person contacted; entity's mailing address, telephone number, and e-mail address; the task or material on which the entity bid/quoted, the amount and date of bid/quote; and the entity's status as an MBE/WBE or non-MBE/WBE.

4. **The recipient/contractor shall supply the Department of Environmental Quality with information** concerning the award of contracts to MBE/WBE's upon request. This may include copies of subcontracts, purchase orders, and receipts which verify contract amounts and utilization.

5. **Bidders/offerors shall demonstrate compliance with good faith efforts in order to be deemed responsible.** Demonstration of compliance includes completion of the following MBE/WBE Subcontractor Solicitation Information form and inclusion in the bid envelope. The bidder must solicit quotes from at least three certified MBEs and three certified WBEs and include the required information on the form. The bidder must also include similar information on the form for non MBE/WBE subcontractors from which quotes were received for the same work offered to MBE/WBEs.

MBE/WBE SUBCONTRACTOR SOLICITATION INFORMATION

Name, Address, & Phone Number of Subcontractor Contacted	Date that Quote was Requested	Description of Work Offered	Date of Follow-up & Person Contacted	Amount of Quote or Reason Not Quoting *	Quote Accepted? If not, List Reason for Rejection*	Indicate if MBE/WBE or non MBE/WBE

* Use additional sheets if necessary.

The contractor shall supply copies of subcontracts, purchase orders, and receipts which verify contract amounts and utilization of MBE/WBE subcontractors following contract award.

The undersigned hereby certifies that the above information is true and correct.

_____
Contractor

By: _____ _____ _____
Signature Title Date

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

A. INSTRUCTIONS

Under Executive Order 12549, an individual or organization debarred or excluded from participation in Federal assistance or benefit programs may not receive any assistance award under a Federal program, or a subagreement thereunder for $25,000 or more. The status of prospective individuals or organizations can be checked at:

http://www.sam.gov

Accordingly, each prospective recipient of an EPA grant, loan, or cooperative agreement and any contract or subagreement participant thereunder must complete the attached certification or provide an explanation why they cannot complete the certification. For further details, see 40 CFR 32.510, Participants Responsibilities.

B. WHERE TO SUBMIT

A prospective prime contractor must submit a completed certification or explanation to the project owner for the project. Each prospective subcontractor must submit a completed certification or explanation to the prime contractor for the project.

C. HOW TO OBTAIN FORMS

Additional forms may be obtained from the State and may be reproduced.

_____
SRF Project Number

United States Environmental Protection Agency
Washington, DC 20460

Certification Regarding Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to $10,000 or imprisonment for up to 5 years, or both.

_____
Typed Name & Title of Authorized Representative

_____
Signature of Authorized Representative Date

_____ I am unable to certify to the above statements. My explanation is attached.

PROHIBITION AGAINST LISTED VIOLATED FACILITIES

A. REQUIREMENTS

(1) To comply with all the requirements of section 114 of the Clean Air Act, as amended (42 U.S.C. 1857, et seq., as amended by Pub. L. 92-604) and section 308 of the Clean Water Act (33 U.S.C. 1251, as amended), respectively, which relate to inspection, monitoring, entry, reports, and information, as well as other requirements specified in section 114 and section 308 of the Air Act and the Water Act, respectively, and all regulations and guidelines issued thereunder before the award of this contract.

(2) That no portion of the work required by this prime contract will be performed in a facility listed on the Environmental Protection Agency list of violating facilities on the date when this contract was awarded unless and until the EPA eliminates the name of such facility or facilities from the listing.

(3) To use his best efforts to comply with clean air and clean water standards at the facilities in which the contract is being performed.

(4) To insert the substance of the provisions of this clause, including this paragraph (4), in any nonexempt subcontract.

B. DEFINITIONS

(1) Air Act means the Clean Air Act, as amended (42 U.S.C. 1857 et seq.).

(2) Water Act means the Clean Water Act, as amended (33 U.S.C. 1251 et seq.).

(3) Clean Air Standards means any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions, or other requirements which are contained in, issued under, or otherwise adopted under the Air Act or Executive Order 11738, an applicable implementation plan as described in section 110 (d) of the Air Act (42 U.S.C. 1857c-5(d)), an approved implementation procedure or plan under section 111 (c) or section 111(d), or an approved implementation procedure under section 112(d) of the Air Act (42 U.S.C. 1857c-7(d)).

(4) Clean Water Standards means any enforceable limitation, control, condition, prohibition, standard, or other requirement which is promulgated under the Water Act or contained in a permit issued to a discharger by the Environmental Protection Agency or by a State under an approved program, as authorized by section 402 of the Water Act (33 U.S.C. 1342), or by a local government to ensure compliance with pretreatment regulations as required by section 307 of Water Act (33 U.S.C. 1317).

(5) Compliance means compliance with clean air or water standards. Compliance shall also mean compliance with a schedule or plan ordered or approved by a court of competent jurisdiction, the Environmental Protection Agency in accordance with the requirements of the Air Act or Water Act and regulations.

(6) Facility means any building, plant, installation, structure, mine, vessel, or other floating craft, location, or site of operations, owned, leased, or supervised by a contractor or subcontractor, to be used in the performance of a contract or subcontract. Where a location or site of operations contains or includes more than one building, plant, installation, or structure, the entire location or site shall be deemed to be a facility except where the Director, Office of Federal Activities, Environmental Protection Agency, determines that independent facilities are located in one geographical area.

PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

This term and condition implements 2 CFR 200.216 and is effective for obligations and expenditures of EPA financial assistance funding on or after 8/13/2020.

As required by 2 CFR 200.216, EPA recipients and subrecipients, including borrowers under EPA funded revolving loan fund programs, are prohibited from obligating or expending loan or grant funds to procure or obtain; extend or renew a contract to procure or obtain; or enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that use covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115-232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities). Recipients, subrecipients, and borrowers also may not use EPA funds to purchase:

a. For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
b. Telecommunications or video surveillance services provided by such entities or using such equipment.
c. Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

Consistent with 2 CFR 200.471, costs incurred for telecommunications and video surveillance services or equipment such as phones, internet, video surveillance, and cloud servers are allowable except for the following circumstances:

a. Obligating or expending EPA funds for covered telecommunications and video surveillance services or equipment or services as described in 2 CFR 200.216 to:
   (1) Procure or obtain, extend or renew a contract to procure or obtain;
   (2) Enter into a contract (or extend or renew a contract) to procure; or
   (3) Obtain the equipment, services, or systems.

   Certain prohibited equipment, systems, or services, including equipment, systems, or services produced or provided by entities identified in section 889, are recorded in the System for Award Management exclusion list.

BUILD AMERICA, BUY AMERICA (BABA) REQUIREMENTS

The Contractor acknowledges that it understands the goods and services under this Agreement are being funded with federal monies and have statutory requirements commonly known as “Build America, Buy America;” that requires all of the iron and steel, manufactured products, and construction materials used in the project to be produced in the United States (“Build America, Buy America Requirements”) including iron and steel, manufactured products, and construction materials provided by the Contactor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the Owner and Funding Authority (a) the Contractor has reviewed and understands the Build America, Buy America Requirements, (b) all of the iron and steel, manufactured products, and construction materials used in the project will be and/or have been produced in the United States in a manner that complies with the Build America, Buy America Requirements, unless a waiver of the requirements is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the Build America, Buy America Requirements, as may be requested by the Owner or the Funding Authority. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Owner or Funding Authority to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney’s fees) incurred by the Owner or Funding Authority resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the Funding Authority or any damages owed to the Funding Authority by the Owner). If the Contractor has no direct contractual privity with the Funding Authority, as a lender or awardee to the Owner for the funding of its project, the Owner and the Contractor agree that the Funding Authority is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the Funding Authority.

Sample Certification for BABA

The following information is provided as a sample letter of certification for BABA compliance. Documentation must be provided on company letterhead.

Date

Company Name

Company Address

City, State Zip

Subject: Build America, Buy America Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the following products and/or materials shipped/provided to the subject project are in full compliance with the Build America, Buy America requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. Xxxx
2. Xxxx
3. Xxxx

Such process took place at the following location:

_____

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

Sample Step Certification for BABA

The following information is provided as a sample letter of step certification for BABA compliance. Documentation must be provided on company letterhead.

Date

Company Name

Company Address

City, State Zip

Subject: Build America, Buy America Step Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the (melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the Build America, Buy America requirements as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. Xxxx
2. Xxxx
3. Xxxx

Such process took place at the following location:

_____

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

Section 00850 – STORM WATER PERMIT INFORMATION

Any project that involves land disturbance (clearing, grading or excavating) greater than or equal to one acre requires a North Dakota Pollution Discharge Elimination System (NDPDES) permit. The Contractor is required by the permit to adhere to the conditions of the storm water permit and storm water pollution prevention plan as it relates to controlling erosion and sedimentation during construction activities, maintaining erosion control devices, conducting inspections and maintaining appropriate records.

The NDPDES Permit Application and additional information can be found at:
https://deq.nd.gov/WQ/2_NDPDES_Permits/8_Stormwater/StW.aspx

Section 00900 – GEOTECHNICAL EVALUATION REPORT

Geotechnical Evaluation Report will be issued via Addendum.

SECTION 01 0130

SUBMITTALS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Submittal procedures, schedules, lists and instructions for proper and prompt submittal and review of construction related documents.

1.2 SUBMITTAL PROCEDURES

A. Transmit each submittal in accordance with Engineer’s accepted format.

B. Identify Project Name and City Project Number, Contractor, Subcontractor or Supplier, pertinent drawing and detail number, and specification section number, as appropriate.

C. Apply Contractor's stamp, signed or initialed certifying that review, verification of products required, field dimensions, adjacent construction work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.

D. Schedule submittals to expedite the Project, and deliver to Engineer at business address.

E. Coordinate submission of related items.

F. For each submittal, allow 15 working days for review, excluding delivery time to and from the Contractor.

G. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed Work.

H. Provide space for Contractor and Engineer review stamps.

I. If directed to revise and resubmit, identify all changes made since previous submission.

J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with provisions.

K. Submittals not requested will not be recognized or processed.

1.3 CONSTRUCTION PROGRESS SCHEDULES

A. Submit preliminary schedule in duplicate within 10 days after effective date of the Agreement.

B. Revise and resubmit as required.

C. Submit revised schedules with each Application for Payment, identifying changes since previous version.

D. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities.

E. Indicate estimated percentage of completion for each item of work at each submission.

F. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates.

1.4 PROPOSED PRODUCTS LIST

A. Within 10 days after effective date of the Agreement, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.5 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
   1. Product data.
   2. Shop drawings.
   3. Samples for selection.
   4. Samples for verification.

B. Submit to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

   1. Shop Drawings and proposed products intended for incorporation in the Work, including fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:
      a. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related Work.
      b. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.
      c. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
      d. Schedule submittals to expedite the Project, and coordinate submission of related items.
      e. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
      f. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
      g. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
      h. Provide space for Contractor and Engineer review stamps.
      i. If directed to revise and resubmit, identify all changes made since previous submission.
      j. Submittals not requested will not be recognized or processed.
      k. Sheet Size: Except for templates, patterns and similar full- size Drawings, submit Shop Drawings on sheets at least 8-1/2" x 11" but no larger than 24" x 36".
      l. Submittal: Submit one electric copy for the Engineer's concurrent review.
      m. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.
      n. Engineer shall not proceed with Shop Drawing review without prior review and approval by Contractor.

C. Samples will be reviewed only for aesthetic, color, or finish selection.

   1. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical to the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.
      a. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
         1) Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.
      b. Preliminary submittals: Where Samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.

1) Preliminary submittals will be reviewed and returned with the Engineer's mark indicating selection and other action.

2. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.

1.6 MANUFACTURER INSTALLATION INSTRUCTIONS

A. When required, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Engineer.

B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.7 MANUFACTURER CERTIFICATES

A. When specified in individual specification sections, submit manufacturer certification to Engineer.

B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or product, but must be acceptable to Engineer.

PART 2 NOT APPLICABLE

PART 3 NOT APPLICABLE

PART 4 MEASUREMENT AND PAYMENT

4.1 All work described herein is incidental to other related items of work and no measurement or additional payment will be considered.

END OF SECTION

SECTION 01 0390

COORDINATION AND MEETINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Coordination, field engineering, preconstruction meeting, progress meetings, and examination.

1.2 COORDINATION

A. Coordinate scheduling, submittals, and Work of the various sections of the Project Manual to assure efficient and orderly sequence of installation of interdependent construction elements.

B. Include the City of Dickinson in all coordination and meetings.

1.3 FIELD ENGINEERING

A. Contractor shall protect survey monuments, control, property corners and reference points, and shall notify Engineer immediately if any such items are disturbed. Any survey monuments, control, property corners and reference points destroyed by Contractor will be reset by Engineer at the expense of the Contractor. Contractor shall allow a minimum of 48 hours for Engineer to complete such resetting or replacement.

B. Verify setbacks and easements, confirm drawing dimensions and elevations.

C. The Engineer will provide field engineering services and establish elevations, lines, and levels, utilizing recognized engineering survey practices.

1.4 PRECONSTRUCTION MEETING

A. The Engineer shall schedule and conduct the Pre-Construction Meeting and shall be responsible for preparing an agenda, recording discussions and distributing the meeting minutes.

B. Attendees shall include, at a minimum, the City, Contractor, Engineer and Major Sub-Contractors.

1.5 PROGRESS MEETINGS

A. The Engineer shall schedule and conduct Construction Progress Meetings and shall be responsible for preparing an agenda, recording discussions and distributing the meeting minutes. These meetings will be held every other week, or more frequently as needed.
   1. Minimum Agenda - Construction Progress Meeting:
      a. Review, revise as necessary, and approve minutes of previous meeting(s).
      b. Review progress of the work since last meeting, including status of submittals for approval.
      c. Identify problems which will impede planned progress.
      d. Develop corrective measures and procedures to regain planned schedule.
      e. Complete other current business.
      f. Three week Look-Ahead Schedule.
      g. Schedule of the next meeting.

B. Minimum Attendance Required:
   1. Contractor.
   2. City of Dickinson.
   3. Contractor's Superintendent.
   4. Major Subcontractors.
   5. Engineer.

C. The Engineer shall schedule and conduct special Construction Administration meetings including Pre-Installation meetings on critical systems and assemblies and other meetings as deemed necessary.

PART 2 NOT USED

PART 3 NOT USED

PART 4 NOT USED

END OF SECTION

SECTION 01 0510
GRADE, LINES, AND LEVELS

SECTION 1 – GENERAL

1.01 SPECIFICATIONS INCLUDES

A. Construction Surveying and Staking
B. Contractor's Responsibilities

1.02 RELATED SPECIFICATIONS

A. Division 02 – Site Construction
B. Division 03 – Concrete

1.03 CONSTRUCTION SURVEYING AND STAKING

A. Owner shall provide engineering surveys for establishing reference and control points, one (1) time, as needed for the Contractor to proceed with the Work.
B. It is the Owner's responsibility for the staking and layout of all work.
C. It is the Contractor's responsibility to receive and verify all layouts and material shop drawings for any necessary revisions. Prior to any work, any adjustments necessary to planned layout shall be approved by the Engineer.

1.04 CONTRACTOR'S RESPONSIBILITIES

A. Contractor shall coordinate with the Owner all construction staking required for laying out the work. A minimum 48-hour notice is required for staking needs. Saturday, Sundays, and holidays are not included in the 48-hour notice timeframe. A description of the staking needs shall be provided with each notice.
B. Contractor shall take measures to preserve all control and reference stakes set by the Owner for the entire project duration. Contractor shall take measures to preserve all layout construction staking set by the Owner.
C. Any re-staking of reference or control points and layout stakes shall be at the Contractor's expense.

SECTION 2 – PRODUCTS

(NOT USED)

SECTION 3 – EXECUTION

(NOT USED)

END OF SECTION

SECTION 01 1440
SEQUENCE AND CONSTRAINTS
OF CONSTRUCTION

SECTION 1 – GENERAL

1.01 SPECIFICATION INCLUDES

A. Sequence and Constraints of Construction

1.02 RELATED SPECIFICATIONS

A. Section 00520 – Agreement (Liquidated Damages)
B. Section 00810 – Supplementary Conditions
C. Section 01 1100 – Summary of Work
D. Section 01 3300 – Submittal Procedures

1.03 CONSTRUCTION SEQUENCE AND CONSTRAINTS

A. General constraints within which the Contractor shall cooperatively schedule the Work include, but are not limited to, the following:
   1. All Work must be completed during the time set forth in the Bid Form and Agreement and within the construction windows identified herein.
   2. All excavations must be within the limits shown on the Drawings. If needed, the Contractor is to provide a detailed excavation and shoring plan, designed and certified by a registered Professional Engineer in the State of North Dakota.
   3. Water service piping may be installed by the open cut method or horizontal directional drilling/boring.
   4. Main lines gate valves may not all be operational and the extent of the short-term watermain shutdown(s) will be beyond the extents of the project work area. The City will provide a list of customers within the extent of the short-term watermain shutdown area. A short-term shutdown shall be defined as less than 8-hours. No temporary water service will be required for short term shutdowns.
   5. Contractor shall have a plan in place for temporary water for residents/businesses that exceed the 8 hours of shutdown.
   6. Contractor to coordinate all work zones with events at Dakota Community Bank & Trust Ballpark and associated facilities. Water ties ins that cause water service interruptions for Dakota Community Bank & Trust Ballpark and associated facilities will not be allowed on days that games are scheduled.

B. Constraints affecting specific areas of the Work and specific Work sequencing requirements are described in the following sections:
   1. Construction will be occurring in a residential area. All work at the site shall be performed during regular working hours, Monday through Friday, 7:00 am to 8:00 pm and Saturday from 8:00 am to 8:00 pm.
   2. Contractor is responsible for obtaining any necessary permits for construction of the Work. The City of Dickinson will waive all building permit fees and connection fees for water and sewer related to this project.

3. Replacement of lead water services on private property shall be done at the convenience of the property owner.
4. Contractor will be responsible for work under the requirements of Southwest Water Authority (SWWA) crossing permits on 2nd St. SE. Coordination with SWWA will be the responsibility of the Contractor.

C. Coordination of Work with other Contractors:
1. Work for the East Broadway Dam project will occur in 2026. All access, traffic control and work shall be coordinated.

SECTION 2 – PRODUCTS

(NOT USED)

SECTION 3 – EXECUTION

3.01 SEQUENCE OF CONSTRUCTION

A. Following is a potential sequence of construction. This sequence of construction is general only and not all-inclusive. The listing of this potential sequence of construction does not affect the General Contractor's responsibility for all work and work sequencing as described in the General Conditions and herein.

END OF SECTION

Section 01 2213 – UNIT PRICE MEASUREMENT AND PAYMENT

Item No. 1 – General Conditions: Payment shall be on a lump sum basis and shall be full compensation for all costs associated with bonds, insurance, project management including coordination with all other subcontractors; and any other items necessary for project delivery. 90% of the payment for General Conditions shall be eligible for dispersal upon execution of the Agreement and 5% of the work being completed. The remaining 10% shall be eligible for dispersal upon completion of the Final Punch List including Lien Waiver and Warranties.

Item No. 2 – Mobilization: Payment shall be on a lump sum basis and shall be full compensation for all costs associated with mobilization(s) to, from and within the project site; and any other items necessary for project delivery. Such payment is full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified. Payment will be made as follows

Original Contract Amount Earned	Mobilization Bid Amount
5%	25%
10%	50%
50%	75%
75%	100%

Item No. 3 – Clearing & Grubbing: Payment shall be on a lump sum basis and shall be full compensation for all costs associated with removal and disposal of all trees, shrubs, stumps, landscape rock, boulders, mulch, landscape timbers, pavers, etc. within the project limits.

Item No. 10 – Removal of Retaining Wall: Payment shall be made on a linear foot basis and shall be full compensation for all labor, mobilization, equipment, sawing, removal, and disposal of removed retaining wall material.

Item No. 11 – Removal of Steps: Payment shall be on a lump sum basis and shall be full compensation for all costs associated with removal and disposal of concrete steps at 104 East Broadway.

Item No. 12 – Demolition of Parking Lot: Payment shall be on a lump sum basis and shall be full compensation for removal and disposal of the existing parking lot pavement section and the wood posts/fencing along the edge of the parking lot at the south end of 4th Ave SE.

Item No. 13 – Rock Excavation: Rock Excavation is anticipated on 3rd Ave East near 6th St. East. Rock Excavation method generally includes removal of rock material that requires heavy-duty dozer-mounted rippers, dozer blades or excavator hydraulic hammer/breaker attachment to break the material into chunks of more than one cubic foot, before material can be excavated and removed. Payment shall be on a per cubic yard basis and shall be full compensation for all costs associated with removal and disposal of rock within the project limits.

Item No. 17 – Exploratory Exc. San. Service: Payment shall be made on a per each basis for Exploratory Excavation Sanitary Service including labor, mobilization, equipment, excavation and/or potholing, disposal of material and materials need to properly excavate and backfill the service trench.

Item No. 18 – Exploratory Exc. Water Serv.: Payment shall be made on a per each basis for Exploratory Excavation Water Service including labor, mobilization, equipment, excavation and/or potholing, disposal of material and materials need to properly excavate and backfill the service trench.

Item No. 20 – Sanitary Sewer Main Repair at MH: Payment shall be made on a per each basis for Sanitary Sewer Main at MH Repair including, but not limited to, excavation, furnishing and installing new pipe if needed or relaying existing pipe, strongback ferncos if needed and raising pipe to grade, furnishing and installing concrete blocks, furnishing and installing pipe bedding and encasement sand, backfilling and compacting. Item shall be eligible for payment upon proper installation and Sanitary Sewer Main Repair at MH.

Item No. 21 – Sanitary Sewer Main Repair: Payment shall be made on a per each basis for Sanitary Sewer Main Repair including, but not limited to, excavation, furnishing and installing new pipe, strongback ferncos if needed and raising pipe to grade, furnishing and installing concrete blocks, furnishing and installing pipe bedding and encasement sand, backfilling and compacting. Item shall be eligible for payment upon proper installation and Sanitary Sewer Main Repair.

Item No. 22 - Connect To Extg San. MH: Payment shall be made on a per each basis for connecting to existing Sanitary MH including, but not limited to, excavation, connecting to existing boots if present, furnishing/installing bands for existing boots if needed, or grouting in new pipe, pipe bedding, concrete blocks, and backfilling and compacting.

Item No. 23 - Connect To Extg. San. Main: Payment shall be made on a per each basis for connecting to existing Sanitary Sewer Main including, but not limited to, excavation, furnishing strongback fernco/sleeve, pipe bedding, concrete blocks, and backfilling and compacting.

Items No. 24/25 - Sewer Service – 519/529 3rd Ave E: Payment shall be made on a lump sum basis Sewer Service – 519 3rd Ave E/529 3rd Ave E; sewer service includes a new service from the right-of-way into the inside wall of the structure. Payment includes excavation, furnishing, removal of existing pipe, installed PVC pipe, strongback ferncos, concrete blocks, pipe bedding, and backfill and compaction. Service pipe from existing main to right-of-way line will be paid for under other unit prices.

Item No. 34 – Sanitary Sewer Temporary Bypass: Payment shall be made on a lump sum basis for sanitary sewer temporary bypass per plans and specifications, including, but not limited to, labor and equipment required to bypass the existing sanitary sewer.

Item No. 35 – Bore Water Service Line: Payment shall be on lineal foot basis each shall be for the boring costs of installing a water service including equipment and labor and pipe from the watermain to the curb stop. Any easement acquisition required shall be included in the cost for Bore Water Service Line. Saddle and corporations, connections and fittings are paid for separately under other bid items. This item shall be used in replacement of open cutting water services.

Item No. 51-52 – Flushing Saddle & Corp 8”/6": Payment shall be made on a per each basis for Flushing Saddle & Corp 8” including labor and materials, excavation and 8”/6” saddle and corporation. Pertains to areas where watermain is installed when there is not a hydrant accessible in the newly installed pipe for flushing.

Item No. 55 – Reconnect Service Line: Payment shall be made on a per each basis for Service Line Connection that occurs where a connection to the existing water service occurs before the curb stop. This item includes their appropriate fittings and hardware approved in standard specifications. All other work shall be paid for under other bid items.

Item No. 56 – Water Main Connection (All Sizes): Payment shall be made on a per each basis for Connect to Existing Watermain; connect to existing main using a valve, a sleeve or a reducer where existing water elevation is at the minimum burial depth. Payment shall include compensation for preparing the connections to existing watermains including excavation, labor, swabbing and cleaning exterior of the pipe for fitting connections. Payment includes the fitting/sleeve, material and labor necessary to make the connection to an existing watermain.

Item No. 57 – Vertical Offset Connect To Existing WM: Payment shall be made on a per each basis for Vertical Offset Connection to Existing Watermain for all sizes; connect to an existing main that requires a sleeve and vertical or horizontal offsets due to existing watermain elevation being at a different elevation than new watermain or where the tie needs an immediate horizontal offset due to separation requirements. Payment shall include compensation for preparing the connections to existing watermains including excavation, labor, swabbing and cleaning exterior of the pipe for fitting connections. Payment includes the fittings, sleeves, material and labor necessary to make the vertical offset connection to an existing watermain and must include a minimum of two MJ bends.

Item No. 58 – Horizontal Offset WM: Payment shall be made on a per each basis for Watermain Horizontal Offset Watermain for all sizes. Pertains to watermain that needs to be shifted horizontally. This includes the fittings, material and labor necessary to make the horizontal offset and must include a minimum of two MJ bends.

Item No. 59 – Vertical Offset Crossing WM: Payment shall be made on a per each basis for Watermain Vertical Offset Crossing for all sizes. Should only apply for sanitary mains, force mains, storm mains and watermains to maintain proper separation where a minimum of two bends is needed to create the minimum separation between other utilities. Payment includes all the fittings, labor, and materials needed to make necessary vertical offset crossing and must include a minimum of four MJ bends.

Items No. 62 to 64 - 6IN Hydrant x X.X' & Tee: Payment shall be made on a per each basis for 6IN Hydrant x specified depth and tee fitting required to connect into watermain. Included in price is hydrant, tee, concrete block/thrust block, labor, materials, excavation, and backfill. Pipe required from tee to hydrant and gate valve/box will be paid for separately.

Item No. 65 – Type A - Lead Service Replacement: Lead Service Replacement Sewer including all work within the property of the subject residence including, but not limited to, coordination with property owner, interior and exterior verification photos prior to and after completion of construction, boring of 1" poly service from curb stop to inside house, coring of concrete floor or wall, all plumbing modifications needed to make reconnection, any repair of the interior of the house, concrete patching and cleanup, and get property owner sign off of Flushing Acknowledgement Form (City Provided). A filter pitcher will be required to be provided to the property owner/occupant – Contractor will be responsible to procure and provide filter pitchers. Filters shall be certified to NSF Standard 53. In general, the Type A Lead Service Replacement is straight forward with a minimally finished basement, reasonably easy access to the water meter location and a reasonable work area.

Item No. 66 – Type B - Lead Service Replacement: Payment shall be made on a per each basis for Type B Lead Service Replacement Sewer including all work within the property of the subject residence including, but not limited to, coordination with property owner, interior and exterior verification photos prior to and after completion of construction, boring of 1" poly service from curb stop to inside house, moving of any permanent structures to create a work area, coring of concrete floor or wall, all plumbing modifications needed to make reconnection, repair of the interior of the house including carpentry and flooring, concrete patching and cleanup, and get property owner sign off of Flushing Acknowledgement Form (City Provided). A filter pitcher will be required to be provided to the property owner/occupant – Contractor will be responsible to procure and provide filter pitchers. Filters shall be certified to NSF Standard 53. In general, the Type B Lead Service Replacement is in a residence with a finished basement, somewhat difficult access to the water meter location and minimal work area.

Item No. 67 – Type C - Lead Service Replacement: Payment shall be made on a per each basis for Type C Lead Service Replacement Sewer including all work within the property of the subject residence including, but not limited to, coordination with property owner, interior and exterior verification photos prior to and after completion of construction, boring of 1" poly service from curb stop to inside house, moving of any permanent structures to create a work area, moving and reconstruction of any walls needed to gain access to the water meter, coring of concrete floor or wall, all plumbing modifications needed to make reconnection, repair of the interior of the house including carpentry and flooring, concrete patching and cleanup, and get property owner sign off of Flushing Acknowledgement Form (City Provided). A filter pitcher will be required to be provided to the property owner/occupant – Contractor will be responsible to procure and provide filter pitchers. Filters shall be certified to NSF Standard 53. In general, the Type C Lead Service Replacement is in a residence with a finished basement, difficult access to the water meter location and no existing work area.

Item No. 68 - Watermain Connection 5th & Broadway: Payment shall be made on a per each basis for Watermain Connection at 5th Ave East and East Broadway. Included in price is 90 degree bend, sleeve to connect to existing watermain, excavation, backfill, compaction, labor, and material.

Item No. 69- Regrade Sewer Service: Payment shall be on a per linear foot basis and shall be full compensation for furnishing and installing each regraded sanitary sewer crossing outside of the Sanitary Sewer Service Crossing trench. All trenching, backfilling, dewatering, removal and disposal of existing pipe service and unacceptable materials, cutting and connecting to existing pipes, furnishing and installing each linear foot of PVC SDR 26 pipe matching existing pipe size, furnishing and installing of adaptors for connecting to existing pipes, furnishing and installing concrete blocks, furnishing and

installing granular pipe bedding, and any other equipment, labor, and/or materials necessary to complete regrading of sewer service crossing to avoid watermain shall be incidental to the regrade sewer service. Item shall be eligible for payment upon proper installation and certification of Regrade Sewer Service.

Item No. 70 – Sanitary Sewer Service Crossing: Payment shall be on a per each basis and shall be full compensation for furnishing and installing each sanitary sewer crossing as a result of watermain installation. All trenching, backfilling, dewatering, removal and disposal of existing pipe service and unacceptable materials, cutting and connecting to existing pipes, furnishing and installing PVC SDR 26 pipe matching existing pipe size, furnishing and installing of adaptors for connecting to existing pipes, furnishing and installing concrete blocks, furnishing and installing granular pipe bedding, and any other equipment, labor, and/or materials necessary to complete crossing as shown on Detail shall be incidental to the pipe crossing installation. Item shall be eligible for payment upon proper installation and certification of Sanitary Sewer Service Crossing.

Item No. 71 – Storm Sewer Crossing: Payment shall be on a per each basis and shall be full compensation for excavation, labor and materials needed to install a sanitary and/or watermain below a storm sewer line. The installation shall include maintaining a minimum separation of 18" between the watermain/storm sewer lines and the materials and labor needed to fill the excavation with flowable fill in accordance with City Specifications 31-2316 Trenching 3.5E. Insulation shall be paid separately.

Item No. 72 – Lower Water Service: Payment shall be on a per each basis and shall be full compensation for excavation, labor and materials needed to lower an existing water service. Included in the price is labor, equipment and materials required to install new piping and connect to existing water service on both ends.

Item No. 74 – Lead Serv. Line Replacement - Mobilization: Payment shall be on a per each basis and shall be full compensation for all costs associated with mobilization(s) to, from lead service properties off of main project area; and any other items necessary for project delivery. Such payment is full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

Item No. 75 – 4" Thick Insulation: Payment shall be on a per square yard basis and shall be full compensation for furnishing and installing each square yard of 4" Insulation. All trenching, backfilling, dewatering, removal and disposal of unacceptable materials, furnishing and installing a level insulation bedding surface, protecting insulation from damage while backfilling and compacting, and any other equipment, labor, and/or materials necessary to properly furnish and install the 4" Insulation shall be incidental to 4" Insulation. Item shall be eligible for payment upon proper installation.

Item No. 90 – Manhole Casting - New: Payment shall be on a per each basis and shall be full compensation for supplying a new manhole casting and for all labor, materials, and equipment necessary to adjust the new manhole casting to final grade.

Item No. 111 – Retaining Wall: Payment shall be made on a linear foot basis and shall be full compensation for all labor, mobilization, equipment, and materials necessary to construct and backfill retaining walls.

Item No. 112 – Route & Seal: Payment shall be on a per lineal foot basis and shall be full compensation for the equipment and labor involved in routing and sealing curb and gutter per standard detail “Rout & Seal; Curb and Gutter”.

Item No. 114 – Watering: Payment shall be made on a per each basis for watering restored areas. Watering shall be defined as 0.5” effective moisture over the entire area. Water to be provided at Contractor’s expense.

All other items shall be paid for per the Plans and Specifications.

END SECTION

SECTION 01 4001

QUALITY CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Instructions and requirements for quality assurance and quality control of installation.

1.2 REFERENCES

A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date for receiving bids, except where a specific date is established by code.

C. Obtain copies of standards where required by product specification sections.

D. The contractual relationship, duties, and responsibilities of the parties in the contract nor those of the Engineer will not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.3 SUBMITTALS

A. Submit a certified written report of each inspection, test or similar service, to the Engineer, in duplicate, within 48 hours after results have been obtained.

B. Submit additional copies of each written report directly to the City.

1.4 QUALITY ASSURANCE

A. Monitor quality control over Suppliers, Manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with Manufacturer’s instructions, including each step in the sequence.

C. Should Manufacturer’s instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform work by persons qualified to produce workmanship of specified quality.

F. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

PART 2 NOT APPLICABLE

PART 3 EXECUTION

3.1 INSPECTION AND TESTING LABORATORY SERVICES

A. Contractor shall engage and pay for the services of an independent agency to perform specified quality control and testing services. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

B. Where the City has engaged a testing agency or other entity for testing and inspection of a part of the Work and the Contractor is also required to engage an entity for the same or related element, Contractor shall not employ the entity engaged by the City, unless otherwise agreed in writing with the City.

3.2 DUTIES OF INDEPENDENT TESTING AGENCY

A. Perform inspections, sampling and testing of materials and construction specified with qualified personnel.

B. Cooperate with and notify the Engineer and Contractor promptly of irregularities or deficiencies observed in the work during performance of its services.

C. Testing agency is not authorized to release, revoke, alter or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work or perform any duties of the Contractor.

3.3 ASSOCIATED SERVICES

A. Cooperate with agencies performing required inspections, tests and similar services and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include but are not limited to:
   1. Providing access to the Work and furnishing incidental labor and facilities necessary to facilitate inspections and tests.
   2. Taking adequate quantities of representative samples of materials that require testing or assisting the agency in taking samples.
   3. Providing facilities for storage and curing of test samples, and delivery of samples to testing laboratories.
   4. Providing the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.
   5. Security and protection of samples and test equipment at the project site.

3.4 REPORT DATA

A. Date of issue.

B. Project title and number.

C. Name, address and telephone number of testing agency.

D. Dates and locations of sample and tests or inspections.

E. Names of individuals making the inspection or test.

F. Designation of the Work and test method.

G. Identification of product and specification section.

H. Complete inspection or test data.

I. Test results and an interpretation of test results.

J. Ambient conditions at the time of sample taking and testing.

K. Comments or professional opinion as to whether inspected or tested Work complies with Contract Document requirements.

L. Name and signature of laboratory inspector.

M. Recommendations on retesting.

3.5 MANUFACTURER'S FIELD SERVICES AND REPORTS

A. When specified in individual specification sections, require material or product Suppliers or Manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

B. Submit qualifications of observer to Engineer in advance of required observations. Observer subject to approval of Engineer.

C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to Manufacturer's written instructions.

D. Submit report within 30 days of observation to Engineer for information.

3.6 TOLERANCES

A. Monitor tolerance control of installed products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with Manufacturer's tolerances.

C. Adjust products to appropriate dimensions; position before securing products in place.

3.7 COORDINATION AND SCHEDULING

A. Coordinate the sequence of activities to accommodate required services with a minimum of delay and avoid the necessity of removing and replacing construction to accommodate inspections and tests.

B. Responsible for scheduling times for inspections, tests, taking samples and similar activities.

3.8 RETESTING

A. The Contractor is responsible for retesting where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance with Contract Document requirements, regardless of whether the original test was the Contractor's responsibility.

B. Cost of retesting construction revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original construction.

C. If additional testing is specifically requested by the City or Engineer more than the number of tests required per the Contract documents, responsibility for payment shall be as follows:
   1. If an additional requested test fails, the Contractor shall be responsible for all costs associated with the test and any subsequent testing required to obtain a passing test.
   2. If an additional requested test passes, the City shall be responsible for all costs associated with the test.

3.9 DEFECT ASSESSMENT

A. No products, materials or equipment that fails to meet the requirements of the Contract Documents shall be incorporated into the work. Replace Work or portions of the Work not conforming to the specified requirements.

B. If, in the opinion of the City, it is not practical to remove and replace the Work, the City may, on a case-by-case basis and at their discretion, direct an appropriate remedy or adjust payment.

PART 4 MEASUREMENT AND PAYMENT

4.1 All work required herein is incidental to other related work. No measurements or additional payments will be made for work defined herein.

END OF SECTION

SECTION 01 5227

SLOPE PROTECTION AND EROSION CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Erosion control measures required to minimize soil erosion by wind and washing during construction.

1.2 REFERENCES

A. U.S. Dept. of Natural Resources and Conservation (formerly USDA SCS).

B. North Dakota Department of Health, Division of Water Quality.

1.3 PERFORMANCE REQUIREMENTS

A. Develop and follow an Erosion and Sedimentation Prevention Plan and submit periodic inspection reports in accordance with the SWPPP requirements.

B. Do not begin clearing, grading, or other work involving disturbance of ground surface cover until applicable permits have been obtained; furnish all documentation required to obtain applicable permits.
   1. Obtain and pay for permits and provide security required by authority having jurisdiction.
   2. City will withhold payment to Contractor equivalent to all fines resulting from non-compliance with applicable regulations.

C. Timing: Put preventive measures in place as soon as possible after disturbance of surface cover and before precipitation occurs.

D. Storm Water Runoff: Control increased storm water runoff due to disturbance of surface cover due to construction activities for this project.
   1. Prevent runoff of sediment-laden water into storm and sanitary sewer systems, including open drainage channels, in excess of actual capacity or amount allowed by authorities having jurisdiction, whichever is less.

E. Erosion On-Site: Minimize wind, water, and vehicular erosion of soil on project site due to construction activities for this project.
   1. Control movement of sediment and soil from temporary stockpiles of soil.
   2. Prevent development of ruts due to equipment and vehicular traffic.
   3. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to City.

F. Erosion Off Site: Prevent erosion of soil and deposition of sediment on other properties caused by water leaving the project site due to construction activities for this project.
   1. Prevent windblown soil from leaving the project site.
   2. Prevent tracking of mud onto public roads outside site.
   3. Prevent mud and sediment from flowing onto sidewalks and pavements.
   4. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to City.

G. Sedimentation of Waterways On Site: Prevent sedimentation of waterways on the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
   1. If sedimentation occurs, install or correct preventive measures immediately at no cost to City; remove deposited sediments; comply with requirements of authorities having jurisdiction.
   2. If sediment basins are used as temporary preventive measures, pump dry and remove deposited sediment after each storm.

H. Sedimentation of Waterways Off Site: Prevent sedimentation of waterways off the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
   1. If sedimentation occurs, install or correct preventive measures immediately at no cost to City; remove deposited sediments; comply with requirements of authorities having jurisdiction.

I. Open Water: Prevent standing water that could become stagnant.

J. Maintenance: Maintain temporary preventive measures until permanent measures have been established.

1.4 SUBMITTALS

A. A detailed plan defining, in writing, how erosion will be controlled at all times beginning with initial move on project site and ending 1 year after planted seed and/or vegetation have been planted and are growing.

B. Address procedures to follow after the Contractor has left the site and erosion develops.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Use environmentally safe erosion control measures as approved by the North Dakota Department of Health, Division of Water Quality.

PART 2 PRODUCTS

2.1 MATERIALS

A. Grass Seed for Temporary Cover: Select a species appropriate to climate, planting season, and intended purpose. If same area will later be planted with permanent vegetation, do not use species known to be excessively competitive or prone to volunteer in subsequent seasons.

B. Bales: Air dry, rectangular straw bales.

C. Fiber Rolls (Straw Wattles):
   1. 9 inch, North American Green WS925, AEC Premier Straw Wattles, or approved equal.

D. Bale Stakes: One of the following, minimum 3 feet (1 m) long:
   1. Steel U- or T-section, with minimum mass of 1.33 lb per linear foot (1.98 kg per linear m).
   2. Wood, 2 by 2 inches (50 by 50 mm) in cross section.

E. Silt Fence:
   1. Where required by the local municipality having jurisdiction, where indicated on the plans, or where required at critical areas, silt fence shall be installed with a backing of steel woven wire fence. Woven wire fabric shall conform to ASTM A116 with a Class 1 zinc coating. Woven wire fabric shall be at least 32 inches wide with a maximum opening size of 6 inches x 6 inches.
   2. Fabric: Polypropylene geotextile conforming to ASTM D4439, resistant to common soil chemicals, mildew, and insects; non-biodegradable; with a minimum roll width of 36 inches.
   3. Manufacturers:
      a. Propex Geosynthetics; GEOTEX 2130: www.geotextile.com
      b. Or Approved Equal.

F. Silt Fence Posts: Minimum 5 feet (1500 mm) long.
   1. Wood posts: Treated, with minimum dimensions of 1-1/2 inches by 1-1/2 inches for square posts, or 2 inch diameter for round posts.
   2. Steel Posts: 1.3 lb/ft minimum with projections for fastening wire or fabric, and a metal plate welded near bottom.

G. Erosion Control Blanket and Turf Reinforcement Mat
   1. Erosion Control Blanket and Turf Reinforcement Mat shall conform to Section 856 of the NDDOT Standard Specifications, current edition.

H. Temporary Erosion Control Blanket
   1. North American Green C125BN or approved equal.

I. Permanent Turf Reinforcement Mat
   1. Propex Geosynthetics Landlok 300.
   2. North American Green VMax C350.
   3. Hanes Geo Components Scourstop Transition Mat.
   4. Or approved equal.

J. Storm Drain Inlet Sediment Traps: Means of preventing sediment infiltration at storm sewer inlets shall be at Contractors option, and shall be selected from the preferred alternatives listed below, or an approved equal:
   1. Inlet filter bag: Flexstorm or approved equal.
   2. Weighted fiber rolls.
   3. Bale checks.

PART 3 EXECUTION

3.1 EXAMINATION

A. Check over entire project site and note all potentially sensitive areas before any work begins.

B. After work begins, check protected areas daily.

C. After each rainfall check over all disturbed areas within the site and make appropriate adjustments and corrections.

D. After construction has been completed and until vegetation takes root inspect site on a regular basis, especially in the spring and after rainfall.

3.2 INSTALLATION

A. Install erosion control fencing in all erodible areas according to manufacturers' instructions.

3.3 FIELD QUALITY CONTROL

A. Instruct all workers on the importance of erosion control and proper procedures to follow when erosion problems are encountered.

3.4 CLEANOUT AND PROJECT CLOSEOUT

A. Remove all erosion control barriers from site when vegetation has rooted.

B. Properly dispose of all material used for erosion control when removed.

3.5 EROSION CONTROL REQUIREMENTS

A. The Contractor shall submit an erosion control plan to meet the requirements of the Storm Water Pollution Program. All measures shall be taken to control erosion as per both City and North Dakota State Health Department policy.

B. If materials are required to control erosion such as silt fencing, straw bales, as per other devices, these items will be paid for separately as per the price bid on the bid form. Any and all devices used for erosion control shall be approved by the Engineer.

C. The Contractor has day to day operational control of construction and activities and is thus an operator of the project under the Storm Water Permit. The operator is required by the permit to adhere to the conditions of the Storm Water Permit and Storm Water Pollution Prevention Plan as it related to controlling erosion and sedimentation during construction activities, maintaining erosion control devices, conducting inspections and maintaining appropriate records. The Contractor shall be required to complete and sign a permit application as it pertains to an operator.

D. When the Contractor's project is finalized, the contractor may be released from the Storm Water Permit. If, at the time of finalization, the project meets the criteria for final stabilization, the Contractor may file a Notice of Termination (NOT) to the North Dakota Department of Health (NDDOH).

3.6 POLLUTION PREVENTION PROGRAM

A. The Contractor must develop site specific plans or a system to evaluate and implement appropriate BMPs for construction activities less than 1 acre that must include:
   1. Description of the activity, proposed timetable, amount of area disturbed, and any outfalls to the storm sewer or a water body;
   2. Map or drawing of the site showing the site boundaries, soil disturbance limits, storm water drainage pattern, location of receiving waters and/or storm inlets, storage areas for materials, and storm water controls;
   3. A description of the activity, proposed timetable, amount of area disturbed, and any outfalls to the storm water;
   4. A description of the BMPs to control erosion and sediment during various phases of construction;
   5. A description of methods to address sediment tracking on roads, recovering sediments, spill prevention and response procedures;
   6. Site inspection procedure providing for at least one inspection weekly and within 24 hours after any storm event of greater than 0.25 inches of rain per 24 hour period unless prevented due to adverse conditions such as flooding, snow cover, high winds, electrical storms, etc.;
   7. A Site Inspection Record (SIR) shall be kept that contains the date and time of inspections, the name of the person performing the inspection, the date and amount of last precipitation event. All incidents of erosion, sediment accumulation, or spills shall be documented and noted on the SIR. The record shall include the location and description of the incident, estimated quantity of material or size of area affected, and a brief explanation of potential cause and remedial action taken. Copies of the Site Inspection Record (SIR) shall be provided to the Engineer and the City of Dickinson's MS-4 Coordinator.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Measurement is not required unless a defined unit of measurement is provided on the bid form.

B. Basis of measurement, if required, will be by the square foot (SF) or the square yard (SY) or lineal feet (LF).

4.2 PAYMENT

A. Payment for all required erosion control will be incidental to other items of general construction unless a bid item is provided.

B. If a bid item is provided payment will be based upon the quantity measured in the field, approved and accepted by the Engineer.

END OF SECTION

SECTION 01 5700
TRAFFIC REGULATION FOR MUNICIAPAL CONSTRUCTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Construction Traffic Control

1.2 REFERENCES

A. Manual of Uniform Traffic Control Devices, (MUTCD), latest edition.

B. Section 704 of the North Dakota Department of Transportation (NDDOT) Standard and Supplemental Specifications for Road and Bridge Construction, latest edition.

1.3 SUBMITTALS

A. Submit a Traffic Control Plan for City review and approval at the Pre-Construction Conference. If no Pre-Construction Conference is held, Traffic Control Plan shall be submitted prior to site mobilization.

1.4 QUALIFICATIONS

A. Provide a qualified traffic maintenance person with the following minimum qualifications:
   1. Have previous experience working with maintenance and protection of traffic.
   2. Be competent to supervise personnel in traffic maintenance operations.

PART 2 PRODUCTS

2.1 MATERIALS

A. Use only traffic control devices manufactured from materials that are durable, lightweight, rigid and visible, but do not create a hazard when struck.

2.2 ACCESSORIES

A. Barricades: Type III, clear, well maintained and properly marked or lighted for nighttime use.

B. Signs: Utilize signs with messages appropriate to provide adequate construction control. Signs and sign mountings shall conform to Section 704 of the NDDOT Standard Specifications for Road and Bridge Construction, current edition.

C. Cones: A minimum of 28 inches high with 6-inch wide reflectorized white bands, placed 3-4 inches from the top for nighttime use.

D. Lights, delineators and reflectors: Red, yellow or white in color with no less than 12 square inches of reflective area per unit.

E. Delineator Drums: Drums shall be approximately 36 inches in height and minimum of 18 inches in diameter at the top. They shall be constructed of durable plastic with horizontal, circumferential, orange and white reflectorized stripes. The reflectorized stripes shall be fabricated from Type III C, Type IV, or Wide Angle Prismatic flexible reflective sheeting. Delineator drums shall be weighted with sand placed at the bottom of the drum or constructed so that they cannot be blown over or displaced by wind or passing traffic, and do not create a hazard if accidentally struck.

F. Traffic Cones: The cones shall be orange in color, shall be a minimum of 28 inches in height with a broadened base, and fabricated from materials that withstand impact. For nighttime use, cones shall have a minimum 6- inch wide white flexible reflectorized band placed a minimum of 3 inches, but not more than 4 inches, from the top. An additional 4-inch white reflectorized band shall be placed a minimum of 2 inches below the 6 inch band. The cones shall be weighted at the base to prevent overturning by the wind. The reflectorized bands shall be fabricated from Type III C, Type IV or Wide Angle Prismatic flexible reflective sheeting.

PART 3 EXECUTION

3.1 EXAMINATION

A. Visually evaluate traffic conditions to determine which approach has the least impact.

3.2 PREPARATION

A. Provide, erect and place all required traffic control devices in the appropriate locations prior to beginning any construction activity.

3.3 SCHEDULING AND COORDINATION

A. Prior to commencing work, develop and agree to a detailed schedule between the City, Engineer, Utility Companies, the Contractor and Subcontractor(s).

B. Schedule work to reopen a closed intersection in the most expedient manner. Any public road closures shall be approved by the City.

C. Provide access to all residential dwellings and businesses adjacent to this project.

D. All TTC devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time, TTC devices that are no longer appropriate shall be removed or covered.

3.4 ACCESS ROADS

A. Contractor shall utilize only those roads designated as access roads by the City for access to the project site.

B. Tracked vehicles not allowed on paved areas.

C. Contractor shall install vehicle tracking pads to prevent material tracking onto adjacent roadways.

D. Extend and relocate as Work progress requires, provide detours as necessary for unimpeded traffic flow.

E. Provide unimpeded access for emergency vehicles. Maintain 20 foot (6 m) width driveways with turning space between and around combustible materials.

F. Provide and maintain access to fire hydrants free of obstructions.

3.5 HAUL ROUTES

A. Confine construction traffic to designated haul routes.

B. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

3.6 MAINTENANCE

A. Maintain traffic and parking areas in a sound condition free of excavated material, construction equipment, Products, mud, snow, and ice.

B. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water and other deficiencies resulting from construction activities or Contractor's use to pre-construction conditions.

3.7 PROTECTION OF FINISHED WORK

A. Traffic regulation includes protecting finished work from traffic until the finished work has cured, cooled or stabilized enough to handle traffic.

3.8 PROJECT RECORD DOCUMENTS

A. Provide documentation of each day's inspection results and remedial activities at the end of each working day.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Items as required within the plans and traffic control details.

B. If traffic control is bid by the unit, EACH, on the bid form, EACH unit is defined as listed in “A” above within the plans and traffic control details.

C. If traffic control is bid as a Lump Sum on the bid form, the amount bid must include the appropriate number of units as defined in “A” above within the plans and traffic control details to properly complete the project.

4.2 PAYMENT

A. Include all costs associated with the requirements listed herein in the lump sum price bid for traffic control.

B. Payment for EACH will be made according to the actual units approved by the Engineer in the field.

C. If no bid item is provided payment will be incidental to other related items of work.

END OF SECTION

SECTION 01 6001

MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Products.

B. Transportation and handling.

C. Storage and protection.

D. Product options.

E. Substitutions.

1.2 RELATED SECTIONS

A. Instructions to Bidders: Product options and substitution procedures

B. Section 01 0130 - Submittals: Submittal procedures.

C. Section 01 4001 - Quality Control: Product quality monitoring.

1.3 SUBMITTALS

A. See Section 01 0130 - Submittals for submittal requirements and procedures.

B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
   1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.1 PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

C. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the City, or otherwise indicated as to remain the property of the City, become the property of the Contractor; remove from site.

PART 3 EXECUTION

3.1 TRANSPORTATION AND HANDLING

A. Transport and handle Products in accordance with manufacturer's instructions.

B. Promptly inspect shipments to ensure that Products comply with requirements, quantities are correct, and Products are undamaged.

C. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

3.2 STORAGE AND PROTECTION

A. Store and protect Products in accordance with manufacturer's instructions, with seals and labels intact and legible.

B. Store sensitive Products in weather tight, climate controlled enclosures.

C. For exterior storage of fabricated Products, place on sloped supports, above ground.

D. Provide off-site storage and protection when site does not permit on-site storage or protection.

E. Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation or potential degradation of Product.

F. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

G. Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.

H. Arrange storage of Products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

3.3 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named in accordance with the following article.

3.4 SUBSTITUTIONS

A. Instructions to Bidders specifies time restrictions for submitting requests for Substitutions during the bidding period and the documents required. Any products approved during the bidding period will be identified by Addendum.

B. Substitutions may be considered when a Product becomes unavailable through no fault of the Contractor.

C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

D. A request constitutes a representation that the Contractor:
   1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.
   2. Will provide the same warranty for the Substitution as for the specified Product.
   3. Will coordinate installation and make changes to other Work which may be required for the work to be complete with no additional cost to City.
   4. Waives claims for additional costs or time extension which may subsequently become apparent.

E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure:
   1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
   2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
   3. The City will notify Contractor in an addendum of decision to accept or reject request.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT AND PAYMENT

A. All work described herein is incidental to other related items of work. No measurement or additional payment will be considered.

END OF SECTION

SECTION 01 7001

CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Closeout procedures, final cleaning, adjusting, project record documents, warranties, spare parts, and maintenance materials.

1.2 REFERENCE

A. Contract Documents

1.3 OPERATIONS AND MAINTENANCE DATA

A. Every individual component supplied for the project shall be identified in the operations and maintenance manual which shall be assembled as follows:
   1. Each O&M manual shall be divided into a minimum of two volumes.
   2. Volume One shall contain at least the following:
      a. Final tag list.
      b. Detailed floor plan showing location of each tagged piece of equipment.
      c. An overview of the plant, the process equipment, and the control system and how the plant's systems and subsystems interact and are controlled.
      d. Complete description prepared by the Process Equipment Supplier of each system and subsystem and component with cross reference to tag number.
      e. Complete operating and maintenance instructions for each and every item of equipment (referencing tag number), setting forth in detail and step-by-step the procedure for starting, stopping, operating and maintaining the entire system as installed. A schedule of recommended maintenance intervals shall also be included.
      f. Any special emergency operating instructions and a list of service organizations, including addresses and telephone numbers, capable of rendering emergency service to the various parts of the system.
      g. Procedures for normal operation, trouble shooting, routine data analysis, water analysis, interpretation of data, etc.
      h. h. A section on plant safety in general and for each system.
      i. Appendices to Volume One shall include the following:
         1) P & I.D.'s and mechanical, electrical and instrumentation installation drawings on 11" x 17" size paper.
         2) Copy of final control system ladder logic.
         3) A complete valve tag list, including the name and function of the pipe in which the valve is mounted.
         4) All manufacturer's equipment guarantees and warranties.
   3. Volume Two shall contain, at lease, the following:
      a. Manufacturer's manuals for each piece of equipment including individual components and subsystems of complete assemblies. The section of the manual on operation shall describe the function of each component and its relationship to the system of which it is a part. Where several models, options or styles are described, the manual shall identify the items actually provided.
      b. Blue line prints or reviewed shop drawings or reviewed shop drawing and diagrams of all systems.
      c. Certified equipment drawings or reviewed shop drawing data clearly marked for equipment furnished.
      d. Complete parts list of all replaceable parts, their part numbers and the name and address of the nearest vendor.

4. Binding
    a. Manuals shall be bound in durable plastic or fiberboard covers. Each sheet shall be reinforced to prevent tearing from continued use and each manual shall have the following information clearly printed on it's inside cover:
        1) Project name and address (inside and outside cover).
        2) Name and address of Engineers.
        3) Name and addresses of Contractor and Subcontractors.
        4) Telephone numbers of Contractors, including night and emergency numbers.
        5) Major equipment vendor's names and telephone numbers.
5. Number of complete sets shall be 3, as outlined herein.

1.4 QUALITY ASSURANCE

A. All equipment must be properly labeled as directed by the Manufacturer or in the technical specifications.

1.5 WARRANTY

A. Provide duplicate notarized copies.

B. Execute and assemble transferable warranty documents from Subcontractors, Suppliers, and Manufacturers.

C. Provide Table of Contents and assemble in binder with durable cover.

D. Submit prior to final Application for Final Payment.

PART 2 NOT APPLICABLE

PART 3 EXECUTION

3.1 PREPARATION

A. Execute final facility cleaning prior to final project assessment.

B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces.

C. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate for the surface and material being cleaned.

D. Clean operating equipment components and accessories such as filters.

E. Clean debris from drainage systems.

F. Clean site, sweep paved areas, rake clean landscaped surfaces.

G. Remove waste and surplus materials, rubbish, and construction facilities from the site.

H. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.2 SCHEDULING AND COORDINATION

A. Coordinate with City on how project is taken over and operated during transition.

3.3 TOLERANCES

A. Verify that all specified tolerances are being met.

3.4 PROTECTION OF FINISHED WORK

A. Protect all finished work until City accepts responsibility.

3.5 PROJECT RECORD DOCUMENTS

A. Provide to Engineer one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.
   5. Reviewed Shop Drawings, Product Data, and Samples.
   6. Manufacturer's instructions for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by City.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and modifications.

F. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Measured depths of foundations in relation to finished first floor datum.
   2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
   4. Field changes of dimension and detail.
   5. Details not on original Contract Drawings.

G. Submit Operations and Maintenance Manual bound in 8½ x 11 inch text pages, capacity expansion binders with durable covers.
   1. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project and subject matter of binder when multiple binders are required.
   2. Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
   3. Prepare a Table of Contents for each volume, with each product or system description identified.
   4. Submit 1 draft copy of completed volumes 15 days prior to final inspection. This copy will be reviewed and returned, with Engineer comments. Revise content of all document sets as required by Engineer prior to final submission.
   5. Submit 3 sets of revised final volumes, within 10 days after final inspection.

H. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's review.

3.6 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual technical specification sections.

B. Deliver to location as directed by Engineer.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Measurement for this item of work will not be required.

4.2 PAYMENT

A. Payment will be incidental to related equipment and other items of work.

END OF SECTION

SECTION 02 4205

DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Demolition of designated structures, facilities and appurtenances and removal of materials from site.

1.2 SUBMITTALS

A. Demolition Plan: Indicate demolition and removal sequence, location and construction of barricades and fences, and areas for temporary construction and field offices.

B. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.3 REGULATORY REQUIREMENTS

A. Conform to Federal, State and Local laws and regulations for demolition of structures, safety of adjacent structures, dust control and material disposal.

B. Conform to applicable regulatory procedures when discovering hazardous or contaminated materials.

C. State regulatory agency is the North Dakota State Department of Health, Environmental Services Section.

D. Coordinate with building official on local permitting.

PART 2 PRODUCTS

2.1 FILL MATERIALS

A. Obtain locally if available.

B. Use select fill material backfill, if available. Obtain City approval prior to use.

PART 3 EXECUTION

3.1 PREPARATION

A. Obtain disposal permit from local governing entity.

B. Notify all utility companies and comply with requirements.

C. Notify North Dakota State Department of Health for underground storage tank removal (if required), solid waste disposal and storm water discharge permits.

D. Notify City and Engineer 7 working days prior to beginning demolition work.

E. Provide, erect and maintain temporary barriers and security devices. Temporary barriers remain in place until the site is backfilled and cleared.

F. Protect existing signs, paved streets, streetlights, street signs, trees, landscaping, utility poles and appurtenances that are not to be demolished.

G. Mark location of utilities. Verify with the utility companies that all utilities have been removed and capped within the demolition area.

H. Check for presence of asbestos and make appropriate arrangements for removal and disposal. Follow ND State Department of Health for inspection, removal and disposal.

I. Erect silt fence and other erosion control barriers.

J. Verify City has removed all items to be salvaged and verify which items are to be demolished.

K. City will remove all materials to be retained prior to beginning demolition.

3.2 DEMOLITION REQUIREMENTS

A. Explosives are not allowed.

B. Conduct demolition to minimize interference with adjacent appurtenances that are to remain.

C. Cease operations immediately if adjacent appurtenances appear to be in danger. Notify Engineer. Do not resume operations until directed.

D. Conduct operations with minimum interference to private accesses. Protect those accesses from the demolition operation.

E. Obtain written permission from adjacent property owners when demolition equipment will traverse, infringe upon, or limit access to their property.

F. Sprinkle work with water as required to minimize dust. Provide hoses and water connections and distribution vehicle for this purpose.

G. Existing sewer and water utilities (if present) within the demolition site will be located by the City. Once located, expose and plug these lines in the presence of the City representative. Provide record location on construction plans.

H. Remove all underground walls and footings.

I. Remove concrete slabs on grade at street level within the designated demolition area.

J. Backfill open pits and holes caused as a result of demolition.

K. Thoroughly compact all graded areas affected by demolition to maintain positive drainage.

L. Dispose of all demolition materials appropriately and in a manner that complies with all laws and regulations.

M. Do not burn or bury materials on site.

N. Backfill all excavated areas immediately with approved select backfill material.

3.3 FIELD QUALITY CONTROL

A. Contact Engineer and regulatory agencies whenever questions arise or unexpected situations occur.

3.4 PROTECTION OF SITE

A. Protect site from erosion.

B. Protect survey monuments, benchmarks, existing utilities and other existing items that are to remain.

3.5 CLEAN-UP AND PROJECT CLOSEOUT

A. Prior to demolition Contractor leaving site, contact Engineer and complete a walkover inspection with City and Engineer.

B. Clear all items removed from site.

C. Grade site for positive drainage.

D. Leave site in clean condition.

3.6 PROJECT RELATED DOCUMENTS

A. Existing improvements to remain within 10 feet of the area being demolished shall be replaced by the Contractor if damage resulting from contact during construction occurs within 1-year after final acceptance by City. Warranty shall include all costs for materials and installation.

3.7 PROJECT RELATED DOCUMENTS

A. Furnish a demolition plan to Engineer that shows ties to existing utilities that were encountered during demolition operations.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. If specific items are listed on bid form, Engineer will make measurement in accordance with each specific bid item. For lump sum (LS) bid items measurements will not be made.

4.2 PAYMENT

A. Payment for specific bid items will be made according to the units bid and accepted by Engineer.

B. Payment for demolition not identified on the bid form will be incidental to related construction work.

END OF SECTION

SECTION 31 1211

SITE CLEARING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Removal of all surface debris.

B. Clear site of plant life, trees, shrubs, and grass.

C. Removal of all root systems.

1.2 SUBMITTALS

A. If special safety protection, signing, or erosion control is required or if traffic control is required, submit written details to City and Engineer in advance of beginning work.

1.3 QUALITY ASSURANCE

A. Employ an approved, competent forester to advise and assist in determining how trees and shrubs can be cut and removed with minimal damage to adjacent plant life.

1.4 REGULATORY REQUIREMENTS

A. North Dakota State Department of Health:
   1. Solid Waste Division for disposal of debris.
   2. Water Quality Division for storm water runoff and erosion control.
   3. Environmental Section for clean air standards.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Report any indication of soil, water or air contamination to Engineer immediately.

B. Minimize dust, noise and erosion control by all available means.

C. Develop an approved erosion control plan.

D. Enforce erosion and pollution control plans and program.

1.6 WARRANTY

A. Existing plant life and concrete or asphalt within 10 feet of the area being cleared, shall be replaced by Contractor if death or damage resulting from contact during construction occurs within 1 year after final acceptance by City. Warranty shall include all costs for materials and installation.

PART 2 PRODUCTS

2.1 REPLACEMENT OF DAMAGED PLANTS OR SHRUBS

A. In the event plants or shrubs adjacent to the site become damaged or die within the warranty period, acquire replacement items of the same type and species from a City-approved, reputable retailer. Warranty shall include all costs for materials and installation.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that site to be cleared is clearly marked and staked.

B. Locate and document on the field plans, the location of all buried utilities.

C. Verify that all plant life and adjacent structures that are to remain undamaged are tagged or marked.

D. Verify all warning lights, barriers, signs and other public safety items are in good operating and well-maintained condition.

3.2 CLEARING

A. Clear all areas within designated limits of site.

B. Remove all debris from site and properly dispose.

C. Apply an approved soil sterilant where existing vegetation is replaced by gravel, concrete or asphalt.

3.3 TOLERANCES

A. Remove stumps and root system to a depth of 12 inches below the newly proposed grade.

B. Remove concrete and permanent structures to a depth of 48 inches below the newly proposed grade.

3.4 FIELD QUALITY CONTROL

A. Contact Engineer whenever questions or unexpected situations arise.

3.5 PROTECTION

A. Protect adjacent plant life and construction features which are to remain.

B. Protect all survey monuments and benchmarks.

C. Protect all adjacent, buried or above ground utilities.

3.6 CLEANUP AND PROJECT CLOSEOUT

A. Prior to beginning new construction and prior to acceptance by City, a walk over inspection shall be completed by Contractor, Engineer and City.

B. Properly dispose of all debris removed.

3.7 PROJECT RECORD DOCUMENTS

A. Furnish a field plan to Engineer, showing all existing utilities encountered during clearing operation.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Measurement will only be required if bid form has defined items for site clearing.

4.2 PAYMENT

A. Payment will be incidental to other items of related construction unless a specific bid item is shown on the bid form for site clearing.

END OF SECTION

SECTION 31 2200

GRADING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Removal of topsoil.

B. Rough Grading.

C. Replacement of topsoil and finish grading.

1.2 RELATED REQUIREMENTS

A. Section 01 5227 – Slope Protection and Erosion Control: Soil stockpile protection.

B. Section 31 1211 - Site Clearing.

C. Section 31 2316 - Excavation.

D. Section 31 2316.13 - Trenching: Trenching and backfilling for utilities.

E. Section 31 2323 - Fill: Filling and compaction.

F. Section 32 9360 - Seeding: Finish ground cover.

G. Section 32 9100 - Plants: Topsoil in beds and pits.

PART 2 PRODUCTS

2.1 MATERIALS

A. Topsoil: Topsoil excavated on-site and designated for re-use.
   1. Graded.
   2. Free of roots, rocks larger than 1/2 inch (12 mm), subsoil, debris, large weeds and foreign matter.

B. Other Fill Materials: See Section 31 2323.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that survey bench mark and intended elevations for the Work are as indicated.

3.2 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. Locate, identify, and protect from damage above- and below-grade utilities to remain.

D. Notify utility company to remove and relocate utilities.

E. Protect site features to remain, including but not limited to bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs, from damage by grading equipment and vehicular traffic.

F. Protect trees to remain by providing substantial fencing around entire tree at the outer tips of its branches; no grading is to be performed inside this line.

G. Protect plants, lawns, rock outcroppings, and other features to remain as a portion of final landscaping.

H. Remove all existing asphalt, concrete, and other demolition items from the construction area and properly dispose at an approved disposal area. Aggregate surfacing removed shall be stockpiled for later reuse.

3.3 ROUGH GRADING

A. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.

B. Do not remove topsoil when wet.

C. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.

D. Perform rough grading to obtain elevations shown on plans or as directed by the Engineer.

E. Areas shall be graded to provide positive drainage.

F. Do not remove wet subsoil, unless it is subsequently processed to obtain optimum moisture content.

G. When excavating through roots, perform work by hand and cut roots with sharp axe.

H. See Section 31 2323 for filling procedures.

I. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

J. The subgrade shall be maintained until permanent improvements are installed. Any damage due to inclement weather, contractor operations, or any other contractor/utility operations shall be repaired by the contractor at no expense to the contract.

3.4 SOIL REMOVAL

A. Stockpile topsoil to be re-used on site; remove remainder from site.

B. Stockpile subsoil to be re-used on site; remove remainder from site.

3.5 FINISH GRADING

A. Before Finish Grading:
   1. Verify building and trench backfilling have been inspected.
   2. Verify subgrade has been contoured and compacted.

B. Remove debris, roots, branches, stones, in excess of 1/2 inch in size. Remove soil contaminated with petroleum products.

C. Where topsoil is to be placed, scarify surface to depth of 3 inches.

D. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches.

E. Place topsoil in areas indicated to depth indicated on plans. Minimum topsoil replacement depth is 4 inches in turf areas and 12 inches in planting beds.

F. Place topsoil where required to level finish grade.

G. Place topsoil during dry weather.

H. Remove roots, weeds, rocks, and foreign material while spreading.

I. Near plants spread topsoil manually to prevent damage.

J. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

K. Lightly compact placed topsoil.

3.6 TOLERANCES

A. Top Surface of Subgrade: Plus or minus 0.08 foot (1 inch) from required elevations.

B. Top Surface of Finish Grade: Plus or minus 0.04 foot (1/2 inch) from required elevations.

3.7 REPAIR AND RESTORATION

A. Existing Facilities, Utilities, and Site Features to Remain: If damaged due to this work, repair or replace to original condition.

B. Trees to Remain: If damaged due to this work, trim broken branches and repair bark wounds; if root damage has occurred, obtain instructions from City and Engineer as to remedy.

C. Other Existing Vegetation to Remain: If damaged due to this work, replace with vegetation of equivalent species and size.

3.8 FIELD QUALITY CONTROL

A. See Section 31 2323 for compaction density testing.

3.9 PROJECT RECORD DOCUMENTS

A. Provide Engineer with a set of "as constructed" plans for entire project showing locations of all underground utilities and appurtenances (both existing and newly installed).

B. Identify different soil conditions encountered and note any newly discovered buried utilities.

3.10 CLEANING

A. Remove unused stockpiled topsoil and subsoil. Grade stockpile area to prevent standing water.

B. Leave site clean and raked, ready to receive permanent improvements.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. If specific items are listed on bid form, Engineer will make measurement in accordance with each specific bid item. For lump sum (LS) bid items, measurements will not be made.

4.2 PAYMENT

A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.

END OF SECTION

SECTION 31 2316

EXCAVATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Excavating for slabs-on-grade, paving, and site structures.

1.2 RELATED REQUIREMENTS

A. Section 01 5227 - Slope Protection and Erosion Control.

B. Section 31 2200 - Grading: Soil removal from surface of site.

C. Section 31 2200 - Grading: Grading.

D. Section 31 2316.13 - Trenching: Excavating for utility trenches outside the building to utility main connections.

E. Section 31 2323 - Fill: Fill materials, filling, and compacting.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that survey bench mark and intended elevations for the work are as indicated.

3.2 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. Locate, identify, and protect from damage above- and below-grade utilities to remain.

D. Notify utility company to remove and relocate utilities.

E. Protect site features to remain including, but not limited to, bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

F. Protect plants, lawns, and other features to remain.

G. Maintain and keep in good working order, all warning lights, barriers, signs and other traffic control devices as required for the safety of the public and maintenance of traffic.

3.3 EXCAVATING

A. Underpin adjacent structures that could be damaged by excavating work.

B. Excavate to accommodate new structures and construction operations.

C. Notify Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

D. Where wet or unsuitable subsurface conditions are encountered, subcut gravel as defined in Section 31 2323 may be utilized as directed by the Engineer.

E. Cut excavations sufficiently wide to enable safe installation and allow for safe construction. Notify Engineer if plan details cannot be met or maintained. All excavation shall conform to current OSHA requirements and standards.

F. Do not interfere with 45 degree bearing splay of foundations.

G. Correct areas that are over-excavated and load-bearing surfaces that are disturbed; see Section 31 2323.

H. Grade top perimeter of excavation to prevent surface water from draining into excavation.

I. Remove excavated material that is unsuitable for re-use from site.

J. Stockpile excavated material to be re-used in area designated on site in accordance with Section 31 2200.

K. Remove excess excavated material from site.

3.4 FIELD QUALITY CONTROL

A. See Section 01 4001 - Quality Control, for general requirements for field inspection and testing.

B. Provide for visual inspection of load-bearing excavated surfaces before placement of foundations.

3.5 PROTECTION

A. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.

B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

PART 4 MEASUREMENT AND PAYMENT

4.1 4.1 MEASUREMENT

A. If specific items are listed on bid form, Engineer will make measurement in accordance with each specific bid item. For lump sum (LS) bid items, measurements will not be made.

4.2 PAYMENT

A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.

END OF SECTION

SECTION 31 2316.13

TRENCHING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Trenching for utilities from 5' outside of buildings to utility main connections.

B. Backfill of utility trenches.

1.2 RELATED REQUIREMENTS

A. Section 31 2200 - Grading: Site grading.

B. Section 31 2316 - Excavation: Building and foundation excavating.

C. Section 31 2323 - Fill: Material classifications for utilities.

1.3 DEFINITIONS

A. Finish Grade and Utility Invert Elevations: Indicated on drawings.

PART 2 PRODUCTS

2.1 FILL MATERIALS

A. See Section 31 2323 for fill materials.

2.2 SOURCE QUALITY CONTROL

A. See Section 01 4001 - Quality Control, for general requirements for testing and analysis of soil material.

B. Where fill materials are specified by reference to a specific standard, testing of samples for compliance will be provided before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest.

D. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that survey bench marks and intended elevations for the work are as indicated.

3.2 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. Locate, identify, and protect from damage above- and below-grade utilities to remain

D. Notify utility company to remove and relocate utilities.

E. Protect site features to remain including, but not limited to, bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

F. Protect plants, lawns, and other features to remain.

G. Maintain and keep in good working order, all warning lights, barriers, signs and other traffic control devices as required for the safety of the public and maintenance of traffic.

3.3 TRENCHING

A. Notify Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

B. Where wet or unsuitable subsurface conditions are encountered, subcut gravel as defined in Section 31 2323 may be utilized as directed by the Engineer.

C. Remove all topsoil from area to be trenched.

D. Do not interfere with 45 degree bearing splay of foundations.

E. Cut trenches sufficiently wide to enable safe installation and allow for safe construction. Notify Engineer if plan details cannot be met or maintained. All excavation and trenching shall conform to current OSHA requirements and standards.

F. Hand trim excavation for bell and spigot pipe joints and other appurtenant items. Remove or compact all loose soil under pipe to form firm bedding.

G. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.

H. Remove excavated material that is unsuitable for re-use from site.

I. Stockpile excavated material to be re-used in area designated on site in accordance with Section 31 2200.

J. Remove excess excavated material from site.

3.4 PREPARATION FOR UTILITY PLACEMENT

A. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill or, when directed by Engineer, subcut gravel.

B. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

C. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.

D. Utility installation shall conform to the specific requirements of the pipe manufacturer for the type of pipe used, with respect to pipe bedding, backfill, and fill material.

3.5 BACKFILLING

A. Backfill to contours and elevations indicated using unfrozen materials.

B. Employ a placement method that does not disturb or damage other work.

C. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

D. Maintain optimum moisture content of fill materials to attain required compaction density. See Section 31 2323.

E. Flowable Fill – Fill Type 6: Where indicated on plans or where new utility lines (water, storm or sanitary sewer) cross under an existing utility line and prevents obtaining adequate compaction by mechanical means, Flowable Fill shall be placed for the full trench width from the springline of the lower pipe to the springline of the upper pipe, or to greater extents as indicated on the plans

or directed in the field by the City or Engineer, for five (5) feet minimum along the trench in either direction from the crossing.

F. Pipe Bedding - Fill Type 4a: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.

G. General Fill - Fill Type 1: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth where heavy, self-propelled compaction equipment will be utilized, or 6 inches compacted depth where hand-guided equipment will be utilized.

H. Slope grade away from buildings a minimum 2 inches in 10 ft, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.

I. Correct areas that are over-excavated.

J. Relative Compaction Density shall be per Section 31 2323.

K. Reshape and re-compact fills subjected to vehicular traffic.

3.6 TOLERANCES

A. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

B. Top Surface of Backfilling Under Paved Areas: Plus or minus 1/2 inch from required elevations.

3.7 FIELD QUALITY CONTROL

A. See Section 01 4001 - Quality Control, for general requirements for field inspection and testing.

B. Perform compaction density testing on compacted fill in accordance with ASTM D1556, ASTM D2167, or ASTM D6938.

C. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D698 ("standard Proctor"). See Section 31 2323 for compaction requirements.

D. If tests indicate work does not meet specified requirements, remove work, replace and retest. Contractor shall be responsible for all costs associated with additional testing required as a result of failed tests and/or substandard work.

E. Frequency of Tests: See Section 31 2323.

3.8 CLEANING

A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

B. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. If specific items are listed on bid form, Engineer will make measurement in accordance with each specific bid item. For lump sum (LS) bid items, measurements will not be made.

4.2 PAYMENT

A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.

END OF SECTION

SECTION 31 2323

FILL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Filling, backfilling, and compacting for building volume below grade.

B. Backfilling and compacting for utilities outside the building to utility main connections.

C. Filling holes, pits, and excavations generated as a result of removal (demolition) operations.

1.2 RELATED REQUIREMENTS

A. Section 01 5227 – Slope Protection and Erosion Control.

B. Section 31 2200 - Grading: Removal and handling of soil to be re-used.

C. Section 31 2200 - Grading: Site grading.

D. Section 31 2316 - Excavation: Removal and handling of soil to be re-used.

E. Section 31 2316.13 - Trenching: Excavating for utility trenches outside the building to utility main connections.

F. Section 32 1123 - Aggregate Base Courses: Subgrade preparation and base course installation beneath pavements.

G. Section 33 4600 - Subdrainage: Filter aggregate and filter fabric for foundation drainage systems.

1.3 DEFINITIONS

A. Finish Grade Elevations: Indicated on drawings.

B. Subgrade Elevations: Indicated on drawings.

1.4 REFERENCE STANDARDS

A. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

B. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)) (Editorial Change 2, 2015).

C. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method.

D. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.

E. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).

F. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Editorial Change 1, 2014).

G. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

H. North Dakota Department of Transportation (NDDOT) - Standard Specifications for Road and Bridge Construction; 2014.

1.5 SUBMITTALS

A. See Section 01 0130 - Submittals, for submittal procedures.

B. Samples: 10 pounds (4.5 kg) sample of each type of fill; submit in air-tight containers to testing laboratory.

C. Materials Sources: Submit name of imported materials source.

D. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used, including manufactured fill.

E. Compaction Density Test Reports.

1.6 DELIVERY, STORAGE, AND HANDLING

A. When necessary, store materials on site in advance of need.

B. When fill materials need to be stored on site, locate stockpiles where designated.
   1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
   2. Prevent contamination.
   3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.1 FILL MATERIALS

A. Fill materials shall conform to the requirements herein unless otherwise approved by the Geotechnical Engineer.

B. General Fill - Fill Type 1: Material excavated on site and approved for use as backfill by Engineer.
   1. Sandy, graded and compactible material.
   2. Free of lumps larger than 3 inches (75 mm), rocks larger than 2 inches (50 mm), organics and debris.

C. Structural Fill - Fill Type 2: To be utilized as foundation fill and within 2 horizontal feet of retaining walls:
   1. Non-frost susceptible Sand having less than 40 percent of particles by weight passing the No. 40 sieve and less than 5 percent by weight passing the No. 200 sieve.

D. Granular Fill - Fill Type 3: Conforming to State of North Dakota Department of Transportation standard for Class 5 Aggregate Base.
   1. To be used as aggregate base under pavements per Section 32 1123.

E. Pipe Bedding - Fill Type 4a
   1. Utilize existing excavated, sandy soil that does not contain rocks or hard chunks larger than ½-inch, if available. If material is not available on site, provide sand from an outside source meeting the following gradation:

Square Mesh Sieve Size	Percent Passing By Weight
1/2" sieve	100%
No. 4 sieve	60-85%
No. 200 sieve	0-10%

   2. Pipe bedding shall conform to and be installed per manufacturers requirements.

F. Subcut Gravel - Fill Type 4b

1. Utilize subcut gravel where the bottom of trenches or excavations is wet or otherwise unsuitable and cannot support loads or provide adequate pipe support, as determined by the Engineer. Subcut gravel shall consist of granular material conforming to the following gradation:

Square Mesh Sieve Size	Percent Passing By Weight
2" sieve	100%
No. 4 sieve	0-10%

G. Drainage Fill - Fill Type 5
1. Drainage Fill for retaining walls: Clean, freely draining aggregate. Place drainage fill in, between, and behind units. Do not use pea gravel. Material shall conform to the following gradation, or as specified by retaining wall Design Engineer:
a. Graded in Accordance with ASTM C136, within the following limits:

Square Mesh Sieve Size	Percent Passing By Weight
1" sieve:	100%
3/4" sieve:	75 - 100%
No. 200 sieve:	0 - 5%

b. Compact to lines and grades on drawings, in lifts 6 inches (152 mm) thick, maximum; decrease lift thickness where necessary to achieve required density.
c. Extend drainage fill 12 inches (305 mm) beyond back face of units.

H. Flowable Fill – Fill Type 6
1. To be utilized where indicated on plans, for watermain or other utility line repairs, or where installation of new utility lines occurs under existing lines and prevents obtaining adequate compaction by mechanical means. Flowable fill shall be a self-compacting cementitious slurry composed of mineral aggregates, cement, fly ash, water, and air-entraining or other admixtures. See Section 31 2324 – Flowable Fill.

I. Topsoil: See Section 31 2200.

J. Clay materials excavated on site and not defined above shall be utilized as approved by the Engineer and in conformance with the recommendations provided by the Geotechnical Engineer.

2.2 SOURCE QUALITY CONTROL

A. See Section 01 4001 - Quality Control, for general requirements for testing and analysis of soil material.

B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest.

D. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that survey bench marks and intended elevations for the Work are as indicated.

B. Identify required lines, levels, contours, and datum.

C. See Section 31 2200 for additional requirements.

3.2 PREPARATION

A. Proof roll subgrade to identify soft areas.

B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill or other material as directed by Engineer.

C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

D. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

E. Verify installation of geotextile fabric where indicated on plans.

3.3 FILLING

A. Fill to contours and elevations indicated using unfrozen materials.

B. Employ a placement method that does not disturb or damage other work.

C. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

D. Maintain optimum moisture content of fill materials to attain required compaction density within the following ranges, unless otherwise noted or indicated on the plans or in a geotechnical evaluation:
   1. Granular Soils: +/- 3 percent.
   2. Cohesive Soils Below Foundations & Floor Slabs: 0 to +2 percent.
   3. Cohesive Soils Below Exterior Slabs & Pavements: 0 to +4 percent.
   4. Cohesive Soils Below Grassed Areas: 0 to +6 percent.
   5. If a geotechnical evaluation has been prepared for the project, the recommendations of that evaluation shall govern.

E. Pipe Bedding: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth. Bedding shall extend 6" below and 6" above buried utilities, or per manufacturers requirements.

F. Lift Thickness: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth where heavy, self-propelled compaction equipment will be utilized, or 6 inches compacted depth where hand-guided equipment will be utilized.

G. Slope grade away from building minimum 2 inches in 10 feet unless noted otherwise. Make gradual grade changes. Blend slope into level areas.

H. Relative Compaction Density shall be as follows per ASTM D698-Standard Proctor, unless otherwise noted or indicated on the plans or in a geotechnical evaluation:
   1. Under Foundations & Floor Slabs: 95-100 percent of maximum dry density.
   2. Subgrade Below Exterior Slabs & Pavements: Minimum 95 percent of maximum dry density.
   3. Aggregate Base Below Exterior Slabs & Pavements: Minimum 98 percent of maximum dry density.
   4. Below Grass and Landscape Planting Areas: Minimum 90 percent of maximum dry density.
   5. Below future parking areas: Minimum 95 percent of maximum dry density.
   6. At other locations and where unspecified: Minimum 95 percent of maximum dry density.
   7. If a geotechnical evaluation has been prepared for the project, the recommendations of that evaluation shall govern.

I. I. Reshape and re-compact fills subjected to vehicular traffic, or damaged or displaced due to construction operations.

3.4 TOLERANCES

A. Top Surface of General Filling: Plus or minus 1 inch from required elevations.

B. Top Surface of Filling Under Paved Areas: Plus or minus 1/2 inch from required elevations.

C. Top Surface of Aggregate Base Under Foundations, Floor Slabs and exterior slabs and pavements: Plus or minus 1/4 inch from required elevations.

3.5 FIELD QUALITY CONTROL

A. See Section 01 4001 - Quality Control, for general requirements for field inspection and testing.

B. Perform compaction density testing on compacted fill in accordance with ASTM D1556, ASTM D2167, or ASTM D6938.

C. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D698 ("standard Proctor").

D. If tests indicate work does not meet specified requirements, remove work, replace and retest. Contractor shall be responsible for all costs associated with additional testing required as a result of failed tests and/or substandard work.

E. Frequency of Tests, unless otherwise noted or indicated on the plans or in a geotechnical evaluation:
   1. Below Foundations & Floor Slabs: Provide one passing density and moisture test per lift of fill per 2,500 square feet of area.
   2. Below Exterior Slabs & Pavement: Provide one passing density and moisture test per lift of fill per 750 square yards of area.
   3. Below Grass and Landscape Planting Areas: proof roll only. Provide density and moisture tests only where directed by Engineer.
   4. Utility Trenches: Provide one passing density and moisture test per 30 inches of backfill per 300 feet of trench, or more as directed by City or Engineer, at top of subgrade elevation.
   5. Water & Sanitary Sewer Service Line Trenches: Provide two passing density and moisture tests per service line, or more as directed by City or Engineer, at top of subgrade elevation and at mid-depth of trench.
   6. See Section 01 4001 – Quality Control for procedure to follow when additional tests are requested in excess of the minimum required.
   7. If a geotechnical evaluation has been prepared for the project, the recommendations of that evaluation shall govern.

F. Proof roll compacted fill.

3.6 CLEANING

A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

B. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. If specific items are listed on bid form, Engineer will make measurement in accordance with each specific bid item. For lump sum (LS) bid items, measurements will not be made.

4.2 PAYMENT

A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.

END OF SECTION

SECTION 31 2324

FLOWABLE FILL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Furnishing and placing Flowable Fill, also referred to as Controlled Low-Strength Material (CLSM), as backfill in trenches.

1.2 RELATED REQUIREMENTS

A. Section 31 2316.13 - Trenching: Excavating for utility trenches outside the building to utility main connections.

1.3 REFERENCE STANDARDS

A. ASTM C33 - Standard Specification for Concrete Aggregates.

B. ASTM C94 - Standard Specification for Ready-Mixed Concrete.

C. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete.

D. ASTM C150 - Standard Specification for Portland Cement.

E. ASTM C260/260M – Standard Specification for Air-Entraining Admixtures for Concrete.

F. ASTM C494/C494M Rev A - Standard Specification for Chemical Admixtures for Concrete.

G. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.

H. ASTM D4832 - Standard Test Method for Preparation and Testing of Controlled Low Strength (CLSM) Test Cylinders.

I. ASTM D5971 - Standard Practice for Sampling Freshly Mixed Controlled Low-Strength Material.

J. ASTM D6023 - Standard Test Method for Density (Unit Weight), Yield, Cement Content, and Air Content (Gravimetric) of Controlled Low-Strength Material (CLSM).

K. ASTM D6103 - Standard Test Method for Flow Consistency of Controlled Low-Strength Material (CLSM).

L. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International.

1.4 **SUB**MITTALS

A. See Section 01 0130 - Submittals, for submittal procedures.

B. Provide a Flowable Fill mix design prepared by an independent testing laboratory.

C. Provide product data for all materials incorporated into the flowable fill.

PART 2 PRODUCTS

2.1 MATERIALS

A. General
   1. Flowable Fill shall consist of a self-compacting cementitious mixture of aggregate, cement and water.

2. Fly ash and approved admixtures may be used to obtain required mix properties.
3. The mix shall have good workability and flowability with self-compacting and self-leveling characteristics.
4. No changes shall be made in the amounts or sources of the approved mix ingredients without the approval of City or Engineer.

B. Cement: ASTM C150/C150M, Type II, obtained from same source throughout.

C. Fine and Coarse Mix Aggregates: ASTM C33/C33M.
1. Conform to Section 802 of the NDDOT Standard Specifications, current edition.
2. Acquire all aggregates for entire project from the same source.

D. Fly Ash: ASTM C618, Class C or F.

E. Water: Clean, and not detrimental to concrete.

F. Air-Entraining Admixtures: ASTM C260/C260M.

G. Chemical Admixtures: ASTM C494/C494M, Type A - Water Reducing, Type C - Accelerating, and Type G - Water Reducing, High Range and Retarding.
1. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

2.2 PROPORTIONING

A. Strength: Flowable Fill shall be excavatable and designed for a twenty-eight (28) day compressive strength of between fifty (50) psi and one hundred fifty (150) psi when molded and cured in conformance with ASTM D4832.

B. Cement: Minimum cement content of fifty (50) pounds per cubic yard and maximum fly ash content of two hundred fifty (250) pounds per cubic yard. The water-cementitious materials ratio of the mix shall not exceed three and one-half to one (3.5:1).

C. Air-Entrainment: All Flowable Fill shall be air entrained to a total air content of 4% - 7%.

D. Slump: Shall be six (6) inches minimum and eight (8) inches maximum.

E. Aggregate: Fine aggregate shall be between fifty percent (50%) and sixty percent (60%) by volume of the total aggregates in the mix.

F. Consistency:
1. The consistency of the Flowable Fill shall be such that the material flows easily into all voids and openings without segregation.
2. When trenches are on a steep slope, a stiffer mix may be required to prevent Flowable Fill from flowing down the trench.
3. When a stiffer mix is used, vibration shall be performed to ensure that all spaces between the pipe and the lower portion of the trench are completely filled.

2.3 SOURCE QUALITY CONTROL

A. See Section 01 4001 - Quality Control, for general requirements for testing and analysis of soil material.

B. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.1 PREPARATION

A. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill or other material as directed by Engineer.

B. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

3.2 PLACEMENT

A. Comply with ACI 304R for mixing, transporting and placement.

B. Flowable Fill shall not be placed when trench walls or bottom are frozen or contain frozen materials. Mix and place only when air temperature is 35 degrees Fahrenheit and rising. Flowable Fill shall be at least 40 degrees Fahrenheit at time of placement. Stop mixing and placement when air temperature is 40 degrees Fahrenheit and falling.

C. Employ a placement method that does not disturb or damage other work, that preserves the quality of the material, and that prevents mixing with trench material. Flowable Fill shall be placed as nearly as practical to its final position and shall be consolidated by rodding or mechanical vibration as necessary to completely fill all voids with uniform, homogenous material.

3.3 PROTECTION

A. Protect freshly placed Flowable Fill from premature drying and excessively hot or cold temperatures.

B. Do not place backfill until initial set has been achieved.

3.4 FIELD QUALITY CONTROL

A. See Section 01 4001 - Quality Control, for general requirements for field inspection and testing.

B. Compressive Strength Tests: ASTM D4832. At a minimum, obtain test samples from the first load of every pour and for every 50 cu yd (38.23 cu m) placed thereafter. For each test, mold and cure three concrete test cylinders.
   1. The cylinders comprising one set will be made from the same sample and shall be tested at the following schedule: one (1) cylinder tested at seven (7) days and one (1) at twenty-eight (28) days. The third cylinder shall be held by the testing agency until the City or Engineer orders it tested or disposed of.

C. Slump Testing: Perform slump testing per ASTM D6103 for each sample taken. Slump shall be six (6) inches minimum and eight (8) inches maximum.

D. Air Entrainment: Test air content per ASTM D6023 for each sample of concrete used in making test cylinders. The air content shall fall within the range of 4 percent to 7 percent.

E. Maintain records of placed Flowable Fill. Record date, location of pour, quantity placed, air temperature, and test samples taken.

F. Test Results: The testing agency shall report test results in writing to the City and Engineer within 48 hours of test.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. If a specific item is listed on the bid form for Flowable Fill, measurement will be by the cubic yard based upon field measurement or upon batch delivery tickets provided to the Engineer at the time of placement.

4.2 PAYMENT

A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, hauling, placement, equipment and materials. If no bid item is listed for Flowable Fill, all costs shall be incidental.

END OF SECTION

SECTION 31 3280

GEOTEXTILE FABRICS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This work consists of furnishing and installing geotextile fabric.

1.2 REFERENCES

A. NDDOT Standard Specifications for Road and Bridge Construction, latest edition.

PART 2 PRODUCTS

2.1 MATERIALS

A. Geotextile fabric shall consist of polymeric filament or yarns such as polypropylene, polyethylene, 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.

B. Geotextile fabrics shall conform to Section 858 - Geosynthetics of the NDDOT Standard Specifications for Road and Bridge Construction, latest edition.

PART 3 EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. General
   1. The surface receiving the fabric shall be smooth and free of stones, sticks, and other debris or irregularities that might puncture the fabric. The fabric shall be placed free of wrinkles and shall be protected at all times during construction. Construction equipment shall not be operated on the fabric.
   2. The fabric shall be overlapped a minimum of 18 inches at all splices or joints, or as specified by the manufacturer, whichever is greater. In lieu of joint overlapping, multiple fabric pieces may be sewed if the seaming meets NDDOT Standard Specification Section 709.
   3. The geotextile fabric and a certification of compliance shall be delivered to the project at least 21 days prior to its incorporation into the work. Fabric shall be approved by the City and Engineer before installation.
   4. If the fabric is tested and fails, it shall be removed and replaced at the Contractor's expense.
   5. If sewn seams are going to be used, the Contractor shall also furnish a sewn seam sample, using the same geotextile fabric, thread, seam spacing and number, and overlap distance as are intended or required for use in the work. To facilitate inspection and repair, the geotextile should be placed with all seams up. Sheepsfoot rollers shall not be used for compaction until a minimum of 3 feet of fill is covering the geotextile.
   6. Fabric shall not be left uncovered for longer than five days. Fabric that is not covered within five days shall be removed and replaced at the Contractor's expense.
   7. The fabric shall be secured using the manufacturer's recommended methods to hold the fabric in place during the construction activities.
   8. Before placing material on the fabric, the Contractor shall demonstrate that the placement methods will not damage the fabric. The Engineer may order the removal of at least 4 square yards of material to inspect for fabric damage. Tears or rips in the fabric shall be patched with fabric lapped a minimum of 36 inches around the rip.

B. Geotextile Fabric shall be installed in accordance with NDDOT Standard Specification Section 709 for the specific class of fabric.

C. Shipping and Storage
   1. Geotextile labeling and identification shall comply with ASTM D4873-95. If a label is removed during sampling or other reasons, the roll must be relabeled.
   2. Packaging, handling, and storage of geosynthetics shall conform to ASTM D4873-95 and the following requirements.
      a. Each Geotextile roll shall be wrapped with a waterproof cover or membrane for protection during shipping and storage.
      b. Geotextiles shall not be exposed to ultraviolet light for more than 14 days and shall be elevated off the ground during storage.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. If specific items are listed on the Bid Form. measurement shall be based upon the actual surface area covered to the nearest Square Yard. No allowance will be made for overlaps, drainage trenches, or cutoff trenches unless otherwise shown on the Plans. If no specific items are listed on the Bid Form, Geotextile Fabrics shall be incidental.

4.2 PAYMENT

A. The quantities measured will be paid for at the Unit Price bid, complete and in place.

B. This payment will be full compensation for all labor, equipment, and materials necessary to complete the work.

END OF SECTION

SECTION 32 1207

AGGREGATE MATERIALS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Aggregate materials used for base and surface courses.

1.2 REFERENCES

A. ASTM C136/136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

B. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)).

C. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.

D. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.

E. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).

F. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Editorial Change 1, 2014).

G. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

H. North Dakota Department of Transportation (NDDOT) Standard and Supplemental Specifications for Road and Bridge Construction, latest edition.

1.3 SUBMITTALS

A. See Section 01 0130 - Submittals for submittal procedures.

B. Samples: Submit 10 lb. sample of each type or class of aggregate to testing laboratory.

C. Materials Sources: Submit name of imported materials source.

D. Aggregate Composition Test Reports: Results of laboratory tests on proposed and actual materials used.

E. Compaction Density Test Reports.

1.4 QUALITY ASSURANCE

A. Employ a competent, approved materials testing laboratory to do all material testing.

1.5 REGULATORY REQUIREMENTS

A. North Dakota State Department of Health:
   1. Solid Waste Division for disposal of debris.
   2. Water Quality Division for storm water runoff and erosion control.
   3. Environmental Health for clean air standards.

1.6 DELIVERY, STORAGE AND HANDLING

A. When necessary, store materials on site in advance of need.

B. When storing aggregate materials on site:
   1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
   2. Prevent contamination.
   3. Protect stockpiles from erosion and deterioration of materials.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Report any soil or water contamination to Engineer immediately.

B. Minimize dust, noise and erosion control by all available means.

C. Develop and enforce an erosion and pollution control plan and program.

PART 2 PRODUCTS

2.1 MATERIALS

A. Aggregate materials shall meet the requirements of NDDOT Standard and Supplemental Specifications for the class of aggregate specified on the plan or elsewhere herein.

B. Unless otherwise stated all base course aggregate shall be NDDOT Class 5 for base and NDDOT Class 13 for surface course.

C. Geotextile Fabric: See Section 31 3280.

2.2 EQUIPMENT

A. One pneumatic tired roller, one motor patrol grader and one water distribution vehicle, all in good operating condition, shall be on site at all times when aggregate is being placed.

B. Pneumatic tired roller shall have at least seven (7) wheels with pneumatic tires of equal size pressure and ply. Wheels shall be arranged to provide complete coverage of area the roller travels. Roller shall have a gross weight of at least 225 pounds per inch of compaction width. Weight shall be certified in writing with copy to Engineer prior to beginning work.

C. Water distribution vehicle shall consist of a watertight tank and spraying device for even distribution of water over the designated area.

D. Motor patrol grader shall be large enough and with enough horsepower to evenly spread and shape the aggregate base being placed.

2.3 SOURCE QUALITY CONTROL

A. See Section 01 4001 - Quality Control, for general requirements for testing and analysis of aggregate materials.

B. Where aggregate materials are specified using ASTM D2487 classification, test and analyze samples for compliance before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest.

D. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that survey bench marks and intended elevations for the work are as indicated.

B. Verify substrate has been inspected, gradients and elevations are correct, and is dry.

3.2 PREPARATION

A. Subgrade:
   1. The subgrade shall be compacted by approved compaction equipment. Approved compaction equipment shall include sheepsfoot rollers, pneumatic packers, mechanical packers, mechanical rammers, vibratory equipment, trucks, tractors, scrapers, motor graders, and all other types of equipment used in excavating, transporting, and placing the subgrade. Subgrade preparation depths specified on the plans or special provisions or the minimum 6 inches required below the surface of the finished subgrade shall be compacted to 95 percent of Maximum Dry Density in accordance with ASTM D698-Standard Proctor. Moisture content shall conform to Section 31 2323. The surface after compaction shall be true to line, grade, and cross section.
   2. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
   3. Prior to placing aggregate base course, the subgrade shall be proof-rolled by the Contractor using suitable equipment (such as a fully loaded water truck or fully loaded dump truck or a tractor-trailer combination), approved for this purpose by the Engineer, before placing and/or spreading operations. Any ruts or soft yielding areas shall be corrected at the Contractor's expense before the next course of material is placed thereon.
   4. If specified in the plans, Geotextile Fabric per Section 31 3280 shall be installed above subgrade prior to placement of base course.
   5. Do not place aggregate on soft, muddy, or frozen surfaces.

3.3 INSTALLATION

A. Except where specified elsewhere, maximum compacted lift depth of aggregate base layers shall be 6 inches.

B. Level and contour surfaces to elevations and gradients indicated.

C. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.

D. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 TOLERANCES

A. Variation From Design Elevation: Within 1/4 inch.

B. Flatness: Maximum variation of 0.04 ft. measured with 10 foot straight edge.

C. Compacted Thickness: Within 0.02 ft. of specified.

3.5 FIELD QUALITY CONTROL

A. See Section 01 4001 - Quality Control, for general requirements for testing and analysis of aggregate materials.

B. Compaction density testing will be performed on compacted aggregate base course in accordance with ASTM D6938, ASTM D1556, ASTM D2167, or ASTM D2922.

C. Results will be evaluated in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D698 ("standard Proctor").

D. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to Owner.

E. Frequency of Tests:
   1. Compaction control tests shall be performed at a rate of one test per 750 square yards of surface area per lift of aggregate course, or a minimum of one test per lift per day.

F. Proof roll compacted aggregate at surfaces that will be under exterior slabs-on-grade and pavement.

3.6 CLEANUP AND PROJECT CLOSEOUT

A. Remove excess stockpile, leave area in a clean and neat condition. Grade site surface to prevent freestanding surface water.

B. If a borrow or waste area is utilized, leave area in a clean and neat condition. Grade to prevent standing surface water.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. If specific bid items are listed on the Bid Form, Engineer will make measurement in accordance with each specific bid item. For lump sum (LS) bid items, measurement will not be made.

B. If Bid Form unit is listed as Ton, Contractor shall submit all load tickets at the end of each working day. Load tickets submitted late will not be considered for payment.

C. If Bid Form unit is listed as Square Yard (SY), measurement will be based upon area measured in the field.

D. If Bid Form unit is based upon Cubic Yard (CY), measurement will be based upon area measured in the field multiplied by plan depth.

4.2 PAYMENT

A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.

END OF SECTION

SECTION 32 1210

CONCRETE PAVING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Furnishing all labor, materials, accessories, and plans necessary to complete concrete paving.

B. Concrete sidewalks, stair steps, integral curbs, gutters, median barriers, parking areas, and concrete valley gutters.

C. Detectable Warning Panels for ADA curb ramps.

D. Concrete Formwork.

E. Concrete Reinforcement.

F. Joint sealing for concrete expansion joints.

1.2 REFERENCES

A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.

B. ACI 304 – Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.

C. ACI 305R – Hot Weather Concreting.

D. ACI 306R – Cold Weather Concreting.

E. E. ACI 308R – Guide to Curing Concrete; American Concrete Institute International; 2001 (Reapproved 2008).

F. ACI 347R - Guide to Formwork for Concrete; 2014.

G. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement.

H. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.

I. ASTM C33/C33M - Standard Specification for Concrete Aggregates.

J. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.

K. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2015.

L. ASTM C150/C150M - Standard Specification for Portland Cement.

M. ASTM C231/C231M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method; 2014.

N. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete.

O. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

P. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete.

Q. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Non-shrink); 2014.

R. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016.

S. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).

T. North Dakota Department of Transportation (NDDOT) Standard and Supplemental Specifications for Road and Bridge Construction, latest edition.

1.3 PERFORMANCE REQUIREMENTS

A. 28-day compressive strength of 4000 psi for standard concrete.

B. 48-hour compressive strength of 2500 psi for high early strength concrete (when required).

C. 48-hour compressive strength of 2400 psi for non-shrink grout (where required).

1.4 SUBMITTALS

A. Provide a concrete mix design prepared by an independent testing laboratory.

B. Provide manufacturers' product data.

C. Provide written explanation from Ready-Mix Supplier as to how concrete will be delivered and what, if any, special measures will be required.

D. A meeting with the contractor, ready-mix supplier, testing firm and Engineer in attendance, is required. The meeting shall be held a minimum of 10 days prior to the beginning of construction. Topics to be addressed will include mix design, specifications, expectations, delivery communications, and testing requirements.

E. Prior to pouring concrete in cold weather, a written request outlining the use of accelerating admixture shall be submitted to the Engineer for approval.

F. Prior to pouring concrete in hot weather, a written request outlining the use of set retarding admixture shall be submitted to the Engineer for approval.

1.5 QUALITY ASSURANCE

A. Acquire cement and aggregate from same source for all work.

B. Provide written documentation for cement, listing manufacturer, and certifying that cement meets specifications.

C. Concrete shall not be poured when the air temperature may fall below 35° F during the pouring or within 24 hours unless preparations are made and precautions taken to prevent any damage to the concrete from the low temperature.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver and place concrete in a manner that provides minimum segregation.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Avoid over spraying with curing compound.

B. Properly dispose of all excess curing compound.

C. Utilize appropriate protection against inclement weather.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Cement: Dakota, Holnam, or approved equal.

B. Air Entrainment Admixture: Euclid Chemical, or approved equal.

C. Water Reducing: Euclid Chemical, or approved equal.

D. Non-Shrink Grout: TAMMS Industries, or approved equal.

E. Joint Filler: TAMMS Industries, or approved equal.

F. Curing Compound: TAMMS Industries, or approved equal.

G. Retarding Agent: Euclid Chemical, or approved equal.

H. Vapor Barrier: Up North Plastics, or approved equal.

I. Water Stop (if required): American Colloid Company, Building Material Division, or approved equal.

2.2 MATERIALS

A. CEMENT
   1. Cement shall be an approved and established brand of Portland Cement Type I, Type IA or Type II. Different brands of cement, or the same brand of cement from different mills, shall not be mixed during use without permission from 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. The vendor shall provide backup documentation and certifications that the cement used meets these requirements.

B. FLYASH
   1. Fly Ash shall be Class C or F and meet the requirements of ASTM C618 for Portland Cement Concrete. Fly Ash will be allowed as a cement replacement on a 1:1 ratio, up to a maximum of 29% by weight. Do not use fly ash for High-Early strength concrete mixes or during Cold Weather concreting.

C. AGGREGATES
   1. Fine and Coarse Mix Aggregates: ASTM C33/C33M.
      a. Aggregate shall conform to Section 802 of the NDDOT Standard Specifications, current edition.
      b. Acquire all aggregate for entire project from the same source.

D. WATER

   1. Water for concrete shall be clean and free from oil, acid, alkali, and vegetable substances.

E. ADMIXTURES

   1. Air-Entraining Admixtures: ASTM C260/C260M
      a. Air entrainment admixture or air entrained cement is to be used. Entrained air content shall be targeted for 6% and will be between 5% and 8% as measured at the point of placement.
   2. Chemical Admixtures: ASTM C494/C494M, Type A - Water Reducing, Type C - Accelerating, and Type G - Water Reducing, High Range and Retarding.
      a. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

F. JOINT MATERIAL
   1. Expansion Joints
      a. If expansion or isolation joints are required, they shall be as indicated in the drawings or details. Expansion or isolation joint material shall be Flexcell or approved equal. Joint material thickness will be as specified and or approved, or per manufacturer's recommendation and shall be 1/2 inch less in height than pavement depth. It shall extend the full width of the pavement slab and curb, and any concrete at the ends when the forms are removed shall be chipped away. The dowel support shall securely and rigidly hold the dowel bars and pre-molded filler in correct position during the paving operation. All expansion/isolation joint faces shall be cleaned and sealed with silicon sealant or equal to produce a slightly concave surface 1/4 inch below the concrete surface.
      b. The expansion joint dowel bar assembly shall be of a type as manufactured by Dayton Superior, Wady Industries, Construction Materials, Laclede Steel Company, the American Steel and Wire Company, or an approved equal. The entire expansion joint assembly shall be of a type approved by the Engineer.
   2. Poured Joint Filler may be polymeric or silicone.
      a. Polymeric Sealant: The material for filling poured expansion and contraction joints and cracks shall be hot poured elastic type and shall conform to the requirements of ASTM D-1190. The material shall be composed of a homogeneous blend of virgin polymers, plasticizers, special fillers and asphalt compounded specifically for the sealing of cracks in asphalt or concrete pavement. Ground cured rubber scrap shall not be used. Meadows Safe-Seal 3405 is an approved substitute for the hot pour material.
      b. b. Silicone Joint Sealant: The silicone sealant shall be a Low Modulus Silicone Sealant meeting the requirements of the NDDOT Standard and Supplemental Specifications, Section 826. Self-leveling silicone sealants will not be allowed.

G. Curing Compounds
   1. White-pigmented liquid curing compound conforming to ASTM C309. All curing compounds shall be applied in accordance with the manufacturer's recommendations.

H. Reinforcement
   1. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) (420 MPa) yield strength; deformed billet steel bars; unfinished.
   2. Steel Welded Wire Reinforcement: Plain type, ASTM A185/A185M; in flat sheets; unfinished. Mesh size and gage per drawings.
   3. Dowels: ASTM A36, Grade 60 - 60,000 psi (420 MPa) yield strength; smooth steel bars; unfinished.

I. Formwork
   1. Form Materials: Conform to ACI 301 and ACI 347.
      a. Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
      b. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.

J. Detectable Warning Panels
   1. Detectable Warning Panels shall consist of square or rectangular panels with a surface of truncated domes, aligned in a square or radial grid pattern. Panels shall extend the full width of all curb ramp landings, and a minimum of 24 inches in the predominant direction of travel. Panels shall be wet-set; surface applied panels will not be allowed.
   2. Detectable Warning Panels shall conform to the requirements of Section 885 - Detectable Warning Panels of the NDDOT Standard Specifications for Road and Bridge Construction, 2014 or current edition.

2.3 PROCEDURES

A. PROPORTIONS

1. A mix design shall be provided to and approved by the Engineer a minimum of 10 days before pouring. Any revisions to the mix design must be approved by the Engineer.
2. One cubic yard of mixed concrete in place shall contain not less than 564 lbs. minimum of cementitious materials. The water- cement ratio shall not exceed 0.45. The slump shall not exceed four (4) inches before addition of admixtures. Minimum 28-day compressive strength shall be 4,000 psi. Entrained air content shall be between 4% and 7%.

B. HIGH EARLY STRENGTH CONCRETE

1. High early strength concrete may be obtained by the following method:
    a. When Type I, Type IA, or Type II cement is used, the cement content shall be increased to 7.2 sacks of cement per cubic yard (676 pounds). No flash is allowed. Water-cement ratios will be as shown in NDDOT Standard and Supplemental Specifications, latest edition, Section 802. for the class of concrete shown.
    b. The use of non-chloride accelerators for high early strength concrete is allowed.
    c. The use of hydration stabilizers to preserve workability of high early strength concrete in route to the project is allowed.
2. High early strength concrete shall be used when specified in the Contract Documents.
3. When the Contractor requests and obtains permission from Engineer to use high early strength concrete, no additional payment will be made for any extra costs incurred in producing and placing the high early strength concrete.
4. Contractor shall provide environment to ensure that high early strength concrete mixes will attain field strength of 3000 psi compressive strength prior to opening to public traffic. At no time may concrete exceed 90° F in temperature while under blankets or other protection devices, nor fall below 60° F during the 24 hour period.

C. MIXING AND TRANSPORTING CONCRETE

1. Procedures shall conform to NDDOT Standard and Supplemental Specifications, latest edition, Section 802.

D. AUXILIARY FINISHING EQUIPMENT AND MATERIAL

The Contractor shall provide the following auxiliary equipment:

1. Straight Edge
    a. Two or more ten (10) foot straight edges of an approved type shall be used. Extra blades shall be provided and used when previously used edges become wavy and warped.
2. Floats
    a. Approved long handled floats, each having a blade at least .5 feet in length and 6 inches in width.
3. Master Straight Edge
    a. All straight edges shall be tested by the master straight edge before being used and shall be tested frequently during their use.
4. Final Surface Finish
    a. The final surface of the concrete pavement shall have a uniform gritty texture, free from excessive harshness and true to the grade and cross sections shown on the plans.
    b. The finish shall conform to NDDOT Standard and Supplemental Specifications, latest edition, Section 550,.
    c. Before brooming or burlap dragging is complete, and before the concrete has taken its initial set, the edges of the slab shall be carefully finished with an edger having a maximum radius of 3/4 inch.

PART 3 CONSTRUCTION

3.1 COLD WEATHER POURING

A. Prior to pouring in cold weather, a written request must be made and approved by the Engineer. Any concrete damaged by freezing shall be replaced by the Contractor at his own expense. Temperature of the concrete when deposited in the forms shall be between 60° and 90° F and maintained at a minimum temperature of 40° F for at least 5 days after placing, or until the concrete attains a compressive strength of 3000 psi. Concrete shall not be placed on a frozen subgrade or base. Any part of the pavement damaged from traffic or other causes occurring prior to the acceptance of the pavement shall be repaired to the satisfaction of the City at the Contractor's expense.

B. Admixtures for curing or temperature control shall be used only as permitted or directed by the City or Engineer. The admixtures shall not be considered as a substitute for any specified curing requirement.

3.2 JOINTS AND SAWING

A. Joints in concrete pavement shall be of the design specified and shall be constructed at the spacing and locations shown on the plans. The Contractor shall establish the joint locations in the field from the plans or standard details. All joints shall be sawed along a true and straight line established by the Contractor and shall not deviate at any point by more than 1/2 inch from the established line.

3.3 TRANSVERSE CONTRACTION JOINTS AND SAWING

A. The location of each transverse joint shall be marked in a manner satisfactory to the Engineer, prior to placement of the concrete and, in the case of joints that are to be sawed; the markings shall be transferred to the fresh concrete as soon as the final finishing operations have been completed. All contraction joints shall be sawed to a sufficient depth to control cracking, but in no case to a depth less than 1/4 of the thickness of the pavement. Transverse joints constructed in the pavement shall be sawcut through the integral or separate curb. The Contractor shall be responsible for sawing to a depth that will prevent uncontrolled cracking. A sufficient number of saw cuts shall be made as soon as possible to relieve the contraction joint tension in the slab. Remaining saw cuts must be made within 24 hours after pouring.

B. The initial sawing shall be accomplished as soon as the condition of the concrete will permit without raveling and before random cracking occurs. The sequence of initial sawing shall be at the Contractor's option. The sawing shall be immediately delayed if any raveling occurs. Water under nozzle pressure shall be used to remove the sawing residue from each joint and the pavement surface immediately after completing the sawing of that joint. Widening of the joints to full width as per dimensions shown on the jointing/sealing detail shall not be performed until the concrete has cured for at least 24 hours and shall be delayed longer when the sawing causes joint raveling.

C. The early entry dry saw "Soft Cut" method of sawing will only be allowed with the Engineers approval for the initial saw cutting. If uncontrolled cracking occurs, removal and replacement of damaged concrete will be at the Contractor`s expense. Concrete is to be removed at the nearest planned longitudinal and transverse joint. The removal and replacement method shall be approved by the Engineer.

3.4 TRANSVERSE EXPANSION JOINTS

A. Expansion joints shall be spaced as shown on the plans and shall be of the preformed type and shall extend entirely through the depth and width of the pavement and through all integral curbs. No concrete shall be left above the expansion material or across the joint, but shall be cut away after the forms are removed.

B. The expansion material and dowel assembly shall be accurately and firmly staked to the subgrade. The top edge of the filler shall be set 1/2 inch below the pavement surface. During the placing of the concrete, the top edge of the filler shall be protected by a removable channel cap. After the concrete has been placed and finished, the cap shall be removed and the joint edged to the specified radius. All expansion/isolation joints shall be cleaned and sealed with silicone or hot pour sealant to produce a slightly concave surface approximately 1/4 inch below the concrete surface.

C. Before the pavement is opened to permanent traffic, the joint shall be cleaned so that there is a clear space of the specified width for the full depth and width of the pavement. It shall then be filled with joint filler which, when cooled, shall be 1/4 inch below the surface of the pavement. Any sealant material on the surface of the pavement shall be removed at the expense of the Contractor.

3.5 TRANSVERSE CONSTRUCTION JOINTS

A. Transverse construction joints shall be constructed at the end of each day and whenever the placing of the concrete is suspended for more than 45 minutes. When the work is suspended near the proper location for an expansion joint, the expansion joint shall be installed in the manner previously specified, except that the concrete shall only be placed on one side of the header. When work is resumed, it shall be placed on the other side.

B. When work is suspended at other locations, a contraction joint shall be formed by securely staking in place, at right angles to the subgrade and centerline of the pavement, a bulkhead of wood or metal cut to the cross section of the pavement and then depositing concrete against it. Before the work is resumed, the bulkhead shall be removed and concrete placed against the face of the older concrete.

C. Transverse construction joints shall only be constructed at planned transverse joint locations.

D. Dowel bars shall be installed for load transfer across the joint. The dowel bars shall be either installed with the construction joint or later drilled in place. If installed with construction joint they shall be held in place midway across the joint, parallel to both the surface and the centerline of the slab by a dowel splicer basket assembly, self-supported dowel sleeve, or other supporting device approved by the Engineer. The dowel bars shall be installed within the tolerances specified above for placing reinforcement. One end of the dowel shall be painted or coated with an approved lubricant.

3.6 LONGITUDINAL JOINTS

A. The longitudinal joint between adjoining, separately constructed pavement shall be constructed as shown on the plans. A key way, as shown on the City of Dickinson Standard Drawings, will be constructed to tie adjoining constructed pavement together.

B. If uncontrolled cracking occurs, the concrete pavement shall be completely removed to the nearest planned longitudinal and transverse joints at the Contractor's expense. The removal and replacement method shall be approved by the Engineer.

3.7 PAVEMENT FINISHING

A. Strike-off and compaction shall be done by both vibration and screed processes. Separate power machines may be used for each process or both processes may be combined in the same machine, provided controls exist enabling the operator to apply either operation separately or both combined.

B. When weather conditions cause rapid drying of the pavement surface a fine mist or fog spray applied to the concrete surface shall be permitted only if approved by the Engineer using any other method to apply water to the concrete surface will not be permitted and will result in non-payment, replacement, and/or repair of the wetted area as determined by the Engineer.

C. Forms shall be left in place for at least 12 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 must conform to the grade, alignment, and contour shown on the plans. Immediately following the floating operation, the Contractor shall test the slab surface for trueness with a 10-foot straight edge. The straightedge shall be placed parallel to the pavement centerline and passed over the slab to reveal any high areas or depressions. The high areas or depressions shall be cut or filled as necessary with the long-handled floats and the area checked again with the straight edge. Successive advances of the straight edge shall overlap by 1/2 the length of the straightedge. The entire surface shall be checked until all variations more than 1/8" in 10' have been eliminated. Special care shall be taken at all headers to ensure this variation is held to a minimum.

3.8 CURB FINISHING

A. Curb and Gutter shall be constructed using a slip-form machine or fixed forms. Fixed forms shall be full depth.

B. No grout shall be used to finish the face of the curb. After the concrete is poured into the forms, it shall be puddled, vibrated and spaded to ensure a thorough, dense mixture, eliminate air pockets, and create uniform and smooth sides. Any honeycombing, voids, or exposed aggregate on the back of curb shall be grouted.

C. When weather conditions cause rapid drying of the pavement surface, a fine mist or fog spray applied to the concrete surface shall be permitted only if approved by the Engineer. Using any other method to apply water to the concrete surface will not be permitted and will result in non-payment, replacement, and/or repair of the wetted area as determined by the Engineer.

D. Before the curb concrete has thoroughly set, and while the concrete is still green, the forms shall be removed and the front and top side finished with a float or steel trowel to make a uniform finished surface.
   1. Rounding Corners
      a. Whenever corners are to be rounded, special steel trowels shall be used while the concrete is still workable and the corners constructed to the dimensions herein specified. For combined curb and gutter, the top and side of the curb and gutter may be finished by means of a special shaped trowel or by a curb and gutter machine which shapes the entire surface in accordance with the specified dimensions. This trowel shall be used immediately upon removing the front form while the concrete is still workable but firm enough to stand up.
   2. Smoothness
      a. The top and face of the curb and also the top of the apron on combined curb and gutter must be finished true to line and grade without any irregularities of surface noticeable to the eye. No portion of the surface or face of the curb or gutter section shall depart for more than 1/4 inch from a straight edge 10 feet in length, placed on the curb parallel to the center line of the street, nor shall any part of the exposed surface present a wavy appearance.

E. All joints shall be formed and placed at the specified intervals. When constructed adjacent to concrete pavement, joints shall match the pavement joints. Joint sealing shall be as specified.

F. Concrete shall cure for 72 hours. All surfaces not protected by forms during this period shall be covered with a curing compound.

3.9 PAVEMENT FINAL SURFACE FINISH

A. The edges of the pavement shall be left smooth and true to line, and finished at about the time the concrete takes its initial set.

B. After surface irregularities have been removed and before the concrete attains an initial set, the pavement shall be uniformly textured using a seamless strip of artificial grass, burlap or brooming.

C. In case that an extruding paving machine is used, the texturing material being pulled longitudinally shall be mounted to a self-propelled bridge, operated off of the paving string line, and shall not deviate at any point by more than 1/2 inch from the established alignment.

D. Formed paving brooms shall be drawn across the surface at right angles to the centerline of the pavement, with the stroke of the broom slightly overlapping adjacent strokes. The brooming operation shall apply a uniform texture with 1/16 to 1/8-inch deep striations. Brooms shall be washed and dried at frequent intervals during the day. Any long or coarse bristles that may cause surface irregularities shall be trimmed or cut out, and any brooms that have become worn out shall be discarded.

E. Upon completion of the final finishing the surface texture shall be uniform in appearance and free of surface water, rough or porous spots, irregularities, depressions, and other objectionable features.

F. The Contractor shall mark in each 3,000 square feet of pavement, every 100 LF for continuous pours of new curb and gutter and/or sidewalk, at each end of property lines, every curb and gutter and/or sidewalk patch done per lot and each driveway by stamping the Contractor's name, address and year in which the pavement was constructed. The stamped letter should be 1 inch high and 1/4 inch deep. Contractor's stamp must be approved by the Engineering Department prior to the beginning of construction. Contractor shall be responsible for changing the date on the stamp each year.

3.10 CURING AND PROTECTION

A. Normal Pavement: As soon as the concrete has been textured, the Contractor shall start curing operations. The finished surface shall be sprayed with an approved curing agent on all exposed faces. Sufficient curing compound shall be applied at a rate of approximately 200 SF/gal to ensure a coating as white as a sheet of paper. In lieu of curing agent, the concrete may be cured by wet burlap or other methods approved by the Engineer. When wet burlap or plastic film is used for curing, the curing period shall be at least 5 days. The concrete surface must not be pitted from or damaged from application of water or incidental rain. The Contractor shall protect all concrete from weather conditions, traffic damage, or any other causes occurring prior to its final acceptance. Any damaged section shall be repaired at the Contractor's expense.

B. Colored Pavement: Colored pavement shall be cured with an approved clear curing compound generally defined as a dissipating cure or a wax based cure matching the color of the decorative concrete. Curing procedures should generally follow the guidelines of the color admixture supplier for the concrete in the pavement.

C. Timing of Curing Compound Application: Curing procedures should be undertaken within 1/2 hour of completion of finishing operations or before the wet sheen on the surface of the concrete disappears, whichever occurs first. Evaporation retarders shall be used for interim protection whenever hot, windy or dry conditions quantified by evaporation rates exceeding 0.2 pounds per square foot per hour exist, and shall be used in accordance with manufacturer's recommendations. Evaporation retarders shall not be used as a finishing aid.

3.11 JOINT FILLING AND SEALING

A. Joints shall be filled within 10 days after placement and before opening pavement to traffic.

B. All vertical joint faces shall be cleaned. Oil, asphalt, curing compound, paint, rust, and other foreign materials shall be completely removed. Just before the joints are sealed, the Contractor shall clean the joints with compressed air at a working pressure of at least 90 psi. The joints shall not be sealed when the air temperature is below 40° F.

C. Backer rod shall be used in all joints to control the depth of the filler/sealer material. Rod backer is not required on hot pours to achieve the desired shape of the material, and support the material against indentation and sag. The backer rod shall be compatible with the filler/sealer and not subject to the absorption of water. Clean all surfaces of excess filler and sealant.

D. Transverse joints constructed in the pavement shall be widened and sealed through the integral or separate curb.
   1. Hot Pour Sealant
      a. The joint filler shall be forced into the joint with a pressure type applicator capable of filling the joint from the bottom up to a height approximately 1/4 inch below the pavement surface, without any overflow or spillage onto the pavement surface. Clean all surfaces of excess sealant.
   2. Silicone Sealant
      a. Silicone joint sealer may be used in lieu of hot pour elastic filler. The sealant shall be tooled to produce a slightly concave surface approximately 1/4 inch below the pavement surface. Self-leveling sealant will not be allowed.

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3.12 PAVEMENT ROUGHNESS AND RIDE QUALITY

A. Surface tolerance and ride quality shall conform to NDDOT Standard and Supplemental Specifications, latest edition, Section 550.

3.13 LOCATION OF EXISTING UTILITIES

A. Existing manholes, gate valves, and stop boxes have been shown to direct the Contractor's attention to their existence. The Contractor is cautioned that not all utilities have been shown and their location is not guaranteed. The Contractor is responsible for determining the exact location of existing utilities that affect the installation of the paving.

3.14 MANHOLE CASTINGS TO GRADE

A. This item includes all labor, materials, High Early Strength Concrete, and equipment necessary to adjust the various castings to the proper line and grade. Note that wood shims to adjust rings and castings are not allowed. Changes in grade shall be made as follows:
   1. With Concrete Adjusting Rings
      a. The maximum height of adjustment is 6 inches. Adjustments shall be made with a maximum of two (2) precast adjusting rings whenever possible. For fine adjustments of less than 2 inches, steel shims shall be used to temporarily support the casting. In any case, the castings shall be laid in a full bed of mortar. The rings and cone section shall be cleaned to assure a flat seating surface and the rings installed in alignment with no noticeable offsets. Broken pieces and partial sections of adjusting rings are not allowed. Adjusting rings must be one continuous piece.
   2. With Polyethylene Adjusting Rings
      a. Adjustments shall be made with polyethylene adjustment rings. The cone shall be cleaned and the rings dry stacked to determine the best ring height and slope ring combination to obtain the proper height and slope match. Once this is determined, the rings shall be marked with a vertical line for future reference and disassembled. A 1/4 inch bead of butyl caulk shall be applied to the cone surface and the first ring placed on the cone section. Another head of butyl caulk shall be placed on the bottom of the next ring as close as possible to the male lip and this ring installed interlocking with the first and aligning the vertical line. This procedure is repeated for each adjustment ring, including caulking the joint between the slope ring and the casting.

B. Care shall be taken to adjust the casting to the proper grade so the final riding surface is smooth and free of bumps and it conforms to the alignment and grade of the adjoining concrete. Any castings not satisfying these requirements shall be redone to the satisfaction of the Engineer. Castings should be set flush to 1/4 inch below the pavement surface.

C. The casting to grade item also includes cleaning all construction debris or dirt from the manhole or inlet bottom and installing a wiped mortar finish around the inside circumference of the precast concrete adjusting rings.

D. All sanitary sewer and storm sewer manholes within concrete pavement areas shall have internal chimney seals, and all sanitary sewer and storm sewer manholes within unpaved areas or grassed areas shall have external chimney seals.

3.15 GATE VALVE BOXES TO GRADE

A. This item shall include all labor, material, High Early Strength Concrete, and equipment necessary to raise or lower water gate boxes to the final grade. Care shall be taken to adjust the valve box to the proper grade so the final riding surface is smooth and free of bumps and that it conforms to the grade of the adjoining concrete. The alignment shall be checked to ensure that the box is straight and that the valve is operable. Any valve boxes not satisfying these requirements shall be redone to the satisfaction of the Engineer. Valve boxes should be set within 1/4 inch of the finished pavement surface. The gate box to grade item also includes cleaning all construction debris or dirt from the box, insuring that the box is straight and undamaged, and insuring that the valve is operable.

3.16 CONCRETE TESTING

A. A third-party Material Testing Firm is required to be employed at the Contractor's expense to take a minimum of 5 cylinder samples; these cylinder samples will be labeled as such:
   1. Field Cure
   2. 7 Day Break (lab cured)
   3. 14 Day Break (lab cured)
   4. 28 Day Break (lab cured)
   5. Extra.

B. Testing is required for the first pour each day and at 100 cubic yard intervals thereafter for pours that exceed 100 cubic yards. For pours that are less than 100 cubic yards, testing will be done on every pour. A Field Technician will be required to obtain batch ticket from the delivery driver on every test cylinder that is to be tested. A Field Technician shall complete slump and air testing at the project location. Concrete test specimens for compression strength tests will be made and cured according to accepted ASTM procedures. The Contractor shall cooperate in the making of such tests.

C. Material Testing Firms shall comply with ACI 318 in regard to supplying Engineer, Contractors, concrete suppliers and other designated individuals with notification of concrete field test results such as slump, water content and air content immediately, and compression strength test results within 48 hours after test completion.

3.17 DEFECTIVE CONCRETE

A. Defective Concrete:
   1. Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
   2. Concrete failing to meet specifications for compressive strength, air entrainment, consistency (slump) and/or composition.
   3. Concrete that is excessively honey-combed or contains embedded debris.
   4. Concrete that is spalling, experiencing surface delamination, and/or any other form of premature degradation.

B. Any concrete not meeting the requirements of this Section 32 1313 or any other requirements of the contract documents shall be replaced by the Contractor to the satisfaction of the Engineer at no cost to the City. Replaced concrete shall be tested at the same schedule as other concrete and such testing shall be incidental.

3.18 OPENING TO TRAFFIC

A. Newly constructed pavement shall not be opened to public traffic until all joints are sealed and the concrete has attained a flexural strength of 450 psi or a compressive strength of 3,000 psi, as determined by breaking test cylinders cured in the field in a manner that replicates as closely as possible the curing conditions of the pavement. The Contractor shall erect and maintain suitable barricades and lights to protect the pavement from traffic. Any part of the pavement damaged from traffic or other causes occurring prior to the acceptance of the pavement shall be repaired to the satisfaction of the Engineer at the Contractor's expense. The Contractor shall be allowed to open the street as long as the requirements have been met as stated in sections:
   1. SECTION 3.11 - JOINT FILLING AND SEALING
   2. SECTION 3.12 - PAVEMENT ROUGHNESS AND RIDE QUALITY
   3. SECTION 3.16 – CONCRETE TESTING

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Concrete pavement shall be paid for at the unit price bid on the Bid Form. Concrete pavement shall include the area of paving only and does not include curb or gutter pan.

B. Curb and gutter will be measured along the curb face and paid for at the unit price bid for hand-placed or machine-placed curb and gutter. Where integral curb is poured, paving and curb will be measured based on a standard 24-inch wide curb and gutter section.

C. Concrete Valley gutters will be measured and paid for at the unit price bid.

4.2 CONCRETE SIDE WALKS. DRIVE WAYS, AND IMPRESSIONED CONCRETE

A. Sidewalks, driveways, and impressioned concrete shall be measured and paid for at the unit price bid.

4.3 PAYMENT

A. All costs for formwork, reinforcing steel, adjusting castings to grade, gate valve box adjustments, curing and protection, jointing and joint filling/sealing, and all other costs or work necessary to properly complete the work specified herein shall be incidental to other items unless specific bid items are included on the Bid Form.

END OF SECTION

SECTION 32 1501

TACK COAT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Types of bituminous product and application procedure.

1.2 REFERENCES

A. Asphalt Institute Manual Series No. 19.

B. North Dakota Department of Transportation (NDDOT) Standard and Supplemental Specifications for Road and Bridge Construction, latest edition.

1.3 PERFORMANCE REQUIREMENTS

A. Must ensure a bond between the new asphalt pavement surface and existing pavement surface.

1.4 SUBMITTALS

A. Inform Engineer in writing what product will be used and how it will be applied.

B. Follow requirements in Section 01 0130 – Submittals.

1.5 QUALITY ASSURANCE

A. Provide written certification that product meets specifications.

1.6 REGULATORY REQUIREMENTS

A. North Dakota State Department of Health:
   1. Solid Waste Division for disposal of debris.
   2. Water Quality Division for storm water runoff and erosion control.
   3. Environmental Health for clean air standards.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Provide barricades to protect the general public from coming in contact with sprayed oil.

B. Never spray tack oil if weather conditions call for rain before the tack oil can cure out.

PART 2 PRODUCTS

2.1 MATERIALS

A. SS-1H Emulsion or CSS-1H Emulsion or MS-1 Emulsion
   1. Water should be clean and free of impurities, either in solution or colloidal suspension. Carefully monitor the presence of ions, both positive and negative.
   2. Check emulsifying agents for compatibility with the water and the asphalt cement being used.
   3. Dilute tack oil with water at a 50:50 ratio.

PART 3 EXECUTION

3.1 EXAMINATION

A. All equipment shall conform to NDDOT Standard and Supplemental Specifications, latest edition, Sections 151, 152, and 153.

3.2 FIELD QUALITY CONTROL

A. Never allow asphalt emulsion to freeze.

B. Never overheat asphalt emulsion.

C. When diluting, always check compatibility of water with the emulsion by physical test.

D. When diluting, always add water slowly to asphalt. Never add asphalt to water

3.3 APPLICATION

A. Use pumps with proper clearances for handling to avoid binding and seizing. Avoid repeated pump cycling or frequent pumping.

B. DO NOT mix different classes, grades or types of emulsified asphalt in storage tanks, transports or distributors. Make sure tanks are totally clean before changing to another class, grade or type.

C. Always pump from bottom of tank.

D. Always maintain proper distributor spray bar height and spray nozzle angle.

E. Always maintain proper distributor speed.

F. Always sweep and clean surfaces to be tack coated.

G. Never apply more tack coating than can be covered by the same day's operation.

H. Never apply tack coating when ambient air temperature is consistently below 40 degrees Fahrenheit or when surface is wet.

I. Never over spread tack coating. If "fat spots" develop always spread out excess oil by pneumatic tire rolling before placing pavement.

J. Always allow enough time for tack coat to "break" before placing pavement.

3.4 PROTECTION OF FINISHED WORK

A. Never allow traffic on freshly tacked area.

3.5 SCHEDULES

A. Schedule work so as to cause minimal traffic interference.

B. Schedule work to minimize the time that the tack is uncovered.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Tack coat will be measured by the gallon of actual, undiluted oil if a separate proposal item is listed on the bid form. A gallon is defined as a volume of 231 cubic inches at a temperature of 60 degrees Fahrenheit.

B. If there is not a bid item on the bid form tack coat will not be measured.

4.2 PAYMENT

A. If a separate bid item is listed on the bid form payment will include all costs of material and application.

B. If no separate bid item is listed, consider tack oil incidental to the price bid for asphalt mix.

END OF SECTION

SECTION 32 1508

MILLING PAVEMENT SURFACE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Milling existing pavement, either asphalt or concrete surface to improve the profile, cross slope or surface texture and to allow milled material to be recycled.

1.2 REFERENCES

A. North Dakota Department of Transportation (NDDOT) Standard and Supplemental Specification for Road and Bridge Construction, latest edition.

B. The Asphalt Institute (TAI) MS-20 – Asphalt Hot Mix Recycling.

1.3 PERFORMANCE REQUIREMENTS

A. Perform milling operations in accordance with State of North Dakota Department of Transportation (NDDOT) Standard and Supplemental Specifications for Road and Bridge Construction, latest edition.

B. Milling Machine: NDDOT Standard and Supplemental Specifications, latest edition, Section 156

1.4 SUBMITTALS

A. Provide written information as to how work will proceed.

B. Provide details on traffic control, utility location and adjustment.

C. Provide manufacturers literature on milling machine.

1.5 REGULATORY REQUIREMENTS

A. Conform to North Dakota Department of Health Clean Air Standards and Surface Water Runoff Standards.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Do not perform work when weather conditions will not permit successful completion of the Work.

B. Dispose of all waste material or reject material as aggregate base or if not needed, in an approved landfill.

PART 2 NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that all curb and gutter is in place and has adequately cured prior to beginning the milling operation.

B. Verify that all traffic control devices are in place and functioning properly.

3.2 PREPARATION

A. Mechanically sweep pavement surfaces immediately prior to commencement of work. Clean pavement surfaces of loose foreign matter utilizing a vacuum style sweeper, accepted by the Engineer.

B. Protect existing improvements, overhanging trees, and plant life from damage by individual shielding and supports.

C. Remove and store manhole covers and frames, catch basin covers and frames, gate valve boxes and covers.

D. Protect utilities from damage and from becoming filled with milled and other foreign material.

E. Existing gate valve boxes, manhole and inlet castings, and any other appurtenances shall be replaced by the Contractor at no cost to the City if damage occurs due to construction operations. Contractor shall have replacement valve boxes and castings on site in case damage occurs. City shall not be responsible for furnishing replacement materials for any damage occurring due to Contractor operations. City may, at their discretion, choose to furnish replacement materials. Contractor shall reimburse the City for the cost of such materials at a rate of actual material cost plus 15 percent.

3.3 MILLING

A. Do not disfigure adjacent Work.

B. Mill pavement surface uniformly by continuous movement of milling machine.

C. Execute removal in a consistent manner to provide a smooth finish across the full width of surface without detrimental aggregate degradation.

D. Begin milling in a manner accepted by the Engineer and proceed in a parallel manner:
   1. Begin milling on an urban roadway section next to an established grade and elevation such as the gutter and then proceed toward the center of the urban section.
   2. Begin milling on a rural roadway at the centerline or crown of the roadway and then proceed toward the sides or edges.

E. Form a straight vertical edge at the beginning and end of a milled section to allow placement of the depth of surfacing.

F. Cooperate with Engineer and be prepared to alter milling operations to best suit the actual conditions as determined by the Engineer.

G. Remove milled materials from site and stockpile as required under NDDOT Standard and Supplemental Specifications, latest edition, Section 411. All milled material shall be hauled and stockpiled by the Contractor to the City of Dickinson Baler Building.

H. Maintain vehicular traffic at all times.

I. Utilize haul roads shown on the plans.

3.4 TOLERANCES

A. When measured by the Engineer with a 10-foot straight edge, the maximum vertical irregularities, transverse and longitudinal, must be less than 1/4 inch.

3.5 FIELD QUALITY CONTROL

A. Maintain equipment to be free of oil and fuel leaks.

B. Keep milled material clean and free of debris.

C. Control dust by sweeping with a vacuum type broom. Concrete surfaces must be thoroughly flushed with water.

3.6 PROTECTION OF FINISHED WORK

A. Do not permit traffic over a milled surface until after surface has been thoroughly swept clean.

3.7 CLEANUP AND PROJECT CLOSEOUT

A. Clean up all loose debris on project as well as along the haul road.

B. Repair haul road as necessary to return to a condition equal to that prior to use as a haul road.

C. Remove all traffic control devises and signs.

3.8 PROJECT RECORD DOCUMENTS

A. Provide an “as constructed” plan to Engineer, which shows any utilities, or appurtenances that were not shown on the plans.

B. Show dimensions in feet and inches to nearest, permanent, above ground object.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT & PAYMENT

A. Milling Pavement Surface will be measured and paid by the ton or square yard (SY) as defined on the Bid Form. Payment for milling includes all labor, materials, equipment, cleaning or brooming, hauling, stockpiling and cleanup. If no specified item is shown on the bid form for milling, payment will be incidental to other items of work.

B. Adjust Manhole: This bid item provides for the adjustment of various existing castings to the proper grade. A maximum of six rings will be allowed. “Adjust Manhole” shall be used when adjustments can be made by adding or removing adjusting rings. Bid items “Adjust Manhole” and “Manhole Repair” may interchange based on field findings. All labor, materials, and equipment necessary to complete the adjustment shall be included in the price bid for “Adjust Manhole”.

C. Manhole Repair: This bid item provides for the adjustment and modification to bring existing manholes to grade. “Manhole Repair” shall be used when adjustments require major reconstruction, beyond adding or removing adjusting rings. Bid items “Adjust Manhole” and “Manhole Repair” may interchange based on field findings. All labor, materials and equipment necessary to complete the modification to the existing manhole shall be included in the price bid for “Manhole Repair”.

D. Adjust Gate Valve Box: This bid item provides for the adjustment and modification to bring existing gate valve boxes to grade. “Gate Valve Box Repair” shall be used when adjustments require major reconstruction, beyond adjusting valve box top section. Bid items “Adjust Gate Valve Box” and “Gate Valve Box Repair” may interchange based on field findings. All labor, materials and equipment necessary to complete the modification to the existing gate valve box shall be included in the price bid for “Adjust Gate Valve Box”.

E. Gate Valve Box Repair: This bid item provides for the adjustment and modification to bring existing gate valve boxes to grade. “Gate Valve Box Repair” shall be used when adjustments require major reconstruction, beyond adjusting valve box top section. Bid items “Adjust Gate Valve Box” and “Gate Valve Box Repair” may interchange based on field findings. All labor, materials and equipment necessary to complete the modification to the existing gate valve box shall be included in the price bid for “Gate Valve Box Repair”.

END OF SECTION

SECTION 32 1509

ASPHALTIC PAVEMENT REPAIR

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Description of work required to satisfactorily repair existing asphalt pavement which has failed, is failing or requires extensive crack repair.

1.2 REFERENCES

A. North Dakota Department of Transportation (NDDOT) Standard and Supplemental Specifications for Road and Bridge Construction, latest edition.

1.3 PERFORMANCE REQUIREMENTS

A. Repaired asphalt pavement performance is expected to be similar to and consistent with existing, adjacent asphalt.

1.4 REGULATORY REQUIREMENTS

A. Erosion control to conform to North Dakota State Department of Health Clean Air Standards and Surface Water Runoff Standards.

1.5 ENVIRONMENTAL REQUIREMENT

A. Properly dispose of all asphalt surfacing removed which is not reused as base or subbase material.

B. Provide barriers and use caution to protect the general public and environment from sprayed materials.

C. Do not attempt any work when ambient air temperature is below 35 degrees Fahrenheit or surface is frozen, unless specifically approved by the Engineer.

D. Do not allow traffic on freshly tack coated areas.

PART 2 PRODUCTS

2.1 MATERIALS

A. Obtain approval from Engineer prior to using base and subbase materials as select backfill.

B. Imported pit run aggregate (if required) must not contain any rocks larger than 3 inches in size and have a plasticity index (PI) of less than 5.

C. Utilize hot mix asphalt surfacing as defined elsewhere herein and meeting all requirements therein.

PART 3 EXECUTING

3.1 EXAMINATION

A. Thoroughly inspect all areas marked in the field by Engineer.

B. Resolve all questions before any work begins.

3.2 PREPARATION AND INSTALLATION

A. Type I Asphalt Repair: Type I repairs are required in areas where the existing asphalt surface has failed beyond repair by routine patching or sealing methods.
   1. Size and depth of repair areas will be determined by the Engineer in the field but surfacing removal and excavation can be completed with conventional equipment.
   2. Saw or coulter all existing asphalt surfacing prior to removal. Cut to a square or rectangular shape. Removal of existing asphalt surfacing shall be done by means of a milling machine or a backhoe. No front-end loaders are allowed. The asphalt surfacing shall be salvaged and hauled by the Contractor to the City of Dickinson Baler Building.
   3. Complete excavation using equipment that is suitable to the size of the excavation and will cause minimal additional surface damage. The excavation material shall be removed by means of a backhoe. No front-end loaders are allowed.
   4. Salvage all existing surfacing (asphalt and gravel). Remove unsuitable material from site and disposed of at the City of Dickinson Baler Building.
   5. Level and smooth the exposed subgrade upon completion of excavation to the approval of Engineer.
   6. Upon approval of excavated area by Engineer, place selected backfill in 6 inch or less (un-compacted) layers. Compact each layer using a vibratory compactor or rubber tired roller suited for the size of the repair.
   7. Tack coat the existing pavement edges after excavated areas have been backfilled with approved material and compacted to the bottom of the adjoining pavement surface.
   8. Fill repair areas with hot bituminous plant mix in equal layers not to exceed 2½ inches per layer.
   9. Compact each bituminous layer using a vibratory compactor or rubber tired roller suitable for the size of the repair.
   10. Make sure each bituminous layer is cooled to atmospheric temperature before the next layer is placed.
   11. Bituminous base course(s) may be spread by hand or motorized equipment.
   12. Spread surface course using a self-propelled laydown machine unless approved otherwise by Engineer.
   13. Compact surface course using a steel drum roller.
   14. Excavate and backfill all Type I repair areas on the same day. If asphalt surfacing is not available level the entire repair area with select backfill until surfacing is available.

B. Type II Asphalt Repair: Type II repairs are required in areas where the existing bituminous surface has failed but the failed area is too small to use conventional equipment or routine patching or sealing methods. Typically all Type II repair is done by hand. Crack repair is considered Type II repair.
   1. Area shall be swept clean of all foreign or loose materials.
   2. Loose or broken surfacing shall be removed and salvaged and hauled to the City of Dickinson Baler Building.
   3. Existing pavement edges and adjacent areas extending 1 foot beyond the proposed repair area shall be tack coated.
   4. Fill repair area with hot bituminous plant mix in equal layers not to exceed 2½ inches.
   5. Rake each bituminous layer smooth. Compact by using hand tamper or vibratory compaction suited to the size of the repair.
   6. Finish roll bituminous surface course using a steel drum roller.
   7. Neatly taper all edges to a smooth transition to the existing adjacent surface.

C. Type III Asphalt Repair: Type III repairs are required where the existing bituminous is cracked or irregular but base failure is not visible. Typically, all Type III repairs are completed with power, motorized equipment.
   1. Sweep area clean of all foreign or loose debris.
   2. Apply tack coating over the entire area to be repaired.
   3. If the total required bituminous layer thickness will be greater than 2 inches in areas such as groves, ruts or depressions, apply a blade laid leveling base course over the area.

4. Leveling course (if required) should not exceed 1½ inch in thickness and be compacted and allowed to cool to ambient temperature prior to placement of surface course.
5. Compact bituminous surface course with a steel drum roller.
6. Neatly taper all edges to a smooth transition to the existing adjacent surface.

3.3 SCHEDULING AND COORDINATION

A. Schedule and coordinate Type I repair areas to be started and completed within one day, with exception of surface course.

B. Schedule and coordinate all repairs to minimize traffic interference.
   1. Coordinate unavoidable interference with adjoining property owners to maintain limited access.

3.4 TOLERANCES

A. Top of the finished asphalt surface adjacent to manholes, valve boxes and gutter is 3/16 inch higher than the adjacent surface.

B. Level subgrade in excavated areas to within 1 inch of the depth designated by the Engineer.

3.5 FIELD QUALITY CONTROL

A. If subgrade compaction testing is required it shall be completed by the Contractor, by obtaining the services of an independent reputable testing firm to perform the required testing.

B. Provide aggregate sieve analysis for imported material and PI results to verify conformance with select backfill specifications herein. Engineer will take samples.
   1. One test for each 500 cubic yards (CY) placed.
   2. Two tests for each failure - if both tests fail, material is rejected, cannot be used and must be removed from site.

C. Asphalt testing as defined under hot asphaltic concrete paving herein.

3.6 PROTECTION OF FINISHED WORK

A. Do not allow traffic on newly repaired areas until asphalt has cooled to ambient temperature.

3.7 CLEANUP AND PROJECT CLOSEOUT

A. All areas must be clean free of debris before payment is made.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Excavation will be measured by the cubic yard (CY) and will include all asphalt, earth, aggregate and debris removed from the designated excavated area. Does not include concrete removal.

B. Select backfill for subgrade repair will be measured by the ton or cubic yard (CY).

C. C. Asphalt repair will be measured by the ton or square yard (SY).

D. D. Asphalt cement will be measured by the gallon (GAL) or ton. A gallon is defined to be a volume of 231 cubic inches at 60 degrees Fahrenheit.

4.2 PAYMENT

A. Payment for all items of work will be based upon actual quantities measured in the field and accepted by the Engineer.

B. Payment will be made as defined on the bid form and unless an item of work is listed on the bid form payment will be incidental to other paid items of work.

C. Unless specifically identified on the bid form all testing, asphalt or aggregate, will be incidental to the price bid for Asphalt Repair.

D. It is the Contractor's responsibility to remit all weight tickets to the engineer at the time of delivery to the site.

END OF SECTION

SECTION 32 1513

HOT ASPHALTIC CONCRETE PAVING

(ORDINARY DENSITY)

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Hot asphaltic concrete paving components, mixing, hauling and placement.

1.2 REFERENCES

A. ASTM D946 – Penetration-Graded Asphalt Cement for Use in Pavement Construction.

B. ASTM D2950/D2950M - Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods; 2014.

C. ASTM D6927 - Standard Test Method for Marshall Stability and Flow of Asphalt Mixtures; 2015

D. TAI - (The Asphalt Institute) – MS-2 Mix Design Methods for Asphalt Concrete and Other Hot Mix Types.

E. TAI - (The Asphalt Institute) – MS-3 Asphalt Plant Manual.

F. TAI - (The Asphalt Institute) – MS-8 Asphalt Paving Manual.

G. TAI - (The Asphalt Institute) – MS-19 Basic Asphalt Emulsion Manual.

H. TAI – (The Asphalt Institute) – MS-22 Principals of Construction of Hot Mix Asphalt Pavements.

I. North Dakota Department of Transportation (NDDOT) Standard and Supplemental Specifications for Road and Bridge Construction, latest edition.

1.3 PERFORMANCE REQUIREMENTS

A. Provide a smooth surface, consistent and uniform in mixture and density which does not display unusual wear, displacement or raveling within 12 months of placement.

1.4 SUBMITTALS

A. Provide asphaltic concrete mix design no less than 15 days prior to beginning construction.

B. Provide plan for maintenance of traffic (if required).

C. Follow requirements in Section 01 0130 – Submittals.

1.5 QUALITY ASSURANCE

A. Provide Engineer with Manufacturers written certification that each transport load of asphalt cement (AC) meets the requirements of the specification.

B. Mixing Plant: Conform to NDDOT Standard and Supplemental Specifications, latest edition.

C. Obtain asphaltic mix materials (aggregate and bitumen) from same source throughout entire project. Provide new mix design any time a change in source is made.

1.6 REGULATORY REQUIREMENTS

A. Conform to North Dakota Department of Health Clean Air Standards and Surface Water Runoff Standards.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle aggregate and bitumen in a way that will prevent contamination or separation.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Do not place asphalt when ambient air temperature is less than 35 degrees Fahrenheit or surface is wet or frozen.

B. Dispose of all waste material or reject material in an approved landfill.

PART 2 PRODUCTS

2.1 MATERIALS

A. Bituminous Materials. Conform to the requirements of Section 818 of the North Dakota Department of Transportation (NDDOT) Standard and Supplemental Specifications, latest edition...

B. Aggregate for Mix: Conform to the requirements of Section 430.03, of the North Dakota Department of Transportation (NDDOT) Standard Specifications, latest edition. All aggregate larger than the No. 4 sieve shall have a specific gravity of minimum 2.45..

C. Mineral Filler: Finely ground particles of limestone, hydrated lime or other mineral dust, free of foreign matter, specifically approved for use by the Engineer.

D. Geotextile Fabric (If Required): Per Section 31 3280.

2.2 ASPHALT PAVING MIX

A. Mix Design: Conform to NDDOT Standard Specifications, Section 430.03.F. Mix design shall be Superpave FAA 40 or 41.

B. For batch or continuous mix plants, heat and dry aggregate to reduce the total moisture content to one-half of 1 percent or less, based on the dry weight of the aggregate.

C. When the drum dryer mixer is used, do not allow the moisture content of the bituminous mixture to exceed 1 percent.

D. Assure accurate proportioning into the mixer by feeding stockpiled aggregate in two or more compartments that can be accurately controlled to supply the proper mixture of aggregate.

E. Introduce all materials uniformly into the mixing plant or the drum dryer in the proportions necessary to produce the required quality. Proportion bitumen within plus or minus 0.24 percentage points of the percentage of bitumen designated.

F. Introduce the required quantities of aggregate and bitumen into the mixer and mix until a uniform and complete coating of aggregate is obtained.

G. The temperature of the bituminous mixture at discharge from the mixer must not exceed 300 degrees F.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that compacted subgrade and/or aggregate base is ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct prior to beginning any paving operations.

C. Verify utility castings are properly adjusted prior to beginning paving operations.

D. Verify all appropriate actions such as subgrade repair and tack coating are completed prior to beginning paving operations.

3.2 PREPARATION

A. Implement patching and repair operations when stability or failure problems are visible on the existing surface.
   1. Remove existing surfacing, base and subgrade material as directed by Engineer.
   2. Replace subgrade with select backfill material approved by Engineer in 6 inch layers. Use ordinary compaction.
   3. If directed by Engineer, place an approved aggregate base over the subgrade in 6 inch layers to a point 4 inches below the finished surface. Use ordinary compaction.
   4. Apply tack coating to the edges of existing surfacing.
   5. Place a 2½ inch layer of hot bituminous pavement, with a pavement machine. Compact with steel roller and rubber tire roller and allow to cool to ambient temperature before placing next layer.
   6. Apply remaining layers of hot bituminous pavement as described below.

B. When existing surface is irregular, has unusually large cracks or depressions or section is not uniform, correct before overlaying.
   1. Clean and sweep all loose debris from surface.
   2. Apply tack coat.
   3. Apply a leveling course with hot bituminous pavement. Compact with rubber tire roller.
   4. Maintain a hot bituminous loose layer thickness of no more than 3 inches. Apply more than one layer if necessary. Allow each layer to cool overnight before next layer is placed.

C. Tack Coat
   1. Apply tack coat in accordance with NDDOT Standard Specifications and Section 32 1501 – Tack Coat.
   2. If required by field conditions, and if directed by Engineer, apply tack coat over base course surface at uniform rate of 0.1 gal/sq yd.
   3. Apply tack coat to contact surfaces of curbs and gutters and other concrete appurtenances.
   4. Coat surfaces of manhole frames with oil to prevent bond with asphalt pavement. Do not tack coat these surfaces.
   5. DO NOT mix different classes, grades or types of emulsified asphalt in storage tanks, transports or distributors.
   6. Always pump from bottom of tank.
   7. Always maintain proper distributor spray bar height and spray nozzle angle.
   8. Always maintain proper distributor speed.
   9. Always sweep and clean surfaces to be tack coated.
   10. Never apply more tack coating than can be covered by the same day's operation.

3.3 PLACEMENT

A. Maintain a mix laydown temperature of no less than 230 degrees Fahrenheit when ambient temperature is 60 degrees Fahrenheit or higher. When ambient temperature is below 60 degrees Fahrenheit, Engineer will determine laydown temperature.

B. Spread and finish all mixtures with a self-propelled, bituminous paver, to the required section, leaving the mixture uniformly dense, smooth, and free from irregularities. In locations where it is impractical to use self-propelled bituminous pavers, or other types of laydown equipment, a road grader or maintainer may be used if approved by the Engineer.

C. Control the speed of paver to place the mixture uniformly and continuously without tearing or gouging. Do not exceed the Manufacturer's recommendation, and coordinate the paver speed with the output of the plant to provide for a smooth, continuous operation, minimizing starting and stopping.

D. Level, fill or rake all transverse and longitudinal joints, high or low areas, and surface irregularities, prior to compaction. Immediately remove material dropped on previously compacted lanes.

E. Sweep and tack previously placed layer or surface before spreading the next layer.

F. Tack all joints and coordinate vertical construction joints in successive courses so the joints do not fall on the same vertical plane.

G. Place pavement uniformly against the surface or edge of curb, gutters, manholes or similar structures, and at such an elevation so that the pavement is 1/4 inch higher than the edge of the structure after the pavement has been compacted.

H. Correct any low or high defective areas immediately. Correction can be accomplished by patching or cutting out the surface and replacing with fresh, hot bituminous mixture, or by milling the surface.

I. The sequence of rolling operations as well as the type and number of rollers must be commensurate with production, and adequate to obtain the specified density before the mat temperature falls below 185 degrees Fahrenheit.

J. Begin rolling at the edges and proceed parallel to the road centerline, each trip overlapping the previous roller pass. On paving an echelon or abutting a previously placed lane, the longitudinal joint should be rolled first, followed by the regular rolling procedure. Begin rolling at the low elevation and progress to the high elevation by overlapping of longitudinal passes, paralleling the centerline. Immediately correct any displacement resulting from reversing the direction of a roller or from other causes.

K. Thoroughly compact with hand or other mechanical tampers approved by the Engineer any areas not accessible to standard asphalt rollers.

L. Remove and replace any mixture that becomes loose, broken, or becomes mixed with dirt, shows any excess deficiency of bitumen, or is defective in any manner.

M. Do not place hot bituminous mix on a frozen subgrade, or when weather conditions prevent the proper handling or finishing of the bituminous mixtures. Presence of frost particles in or on the subgrade or base course is considered a frozen subgrade.

N. Compact bituminous pavement sloughs with rollers capable of providing a smooth, finished, compacted slough that is free of tire marks and unevenness or drop off.

O. If the daily bitumen cutoff as measured by the Contractor in the presence of the Engineer, deviates from the approved percentage by more than 0.24 percentage points, supply written explanation to the Engineer as to what caused the deviation and what corrective measures were taken prior to beginning the next day's operation.

P. Adjust any casting that is not 1/4 inch below the top of the finished surface. Adjust casting upward if greater than 1/4 inch below the top of the finished surface.

3.4 ASPHALT PAVEMENT DENSITY

A. Initial or breakdown rolling, intermediate rolling, and final or finish rolling shall be accomplished with rollers meeting all requirements of NDDOT Standard Specifications Section 151.02 and which are approved by the Engineer.

B. Asphalt pavement shall be compacted to 95 percent of the Theoretical Maximum Density (Rice Method). Density of field samples shall be tested with a nuclear density gage at specified frequency.

3.5 TOLERANCES

A. Flatness: Maximum variation of 1/4 inch measured with 10-foot straight edge.

B. Compacted Thickness: Within 1/4 inch of specified thickness.

C. Variation from True Elevation: Within 1/8 inch.

D. Asphalt cement content within 0.24 percent of approved mix design as determined by daily cutoff report.

E. Adjacent surface match: New finished surface must be 1/4 inch above any adjacent surface.

3.6 FIELD QUALITY CONTROL

A. See Section 01 4001 - Quality Control, for general requirements for quality control.

B. Asphalt paving mixture shall be field sampled and tested for conformance with the mix design at intervals of one (1) test per 1,000 tons of asphalt pavement produced, or a minimum of one (1) test per lift of pavement per day.

C. The density of the compacted asphalt pavement shall be tested with a nuclear density gauge at a frequency of one (1) test per 1,500 square yards per lift of asphalt pavement, or a minimum of one (1) test per lift of pavement per day.

D. Contractor shall pay for all additional tests and inspection required due to failing work and/or tests, and for any repairs and/or replacement necessitated by failing work.

3.7 CLEANUP AND PROJECT CLOSEOUT

A. Return all disturbed areas to a condition equal to that prior to construction. Clean, remove and dispose of all debris and residue.

B. Reclaim aggregate pit and plant site and obtain written acceptance from Landowner.

3.8 PROTECTION

A. Immediately after placement, protect pavement from mechanical injury until surface temperature is less than 140 degrees F (60 degrees C).

B. Do not allow traffic on the completed surfacing until the mat has been compacted and has cooled sufficiently to prevent damage.

C. Damage to the asphalt pavement due to inadequate protection shall be repaired by the Contractor to the satisfaction of the Engineer at no cost to the City.

3.9 PROJECT RECORD DOCUMENTS

A. Record all underground utilities lowered or raised on the project plans and furnish a copy of “as constructed” plan to Engineer prior to final payment.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. If no specific bid item is listed, no measurement will be taken.

B. For those specific items shown in the bid form measurement will be by the Engineer in the field.
   1. Asphalt cement will be measured by the gallon (GAL) or ton. A gallon is defined as a volume of 231 cubic inches at a temperature of 60 degrees F.
   2. Asphalt paving will be measured by the ton or square yard (SY).

3. Select backfill will be measured by the ton or cubic yard (CY).
4. Aggregate base will be measured by the ton or cubic yard (CY) in place and compacted.
5. Sub - grade preparation will be measured by the lump sum (LS) or square yard (SY).
6. Excavation will be measured by the cubic yard (CY).

4.2 PAYMENT

A. For specific items listed on the bid form, payment will be as follows:
   1. Asphalt Pavement: By the ton or square yard (SY). Includes asphalt pavement mix design, preparing base, supplying to site, placing, compacting/rolling, and testing. Payment will be based upon work accepted by the Engineer. Payment by the ton will be based on wet tons (asphalt cement and aggregate).
   2. Pavement Repair (Patching): By the ton or square yard (SY). Includes asphalt pavement mix design, cutting, removal and disposal of existing surfacing material, preparing base, supplying material to site, placing and compacting/rolling. Payment will be based upon work accepted by the Engineer. Payment by the ton will be based on wet tons (asphalt cement and aggregate).
   3. Asphalt Cement: By the ton or gallon (GAL). Includes material, transportation and related costs.
   4. Select Backfill (if required): According to the quantity accepted by the Engineer. Includes all costs of material, hauling, placement and compaction.
   5. Aggregate Base (if required): According to the quantity accepted by the Engineer. Includes all costs of material, hauling, placement and compaction.
   6. Subgrade Preparation (if required): According to the quantity accepted by the Engineer. Includes all labor and equipment required to prepare subgrade.
   7. Excavation (if required): According to the quantity accepted by the Engineer. Includes all labor and equipment required to excavate, remove and dispose of all material.

B. It is the Contractor's responsibility to remit all weight tickets to the Engineer at the time of delivery to the site. Each ticket must contain the following information:
   1. Date
   2. Time
   3. Mix
   4. Truck Number
   5. Tons Total
   6. Plant Number
   7. Project Number
   8. Load Ticket Number
   9. Tons Running Total, Day and Job

C. If asphalt testing is not listed on the bid form, payment for asphalt testing will be considered incidental to the price bid for asphalt pavement.

END OF SECTION

SECTION 32 9360

SEEDING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Hydro-Mulching, grass seeding and fertilizing.

B. Straw mulch/punching.

1.2 REFERENCES

A. FS O-F-241 - Fertilizers, Mixed, Commercial.

1.3 QUALITY ASSURANCE

A. Seed and seeding mixture shall be free of all prohibited noxious weed seed and will not contain more than one-half of 1 percent by weight of restricted noxious weed seeds.

B. Origin of the native seed harvest shall be limited to: North Dakota, South Dakota, northern Nebraska, eastern Wyoming, eastern Montana, western Minnesota and southern Manitoba, Canada.

C. All seed shall be tested by a commercial seed testing laboratory within 9 months prior to the planting.

D. The seed bags shall be delivered to the project bearing a tag which shows the following information:
   1. Name and address of supplier.
   2. Supplier's lot number for each kind of seed in the mixture.
   3. Origin (where grown) for each kind of seed.
   4. Purity and germination for each kind of seed.
   5. Date last tested.
   6. Pounds of bulk seed of each kind of seed in each bag.
   7. Total pounds of bulk seed mixture in each bag.
   8. Total pounds of pure live seed of each kind of seed in each bag.
   9. Total pounds of pure live seed mixture in each bag.
   10. Provide certificate of compliance from authority having jurisdiction indicating approval of seed mixture.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver seed mixture in sealed containers. Seed in damaged packaging is not acceptable.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of Manufacturer.

PART 2 PRODUCTS

2.1 ACCESSORIES

A. Fertilizer: FS O-F-241; recommended for grass, with 50 percent of the elements derived from organic sources to the following proportions: Nitrogen 20 percent, phosphoric acid 20 percent, soluble potash 10 percent.

B. HydroMulch: Hydraulically applied wood cellulose fiber matrix that has not been treated with germination or growth inhibitive substances. Treated with a tackifier to enhance seed germination, mulch placement and adherence to the soil.

C. Straw Mulch: Mulch consisting of straw from cereal grain or native hay, free of seed-bearing stalks of noxious weeds. At least 50 percent of the stalks by weight shall be 8 inches or greater in length.

D. Water: Clean, fresh and free of substances or matter that could inhibit vigorous growth of grass.

2.2 SEED MIXTURE

A. Type 1: Irrigated Seed Mix:
   1. Arc Kentucky Bluegrass: 25%
   2. Fielder Kentucky Bluegrass: 25%
   3. Park Kentucky Bluegrass: 10%
   4. Shoreline Slender Fescue: 15%
   5. Maxima 1 Creeping Red Fescue: 15%
   6. Fine-Leaf Perennial Ryegrass: 10%
   7. Application Rate: 6 pounds per 1,000 square feet.

B. Type 2: Non-Irrigated Seed Mix - General
   1. Chewings Fescue: 25%
   2. Hard Fescue: 25%
   3. Sheeps Fescue: 25%
   4. Creeping Red Fescue: 25%
   5. Application Rate: 6 pounds per 1,000 square feet.

C. Type 3: Non-Irrigated Seed Mix – Detention Ponds & Slopes:
   1. Kentucky Bluegrass: 40%
   2. Fine-Leaf Perennial Ryegrass: 20%
   3. Brome: 15%
   4. Sheeps Fescue: 10%
   5. Switchgrass: 5%
   6. Slender Wheatgrass: 5%
   7. Timothy: 5%
   8. Application Rate: 6 pounds per 1,000 square feet

2.3 SEED SUPPLIERS

A. Chesak Seed House, Bismarck, ND

B. Rivards Company, Argyle, MN

C. Southwest Grain, Dickinson, ND.

D. Twin City Seed Company, Minneapolis, MN.

E. Warne Chemical and Equipment Company, Rapid City, SD

F. Or approved equal

PART 3 EXECUTION

3.1 EXAMINATION

A. Prepare subgrade in accordance with Section 31 2200.

B. Place topsoil in accordance with Section 31 2200.

C. Verify topsoil is spread to a smooth uniform depth over area to be seeded.

D. Verify that prepared topsoil is ready to receive the Work of this Section.

3.2 FERTILIZING

A. Apply fertilizer at a rate of 15 pounds/10,000 square feet to all areas requiring seeding.

B. Apply after smooth raking of topsoil.

C. Do not apply fertilizer at same time or with same machine as will be used to apply seed.

D. Mix thoroughly into upper 2 inches of topsoil.

E. Lightly water to aid dissipation of fertilizer.

3.3 NORMAL GRASS SEEDING

A. Seed shall be uniformly distributed with a turfgrass drill seeder in two approximately perpendicular passes, at a rate of 3 pounds/1,000 SF per pass.

B. Immediately following seed placement, all seeded areas shall be culti-packed or rolled with a roller not exceeding 112 pounds. Avoid over-compacting soil.

C. Do not seed areas more than that which can be mulched on same day.

D. Do not sow immediately following rain, when ground is too dry, or during windy periods.

E. Apply straw or hydromulch following seed placement and compaction.

F. Following germination, immediately re-seed areas without germinated seeds that are larger than 4 by 4 inches.

3.4 HYDRO-MULCHING

A. Immediately following seeding and compaction, apply hydromulch to a thickness of 3/16 inches. Apply water with a fine spray immediately after hydromulching to saturate soil.

B. Minimum coverage of 95 percent.

3.5 GRASS, HAY OR STRAW MULCH

A. General: The mulch shall be placed within immediately after the seeding has been completed.

Mulching operations shall not be performed during periods of excessively high winds which would preclude the proper placing of the mulch.

Mulch containing excessive moisture that prevents uniform feeding through the machine shall not be used. Bales shall be broken up and loosened as they are fed into the blower to avoid placement of matted or unbroken lumps.

B. Equipment: The mulch shall be machine blown and shall be uniformly distributed over the seeded areas. The machine shall be of a design that minimizes cutting or breaking of the mulching material.

C. Application: The mulch shall be placed uniformly over the seeded areas at the rate of two tons per acre. Approximately 10 percent of the soil surface shall be visible through the mulch blanket before the mulch tiller (punching) operation.

Excessive cover which smothers seedlings of small seeded grasses shall be avoided.

D. Anchoring: The contractor shall use the following method:

1. Punching: Immediately following application, mulch shall be punched in to the soil using a mulch tiller consisting of a series of dull, flat disks with notched or cutout edges. The disks shall be approximately 20 inches in diameter, ¼ inch thick, spaced approximately 8 inches apart, and shall be fitted with scrapers.

The tiller shall be operated on contour, except on slopes steeper than 3:1 where diagonal operations are required using a tractor with dual drive wheels or crawler treads on the tractor to minimize sideslip and rutting to slopes. Tiller members shall be ballasted as necessary to push the mulch into the soil 3 inches with ends of the mulch exposed above the soil surface.

3.6 PLANTING SEASON

A. Non-irrigated grass seeding shall be installed between May 1st and September 1st, and before the ground freezes, unless otherwise approved by the Engineer.

B. Do not sow immediately following rain, when ground is too dry, or during windy periods.

3.7 QUALITY CONTROL

A. All equipment is subject to Engineer's approval before it is used.

B. Maintain seeded areas immediately after placement until grass is well established and exhibits a vigorous growing condition.

C. Immediately reseed areas that show bare spots.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Measurement will be based on plan quantity.

4.2 PAYMENT

A. Only plan quantity will be paid for seeding. The Contractor is responsible for restoring any staging areas, and areas used to facilitate construction activities. Additional seeding for disturbed areas used to facilitate construction or accommodate contractor method and means will be the responsibility of the Contractor with no additional cost to the Project.

B. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.

C. Any required reseeding shall be incidental.

D. Final payment for seeding shall not be issued until the grass is well established and accepted by the City.

END OF SECTION

SECTION 33 0000

TRACER WIRE

PART 1 GENERAL

1.1 SUMMARY

A. Provide tracer wire (locating wire) and accessories for all non-metallic mains.

B. Related Sections:
   1. Section 31 2221 – Trenching, Backfilling and Compaction
   2. Section 33 1116 – Water Utility System
   3. Section 33 3722 – Sanitary Sewage System

C. Basis of Payment: Incidental.

1.2 REFERENCES

A. ASTM D1248 – Polyethylene Plastic Extrusion Materials for Wire and Cable

1.3 QUALITY ASSURANCE

A. Provide tracer wire designed specifically for detecting buried facilities.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Tracer Wire:
   1. Standard of Quality: Design is based on products of Copperhead Industries <http://www.copperheadwire.com>.
   2. Other acceptable Manufacturers: Subject to compliance with specified requirements, acceptable manufacturers and products are:
      a. Manufacturer of comparable products submitted in compliance with Section 01 0130 - Submittals.

B. Connectors:
   1. Standard of Quality: Design is based on DryConn by King Innovation Products <http://www.kinginnovations.com/pro-dryconn.html>.
   2. Other Acceptable Manufacturers: Subject to compliance with specified requirements.
   3. Hydrant tracer wire bracket with PVC conduit.

C. Tracer Wire Access Box
   1. Valvco: Part SEWAB
   2. Copperhead Lite-Duty Tracer Wire Access Box (LD14*TP) in grass areas at hydrant locations.
   3. Copperhead Concrete Driveway Box (CD14*TP) for sidewalks and driveways with light traffic.
   4. Copperhead Roadway Box (RB14*TP) for gate valves and manholes in streets and parking lots with heavy traffic.

2.2 MATERIALS

A. Open Trench/Boring Installation:
   1. Direct burial 12 AWG solid, CCS (Copper Clad Steel), 0.171-inch diameter; boring 8 AWG solid, CCS (copper clad steel) 0.219-inch diameter
   2. Steel core high strength for direct burial, with a rated break load of 1,330 pounds and for boring installation a rated break load of 2,785 pounds.
   3. 0.045-inch high molecular weight, high density polyethylene, complying with ASTM D1248.

4. High flexibility, stretchable to accommodate ground movement.
5. Impact resistant.
6. 30-volt rating.
7. Jacket color: Green - "Sewer"; Blue - "Water", Purple - "Reclaimed Water/Irrigation"
8. Physical, permanent, surface legend on insulating jacket, repeated a minimum of every 2 linear feet.
9. For directional boring 2-8 AWG tracer wires shall be installed with the pipe and connected to the tracer wire at both ends.

B. Connectors:
1. Waterproof and corrosion proof.
2. Prefilled with non-hardening sealant.
3. Lug:
   a. Tin plated high conductivity aluminum with high impact polypropylene housing.
   b. Product: DryConn Direct Bury Lug.
4. Connectors:
   a. CSA certified as both Pressure Type and Direct Bury.
   b. Product: DryConn King Direct Bury.

C. Magnesium Anode
1. Provide 5-pound anode at each:
   a. Hydrant
   b. Every Other Manhole
   c. Connection to existing facilities

PART 3 EXECUTION

3.1 INSTALLATION

A. Approved spliced connection locations: fire hydrant and manhole discharge connections to the main.

B. Except for approved splice connections and repairs, install in continuous manner from discharge manhole to flushing connection, from hydrant to hydrant and manhole to manhole.

C. Install tracer wire parallel with centerline axis of pipe and at "3 o'clock" position.
1. Do not spiral wrap wire to pipe.
2. Do not install under service saddles.
3. Tape tracer wire to pipe.

D. Terminate tracer wires in accordance with Drawings.
1. Terminate in tracer wire access box at each fire hydrant, air release manhole, sanitary manhole, flushing connection and discharge manhole.
2. Provide minimum 3-foot long pigtail at grade termination points within tracer box.
3. Provide 5-pound magnesium anode a maximum of every 1000 feet and at buried pipe ends:
   a. Attach to the main tracer wire by solder.
   b. Remove anode protective cover.
   c. Apply water as directed by manufacturer.

3.2 FIELD QUALITY CONTROL

A. System Testing:
1. Test continuity of conduction in the presence of the Engineer.
2. Connect signal generator at wire termini and trace signal throughout the installation.
3. Locate and repair all breaks in conductivity.

END OF SECTION

SECTION 33 0601

MANHOLES, CLEANOUTS AND COVERS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Standard, and Drop Manholes

B. Manholes with Monolithic Bases

C. Cleanouts

D. Frames, Lids, Covers and Accessories

E. Chimney Seals

1.2 REFERENCES

A. ASTM C478 - Precast reinforced concrete manhole sections.

B. ASTM C923 - Flexible resilient connectors between reinforced concrete manhole structures and pipes.

C. ASTM A48 - Gray iron castings.

D. Federal Specification SS-S-00210(CSA-FSS): Extruded rubber sealant.

E. ASTM C94 - Ready Mix Concrete.

F. ASTM C150 - Portland Cement Type 1.

G. ASTM C144 - Mortar sand.

H. ASTM C207 - Hydrated lime.

I. ASTM C5 - Quicklime.

J. ASTM C91 - Masonry Cement, Type M.

K. ASTM C387 - Packaged, dry, combined materials, for mortar and concrete.

L. ASTM A240 Type 304 Chromium – Nickel Stainless Steel.

1.3 SYSTEM DESCRIPTION

A. Manhole (i.e.: frame, cover, adjusting rings, chimney seal, barrel, cone section, base, and boots) must all fit together securely and allow access to an underground pipe.

B. Cleanout components (i.e.: frame, cover, riser, bends and/or wye) must all fit together securely and provide for a smooth connection to an underground pipe for purposes of cleaning.

1.4 PERFORMANCE REQUIREMENTS

A. All connections and joints are watertight and leak free.

B. Provide smooth and accessible inverts on manholes.

C. Provide smooth and gradual bends on cleanouts.

1.5 SUBMITTALS

A. Prior to shipping any components to the project submit shop drawings to Engineer for review.

B. Allow 15 working days for Engineer to review and comment.

C. Note size, location (angle) and other relevant information.

D. If project involves the handling or bypassing of sanitary sewage, submit a written plan to Engineer explaining how this will be done.

1.6 QUALITY ASSURANCE

A. Manufacturers must certify in writing, if requested by Engineer, that all manholes, cleanouts and appurtenances be constructed within the guidelines of the appropriate ASTM specifications.

B. Company specializing in manufacturing products must have a minimum of five years, documented experience.

C. Precast sections must be legibly stamped with the date cast.

1.7 DELIVERY, STORAGE AND HANDLING

A. Manufacturer is responsible for providing specific instructions for the proper delivery, storage and handling.

B. Install manholes, cleanouts and, components without damage. Immediately remove any damaged components from the project site.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Never discharge any raw, untreated wastewater or debris into the environment.

B. Properly dispose of all solid waste material such as packing bands and wrapping materials.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. North Dakota Concrete Products (Cretex) - Precast manholes, precast adjusting rings

B. Neenah Foundry Co. - Manhole frames and lids, lamphole frames and lids.

C. Press Seal Gasket Corporation - Rubber sealant; flexible gasket connectors.

D. Forterra Specialty Products – Manhole chimney seals.

2.2 MATERIALS

A. Standard and Drop Manholes: Tongue and groove joints, monolithic bases, pre-cast influent and effluent openings, cast-in-place concrete inverts and an eccentric cone section transition to lid with PVC influent drop apparatus.

B. Manhole Frames and Covers: Equal to R-1733 with self-sealing solid type "C" lid as manufactured by Neenah.

C. Meter manhole and Pressure Reducing Valve Manhole: The 36 inch diameter manhole casting shall be a Neenah R-1739-A with a vented lid or approved equal.

Insulated Cover - 4 inch rigid insulation cover ½ inch marine plywood each side with galvanized steel handle and eight stainless steel nuts and bolts. A 2 inch hole shall be drilled through the cover. A 1 ½ inch x 1 ½ inch x 1/8 inch aluminum angel frame around the opening circumference anchored with eight equally paced stainless steel fasteners.

D. Manhole Chimney Seals: Equal to product manufactured by Forterra.

E. Cleanout Frames and Lids: Equal to R-1975 with solid lid as manufactured by Neenah.

F. Connectors: Flexible gasket connectors equal to "PSX" as manufactured by Press-Seal Gasket Corporation.

G. Manhole Adjusting Rings: Modular reinforced precast concrete rings, or HDPE adjusting rings as manufactured by Lad Tech, Inc., as per manufacturer's written instructions.

H. Sealant: Extruded rubber, 1"x1" in roll form on paper, equal to "E-Z Stick" as manufactured by Press-Seal Gasket Company.

I. Mortar: (By volume), Type M: 1 part Portland Cement or masonry cement, ¼ part hydrated lime and 2¾ to 3¾ parts sand.

J. Manhole Invert: Portland cement concrete made from a 6-bag mix and have a 28 day compressive strength of 3000 psi. All inverts shall have smooth finish.

K. Manhole sections shall have built-in lifting devises provided by the manhole manufacturer.

L. All drop manholes shall have piping on the outside of manhole only. No drops are allowed inside of manhole.

PART 3 EXECUTION

3.1 PREPARATION

A. Verify line and grade locations.

B. Verify cast in or built in items are in proper location and elevation.

C. Verify number of sections for correct height. Allow for a maximum of 2 adjusting rings.

D. Coordinate the placement of influent and effluent pipe openings as required for installing flexible gasket connectors and a smooth transition.

3.2 CONSTRUCTION

A. Place monolithic bottom on stable subgrade. Make sure it is level.

B. Place manhole sections plumb and level.

C. Install joint sealant between all manhole sections.

D. Backfill and compact uniformly around manhole or cleanout to required density.

E. Set adjusting rings, frame and cover to correct elevation. Allow for grout between rings. Coordinate with other adjacent work as necessary.

F. Lay adjusting rings in full bed of mortar, uniformly jointed with the manhole section. Adjust and level to meet finished grade.

G. Install Chimney Seals as recommended by manufacturer. External chimney seals are to be on all sanitary manholes within grass areas. Internal chimney seals are to be on all sanitary manholes within pavement areas.

H. Form inverts with cast-in-place concrete, carefully finishing and troweling to true shape of the lower half of the sewer pipe and sloping up of the manhole, providing positive drainage to the flow line and effluent. Flow line of invert shall be smooth finish.

I. Plug all lift holes with mortar.

3.3 TOLERANCES

A. Final elevations for inverts and rim shall be within plus or minus 0.03 feet of the specified or staked elevation.

B. Finished manhole elevations shall always be ¼ inch lower than finished street grade on an existing street.

3.4 FIELD QUALITY CONTROL

A. Provide proper compaction around manholes and cleanouts.

B. Check for proper invert flow.

C. Check for infiltration and exfiltration and correct if necessary.

D. Regularly check temporary sewage handling equipment and piping (if in use) to avoid spills or backup.

E. Provide 5 foot diamond concrete adjustments around manhole casting as per the manhole adjustment detail within the Dickinson Standard Drawings.

3.5 CLEANUP AND PROJECT CLOSEOUT

A. Clean all debris from manholes and cleanouts. Individually remove cover and check each one.

B. Properly adjust all frames to the proposed grade. Wood shims not allowed for adjustment.

3.6 PROJECT RECORD DOCUMENTS

A. Provide Engineer with a complete set of shop drawings showing all changes and what was actually constructed.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Measure standard manholes, drop manholes and cleanouts by the unit (each) as defined on the bid form.

4.2 PAYMENT

A. Payment for each unit shall include excavating, backfilling, grading, subgrade stabilization, manhole section, influent and effluent openings, cast-in-place inverts, two adjusting rings, frame, lid and/or cover and all related accessories. Chimney Seals (if required) will be considered incidental to the price bid for manholes.

B. If no specific bid item is shown on the proposal, payment will be considered incidental to other related items.

END OF SECTION

SECTION 33 0602

MANHOLES INTERNAL CHIMNEY SEAL

PART 1 GENERAL

1.1 SCOPE

A. This specification includes the materials and procedures required for the internal sealing of the entire chimney area of all new sanitary manholes, new storm sewer manholes, adjust sanitary manholes, and adjust storm sewer manholes, as shown on the attached drawings.

1.2 WORK REQUIRED

A. An internal flexible rubber frame seal and where necessary, an interlocking extension or extensions, meeting the requirements of this section, shall be used to seal the entire chimney of all manholes included in this project. The seal and extension or extensions shall extend from the frame casting down to the top of the manhole cone.

1.3 DEFINITIONS

A. Chimney - The cylindrical variable height portion of the manhole structure used to support and adjust the finished grade of the manhole frame. The chimney extends from the top of the cone to the base of the manhole frame.

B. Cone - That portion of the manhole structure which slopes upward and inward from the barrel of the manhole to the required chimney or frame diameter.

1.4 SYSTEM DESCRIPTION

A. Design Requirements - The manhole frame seal shall be designed to prevent leakage of water through the above described portions of the manhole throughout a 50 year design life. The seal shall also be designed so that it can be installed in manholes where the diameters of the frame and chimney differ by up to 20%.

B. Performance Requirements - The frame seal shall be capable of repeated vertical movement of not less than 2 inches and/or repeated horizontal movement of not less than 1/2 inch after installation and throughout its design life.

1.5 SUBMITTALS

A. Test Report - A test report from an approved testing agency, showing that the seal meets the performance requirements of Section 1.4 B, shall be provided by each frame seal manufacturer or supplier. The report shall include the results of the following test performed on a test unit on which the frame seal is attached. The test unit shall consist of a watertight base unit, at least 1 unsealed grade ring or brick course and a differentially moveable, unsealed, manhole frame. The Engineer reserves the right to observe the testing.

1. The manhole frame shall be raised 2 inches and moved laterally 1/2 inch. The frame shall be held in this position for a minimum of 100 hours, after which it is returned to its normal position.

2. The same test unit is then placed in a water tank filled to just below the top of the frame. The frame shall then be raised 2 inches and lowered back down through a minimum 30 cycles. The frame is then raised 2 inches and held in that position while the frame is moved laterally 1/2 inch. The frame is then returned to its normal position to complete the test.

   The seal shall remain in place and watertight throughout the duration of the test. Any displacement, dislodgement or leakage of the seal shall be cause for failure. Any seal that fails the test may be reworked and retested.

B. Certification (Affidavit of Compliance) - The manufacturers of all manhole frame seals shall submit a notarized certification to the Engineer stating that their product meets the design life requirements of Section 1.4 A and the applicable material requirements of Section 2.1 A & B.

1.6 QUALITY ASSURANCE

A. Acceptance Testing - Manhole frame seals shall be visually inspected after installation to ensure that the seal is properly positioned, tight against the manhole and frame surfaces, that no voids or leakage points exist and that the bands are securely locked in place. Any seals failing this test shall be reworked as necessary and retested at no additional cost to the owner. Any seals not passing this visual inspection may, at the Contractor's option, be tested for leakage using a method approved by the Engineer.

PART 2 PRODUCTS

2.1 FRAME SEAL

Frame seals shall consist of a flexible internal rubber sleeve, extensions and stainless steel expansion bands, all conforming to the following requirements:

A. Rubber Sleeve and Extension - The flexible rubber sleeve and extensions shall be extruded or molded from a high-grade rubber compound conforming to the applicable material requirements of ASTM C-923, with a minimum 1500 psi tensile strength, maximum 18% compression set and a hardness (durometer) of 48±5.

The rubber sleeve shall be double, triple or quadruple pleated with a minimum unexpanded vertical height of 8 inches, 10 inches or 13 inches respectively and a minimum thickness of 3/16 inches. The top and bottom section of the sleeve that compresses against the manhole frame casting and the chimney/cone shall have an integrally formed expansion band recess and a series of sealing fins to facilitate a watertight seal. These sealing fins shall have teardrop holes or air pockets to allow the sealing area to conform to minor surface irregularities that may be encountered.

The top section of the extension shall have a minimum thickness of 3/32 inches and shall be shaped to fit into the bottom band recess of the sleeve under the bottom chimney seal band and the remainder of the extension shall have a minimum thickness of 3/16 inches. The bottom section of the extension shall contain an integrally formed expansion band recess and multiple sealing fins matching that of the rubber sleeve.

Any splice used to fabricate the sleeve and extension shall be hot vulcanized and have a strength such that the sleeve shall withstand a 180-degree bend with no visible separation.

B. Expansion Bands - The expansion bands used to compress the sleeve against the manhole shall be integrally formed from 16-gauge stainless steel conforming to the applicable material requirements of ASTM A-240 Type 304, with no welded attachments and shall have a minimum width of 1 3/4 inches.

The bands shall have a minimum adjustment range of 2 1/2 diameter inches and the mechanism used to expand the band shall have the capacity to develop the pressures necessary to make a watertight seal. The band shall be permanently held in place with a positive locking mechanism which secures the band in its expanded position after tightening.

C. Acceptable Manufacturers
   1. Forterra Specialty Products

2.2 EQUIPMENT

A. The Contractor shall have a manufacturer's recommended expansion tool and all other equipment/tools necessary to prepare the surfaces of the manhole and install the frame seals.

2.3 CEMENTITIOUS GROUT

A. Cementitious grout shall be a premixed, non-metallic, high strength, non-shrink grout which meets the requirements of ASTM C-191 and C-827 as well as CRD-C-588 and C-621. When mixed to a mortar or “plastic” consistency, it shall have minimum one day and 28 day compressive strength of 6,000 and 9,000 psi, respectively.

PART 3 EXECUTION

3.1 FIELD MEASUREMENTS

A. The Contractor shall field measure the manholes to determine the information required on the manufacturer’s “Sizing and Ordering” procedure. This information is needed to obtain the proper size of bands, the size, shape and width of the rubber sleeve and the need for and size of any extensions.

3.2 SURFACE PREPARATION

A. All sealing surfaces shall be reasonably smooth, clean and free of any form offsets or excessive honeycomb. The top internal portion of the manhole cone shall have a minimum 3-inch high vertical surface. The preparation of this vertical surface when none exists shall be in accordance with the frame seal manufacturer’s instructions.

3.3 INSTALLATION OF FRAME SEAL

A. The internal frame seals and extensions shall be installed in accordance with the manufacturer’s instructions.

PART 4 MEASUREMENT AND PAYMENT

4.1 MANHOLE FRAME SEAL

A. All costs for furnishing and installing an internal frame seal and where necessary, an extension or extensions shall be included within the unit price bid for Sanitary Manholes.

B. All costs for furnishing and installing an internal frame seal and where necessary, an extension or extensions, shall be included within the unit price bid for Storm Sewer Manholes.

C. All costs for furnishing and installing an internal frame seal and where necessary, an extension or extensions, shall be included within the unit price bid for Adjust Sanitary Manhole.

D. All costs for furnishing and installing an internal frame seal and where necessary, an extension or extensions, shall be included within the unit price bid for Adjust Storm Sewer Manhole.

END OF SECTION

SECTION 33 0603

MANHOLES EXTERNAL CHIMNEY SEAL

PART 1 GENERAL

1.1 SCOPE

A. This specification includes the materials and procedures required for the external sealing of the entire chimney area of all new sanitary manholes, as shown on the attached drawings.

1.2 WORK REQUIRED

A. An external flexible rubber frame seal and where necessary, an interlocking extension or extensions, meeting the requirements of this section, shall be used to seal the entire chimney of all sanitary manholes included in this project. The seal and extension or extensions shall extend from the lower base flange of the frame down to the top of the cone.

1.3 DEFINITIONS

A. Chimney -The cylindrical variable height portion of the manhole structure used to support and adjust the finished grade of the manhole frame. The chimney extends from the top of the cone to the base of the manhole frame casting.

B. Cone -That portion of the manhole structure which slopes upward and inward from the barrel of the manhole to the required chimney or frame diameter.

1.4 SYSTEM DESCRIPTION

A. Design Requirements -The manhole frame seal shall be designed to prevent leakage of water through the above described portions of the manhole throughout a 50-year design life. The seal shall also be designed so that it can be installed on a manhole where the outside diameter of the frame's base flange and the chimney or cone differ by up to 4 inches.

B. Performance Requirements -The frame seal shall be capable of repeated vertical movement of the frame of not less than 2 inches and/or repeated horizontal movement of not less than 1/2 inch after installation and throughout its design life.

1.5 SUBMITTALS

A. Test Report - A test report from an approved testing agency showing that the seal meets the performance requirements of Section 1.4 B, shall be provided by each frame seal manufacturer or supplier. The report shall include the results of the following test performed on a test unit on which the frame seal is attached. The test unit shall consist of a watertight base unit, at least 1 unsealed grade ring or brick course and a differentially moveable, unsealed, manhole frame. The Engineer reserves the right to observe the testing.

1. The manhole frame shall be raised 2 inches and moved laterally 1/2 inch. The frame shall be held in this position for a minimum of 100 hours, after which it is returned to its normal position.
2. The same test unit is then placed in a water tank filled to just below the top of the frame. The frame shall then be raised 2 inches and lowered back down through a minimum 30 cycles. The frame is then raised 2 inches and held in that position while the frame is moved laterally 1/2 inch. The frame is then returned to its normal position to complete the test.

   The seal shall remain in place and watertight throughout the duration of the test. Any displacement, dislodgement or leakage of the seal shall be cause for failure. Any seal that fails the test may be reworked and retested.

B. Certification (Affidavit of Compliance) -The manufacturers of all manhole frame seals shall submit a notarized certification to the Engineer stating that their product meets the design life requirements of Section 1.4 A and the applicable material requirements of Section 2.1 A & B.

1.6 QUALITY ASSURANCE

A. Acceptance Testing - Manhole frame seals shall be visually inspected after installation to ensure that the seal is properly positioned right against the manhole and frame surfaces, that no voids or leakage points exist and that the bands are securely locked in place. Any seals failing this test shall be reworked as necessary and retested at no additional cost to the owner. Any seals not passing this visual inspection may, at the contractor's option, be tested for leakage using a method approved by the Engineer.

PART 2 PRODUCTS

2.1 FRAME SEAL

Frame seals shall consist of a flexible external rubber sleeve and extension and stainless steel compression bands, all conforming to the following requirements:

A. Rubber Sleeve and Extension - The flexible rubber sleeve and extension shall be extruded or molded from a high-grade rubber compound conforming to the applicable material requirements of ASTM C-923, with a minimum 1500 psi tensile strength, maximum 18% compression set and a hardness (durometer) of 48+5.

The rubber sleeve shall be corrugated, with a minimum thickness of 3/16 inches and shall be available in unexpanded vertical heights of 6 and 9 inches. The top section of the sleeve shall contain multiple sealing tins and be designed to extend both over and under the manhole frame's base flange, thereby allowing it to be mechanically locked to the frame. The bottom section of the sleeve shall contain an integrally formed compression band recess and a series of sealing fins to facilitate a watertight seal.

The extension shall have a minimum thickness of 3/16 inches. The top portion of the extension shall be shaped to fit into the bottom band recess of the sleeve and have its own integrally formed band recess, which is located such that when assembled this recess is centered over that of the sleeve. The bottom section of the extension shall contain an integrally formed compression band recess and multiple sealing fins matching that of the rubber sleeve.

Any splice used to fabricate the sleeve and extension shall be hot vulcanized and have a strength such that the sleeve shall withstand a 180-degree bend with no visible separation.

B. Compression Bands -The bands used to compress the sleeve against the manhole shall be integrally formed from 16-gauge stainless steel conforming to the applicable material requirements of ASTM C-923, Type 304, with no welded attachments and shall have a minimum width of 1 inch. The top compression band shall have a shape and width sufficient to, when tightened, will mechanically lock the sleeve to the manhole frame's base flange. The lower compression band shall be a flat strip to allow placement into the lower band recess of the seal and or extension. The tightening mechanism on both bands shall have the capacity to develop the pressures necessary to make a watertight seal and shall have a minimum adjustment range of 2 diameter inches. Screws, bolts and nuts used on the bands shall be stainless steel conforming to ASTM F-593 and 594, Type 304.

C. Acceptable Manufacturers
   1. Forterra Specialty Products

2.2 EQUIPMENT

A. The Contractor shall have a manufacturer's recommended compression tool and all other equipment/tools necessary to prepare the surfaces of the manhole and install the frame seals.

2.3 CEMENTITIOUS GROUT

A. Cementitious grout shall be a premixed, non-metallic, high strength, non-shrink grout which meets the requirements of ASTM C-191 and C-827 as well as CRDC-588 and C-621.When mixed to a mortar or "plastic" consistency it shall have minimum one day and 28 day compressive strength of 6,000 and 9,000 psi, respectively.

PART 3 EXECUTION

3.1 FIELD MEASUREMENTS

A. The Contractor shall measure the manhole to determine the information required on the manufacturer's “Sizing and Ordering" procedure. This information is needed to obtain the proper size of bands, the size and width of the rubber sleeve and the need for and size of any extensions.

3.2 SURFACE PREPARATION

A. All sealing surfaces shall be reasonably smooth, clean and free of any form offsets or excessive honeycomb. The top external portions of the cone shall have a minimum 3-inch high vertical surface. The preparation of this vertical surface when none exists shall be in accordance with the frame seal manufacturer’s instructions. The manhole frame shall be set to the required grade while sitting on 3 3/4-inch steel spacers which have been totally embedded in a course of cementitious grout conforming to the requirements of Section 2.3.

3.3 INSTALLATION OF FRAME SEAL

A. The external frame seals and extensions shall be installed in accordance with the manufacturer's instructions.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASURE AND PAYMENT

A. All costs for furnishing and installing an external frame seal and where necessary an extension or extensions, shall be included in the unit price bid for Sanitary Manholes.

END OF SECTION

SECTION 33 1001

TEMPORARY WATER SUPPLY

PART 1 GENERAL

1.1 DESCRIPTION

A. Provide temporary water service to all interrupted service connections associated with all watermain projects. The areas where consumers are affected by the work and require a temporary water supply should be verified with both the Engineer and City at least 72 hours (excluding weekends and holidays) prior to the anticipated suspension of water service.

1.2 DRAWINGS

A. Project plans provide some existing water utility information. The Contractor may need to perform additional research including from other resources. It shall be the Contractor's responsibility to determine the extent of the water system to be taken out of service to perform the work and the subsequent configuration of the temporary water system to provide service to all affected water customers.

1.3 SUBMITTALS

A. Contractor shall submit a shop drawing including all materials proposed to be used for temporary water. Additionally, a temporary water plan shall be submitted prior to starting to layout the temporary water system. This submittal shall include connection points, hydrants and/or valves, layout for connection to each service, and the location of all street crossings as a minimum.

B. Follow requirements in Section 01 0130 - Submittals.

1.4 APPLICABLE LAWS AND REGULATIONS

A. Contractor shall comply with all applicable laws and regulations per General Conditions Article 6.09.

PART 2 PRODUCTS

2.1 TEMPORARY WATER PIPING

A. The water piping of temporary hoses, piping, etc. shall be 160 psi rated, NSF approved hose, flexible polyethylene pipe, or PVC pipe. All pipe used for the temporary water system must have a visible National Sanitation Foundation (NSF) approval stamp by the manufacturer. The temporary system must be maintained leak free. Each residence or business shall be provided with a temporary water service line off the temporary main.

2.2 SHUT OFF VALVE

A. The distribution pipe shall have a manual shut off valve at each service tee. Shut off valves shall be NSF approved ball valves. All ball valves shall have stainless steel ball and constructed of no lead brass.

PART 3 EXECUTION

3.1 GENERAL

A. Following the Engineer's, City's, and Water Agency's review and approval of any proposed shutdown request, the Contractor shall be required to give a minimum 24 hour advance notice (excluding weekends and holidays) to all consumers whose service will be temporarily affected, by means of individual notices delivered to each consumer. If the notices are not issued or the service is not ready to be connected to restore service, the Water Agency shall be free to exercise their authority in not closing the existing valves and watermain system. Special arrangements shall be made by the Contractor to provide temporary water service for all commercial services regardless of the length of time the watermain is out of service. The Contractor shall not take a commercial service out of service except in emergency conditions.

The Contractor shall supply all hoses, fittings, etc. for providing temporary water service. Copper piping or other “non-taste-inducing” pipe shall be provided if the commercial consumer serves food or water products.

3.2 LOCATING CURB STOPS

A. The Contractor shall be solely responsible for locating, exposing, and operating curb stop valves to the individual properties. Any existing condition that is suspected to indicate a defect of the curb stop valve, box, or service shall be reported immediately to the Engineer. The City will not participate in any activity up to this point.

3.3 TEMPORARY WATER SYSTEM SIZING

A. All pipe sizes shall be adequate to meet ordinary water supply demands of the consumers.

3.4 TEMPORARY WATER SYSTEM DISINFECTION

A. All temporary water systems shall be assembled, flushed, and disinfected in place and approved before being placed into service. The disinfection procedures shall be equal to the procedures required for the new watermain. This will require minimum 48 hours laboratory time for the Bac-T sample to determine acceptability. If temporary water system is not put into service within one week of passing Bad-T, the temporary water system shall be re-tested before placing system in service.

B. Temporary hoses, piping, fittings, etc., to be flushed and disinfected in accordance with Section 33 1675 - Disinfection of Water Systems, prior to being placed into service.

3.5 CONNECTION TO BUILDINGS

A. Once the temporary water system has been assembled, pressure tested and disinfected, the Contractor should expect to find the existing plumbing on some services to be in old condition. The Contractor shall use an ordinary degree of care while working on this condition of service. Also, there may not be any convenient point of temporary connection on some services. In this case, temporary fittings must be provided to achieve the temporary water supply. This will be incidental to the work.

3.6 CROSSING ROADS, ALLEYS, AND DRIVEWAYS

A. Pipe protection measures must be supplied at road crossings, alleyways, or residential driveways to maintain the reliability and integrity of the temporary water system.

B. The Contractor will be required to install the temporary water supply at street crossings in a shallow trench or other methods acceptable to the Engineer. Aerial crossings of the temporary water lines at street crossings will not be allowed. Temporary water supply pipes shall not be installed in storm drain pipes or culverts.

C. The trenched asphalt crossings shall be cut straight and vertical, shall have uniform width and shall be cut perpendicular to the centerline of the street. Restoration shall match the existing surface condition and shall have an adequate width to allow compaction with a small mechanical compactor.

D. All associated temporary water supply measures will be removed following permanent water supply completion.

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

A. All work described herein is incidental to the installation of the new watermain. No measurement or additional payment will be considered.

END OF SECTION

SECTION 33 1116

WATER UTILITY SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Pipe and fittings for water mains and service lines, including domestic water lines and fire water lines.

B. Valves and Fire hydrants.

C. Hydrostatic pressure testing.

1.2 RELATED REQUIREMENTS

A. Section 31 2316 - Excavation: Excavating of trenches.

B. Section 31 2316.13 - Trenching: Excavating, bedding, and backfilling.

C. Section 31 2323 - Fill: Bedding and backfilling.

D. Section 32 1210 – Concrete Paving: Concrete for thrust restraints.

E. Section 33 0000 – Tracer Wire: Tracer wire for utility locates.

F. Section 33 1300 - Disinfecting of Water Utility Distribution: Disinfection of site service utility water piping.

1.3 REFERENCES

A. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.

B. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts.

C. ASTM B88 - Standard Specification for Seamless Copper Water Tube.

D. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.

E. ASTM D2241 - Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).

F. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.

G. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings; 2015.

H. ASTM D3035 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter.

I. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes using Flexible Elastomeric Seals.

J. AWWA C104/A21.4 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings; American Water Works Association (ANSI/AWWA C104/A21.4).

K. AWWA C105/A21.5 - Polyethylene Encasement for Ductile-Iron Pipe Systems; American Water Works Association (ANSI/AWWA C105/A21.5).

L. AWWA C110/A21.10 - Ductile-Iron and Gray-Iron Fittings; 2012.

M. AWWA C111/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings; American Water Works Association (ANSI/AWWA C111/A21.11).

N. AWWA C115/A21.15 - Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.

O. AWWA C153/A21.53 - Ductile-Iron Compact Fittings; 2011.

P. AWWA C502 - Dry-Barrel Fire Hydrants.

Q. AWWA C515 - Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service; 2009.

R. AWWA C550 - Protective Interior Coatings for Valves and Hydrants; 2013.

S. AWWA C605 - Underground Installation of Polyvinyl Chloride (PVC) and Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe and Fittings; 2013.

T. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution.

U. AWWA C901 - Polyethylene (PE) Pressure Pipe and Tubing, 1/2 In. (13 mm) Through 3 In. (76 mm), for Water Service.

V. UL 246 - Hydrants for Fire-Protection Service.

W. Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers - Recommended Standards For Water Works; 2012.

X. NSF/ANSI 61 - Drinking Water System Components - Health Effects; current edition.

1.4 SUBMITTALS

A. See Section 01 0130 - Submittals, for submittal procedures.

B. Product Data: Prior to shipping, provide data on pipe materials, pipe fittings, valves and accessories for review by Engineer. Allow minimum of 15 working days for review and comment.

C. Operation and Maintenance Data: Upon approval of submittals, furnish Engineer with 3 copies of Manufacturer's drawings and instructions for use in Operation and Maintenance Manual.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Project Record Documents: Record actual locations of piping mains, valves, connections, thrust restraints, and invert elevations. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with Manufacturer's instructions on handling, storage and installation.

B. All components must be marked, tagged or identified that they meet the performance requirements outlined herein.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver free of damage and store in protected area with labeling in place.

B. Report any damage, including light surface scratches, to Engineer prior to installation. Repair or replace any coating or component damage as required by Manufacturer and as directed by Engineer.

1.7 REGULATORY REQUIREMENTS

A. North Dakota Department of Health, Municipal Facilities Division.

B. Occupational Safety and Health Administration (OSHA).

PART 2 PRODUCTS

2.1 GENERAL

A. All products or materials that may come into contact with water intended for use in a public water system shall meet the National Sanitary Foundation International (NSF)/American National Standards Institute (ANSI) Standard 61.

B. The Contractor shall notify and obtain permission from the Fire Department having jurisdiction at least 24 hours prior to the shutting down service to any hydrant, and shall notify the Fire Department when service is restored. The Contractor shall notify and coordinate shutting down any water lines with the municipality having jurisdiction.

2.2 WATER PIPE - 3 INCH AND LARGER:

A. Polyvinyl Chloride Pipe: Polyvinyl Chloride Pipe shall meet the requirements of AWWA C900 or C905, or the latest revision thereof, and shall be furnished in Cast Iron Pipe equivalent outside diameters with elastomeric joints. Pressure rating shall be 235 psi (DR18). All water main fittings shall be ductile iron.
   1. Ductile Iron Fittings: Ductile Iron fittings shall be manufactured by Harco, Trinity Valley, or approved equal, and shall have a working pressure of 350 pounds per square inch conforming with AWWA/ANSI C153/A21.53 or AWWA/ANSI C110/A21.10. All Ductile Iron fittings shall be cement mortar lined and contain an exterior bituminous seal conforming with AWWA/ANSI C104/A21.4. All fittings shall be mechanically restrained and have thrust blocking. Thrust blocking shall be of adequate size to prevent movement of pipe and appurtenances when under pressure. Minimum bearing area shall be 2 square feet.
   2. Mechanical joints shall be manufactured in accordance with AWWA/ANSI C111/A21.11.
   3. Mechanical Joint Bolt Requirements: Bolts for mechanical joint fittings, valves, and hydrants shall be alternated with one-half stainless steel and one-half low alloy steel. Low alloy steel bolts shall contain a maximum content of carbon at 0.2 percent, manganese at 1.25 percent, sulphur at 0.5 percent, minimum content of nickel at 0.25 percent, and a combined content of nickel, copper, and chromium at 1.25 percent. Stainless steel bolts shall be Grade 304.
   4. Restrained pipe joints shall be required where shown on the plans. Joint restraint systems shall be approved by the Engineer.
   5. Pipe Coupling: ASTM A283 Grade C Steel with fusion-bonded epoxy coating and stainless steel nuts and bolts.
      a. 12” & Smaller: Romac MACRO HP or approved equal.
      b. Larger than 12”: Ford, Dresser, Mueller, Hymax, or approved equal.

2.3 WATER PIPE - LESS THAN 3 INCH

A. Manufacturers:
   1. Pipe: Centennial Plastics or JM Eagle for polyethylene and Halstad or Reading for copper tubing, or approved equals.
   2. Service Connection: Double bolt, stainless steel.
      a. Romac - Saddle Style 306 SS
      b. Ford - Service Saddle, Style FS 303
      c. Mueller - Corporation Stop, Style H-15005 for IPS PE plastic pipes and for IPS PE plastic pipe.

d. Ford - Corporation Stop, Style FB-1001.
e. McDonald - Corporation Stop, Style 4701B-33

3. Curb Stop and Box:
   a. Mueller - Curb stop and box - Style H-15156 for IPS PE pipe and H-15155 for copper tubing.
   b. Ford - Curb stop and box - Style FB 66444M for IPS PE pipes and FB 22444M for copper tubing.
   c. McDonald - Style 6104 - 33 on 5614 riser.

B. Materials:
1. Polyethylene Pipe: HDPE 4710 conforming to ASTM D2239, DR-9 (IPS) with a pressure rating of 250 psi.
2. Copper Tubing: Type K meeting ASTM B-88.
3. Service Connection: Double bolt, stainless steel.
4. Curb Stop and Box: The length of the curb box extended shall be 7' - 6". Each box shall be equipped with a stationary rod, lid and plug. Curb boxes shall be Minneapolis Pattern (thread type).
5. All fittings shall be red brass (no lead brass).
6. All corporations and curb stops shall be ball style valves.
7. All fittings for copper lines shall be compression.
8. Service lines sizes in 1 ¼ inch or 3 inch will not be allowed.

2.4 VALVES

A. A. Gate Valves: Manufacturer's name and pressure rating marked on valve body.
1. The gate valve furnished shall be of a quality equal to that manufactured by American Flow Control under the minimum requirements in design, material, and workmanship conforming to the latest AWWA Standard C515.
2. The metals used shall be in accordance with AWWA and ASTM Standards.
3. Unless otherwise designated, all gate valves shall have a non-rising stem, O-ring stem seals, 2-inch operating nuts, and open counterclockwise.
4. All gate valves shall be equipped with a stem extension rod, extending to within 3-feet of finished grade. Extension rod shall not be connected to the gate valve operating nut.
5. The gate valve shall have a resilient synthetic rubber coating seat attached to the wedge, manufactured and designed in accordance with the latest AWWA Standard C515. Resilient-Seated Gate Valve body and bonnet shall be coated, inside and out, with a fusion bonded epoxy in accordance with AWWA C550. The waterway shall have a full unobstructed flow without recesses in the bottom. All bonnet bolts shall be stainless steel.
6. All gate valves 16-inch and larger shall be equipped with a bevel gear actuator.
7. All gate valves shall be equipped with a gate valve box adapter as manufactured by "Adaptor Inc.", or approved equal. Adapter shall be incidental.

B. Valve Boxes: The valve boxes furnished shall be of a quality equal to that manufactured by Tyler Pipe Model 6860 or Star Pipe Products Cast Iron Heavy Duty Model "G" with bases and dimensions of each section to be as follows:
1. No. 6 round base for 24-inch and smaller gate valves.
2. Cover shall be marked "WATER" on all valves, including valves on hydrant leads, except for fire service lines to buildings, which shall be marked "FIRE".
3. Top Section 25 1/2 inches long. Extension pieces as required.
4. All valve boxes shall be capable of a minimum 6-inch top adjustment in either direction, up or down, to or from, the finished curb grades shown in the plans.
5. If any valve box extension pieces are required to make the above-mentioned adjustment, they shall be considered incidental.
6. All new and reset valve boxes shall be equipped with a debris plug, as manufactured by Infact Corporation, or approved equal.
7. All new and reset valve boxes shall be equipped with a gate valve box adapter as manufactured by "Adaptor Inc.", or approved equal. Adapter shall be incidental.

2.5 HYDRANTS

A. Hydrants: All hydrants shall be manufactured in accordance with the requirements of AWWA C502 and shall be equipped with break-away type traffic flanges and two (2) 2-1/2" hose connections and one (1) 4-1/2" pumper connection. Hydrants shall be 5-1/4" Waterous Pacer Model WB-67-250, 5-1/4" American Darling Model B-62-B, Or Approved Equal. Hydrants shall have an 8-foot minimum bury depth and all stainless-steel nuts and bolts on the base flange.

B. Hydrant Threads: Threads must be compatible with Dickinson Fire Department equipment.
   1. Hose Nozzle: #6038, 6 threads per inch, 3 1/4 inch OD.
   2. Pumper Nozzle: #80430, 8 threads per inch, 4 15/16 inch OD (Dickinson Fire Department Thread).

C. Hydrant Markers: All hydrants shall be equipped with a hydrant marker approved by the City.

D. Every Hydrant shall have an auxiliary gate valve located on the hydrant lead, 1 foot from the hydrant tee. Valve Box for auxiliary valve shall have stationary rod and a lid marked “WATER”.

2.6 BEDDING AND COVER MATERIALS

A. Bedding: As specified in Section 31 2323.

B. Cover: As specified in Section 31 2323.

2.7 ACCESSORIES

A. Concrete for Thrust Restraints: Concrete type specified in Section 32 1210.

B. Insulation Boards: The insulation shall have a thermal conductivity of not more than 0.28 BTU per hour per square foot per degree Fahrenheit per inch of thickness as tested in accordance with ASTM C177. The insulation shall not absorb moisture to an extent greater than 2.5 percent by volume as tested in accordance with ASTM D2127. The compression strength of the insulation shall be greater than 20 psi as tested in accordance with ASTM D-1621. The density of the insulation shall be between 0.9 and 1.3 pounds per cubic feet as tested in accordance with ASTM D-1622. The insulation shall be specifically designed for protection of underground utilities.

C. Polyethylene Encasements: All ductile iron and cast iron pipe, valves, valves boxes, fittings, couplings and hydrants shall be encased with 8-mil linear low- density (LLD) polyethylene film in accordance with ANSI/AWWA C105/A21.5.

D. Markers: At each water stubout, Contractor shall furnish a 2-inch by 4-inch wood marker, extending a minimum of 2 feet above finish grade, painted blue.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that connection sizes, locations, and inverts are as indicated.

B. Notify utility companies before digging. Verify all related work is at appropriate stage of completion.

C. Before any City watermain is cut, measure the outside diameter (O.D.) of the pipe with an O.D. tape to make sure contractor has the correct fittings to complete the job. The contractor shall be responsible for any damages or delays caused by not having the correct fittings available.

D. AC Pipe: If Asbestos Cement pipe is encountered, Contractor shall follow and comply with the North Dakota Department of Health requirements for the handling of asbestos material. All costs associated with Health Department and City coordination, forms and applications, handing, transporting and disposal of AC pipe will be considered incidental and included in the associated water system connection. All related communication including applications, forms, and certifications will be copied to the Engineer.

3.2 PREPARATION

A. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, remove burrs.

B. Remove scale and dirt on inside and outside before assembly.

C. Prepare pipe connections to equipment with flanges or unions.

D. Temporary Water Supply:
   1. The Contractor shall be responsible for maintaining water supplies. In the event that a shut-down is anticipated to last more than 4 hours, the Contractor shall provide temporary water supply to ensure continuous service to any impacted properties. The method and type of material used for such temporary water supply shall be approved by the Engineer.
   2. The Contractor shall notify all affected properties no less than 24 hours prior to the interruption of service. Notification shall include contact information for the Contractor and Engineer, a description of the work to be performed, and the intended period of interruption.

3.3 TRENCHING

A. See Section 31 2316.13 Trenching.

B. Hand trim excavation for accurate placement of pipe to elevations indicated.

C. Form and place concrete pipe thrust restraints per City standard details.

D. See Section 31 2323 for backfill and pipe bedding requirements.

3.4 UTILITY CROSSINGS

A. Separation between water and sanitary sewer piping shall be provided as follows:
   1. Provide a minimum horizontal separation of 10 feet measured from edge of water pipe to edge of sanitary sewer pipe.
   2. Provide a minimum vertical separation of 18 inches measured from edge of water pipe to edge of sanitary sewer pipe.
   3. At all crossings, both water pipe and sanitary sewer pipe shall be installed with a full pipe section centered over a full pipe section. Sewer joints shall be installed equidistant and as far as possible from water pipe joints. Where water pipe crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade.
   4. Minimum separation between water and sanitary sewer lines shall be 18 inches at all crossings, whether water is over or under sewer.
   5. If it is impossible to obtain proper horizontal and vertical separation as stipulated above, reviewing agency approval must be obtained on a case by case basis to utilize one of the following methods:
      a. Sanitary sewer shall be designed and constructed to water pipe standards, and shall be pressure tested at 150 psi for a period of one hour to assure water tightness.
      b. Either the water main or the sewer line may be encased in a watertight carrier pipe which extends 10 feet on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be of materials specified for use in water main construction.

3.5 INSTALLATION - PIPE

A. Establish elevations of buried piping to ensure not less than 7'-6" ft (2.3 m) of cover to crown. See plans for invert elevations.

B. Install pipe to indicated elevation to within tolerance of 1/2 inches (13 mm).

C. Route pipe in straight line. Joint deflections shall not exceed manufacturers recommendations.

D. Install pipe to allow for expansion and contraction without stressing pipe or joints.

E. Install insulation where indicated on the plans.

F. Slope water pipe and position drains at low points.

3.6 INSTALLATION - VALVES AND HYDRANTS

A. Set valves on concrete block 6 inches thick and 12 inches square or larger.

B. Install gate valve box adapter over valve operating nut. Center and plumb valve box over valve. Set box cover 0.04 feet below finished grade.

C. Install 3-foot square concrete diamond around gate valve box per City standard gate valve adjustment detail. Concrete shall conform to Section 32 1210.

D. Set hydrants plumb; locate pumper nozzle perpendicular to and facing roadway.

E. Set hydrant to grade, with nozzles at least 24 inches above finished grade. Where necessary, install extensions or modify finish grading around hydrant.

F. All hydrants shall be furnished with an 8' minimum bury depth from the bottom of the inlet pipe to finish grade. All bolts and nuts connecting the barrel to the foot elbow shall be stainless steel. The hydrants shall be surrounded by 1/2 cubic yards of subcut gravel so placed that it will readily take up all water from the drip valves. The hydrants shall be set on a concrete pad 6 inches thick and 18 inches square. Hydrants shall be restrained through the hydrant lead gate valve to the tee.

G. In the event of high ground water, plug hydrant drain prior to installation. The Contractor shall notify the City of Dickinson Water Utility Maintenance Department when any hydrant drains are plugged.

H. Install traffic protection posts around hydrants located in open, unprotected areas.

3.7 INSTALLATION - CONNECTION TO EXISTING MAIN

A. Prior to making any connection to an existing City water main, the Contractor shall coordinate with the municipality having jurisdiction, and shall either schedule the connection to be made by the municipality, or obtain permission to make the connection to the main. If the connection is to be made by the municipality, the Contractor shall be responsible for all work associated with installation of the tapping sleeve and valve, and for assisting the local municipality in positioning the tapping machine.

B. Tapping sleeve with valves shall be hydrostatically pressure tested on the main prior to requesting a tap. The test shall be 125 pounds per square inch for a duration of 30 minutes.

C. The tapping valve shall conform to the requirements of this specification for gate valves.

D. For pipe sizes of 6 inches to 24 inches, the tapping sleeve shall be stainless steel with a stainless steel flange and bolts and shall conform to the “Smith Blair” Type 663 or “Romac” Type SST or an approved equal.

3.8 FIELD QUALITY CONTROL

A. Perform field inspection and testing in accordance with Section 01 4001.

B. Perform trench backfill testing in accordance with Section 31 2323.

C. Hydrostatically test all pressure pipe in the presence of Engineer at a minimum pressure of 150 psi for a period of no less than 2 hours as required by AWWA Section C605-05, Section 7, with pipe section being tested to maintain pressure within 5 PSI of the specified hydrostatic test pressure. Determine allowable leakage per hour by the following equation:

$$Q = \frac{LDvP}{148{,}000}$$

Where:
Q= quantity of makeup water, in gallons per hour
L= length of pipe section being tested, in feet
D= nominal diameter f the pipe, in inches
P= average test pressure during the hydrostatic test in pounds per square inch (gauge)

1. Remove all air prior to beginning of test.
2. Obtain Engineer's approval of testing equipment. Equipment, at a minimum, must consist of a volumetrically calibrated water tank with cover, oil filled pressure gage graduated in feet of water or psi, flexible hoses, leak free valves and gas driven pump with capability to develop 200 psi of discharge pressure.
3. If leakage is greater than allowable, take immediate action to correct the problem(s) and retest the section until leakage limits are met.
4. If a new section of pipe is connected to an existing main or to a service connection, take appropriate action to prevent damage to the existing main. This may include temporary capping and blocking and leaving trench open for visual leakage inspection by Engineer.
5. Flush in the presence of Engineer to the approval of Engineer immediately after completion of pressure test.
6. Flush away from existing mains or services.
7. Water for flushing furnished by the City.

D. Trace Wire Electrical Conductivity Testing: All new trace wire installations shall be located using typical low frequency (512Hz) line tracing equipment, witnessed by the Contractor, Engineer and City prior to acceptance. Continuity testing in lieu of actual line tracing shall not be accepted.
   1. Conductivity testing shall be performed within one week of pressure testing completion.

E. Perform disinfection and bacteriological testing in accordance with Section 33 1675.

F. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to City.

3.9 CLEANUP AND PROJECT CLOSEOUT

A. Prior to project acceptance by City, open and close each hydrant valve and observe the barrel drain down in presence of The City.

B. Verify proper hydrant threads by obtaining hose section from The City and demonstrating the fit to The City's representative.

C. Where hydrant drains have been plugged due to high groundwater, Contractor shall paint pumper nozzle yellow.

D. Verify all valve and curb boxes have been raised to grade.

3.10 PROJECT RECORD DOCUMENTS

A. Accurately record location of pipe runs, connections, and termination points on “as constructed” plans.

B. Identify, describe and show approximate location of newly discovered utilities during excavation.

C. Provide disinfection and bacteriological reports as required by Section 33 1675 - Disinfection of Water System.

D. Furnish all operational data, including Manufacturer's instructions, parts lists, and maintenance data to Engineer prior to final payment.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Measure water main and service lines by the linear foot (LF) as installed and accepted by the Engineer. Extend measurement from the centerline of the watermain to the curb stop.

B. Measure water service connections by the complete unit (EA) as installed and accepted by the Engineer. Each unit includes the tapping of the main, saddle and corporation. If an item for water service connection is not included on the Bid Form, such connection shall be incidental to the unit price bid for water service line.

C. Measure curb stop and box by the complete unit (EA) as installed and accepted by the Engineer. Each unit includes the valve, box, and bedding.

D. Measure gate valve and box by the complete unit (EA) as installed and accepted by the Engineer. A complete unit includes the valve, gate valve adaptor, extension rod and valve box, and associated backfill and bedding. Additional rod or valve box extensions required for deep valves shall be incidental.

E. Measure Gate Valve Adjustment by the complete unit (EA) as installed and accepted. This includes all labor, equipment and materials required to raise valve box to grade and to install concrete diamond.

F. Measure fire hydrants by the unit installed, complete and in place.

G. Bedding, thrust blocking and other miscellaneous items such as gaskets, lubricant and other special requirements are incidental to pipe and fittings and will not be measured.

4.2 PAYMENT

A. Payment for all items of work listed on the bid form will be for the actual number of units approved by the Engineer, including all labor, materials and equipment. Payment includes excavation, hand trimming of trench, bedding, materials, equipment and backfilling.

B. If specific items of required work are not listed on the Bid Form, payment will be considered incidental to other related items of work.

END OF SECTION

SECTION 33 1646

FUSIBLE POLYVINYLCHLORIDE PIPE FOR INSTALLATION

PART 1 GENERAL

1.1 DESCRIPTION

A. This section specifies fusible polyvinylchloride pipe, including acceptable fusion technique and practice, safe handling and storage, and installation of the pipe by horizontal directional drilling or directional boring or guided boring.

B. Contractor shall provide a structurally sound, leak proof, monolithic polyvinylchloride pipe for all piping identified for installation by horizontal directional drilling. Individual pipe lengths shall be assembled by butt-fusion unless otherwise specified. Connecting fittings shall be fused or mechanically joined to the piping as specified. Contractor shall also be responsible for all installation processes included drilling, back reaming, management and disposal of all drilling fluid, dewatering flow around his work, and leak testing the fusible polyvinylchloride pipe and fittings in accordance with these specifications.

C. Supplier shall furnish fusible polyvinylchloride pipe conforming to all applicable standards and procedures, and meeting all applicable testing and material properties as described by those standards or within this specification.

1.2 QUALITY ASSURANCE

A. References:
1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of a conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.
2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of construction. If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued.
3. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

References	Titles
ANSI/AWWA C110/A21.10	American National Standard for Ductile Iron and Gray Iron Fittings, 3 inch through 48 inch, for Water and Other Liquids
ANSI/AWWA C111/A21.11	American National Standard for Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings
AWWA C605	Standard for Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water
AWWA C651	Standard for Disinfecting Water Mains
AWWA C900	Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 inch through 12 inch, for Water Distribution
AWWA C905	Standard for Polyvinyl Chloride (PVC Pressure Pipe and Fabricated Fittings, 14 inch through 48 inch, for Water Distribution

AWWA M23	AWWA Manual of Supply Practices PVC Pipe - Design and Installation, Second Edition
AWWA M28	AWWA Manual – Rehabilitation of Water Mains
ASTM C495	Standard Test Method for Compressive Strength of Lightweight Insulating Concrete
ASTM C923	Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals
ASTM D638	Tensile Properties of Plastics
ASTM D1238	Flow Rates of Thermoplastics by Extrusion Plastomer
ASTM D1505	Standard Test Method for the Density of Plastics by the Density-Gradient Technique
ASTM D1784-02	Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds
ASTM D1785	Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120
ASTM D2122	Determining Dimensions of Thermoplastic Pipe and Fittings Test Method for Degree of Fusion of
ASTM D2152	Poly (Vinyl Chloride) (PVC) Pipe and Molded Fittings by Acetone Immersion
ASTM D2241	Poly (Vinyl Chloride) (PVC) Plastic Pipe (SDR-PR)
ASTM D2665	Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings
ASTM F477	Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F1057	Standard Practice for Estimating the Quality of Extruded Poly (Vinyl Chloride) (PVC) Pipe by the Heat Reversion Technique
ASTM F1417	Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low Pressure Air
UNI-PUB-6	Recommended Practice for Low Pressure Air Testing of Installed Sewer Pipe
UNI-PUB-8	Recommended Practice for the Direct Tapping of Polyvinyl Chloride (PVC) Pressure Water Pipe (Nominal Diameters 6-12 Inch)
NSF-14	Plastics Piping System Components and Related
NSF-61	Drinking Water System Components - Health Effects
PPI TR-2/2006	PVC Range Composition Listing of Qualified Ingredients

1.3 MANUFACTURER REQUIREMENTS

A. Fusible polyvinylchloride pipe shall be tested at the extrusion facility for properties required to meet all applicable parameters as outlined in AWWA C900, AWWA C905, and applicable sections of ASTM D2241. Testing priority shall be in conformance with AWWA C900 and AWWA C905.

1.4 FUSION TECHNICIAN REQUIREMENTS

A. Fusion Technician shall be fully qualified by the pipe supplier to install fusible polyvinylchloride pipe of the type(s) and size(s) being used. Qualification shall be current as of the actual date of fusion performance on the project.

1.5 SPECIFIED PIPE SUPPLIERS

A. A. Fusible polyvinylchloride pipe shall be used as manufactured under the trade names Fusible C-900®, Fusible C-905®, and FPVC™, for Underground Solutions, Inc., Poway, CA, (858) 679-9551. Fusion process shall be as patented by Underground Solutions, Inc., Poway, CA, Patent No. 6,982,051. City and Engineer are aware of no other supplier or fusible polyvinylchloride pipe that is an equal to this specified pipe supplier and product.

1.6 WARRANTY

A. A one year warranty for the pipe shall be included, and shall cover the cost of replacement pipe and freight to project site, should the pipe have any defects in material or workmanship.

B. In addition to the standard pipe warranty, the fusing Contractor shall provide in writing a warranty for a period of one year for all the fusion joints, including formation, installation, and pressure testing.

C. Warranty periods shall begin on the date of installation and product acceptance after all applicable testing.

1.7 SUBMITTALS

A. The following PRODUCT DATA is required from the pipe supplier and/or fusion provider:
   1. Name of the pipe manufacturer and a list of the piping and quantities to be provided by manufacturer.
      a. Product data and pipe supplier data indicating conformance with this specification and applicable standards, including written documentation regarding any intended variance from this specification and applicable standards. This will include experience of pipe supplier by years and number of projects; warranty information; and independent laboratory testing certification.
      b. Material and pipe property testing in conformance with this specification and applicable standards indicating conformance from the pipe extruder per AWWA C900 and AWWA C905:
         1) Dimensional Checks
         2) Pipe Burst
         3) Flattening
         4) Extrusion Quality (Acetone Immersion)

B. Test results will be prepared and made available from the pipe extruder to the City or Engineer upon request, for each extrusion run.

C. Fusion joint data and fusion technician data indicating conformance with this specification and applicable standards, including written documentation regarding any intended variance from this specification and applicable standards. This will include fusion joint warranty information and recommended project specific fusion parameters, including criteria logged and recorded by data logger.

D. Material, pipe property, and dimensional data for casing pipe, if used.

E. The following PRODUCT DATA AND INFORMATION is required from the Contractor and/or horizontal directional drilling Contractor:
   1. Directional drilling equipment information and certification indicating the applicability of equipment commensurate with the size and scope of the project.
   2. Directional drilling operator certification and references, project scope and City's contact information for the experience commensurate with the size and scope of the project.
   3. Shop drawings which will include for each HDD installation any excavation locations, interfering utilities, excavation dimensions, bore dimensions and locations, project specific soil conditions, stress calculations and traffic control schematics.
   4. A project safety and contingency plan which shall include but shall not be limited to drilling fluid containment and cleanup procedures, equipment and plan for compromised utility installations including electrical and power lines, water, wastewater and any other subsurface utility.
   5. At least two weeks prior to the start of work, the Contractor shall submit his HDD schedule identifying daily work hours and working dates for each installation.
   6. Information about the drilling fluid to be used, including product information, material specifications, and handling procedures; material safety data sheet and special precautions required; methods of mixing and application; and disposal plan.

F. The following AS-RECORDED DATA is required from the Contractor and/or fusion provider:
   1. Fusion report for each fusion joint performed on the project, including joints that were rejected. Submittals of the Fusion Technician's joint reports are required as requested by the City or Engineer. Specific requirements of the Fusion Technician's joint report shall include:
      a. Pipe Size and Dimensions
      b. Machine Size
      c. Fusion Technician Identification
      d. Job Identification Number
      e. Fusion Number
      f. Fusion, Heating, and Drag Pressure Settings
      g. Heat Plate Temperature
      h. Time Stamp
      i. Heating and Cool Down Time of Fusion
      j. Ambient Temperature
   2. As-recorded plan and profile data for the actual alignment of the installed pipeline.
      a. The as-recorded plan will reflect horizontal offset from the baseline and depth of cover, a maximum of every 25 feet and at all changes in direction, whichever is less.
      b. All fittings, valves, or other appurtenances will also be referenced and shown.
      c. This document, along with tracking log sheets, should they be used, shall be provided to the City and/or the Engineer. Tracking log sheet data, should it be employed, shall include all that apply, including position, roll angle, tilt angle, depth, and hydraulic pull back force measured.
      d. As-recorded plans shall show any deviations from the original plans.

PART 2 PRODUCTS

2.1 FUSIBLE POLYVINYLCHLORIDE PRESSURE PIPE FOR POTABLE WATER

A. Fusible polyvinylchloride plastic material for pipe shall conform to AWWA C900 or C905, ASTM D1784, and cell classification 12454. Pipe shall be in accordance with ASTM D2241 for IPS standard dimensions as indicated in these specifications. Compound formulation shall be in accordance with PPI TR-2/2006.

B. Pipe shall be manufactured with 100% virgin resin.

C. Fusible polyvinylchloride pipe shall be extruded with plain ends. The ends shall be square to the pipe and free of any bevel or chamfer. There shall be no bell or gasket of any kind incorporated into the pipe.

D. Fusible polyvinylchloride pipe shall be manufactured in a standard 20 foot, 30 foot or 40 foot nominal lengths.

E. Fusible polyvinylchloride pipe shall be blue in color.

F. Pipe shall be marked per AWWA C900 or AWWA C905, and shall include as a minimum:
   1. Nominal size
   2. PVC
   3. Dimension Ratio, Standard Dimension Ratio or Schedule
   4. AWWA pressure class or rating
   5. AWWA Standard designation number
   6. NSF-61 mark verifying suitability for potable water service
   7. Extrusion production record code
   8. Trademark or trade name
   9. Cell Classification 12454 and/or PVC material code 1120 may also be included.

G. Pipe shall be homogeneous throughout and be free of visible cracks, holes, foreign material, blisters, or other deleterious faults.

2.2 FUSIBLE POLYVINYLCHLORIDE PRESSURE PIPE FOR NON-POTABLE WATER

A. Fusible polyvinylchloride plastic material for pipe shall conform to AWWA C900 or C905, ASTM D1784, and cell classification 12454. Pipe shall be in accordance with ASTM D2241 for IPS standard dimensions as indicated in these specifications. Compound formulation shall be in accordance with PPI TR-2/2006.

B. Pipe shall be manufactured with 100% virgin resin.

C. Fusible polyvinylchloride pipe shall be extruded with plain ends. The ends shall be square to the pipe and free of any bevel or chamfer. There shall be no bell or gasket of any kind incorporated into the pipe.

D. Fusible polyvinylchloride pipe shall be manufactured in a standard 20 foot, 30 foot or 40 foot nominal lengths.

E. Fusible polyvinylchloride pipe shall be purple in color.

F. Pipe shall be marked per AWWA C900 or AWWA C905, and shall include as a minimum:
   1. Nominal size
   2. PVC
   3. Dimension Ratio, Standard Dimension Ratio or Schedule
   4. AWWA pressure class or rating
   5. AWWA Standard designation number
   6. “Not for Potable Use” designation
   7. Extrusion production record code
   8. Trademark or trade name
   9. Cell Classification 12454 and/or PVC material code 1120 may also be included.

G. Pipe shall be homogeneous throughout and be free of visible cracks, holes, foreign material, blisters, or other deleterious faults.

2.3 FUSIBLE POLYVINYLCHLORIDE PRESSURE PIPE FOR WASTEWATER

A. Fusible polyvinylchloride plastic material for pipe shall conform to AWWA C900 or C905, ASTM D1784, and cell classification 12454. Pipe shall be in accordance with ASTM D2241 for IPS standard dimensions as indicated in these specifications. Compound formulation shall be in accordance with PPI TR-2/2006.

B. Pipe shall be manufactured with 100% virgin resin.

C. Fusible polyvinylchloride pipe shall be extruded with plain ends. The ends shall be square to the pipe and free of any bevel or chamfer. There shall be no bell or gasket of any kind incorporated into the pipe.

D. Fusible polyvinylchloride pipe shall be manufactured in a standard 20 foot, 30 foot or 40 foot nominal lengths.

E. Fusible polyvinylchloride pipe shall be green in color.

F. Pipe shall be marked per AWWA C900 or AWWA C905, and shall include as a minimum:
   1. Nominal size
   2. PVC
   3. Dimension Ratio, Standard Dimension Ratio or Schedule
   4. AWWA pressure class or rating
   5. AWWA Standard designation number
   6. Extrusion production record code
   7. Trademark or trade name
   8. Cell Classification 12454 and/or PVC material code 1120 may also be included.

G. Pipe shall be homogeneous throughout and be free of visible cracks, holes, foreign material, blisters, or other deleterious faults.

2.4 FUSIBLE POLYVINYLCHLORIDE NON-PRESSURE PIPE FOR WASTEWATER

A. Fusible polyvinylchloride plastic material for pipe shall conform to AWWA C900 or C905, ASTM D1784, and cell classification 12454. Pipe shall be in accordance with ASTM D2241 for IPS standard dimensions as indicated in these specifications.

B. Pipe shall be manufactured with 100% virgin resin.

C. Fusible polyvinylchloride pipe shall be extruded with plain ends. The ends shall be square to the pipe and free of any bevel or chamfer. There shall be no bell or gasket of any kind incorporated into the pipe.

D. Fusible polyvinylchloride pipe shall be manufactured in a standard 20 foot, 30 foot or 40 foot nominal lengths.

E. Fusible polyvinylchloride pipe shall be green in color.

F. Pipe shall be marked per AWWA C900 or AWWA C905, and shall include as a minimum:
   1. Nominal size
   2. PVC
   3. Dimension Ratio, Standard Dimension Ratio or Schedule
   4. AWWA pressure class or rating
   5. AWWA Standard designation number
   6. Extrusion production record code
   7. Trademark or trade name
   8. Cell Classification 12454 and/or PVC material code 1120 may also be included.

G. Pipe shall be homogeneous throughout and be free of visible cracks, holes, foreign material, blisters, or other deleterious faults.

2.5 FUSION JOINTS

A. Unless otherwise specified, fusible polyvinylchloride pipe lengths shall be assembled in the field with butt fused joints. The Contractor shall follow the pipe supplier's written instructions for this procedure. Joint strength shall be equal to the pipe as demonstrated by testing requirements. All fusion joints shall be completed as described in this specification.

2.6 CONNECTIONS AND FITTINGS FOR PRESSURE APPLICATIONS

A. Connections shall be defined in conjunction with the linking of project piping, as well as the tie-ins to other piping systems.

B. DUCTILE IRON MECHANICAL FITTINGS – Acceptable fittings for use with fusible polyvinylchloride pipe shall include standard ductile iron fittings conforming to AWWA/ANSI C110/A21.10 and AWWA/ANSI C111/A21.11.
   1. Restrained connections to fusible polyvinylchloride pipe may be made using a restrained retainer gland product for DIPS or IPS sizing, as well as for MJ or flanged fittings. Example manufacturers include:
      a. EBAA Iron – Megalug Series 2000PV, 2000SV, 2100, or Series 2200
      b. Smith-Blair – Cam-Lok, 111/120 series
      c. or approved equal.
   2. Bends, tees and other ductile iron fittings shall be restrained with the use of thrust blocking as indicated on the drawings.
   3. Ductile iron fittings and retainer glands must be installed per the manufacturer's recommendations.

C. PVC GASKETED, PUSH-ON FITTINGS – Acceptable fittings for use with fusible polyvinylchloride pipe shall include standard PVC pressure fittings conforming to AWWA C900 and AWWA C905.
   1. Acceptable fittings for use joining fusible polyvinylchloride pipe other sections of fusible polyvinylchloride pipe or other sections of PVC pipe shall include gasketed PVC, push-on type couplings and fittings, including bends, tees, and couplings as shown in the drawings.
   2. Bends, tees and other PVC fittings shall be restrained with the use of thrust blocking as indicated on the drawings.
   3. PVC gasketed, push-on fittings and mechanical restraints, if used, must be installed per the manufacturer's recommendations.

D. SLEEVE TYPE COUPLINGS – Sleeve type mechanical couplings shall be manufactured for use with PVC pipe, and may be restrained or unrestrained as indicated on the drawings and in these specifications.
   1. Acceptable sleeve-type mechanical pipe couplings shall include for unrestrained coupling:
   2. Smith-Blair Omni-Coupling
   3. Dresser Style 253 or Long Style 253
   4. Hymax Long Body, pipes over 12-inch diameter
   5. Romac Industries, Inc. - Macro HP, two bolt extended range coupling, pipes up to inch diameter
   6. or approved equal.
   7. Acceptable sleeve type mechanical pipe couplings shall include for restrained coupling EBAA Iron Series 3800 or approved equal.

E. EXPANSION AND FLEXIBLE COUPLINGS
   1. Expansion type mechanical couplings shall be manufactured for use with PVC pipe, and may be restrained or unrestrained as indicated on the drawings and in these specifications.
   2. Acceptable expansion type mechanical pipe couplings shall include EBAA Iron EX-TEND 200, Smith-Blair Type-611 or Type-612, or approved equal.
   3. Acceptable flexible couplings shall include EBAA Iron FLEX-TEND or approved equal.

F. CONNECTION HARDWARE
   1. Bolts and nuts for buried service shall be made of noncorrosive, high strength, low alloy steel having the characteristics specified in ANSI/AWWA C111/A21.11, regardless of any other protective coating.

2.7 CONNECTIONS FOR GRAVITY SANITARY SEWER APPLICATIONS

A. The following connections are to be used in conjunction with tie-ins to other gravity sewer piping and structures, and shall be as indicated on the drawings.

B. PVC GASKETED, PUSH-ON COUPLINGS
   1. Acceptable couplings for joining fusible polyvinylchloride pipe to other sections of fusible polyvinylchloride pipe or other sections of PVC pipe shall include gasketed PVC, push-on type couplings as shown in the drawings.
   2. PVC gasketed, push-on fittings and/or retainer glands must be installed per the manufacturer's recommendations.

C. SLEEVE TYPE COUPLINGS:
   1. Sleeve type mechanical couplings shall be manufactured for use with PVC pipe, and may be restrained or unrestrained as indicated on the drawings and in these specifications.
   2. Acceptable sleeve type mechanical pipe couplings shall include for unrestrained coupling Smith-Blair Omni-Coupling, Dresser Style 253 or Long Style 253, Hymax Long Body - pipes over 12-inch diameter, Romac industries, Inc., Macro HP – two bolt extended range couplings, pipes up to 12-inch diameter; or approved equal.
   3. Acceptable sleeve type mechanical pipe couplings shall include for restrained coupling, EBAA Iron Series 3800 or approved equal.

D. EXPANSION AND FLEXIBLE COUPLINGS
1. Expansion type mechanical couplings shall be manufactured for use with PVC pipe, and may be restrained or unrestrained as indicated on the drawings and in these specifications.
2. Acceptable expansion type mechanical pipe couplings shall include EBAA Iron EX-TEND 200, Smith-Blair Type-611 or Type-612, or approved equal.
3. Acceptable flexible couplings shall include EBAA Iron FLEX-TEND or approved equal.

E. CONNECTION HARDWARE
1. Bolts and nuts for buried service shall be made of non-corrosive high strength, low alloy steel having the characteristics specified in ANSI/AWWA C111/A21, regardless of any other protective coating.

F. CONNECTION TO SANITARY SEWER MANHOLES AND STRUCTURES
1. Fusible polyvinylchloride pipe shall be connected to manholes and other structures to provide a leak free, properly graded flow into or out of the manhole or structure.
2. Connections to existing manholes and structures shall be as specified and shown on the drawings.
    a. For a cored or drilled opening provide a flexible, watertight connection that meets and/or exceeds ASTM C923.
    b. For a knock out opening, provide a watertight connection (waterstop or other method) meeting the material requirements of ASTM C923 that is securely attached to the pipe with stainless steel bands or other means.
    c. Grout opening in manhole wall with non-shrink grout. Pour concrete collar around pipe and outside manhole opening. Provide flexible pipe joint or flexible connector within 2 feet of collar.
3. Connections to a new manhole or structure shall be as specified and shown on the drawings.
    a. A flexible, watertight gasket per ASTM C 923 shall be cast integrally with riser section(s) for all precast manhole and structures.
    b. Drop connections shall be required where shown on drawings.
    c. Grout internal joint space with non-shrink grout.

2.8 DRILLING SYSTEM EQUIPMENT

A. GENERAL
1. The directional drilling equipment shall consist of a directional drilling rig of sufficient capacity to perform the bore(s) and pullback of the pipe(s), a drilling fluid mixing and delivery system of sufficient capacity to successfully complete the crossing, a guidance system to accurately guide boring operations, and trained and competent personnel to operate the system. All equipment shall be in good, safe operating condition with sufficient supplies, materials and spare parts on hand to maintain the system in good working order for the duration of this project. All required equipment shall be included per the emergency and contingency plan as submitted per these specifications.

B. DRILLING RIG
1. The directional drilling machine shall consist of a hydraulically powered system to rotate, push and pull drill pipe while delivering a pressurized fluid mixture to a steerable drill head. The machine shall be anchored to withstand the pulling, pushing and rotating forces required to complete the project.
2. The drilling rig hydraulic system shall be self-contained with sufficient pressure and volume to power drilling operations. Hydraulic system shall be free of leaks.
3. The drilling rig shall have a system to monitor and record maximum pull back hydraulic pressure during pull back operations.

C. DRILL HEAD
1. The horizontal directional drilling equipment shall produce a stable fluid lined tunnel with the use of a steerable drill head.
2. The system must be able to control the depth and direction of the pipe.

3. Drill head shall contain all necessary cutters and fluid jets for the operation, and shall be of the appropriate design for the medium being drilled.

D. DRILLING FLUID SYSTEM
   1. DRILLING FLUID (MUD)
      a. Drilling fluid shall be composed of clean water and the appropriate additive(s) for the fluid to be used. Water shall be from a clean source and shall meet the mixing requirements of the manufacturer.
      b. The water and additives shall be mixed thoroughly to assure the absence of any clumps or clods. No hazardous additives may be used.
      c. Drilling fluid shall be maintained at a viscosity sufficient to suspend cuttings and maintain the integrity of bore wall(s).
      d. Drilling fluid shall be disposed of offsite in accordance with local, state and federal requirements and/or permit conditions.
      e. No additional chemicals or polymer surfactants shall be allowed to be added to the drilling fluid as submitted for this project without written consent of the City and/or Engineer.
   2. MIXING SYSTEM
      a. A self-contained, closed, drilling fluid mixing system shall be of sufficient size to mix and deliver drilling fluid for the project.
      b. The mixing system shall be able to ensure thorough mixing of the drilling fluid. The drilling fluid reservoir tank shall be sized for adequate storage of the fluid.
      c. The mixing system shall continually agitate the drilling fluid during drilling operations.
   3. DRILLING FLUID DELIVERY AND RECOVERY SYSTEM
      a. The drilling fluid pumping system shall have a minimum capacity to supply drilling fluid in accordance with the drilling equipment pull back rating at a constant required pressure.
      b. The delivery system shall have filters or other appropriate in-line equipment to prevent solids from being pumped into the drill pipe.
      c. Used drilling fluid and drilling fluid spilled during drilling operations shall be contained and properly disposed of. The use of spill containment measures shall be maintained around drill rigs, drilling fluid mixing system, entry and exit pits and drilling fluid recycling system (if used) to prevent spills into the surrounding environment. Pumps, vacuum truck(s), and/or storage of sufficient size shall be in place to contain excess drilling fluid.
      d. A closed loop drilling fluid system and a drilling fluid cleaning system should be used to whatever extent practical, depending upon project size and conditions. Under no circumstances shall drilling fluid that has escaped containment be reused in the drilling system.

E. PIPE PULL HEADS
   1. Pipe pulls heads shall be utilized that employ a positive through bolt design assuring a smooth wall against the pipe cross section at all times.
   2. Pipe pull heads shall be specifically designed for use with fusible polyvinylchloride pipe, and shall be as recommended by the pipe supplier.

F. DRILLING CONTROL SYSTEM
   1. Calibration of the electronic detection and control system shall be verified prior to the start of the bore.
   2. The drilling head shall be remotely steerable by means of an electronic or magnetic detection system. The drilling head location shall be monitored in three dimensions:
      a. Offset from the baseline
      b. Distance along the baseline
      c. Depth of cover
   3. Point of rotation of the head shall also be monitored.
   4. For gravity application and on grade drilling, sonde/beacon or approved equipment applicable for grade increments of 1/10th of one percent shall be used.

PART 3 EXECUTION

3.1 DELIVERY AND OFF LOADING

A. All pipes shall be bundled or packaged in such a manner as to provide adequate protection of the ends during transportation to the site. Any pipe damaged in shipment shall be replaced as directed by the City or Engineer.

B. Each pipe shipment should be inspected prior to unloading to see if the load has shifted or otherwise been damaged. Notify City or Engineer immediately if more than immaterial damage is found.

C. Each pipe shipment should be checked for quantity and proper pipe size, color and type.

D. Pipe should be loaded, off loaded, and otherwise handled in accordance with AWWA M23.

E. A forklift with chisel forks shall be used to off load the pipe. The fork chisel should be checked to be sure it is not thicker than the gap between the units of pipe strapped together for shipping and handling purposes. Extend forks to remove each top unit from the truck. When unloading 20 foot lengths, remove back units first. Do not run forks too far under the units, as fork ends striking adjacent units may cause damage. Insure that the forks are fully engaged. The 30 foot and 40 foot lengths are shipped in single length units. Because these are longer, the packages will flex or bend more than the 20 foot length units. If left bundled in units, unloading can be done with a single forklift so long as it is of sufficient capacity to handle the load. If sag exceeds recommendation (see the table below as to allowable sag), then each piece of pipe should be unloaded individually. The forks should be placed as far apart as possible to provide support to the unit. When unloading individual pieces of pipe, the pipe should be supported at approximately the 1/3 point measured from each end of the pipe.

Sag in Pipe Lengths during Unloading and Moving

	Segment	**Height (SAG)**
Nom. Pipe Size (DIPS)	30 foot Length (inches)	40 foot Length (inches)
4	13	23 1/2
6	9	16 1/2
8	7	12 1/2
10	5 1/2	10
12	4 1/2	8 1/2
14	4	7 1/2
16	3 1/2	6 1/2
18	3	5 1/2
20	2 1/2	5
24	2 1/2	4
30	2	3 1/2
36	1 1/2	3
42	1	2 1/2
48	1	2

	Segment	**Height (SAG)**
Nom. Pipe Size (IPS)	30 foot Length (inches)	40 foot Length (inches)
3	18	32 1/2
4	14	25 1/2
6	9 1/2	17
8	7 1/2	13

10	6	10 1/2
12	5	9
14	4 1/2	8
16	4	7
18	3 1/2	6
20	3	5 1/2
24	2 1/2	4 1/2
30	2	3 1/2
36	1 1/2	3
42	1 1/2	2 1/2
48	1	2

F. Sag is the measurement of the pipe ends relative to the pipe center. With a pipe raised on the forklift, a string line can be pulled from the bottom of one end of the pipe to the bottom of the other end of the pipe. The distance in the center from the string to the bottom of the pipe is the sag.

G. If a forklift is not available, a spreader bar with fabric straps capable of handling the load should be used. Recommended lift points when using fabric slings are at the point approximately 1/3 of the length measured from each end of the unit.

H. Off-loading devices such as chains, wire rope, chokers, or other pipe handling implements that may scratch, nick, cut, or gouge the pipe are strictly prohibited.

I. During removal and handling, be sure that the pipe does not strike anything. Significant impact could cause damage, particularly during cold weather.

J. If appropriate unloading equipment is not available, pipe may be unloaded by removing individual pieces. Care should be taken to insure that pipe is not dropped or damaged.

K. Pipe should be carefully lowered, not dropped, from trucks.

L. In preparation for pipe installation, placement of pipe should be as close to the fusion area as practical.

3.2 HANDLING AND STORAGE

A. Any length of pipe showing a crack or which has received a blow that may have caused an incident fracture, even though no such fracture can be seen, shall be marked as rejected and removed at once from the work. Damaged areas, or possible areas of damage may be removed by cutting out and removing the suspected incident fracture area. Limits of the acceptable length of pipe shall be determined by the City or Engineer.

B. Any scratch or gouge greater than 10% of the wall thickness will be considered significant and can be rejected unless determined acceptable by the City or Engineer.

C. Pipe lengths should be stored and placed on level ground. Pipe should be stored at the job site in the unit packaging provided by the manufacturer. Caution should be exercised to avoid compression, damage, or deformation to the ends of the pipe. The interior of the pipe, as well as all end surfaces, should be kept free from dirt and foreign matter.

D. Pipe shall be handled and supported with the use of woven fiber pipe slings or approved equal. Care shall be exercised when handling the pipe to not cut, gouge, scratch or otherwise abrade the piping in any way. Use of hooks, chains, wire rope or any other handling device which creates the opportunity to damage the surface of the pipe is strictly prohibited.

E. After delivery to the project site, fusible polyvinylchloride pipe shall be stored at ambient temperature and protected from ultraviolet light degradation. If pipe is to be stored for periods of 6 months or longer, the pipe must be shaded or otherwise shielded from direct sunlight. Covering of the pipe which allows for temperature buildup is strictly prohibited. Pipe should be covered with an opaque material while permitting adequate air circulation above and around the pipe as required to prevent excess heat accumulation.

F. Racks or dunnage to prevent damage to the bottom of the pipe during storage should support the pipe lengths. Supports should be spaced to prevent pipe bending and deformation. The pipe shall be stored in stacks no higher than that given in the following table:

Pipe Diameter (inches)	Max. No. of Rows Stacked
8 or less	5
12 to 21	4
24 to 30	3
33 to 48	2

3.3 FUSION PROCESS

A. GENERAL
1. Fusible polyvinylchloride pipe will be handled in a safe and non-destructive manner before, during, and after the fusion process and in accordance with this specification and pipe supplier's recommendations.
2. Fusible polyvinylchloride pipe will be fused by qualified fusion technicians, as documented by the pipe supplier. Training records for qualified fusion technicians shall be available to City or Engineer upon request.
3. Each joint fusion shall be recorded and logged by an electronic monitoring device (data logger) affixed to the fusion machine. Joint data shall be submitted as part of the As-Recorded information, in accordance with this specification.
4. The fusible polyvinylchloride pipe will be installed in a manner so as not to exceed the recommended bending radius.
5. Where fusible polyvinylchloride pipe is installed by pulling in tension, the recommended Safe Pulling Force, according to the pipe supplier, will not be exceeded.
6. Only appropriately sized, and outfitted fusion machines that have been approved by the pipe supplier shall be used for the fusion process. Fusion machines must incorporate the following properties, including the following elements:
    a. HEAT PLATE – Heat plates shall be in good condition with no deep gouges or scratches within the pipe circle being fused. Plates shall be clean and free of any contamination. Heater controls shall properly function, and cord and plug shall be in good condition. The appropriately sized heat plate shall be capable of maintaining a uniform and consistent heat profile and temperature for the size of pipe being fused, per the pipe supplier's recommendations.
    b. CARRIAGE – Carriage shall travel smoothly with no binding at less than 50 psi. Jaws shall be in good condition with proper inserts for the pipe size being fused. Insert pins shall be installed with no interference to carriage travel.
    c. GENERAL MACHINE – Overview of machine body shall yield no obvious defects, missing parts, or potential safety issues during fusion.
    d. DATALOGGER – The current version of the pipe supplier's recommended and compatible software shall be used. Protective case shall be utilized for the hand held wireless portion of the unit. Datalogger operations and maintenance manual shall be with the unit at all times. If fusing for extended periods of time, an independent 110V power source shall be available to extend battery life.
7. Other equipment specifically required for the fusion process shall include the following:
    a. Pipe rollers shall be used for support of pipe to either side of the machine.
    b. A weather protection canopy that allows full machine motion of the heat plate, fusion assembly and carriage shall be provided for fusion in inclement and/or windy weather.
    c. Fusion machine operations and maintenance manual shall be kept with the fusion machine at all times.

d. Facing blades specifically designed for cutting fusible polyvinylchloride pipe.

B. JOINT RECORDING
1. Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) connected to the fusion machine. The fusion data logging and joint report shall be generated by software developed specifically for the butt-fusion of thermoplastic pipe. The software shall register and/or record the parameters required by the manufacturer and these specifications. Data not logged by the data logger shall be logged manually and be included in the Fusion Technician's joint report.

3.4 DRILLING OPERATIONS

A. GENERAL
1. Grades, radii, and alignment of the proposed HDD installation are presented in the drawings for reference and intended bore path. The path of the bore may be modified based on field and equipment conditions. Entry and exit locations and control point elevations shall be maintained as shown on the drawings and specified, unless otherwise approved by the City or Engineer.
2. Bend radii shown on the drawings are minimum allowable radii and shall not be reduced. Control point elevations shown on the drawings are minimum allowable cover and/or separation and shall not be reduced.

B. LOCATION AND PROTECTION OF UNDERGROUND UTILITIES
1. Correct location of all underground utilities that may impact the HDD installation is the responsibility of the Contractor, regardless of any locations shown on the drawings or previous survey completed by the Engineer and/or City.
2. Utility location and notification services shall be contacted by the Contractor prior to the start of construction.
3. All existing lines and underground utilities shall be positively identified, including exposing those facilities that are located within an envelope of possible impact of HDD installation as determined for the project specific site conditions. It is the Contractor and HDD system operator's responsibility to determine this envelope of safe offset from existing utilities. This will include, but is not limited to, soil conditions and layering, utility proximity and material, HDD system and equipment, and foreign subsurface material.
4. The Contractor shall pot hole and locate all existing lines and underground utilities. The Contractor shall fill and compact all pot holes and return the surface to its original grade and surface material. All pot holes in pavement areas will be patched with High Early Concrete with the concrete to be 8 inches in depth, minimum. This work shall be incidental to the Horizontal Directional Drilling installation.

C. SITE LOCATION PREPARATION
1. Work site as indicated on drawings shall be graded or filled to provide a level working area. No alterations beyond what is required for operations are to be made.
2. Contractor shall confine all activities to designated work areas.

D. DRILLING LAYOUT AND TOLERANCES
1. The drill path shall be accurately surveyed with entry and exit areas placed in the appropriate locations within the areas indicated on drawings. If using a magnetic guidance system, drill path will be surveyed for any surface geomagnetic variations or anomalies.
2. Instrumentation shall be provided and maintained at all times that accurately locates the pilot hole, measures drill string axial and torsional loads and measures drilling fluid discharge rate and pressure.
3. Entry and exit areas shall be drilled so as not to exceed the bending limitations of the pipe as recommended by the manufacturer.

E. PILOT HOLE BORE
   1. Pilot hole shall be drilled along bore path. In the event that the pilot bore does deviate from the bore path, Contractor shall notify City and Engineer and the City and/or Engineer may require Contractor to pull back and redrill from the location along bore path before the deviation.
   2. The Contractor shall limit curvature in any direction to reduce force on the pipe during pullback. Ideally, the directional bore should lie in a vertical plane. The minimum radius of curvature shall be no less than that specified by the pipe manufacturer and as indicated on the drawings.
   3. In the event that a drilling fluid fracture, inadvertent returns or returns loss occurs during pilot hole drilling operations, Contractor shall cease drilling and contact the City and Engineer.
   4. City and/or Engineer shall approve the pilot hole bore alignment prior to back reaming phase and pipe installation.

F. REAMING
   1. After successfully completing the pilot hole, the bore hole shall be reamed to a diameter which meets all local jurisdictional standards and the following table as a minimum:

Nominal Pipe Diameter	**Bore Hole Diameter**
< 8 inches	Pipe Dia. + 4 inches
8 inches to 24 inches	Pipe Dia. x 1.5
> 24 inches	Pipe Dia. + 12 inches

   2. Multiple reaming passes shall be used at the discretion of the Contractor and shall conform to these specifications.
   3. A swivel shall be used between the reaming head and the fusible polyvinylchloride pipe to minimize torsion stress on the assembly.
   4. In the event of a drilling fluid fracture, returns loss or other loss of drilling fluid, the Contractor shall be responsible for restoring any damaged property to original condition and cleaning up the area in the vicinity of the damage or loss. Contractor shall immediately inform the City and Engineer.

3.5 PIPE PULL BACK AND INSERTION

A. Pipe shall be fused prior to insertion, if the site and conditions allow, into one continuous length.

B. Contractor shall handle the pipe in a manner that will not over stress the pipe prior to insertion. Vertical and horizontal curves shall be limited so that the pipe does not over deflect, buckle, or otherwise become damaged. Damaged portions of the pipe shall be removed and replaced.

C. The pipe entry area shall be graded as needed to provide support for the pipe and to allow free movement into the bore hole.
   1. The pipe shall be guided into the bore hole to avoid deformation of, or damage to, the pipe.
   2. The fusible polyvinylchloride pipe may be continuously or partially supported on rollers or other City and Engineer approved friction decreasing implement during joining and insertion, as long as the pipe is not over stressed or critically abraded prior to, or during installation.

D. Buoyancy modification shall be at the sole discretion of the Contractor, and shall not exceed the pipe supplier’s recommendations. Damage caused by buoyancy modifications shall be the responsibility of the Contractor.

E. Once pullback operations have commenced, the operation shall continue without interruption until the pipe is completely pulled through the bore hole. Except for drill rod removal, pull back operation shall not cease until the pipe has been completely installed to final position. During the pull-back operations, excessive pull back force shall be reported to City and Engineer.

F. The pipe shall be installed in a manner that does not cause upheaval, settlement, cracking, or movement and distortion of surface features. Any damages caused by the Contractor's operations shall be corrected by the Contractor at no cost to the City.

G. The Contractor shall provide vent holes along the boring route. The number of vents will depend upon the Contractor's construction operation. The Contractor shall fill and compact all vent holes and return the surface to its original grade and surface material. All vent holes in pavement areas will be patched with High Early Concrete with the concrete to be 8 inches in depth, minimum. This work shall be incidental to the Horizontal Directional Drilling installation.

H. See Section 33 0000 Tracer Wire for Tracer Wire Requirements.

3.6 PREPARATION PRIOR TO MAKING CONNECTIONS INTO EXISTING PIPING SYSTEMS

A. Approximate locations for existing piping systems are shown on the drawings or detailed in the specifications. Prior to making connections into existing piping systems, the Contractor shall:
   1. Field verify location, size, piping material and piping system of the existing pipe.
   2. Obtain all required existing piping manufacturer(s) approved fittings (i.e., saddles, sleeve type couplings, flanges, tees, etc., as shown).
   3. Have installed all temporary pumps and/or pipes in accordance with established connection plans.
   4. Have on hand necessary pipe stoppers, pancake flanges or other items which may be necessary should an existing valve or appurtenance fail to seal properly.

B. Unless otherwise approved by the Engineer, new piping systems shall be completely assembled and successfully tested prior to making connections into existing pipe systems.

3.7 PIPE SYSTEM CONNECTIONS

A. Pipe connections shall be installed per applicable standards and regulations, as well as per the connection manufacturer's recommendations and as indicated on the drawings. Pipe connections to structures shall be installed per applicable standards and regulations, as well as per the connection manufacturer's recommendations.

3.8 TAPPING FOR POTABLE AND NON-POTABLE WATER APPLICATIONS

A. Tapping shall be performed using standard tapping saddles designed for use on PVC piping in accordance with AWWA C605. Tapping shall be performed only with use of tap saddles or sleeves. NO DIRECT TAPPING WILL BE PERMITTED. Tapping shall be performed in accordance with the applicable sections for Saddle Tapping per Uni-Pub-8.

B. Tapping sizes shall be limited to the following maximum diameters for the nominal pipe diameters as indicated below:
   1. Nominal pipe diameters14 inch and under in size shall be limited to a maximum tapping diameter of 1 inch.
   2. Nominal pipe diameters 16 inch - 18 inch in size shall be limited to a maximum tapping diameter of 2 inch.
   3. Nominal pipe diameters 20 inch- 24 inch in size shall be limited to a maximum tapping diameter of 4 inch.
   4. Nominal pipe diameters 30 inch and larger in size shall be limited to a maximum tapping diameter of 6 inch.

C. All other connections requiring a larger diameter shall be made with a pipe connection as specified and indicated on the drawings.

D. Equipment used for tapping shall be made specifically for tapping PVC pipe:
   1. Tapping bits shall be slotted "shell" style cutters, specifically made for PVC pipe. 'Hole saws' made for cutting wood, steel, ductile iron, or other materials are strictly prohibited.
   2. Manually operated or power operated drilling machines may be used.

E. Taps may be performed while the pipeline is filled with water and under pressure ('wet' tap), or when the pipeline is not filled with water and not under pressure ('dry' tap).

3.9 INSTALLATION ACCEPTANCE AND CLEANUP

A. If the final grade of the finished installation is not satisfactory to the City, Engineer or other jurisdictional entity, the pipe shall be abandoned, full pressure grouted in place in accordance with the jurisdictional authority, and an alternate installation shall be made. The abandoned pipe shall be properly shown on as recorded drawings to be submitted following conclusion of the construction work.

B. The Engineer shall inspect the installed pipe ends for roundness and/or damage. Evidence of significant surface scratching shall be brought to the attention of the Engineer. Gouges or excessive surface damage of more than 10 percent of the wall thickness may be grounds to abandon the bore and have the Contractor redrill another line at no additional cost to the City.

C. Following the installation, the project site shall be returned to a condition equal to or better than the preconstruction condition of the site. All excavations will be backfilled and compacted to 95% maximum density. All pavement and hardscape shall be repaired per applicable jurisdictional standards, excess materials shall be removed from the site, and disturbed areas shall be relandscaped. All drilling fluid shall be properly disposed of.

3.10 TESTING

A. Testing shall comply with all local building codes, statutes, standards, local jurisdiction, and laws.

B. HYDROSTATIC TESTING AND LEAKAGE TESTING FOR PRESSURE PIPING

1. Hydrostatically test all pressure pipe in the presence of Engineer at a minimum pressure of 150 psi for a period of no less than 2 hours as required by AWWA Section C605-05, Section 7, with pipe section being tested to maintain pressure within 5 PSI of the specified hydrostatic test pressure. Determine allowable leakage per hour by the following equation:

$$Q = \frac{LD\sqrt{P}}{148{,}000}$$

Where:

Q= quantity of makeup water, in gallons per hour L= length of pipe section being tested, in feet

D= nominal diameter of the pipe, in inches

P= average test pressure during the hydrostatic test in pounds per square inch (gauge)

2. If hydrostatic testing and leakage testing are performed at separate times, follow procedures as outlined in AWWA C605.
3. In preparation for pressure testing the following parameters must be followed:
   a. All air must be vented from the pipeline prior to pressurization. This may be accomplished with the use of the air relief valves or corporation stop valves, vent piping in the testing hardware or end caps, or any other method which adequately allows air to escape the pipeline at all high points. Venting may also be accomplished by 'flushing' the pipeline in accordance with the parameters and procedures as described in AWWA C605.
   b. The pipeline must be fully restrained prior to pressurization. This includes complete installation of all mechanical restraints per the manufacturer's instructions and recommendations, whether permanent or temporary to the final installation. This also includes the installation and curing of any and all required thrust blocking. All appurtenances included in the pressure test, including valves, blow offs, and air relief valves shall be checked for proper installation and restraint prior to the beginning of the test.

c. Temporary pipeline alignments that are being tested, such as those that are partially installed in their permanent location shall be configured to minimize the amount of potentially trapped air in the pipeline.

4. Obtain Engineer's approval of testing equipment. Equipment, as a minimum must consist of a volumetrically calibrated water tank with cover, oil filled pressure gage graduated in feet of water or psi, flexible hoses, leak free valves and gas driven pump with capability to develop 200 psi of discharge pressure.
5. If leakage is greater than allowable, take immediate action to correct the problem(s) and retest the section until leakage limits are met.
6. If a new section of pipe is connected to an existing main or to a service connection, take appropriate action to prevent damage to the existing main. This may include temporary capping and blocking and leaving trench open for visual leakage inspection by Engineer.

C. LEAKAGE TESTING FOR NON-PRESSURE PIPING

1. Gravity sanitary sewers shall be tested for excessive leakage. This may include appropriate water or low pressure air testing. The leakage outward or inward (exfiltration or infiltration) shall not exceed 25 gallons per inch of pipe diameter per mile per day for any section of the system. An exfiltration or infiltration test shall be performed with a minimum positive head of 2 feet. The air test, if used, shall be conducted in accordance with one of the following Standards:
   a. ASTM F1417
   b. UNI-B-6
2. The testing method selected shall properly consider the existing groundwater elevations during the test. If the test section fails the test for excessive leakage, the Contractor shall repair or replace all defective materials and/or workmanship at no additional cost to the City.

D. DEFLECTION TESTING FOR NON-PRESSURE PIPING

1. After completion of the backfill, the Engineer or City may require that a deflection test be performed. If the test section fails the test for excessive deflection, the Contractor shall repair or replace all defective materials and/or workmanship at no additional cost to the City.
2. Deflection tests should be conducted using a go/no-go mandrel. The mandrel's outside dimension shall be sized to permit no more than 5 percent deflection. The percent deflection shall be established from the base inside diameter of the pipe. If the internal beading of the joints for the pipe is not required to be removed, the mandrel shall account for this clearance as well. The mandrel shall be approved by the City or Engineer prior to use. Lines that permit safe entry may allow other deflection test options, such as direct measurements with extension rulers.

E. DISINFECTION OF THE PIPELINE FOR POTABLE WATER PIPING

1. Refer to Section 33 1675 - Disinfection of Water System.

F. PARTIAL TESTING

1. Segments of the pipe may be tested separately in accordance with standard testing procedure, as approved by the City and Engineer.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Measure fusible polyvinylchloride pipe by the linear foot (LF) of pipe as required, installed and accepted by the Engineer. Extend measurement along the center line of the pipe.

B. The fusion of the pipe, the fusion of equipment, preparation, handling and storage shall all be incidental to the fusible polyvinylchloride pipe.

C. Measure fittings by the pound, using standard, manufacturer listed weights for the actual size and type of fitting installed and accepted by the Engineer. Flanged and mechanical joint fittings will include all bolts, gaskets and accessories.

D. Bedding, thrust blocking, lubricant, trimming and any other miscellaneous items or special requirements shall be incidental to the pipe or fittings and will not be measured.

4.2 PAYMENT

A. Payment for fusible polyvinylchloride pipe installed by trenching shall be paid as per the item of work listed on the bid form for trenching for the actual length approved by the Engineer. Payment includes all trenching excavation, fusing of pipe, fusion equipment, installation of pipe in trench, bedding materials, backfilling, compacting, water for compacting and the additional items listed herein.

B. Payment for fusible polyvinylchloride pipe installed by horizontal directional drill (HDD) shall be paid as per the item of work listed on the bid form for HDD and the actual length approved by the Engineer. Payment includes excavating of bore holes, fusing of the pipe, fusion equipment, boring equipment, installation of the pipe, water and lubricant, backfilling and compacting of bore pits, removal of drilling fluid, clean up and the additional items listed herein.

C. Payment for hydrostatic testing, disinfection, testing and flushing shall be incidental to the pipe installed.

D. If specific items of required work are not as listed on the bid form, consider payment incidental to other, related, items of work.

END OF SECTION

SECTION 33 1675

DISINFECTION OF WATER SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Disinfection of potable water distribution and/or transmission system.

B. Testing and reporting results.

1.2 REFERENCES

A. AWWA B300 - Hypochlorites; American Water Works Association; 2011 (ANSI/AWWA B300).

B. AWWA B301 - Liquid Chlorine; American Water Works Association; 2010 (ANSI/AWWA B301).

C. AWWA B302 - Ammonium Sulfate; American Water Works Association; 2010 (ANSI/AWWA B302).

D. AWWA B303 - Sodium Chlorite; American Water Works Association; 2010.

E. AWWA C651 - Disinfecting Water Mains; American Water Works Association; 2005 (ANSI/AWWA C651).

1.3 SUBMITTALS

A. Submit Material Safety and Data Sheets (MSDS) to Engineer for each type of disinfectant to be used prior to beginning the disinfection process.

B. Follow requirements in Section 01 0130 - Submittals.

1.4 QUALITY ASSURANCE

A. Submit bacteriologist's signature and authority associated with testing.

B. Test all samples at a laboratory approved by the North Dakota State Department of Health.

1.5 REGULATORY REQUIREMENTS

A. North Dakota State Department of Health, Municipal Facilities Division.

B. Where possible do not allow any water to be taken from system until after all bacterial results have been confirmed as passing standards.

C. Monitor free residual on an hourly basis for the first 6 hours. Document all test results.

D. Do not allow any water to be taken from system for human consumption until certain it is free of harmful bacteria.

1.6 DELIVERY, STORAGE AND HANDLING

A. Follow all instructions on the Material Safety and Data Sheet (MSDS) on the proper handling and storage of the disinfectant being used.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Do not dispose disinfection chemicals or water with concentrations of more than 2 mg/l of disinfectant into the environment. Dilute any concentrations greater than 2 mg/l prior to discharge.

B. Properly dispose of all chemical containers.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Hawkins Chemical or approved equal.

2.2 MATERIALS

A. Certify all disinfectant products as meeting applicable AWWA Standards.

B. Hypochlorite's, Liquid Chlorine and Chlorine gas, are approved for use in disinfection.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that water system has been cleaned, flushed, inspected, and pressure tested.

B. Verify that all services are turned off.

C. Perform scheduling and disinfecting activity with start-up, testing, adjusting and balancing, demonstration procedures, including coordination with related systems and services.

3.2 EXECUTION

A. The option to be used can be determined in the field with advance approval by the Engineer.

B. Option 1 – Tablet Method
   1. During construction, place the following number of calcium hypochlorite tablets in each 20-foot long section of pipe, both mainline and branch lines.

Pipe Diameter	No. of 5-G Tablets
4	1
6	1
8	2
10	3
12	4

   2. Attach the tablets to the inside top of pipe by a food grade adhesive. Attach an equal number of tablets to each section of pipe.
   3. When installation is complete, fill the main with water at a rate that maintains a velocity no greater than 1 foot/second.
   4. Maintain water in pipe for at least 24 hours. Operate all valves and hydrants during the 24-hour period.
   5. At the end of the 24-hour period, residual shall be greater than 2 mg/l of free chlorine.
   6. If free residuals are acceptable, flush the main and two (2) sets of bacteriological tests shall be taken for each 1200 LF maximum, of new watermain installed with tests taken at least 24 hours apart.
   7. If free residuals are less than the 2 mg/l, the engineer shall determine the appropriate action.

C. Option 2 - Continuous Feed Method
   1. Flush all components to remove particulate matter and air. Flushing should be done at a rate, which maintains a velocity of 2.5 feet/second and continues until water is clear as determined by Engineer.
   2. Connect chlorine feed equipment (gas or liquid) at a point not more than 10 feet downstream from beginning of new main.

3. Chlorine shall be fed by solution at a rate, which will provide a free chlorine residual within the main of not less than 25 mg/l. At the end of a 24 hour period, this residual shall not be less than 10 mg/l.
4. The following Table can be used as a guide to determine amounts of chlorine needed:

Approximate Amount of Chlorine Needed for 50 mg/l Chlorine Solution

Volume of Reservoir or Pipeline (Gallons)	Liquid laundry Bleach (5.25% Chlorine)	Calcium Hydrochlorite (70% Chlorine)
1,000	1 gallons	0.6 Pounds
5,000	5 gallons	3.0 Pounds
10,000	10 gallons	6.0 Pounds
25,000	25 gallons	15.0 Pounds
50,000	50 gallons	30.0 Pounds
75,000	75 gallons	45.0 Pounds
100,000	100 gallons	60.0 Pounds
500,000	500 gallons	300.0 Pounds

5. Flush main slowly while chlorine is being injected at the upstream end. Regular testing at the discharge point will determine when the entire main has been chlorinated.
6. Maintain chlorinated water in main for 24 hours during which time all valves shall be operated.
7. After the 24-hour period, take two random sample for each 1200 feet maximum, of main being tested.
8. If the free chlorine residual is greater than 10 mg/l at all points tested, flush the main. Take bacteriological tests for each 1200 LF maximum, of new watermain installed with tests taken at least 24 hours apart.
9. If residuals are less than 2 mg/l the Engineer will determine the appropriate course of action.

D. Option 3 - Slug Method
1. Process is identical to Option 2 except that the water is dosed with chlorine to a concentration of 100 mg/l for a period of three hours.
2. At the end of the 3-hour period, a free chlorine residual not less than 50 mg/l.
3. If the free residual is less than 50 mg/l at any random point tested, as determined by the Engineer, the Engineer will decide an appropriate course of action.
4. If all samples have more than 50 mg/l of free residual, flush the main. Take two (2) sets of bacteriological tests for each 1200 LF maximum, of new watermain installed with tests taken at least 24 hours apart.
5. If residuals are less than 2 mg/l the Engineer will determine the appropriate course of action.

3.3 TOLERANCES

A. A plate count of "zero" is required on the bacteriological test.

B. The feed or application rates stated herein are for general guidance only. Refer to AWWA C651 for exact limits.

3.4 FIELD QUALITY CONTROL

A. After final flushing each 1,200-foot segment and branches greater than 50 LF, and before the new water main is connected to the distribution system, two consecutive sets of acceptable samples, per 1,200 foot main or 50-foot branch shall be collected from the new main and taken at least 24 hours apart.

B. Exact number of free residual tests will vary with the size of system but in no case take fewer than two sets of tests with three (3) random samples, at least 24 hours apart.

C. Copies of all bacteriological tests shall be sent to the Field Engineer and the City of Dickinson Water Utility Maintenance Department.

3.5 WASTED WATER

A. If any water is wasted as a result of an unsatisfactory bacteriological test, the Contractor shall reimburse the City for the cost to set up a meter and for the volume of water wasted. The rate charged for wasted water shall be determined by the City of Dickinson. This will be paid directly to the City.

3.6 CLEANUP AND PROJECT CLOSEOUT

A. Clean up and properly dispose of all chemicals and containers.

B. Drain any standing water from flushing.

3.7 PROJECT RECORD DOCUMENTS

A. Disinfection report:
   1. Type and form of disinfectant used.
   2. Date and time of disinfectant injection start and time of completion.
   3. Test locations.
   4. Initial and 24-hour disinfectant residuals (quantity in treated water) in ppm for each outlet tested (two tests, 24 hours apart).
   5. Date and time of flushing start and completion.
   6. Disinfectant residual after flushing in ppm for each outlet tested.

B. Bacteriological report:
   1. Date issued, project name, and testing laboratory name, address, and telephone number.
   2. Time and date of water sample collection.
   3. Name of person collecting samples.
   4. Test locations.
   5. Initial and 24-hour disinfectant residuals in ppm for each outlet tested (two tests, 24 hours apart).
   6. Coliform bacteria test results for each outlet tested.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Payment for disinfection of a water system and/or components thereof will be incidental to other related items of work unless a specific proposal item is shown for disinfection.

END OF SECTION

SECTION 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. The Contractor shall secure the services of a professional bypass company from the approved manufacturers list below.
B. The Contractor shall design, install and operate any temporary bypass pumping systems necessary for the work.
C. The Contractor shall provide all labor, materials, equipment, fuel and incidentals required and install, field test and operate temporary bypass pumping systems.
D. The Contractor shall maintain temporary bypass pumping systems so that they are completely functional throughout the required period of service.
E. The Contractor shall provide repair services and/or replacement equipment 24 hours per day, 7 days per week and shall have response time within a 1/2 hour of an identified need.
F. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.
G. Following the required period of service, the Contractor shall remove temporary bypass pumping systems from the site.

1.02 APPROVED MANUFACTURERS

A. Northern Dewatering, Inc.
B. Rain for Rent
C. Engineered approved equivalent

1.03 SUBMITTALS

A. The Contractor shall develop a temporary bypass pumping plan. Each plan shall be submitted to the Engineer for approval no less than four weeks prior to scheduled start of bypass pumping operations. The plan shall include:
    1. Name of the bypass company including onsite contact and cell phone number
    2. Detailed description of the proposed temporary bypass pumping system
    3. Summary of research of the surrounding collection system and the estimated available time prior to critical surcharge elevations in the event of a bypass failure.
    4. Drawings and catalogue information required for the construction and installation of equipment
    5. Detailed site plans showing elevations and proposed pumping system layout including:
        a. Layout of pumps, valves and bypass piping.
        b. Elevation set points on the bypass system as well as critical surcharge elevations.
        c. Calculations of static lifts, pipe size selections, friction losses, flow velocities and pump selection and shall be stamped by a professional engineer in the State of North Dakota.
        d. Pump curves showing pump operation range and controls.

e. Contractor shall provide a list of personnel who will be operating and maintaining the temporary bypass pumping system.
f. Temporary pipe supports, anchors, cover material and other accessories as necessary to stabilize the piping systems.
g. A list of all equipment to be used, including operation conditions and maintenance requirements.

B. Detailed emergency response plan to be followed in the event of failure or spill. The plan at a minimum shall include:
1. A list of 24-hour emergency contacts for the duration of all the temporary bypasses. Contacts list shall include a minimum of four (4) names and cell phone numbers.
2. A detailed list of all pump, valves and piping parts, fittings and repair accessories that are within the vicinity and the location in which the items are stored.
3. List of area tanker trucks capable of hauling wastewater.
4. Disposal site for hauled wastewater.
5. Detailed description of proposed clean up procedures in the event of a spill.
6. List of employees on cleanup and repair crews along with their roles and responsibilities.
7. Local and state officials that will be contacted in the event of a spill.
8. Description of information that shall be recorded, and submitted to the Engineer, in the event of a spill. Information shall at a minimum include:
a. Date, time, location and weather
b. Impacts
c. Cause
d. Cleanup or corrective measures underway and to be taken
e. Measures taken to mitigate spill potential in future
f. Individuals or agencies notified

SECTION 2 – SYSTEM DESCRIPTION

2.01 GENERAL SYSTEM REQUIREMENTS

A. Sanitary sewer flow shall not be interrupted at any time.
B. The existing gravity sanitary sewer shall remain fully operational during the installation of the temporary bypass pumping system.
C. The pump system shall be fully redundant and piped into one common forcemain pipe.
D. Spills or surface discharge of any wastewater, including pump priming blow-by, shall not be permitted. The Contractor shall be responsible for all spills, resultant cleanup costs and fines.
E. The Contractor shall be responsible for damages caused by any wastewater backup including, but not limited to, the Contractor's operations, improper bypass system design and/or bypass system failures.
F. The Contractor shall be advised, sanitary sewer systems often convey large household, commercial, industrial, and construction items and/or debris. Any damage to bypass equipment as a result of the contents within the wastewater stream shall be the Contractor's responsibility.
G. Each bypass pumping system shall be equipped with a minimum of two (2) portable diesel powered pumps plumbed into one common forcemain pipe. In addition to the two (2)

pumps plumbed into the system, the Contractor shall have one (1) additional tire mounted backup pumps within the immediate vicinity that can be installed within a 1/2 hour of a detected need.

2.02 PROTECTION OF TEMPORARY SYSTEM

A. It is the contractor's responsibility to protect the temporary system from any damage that may result from vandalisms, traffic, or other act.
B. It is the Contractor's responsibility to insulate, shelter, or heat the system in the event of cold weather.
C. Contractor shall repair any damages caused to adjacent structure and facilities to a condition equal to or better than that prior to construction.
D. Contractors shall provide temporary fencing or other means of protections around any open manhole or structure.

2.03 EXISTING CONDITIONS

A. Contractor shall verify and confirm all existing utilities that are to remain in service and shall take measures to protect these utilities from damage.

SECTION 3 – EXECUTION

3.01 PREPARATION

A. The Contractor shall minimize the length of time the temporary conveyance system is utilized. The existing gravity sanitary sewer shall remain operation and online until all equipment and materials necessary for the rehabilitation of the utility are onsite.
B. Contractor shall take measures to ensure accessibility of adjacent buildings and traffic flow around the bypass system during construction.
C. Contractor shall take measures to protect adjacent buildings, structures, vehicles, and persons from debris and damage.
D. Contractor shall provide shoring and bracing for adjacent structures and utilities.
E. Contractor shall coordinate with the owners of utilities for shut off.

3.02 TEMPORARY PUMPS

A. Each bypass pump shall be sized to handle the peak flow rate.
B. The pumps shall be equipped with a noise mitigating canopy to reduce noise to 70 decibels or less at 25 feet.
C. The tire mounted backup pumps shall be capable of installation within a ½ hour of a need.
D. Each pump shall be equipped with its own simplex control panel with float switch liquid level controls. Floats shall be provided for a pre-high level alarm and a high level alarm.

3.03 TEMPORARY FLOATS AND CONTROLS

A. An auto dialer utilizing cellular technology shall be provided to alert both the Contractor and Owner of a high water condition.

B. Floats for operation and high level auto dialer alarm shall be set in the field as directed by the Engineer and Owner. The Contractor shall mount and wire any necessary temporary panels and ancillary devices.
C. The auto dialer system shall be tested on a weekly basis.

3.04 TEMPORARY PIPING

A. Contractor shall provide and install all necessary piping, valves, and ancillary items necessary to complete the temporary diversion pumping.
B. Each pump shall be connected to the temporary piping by a manifold system capable of connecting no less than three (3) pumps. The manifold shall be fitted with a check valve and gate valve at each pump connection to allow independent pump removal and/or maintenance without disruption to the temporary system.
C. Provide a check valve and gate valve on downstream end of temporary forcemain for isolation purposes.
D. Provide all materials, labor, and equipment for connection to the existing forcemain or manhole.
E. All piping, valves, and ancillary items shall be removed at the completion of the temporary diversion pumping period.

3.05 ELECTRICAL

A. Contractor shall provide temporary power to the temporary pumping equipment and controls as needed and shall remove at the completion of construction.

3.06 FUEL

A. The Contractor shall arrange for a fuel delivery to fill all fuel tanks at least once per day or more frequently as equipment requires. All pumps, generators and equipment shall be placed on a new tarp to protect against spills of petroleum products. Any spills on the tarp must be cleaned with absorbent materials and properly disposed of.

3.07 START-UP

A. Contractor shall schedule a meeting with Owner and Engineer to discuss coordination and the installed bypass system prior to placing online.
B. Contractor shall prepare a written diversion plan for submittal to the Owner and Engineer.
C. Contractor shall schedule a pre-diversion meeting to discuss specific aspects of the diversion pumping system.
D. Contractor shall successfully operate the bypass pumping system for a minimum of forth-eight (48) consecutive hours prior to taking the gravity sanitary sewer off line.
E. For informational purposes, the Contractor shall provide the Owner's Personnel with a minimum of four (4) hours of instruction on how to operate the temporary diversion pumping system.
F. Contractor shall have a 24-hour, on-call service number in case of pump failure or other complications.

3.08 SYSTEM MONITORING

A. Each bypass system shall be monitored on a daily basis. Daily monitoring reports shall be submitted to the Engineer weekly. The report shall include the date and time of the inspection, name of inspector, weather conditions, system observations including any issues and corrective actions taken.

3.09 SYSTEM DECOMMISSIONING

A. The contractor shall successfully operate the new gravity sanitary sewer for a minimum of forty-eight (48) hours prior to disassembling the bypass system.
B. At the completion of gravity sanitary sewer work, the Contractor shall disassemble and remove the temporary bypass system including all pumps, valves and piping up to the bypass connection.

END OF SECTION

SECTION 33 3310

PIPELINE CLEANING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. High pressure water jetting, rodding, bucketing, brushing and flushing of pipes and manholes.

1.2 PERFORMANCE REQUIREMENTS

A. Provide necessary qualified personnel and equipment to clean the specified pipes and manholes.

1.3 SUBMITTALS

A. Submit to Engineer prior to or at the pre-construction meeting a schedule of work.

B. Submit to Engineer prior to or at the pre-construction meeting a written plan for traffic control, including detour routes and signage (if applicable).

1.4 QUALIFICATIONS

A. Perform cleaning with personnel trained in use of all equipment to adequately clean the sewer of all debris.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Dispose of all waste materials in an approved location.

PART 2 NOT USED

PART 3 EXECUTION

3.1 PUBLIC NOTIFICATION

A. Publish an article in local newspaper not more than 1 week prior to commencement stating the following information:
   1. Dates of project implementation.
   2. Reason for cleaning.
   3. If resident encounters odor problems, pour water down basement traps.
   4. Local phone number for Contractor.

3.2 PREPARATION

A. Ensure traffic control devices including the necessary signage are on the project site.

3.3 PROCEDURE

A. Equipment:
   1. Equipment used for sewer cleaning shall remove all dirt, grease, rocks, roots and other materials.
   2. Equipment shall be selected by the Contractor to prevent damage to the pipe.
   3. Cleaning equipment capable of cleaning lengths up to 1000 feet shall be provided.
   4. Equipment must be able to clean the 1000-foot length with vehicular access to one structure only. (Does not apply to bucket machines).

B. Light Cleaning:
   1. Required where it has been determined through a visual inspection that only small deposits of debris exist within the sewer line.

2. Cleaning would require not more than three (3) slow passes through the line with high pressure, high volume jetting equipment.

C. Heavy Cleaning:
1. If line is not clean after three (3) passes through the line with high pressure water jetting equipment, then heavy equipment may be used to facilitate the removal of such deposits.
2. Bucket machines, scrapers, augers and jetting equipment may be utilized in this heavy-duty cleaning.
3. Where bucket machines and buckets are to be used, caution should be taken that proper sized flexible cable be used so that breakage will not occur. Contractor is responsible for all damage caused by bucketing lines.

D. Waste Material:
1. Pipe shall be completely clear of any debris, roots, sand, deposits, grease, etc.
2. Determine the extent and methods required to adequately clean the sewer.
3. All sludge, dirt, sand, rocks, grease, roots and other solid or semisolid material resulting from the cleaning operation shall be removed at the downstream structure of the section being cleaned.
4. Passing material past accessible structures, which can cause line stoppages, accumulations of sand in wet wells or damage to pumping equipment, shall not be permitted.
5. Use of a vacuum truck in conjunction with cleaning operations may be required.
6. All dirt, debris, roots and other material removed from the sewers shall be hauled away by the Contractor to a dumpsite approved by the City.
7. Follow all regulations of the Environmental Protection Agency and all other regulating agencies.
8. Cleaning shall be of the entire reach between structures.
9. If cleaning of an entire section cannot be successfully performed from one structure, the equipment shall be set up on the other structure and cleaning again attempted without additional compensation.
10. Removal and disposal of debris and clean-up related to this work shall also be incidental to this bid item.

3.4 SCHEDULING AND COORDINATION

A. Contractor shall schedule and coordinate all cleaning activities with City and Engineer.

3.5 CLEANING AND RESTORATION

A. Remove all debris from manhole and surrounding area at conclusion of job.

B. Return manhole lids to proper location.

3.6 PROJECT RECORD DOCUMENTS

A. Note all severely deteriorated or damaged manholes, connections and associated appurtenances discovered during cleaning operation and report these to the Engineer.

B. Maintain a diary recording these discoveries and any other information that may be helpful to the City in assessing system conditions.

C. Provide Engineer a typed diary or work log of all observations or discoveries identifying location of deteriorated or damaged manholes, connections and associated appurtenances.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Measure cleaning of pipes by the linear foot (LF) as accepted by the Engineer.

B. Extend measurement from center of manhole/cleanout to center of manhole/cleanout.

C. Manhole cleaning shall be incidental to the pipeline cleaning bid item.

4.2 PAYMENT

A. Payment for light cleaning shall be per linear foot (LF), paid when completed and diaries received.

B. Payment for heavy cleaning shall be paid as shown on the bid form.

C. If heavy cleaning is not on the bid form it will be considered incidental to the cleaning bid item.

D. If no bid item is provided for cleaning, payment will be incidental to other bid items.

END OF SECTION

SECTION 33 3311

PIPELINE TELEVISING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Requirements for televising and reporting underground pipelines.

1.2 PERFORMANCE REQUIREMENTS

A. Assure a complete examination of the internal condition of the pipeline utilizing a closed-circuit color camera.

B. Performance Requirements: All sanitary sewer mains installed or repaired under this project shall be televised by the Contractor. The Contractor shall be allowed to televise with the following requirement: A City of Dickinson representative and/or Engineer shall be on site to view the televising. Then Contractor shall assure that the lines are free of debris prior to televising, i.e. no dirt, stone, gravel, or other foreign materials, other than joint lubricants, shall be present. Distance measurements shall be provided with the televising so that deficient locations and all wye locations may be found adequately. DVD's shall be produced, during televising showing, clean pipe walls, water flow (if any), joints, wyes, and distance, in tenths, from centerline of starting manhole to centerline of ending manhole of each televising run. Any portion of the system found not to comply with these specifications shall be reconstructed in accordance with these specifications and re-televised at the Contractor's expense. The Contractor shall provide two copies of the televised tape to the Engineer along with two copies of an accurate log showing distances along the televised run to any distresses and all wye locations. The Contractor shall allow adequate time for televising of the sanitary sewer lines prior to any undertaking of subgrade preparation over said sewer lines. Contractor to coordinate with the Engineer and the City of Dickinson.

   All deficiencies outside of allowed tolerance, within the plans and specifications, shall be repaired by the Contractor and all repair costs shall be borne by the Contractor. Timeliness of repair, with respect to other work, shall be the responsibility of the Contractor. The Contractor shall ensure timeliness of televising and shall review subsequent tape to check for any deficiencies so they may be repaired in a timely manner with respect to construction operations. All repairs shall be agreed upon by the Engineer, City and Contractor. Any cost to repair, including any street reconstruction, waterline repair, etc. shall be borne by the Contractor.

1.3 SUBMITTALS

A. Submit a schedule of work to Engineer prior to or at the pre-construction meeting.

B. Submit to Engineer, prior to or at the pre-construction meeting, a written plan for traffic control including detour routes and signage (if applicable).

C. Submit to Engineer 2 copies of all DVD's and logs at project completion.

1.4 QUALITY ASSURANCE

A. DVD's label will indicate location, start and stop points and date.

B. Any service connection, joint connection or defect discovered during videotaping shall be viewed from all possible angles and directions to show any damage or repair required.

C. Videos obscured by steam, water or other obstructions that do not allow Engineer to observe the condition of the pipe shall be rejected and redone at Contractor's expense.

1.5 QUALIFICATIONS

A. Televising of pipeline shall be performed by trained personnel to assure the best quality televising possible.

B. A minimum of 2-years active experience televising pipelines shall be required of any Contractor bidding on this project.

C. Pre-qualification to all perspective bidders shall include a listing of similar projects including type of project, date and contact.

PART 2 PRODUCTS

2.1 MATERIALS

A. The Contractor shall utilize a software package system that is PACP compliant Version 4.2 in a digital format compatible with the City of Dickinson's equipment and technology.

PART 3 EXECUTION

3.1 PREPARATION

A. Notify Engineer in writing of any changes made in the traffic control plan.

B. Notify Engineer in writing of any changes in the schedule of work plan.

3.2 PROCEDURE

A. Equipment
   1. Contractor shall furnish all labor, equipment and materials to perform the closed-circuit television inspection of the pipelines.
   2. Operation of the equipment is to be controlled from above ground with a skilled technician at the control panel in the television studio, controlling the movement of the camera through the pipeline in either direction.
   3. Televising equipment shall include the camera, television monitor, cables, power source, lights and other equipment necessary to the televising operation.
   4. The importance of accurate distance measurements is emphasized. Accuracy of the measurement meter shall be checked daily by use of a walking meter, roll-a-tape, or other suitable device. Footage measurements shall begin at the centerline of the upstream manhole and end at the centerline of the downstream manhole. Footage shall be shown on the video data view and recorded at all times.

B. Roots, Mineral Deposits, and Protruding Taps
   1. Where obstructions within the pipeline prevent the passage of televising equipment, Contractor shall reset his equipment to pass through the pipeline section from the other end and thereby complete the inspection.
   2. Contractor will be required to remove any obstruction to complete televising of pipeline as directed by Engineer.

C. Camera
   1. Camera and lighting quality shall be suitable to provide a clear, continuously in focus picture of the entire inside periphery of the pipeline for all conditions encountered during the work.
   2. Camera shall be able to operate efficiently in 100% humidity conditions.
   3. The minimum resolution of the video system shall be 650 lines of resolution color video picture.
   4. The color camera shall be one specifically designed and constructed for the purpose of televising pipelines.
   5. Color camera shall have a high-resolution lens, rated at a minimum of 1.4 LUX, capable of spanning 360-degrees circumference and 270 degrees on horizontal axis to televise pipelines 6- inch diameter or larger.

6. Focal distance shall be adjustable through a range of 1 inch to infinity.
7. Contractor shall have available a self-propelled crawler transporter on which to mount the color camera to be able to inspect the pipeline as required.
8. The video camera shall not be pulled at a speed greater than 30 feet per minute.
9. Whenever non-remote powered and controlled winches are used to pull the television camera through the line, telephones, radios, or other suitable means of communication shall be setup between the two manholes of the section being inspected to insure good communication between the members of the crew.

D. DVD's
1. The entire pipeline inspection shall be recorded on a narrated videotape that includes all findings.
2. DVD's shall be high quality color and recorded in a digital format compatible with the City of Dickinson's equipment and technology.
3. Any out of focus video recordings, or portions thereof, shall be cause for rejection of the video recording and will necessitate re-televising at Contractor's expense.
4. Televising shall be completed in a systematic fashion as approved by Engineer.
5. Provide on screen digital display, indicate distance travel down the pipe from beginning of run. Reset counter to zero at beginning.
6. Visual (On screen in corner):
   a. Report number.
   b. Date of television inspection.
   c. Sewer section and number.
   d. Current distance along reach (tape counter footage).
   e. Printed labels on DVD container and DVD with location information, date, format information, and other descriptive information.
7. Audio:
   a. Date and time of television inspection, operator name, name of overlying or adjacent street, and manhole numbers.
   b. Verbal confirmation of sewer section and television direction in relation to direction of flow.
   c. Verbal description of pipe size, type and pipe joint length.
8. Verbal description and location of each service connection and pipe defect.
   a. Type of weather during inspection.

E. During the inspection and as required by the Engineer, actual video information will be transmitted from the television monitor to a video image printer to produce color still image photographs of faults.

F. Video Logs
1. A report will be generated by an onboard computer and printer, and will provide commentary on photographs and fault areas if required by the Engineer.
2. The video log reports shall be typed or computer generated.
3. Include the following information in the report:
   a. Nearest street and cross street at starting point.
   b. Starting manhole number, depth, and type.
   c. Ending manhole number, depth and type.
   d. Size and type of line being televised.
   e. Footage of each defect or service found in the line.
   f. Total length of the line measured from manhole to manhole.
   g. Physical location of line.
   h. Surface type above the line.
   i. Location on the video tape.
   j. Date, time, city, street, basin, sewer section, reference manhole number, name of operator, inspector, and weather conditions.
   k. Pipe diameter, pipe material, section length, depth of pipe, length between joints, and corresponding videotape identification.
   l. Location of each point of leakage.

m. Location of each service connection.
n. Location of any damaged sections, nature of damage, and location with respect to pipe axis.
o. Deflection in alignment of grade and pipe.

4. Television Inspection Logs: The logs shall be typed or computer printed and acceptable to the City of Dickinson. Printed location records shall be kept by the Contractor and will clearly show the location, in relation to adjacent manholes, of each infiltration point discovered by the television camera. An estimate of the flow rate of observed infiltration points shall be made and recorded. In addition, other points of significance such as locations of building sewer laterals, joints, unusual conditions, roots, storm sewer connections, collapsed sections, presence of scale and corrosion, and other discernible features will be recorded and two (2) copies of such records shall be supplied to the City.
5. DVD Recordings: The purpose of DVD recording shall be to supply a visual and audio record of the condition of the lines that may be replayed both daily and at future presentations. DVD recording playback shall be at the same speed that it was recorded. Upon completion of the work, all DVD's recorded during the television inspection shall become the property of the City of Dickinson. Cost of DVD's shall be included in the unit price bid. A complete recording shall be made of each line televised. A voice recording on DVD's shall make brief and informative comments on the sewer conditions.
6. The Contractor shall provide 2 professionally bound to the City of Dickinson. A summary shall be included and will include the television inspection log specified in Section 1 of these Specifications. A one page summary sheet shall also be provided which stated the sewer section, length, size, date completed, and totals.
7. If the Contractor notices during the televising of a sewer main that a segment will need to be repaired, the Contractor shall notify the Engineer and City immediately.

3.3 SCHEDULING AND COORDINATION

A. Schedule and coordinate all televising activities with City and Engineer.

3.4 CLEANING AND RESTORATION

A. Return manhole lids to proper location.

3.5 PROJECT RECORD DOCUMENTS

A. Provide Engineer 2 copies of videos and video logs.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Measure televising by the linear foot (LF) as accepted by the Engineer.

B. Measure from center of manhole to center of manhole.

C. If only one manhole, measurement shall be taken from the footage on the video.

D. Measure removal of obstruction as each (EA) as approved by the Engineer.

4.2 PAYMENT

A. Payment for all items of work listed on the bid form will be for the actual number of units approved by the Engineer and includes all materials, labor and equipment.

B. Payment for televising shall be per linear foot paid when complete. Allow one month after Engineer receives the videos for viewing and acceptance of the work. The final 10% of the televising bid item will be paid after the acceptance of the work.

C. Payment for removal of obstruction shall be each paid when removed and approved by the Engineer.

D. If no specific item is shown, televising and removal of obstruction will be considered incidental to other bid items.

END OF SECTION

SECTION 33 3722

SANITARY SEWAGE SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Sanitary sewer main and service line piping, fittings, accessories and bedding.

1.2 REFERENCES

A. ASTM D1784 – Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.

B. ASTM D3034 – Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

C. ASTM D2672 – Bell-End Poly (Vinyl Chloride) (PVC) Pipe.

D. ASTM D2321 – Recommended practice for underground installation of flexible thermoplastic sewer pipe.

E. ASTM D2729 – Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

F. ASTM F477 – O-ring rubber gaskets for PVC sewer pipe joints.

G. Handbook of PVC Pipe – Design and Construction.

H. North Dakota State Plumbing Code.

I. North Dakota State Department of Health Rules and Regulations (10 State Standards).

1.3 SYSTEM DESCRIPTION

A. Sanitary Sewage System consists of pipe and other components that are manufactured, assembled and constructed to efficiently collect and convey sanitary sewage from a service connection such as a residence or business to a treatment facility.

1.4 SUBMITTALS

A. Prior to shipping any materials to the site submit manufacturer's specifications and literature on pipe, fittings, accessories and bedding to Engineer for approval.

B. If project involves the handling or bypassing of sanitary sewage, submit a written plan to Engineer explaining how this will be done.

C. Allow 15 working days for Engineer to review and comment.

1.5 QUALITY ASSURANCE

A. Identify all pipe and fittings on the exterior with applicable ASTM Standards, name of manufacturer, size and SDR with permanent markings.

B. Tag or otherwise certify that any item not marked or stamped meets the specifications.

1.6 REGULATORY REQUIREMENTS

A. North Dakota State Department of Health, Municipal Facilities Division.

B. North Dakota State Plumbing Code.

C. North Dakota State Department of Health Rules and Regulations (10 State Standards).

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle all pipe, fittings and accessories according to manufacturer's written instructions.

B. Store all materials in a protected area.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Properly dispose of all containers for such things as pipe joint lubricants.

B. Do not bury disposable solid waste in pipe trench.

C. Never discharge raw, untreated wastewater or debris into the environment.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Certainteed - PVC sewer piping, wyes and bends.

B. Northern Pipe Products - PVC sewer piping, wyes and bends.

2.2 MATERIALS

A. Polyvinylchloride (PVC) pipe and fittings: SDR-35, gasketed bell and spigot.

B. Utilize pipe-bedding materials from existing excavated sandy soil, which does not contain rocks or hard chunks larger than 1/2 inch, if available. If material is not available on site, provide sand from an outside source meeting the following gradation:

Sieve Size	Percent Passing
1/2 inch	100
No. 4	60-85
No. 200	0-10

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that excavated base is ready to receive work and all excavations, dimensions and elevations are as indicated on the drawings.

B. Hand trim excavations to required elevations. Provide proper pipe bedding for pipe and bell configuration.

C. Remove clay lumps, large stones or other hard matter that could damage pipe or impede consistent backfilling or compaction.

D. Place bedding material at trench bottom, cradling pipe and bell joint.

E. Level bedding materials in continuous layers not exceeding 6 inches compacted depth up on both sides of pipe to pipe centerline.

F. Maintain optimum moisture content of backfill material to obtain required compaction density.

G. If temporary sewage bypass is required verify that all pumps, plugs and piping is in place and fully operational.

H. The City of Dickinson Waste Water Maintenance Department shall be notified of all manhole covers removed so they may reseal them.

3.2 PIPE INSTALLATION

A. Install pipe, fittings and accessories in accordance with manufacturer's instructions and according to the line and grade shown on the drawings or established by Engineer in the field.

B. Maintain separation of water lines from sewer piping as follows:
   1. Parallel Installation:
      a. Watermains shall be laid at least 10 feet horizontally from any existing or proposed gravity sanitary or storm sewer, septic tank, or subsoil treatment system. The distance shall be measured edge to edge.
      b. In cases where it is not practical to maintain a 10-foot separation, the reviewing authority may allow deviation on a case-by-case basis, if supported by data from the Design Engineer.
   2. Crossings:
      a. Watermains crossing sewers shall be laid to provide a minimum vertical distance of 18 inches between the outside of the watermain and the outside of the sewer. This shall be the case where the watermain is either above or below the sewer with preference to the watermain located above the sewer.
      b. At crossings, one full length of water pipe shall be located so both joints will be as far from the sewer as possible. Special structural support for the water and sewer pipes may be required.
   3. Exception: When it is impossible to obtain the minimum specified distance, the reviewing authority must specifically approve any variance. Where sewers are being installed the following methods of installation may be used:
      a. Such deviation may allow installation of the watermain closer to a sewer, provided that the watermain is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the watermain is at least 18 inches above the top of the gravity sewer.
      b. The sewer materials shall be water works grade 150 psi (1.0 Mpa) pressure rated pipe meeting AWWA standards or pipe approved by the reviewing authority and shall be pressure tested to ensure water tightness.
   4. Force mains: There shall be at least a 10-foot horizontal separation between watermains and sanitary sewer force mains. There shall be an 18-inch vertical separation at crossings as required in item 2 - Crossings.
   5. Sewer Manholes: No water pipe shall pass through or encounter any part of a sewer manhole. Watermain should be located at least 10 feet from sewer manholes.
   6. Separation of Watermains from Other Sources of Contamination: Design Engineers should exercise caution when locating watermains at or near certain sites such as sewage treatment plants or industrial complexes. On site waste disposal facility including absorption field must be located and avoided. The Engineer must contact the reviewing authority to establish specific design requirements for locating watermains near any source of contamination.

C. Maintain separation of water lines from sewer piping as follows:
   1. Where both water and sewer are of new construction:
      a. No additional protection needed if watermain crosses at least 5 feet above the sewer.
      b. If the watermain crosses within 1.5 feet above the sewer, center a full length of watermain over the sewer.
      c. If the watermain crosses within 1.5 feet above the sewer, center a full length of watermain over the sewer. Sewer joints located within 10 feet of the crossing will withstand 25 psi internal pressure.
   2. Where watermain crosses over an existing sewer:
      a. No additional protection needed if watermain is at least 1.5 feet above the sewer (intervening dirt must be left undisturbed).
      b. If crossing is within 1.5 feet above sewer, center a full length of watermain over the sewer main.

3. Where watermain crosses under the sewer:
    a. In all cases, provide additional protection by centering a full length of watermain under the sewer main. Sewer joints located within 10 feet of the crossing will withstand 25 psi internal pressure.

D. Clean and inspect each section of pipe and gasket before installation.

E. Backfill and hand compact up both sides of pipe to 12 inches (compacted depth) above top of pipe.

F. When pipe of different materials are to be jointed, an approved compression type coupling shall be used.

G. Flush pipe when laying operations have been completed.

3.3 TOLERANCES

A. Installed gravity sewer pipe to the following tolerances:
    1. Vertical: Plus or minus 0.03 feet
    2. Horizontal: Plus or minus 0.05 feet
    3. Separation tolerance: minimum of 10 feet outside diameter between mains

B. Minimum bury depth of 5 feet for all installed sewer pipe.

3.4 FIELD QUALITY CONTROL

A. Contact the Engineer prior to placing any backfill over the pipe.

B. Lamp each section of pipe after installation.

C. Regularly check temporary sewage handling equipment and piping (if in use) to avoid spills or backup.

D. Pipeline Cleaning - See sections 33 3310.

E. Testing

F. Pipeline Televising - See section 33 3311 for requirements
    1. Sewer lines may be hydrostatically tested to ensure integrity, test in the presence of the Engineer in the following manner:
        a. Plug the downstream end of pipe in manhole.
        b. b. Plug all newly constructed service lines.
        c. Fill pipe with water to a point where the upstream manhole has 24 inches of water above the invert measured at the center of the manhole.
        d. Allow to stand for 3 hours.
        e. If water level drops determine why, repair if needed, and repeat test until water level remains constant.
    2. Deflection Testing: Testing may be required for flexible pipe types (PVC, HDPE, CCG). Deflection tests shall be performed not sooner than 30 days after completion of the placement and compaction of the backfill. The pipe shall be clean and inspected for offsets and obstructions prior to testing to finish grade. Testing shall be done in the presence of the Engineer. Deflections shall be determined by use of a mandrel.
        a. Mandrel shall have a minimum diameter equal to 95 percent of the Average Internal Diameter of the pipe. The 5 percent deflection shall include deflection from burial and manufacturing process.
        b. The mandrel shall be rigid steel, be nonadjustable, and have an odd number of legs (9 legs minimum) and have an effective length not less than its nominal diameter. It shall have a minimum diameter, at any point along the full length. The mandrel shall be fabricated of steel and shall have pull rings at either end. The mandrel shall be stamped or engraved indicating the pipe material specification, nominal size and

mandrel outside diameter. The maximum average inside diameter of the pipe shall be measured and calculated in the field prior to installation.

c. The mandrel shall be pulled through the pipe by hand to ensure that maximum allowable deflections have not been exceeded. Prior to use, the mandrel shall be certified and submitted to the Engineer. If the mandrel fails to pass through the pipe, it will be deemed to be over deflected.
d. Unless otherwise permitted by the Engineer, any over deflected pipe shall be uncovered and, if not damaged, removed and reinstalled. Damaged pipe shall be removed from the work site and replaced with new pipe.
e. City reserves the right to measure the deflection at any time during the warranty period. Deflections greater than 5 percent shall be considered failure and the Contractor may be required to re-excavate, replace the pipe if necessary, recompact the backfill and restore the surface with no additional costs to the City for such work.
f. All costs incurred by the Contractor attributable to mandrel and deflection testing, including any delays and reinstallation of deflected pipe, shall be considered incidental to other bid items.

3.5 PROTECTION

A. Protect all pipe installed by maintaining a temporary plug in the end of each section until next section is installed.

B. Protect pipe and sand bedding from damage or displacement until backfilling operation has been completed.

3.6 CLEANUP AND PROJECT CLOSEOUT

A. Flush pipe, manholes and cleanouts.

B. Remove all debris flushed from line and dispose as necessary.

C. After flushing and cleaning of sewer mains, remove all covers from manholes and assist the Engineer in lamping each individual reach (manhole to manhole) of sewer main.

D. Review project with City's representative to verify cleanup is acceptable.

E. Adequately mark all buried pipe ends and service lines with redwood 2x4 timbers, 6 feet long and flush with ground surface.

3.7 PROJECT RECORD DOCUMENTS

A. Accurately record location of pipe runs, wyes, service connections, and termination points on "as-constructed" plans.

B. Identify, describe and show approximate location of variations in subsoil conditions or the discovery of uncharted utilities.

C. Provide Engineer with "as-constructed" plans.

D. If required by plan note, special provision or identified on the bid form, televise all gravity sewer mains using a conventional process by running a video camera through the newly laid pipes. Provide two copies of DVD's identifying all services and any irregularities to the Engineer.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Measure sanitary sewer mains and service line piping by the linear foot (LF) as installed and accepted by Engineer. Extend measurement from center of manhole/cleanout to center of manhole/cleanout.

B. Measure service lines by the linear foot (LF) as installed and accepted by Engineer. Extend measurements from the centerline of main to the end of newly installed service line.

C. Measure service line connections by the unit (EA) as installed and accepted by the Engineer. Measurement will include wye and riser (if required).

D. Pipe lubricant, gaskets, joint cement, or any other materials needed to complete the installation, as well as testing and flushing are considered incidental and will not be measured.

E. Pipe bedding will be incidental to the price bid for sanitary sewer piping unless a bid item is shown on the bid form.

4.2 PAYMENT

A. Payment for all items of work listed on the bid form will be for the actual number of units approved by the Engineer and includes all materials, labor and equipment.

B. If specific items of required work are not listed on the bid form, payment will be considered incidental to other, related, items of work. If hydrostatic testing is required payment will be according to GC Article 10.01.

C. If required, all pumps, piping, plugs, labor and miscellaneous equipment necessary for temporary sewage handling or bypass shall be paid for as identified on the bid form. If no specific bid items are listed on the bid form, temporary sewage handling or bypass will be considered incidental to the price bid for sanitary sewer main or sewer line piping.

D. If video work is required it will be paid as bid or if no specific bid item is shown it will be considered incidental to the price bid for new sewer main.

END OF SECTION

SECTION 33 4721

STORM SEWAGE SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Storm sewer drainage piping, fittings and accessories.

1.2 REFERENCES

A. ASTM A48 – Cast Iron Grates and Frames.

B. ASTM C14 – Non-reinforced Concrete Pipe.

C. ASTM C76 – Reinforced Concrete Culvert, Storm Drain and Sewer Pipe.

D. ASTM C175 – Mortar Cement.

E. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.

F. ASTM C478 – Precast Reinforced Concrete Manhole Sections.

G. ASTM C497 – Methods of Testing Concrete Pipe, Manhole Sections or Tile.

H. ASTM C506 – Reinforced Concrete Arch Culvert, Storm Drain and Sewer Pipe.

I. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.

J. ASTM D2321 Standard Practice for Underground Installation of Thermoplastic Pipe.

K. ASTM D2729 – Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

L. ASTM D3034 – Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

M. ASTM D3212 - Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals; 2007 (Reapproved 2013).

N. ASTM D3350 – Standard Specification for Polyethylene Plastics Pipe & Fitting Materials.

O. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe; 2014.

P. ASTM F679 – Poly (Vinyl Chloride) AC Large Diameter Plastic Gravity Sewer Pipe and Fittings.

Q. ASTM F2306 / F2306M - Standard Specification for 12 to 60 in. Annular Corrugated Profile Wall Polyethylene (PE) Pipe and Fittings for Gravity Flow Storm Sewer and Subsurface Drainage Applications; 2015.

R. ASTM F2648 - Standard Specification for 2 to 60 inch [50 to 1500 mm] Annular Corrugated Profile Wall Polyethylene (PE) Pipe and Fittings for Land Drainage Applications; 2013.

S. ASTM F2736 - Standard Specification for 6 to 30 in. (152 To 762 mm) Polypropylene (PP) Corrugated Single Wall Pipe And Double Wall Pipe; 2013 (Editorial Change 1, 2014).

T. ASTM F2881 - Standard Specification for 12 to 60 in. [300 to 1500 mm] Polypropylene (PP) Dual Wall Pipe and Fittings for Non-Pressure Storm Sewer Applications; 2011 (Reapproved 2015).

U. AASHTO M-196 – Corrugated Aluminum Alloy Pipe.

V. AASHTO M-246 – Polymeric-Coated (Pre-Coated) Corrugated Metal Pipe.

W. AASHTO M-252 and M-294 Standard Specifications for Corrugated Polyethylene Pipe 12 inch to 36 inch.

X. North Dakota State Department of Health Rules and Regulations (10 State Standards).

1.3 SUBMITTALS

A. Provide Manufacturer's data indicating pipe specifications, pipe accessories, fittings and appurtenances.

B. Indicate special procedures required to install products specified.

C. Certify that products supplied meet or exceed specified requirements.

D. Allow 15 working days for Engineer to review and comment.

1.4 QUALITY ASSURANCE

A. Stamp each section of pipe and all fittings with the following minimum information:
   1. Concrete Pipe:
      a. Class of Pipe.
      b. Date of Manufacture.
      c. Name or Trademark of Manufacturer.
   2. PVC Pipe:
      a. Name of Manufacturer.
      b. Nominal Pipe Size.
      c. PVC Cell Classification.
      d. PSM, PS and SDR Value.
      e. Applicable ASTM and Code number.
   3. Corrugated Polyethylene Pipe:
      a. Name of Manufacturer.
      b. Size.
   4. Corrugated Aluminum Alloy Pipe:
      a. Name of Manufacturer.
      b. Size.
   5. Polymeric-Coated (Pre-Coated) Corrugated Metal:
      a. Name of Manufacturer.
      b. Size.
   6. Spiral Rib Pipe:
      a. Name of Manufacturer.
      b. Size.

1.5 REGULATORY REQUIREMENTS

A. Conform to North Dakota Department of Health Clean Air Standards and Surface Water Runoff Standards.

B. North Dakota State Department of Health Rules and Regulations (10 State Standards).

1.6 DELIVERY, STORAGE AND HANDLING

A. Handle, deliver and store all pipe and materials in accordance with manufacturer’s recommendations.

B. Immediately remove from site and appropriately dispose of any damaged materials.

C. Use proper equipment to handle all materials.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. North Dakota Concrete Products for concrete pipe, manholes and inlets.

B. Certainteed, Northern Pipe Products for PVC.

C. Advanced Drainage Systems, Inc. (ADS) and HANCOR for polyethylene and polypropylene pipe products.

D. Neenah Foundry Company, East Jord Iron Works, or approved equal, for grates and castings.

E. Johnston – Fargo culvert for metal pipe.

2.2 MATERIALS

A. If not specified on the plans or Bid Form, pipe material shall be selected by the Contractor and approved by the Engineer. Pipe materials shall be limited to those included in this specification.

B. Substitutions: See Section 01 0130 - Submittals.

C. Reinforced Concrete Storm Sewer Pipe: Conform to the requirements of ASTM C76. Unless otherwise specified, all pipe shall be Class III for 24-inch and smaller and Class II for 27-inch and larger in accordance with ASTM C76, Wall B. All pipe sections shall be cast in sections 8 feet, 6 feet, or 4 feet long, except that the variable length sections may be cast in order to match at manholes and inlets.

D. Polyvinyl Chloride Storm Sewer Pipe: Polyvinyl chloride storm sewer (PVC) pipe-15 inches or smaller shall conform to the requirements of ASTM D3034 for type PSM, PVC sewer pipe and shall have an SDR of 35, all of which shall be stamped on the pipe. Polyvinyl chloride sewer pipe 18 inches or larger shall conform to the requirements of ASTM F679-PS46. PVC sewer shall have the elastomeric gasket type joint providing a watertight seal.
   1. Schedule 40 PVC pipe conforming to ASTM D1785 and ASTM D2665 shall be considered an "or-equal" substitution for SDR 35 PVC pipe.

E. Corrugated Polyethylene Pipe: Corrugated Polyethylene Pipe shall be N-12 WT IB per ASTM F2648 as manufactured by ADS, Inc. or approved equal, with integral bell and spigot joints.
   1. 4- through 60-inch joints shall be watertight according to the requirements of ASTM D3212. Gaskets shall meet the requirements of ASTM F477. Gaskets shall be installed by the pipe manufacturer and covered with a removable, protective wrap to ensure the gasket is free from debris. A joint lubricant available from the manufacturer shall be used on the gasket and bell during assembly.
   2. 12- through 60-inch diameters shall have a reinforced bell with a polymer composite band. The bell tolerance device shall be installed by the manufacturer.
   3. Fittings shall conform to ASTM F2306. Bell and spigot connections shall utilize a spun-on or welded bell and valley or saddle gasket meeting the watertight joint performance requirements of ASTM F2306.

F. Polypropylene Pipe: Corrugated Polypropylene Pipe shall be ADS HP Storm as manufactured by ADS, Inc. or approved equal, with smooth interior walls and gasketed, integral bell and spigot joints.
   1. 12- through 30-inch (300 to 750 mm) pipe shall have a smooth interior and annular exterior corrugations and meet or exceed ASTM F2736 and AASHTO M330.
   2. 36- through 60-inch (900 to 1500 mm) pipe shall have a smooth interior and annular exterior corrugations and meet or exceed ASTM F2881 and AASHTO M330.
   3. Pipe shall be joined with a gasketed integral bell & spigot joint meeting the requirements of ASTM F2736 or F2881, for the respective diameters.

4. 12- through 60-inch (300 to 1500 mm) pipe joints shall be watertight according to the requirements of ASTM D3212. Spigots shall have gaskets meeting the requirements of ASTM F477. Gasket shall be installed by the pipe manufacturer and covered with a removable, protective wrap to ensure the gasket is free from debris. A joint lubricant available from the manufacturer shall be used on the gasket and bell during assembly. Pipe bells shall be reinforced with a polymer composite band, installed by the manufacturer.
5. Fittings shall conform to ASTM F2736, ASTM F2881 and AASHTO M330, for the respective diameters. Bell & spigot connections shall utilize a spun-on, welded or integral bell and spigot with gaskets meeting ASTM F477. Bell & spigot fittings joint shall meet the watertight joint performance requirements of ASTM D3212. Corrugated couplings shall be split collar, engaging at least 2 full corrugations.
6. Polypropylene compound for pipe and fitting production shall be impact modified copolymer meeting the material requirements of ASTM F2736, Section 4, ASTM F2881, Section 5 and AASHTO M330, Section 6.1, for the respective diameters.

G. Corrugated Metal Pipe: Shall conform to NDDOT Specification Section 830.02. Corrugated Metal Pipe shall be allowed for culvert crossings on rural road sections only, and any proposed utilization shall be approved in advance by City.

H. Fittings: Same material as pipe molded or formed to suit pipe size and end design, in required tees, bends, elbows, cleanouts, reducers, traps and other configurations.

I. Pipe Bedding and Backfill: As specified in Section 31 2323.

J. Pipe bedding and installation shall conform to all manufacturers requirements.

K. Manholes: See Section 33 0601

L. Pipe Joints:
1. Concrete – Tongue and Grove.
2. PVC – Integral Bell and Spigot.
3. High Density Polyethylene – Integral Bell and Interlock.
4. Steel and Aluminum - Coupling bands which overlap a minimum of 2 corrugations on each end of the pipe. All anchor bolts must be type 304 stainless steel.

M. Mortar Mix: Composed on 1 part by volume Type 1A Portland Cement and 2 parts of mortar sand.

N. Inlet Structures: Round, square or rectangular as shown on the plans. May be precast or cast-in-place. Includes concrete base, invert, casting and two adjusting rings.

O. Inlet Castings and Grates: Single, double, or triple casting which solidly fits on inlet structures and does not rock or rattle when traffic crosses. Manufactured from Class 35B Gray (Cast) Iron.
1. Provide curb and/or gutter inlet frames and grates of a quality equal to the Neenah Foundry, East Jordan Iron Works or approved equal. Provide castings as follows:
   a. Inlet-Type 1: Neenah Foundry Number R3075 with vaned grate, East Jordan Iron Works Number 7020 – Type T5 back with Type M1 grate, or approved equal.
   b. Inlet-Type 2: Neenah Foundry Number R3295 with vaned grate, East Jordan Iron Works Number 7030-Type T5 back with M4 vaned grate, or approved equal.
   c. Inlet-Type 2 Double: Neenah Foundry Number R3295-2 with vaned grate, East Jordan Iron Works Number 7031-Type T5 back with M4 vaned grate, or approved equal.
   d. Inlet-Type 2 Triple: Neenah Foundry Number R3295-3 with vaned grates, East Jordan Iron Works Number 7032-Type T5 back with M4 vaned grates, or approved equal.
   e. Inlet-Mountable Curb Type A: Neenah Foundry Number R3517, East Jordan Iron Works Number V-4410, or approved equal.
   f. Inlet-Mountable Curb Type B: Neenah Foundry Number R3382, East Jordan Iron Works Number V-4440, or approved equal.

P. Manhole Frames and Lids: Equal to Neenah R 1733 or Municipal Casting 306. Lids equal to Neenah Type “K” manufactured from Class 35B Gray (Cast) Iron. Lid and casting must fit on manhole in a solid manner without rocking or rattling when traffic crosses.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that all area utilities have been located and marked.

B. Verify that excavations are ready to receive Work, and dimensions, and elevations are as indicated on drawings.

C. Verify that pipe and manholes needed are on site and free of defects.

3.2 INSTALLATION

A. Strip all topsoil to a depth of at least 4 inches and stockpile away from excavation and backfill material.

B. Perform excavation to the required elevations.

C. Maintain a trench with 24 inches (12 inches on each side of pipe centered in trench) greater than outside diameter of pipe.

D. Install pipe, manholes, fittings, and accessories in accordance with the line and grade established in the field and manufacturer's instructions. Seal joints watertight.

E. Maintain separation of water lines from sewer piping as follows:
   1. Parallel Installation:
      a. Watermains shall be laid at least 10 feet horizontally from any existing or proposed gravity sanitary or storm sewer, septic tank, or subsoil treatment system. The distance shall be measured edge to edge.
      b. In cases where it is not practical to maintain a 10-foot separation, the reviewing authority may allow deviation on a case-by-case basis, if supported by data from the Design Engineer.
   2. Crossings:
      a. Watermains crossing sewers shall be laid to provide a minimum vertical distance of 18 inches between the outside of the watermain and the outside of the sewer. This shall be the case where the watermain is either above or below the sewer with preference to the watermain located above the sewer.
      b. At crossings, one full length of water pipe shall be located so both joints will be as far from the sewer as possible. Special structural support for the water and sewer pipes may be required.
   3. Exception: When it is impossible to obtain the minimum specified distance, the reviewing authority must specifically approve any variance. Where sewers are being installed the following methods of installation may be used:
      a. Such deviation may allow installation of the watermain closer to a sewer, provided that the watermain is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the watermain is at least 18 inches above the top of the gravity sewer.
      b. The sewer materials shall be water works grade 150 psi (1.0 Mpa) pressure rated pipe meeting AWWA standards or pipe approved by the reviewing authority and shall be pressure tested to ensure water tightness.
   4. Force mains: There shall be at least a 10-foot horizontal separation between watermains and sewer force mains. There shall be an 18-inch vertical separation at crossings as required in item 2 - Crossings.
   5. Sewer Manholes: No water pipe shall pass through or encounter any part of a sewer manhole. Watermain should be located at least 10 feet from sewer manholes.

6. Separation of Watermains from Other Sources of Contamination: Design Engineers should exercise caution when locating watermains at or near certain sites such as sewage treatment plants or industrial complexes. On site waste disposal facility including absorption field must be located and avoided. The Engineer must contact the reviewing authority to establish specific design requirements for locating watermains near any source of contamination.

F. Install appropriate bedding (per manufacturer's specifications) for type of pipe being installed.

G. Install haunching for the width of the trench up to the center (springline) of the pipe in no more than 6 inch lifts and thoroughly compact each lift before placing the next lift.

H. Check and maintain 95 percent compacted density in pipe haunching for all pipe except concrete.

I. Keep all pipe, manholes and inlets clean and free of dirt and debris.

J. If unexpected or unmarked utility lines are encountered immediately notify Engineer.

K. Backfill and compact remainder of pipe trench in equal 6 inch lifts. Do not allow equipment to cross pipe until pipe has a minimum of 12 inches of compacted cover.

L. Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.

M. Install inlet grates, flap gates, headwalls, riprap and other appurtenant items as required by plans.

N. Evenly distribute topsoil or roadway surfacing as required when all backfilling and compacting has been completed.

O. Seed as directed where required.

3.3 TOLERANCES

A. Install all gravity pipe to the following tolerances:
   1. Vertical tolerances – plus or minus 0.05 feet of staked grade line.
   2. Horizontal tolerance – plus or minus 0.05 feet of staked alignment.
   3. Separation tolerance – minimum of 10 feet outside diameter between mains

3.4 FIELD QUALITY CONTROL

A. Place pipe by utilizing either a laser or a batter board system.

B. Notify Engineer prior to placing cover over pipe.

C. Employ an experienced, knowledgeable person to oversee the setting of grades, pipe handling, placement and backfilling.

3.5 MANUFACTURER'S FIELD SERVICES

A. If pipe installation involves special trench protection, has special loading concerns, or requires special bedding and haunching, contact supplier who shall request assistance from Manufacturer as needed.

3.6 PROTECTION

A. Maintain a temporary plug in the end of each section until the next (adjoining) section is installed.

B. Protect pipe and bedding from damage or displacement until backfilling operations have been completed.

3.7 CLEANUP AND PROJECT CLOSEOUT

A. When all installation is complete, clean the site of all debris, left over pipes, fittings, and equipment.

B. Level all distributed areas, add topsoil and resurfacing where necessary and reseed if necessary.

C. Replace all asphalt, concrete or gravel surfacing to a condition equal to before construction.

D. Remove all debris from pipe and flush pipe. Dispose of debris.

E. Contact City for project review. Complete all sections.

3.8 PROJECT RECORD DOCUMENTS

A. Accurately record all installed items on “as-constructed” plans.

B. Identify, describe and show any previously uncharted underground utilities.

C. Provide Engineer with a copy of “as-constructed” plans.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Pipe will be measured by the linear foot (LF) from center to center of manhole, cleanout or catch basin.

4.2 PAYMENT

A. Basis of payment will be based on the units listed on the bid form and based upon the total units installed and accepted by the Engineer in the field.

B. If no specific item is shown on the bid form, consider payment incidental to other items of general construction.

END OF SECTION

SECTION 34 4700

TRAFFIC CONTROL

PART 1 GENERAL

1.1 DESCRIPTION

A. This work consists of furnishing, installing, and maintaining all required traffic control devices according to the traffic control plan details shown on the Plans. This includes Specifications providing for watch persons, flaggers, pilot cars, and necessary precautions for protecting the public, the workers, and the work.

B. All traffic control devices and their placement shall meet the standards and requirements of the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) and the Standard Highway Signs, published by the Federal Highway Administration. All new and used Category I and II Traffic Control Devices shall meet National Cooperative Highway Research Program 350 (NCHRP Report 350) Guidelines.

C. At the Pre-Construction Conference, the Contractor shall provide the Engineer a Letter of Compliance stating that all Category I and II devices are NCHRP Report 350 approved. The Letter of Compliance shall also include approved shop drawings of the signs and devices.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Sign Backing Materials. Materials for sign backing shall be aluminum, steel, plywood, or plastic of the size and thickness shown on the North Dakota Department of Transportation (NDDOT) Standard Drawings. Aluminum or steel backing shall meet Specification Section 34 4755. Plywood backing shall be of exterior grade or be overlaid with a plastic coating, and processed using recommendations of the reflective sheeting manufacturer. Plastic backing shall be processed using recommendations of the reflective sheeting manufacturer.

B. Reflective Sheeting. Orange diamond shaped, rectangular, and square signs shall be faced with Wide Angle Prismatic Fluorescent Retroreflective Sheeting meeting Specification Section 34 4755 item 2.2.G. Barricades and vertical panels shall be Wide Angle Prismatic Retroreflective Sheeting meeting Specification Section 34 4755 item 2.2. F. Flexible reflective sheeting, Type III C, shall be used on drums, cones, flexible delineators, and tubular markers. All remaining signs and sign backgrounds shall be faced with Wide Angle Prismatic Retroreflective Sheeting meeting Specification Section 34 4755, item 2.2.F.

C. Flexible Roll Up Sign. The flexible roll-up sign shall be mounted in a sturdy frame to keep the sign flat and in proper position for viewing by the motorist. The frame shall be attached to a portable stand for placement on the roadbed. The stand shall be weighted or designed to provide stability against wind. Flexible roll-up signs shall be fabricated to meet Specification Section 34 4755, item 2.2.E.2.

D. Flat Sheet Sign Faces. All flat sheet sign faces, except for flexible roll-up signs as provided above, shall be fabricated to meet Specification Section 34 4755, item 2.1.A.

E. Barricades. Barricades shall be constructed of lightweight materials. They shall be the type and length shown on the NDDOT Standard Drawings. Both sides of the barricade rail surface shall be covered with reflective sheeting as specified.

1. Wood Rails. Wood rails shall meet the Standard Rules of the American Lumber Standards. Application of reflective sheeting directly on wood rails shall be made only after all edges and surfaces have been properly sanded, cleaned, sealed, re-sanded, and painted with a prime coat. The painted surface on which the reflective sheeting is applied shall be treated as specified by the reflective sheeting manufacturer. In lieu of treating the painted surface to receive the reflective sheeting, sheet aluminum having a minimum thickness of 0.040 inches may be attached to the barricade rails with non-rust fasteners. The aluminum sheet shall be fabricated and degreased as provided in Specification Section 34 4755, item 2.1.B.1 before applying reflective sheeting.
2. Aluminum Rails. Aluminum rails shall be an extrusion of the size and shape shown on the NDDOT Standard Drawings and shall meet ASTM Designation B 221, Alloy 6063-T6. They shall be fabricated and degreased as provided in Specification Section 34 4755 before applying reflective sheeting.

F. Delineator Drums. Drums shall be approximately 36 inches in height and a minimum of 18 inches in diameter at the top. They shall be constructed of durable plastic with horizontal, circumferential, orange and white reflectorized stripes as shown on the Standard Drawings. The reflectorized stripes shall be fabricated from Type III C, Type IV, or Wide Angle Prismatic flexible reflective sheeting as provided in Specification Section 34 4755, item 2.2. Delineator drums shall be weighted with sand placed at the bottom of the drum or constructed so that they cannot be blown over or displaced by wind or passing traffic, and do not create a hazard if accidentally struck.

G. Traffic Cones. The cones shall be orange in color, shall be a minimum of 28 inches in height with a broadened base, and fabricated from materials that withstand impact. For nighttime use, cones shall have a minimum 6-inch wide white flexible reflectorized band placed a minimum of 3 inches; but not more than 4 inches from the top. An additional 4-inch white reflectorized band shall be placed a minimum of 2 inches below the 6 inch band. The cones shall be weighted at the base to prevent overturning by the wind. The reflectorized band shall be fabricated from Type III C, Type IV or Wide Angle Prismatic flexible reflective sheeting as provided in Specification Section 34 4755, item 2.2.

H. Tubular Markers and Flexible Delineators. These devices shall be used to channelize traffic.
1. Tubular Markers. Tubular markers shall meet the dimensions, color configuration, and installation details as shown on the NDDOT Standard Drawings.
2. Flexible Delineators. The flexible delineators shall be installed in the locations shown on the plans. The posts shall be resilient and be orange in color. The delineator posts shall be made of PVC or polyethylene and shall be preapproved for use by the Design Division. Posts currently approved are Services and Material Co. Inc., Deluxe delineator post and Safety Guide's Traf-Flex Post or Flex Stake.

   The post shall have 4-inch wide white bands as shown on the NDDOT Standard Drawings. The reflective intensity of the bands shall meet the requirements of Type III B, Type III C, or Wide Angle Prismatic flexible reflective sheeting as provided in Specification Section 34 4755, Item 2.2.

I. Vertical Panels. The vertical panels shall meet the dimensions, striping configuration, and colors shown on the NDDOT Standard Drawings. The panels shall be fabricated as specified for flat sheet signs in Specification Section 34 4754.

J. Delineators. Each delineator shall consist of an acrylic plastic or reflective sheeting reflector mounted on a post support according to the NDDOT Standard Drawings.

K. Portable Barriers. Precast Concrete Median. Barriers shall meet the details on the Plans or NDDOT Standard Drawings. Any barriers manufactured after October 1, 2000, must meet the requirements of NCHRP Report 350.

L. Warning Lights. Warning lights are portable, lens directed, enclosed lights. Warning lights shall meet the requirements of the Institute of Transportation Engineers Purchase Specifications for Flashing and Steady Burn Barricade Warning Lights, latest revisions and the following table:

	Type A Low Intensity	Type B High Intensity	Type C Steady Burn
Lens Directional Faces	1 or 2	1	1 or 2
Flash Rate Per Minute	55 to 75	55 to 75	Constant
Flash Duration1	10%	8%	Constant
Min. Effective Intensity2	4.0 Candles	35 Candles	
Min. Beam Candle Power2		2.0 Candles	
Hours of Operation	Dusk to Dawn	24 hrs./day	Dusk to Dawn

1 = Length of time that instantaneous intensity is equal to or greater than effective intensity.
2 = These values shall be maintained within a solid angle 9 degrees on each side of the vertical axis, and 5 degrees above and below the horizontal axis.

M. Advance Warning Flashing or Sequencing Arrow Panels. Advance warning flashing or sequencing arrow panels shall be used to divert and control traffic around construction or maintenance activities.

Advance warning arrow panels shall meet the following requirements:

Advance Warning Flashing or Sequencing Arrow Panel

Type	Minimum Size (in inches)	Minimum No. of Panel Lamps	Minimum Legibility Distance*
A	24x48	12	1/2 mile
B	30x60	13	3/4 mile
C	48x96	15	1 mile

*Minimum legibility requirements are the distances at which the arrow panel message can be comprehended by a driver on a sunny day or a clear night.

The panel face shall be solidly constructed and finished nonreflective black. Panels shall be mounted on a vehicle, trailer, or other suitable support. Vehicle mounted panels shall be provided with remote controls.

Arrow panels shall be equipped with the following mode selection:
1. Left or right flashing or sequencing arrows, and
2. Double flashing arrows, or
3. Left or right sequencing chevrons, and
4. Caution.

Automatic light dimming controls capable of reducing rated lamp voltage a minimum of 50 percent shall be provided on each arrow panel. The dimming shall be controlled by a photoelectric cell which activates at sunup and sundown. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.

Minimum lamp “on” time shall be 50 percent for the flashing arrow and 25 percent for the sequential chevron.

The arrow panel lamps or lenses shall be recess mounted or alternately equipped with an upper hood of not less than 180 degrees. The color of the light emitted shall be yellow.

N. High Level Warning Device. This warning device consists of a minimum of 3 flags and, when specified, a Type B high intensity flashing light. The distance from the roadway to the bottom of the flasher lens or the lowest point of all 3 flags shall be at least 8 feet. The flags shall be a minimum of 16 inches square and shall be orange or fluorescent red-orange in color.

O. Flagging. STOP/SLOW Sign Paddles shall meet the details specified in the Standard Drawings. The paddle shall be fastened to a rigid handle of five to eight feet in length. The paddle shall be fabricated from light semi rigid material, and be octagonal in shape. To improve conspicuity, the paddles may be supplemented by one or two symmetrically positioned, alternately flashing, white high intensity lamps on each side.

When nighttime flagging is required, sufficient auxiliary lighting shall be used to illuminate the flagging station. This lighting shall be supplied by the contractor and set up in such a manner so that drivers are not blinded by it. A flashlight with a red transparent glow cone, reflectorized clothing, and a reflectorized stop-slow paddle are required for nighttime flagging operations.

P. Pilot Car. The pilot car shall be a pickup truck or automobile. A 36 inch by 18 inch sign reading “Pilot Car Follow Me,” as detailed in the NDDOT Standard Drawings shall be mounted on the rear of the vehicle and an oscillating or rotating yellow flashing light shall be mounted on the roof of the vehicle.

Q. Portable Signs. All portable sign mounts that are in place longer than 24 hours or are in place after sunset shall be perpendicular to the ground.

PART 3 EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. General. The Contractor shall furnish, install, and maintain all required traffic control devices, and shall provide watchpersons and flaggers as necessary to protect the work and to ensure public and workers’ safety. All required control devices shall be available for installation when needed and shall be maintained, relocated, covered, or removed as necessary. Standards for flagging shall be as specified in Item 3.1.X.

When work zone signs placed as shown on the NDDOT Standard Drawings interfere with permanent signs, the work zone signs shall be moved to locations that afford the best results. Messages shall be varied as required.

The Contractor is responsible for providing the required traffic control to ensure public and worker safety. If the Contractor has not furnished, installed, located, maintained or removed one or more traffic control devices as required, the Engineer may:

1. Apply a contract price reduction of $500 per day if deficiencies are not corrected within a 24-hour period after notification.
2. Without notification, have the deficiencies corrected by another Contractor and deduct the cost of the work from monies due or to become due the Contractor.
3. Direct work to cease until the deficiencies have been corrected.

Traffic control devices shall be operated only as long as they are needed. Only those devices that apply to existing conditions shall be in place. Construction sign bases without attached signs shall be marked so they are visible.

The traffic control devices shall have breakaway supports that meet the requirements of the AASHTO Roadside Design Guide Chapter 4 Section 4.1. All signs on fixed supports shall be placed on breakaway supports, unless they are located behind a barrier or crash cushion.

Barricade rails and panels with stripes which begin at the upper right side and slope downward to the lower left side are designated as “right” panels and are to be used on the right side of a traffic lane. Stripes which begin at the upper left side and slope downward to the lower right side are designated as “left” panels and are to be used on the left side of a traffic lane.

B. Project Terminal Signing. Before work is started, the required traffic control devices shall be erected at each end of the project and at various locations within the Project as shown on the traffic control Plan drawings. These control devices shall remain in place and be maintained for the duration of the Project. The Engineer may direct their removal during winter or other lengthy periods of suspension.

C. Work Area Signing. Appropriate traffic control devices as shown on the traffic control Plan drawings shall be erected and maintained for each type of work area required by the operations. When no details are provided for the particular type of construction situation involved, traffic control devices shall be installed according to the MUTCD or as directed by the Engineer. No construction work shall be started until the proper traffic control devices for the work area are in place. If the Contractor's construction operations or sequence requires additional signing, flaggers shall be furnished at the Contractor's expense or construction operations shall be suspended in that area until the condition is corrected and the required signs have been installed.

When traffic is carried through the construction area, two-way traffic shall be maintained when practicable. One way traffic shall be directed by flag persons or maintained under control of an approved traffic signal system. All signs and other control devices shall indicate actual conditions and shall be relocated, removed, or changed as conditions require. Signs necessary only during hours when work is actually being performed shall be removed or completely covered when no work is in progress.

Portable signs shall be used when construction operations in an area are temporary. Temporary operations are those that can generally be completed in five days or less. If unforeseen circumstances occur, such as equipment breakdown, rain, subgrade failures, etc., time will not accrue towards the five-day period.

When portable signs are used, they shall be placed on the shoulder or outside of the traveled lane where they do not pose a hazard to traffic. The portable signs shall be placed in clear view without any sight obstructions to oncoming traffic. When portable signs are not in use, they shall be removed, moved to a minimum of 45 feet from the edge of the traveled lane, or laid down on the in slope. Signs laid on the in slope shall have stand bases constructed so the signs and bases can be placed flat with no portions of the sign or base projecting upward from the in slope more than 6 inches. When it is necessary to place a temporary sign on a paved surface, the sign may be mounted on portable supports for longer than five days.

The portable signs support assembly mounted on trailers shall meet the requirements as specified above for portable signs except as follows. The portable signs mounted on trailers that have passed the crash test required of NCHRP Report 350, as approved by the FHWA, shall be used. When portable signs mounted on trailers are used, they shall be removed, moved a minimum of 45 feet from the edge of the traveled way, or covered so the sign message cannot be read by approaching vehicles.

D. Existing Signs. Existing regulatory traffic signs which must be moved to accommodate construction shall be immediately reset. The cost to remove and reset existing traffic signs to accommodate construction shall be included in the price bid for other items.

E. Route Markers. Route marker signs required for the Project and for Contractor maintained detours will be furnished by the Contractor and shall be installed by the Contractor on supports furnished by and at the Contractor's expense.

F. Detour Signing. The Contractor shall furnish, install, and maintain all traffic control devices for detours.

G. Highways Closed to Traffic. When a detour is provided and traffic is not maintained through the construction area, necessary access to property abutting the Project shall be provided by constructing and maintaining temporary roads and approaches from the nearest crossroad. Traffic shall not be routed over detours not provided in the Contract documents without written authorization from the Engineer.

H. Restricted Speed Zones. Restricted speed zones and the speed limit to be posted for such zones will be designated in the Contract documents or determined by the Engineer.

I. Temporary Suspension. During a temporary suspension of work, the Contractor is responsible for maintaining and protecting traffic. When operations are suspended for the winter or are indefinitely suspended for reasons beyond the Contractor's control, the roadway and the traffic control devices will be maintained by and at the City's expense.

Before suspending operations for the winter, adequate approaches shall be constructed to all crossroads or intersecting roads which have been disturbed by construction operations. Access to the roadway from abutting property shall also be provided. Warning signs, barricades, and other traffic control devices shall be erected (or existing devices removed) as directed by the Engineer. Resetting of signs removed because of a winter suspension will not be measured for payment.

J. Barricade Application. Type I or Type II barricades shall be used as shown in the traffic control plan details where traffic is maintained through the construction area. They may be used singly or in groups to mark a specific hazard, or used in a series to channelize traffic and shall not be set parallel to traffic. On high speed roads or in situations where barricades may be overturned in the wind, the barricades shall be stabilized with sandbags placed on the lower parts of the frame or stays.

When a section of road is closed to traffic, Type III barricades shall be erected at the points of closure. They shall extend completely across the roadway and shoulders or from curb to curb. Where provision must be made for access of equipment and authorized vehicles, the Type III barricades shall be provided with gates or movable sections that can be closed when work is not in progress, or with indirect openings that discourages public entry. Where access is provided through the Type III barricade, an employee shall be designated to assure proper closure at the end of each working day.

When a road or street is closed, but access to local traffic must be furnished, the Type III barricades shall be arranged to permit local use but discourage through traffic. A sign with the appropriate legend concerning use by local traffic shall be installed.

Type III barricades shall be installed at the beginning and end of the project when so indicated in the Contract documents and shall not be placed parallel to traffic.

The required warning signs shall be mounted above the barricades.

If the construction zone encroaches onto sidewalks or crosswalks and pedestrians cannot be diverted to other walkways, barricades may be used to define the path.

K. Drum Application. Drums shall be used to channelize or delineate traffic flow, and may be used singly or in groups to mark specific hazards. When drums are placed in the roadway, advance warning signs are required.

L. Traffic Cone and Tubular Marker Application. Traffic cones and tubular markers used to channelize traffic shall have adequate stability to prevent overturning or displacement by wind. Additional weighting may be required but shall not be so heavy to cause a hazard if struck.

M. Flexible Delineator Application. The delineator base shall be attached to the pavement as shown on the Plans. The Contractor shall maintain the delineators until they are removed. The delineators shall be removed as soon as the new roadway is opened to traffic. The flexible delineators shall remain the property of the Contractor.

If the Contractor uses a two-sided delineator, the delineator shall have the wide side towards traffic. If the delineator is to be seen by side traffic, an additional delineator shall have the wide side placed facing the side traffic. The side traffic delineators shall not be paid for, but shall be included to the price bid for "Flexible Delineators."

If the Contractor uses the butyl pad for attaching the flexible delineator to concrete roadways, the contractor shall remove the butyl pad down as close as possible to the pavement using a mechanical scraper such as a loader-type machine with a bucket.

All costs for providing, installing, maintaining, and removing the flexible delineators with butyl pad when used shall be included in the unit price bid for “Flexible Delineators.”

N. Vertical Panel Application. Vertical panels shall be used as channelizing devices, warning devices, or windrow markers. Vertical panels shall be faced on both sides.

O. Delineator Application. Delineators shall be used in construction areas for guidance, to indicate roadway alignment, and to outline the required vehicle path. Delineators shall not be used as warning devices and, when used in a construction zone, shall be combined with approved warning devices.

Delineators shall be mounted on supports so the reflector is 4 feet above the roadway edge. White reflectors shall be used for delineators installed along the right side of the street or highway. Yellow reflectors shall be used for delineators installed along the left edge of divided streets, divided highways, and one way roads.

Delineator spacing shall be as indicated on the traffic control plan sheets. Along roadway curves, delineators shall be spaced so that several delineators are always visible to the driver.

P. Portable Barrier Application. Traffic control plan sheets may require, or the Contractor may elect to use, portable barriers to separate the work area from the traffic area. For nighttime use, the barriers shall be supplemented by standard delineators or channelizing markings or devices.

When specified, warning lights shall be installed on continuous barriers. The first two warning lights on each side of the roadway shall be Type A flashers, and subsequent lights on the barrier shall be Type C steady burn lights.

The Contractor shall furnish, install, maintain, and remove barrier markers as specified in the Plans. The costs shall be included in the price bid for “Precast Concrete Median Barriers.”

The ends of the barrier shall be protected by crash cushions or by flaring the barrier ends away from the traveled way as shown in the Contract.

Q. Lighting Device Application. Lighting devices shall be provided as required on the traffic control plan sheets to supplement signs, barricades, and other traffic control devices.
   1. Type III or IV Reflective Sheeting. Flashing lights and steady burn lights on signs, drums, vertical panels, and barricades are not required when Type III, Type IV, or wide angle prismatic reflective sheeting is used.
   2. Flashing Lights (Type A, Low Intensity). Type A low intensity flashers shall be used to warn drivers that they are approaching or traveling in a hazardous area.
   3. Flashing Lights (Type B, High Intensity). Traffic control plan sheets require installation of high intensity flashers at extremely hazardous site conditions. The high intensity flashers shall be operated 24 hours per day.
   4. Steady Burn Lights (Type C). The steady burn warning lights shall be used to delineate the edges of the traveled way on detour curves, on lane changes, and along tapers. Spacing of steady burn lights shall be as indicated on the traffic control plan sheets.
   5. Mounting Height of Warning Lights. The mounting height of warning lights shall be as follows:
      a. Barricade and Portable Standards. A minimum height of 36 inches from the bottom of the lens to the roadway.
      b. Signs. The bottom of the light housing shall not be less than 2 inches nor more than 12 inches above the top of the sign.
      c. Vertical Channelizing Devices and Independent Supports. The light shall be at least 4 feet and not more than 5 feet above the pavement.

6. Advance Warning Arrow Panels. The sequencing arrow panels shall be used to provide advance warning and directional information to assist in diverting and controlling traffic around construction activities being conducted on or adjacent to the traveled way. Other traffic control devices may be required in conjunction with the sequencing arrow panel. During nighttime operation of the flashing arrow panels, the lamps shall be automatically dimmed to 50 percent of the output.
7. Floodlights. If construction activities are performed at night, floodlighting shall be provided for the construction area and flagger stations. The area must be adequately illuminated without creating glare in the eyes of drivers

R. High Level Warning Device. High level warning devices shall be used to supplement other controls and devices and shall be required in urban high density traffic situations.

S. Obliteration of Pavement Marking.
1. Removal of existing marking and installation of short term marking shall be as shown on the traffic control plan sheets. Inappropriate existing markings shall be removed and the new delineation placed before opening the affected lane or lanes to traffic.

   Removal of pavement markings shall not permanently damage the surface or texture of the pavement. Where blast cleaning is used for removal of markings or other objectionable material, the sand or other blast material left on the pavement shall be removed immediately.

2. Painting over or masking existing markings shall be allowed only when indicated in the Plans. Obliteration of the pavement markings by use of grinding or a sandblasting method will not be allowed when painting or masking of existing pavement markings is indicated in the Plans.

   Paint shall be mixed so as to closely approximate the color of the in-place pavement. Masking shall be done using removable, nonreflective, preformed tape that minimizes contrast with the pavement. When existing markings are covered rather than obliterated, the cover shall overlap the existing marking by 1 inch on each side.

T. Construction Zone Marking. Yellow short term marking shall be used to delineate traffic flow in opposing directions or mark the left edge of the pavement of divided highway or one way roads. White short term marking shall be used to delineate the separation of traffic flow in the same direction or mark the right edge of the pavement. The short-term markings shall be used in combination with appropriate warning signs, channelizing devices, and delineation to clearly indicate the required vehicle paths.

U. Traffic Control Personnel.

1. Traffic Control Supervisor. When called for on the Plans, the Contractor shall designate a qualified traffic control supervisor. If this traffic control supervisor becomes unavailable on the project, the Contractor shall designate a qualified replacement supervisor.
   a. Qualifications. The traffic control supervisor shall:
      1) Have completed an approved comprehensive course of study based on Part VI of the MUTCD and furnish proof thereof.
      2) Be familiar with the requirements of the traffic control plans and specifications.
      3) Have a total of at least 12 months field experience with traffic control plans, layouts and maintenance.
      4) Be competent to supervise personnel in traffic control operations.
   b. b. Duties. The traffic control supervisor shall:
      1) Provide traffic control as required by the Plans, Specifications, MUTCD, or as directed by the Engineer.
      2) Be on the site daily to supervise the installation, operation, inspection, maintenance, and removal of the traffic control system.
      3) Correct traffic control conditions that cause erratic vehicle movements, unexpected braking, etc.

4) Propose changes to improve traffic flow through the work zone.
5) Be accessible to the job site within one hour of notification and be “on call” on a 24-hour basis.
6) Provide the Engineer with documentation of all traffic control activities required in paragraph (2) above.
7) May perform watchperson duties, as specified in Item 3.U.2.

c. Traffic Control Course. The course prescribed in Item U.1.a(1) above shall be the American Traffic Safety Service Association (ATSSA) 16 hour Traffic Control Supervisor Course, American General Contractor (AGC) 16 hour Traffic Control Supervisor Course, or the 20 hour National Highway Institute (NHI) Course 380003, Design and Operation of Work Zone Traffic Control, or equal.

An equal course shall include the following subjects: Manual and Standard Signs used in Work Areas (three hours); Channelizing Devices and Temporary Barriers, Pavement Markings, Lighting Devices, Arrow Displays and Special Devices, and Devices Location and Placement (four hours); Layout for Traffic Control Devices, Motorist Characteristics, and Options and Alternatives (four hours); Installation and Removal of the Traffic Control Zone, and Operation and Maintenance of the Traffic Control Zone (four hours);Flagging Operations, Legal Liability and Record Keeping, and Emergency Situations (five hours).

Workshops shall be included in the above time frames covering (a) design problems, (b) installation and removal, and (c) operations and maintenance. Each session shall also include a question and answer period.

2. Watchpersons. Watchpersons shall be provided to patrol the project to assure that the traffic control devices are properly placed in accordance with the traffic control plans and standards. The project shall be patrolled at least twice daily, once in the morning prior to work beginning and once in the evening after work is completed. The project shall also be patrolled twice daily on weekends and days when no work is in progress, once each morning and once each evening before sunset.

The Contractor shall provide written documentation to the Engineer of the watchperson’s hours and activities.

The Contractor shall immediately assist the watchperson, whenever needed, to correct conditions that cause erratic traffic movement, unexpected braking, etc., and erect, repair, replace, or relocate the required traffic control devices. Emergency assistance shall be provided to motorists, when needed, due to roadway conditions. Suspension of watchperson service may be permitted during periods of authorized suspension or after substantial completion of the work, provided the job site is in safe condition.

3. Traffic Signal Maintenance. On projects where permanent or interim traffic signals are being installed, the Contractor shall designate an experienced person in this area that can troubleshoot any possible problems that may occur with the traffic signal maintenance. This maintenance person shall be in addition to the traffic control supervisor and the watchperson as specified in Item U.1 and Item U.2.

The traffic signal maintenance person, or experienced alternate, must be accessible to the job site within one hour of notification and be “on call” on a 24-hour basis. In the event of emergency control, refer to Item V.

The Contractor shall be required to maintain the interim or permanent traffic signals until the project has been accepted by the Engineer.

V. Emergency Control. Written notification shall be provided to the Engineer, the Highway Patrol, and local law enforcement agencies, of the names, addresses, and the telephone numbers of the Contractor's Superintendent, an alternate for the Superintendent, Traffic Control Supervisor, Watchperson, and the Traffic Signal Maintenance Person. Either the Superintendent or the alternate shall be on call for notification of any emergencies that may arise during periods when construction operations are not in progress. Changes in the designation of the Superintendent or the alternate shall immediately be made known, in writing, to the Engineer and the law enforcement agencies.

The Contractor's Superintendent or alternate, or traffic control foreman shall meet with the Engineer before work commences to review traffic control plans, and shall be available at all times to periodically discuss modifications to the traffic control plan with the Engineer or his representative.

When an emergency occurs and the Superintendent or alternate are not available to take protective or corrective measures, the City will authorize others to do the necessary work and deduct the cost of the work from the Contractor.

W. Maintenance of Traffic Control Devices. Traffic Control Devices used on the Project will be rated according to the American Traffic Safety Services Association's (ATSSA) Quality Standards for Work Zone Traffic Control Devices. The definitions of "acceptable," "marginal," and "unacceptable" and the evaluation guidelines shall be as defined in ATSSA's Quality Standards for Work Zone Traffic Control Devices.

Except when devices are to become City property (as indicated below), at the time of initial set up and major phase changes, 100 percent of each type of device (signs, barricades, vertical panels, drums, cones, tubular markers, warning lights, arrow panels, etc.) shall be classified as acceptable. The Contractor shall certify in writing to the Engineer that all traffic control devices installed are classified as acceptable.

When the Plans indicate that temporary traffic control devices are to become City property, these devices shall be new upon delivery to the Project and be classified acceptable upon Project completion.

For signs, barricades, vertical panels, drums, cones, tubular markers, and arrow panels the number of acceptable devices of each type may decrease to 75 percent of the initial quantity as a result of damage or deterioration during the course of work. The remaining 25 percent of each type of devices may be in the marginal category. Warning lights shall be "acceptable" or "marginal" at the limits defined in the ATSSA standards. All unacceptable devices found on the job site shall be replaced within 12 hours.

Traffic control devices not covered by the evaluation guidelines shall be maintained to operate effectively and be in good repair.

Traffic control devices shall be cleaned as necessary to remove dirt, mud, or other foreign material which reduces the brightness of the reflectorized sheeting or warning lights.

X. Flagging. Flaggers shall be clean, neat, and fully dressed at all times while on duty either day or night. For daytime work, the flagger's vest, shirt, or jacket shall be orange, yellow, strong yellow green, or fluorescent versions of these colors. For nighttime work, similar outside garments shall be retroreflective. All flagger's vests shall meet ANSI 107-2004 Class 2 or Class 3 risk exposure requirements, when applicable. The retroreflective material shall be orange, yellow, white, silver, strong yellow-green, or a fluorescent version of one of these colors and shall be visible at a minimum distance of 1,000 feet. The retroreflective clothing shall be designed to identify clearly the wearer as a person and be visible through the full range of body motions.

Each flagger shall be furnished with the booklet, Flagging Handbook, and shall observe the rules and regulations contained therein. The Contractor shall obtain copies of the Flagging Handbook from the Department.

Flaggers shall not be assigned other duties while working as authorized flaggers.

The Contractor is responsible for providing trained flaggers. All flaggers must view a flagging video training tape and pass a flagging written examination before performing flagging on the project. The Contractor will acknowledge in writing, before any flagging work begins on the project, that all flaggers will have viewed a flagging video tape and passed a written examination before performing flagging on the project.

Y. Pilot Car. A pilot car shall be used to guide vehicles through or around the construction area when traffic is reduced to a single lane. The pilot car operation must be coordinated with flagging operations or other controls at each end of the one lane section.

Z. Flag Application. Flags shall be attached to warning signs if indicated in the traffic control plan sheets.

PART 4 MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Traffic Control. When "Traffic Control," is included in the Contract as a lump sum, it includes all traffic control necessary for the project construction except as otherwise provided. Payment includes furnishing, installing, and maintaining the required signs, barricades, and other warning devices; relocating or removing devices as dictated by the work progress; and providing watchpersons to patrol the work.

No payment (over the lump sum bid for "Traffic Control") will be authorized for additional traffic control devices required as a result of the Contractor's method or sequence of operation, whether or not the type of operation is included in the typical work area layouts shown on the traffic control plan sheets.

Payment (over the lump sum bid for "Traffic Control") may be authorized for additional traffic control devices if the type or number of such devices requested by the Engineer exceeds the requirements indicated by the typical work area layouts shown on the traffic control plan sheets, or when the need for additional traffic control devices is created as a result of Contract revisions.

B. Obliteration of Pavement Marking. Obliteration of Pavement Marking will be measured, and paid for according to Specification Section 02 4205 - Demolition.

4.2 BASIS OF PAYMENT

A. When the item "Traffic Control" is bid as a Lump Sum, payment for the Contract Lump Sum bid will be made according to the following schedule:

Total Payment To Date	
40%	When all initial traffic control devices required to start construction have been installed.
50%	When Contract is 25% complete.
75%	When Contract is 50% complete.
90%	When Contract is 75% complete.
100%	When Contract is complete.

When additional traffic control devices requested by the Engineer qualify for payment according to item 4.1.A, payment for furnishing and installing such devices will be made using the prices listed in the Rental Rates for Equipment and Traffic Control Devices, published by the Department.

The above payments for installation include the cost of removing or relocating the traffic control devices. No additional payment will be made when traffic control devices are covered up, or temporarily taken out of service, then returned to use.

All standard traffic control devices furnished by the Contractor shall remain the property of the Contractor.

If the Contractor is required to furnish special non-standard signs not shown on the Plans, payment will be made at invoice price plus 15 percent, and the sign will become the Department's property after it has been removed from service. Payment for sign supports and installation of special signs will be made using the prices listed in the Rental Rates for Equipment and Traffic Control Devices, published by the Department.

B. Obliteration of Pavement Marking, when included in the Contract as a separate pay item, will be paid for according to Specification Section 02 4205 - Demolition.

C. Items requested by the Engineer that are not listed on the Plans or NDDOT Standard Drawings as incidental items or separate pay items such as Flashing and Steady Burn Lights, Concrete Median Barriers, Attenuation Devices, etc., will be paid for individually.

D. The cost of providing Traffic Control Supervisors, when needed, and Watch persons shall be included in the bid prices for other items.

END OF SECTION

2026 Utility and
Street Improvement Project
City of Dickinson, North Dakota

Apex Project #22.107.0010
City of Dickinson Project #202605

SPECIAL PROVISIONS

If any item contained herein is contradicted by other portions of the specifications, the Special Provisions shall govern.

Section 01 4001 – Quality Control

Remove Part 3.1 paragraphs A and B and replace with the following:

A. City shall engage and pay for the services of an independent agency to perform specified quality control and testing services. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

B. Where the City has engaged a testing agency or other entity for testing and inspection of a part of the Work and the Contractor is also recommended to engage an entity for the same or related element, Contractor shall not employ the entity engaged by the City, unless otherwise agreed in writing with the City.

Add Part 3.2 paragraph D:

D. Contractor shall coordinate with Engineer and independent testing firm to conduct testing as follows:

General Structural Fill – Materials, compaction, and testing frequencies shall be in accordance with the Geotechnical Report for this project.

Utility Trench Backfill – Materials, compaction, and testing frequencies shall be in accordance with the Geotechnical Report for this project.

Aggregate Base Course – Materials, compaction, and testing frequencies shall be in accordance with the Geotechnical Report for this project.

Concrete items – Samples and testing taken every 30 CY or once daily minimum. Locations to be at Engineer's discretion.

- Cast cylinders and perform air content, slump and weight tests on-site
- Mechanical sieve analysis of aggregates
- Compressive strength test on cylinders
    - Field Cure
    - 2 Day Break (lab cured) for any High Early Concrete
    - 7 Day Break (lab cured)
    - 14 Day Break (lab cured)
    - 28 Day Break (lab cured)
    - Extra

Asphalt items – Samples and testing taken every 500 tons or once daily minimum. Locations to be at Engineer's discretion.

- Mechanical sieve analysis of belt sample
- Mix property tests
    - Voids Total Mix (%)
    - Maximum Theoretical Density (pcf)
    - Unit Weight (pcf)
    - Marshall Temperature (deg F)
    - Field Temperature (deg F)

Nuclear density of the compacted asphalt pavement shall be taken every 400 feet per mainline lift per each paver pass or a minimum of one (1) test per lift per day. Locations to be at Engineer's discretion. One day's paving will be considered one lot and each 400 feet will be a sublot.

Failing tests shall require retesting after the contractor has taken corrective actions. If corrected actions are not completed prior to the mat temperatures falling below 185°, the final density of the mat will be recorded at 185° for the sublot and no further compaction allowed. The densities from each sublot will be averaged to determine the average density for the lot. The daily average density of the lot will be the basis of the Density Payment Adjustment for that day.

Density Payment Adjustment (Daily)

Adjustment Pay Factor	Average Pavement Density
1.0	91% and Above
0.95	90.0% to 90.9%
0.90	89.0% to 89.9%
Remove & Replace	<89.0%

Field sampling/testing must be performed in the presence of the Engineer, unless otherwise approved by Engineer.

Section 01 5227 – Slope Protection and Erosion Control

Remove Part 3.2 paragraph A and replace with the following:

A. Install erosion control devices in all erodible areas according to manufacturers' instructions.

Section 01 7001 – Contract Closeout:

Add Part 3.1 paragraph I:

I. The Contractor shall sweep the pavement (including curb gutter and sidewalk) before opening to traffic, prior to installation of permanent pavement markings (if Engineer determines necessary), and again within 3 days prior to final acceptance by the Owner. Contractor shall furnish and utilize a vacuum type sweeper(s) to control the dust, and supplement with manual labor where

needed. All costs connected with this work shall be included in the price bid of other items.

Section 02 4205 Demolition:

Replace Part 1.3 paragraph D:

D. State regulatory agency is North Dakota Department of Environmental Quality.

Add Part 3.2 paragraph O:

O. Asbestos Cement Pipe removal.
   i. Asbestos Cement Pipe (ACP) to be removed according to North Dakota Department of Environmental Quality requirements.
   ii. Before removal, the ACP must be inspected by a certified asbestos inspector to determine the condition. A list of current licensed asbestos inspectors in North Dakota can be found at: https://deq.nd.gov/publications/WM/Asbestos/AsbestosContractors.pdf
   iii. The ACP must be removed by a licensed contractor and individuals certified to do asbestos abatement. This material must be removed in accordance with North Dakota Air Pollution Control Rules. A list of licensed asbestos contractors can be found at https://deq.nd.gov/forms/WM/asbestos/SFN17987.pdf
   iv. ACP must be disposed of at an approved landfill and is prohibited from being recycled.
   v. ACP that is in a friable condition or removed by mechanical methods must be wrapped and labeled with asbestos warning labels, along with generator information labels. After disposal, a waste shipment record must be sent to the NDDEQ within 10 days. A copy shall be supplied to the engineer. A copy of the waste shipment record can be found at https://deq.nd.gov/forms/WM/asbestos/SFN58174.pdf
   vi. OSHA rules apply to the removal of ACP.
   vii. More information on NDDEQ requirements can be found here: https://deq.nd.gov/publications/WM/Asbestos/AsbestosCementPipe.pdf

Add Part 3.2 paragraph O:

O. Dispose of all concrete and asphalt demolition materials at the City Landfill. All materials shall be first be weighed at the Dickinson Baler Building.

Section 31 2323 – Fill

Remove Part 2/2.1/E/1. And replace with the following:

A. Pipe bedding shall be NDDOT Class 3M, Class 3, or Class 5 and conform to NDDOT Standard Specification Section 816.

Remove Part 4.2 paragraph A and replace with the following:

A. Payment will be incidental to other items.

Section 31 3280 – Geotextile Fabrics:

Remove Part 1.1 paragraph A and replace with the following:

A. This work consists of furnishing and installing geosynthetic material, including geotextile fabric and geogrid.

Remove Part 2.1 paragraph B and replace with the following:

B. Geosynthetic Material Type G shall be Tensar Triaxial Geogrid HX145. Other geosynthetic materials, including geotextile fabric and geogrid, shall conform to Section 858 – Geosynthetics of the NDDOT Standard Specifications for Road and Bridge Construction, latest edition.

Remove Part 3.1 paragraph B and replace with the following:

B. Geosynthetic material, including geotextile fabrics and geogrid, shall be installed in accordance with NDDOT Standard Specification Section 709 for the specified class of geosynthetic material, including geotextile fabric and geogrid.

Section 32 1207 - Aggregate Materials:

Remove Part 2.1 paragraph A and replace with the following:

A. Aggregate materials shall meet the requirements of NDDOT Standard Specification for Aggregate Base Course Class 5 or the class of aggregate specified on the plan or elsewhere herein.

Section 32 1210 – Concrete Paving

Remove Part 2.2.A paragraph 1 and replace with the following:

1. Cement shall be an approved and established brand of Portland Cement Type I, Type IA, Type II, or Type IL. Different brands of cement, or the same brand of cement from different mills, shall not be mixed during use without permission from 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. The vendor shall provide backup documentation and certifications that the cement used meets these requirements.

Remove Part 2.2.F.2 paragraph a and replace with the following:

a. Polymeric Sealant: The material for filling poured expansion and contraction joints and cracks shall be hot poured elastic type and shall conform to the requirements of ASTM D-6690. The material shall be composed of a homogeneous blend of virgin polymers, plasticizers, special fillers and asphalt compounded specifically for the sealing of cracks in asphalt or concrete pavement. Ground cured rubber scrap shall not be used. Meadows Safe-Seal 3405 is an approved substitute for the hot pour material.

Remove Part 2.2.J paragraph 2 and replace with the following:

2. Detectable Warning Panels shall conform to the requirements of Section 885 Detectable Warning Panels of the NDDOT Standard Specifications for Road and Bridge Construction, latest edition.

Remove Part 2.3.A paragraph 2 and replace with the following:

2. One cubic yard of mixed concrete in place shall contain not less than 564 lbs. minimum of cementitious materials. The water- cement ratio shall not exceed 0.45. The slump shall not exceed four (4) inches before addition of admixtures. Minimum 28-day compressive strength shall be 4,000 psi. Entrained air content shall be between 5% and 8%.

Section 32 1508 – Milling Pavement Surface:

Add Part 3.3 paragraph J:

J. Contractor's schedule shall be coordinated such that final asphalt pavement surface is placed no later than 5 calendar days from time of milling. If public or construction traffic operates on the milled surface for more than 5 days, repair the roadway as directed by the Engineer at no additional cost to the City.

Section 32 1509 Asphaltic Pavement Repair

Add Part 2.2 paragraph A:

A. Mix Design: See 32 1513 for Mix Design.

Add Part 3.7 paragraph B:

B. The Contractor shall sweep the pavement (including curb gutter and sidewalk) before opening to traffic, prior to installation of permanent pavement markings (if Engineer determines necessary), and again within 3 days prior to final acceptance by the Owner. Contractor shall furnish and utilize a vacuum type sweeper(s) to control the dust, and supplement with manual labor where needed. All costs connected with this work shall be included in the price bid of other items.

Remove Part 4.1 paragraphs A through D and replace with:

A. Excavation, geotextile fabric, aggregate base course class 5, tack, asphalt, and asphalt cement associated with the asphalt pavement repair shall be measured by the square yard (SY) of the repair site.

Add Part 4.2 paragraph E:

E. Excavation, geotextile fabric, aggregate base course class 5, tack, asphalt, and asphalt cement associated with the asphalt repair shall all be included in the price bid for asphalt pavement repair (SY).

Section 32 1513 – Hot Asphaltic Concrete Paving

Remove Part 2.2 paragraph A and replace with the following:

A. Mix Design: Conform to NDDOT Specifications, Section 430. Mix design shall be Superpave FAA 43 with a PG 58H-34 Asphalt Binder.

Remove Part 3.3 paragraph A and replace with the following:

A. Discharge mix from the mixer with a temperature no higher than the bituminous material manufacturer's recommendation. If there are no recommendations on maximum mix temperature, discharge mix with a maximum temperature of 300°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.

Remove Part 3.3 paragraph M and replace with the following:

M. Place a subsequent lift after the previous lift has cooled to 130°F.

Place bituminous mix without supplementary admixture when the temperatures are at or above the requirements in Table 430-08 of the NDDOT Standard Specifications, latest addition. Include a supplementary admixture such as Evotherm, AD-here LOF 65-00 EU, or an approved equal in the bituminous mixture when placing bituminous mix when temperatures are within the ranges shown in Table 430-09 of the NDDOT Standard Specifications, latest addition. Do not place bituminous mix when temperatures are below those shown in Table 430-09.

If placing bituminous mix according to Table 430-09, submit the supplementary admixture manufacturer's dosage rate and any changes to the mix design. The supplementary admixture may be added to the asphalt binder by the supplier or refiner, or by the Contractor at the asphalt plant. Add the admixture to the binder according to the supplementary admixture manufacturer's recommendations. If the admixture is added at the plant, equip the plant with a metering device that records the rate of admixture. Tie the metering device into the same system that measures the other components of the mix.

Measure the existing mat temperature using one of the following methods:

- Using an infrared sensing thermometer; or
- Insert a conventional thermometer into a 1 inch deep hole in the pavement. Fill the hole with water, oil, or grease.

Remove Part 3.4 paragraph A through B and replace with the following:

A. Initial or breakdown rolling, intermediate rolling, and final or finish rolling shall be accomplished with rollers meeting all requirements of NDDOT Standard Specifications Section 430.04.I and which are approved by the Engineer.

B. Asphalt pavement shall be compacted to 91 percent of the Theoretical Maximum Density specified in the mix design. Density of field samples shall be tested with a nuclear density gage at specified frequency.

Add Part 3.7 paragraph C:

F. The Contractor shall sweep the pavement (including curb gutter and sidewalk) before opening to traffic, prior to installation of permanent pavement markings (if Engineer determines necessary), and again within 3 days prior to final acceptance by the Owner. Contractor shall furnish and utilize a vacuum type sweeper(s) to control the dust, and supplement with manual labor where needed. All costs connected with this work shall be included in the price bid of other items.

Section 33 0601 – Manholes, Cleanouts and Covers:

Add the following to Part 1.5.D:

1. Sanitary sewer shall not be interrupted at any time. Contractor shall verify and confirm all existing utilities that are to remain in service and shall take measures to protect these utilities from damage.
2. The Contractor shall be advised, sanitary sewer systems often convey large household, commercial, industrial, and construction items and/or debris. Any damage to bypass equipment as a result of the contents within the wastewater stream shall be the Contractor's responsibility.

Add the following paragraph to Part 1.5:

E. Manhole and vault shop drawings shall include structural calculations stamped by a registered Professional Engineer. Structural design shall be adequate for the depths shown on the Drawings. Calculations shall include uplift calculations due to ground water. Ground water level shall be assumed to be at finished grade.

Add the following to Part 2.2.A:

Monolithic bases shall extend a minimum of 6-inches outside of the manhole exterior wall.

Add the following to Part 2.2.F:

All pipe penetrations shall have a rubber sleeve and shall be water-tight. A minimum of two (2) stainless steel take-up clamps shall be provided for each rubber sleeve. All hardware shall be stainless steel.

Section 33 1001 – Temporary Water Supply:

Add the following paragraph to Part 1.1:

A. It is anticipated that temporary water systems shall be required at different locations at different times:

Section 33 1116 – Water Utility System

Revise 3.8.C, replace allowable leakage formula with the following AWWA C605-05 equation:

$$Q = \frac{LD\sqrt{P}}{148{,}000}$$

Where:
Q = allowable leakage (gals/hr.)
L = length of test section (ft)
D = pipe diameter in inches (in)
P = average test pressure (psi)

Add the following paragraph to Part 3.7:

E. Zinc Anode Caps
   a. Zinc anode caps shall conform to ASTM B418-88 "Galvanic Zinc Anodes".
   b. Zinc anode caps shall be ¾" - 10 NC tapped weighing 6oz.
   c. Cap dimensions shall be in accordance to manufactures design; equal to "Trumbull", "Sigma", "Christy", or approved equal.
   d. Zinc anode caps shall be installed on every third bolt on each ductile iron fitting, gate valve, and hydrant.

Section 33 1675 – Disinfection of Water System

Revise 1.4 QUALITY ASSURANCE, B., to read: All sample testing to be performed by a North Dakota State Certified Lab which is certified for the tests being performed.

Section 33 3722 – Sanitary Sewage System:

Replace Part 3.4, F.1 with the following:

Infiltration Testing
a. The Contractor shall perform infiltration testing of all gravity sewer that is below the groundwater level for the entire length of the pipeline to be tested.
b. Allowable infiltration shall not exceed 50 gallons per inch of internal pipe diameter, per mile, per day.
c. All sections of pipe exceeding the allowable infiltration rate shall be replace at no additional cost to the Owner.

Exfiltration Testing
a. The Contractor shall perform exfiltration testing of all gravity sewer when the groundwater level is less than two (2) feet above the crown of the pipe at the upstream end and no more than six (6) feet above the crown at the downstream end.
b. Allowable exfiltration shall not exceed 50 gallons per inch of internal pipe diameter, per mile, per day.
c. All sections of pipe exceeding the allowable exfiltration rate shall be replace at no additional cost to the Owner.

Remove Part 4.2 paragraph B and replace with the following:

B. If specific items of required work are not listed on the bid form, payment will consider incidental to other, related, items of work. Sewer lines shall be hydrostatically tested and payment will be considered incidental to other bid items.

Section 33 4721 – Storm Sewer System:

Replace 2.2.B with the following:

Reinforced Concrete Storm Sewer Pipe: Conform to the requirements of ASTM C76. Unless otherwise specified, all pipe shall be Class III in accordance with ASTM C76, Wall B. Pipe Class shall be verified by manufacturer. All pipe sections shall be cast in sections 8 feet, 6 feet, or 4 feet long, except that the variable length sections may be cast in order to match at manholes and inlets.

Add the following paragraph to the beginning of Part 2.2.L.1:

All Reinforced Concrete Pipe joints shall be standard tongue and groove sealed with an all-weather preformed joint sealant made of butyl rubber in a flexible rope form that meets and/or exceeds all requirements of AASHTO M198 and ASTM C990. All pipe conduit storm drain joints shall be wrapped with Geotextile Fabric Type S2, 2 foot minimum width.

Section 34 4700 – Traffic Control

Remove Part 4.1 paragraph B and replace with the following:

A. Obliteration of Pavement Marking. Obliteration of Pavement Marking will be measured, and paid for according to Specification Section 32 1720 – Pavement Marking.

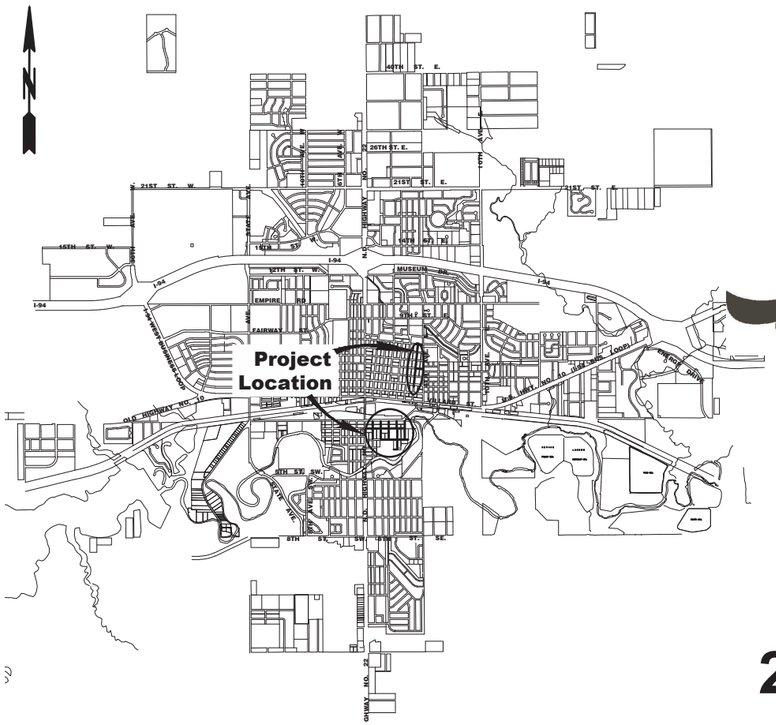
Remove Part 4.2 paragraph B and replace with the following:

A. Obliteration of Pavement Marking, when included in the Contract as a separate pay item, will be paid for according to Specification Section 32 1720 – Pavement Marking.

END SECTION

CITY OF DICKINSON

STARK COUNTY, NORTH DAKOTA



VICINITY MAP

NOT TO SCALE



NORTH DAKOTA STATE LOCATION MAP

CITY OF Dickinson North Dakota

February 2026

IMPROVEMENT PLANS FOR:

2026 Utility and Street Improvements

CITY OF DICKINSON PROJECT NO. 202605
APEX PROJECT NO. 22.107.0010

CITY COMMISSIONERS

SCOTT DECKER, MAYOR
JASON FRIDRICH
DR. ROBERT BAER
JOE RIDL
RUSS MURPHY

CITY ADMINISTRATOR

DUSTIN DASSINGER

CITY ENGINEER

JOSHUA SKLUZACEK, PE

DATE: 02/17/2026

INTERIM PUBLIC WORKS DIRECTOR

JACOB WALDO

DATE: 02/17/2026

GOVERNING SPECIFICATIONS: .

STANDARD TECHNICAL SPECIFICATIONS AND STANDARD DETAIL DRAWINGS FOR MUNICIPAL PUBLIC WORKS IMPROVEMENTS CITY OF DICKINSON, DECEMBER 2017. AS PERIODICALLY UPDATED AND SUPPLEMENTED BY THE CONTRACT DOCUMENTS.

CERTIFICATION

I HEREBY CERTIFY THAT THE ATTACHED PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NORTH DAKOTA.

DATE: 02/18/2026 .

City of Dickinson Horizontal/Vertical Datum: NAD83(86), North Dakota South Zone, GEOID18, US Feet, NAVD88 unless otherwise noted.

REVISIONS		
REV. #	DESCRIPTION	DATE

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
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NORTH DAKOTA

Sheet Index

SECTION	PAGE(S)	DESCRIPTION
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6	1 - 3	NOTES
8	1	QUANTITIES
20	1 - 20	GENERAL DETAILS
30	1 - 3	TYPICAL SECTIONS
40	1 - 16	ROADWAY REMOVALS
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90	1 - 16	PAVING LAYOUTS
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EXISTING

- EXISTING SECTION LINE
- EXISTING QUARTER LINE
- EXISTING PROPERTY LINE
- EXISTING CONTOUR (1500)
- EXISTING FIRE HYDRANT
- EXISTING GATE VALVE
- EXISTING ELECTRICAL VAULT
- EXISTING WATER STOP
- EXISTING GUARD POST
- EXISTING TELEPHONE PEDESTAL (TP)
- EXISTING DECIDUOUS TREES
- EXISTING CONIFEROUS TREES
- EXISTING HEDGES
- EXISTING TREE ROW
- EXISTING BUSH ROW
- EXISTING RETAINING WALL
- EXISTING BENCHMARK (BM)
- EXISTING SOIL BORING
- EXISTING CONTROL POINT
- EXISTING STREET SIGN
- EXISTING STREET LIGHT
- EXISTING SINGLE MAIL BOX
- EXISTING POWER POLE
- EXISTING GUY WIRE
- EXISTING SANITARY MANHOLE (SS)
- EXISTING STORM MANHOLE (ST)
- EXISTING RECTANGULAR INLET (CB)
- EXISTING FENCE
- EXISTING CURB (TYP)
- EXISTING CONCRETE
- EXISTING SANITARY SEWER (S)
- EXISTING SANITARY SEWER SERVICE (SS)
- EXISTING SANITARY FORCEMAIN SEWER (SFM)
- EXISTING STORM SEWER (ST)
- EXISTING WATER LINE (W)
- EXISTING WATER SERVICE LINE (WS)
- ABANDONED UTILITY (AB)
- EXISTING GAS LINE (G)
- EXISTING GAS LINE SERVICE (GS)
- EXISTING PETROLEUM PIPELINE (PLO)
- EXISTING UNDERGROUND TELEPHONE (T)
- EXISTING OVERHEAD TELEPHONE (OHT)
- EXISTING UNDERGROUND POWER (UGP)
- EXISTING OVERHEAD POWER (OHP)
- EXISTING UNDERGROUND TELEVISION (TV)
- EXISTING UNDERGROUND FIBER OPTIC (FO)

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
Legend & Table of Contents

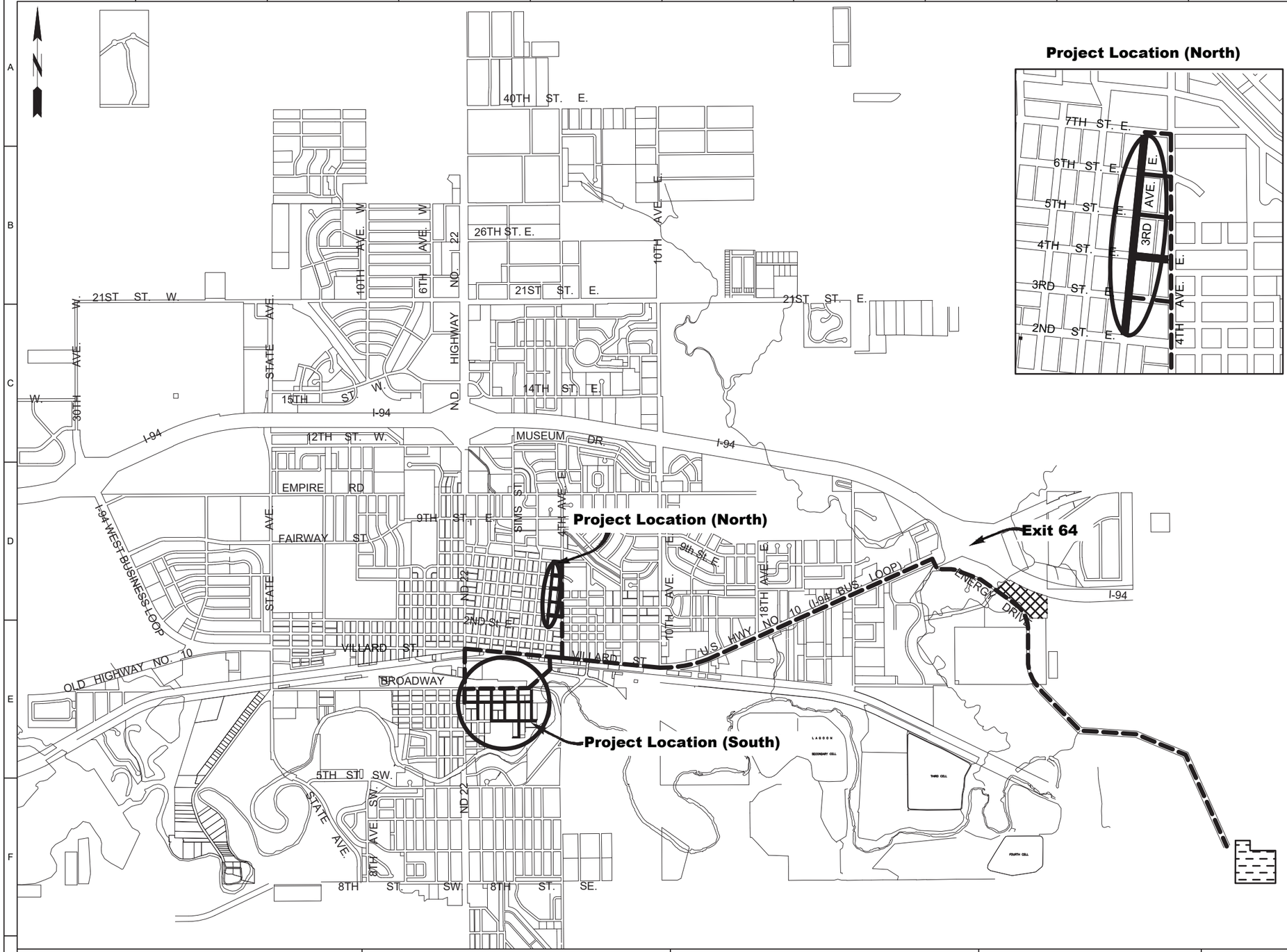
Apex Engineering Group

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Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

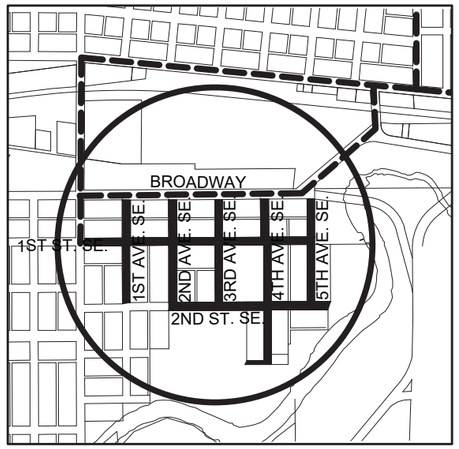
Sheet: 2-01

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Project Location (North)

Project Location (South)



Asphalt and Concrete Removals

- Weigh Trucks at Baler Building
- Trucks Must Dump at City Landfill
- Haul Route

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REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
Scope of Work - Haul Route

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Project #: 22.107.0010
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Approved By: Jason P. Gullicks

Sheet: 4-01

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 004_Scope.dwg

General Notes

1. The subsurface utility information in this plan is utility level D. This quality was determined according to the guidelines of CI/ASCE38-02, entitled "standard guidelines for the collection and depiction of existing subsurface data." Some information was taken from maps supplied to Apex Engineering Group by the owners. Apex Engineering Group does not certify to the completeness and/or accuracy of these locations.

2. The project area includes multiple utilities as indicated on the plan sheets. It is the Contractors responsibility to field verify all utilities prior to submitting a bid.

3. Contractor shall notify utility companies for underground locations 48 hours prior to beginning construction. North Dakota One Call phone number: 1-800-795-0555 or 811. Damage to utilities caused by the Contractor's operations shall be corrected at the Contractor's expense. Additional compensation or adjustments to Contract Times will not be allowed for delays associated with such corrective work. Damaged facilities shall be restored to a condition similar or equal to that existing before the damage took place. If the Engineer determines that adjustment or relocation of underground facilities is necessary to accommodate construction, necessary arrangement will be made with the owner if such work is not otherwise provided for in the Contract.

4. Contractor shall take measures to protect all existing utilities and ROW elements to remain. Measures include, but not limited to, bracing, shoring, and supporting. Protection of existing items shall be incidental. Any damage shall be repaired at the Contractor's expense to the satisfaction of the Engineer.

5. Contractor shall coordinate with private utility companies for any relocation or temporary utility needs they may have.

6. Coordination of Projects:
   a. East Broadway Dam Replacement Project
   b. Coordinate work with these projects and account for the conditions at the time of bid.

7. Construction Limitations: The Contractor shall perform work only between the hours of 7:00 a.m. to 8:00 p.m. Monday through Friday, and 8:00 a.m. to 8:00 p.m. on the weekend. No work will be allowed on Sundays or Holidays unless authorized by the Owner and/or Engineer. The Contractor shall work only in the dedicated easements and/or right-of-way.

8. Existing signs that are to be re-installed after the construction is completed shall be hauled to Public Works Building located at 3411 Public Works Boulevard. The City of Dickinson will reset any permanent signs that will be impacted during construction. Provide the City a two-week notice prior to needing the signs re-installed. The contact for the City is the Public Works Street Department at (701) 456-7979. The Contractor shall provide temporary STOP signs as needed.

9. Existing Sprinkler Systems: Lawn sprinkler systems are located along the project. Prior to beginning work, the Contractor shall inspect and locate all sprinklers withing the work area. If construction will impact the sprinklers, the Contractor shall remove and reset or replace them with a similar type. If any work required to adjust the sprinklers will happen outside the existing right of way, the Contractor shall obtain written permission from the landowner prior to working outside of the right of way. Coordinate with the property owner to verify working conditions prior to and after adjustments. All costs connected with this work shall be included in the price bid for other items.

10. If mailboxes need to be impacted, the Contractor shall provide temporary mailboxes consisting of one or more support structures containing separately enclosed standard sized mailboxes with addresses clearly marked on each box. Contractor shall coordinate the location and use with the residents and the U.S. postal service. Mailboxes impacted by the project shall be removed and reset. Post shall be removed and reset unless the resident supplies a new post. This includes delivery services to adjacent properties, such as Postal, UPS and FedEx delivery are not interrupted. There may be other regular delivery services for which similar coordination will be required. A written copy of the above plans will be submitted to the Engineer and Owner prior to beginning work which may disrupt such deliveries. All work necessary for temporary mailboxes and coordination is incidental to the contract.

11. Haul Road Restrictions: At the preconstruction conference, it will be determined if the City of Dickinson requires the Contractor to do an inspection of the designated haul road before any work is to begin and before final acceptance of the Project. The City and Engineer representative will be present during both inspections. Should any damage be done to haul road during construction, all work necessary for haul road repairs and coordination is incidental to the contract.

General Notes (Cont.)

12. Any work that extends beyond the construction limits shall be restored to the pre-construction conditions to the Owner's satisfaction at the Contractor's expense.

13. It is the Contractor's responsibility to install barricades, lights, etc. at all potentially dangerous locations, whether directed to or not. Contractor shall follow the traffic control specifications and shall be in conformance with the latest edition of the MUTCD. Contractor shall work with the Owner/Engineer on coordination of traffic control requirements. It is the Contractor's responsibility to complete the City's Street Closure for Construction Application form found on City website https://dickinsongov.com, in compliance with the required lead time prior to taking such action. Contractor shall notify all businesses and residents adjacent to the construction site 48 hours in advance for any closures and/or access restrictions. It is the Contractor's responsibility to notify the property owners or tenants of approaching work 48 hours prior to start of Work affecting such. It is the Contractor's responsibility to coordinate with businesses affected by the work, including the accommodation of scheduled and unscheduled shipping and deliveries. The Contractor will provide the Engineer with a written copy of how such will be accomplished.

14. It is the responsibility of the Contractor to coordinate with the City or property owners regarding staging areas, including those required for storage of materials and equipment. The Contractor shall obtain written permission for use of staging areas from owners of such areas. Copies shall be given to the Owner and Engineer.

15. Provide notifications of no parking in the construction are to residents and businesses 48 hours in advance for any closures and/or access restrictions. The notifications shall list the dates and reason for the closures and/or restrictions. Provide a copy of all notifications to the Engineer. If the Contractor neglects to provide adequate notifications, the Engineer may apply a contract price reduction of $5,000 per day and suspend all work until deficiencies have been corrected. Furnish, install, and maintain temporary “No Parking” signs as needed.

16. Contractor shall coordinate the solid waste collection location and use with the residents and the City of Dickinson Public Work Solid Waste Manager (701) 456-7776.

17. Contractor shall complete all curb and gutter, inlet, sidewalks, and valley gutter work prior to milling any asphalt along the block or area of the project.

18. It is the Contractor's responsibility to protect all freshly poured concrete from vehicle, bike, or pedestrian traffic. Any surface with vandalism, cracks, and any other marks shall be removed and replaced to the satisfaction of the Engineer at the Contractor's expense.

19. It is the Contractor's responsibility to coordinate and provide continuous access to all properties within the project limits. Vehicle access shall be provided to every property when construction activity has ceased for the day, unless otherwise approved by the Engineer. Any grading, aggregate and/or other temporary work and material necessary shall be incidental. Residential access to driveways must be maintained overnight, except a maximum closure for concrete pour is 7 calendar days.

20. Existing bituminous and concrete shall be full depth saw cut at the removal limits prior to preliminary and final removal. All saw cutting shall be incidental.

21. The Contractor shall have water onsite if necessary. Backfill material shall be wetted if material is dryer than optimum moisture content and water shall be used for dust control. All costs, labor, materials, and equipment necessary for obtaining and use of water shall be incidental to other items.

22. Construction staging area shall be kept orderly. Following construction, all material, equipment, and debris shall be removed & disposed of properly.

REGISTERED PROFESSIONAL ENGINEER
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REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
General Notes

Apex Engineering Group

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Project #: 22.107.0010
Date: February 2026
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Checked By: Jason P. Gullicks
Approved By: Scott Schneider

Sheet: 6-01

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General Notes (Cont.)

23. Curing compound shall be evenly applied over entire width of all concrete items. During application, lights poles, fire hydrants, etc. shall be protected from over spray.

24. The project areas shall be kept clean and free of debris, excess material, equipment, tools or other items at all times. The site shall be backfilled and graded smooth each day prior to night suspension unless otherwise approved by the Engineer. All equipment left within the site during suspension shall be parked together in a line. All tools, forms, or other items shall be organized in an orderly fashion or removed from the site daily.

25. Existing curb & gutter varies in type and dimensions. Spot replacement curb & gutter shall match existing. In the mill and overlay segment, use flowable fill between the existing asphalt surfacing and new curb & gutter to fill void. The asphalt overlay is to be installed over the flowable fill. All work necessary shall be included in the new concrete curb & gutter.

26. A field office and testing laboratory will not be needed for the project.

27. In areas of ponding water caused by the pavement surface being lower than the gutter line, the Contractor will be responsible to sweep/remove water from the pavement surface immediately after any rain event. All costs connected with water removal shall be included in the price bid of other items.

28. Joint filler/sealant for all items beyond edges of pavement shall be Low Modulus silicone only meeting NDDOT requirements. Hot pour or self-leveling silicone will not be allowed except for asphalt pavement joints and surrounding gate valves and manhole adjustments.

29. Hot Bituminous Pavement shall be placed in two-inch lifts.

30. Failing tests shall require retesting the adjusted materials in the presence of the Engineer for confirmation of specification compliance at Contractor's expense.

31. Field sampling / testing must be performed in the presence of the Engineer, unless otherwise approved by the Engineer.

32. Any existing frame, gate valve, fire hydrant, cast-iron pipe, or grate called for removal shall be salvaged and delivered to the Public Works Department located at 3411 Public Works Boulevard. All costs with salvaging and delivering to The City of Dickinson shall be incidental to other items.

33. Aggregate Base Course shall not be field measured and is to be paid as the TON plan quantity unless limits are altered from Plan by the Engineer.

34. Excess excavation from constructing the new roadways shall be removed and disposed of offsite. Include all costs in the price bid for other items.

35. All cost for Removal of Stumps to be included in Clearing and Grubbing bid item. Remove to depth of 2.5' below existing ground.

36. Geosynthetic Material Type G shall be Tensar Triaxial Geogrid HX145.

37. Contractor must install Curb & Gutter prior to installing sidewalk ADA ramps.

38. All developed/built on properties shall receive Type I Seed Mix and any undeveloped/vacant properties shall receive Type II Seed Mix.

39. Contractor shall protect all property pins. Property pins destroyed or disturbed shall be replaced at Contractor's expense.

Coordination with Utilities Notes

1. All construction of the water and sanitary sewer shall be completed per the City of Dickinson and North Dakota Department of Environmental Quality standards.

2. Construction Water: If the Contractor uses City of Dickinson supplied water, the City of Dickinson will provide a hydrant connection within the project limits. The City of Dickinson will install a meter to measure the gallons used. The cost for the construction water will be determined by the City of Dickinson current fee schedule at the volume of every thousand gallons used shall be paid directly to the City of Dickinson.

3. Water service boxes and sanitary cleanouts are not shown on the plan. It is the Contractor's responsibility to locate and protect all in-place water services and sanitary sewer services. The Contractor shall use caution when excavating as to ensure no existing services are damaged. Water curb stop and box and sewer cleanout may need adjustment to final grade in remove and replace areas. Adjustments are to be considered incidental to their affecting pay items.

4. Only City of Dickinson water utility maintenance employees shall operate existing fire hydrants and valves, Contractor shall call City to coordinate for operation of existing utilities.

5. Gate Valve Boxes to Grade and Manhole Castings to Grade include the removal and disposal of concrete collar (if exists), adjustments to final grade, and the construction of new collar as specified and detailed in Plans.

6. The Contractor shall be responsible for any temporary grading, piping, and or pumping necessary is provided to ensure so no work areas are impacted from runoff throughout the duration of the project.

7. If the existing drainage facilities become inoperable before the new drainage system is functioning, provide sufficient temporary pumping and drainage facilities to keep the roadway drained. Include the cost of providing sufficient temporary pumping and drainage in the price bid for other items.

8. All existing Lead Water Services encountered shall be removed and replaced with poly from the main to the parcels water meter.

9. Lead Water Service Replacements must follow “AWWA Standard C810-17 Replacement and Flushing of Lead Service Lines.” Contractor will be required to get property owner sign off of Flushing Acknowledgement Form (City Provided). A filter pitcher will be required to be provided to the property owner/occupant - Contractor will be responsible to procure and provide filter pitchers. Filters shall be certified to NSF Standard 53.

REGISTERED PROFESSIONAL ENGINEER
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CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
General Notes

Apex Engineering Group
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Project #: 22.107.0010
Date: February 2026
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Sheet: 6-02

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Salvaged Base Course Notes

1. The City of Dickinson requires a mixture of crushed concrete and millings to be used as the Salvaged Base Course material that is stockpiled at the City of Dickinson landfill located at 3880 Lehigh Road. The City of Dickinson will provide the staff and equipment to load the material at the City of Dickinson landfill. There will be a mobile scale available at the City of Dickinson landfill to accommodate the required scale in and out process. All loads shall be scaled, regardless of situation. The Contractor is to haul the Salvaged Base Course material from the landfill to the site and place the material.

2. All crushed concrete, millings, and/or salvaged base material shall be purchased from the City of Dickinson regardless of the intended use. This includes utilizing crushed concrete for improving trench backfill material and/or subgrade material.

3. The landfill is open during Monday through Friday, 7:00 AM - 5:00 PM and Saturday 8:00 AM - NOON (Mountain Time). All requests to hold the landfill open outside of normal business hours shall submit a “Landfill Extended Hours Request” that is located on the City of Dickinson website under the Forms & Applications at a minimum of 48-hours in advance of the extended hours. A fee of $150/hour will be charged for each hour the landfill is held open past normal business hours.

4. A proctor, gradation, and density testing will not be required with this base material. The material will be accepted when the compacted material passes a proof roll.

5. This work will be paid by the ton measured in place as Salvaged Base Material. The conversion from measured cubic yard in place to tons will be 2.0 Ton/CY.

6. The Contractor shall supply an index card or equal, with the City of Dickinson project number to be displayed in the windshield of the truck while at the City of Dickinson landfill at all times.

7. The Contractor is responsible for hauling all concrete and asphalt for disposal to the City of Dickinson landfill.

8. Quantities for Salvaged Base Course and Aggregate Base Course CL 5 are show on plan sheets, but do not have to be used at those locations. Contractor shall first install 6,500 Tons of Salvaged Base Course from the City of Dickinson at any location on the project, and any remaining base material required on the project shall be Aggregate Base Course CL 5.

Other Notes

1. Inlet Protection pay item includes the furnishing, installation, and maintenance of inlet filter bags in addition to weighted fiber rolls. Payment for Inlet Protection shall be measured as Each, referring to each location of an inlet structure regardless of number of castings or grates. Where multiple bags will be required for double/triple inlets.

2. Base material installed under sidewalks and driveways shall consist of Fill Sand. Fill Sand shall be an aggregate material similar to pit run gravel or fine sand with a largest particle size of $\frac{1}{2}$ inch. No testing will be required but a sample shall be submitted to the Engineer for approval prior to use. All costs associated with Fill Sand including the purchase, hauling, installation, and compaction of Fill Sand shall be included in the cost of the sidewalk or driveway.

3. Include costs to core hole at Existing Inlet B10-13 for 15" RCP Pipe Connection in the unit price bid for "MANHOLE 60IN".

4. Include costs to remove the STS Concrete Apron in the unit price bid for "Storm Sewer Pipe - ( )IN RCP".

5. PIPE ABANDONMENT - Plug the existing storm sewer pipe at the locations identified in the plans in accordance with the PIPE PLUG detail in Section 20. Include costs to abandon and plug existing storm sewer in the unit price bid for "Storm Sewer Pipe - ( )IN RCP".

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CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
General Notes

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Sheet: 6-03

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SUMMARY OF QUANTITIES

ITEM	DESCRIPTION	UNIT	TOTAL QTY
1	GENERAL CONDITIONS	LSUM	1
2	MOBILIZATION	LSUM	1
3	CLEARING & GRUBBING	LSUM	1
4	TRAFFIC CONTROL	LSUM	1
5	REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	SY	8,653
6	REMOVAL OF CURB AND GUTTER	LF	14,813
7	REMOVAL OF BITUMINOUS SURFACING	SY	29,194
8	REMOVAL OF CONCRETE PAVEMENT	SY	459
9	MILLING PAVEMENT SURFACE	SY	3,693
10	REMOVAL OF RETAINING WALL	LF	50
11	REMOVAL OF STEPS	EA	1
12	DEMOLITION OF PARKING LOT	LSUM	1
13	ROCK EXCAVATION	CY	100
14	REMOVAL OF AC PIPE	LF	820
15	REMOVE AND SALVAGE HYDRANT	EA	10
16	REMOVE AND SALVAGE GV (ALL SIZES)	EA	17
17	EXPLORATORY EXC. SAN. SERVICE	EA	2
18	EXPLORATORY EXC. WATER SERV.	EA	3
19	SANITARY SEWER MANHOLE 48IN	EA	1
20	SANITARY SEWER MAIN REPAIR AT MH	EA	2
21	SANITARY SEWER MAIN REPAIR	EA	2
22	CONNECT TO EXTG SAN. MH	EA	13
23	CONNECT TO EXTG. SAN. MAIN	EA	2
24	SEWER SERVICE - 519 3RD AVE E	LSUM	1
25	SEWER SERVICE - 529 3RD AVE E	LSUM	1
26	8IN X 6IN SEWER WYE BRANCH	EA	18
27	8IN X 4IN SEWER WYE BRANCH	EA	6
28	15IN X 6IN SEWER WYE BRANCH	EA	22
29	15IN X 4IN SEWER WYE BRANCH	EA	2
30	15IN SANITARY SEWER PIPE SDR 26	LF	1305
31	8IN SANITARY SEWER PIPE SDR 35	LF	1061
32	6IN SEWER SERVICE PIPE	LF	733
33	4IN SEWER SERVICE PIPE	LF	105
34	SANITARY SEWER TEMPORARY BYPASS	LSUM	1
35	BORE WATER SERVICE LINE	LF	190
36	8" X 8" CROSS	EA	1
37	8" X 6" REDUCER	EA	6
38	8" X 3" TEE	EA	1
39	8" X 6" TEE	EA	1
40	CURB STOP & BOX 2IN	EA	2
41	CURB STOP & BOX 1IN	EA	79
42	GATE VALVE & BOX 8IN	EA	12
43	GATE VALVE & BOX 6IN	EA	18
44	GATE VALVE & BOX 3IN	EA	1
45	WATERMAIN 8IN PVC	LF	2837
46	WATERMAIN 6IN PVC	LF	1387
47	WATERMAIN 3IN PVC	LF	41
48	SADDLE & CORP 8"	EA	46
49	SADDLE & CORP 6"	EA	25
50	SADDLE & CORP 4"	EA	1
51	FLUSHING SADDLE & CORP 8"	EA	2
52	FLUSHING SADDLE & CORP 6"	EA	2
53	WATER SERVICE LINE 2IN POLY	LF	40
54	WATER SERVICE LINE 1IN POLY	LF	2257
55	RECONNECT SERVICE LINE	EA	2
56	WATER MAIN CONNECTION (ALL SIZES)	EA	17
57	VERTICAL OFFSET CONNECT TO EXISTING WM	EA	9
58	HORIZONTAL OFFSET WM	EA	4
59	VERTICAL OFFSET CROSSING WM	EA	6
60	6IN HYDRANT EXTENSION	EA	1
61	12IN HYDRANT EXTENSION	EA	1
62	6IN HYDRANT X 7.0' & TEE	EA	1
63	6IN HYDRANT X 7.5' & TEE	EA	1
64	6IN HYDRANT X 8.0' & TEE	EA	9
65	TYPE A - LEAD SERVICE REPLACEMENT	EA	7
66	TYPE B - LEAD SERVICE REPLACEMENT	EA	6
67	TYPE C - LEAD SERVICE REPLACEMENT	EA	2
68	WATERMAIN CONNECTION 5TH & BROADWAY	EA	1
69	REGRADE SEWER SERVICE	LF	300
70	SANITARY SEWER SERVICE CROSSING	EA	53
71	STORM SEWER CROSSING	EA	6
72	LOWER WATER SERVICE	EA	10
73	CURB STOP BOX	EA	10
74	LEAD SERV. LINE REPLACEMENT - MOBILIZATION	EA	3
75	4" THICK INSULATION	SY	400
76	STORM SEWER PIPE - 15IN RCP	LF	77
77	STORM SEWER PIPE - 18IN RCP	LF	30
78	STORM SEWER PIPE - 24IN RCP	LF	4
79	STORM SEWER PIPE - 30IN RCP	LF	613
80	MANHOLE 48IN	EA	1
81	MANHOLE 60IN	EA	1
82	MANHOLE 72IN	EA	1
83	INLET - TYPE 2	EA	1
84	INLET - TYPE 2 DOUBLE	EA	3
85	30IN RCP FES	EA	1
86	RIPRAP CLASS I	LSUM	1
87	MANHOLE CASTING TO GRADE	EA	23
88	INLET CASTING TO GRADE	EA	9
89	GATE VALVE BOX TO GRADE	EA	17
90	MANHOLE CASTING - NEW	EA	4
91	SEEDING	SY	10,161
92	HYDRAULIC MULCH	SY	10,161
93	TEMPORARY COVER CROP	SY	10,161
94	TOPSOIL -IMPORTED	CY	241
95	INLET PROTECTION-SPECIAL TEMPORARY	EA	17
96	SUBGRADE PREPARATION 12 IN	SY	34,404
97	GEOSYNTHETIC MATERIAL TYPE G	SY	30,863
98	GEOTEXTILE FABRIC R1	SY	3,541
99	AGGREGATE BASE COURSE CLASS 5	TON	8,241
100	SALVAGED BASE COURSE	TON	6,500
101	SUPERPAVE FAA 43	TON	6,910
102	ASPHALT CEMENT (PG58H-34)	TON	413
103	CURB & GUTTER - TYPE I	LF	14,363
104	VALLEY GUTTER	SY	379
105	SIDEWALK CONCRETE 4IN	SY	5,529
106	DRIVEWAY CONCRETE 6IN	SY	2,369
107	DRIVEWAY CONCRETE 8IN	SY	644
108	DETECTABLE WARNING PANELS	SF	548
109	SIDEWALK TRENCH DRAIN	LF	29
110	CURB-TYPE I	LF	116
111	RETAINING WALL	LF	50
112	ROUTE & SEAL	LF	500
113	ASPHALT PAVEMENT REPAIR	SY	150
114	WATERING	EA	3

BASIS OF ESTIMATE RATES	RATE	UNITS
Aggregate Base Course CL 5	1.875	TON/CY
Salvaged Base Course	2.00	TON/CY
Tack	0.05	GAL/SY
Superpave FAA 43	2.00	TON/CY
PG 58H-34 Asphalt Cement	6.00	% of HBP
Topsoil	6	IN

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
Quantities / Basis of Estimate

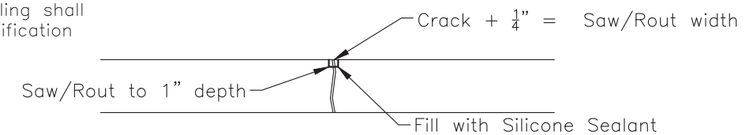
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Jason P. Gullicks
Approved By: Jason P. Gullicks

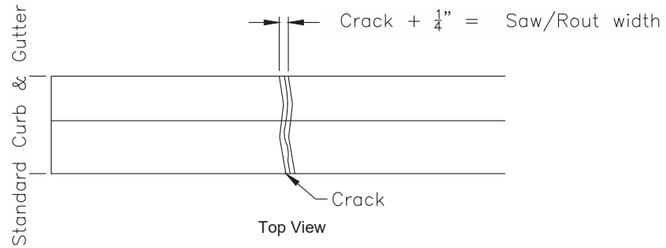
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NOTES:
1. ROUTING, SAWING, CLEANING, AND SEALING OF JOINT IS INCLUDED IN THE LINEAR FOOT (LF) PRICE BID FOR "ROUT & SEAL"
2. PAYMENT WILL BE MADE BY THE HORIZONTAL LINEAR FOOT OF THE CRACK.
3. Joint preparation and sealing shall be in accordance to specification Section 32 1210.

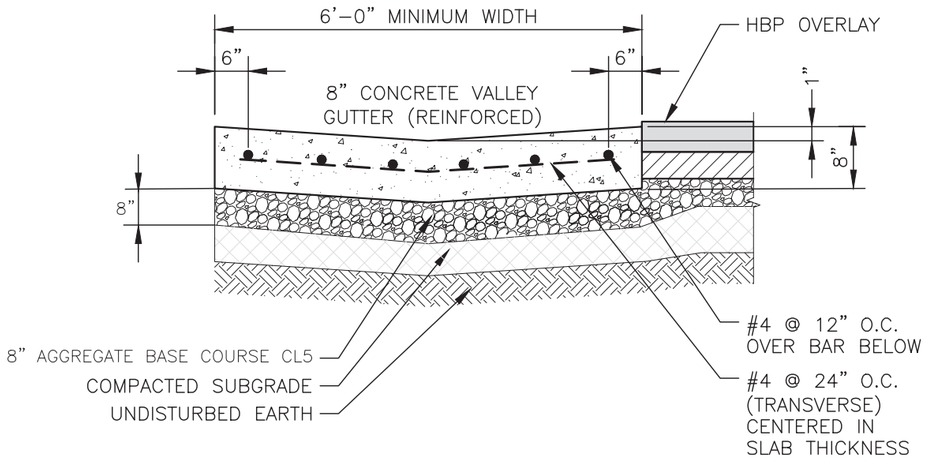


Front View



Top View

ROUT & SEAL ; CURB & GUTTER

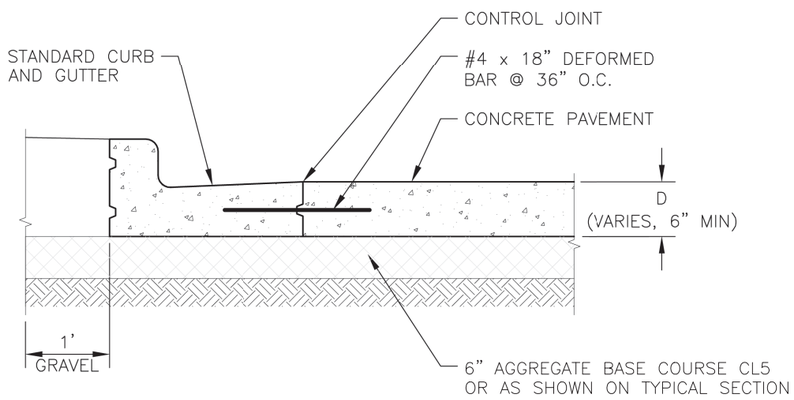


VALLEY GUTTER JOINTING

STREET WIDTH	PAVEMENT WIDTH	JOINT SPACING
37'	34'	8.5'
40'	37'	9.25'
44'	41'	8.2'
48'	45'	9.0'
52'	49'	9.8'

NOTES:
1. CHAIRS TO BE PLASTIC OR CONCRETE TO HOLD STEEL MAT IN PLACE FOR PROPER DEPTH WITHIN THE VALLEY GUTTER. NO WOOD STAKES ARE ALLOWED.
2. FOR VALLEY GUTTER ADJACENT TO CONCRETE PAVEMENT, MATCH VALLEY GUTTER AND PAVEMENT JOINTS.

CONCRETE - VALLEY GUTTER REINFORCED



NEW CURB AND GUTTER AND CONCRETE PAVEMENT

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:18:32 -06'00'
NORTH DAKOTA

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Issue #	Description	Date

CITY OF Dickinson North Dakota

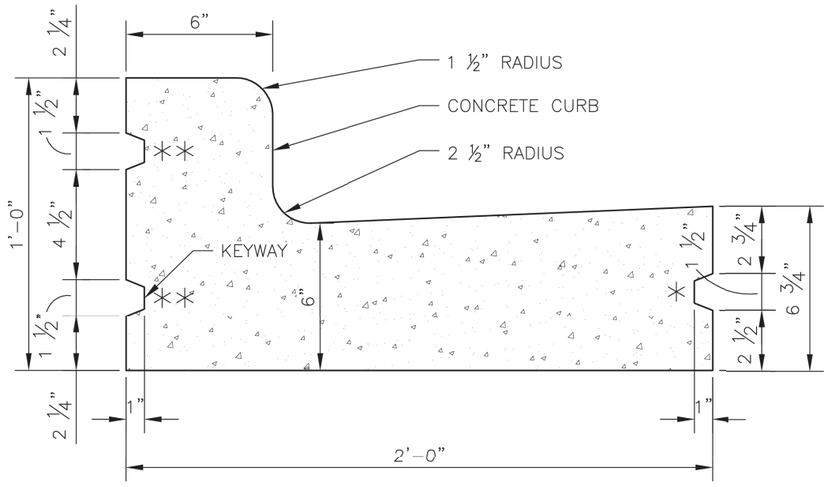
2026 UTILITY & STREET IMPROVEMENTS PROJECT
GENERAL DETAILS

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
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Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 20-01

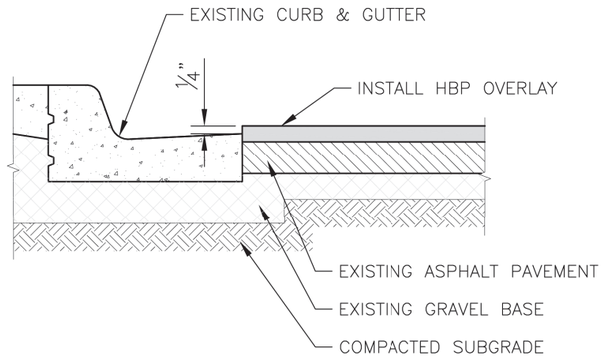
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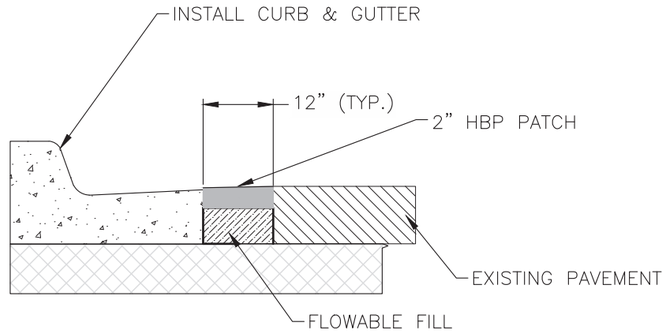
* KEYWAY USED FOR CONCRETE PAVEMENT ONLY
** KEYWAY USED WHEN SIDEWALK IS ADJACENT TO CURB

NOTES:
1. SUBGRADE COMPACTION AND GRAVEL BASE SHALL EXTEND ONE FOOT BEYOND BACK OF CURB.

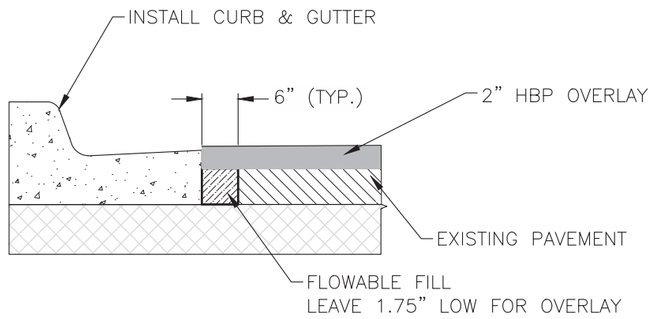
CURB AND GUTTER - STANDARD



CURB AND GUTTER - MILL AND OVERLAY
ALONG CURB AND GUTTER



CURB & GUTTER REPLACEMENT DETAIL
FOR USE IN CURB REPLACEMENT AREAS WHERE
PAVEMENT SECTION IS NOT RECONSTRUCTED



CURB & GUTTER REPLACEMENT - MILL & OVERLAY DETAIL
FOR USE IN CURB REPLACEMENT AREAS WHERE PAVEMENT
SECTION IS NOT RECONSTRUCTED

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
16:19:09 -06'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
GENERAL DETAILS

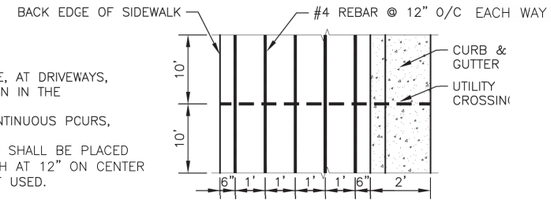
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

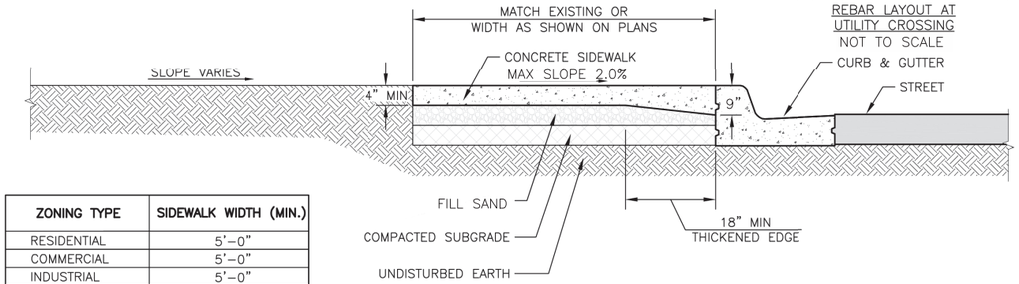
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NOTES:
1. CONTROL JOINTS SPACED 5' MINIMUM AND 8' MAXIMUM
2. SIDEWALK WIDTH 5' OR LESS – JOINT SPACING 5'
   SIDEWALK WIDTH MORE THAN 5' – JOINT SPACING 6'–8'.
3. CONTROL JOINTS SHALL BE SAWED OR TOOLED TO ¼ CONCRETE DEPTH (MINIMUM).
4. EXPANSION JOINTS EVERY 60 LF (MAXIMUM), EXPANSION JOINTS AT EVERY PROPERTY LINE, AT DRIVEWAYS, AT ALL CURB RETURNS ON RADII AND SEALED WITH BACKER ROD AND SEALANT AS SHOWN IN THE EXPANSION JOINT SEAL PLAN DETAIL.
5. CONTRACTOR'S STAMP: CONTRACTOR SHALL STAMP THE SIDEWALK EVERY 100 LF FOR CONTINUOUS PCURS, STAMP EACH SIDEWALK PATCH AND STAMP AT EACH PROPERTY LINE PER LOT.
6. WHERE NEWLY INSTALLED UNDERGROUND UTILITIES CROSS, A MINIMUM OF (4) #4 BARS SHALL BE PLACED PERPENDICULARLY AND EXTENDING 10' IN EACH DIRECTION TO FORM THE TRENCH WIDTH AT 12" ON CENTER
7. DOWEL SHALL BE INSTALLED INTO CURB & GUTTER @ 24" ON CENTER IF KEYWAY IS NOT USED.

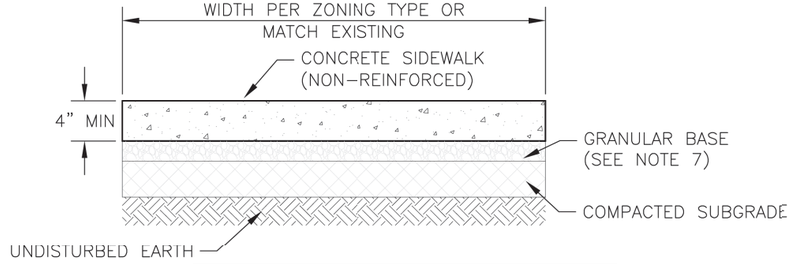


REBAR LAYOUT AT UTILITY CROSSING
NOT TO SCALE



ZONING TYPE	SIDEWALK WIDTH (MIN.)
RESIDENTIAL	5'–0"
COMMERCIAL	5'–0"
INDUSTRIAL	5'–0"
DOWNTOWN	10'–0"

CURB SIDE SIDEWALK



ZONING TYPE	SIDEWALK WIDTH (MIN.)
RESIDENTIAL	5'–0"
COMMERCIAL	5'–0"
INDUSTRIAL	5'–0"
DOWNTOWN	10'–0"

NOTES:
1. CONTROL JOINTS SPACED 5' MINIMUM AND 8' MAXIMUM.
2. SIDEWALK WIDTH 5' OR LESS – JOINT SPACING 5'
   SIDEWALK WIDTH MORE THAN 5' – JOINT SPACING 6'–8'.
3. CONTROL JOINTS SHALL BE SAWED OR TOOLED TO ¼ CONCRETE DEPTH (MINIMUM).
4. EXPANSION JOINTS SHALL BE INSTALLED AT 60' INTERVALS (MAXIMUM) AND AT PROPERTY LINES, DRIVEWAYS, AND CURB RETURNS ON RADII. EXPANSION JOINTS SHALL BE SEALED WITH BACKER ROD AND SEALANT AS SHOWN IN THE EXPANSION JOINT SEAL DETAIL.
5. CONTRACTOR'S STAMP: CONTRACTOR SHALL STAMP THE SIDEWALK EVERY 100' FOR CONTINUOUS POURS, STAMP EACH SIDEWALK PATCH AND STAMP AT EACH PROPERTY LINE PER LOT.
6. WHERE NEWLY INSTALLED UNDERGROUND UTILITIES CROSS PERPENDICULAR TO THE SIDEWALK, A MINIMUM OF (4) #4 BARS AT 12" O.C. SHALL BE PLACED PERPENDICULARLY TO THE UTILITY CROSSING AND SHALL EXTEND 10' IN EACH DIRECTION FROM THE UTILITY CENTER
7. SIDEWALK SHALL INCLUDE 4" MINIMUM FILL SAND

SIDEWALK - NON-REINFORCED

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
16:19:57 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
GENERAL DETAILS

Apex Engineering Group

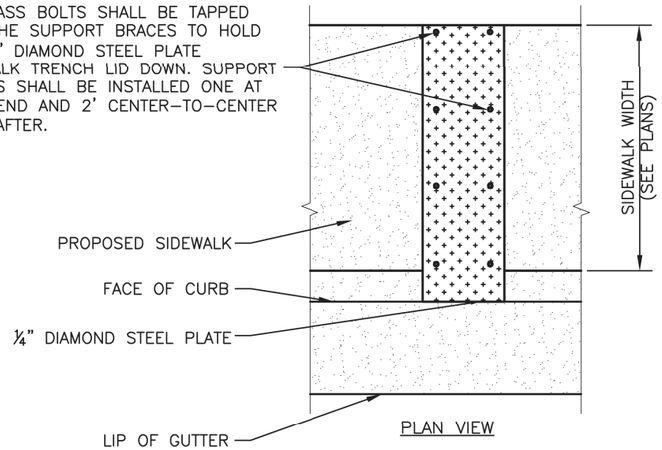
Bismarck - Detroit Lakes -
Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

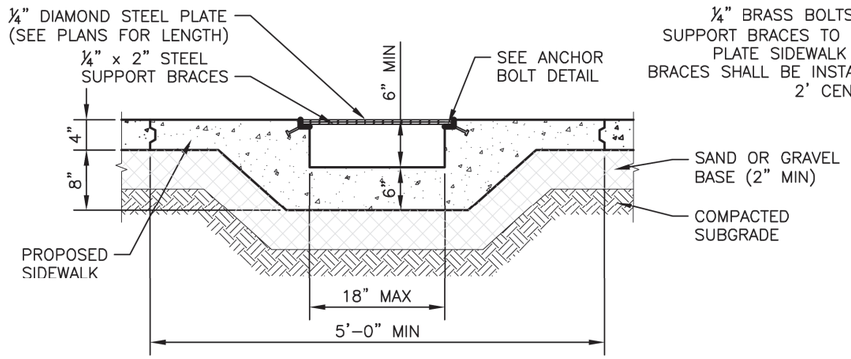
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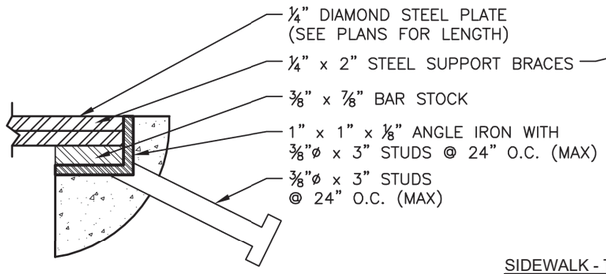
¼" BRASS BOLTS SHALL BE TAPPED INTO THE SUPPORT BRACES TO HOLD THE ¼" DIAMOND STEEL PLATE SIDEWALK TRENCH LID DOWN. SUPPORT BRACES SHALL BE INSTALLED ONE AT EACH END AND 2' CENTER–TO–CENTER THEREAFTER.



PLAN VIEW



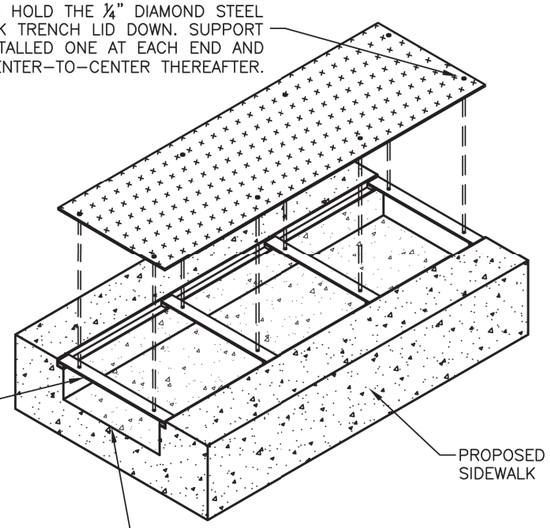
PROFILE VIEW



ANCHOR BOLT DETAIL

SIDEWALK - TRENCH DRAIN

¼" BRASS BOLTS SHALL BE TAPPED INTO THE SUPPORT BRACES TO HOLD THE ¼" DIAMOND STEEL PLATE SIDEWALK TRENCH LID DOWN. SUPPORT BRACES SHALL BE INSTALLED ONE AT EACH END AND 2' CENTER–TO–CENTER THEREAFTER.



ISOMETRIC VIEW

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:20:35 -06'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT GENERAL DETAILS

Apex Engineering Group

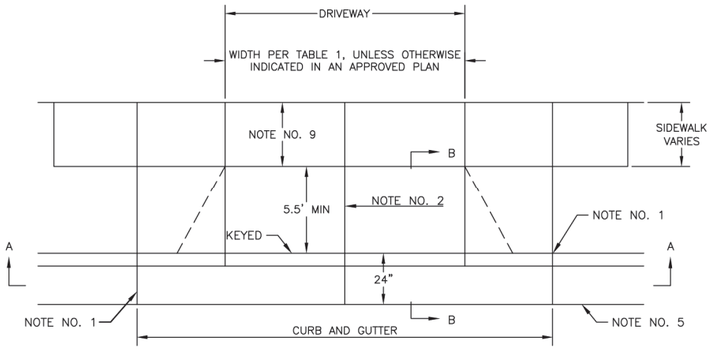
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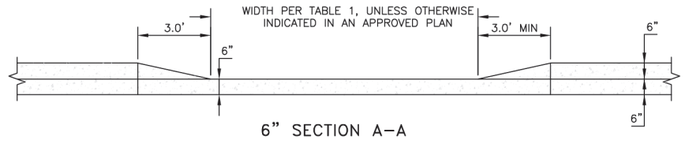
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CONCRETE DRIVEWAY
BOULEVARD



DRIVEWAY TYPE 1



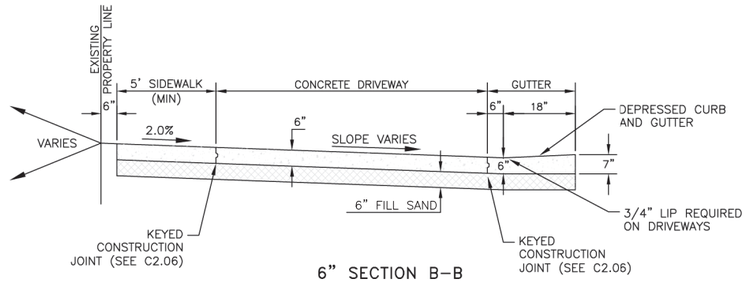
6" SECTION A–A

8" SECTION A–A

TABLE 1:
WIDTHS AT ROW, TYPE 1

RESIDENTIAL	22' MIN	40' MAX
COMMERCIAL*	34' MIN	48' MAX
INDUSTRIAL*	34' MIN	48' MAX
* REQUIRES SITE PLAN APPROVAL BY CITY ENGINEER		

NOTES:
1. PLACE A ¾" ISOLATION JOINT FULL DEPTH AND THE SAME SHAPE AS THE CURB AND GUTTER.
2. JOINT SPACING: THIS DRIVEWAY JOINT SPACING SHALL MATCH THE CURB AND GUTTER OR P.C.C. PAVEMENT JOINT SPACING. THE JOINT MAY BE KEYED CONSTRUCTION JOINT, A SAWED, OR A GROOVED JOINT. THE JOINT DEPTH SHALL BE A MINIMUM OF 1/3 THE DEPTH OF THE CONCRETE.
3. 8" DRIVEWAY SHALL BE USED FOR ALL NON–RESIDENTIAL. 6" DRIVEWAY SHALL BE USED FOR ALL RESIDENTIAL WITHIN THE PUBLIC RIGHT–OF–WAY.
4. ALL EXPANSION JOINTS SHALL BE SEALED. THE JOINT SEALANT SHALL BE LOW MODULUS SILICONE. THE SEALANT SHALL BE INSTALLED AND TOOLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
5. EXISTING CURB AND GUTTERS SHALL BE DRILLED AND (2) #4 BARS X 3.0' INSTALLED.
6. 6" BASE MATERIAL SHALL BE PLACED UNDER THE CONCRETE DRIVEWAY TO THE PROPERTY LINE.
7. AT NEWLY INSTALLED UNDERGROUND UTILITY CROSSINGS, A MINIMUM OF (4) #4 BARS AT 12" O.C. SHALL BE PLACED PERPENDICULARLY TO THE UTILITY CROSSING AND SHALL EXTEND 10' IN EACH DIRECTION FROM THE UTILITY CENTER
8. SIDEWALK THAT FALLS BEHIND A DRIVEWAY SHALL BE CONSTRUCTED TO THE SAME THICKNESS AS THE DRIVEWAY AND SHALL BE PAID FOR AS DRIVEWAY CONCRETE.
9. SIDEWALKS SHALL BE 5' WIDE (MINIMUM) IN RESIDENTIAL ZONES AND 6' WIDE (MINIMUM) IN COMMERCIAL AND INDUSTRIAL ZONES.
10. SIDEWALK MUST COMPLY WITH ALL ADA REQUIREMENTS.
11. DETECTABLE WARNING PANELS AND CURB RAMPS SHALL BE PLACED ADJACENT TO ALL NON–RESIDENTIAL DRIVEWAYS WHERE SIDEWALK IS TO EXIST.
12. DRIVEWAY TYPE SHALL BE CONFIRMED WITH CITY INSPECTOR PRIOR TO INSTALLATION. ANY DRIVEWAY APRON PLACEMENT PRIOR TO CONFIRMATION WITH CITY INSPECTOR SHALL BE REMOVED AND REPLACED WITH CORRECT TYPE AT THE CONTRACTOR'S EXPENSE.
13. RESIDENTIAL DRIVEWAY WIDTHS MAY EQUAL GARAGE WIDTH UP TO 40 FEET.
14. ONLY (1) DRIVEWAY SHALL BE APPROVED PER RESIDENTIAL PROPERTY WITHOUT PRIOR WRITTEN APPROVAL FROM THE CITY ENGINEER.



6" SECTION B–B
RESIDENTIAL DRIVEWAY DETAILS

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:21:08 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
GENERAL DETAILS

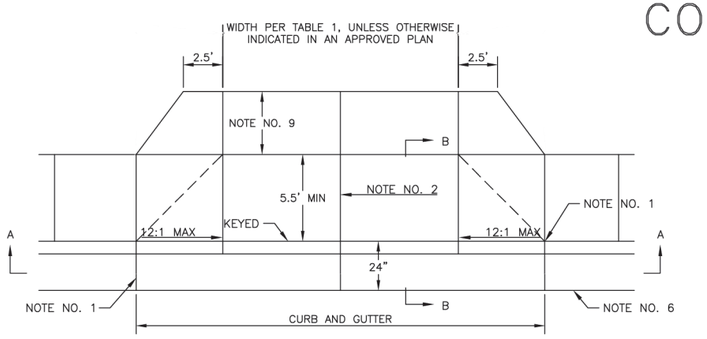
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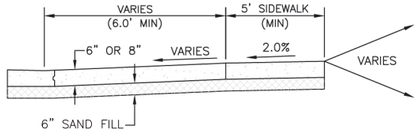
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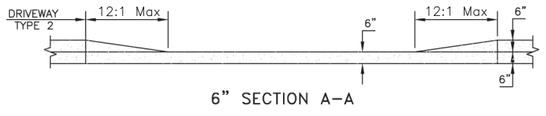
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CONCRETE DRIVEWAY
NON–BOULEVARD

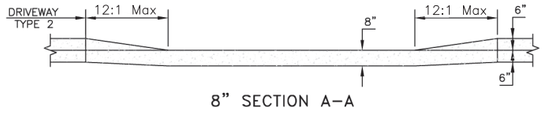


DRIVEWAY TYPE 2

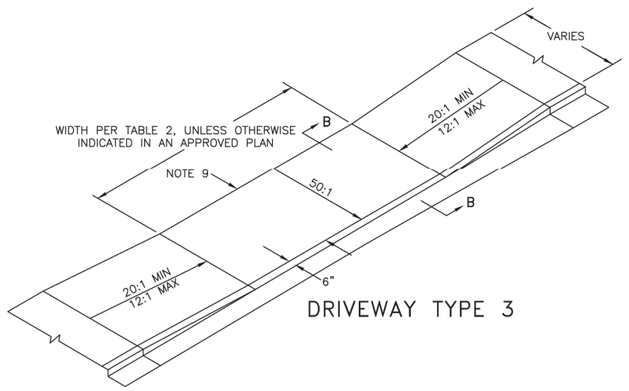




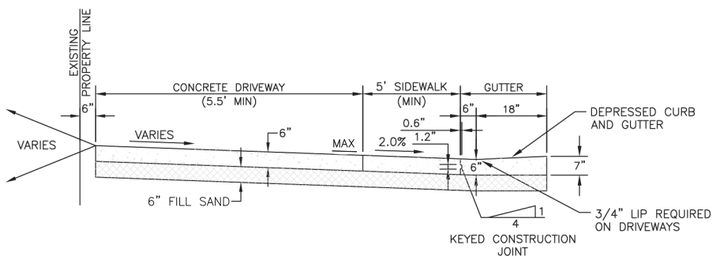
6" SECTION A–A



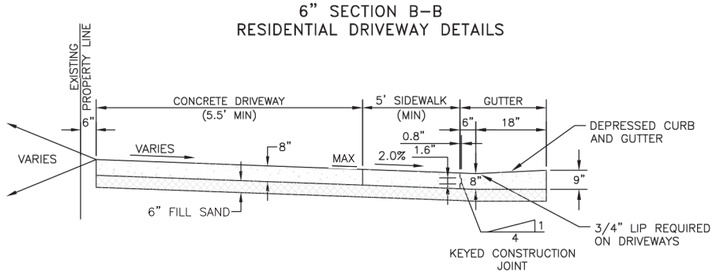
8" SECTION A–A



DRIVEWAY TYPE 3



6" SECTION B–B
RESIDENTIAL DRIVEWAY DETAILS



8" SECTION B–B
COMMERCIAL DRIVEWAY DETAILS

NOTES:
1. PLACE A ¾" ISOLATION JOINT FULL DEPTH AND THE SAME SHAPE AS THE CURB AND GUTTER.
2. JOINT SPACING: THIS DRIVEWAY JOINT SPACING SHALL MATCH THE CURB AND GUTTER OR P.C.C. PAVEMENT JOINT SPACING. THE JOINT MAY BE KEYED CONSTRUCTION JOINT, A SAWED, OR A GROOVED JOINT. THE JOINT DEPTH SHALL BE A MINIMUM OF 1/3 THE DEPTH OF THE CONCRETE.
3. 8" DRIVEWAY SHALL BE USED FOR ALL NON–RESIDENTIAL. 6" DRIVEWAY SHALL BE USED FOR ALL RESIDENTIAL WITHIN THE PUBLIC RIGHT–OF–WAY.
4. ALL EXPANSION JOINTS SHALL BE SEALED. THE JOINT SEALANT SHALL BE LOW MODULUS SILICONE. THE SEALANT SHALL BE INSTALLED AND TOOLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
5. EXISTING CURB AND GUTTERS SHALL BE DRILLED AND (2) #4 BARS X 3.0' INSTALLED.
6. 6" BASE MATERIAL SHALL BE PLACED UNDER THE CONCRETE DRIVEWAY TO THE PROPERTY LINE.
7. AT UNDERGROUND UTILITY CROSSINGS, A MINIMUM OF (4) #4 BARS SHALL BE PLACED PERPENDICULAR AND EXTENDING 10 FEET IN EACH DIRECTION FROM THE UTILITY CENTERLINE AT 12" ON CENTER.
8. SIDEWALK THAT FALLS BEHIND A DRIVEWAY SHALL BE CONSTRUCTED TO THE SAME THICKNESS AS THE DRIVEWAY AND SHALL BE PAID FOR AS DRIVEWAY CONCRETE.
9. SIDEWALKS SHALL BE 5' WIDE (MINIMUM) IN RESIDENTIAL ZONES AND 10' WIDE (MINIMUM) IN DOWNTOWN ZONES.
10. SIDEWALK MUST COMPLY WITH ALL ADA REQUIREMENTS.
11. DETECTABLE WARNING PANELS AND CURB RAMPS SHALL BE PLACED ADJACENT TO ALL NON–RESIDENTIAL DRIVEWAYS WHERE SIDEWALK IS TO EXIST.
12. DRIVEWAY TYPE SHALL BE CONFIRMED WITH CITY INSPECTOR PRIOR TO INSTALLATION. ANY DRIVEWAY APRON PLACEMENT PRIOR TO CONFIRMATION WITH CITY INSPECTOR SHALL BE REMOVED AND REPLACED WITH CORRECT TYPE AT THE CONTRACTOR'S EXPENSE.
13. TYPE 3 IS PREFERRED, NEED CITY APPROVAL BEFORE TYPE 2 IS ALLOWED.
14. ONLY (1) DRIVEWAY SHALL BE APPROVED PER RESIDENTIAL PROPERTY WITHOUT PRIOR WRITTEN APPROVAL FROM THE CITY ENGINEER.

TABLE 1
WIDTHS AT ROW, TYPES 2 & 3

RESIDENTIAL	22' MIN 40' MAX
COMMERCIAL*	34' MIN 48' MAX
INDUSTRIAL*	34' MIN 48' MAX
*REQUIRES SITE PLAN APPROVAL BY CITY ENGINEER	

TABLE 2
WIDTHS AT B/C, TYPE 3

RESIDENTIAL	22' MIN 40' MAX
COMMERCIAL*	34' MIN 48' MAX
INDUSTRIAL*	34' MIN 48' MAX
*REQUIRES SITE PLAN APPROVAL BY CITY ENGINEER	

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
16:21:43 -06'00'
NORTH DAKOTA

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CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
GENERAL DETAILS

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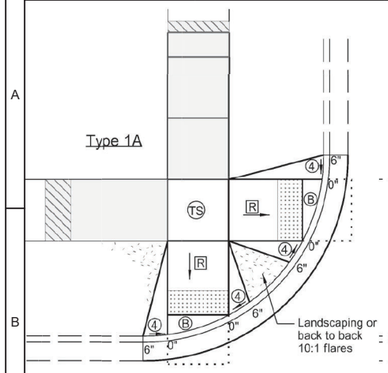
Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

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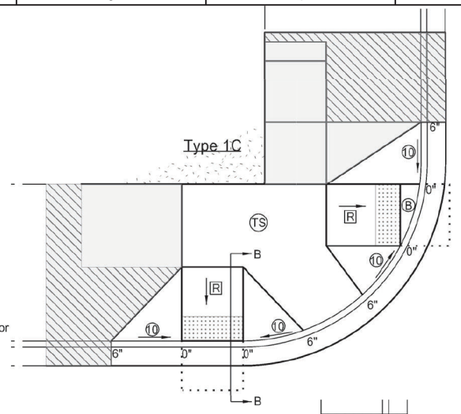
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CURB RAMP RETROFIT DETAILS

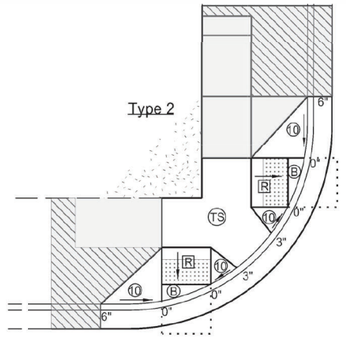
Type 1A



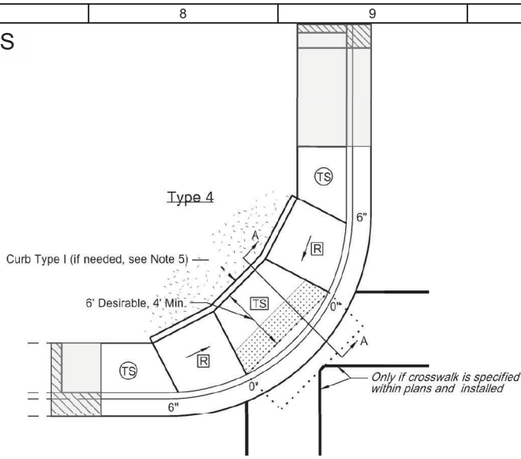
Type 1C



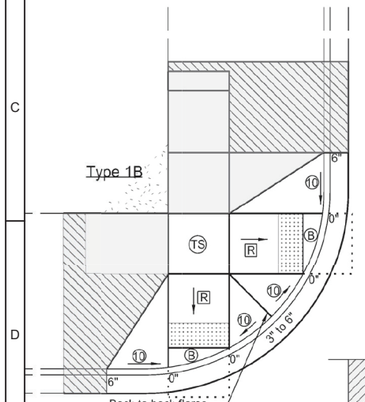
Type 2



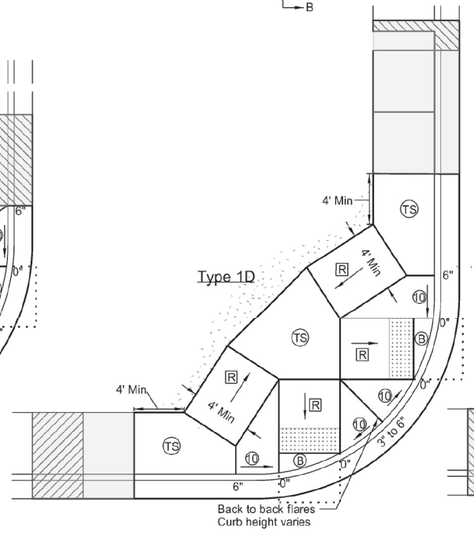
Type 4



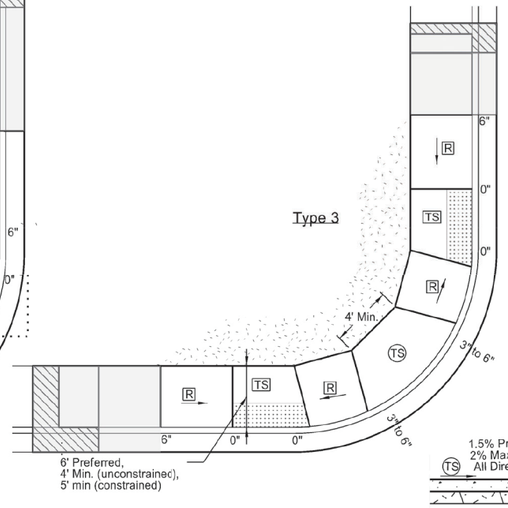
Type 1B



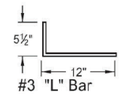
Type 1D



Type 3



5½" / 12" / #3 "L" Bar



Curb Type I (if needed, see Note 5)
L Bar (48" spacing)
4" Sidewalk Concrete
Detectable Warning Panel
#3 x 12" Bar (18" spacing)
5% Max Counter Slope
4" Base
12"
4' Min

Section A-A

1.5% Preferred 2% Max Slope All Directions
5% to 8.3% Max
7.5% Preferred Max
4" Sidewalk Concrete
Detectable Warning Panel
#3 x 12" Bar (18" spacing)
5% Max Counter Slope
4" Base
12"
4' Min
15' Max
4' Min

Section B-B

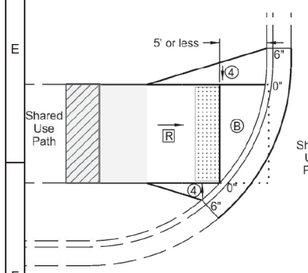
NOTES:

1. Ramp width is the useable portion of the ramp, excluding flares. Match curb ramp width to Existing Pedestrian Facility (EPF) width (4' minimum or 5' for island ramps.) Match ramp width to existing shared use path width. Maximum ramp length is 15'.
2. Provide turning space with desirable 5' x 5' size or larger and minimum 4' x 4' unconstrained size, for any change of direction. Provide landing 5' long x width of path at the bottom and top of parallel ramps and at the top of perpendicular ramps. Turning spaces and Landings may overlap.
3. Match detectable warning panel width to ramp width. Radial panels are allowed. Place detectable warning panel within the lower turning space.
4. Provide a continuous 4' minimum width EPF with 1.5% preferred cross slope and max 2% constructed cross slope.
5. Modify existing ground slope with landscaping, as needed. If not possible, use a vertical curb as detailed on Standard D-750-2. The Engineer will measure curb at the unit price bid for "Curb - Type I" per lineal foot.
6. Islands: If the profile of the island curb ramp is 2% or less, provide a minimum distance of 2' between warning panels. If the profile of the island curb ramp is steeper than 2%, provide a turning space between the ramps.
7. Provide generally planar vertical alignments. Provide grade breaks, perpendicular to the direction of the pedestrian travel, at the top and bottom of curb ramps (1.5% preferred, 2% max constructed cross slope).
8. See Curb Ramp Retrofit Transition Details Standard D-750-4 for additional information. Also See PROWAG for full compliance in the curb ramp area.
9. Grade transitions shall be flush.

LEGEND:

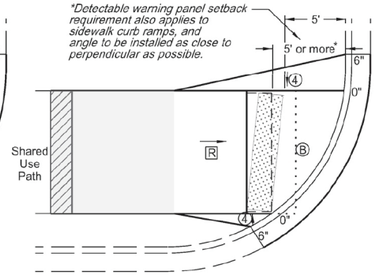
- : Detectable Warning Panel.
- : Landscaping.
- : Transitional tie-in to nearest joint, if needed.
- : Curb Ramp Retrofit Transitional Area (See Standard Drawing D750-4)
- : 4' long x width of EPF or 4' minimum Clear space outside traffic lanes of travel. 1.5% preferred cross slope 2% maximum cross slope 4.7% preferred running and counter slope 5% maximum running and counter slope
- (TS) : Turning Space. Use at top of ramp or when changing directions. 1.5% preferred slope (2% maximum) all directions.
- (R) : Preferred Ramp Grade = 5% to 7.5%. Maximum Constructed Grade = 8.3%. Preferred Cross Slope = 1.5%. Maximum Constructed Cross Slope = 2%.
- (B) : 1.5% preferred cross slope 2% maximum constructed cross slope running slope consistent with the EPF 4.7% preferred max counter slope 5.0% max constructed counter slope
- (10) : 10:1 maximum constructed slope.
- (4) : 4:1 maximum constructed slope.
- 0", 3", or 6" : Curb Height.
- (BT) BLENDED TRANSITION – CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED – RUNNING SLOPE LESS THAN 5.0%

5' or less

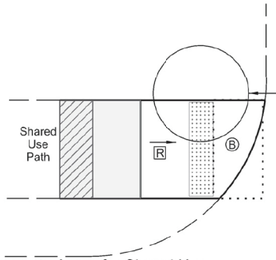


*Detectable warning panel setback requirement also applies to sidewalk curb ramps, and angle to be installed as close to perpendicular as possible.

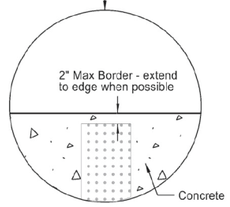
5' or more

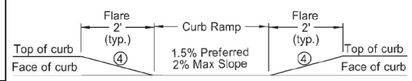


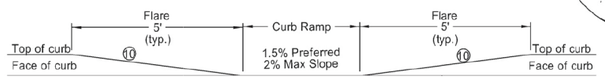
Concrete Apron for Shared Use Paths with Curb and Gutter



Concrete Apron for Shared Use Paths without Curb and Gutter







REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:22:18 -06'00'
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CITY OF Dickinson North Dakota

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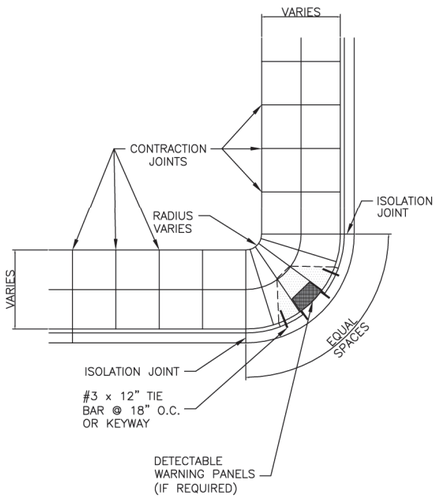
Apex Engineering Group
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Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

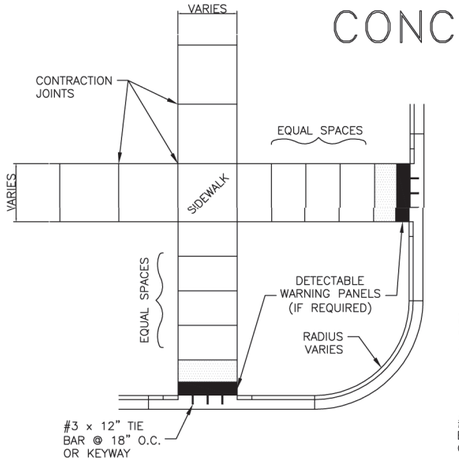
Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

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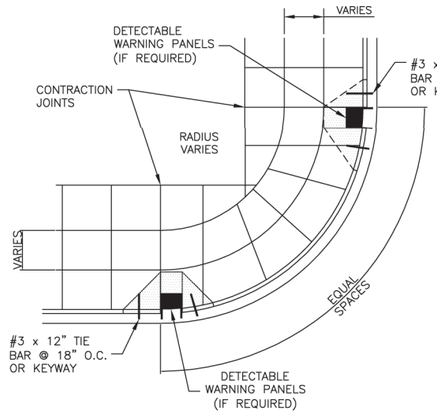
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CONCRETE SIDEWALK



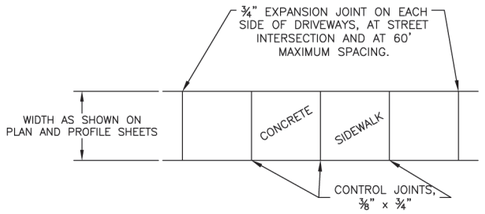


TYPICAL JOINT LAYCUTS

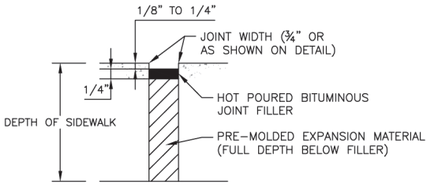


NOTES:

1. DETAILS SHOWING CURB RAMPS AND DETECTABLE WARNING PANELS ON THIS DRAWING ARE FOR JOINT AND REINFORCING LAYOUT PURPOSES ONLY.
2. AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER, A CURB SHALL BE CONSTRUCTED WHERE THE EXISTING SIDEWALK IS TO BE LOWERED, OR ABUTS A BUILDING OR ADJACENT PROPERTY. THE CURB WILL BE PAID FOR AT THE UNIT PRICE BID FOR THE ITEM CURB SIDEWALK RAMP.
3. TRANSVERSE SIDEWALK JOINT SPACING SHALL VARY FROM 4'–6' TO CREATE APPROXIMATE SQUARE PANELS. WHEN THE SIDEWALK IS ADJACENT TO THE CURB AND GUTTER, THE SIDEWALK JOINT SPACING SHALL BE VARIED SO THAT THE SIDEWALK JOINTS MATCH UP WITH THE CURB AND GUTTER JOINTS.
4. LONGITUDINAL JOINTS SHALL BE USED WHERE THE SIDEWALK WIDTH IS 8' OR GREATER, AND SHALL BE SPACED AT HALF THE SIDEWALK WIDTH.
5. CONTRACTOR'S STAMP: CONTRACTOR SHALL STAMP THE SIDEWALK EVERY 100 LF FOR CONTINUOUS POURS, STAMP EACH SIDEWALK PATCH AND STAMP AT EACH PROPERTY LINE PER LOT.

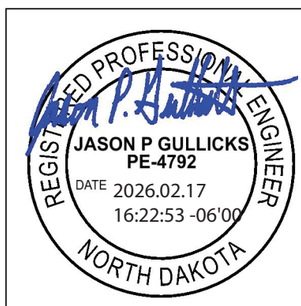


CONCRETE SIDEWALK DETAILS



TYPICAL EXPANSION JOINT SEAL (LONGITUDINAL AND TRANSVERSE)

ZONING TYPE	SIDEWALK WIDTH (MIN.)
RESIDENTIAL	5'–0"
COMMERCIAL	5'–0"
INDUSTRIAL	5'–0"
DOWNTOWN	10'–0"



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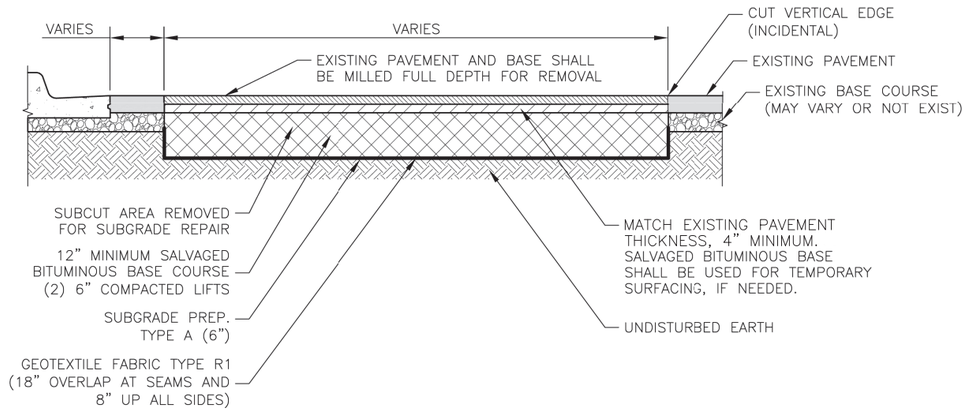
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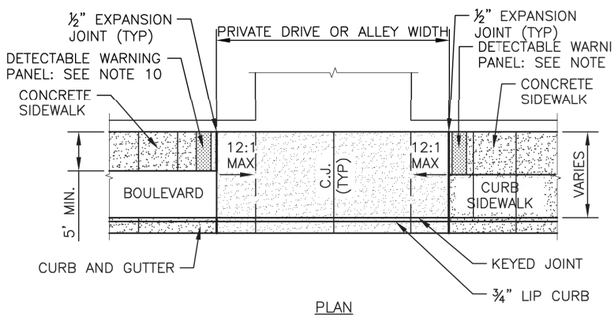
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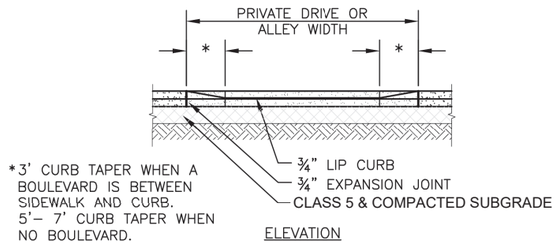


2" MINIMUM PAVEMENT REPAIR = 1 LIFT @ 2.0" EACH
3" MINIMUM PAVEMENT REPAIR = 2 LIFTS @ 1.5" EACH
4" MINIMUM PAVEMENT REPAIR = 2 LIFTS @ 2.0" EACH
5" MINIMUM PAVEMENT REPAIR = 2 LIFTS @ 2.5" EACH
6" MINIMUM PAVEMENT REPAIR = 3 LIFTS @ 2.0" EACH
7" MINIMUM PAVEMENT REPAIR = 3 LIFTS @ 2.3" EACH
8" MINIMUM PAVEMENT REPAIR = 4 LIFTS @ 2.0" EACH

TYPICAL ASPHALT PAVEMENT REPAIR SECTION



PLAN



ELEVATION

COMMERCIAL/INDUSTRIAL DRIVEWAY ENTRANCE

NOTES:
1. ON BITUMINOUS PAVEMENTS, PLACE A ¾" ISOLATION JOINT FULL DEPTH AND THE SAME SHAPE AS THE CURB AND GUTTER. ON PCC PAVEMENTS, THE CURB AND GUTTER JOINTS MATCH THOSE OF THE PAVEMENT.
2. JOINT SPACING: THE DRIVEWAY JOINT SPACING SHALL MATCH THE CURB AND GUTTER OR PCC PAVEMENT JOINT SPACING. THE JOINT MAY BE A KEYED CONSTRUCTION JOINT, A SAWED, OR A GROOVED JOINT. THE JOINT DEPTH SHALL BE A MINIMUM OF 1/3 THE DEPTH OF THE CONCRETE.
3. 8" DRIVEWAY SHALL BE USED FOR ALL NON–RESIDENTIAL.
   6" DRIVEWAY SHALL BE USED FOR ALL RESIDENTIAL WITHIN THE PUBLIC RIGHT–OF–WAY.
4. ALL EXPANSION JOINTS SHALL BE SEALED. THE JOINT SEALANT SHALL BE LOW MODULUS SILICONE. THE SEALANT SHALL BE INSTALLED AND TOOLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
5. EXISTING CURB AND UTTERS SHALL BE DRILLED AND (2) #4 BARS x 3.0' INSTALLED.
6. 4" BASE MATERIAL SHALL BE PLACED UNDER THE CONCRETE DRIVEWAY.
7. AT NEWLY INSTALLED UNDERGROUND UTILITY CROSSINGS, A MINIMUM OF (4) #4 BARS AT 12" O.C. SHALL BE PLACED PERPENDICULARLY TO THE UTILITY CROSSING AND SHALL EXTEND 10' IN EACH DIRECTION FROM THE UTILITY CENTER
8. SIDEWALK THAT FALLS BEHIND A DRIVEWAY SHALL BE CONSTRUCTED TO THE SAME THICKNESS AS THE DRIVEWAY.
9. SIDEWALK MUST COMPLY WITH ALL ADA REQUIREMENTS AND SHALL BE NO LESS THAN 5.0' WIDE FOR RESIDENTIAL ZONES, 6' WIDE FOR COMMERCIAL AND INDUSTRIAL ZONES.
10. DETECTABLE WARNING PANELS AND CURB RAMPS SHALL BE PLACED ADJACENT TO ALL NON–RESIDENTIAL DRIVEWAYS WHERE SIDEWALK IS TO EXIST.
11. DRIVEWAY TYPE SHALL BE CONFIRMED WITH CITY INSPECTOR PRIOR TO INSTALLATION. ANY DRIVEWAY APRON PLACEMENT PRIOR TO CONFIRMATION WITH CITY INSPECTOR SHALL BE REMOVED AND REPLACED WITH CORRECT TYPE AT THE CONTRACTOR'S EXPENSE.

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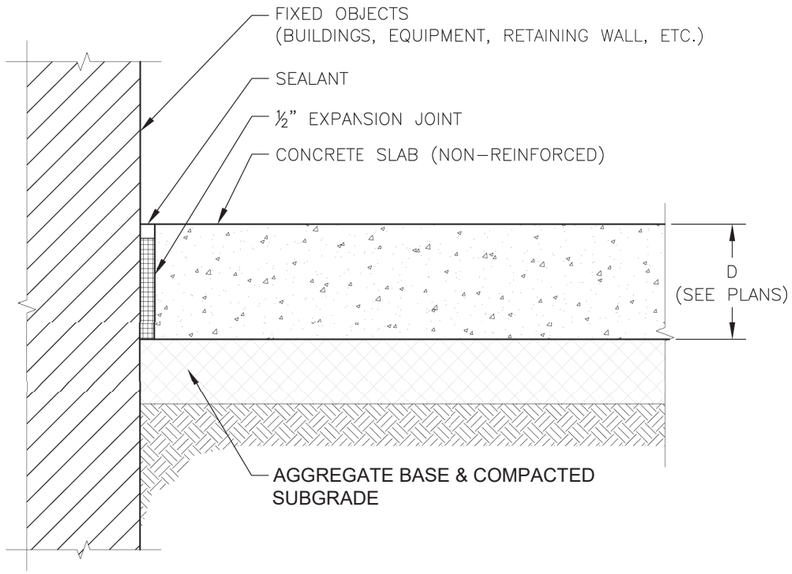
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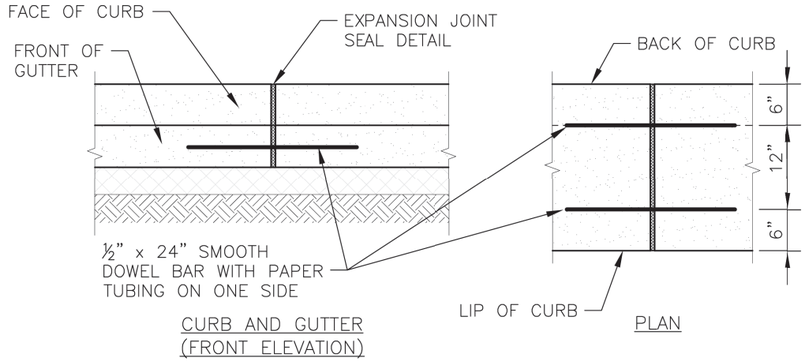
Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

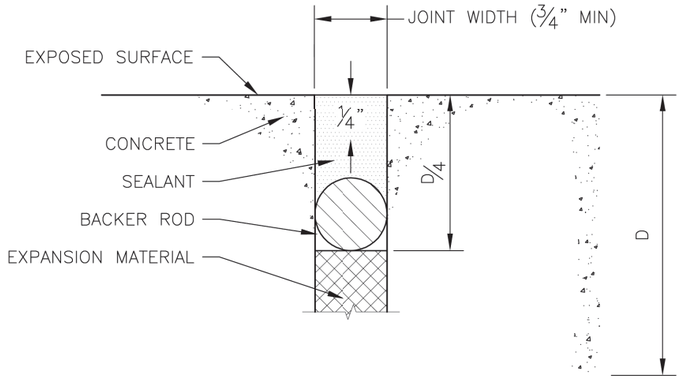
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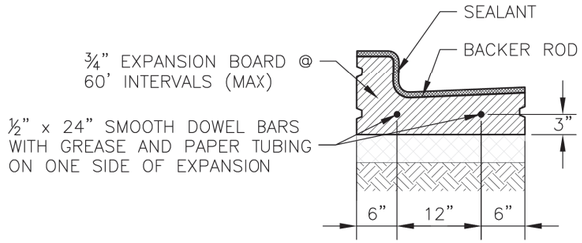
EXPANSION JOINT - PAVEMENT AGAINST FIXED OBJECT





NOTE: JOINT SEALING SHALL BE INCIDENTAL TO THE COST OF CONCRETE.

EXPANSION JOINT SEAL PLAN



CURB AND GUTTER
SECTION

EXPANSION JOINT - CURB AND GUTTER SEALING

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
16:24:03 -06'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
GENERAL DETAILS

Apex Engineering Group

Bismarck - Detroit Lakes -
Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
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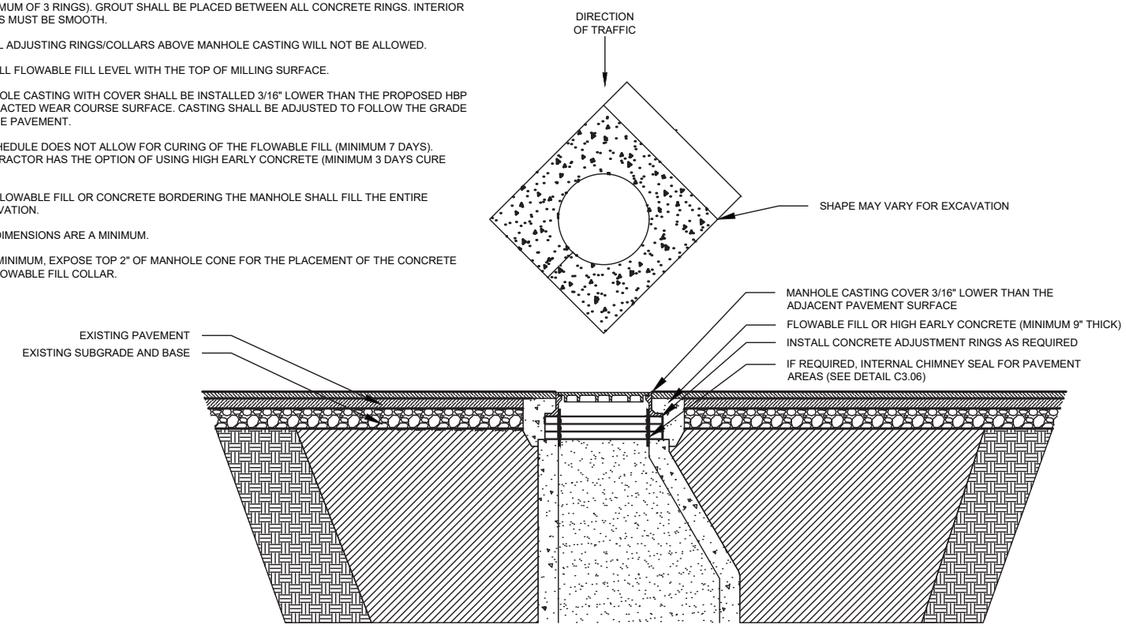
Project #: 22.107.0010
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Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

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20-10

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NOTES:

1. THE EXISTING MANHOLE CASTING AND COVER SHALL BE REMOVED AND SALVAGED TO ALLOW FOR PAVEMENT MILLING.
2. IF NOTED IN THE PLANS AND/OR SPECIFICATIONS NEW MANHOLES SHALL HAVE AN APPROPRIATELY SIZED I&I BARRIER. THE BARRIER SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS. IF SPECIFIED, INTERNAL CHIMNEY SEAL MAY BE USED AS AN OPTION.
3. UPON COMPLETION OF THE MILLING, THE CONTRACTOR SHALL NEAT CUT AND REMOVE EXISTING PAVEMENT AS REQUIRED TO REINSTALL THE EXISTING MANHOLE CASTING AND COVER FOR PROPER ADJUSTMENT.
4. MANHOLE CASTING SHALL BE ADJUSTED BY USING PRECAST CONCRETE ADJUSTING RINGS. (MAXIMUM OF 3 RINGS). GROUT SHALL BE PLACED BETWEEN ALL CONCRETE RINGS. INTERIOR EDGES MUST BE SMOOTH.
5. METAL ADJUSTING RINGS/COLLARS ABOVE MANHOLE CASTING WILL NOT BE ALLOWED.
6. INSTALL FLOWABLE FILL LEVEL WITH THE TOP OF MILLING SURFACE.
7. MANHOLE CASTING WITH COVER SHALL BE INSTALLED 3/16" LOWER THAN THE PROPOSED HBP COMPACTED WEAR COURSE SURFACE. CASTING SHALL BE ADJUSTED TO FOLLOW THE GRADE OF THE PAVEMENT.
8. IF SCHEDULE DOES NOT ALLOW FOR CURING OF THE FLOWABLE FILL (MINIMUM 7 DAYS), CONTRACTOR HAS THE OPTION OF USING HIGH EARLY CONCRETE (MINIMUM 3 DAYS CURE TIME).
9. THE FLOWABLE FILL OR CONCRETE BORDERING THE MANHOLE SHALL FILL THE ENTIRE EXCAVATION.
10. ALL DIMENSIONS ARE A MINIMUM.
11. AT A MINIMUM, EXPOSE TOP 2" OF MANHOLE CONE FOR THE PLACEMENT OF THE CONCRETE OR FLOWABLE FILL COLLAR.



SECTION VIEW

MANHOLE ADJUSTMENT (NEW & EXISTING MANHOLE)

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:25:07 -06'00'
NORTH DAKOTA

REVISIONS

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CITY OF Dickinson North Dakota

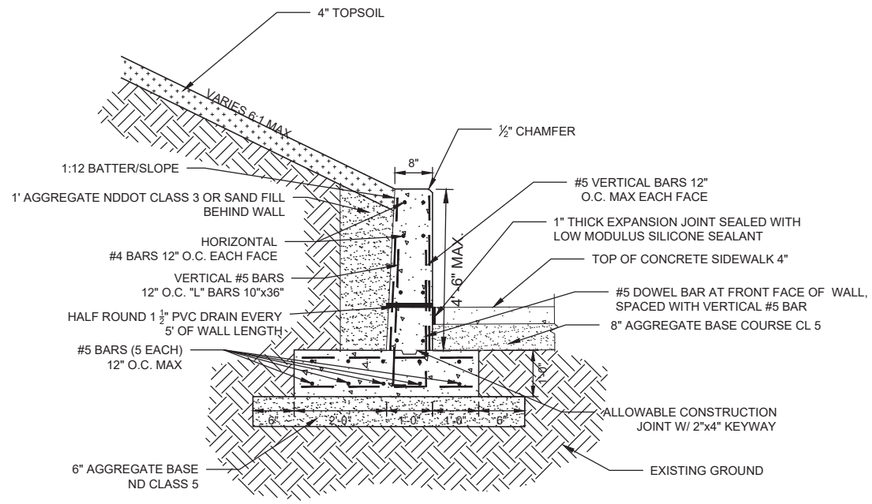
2026 UTILITY & STREET IMPROVEMENTS PROJECT
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Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
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Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 20-11

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RETAINING WALL

NOTES:

1. 2" CLEAR COVER TYPICAL, UNLESS SPECIFICALLY NOTED.
2. 3" CLEAR COVER AT TOP AND BOTTOM OF RETAINING WALL FOOTING.
3. 12" MAX SPACING TYPICAL ALL REINFORCEMENT.
4. MINIMUM BAR OVERLAP LENGTH FOR #5 BAR IS 2'-6"
5. CONCRETE SHALL MEET THE REQUIREMENTS OF DICKINSON SPECIFICATION SECTION 32 1210.
6. REINFORCING BARS SHALL MEET THE REQUIREMENTS OF DICKINSON SPECIFICATION SECTION 32 1210, PART 2 PRODUCTS, 2.2 MATERIALS, H. REINFORCEMENT.
7. CONCRETE CONSTRUCTION SHALL MEET THE REQUIREMENTS OF DICKINSON SPECIFICATION SECTION 32 1210
8. CONCRETE SURFACES SHALL BE FINISHED PER NDDOT STANDARD SPECIFICATION 602.04.I.3 CONCRETE STRUCTURES, CONSTRUCTION REQUIREMENT, SURFACE FINISH, SURFACE FINISH C.

REGISTERED PROFESSIONAL ENGINEER
MICHAEL HULSTEIN
PE-29767
DATE 2026.02.17 17:26:09-06'00'
NORTH DAKOTA

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CITY OF Dickinson North Dakota

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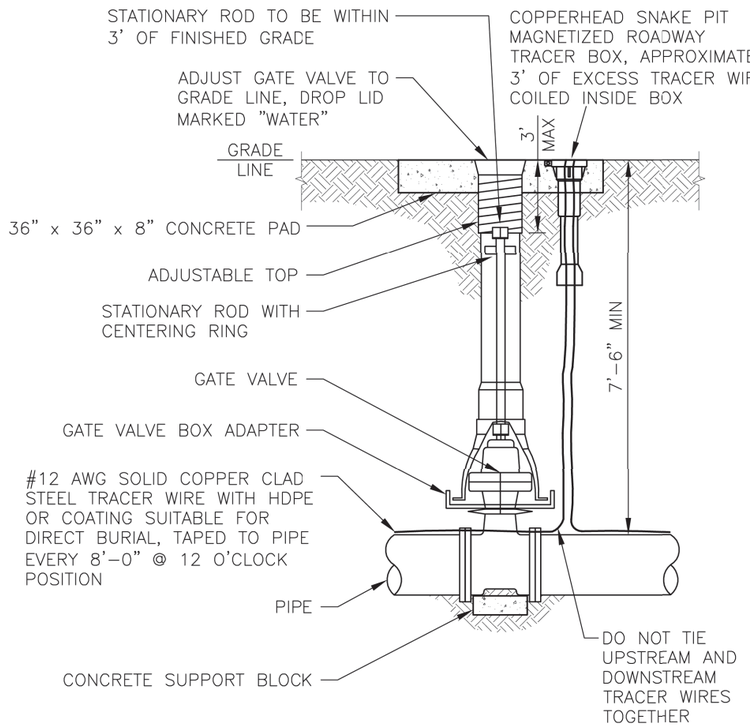
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Project #: 22.107.0010
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Drawn By: Logan Fridgen
Checked By: Michael Hulstein
Approved By: Michael Hulstein

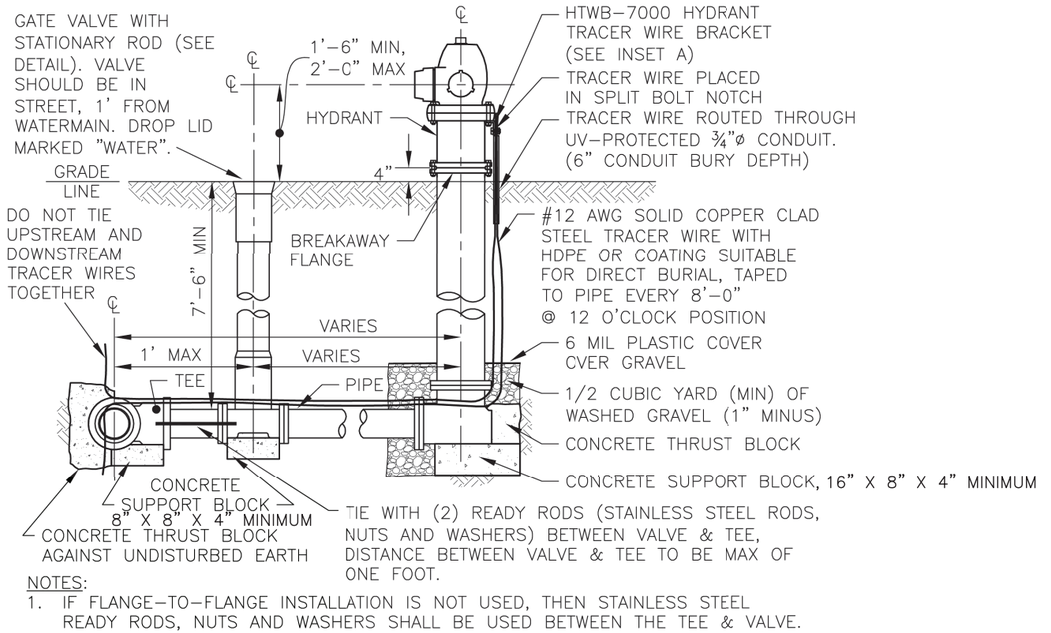
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NOTES:
1. CONCRETE PAD NOT REQUIRED FOR ADJUST GATE VALVE.
2. SNAKE PIT NOT REQUIRED - TRACER WIRE TO BE ROUTED TO HYDRANT.

GATE VALVE - STANDARD



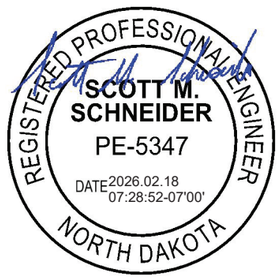
NOTES:
1. IF FLANGE-TO-FLANGE INSTALLATION IS NOT USED, THEN STAINLESS STEEL READY RODS, NUTS AND WASHERS SHALL BE USED BETWEEN THE TEE & VALVE.
2. VALVE BOXES ON HYDRANT LEADS SHALL HAVE DROP LIDS MARKED "WATER".
3. ¾"ø TRACER WIRE CONDUIT SHALL BE UV RESISTANT.



HTWB-7000 HYDRANT TRACER WIRE BRACKET MANUFACTURED BY VAIT PRODUCTS (OR APPROVED EQUAL) AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS

INSET A

HYDRANT WITH GATE VALVE - STANDARD



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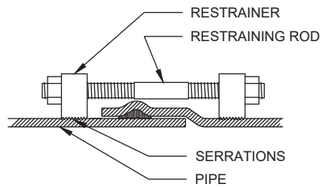
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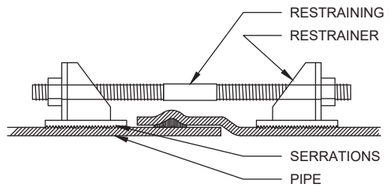
Project #: 22.107.0010
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Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Scott Schneider

Sheet: 20-13

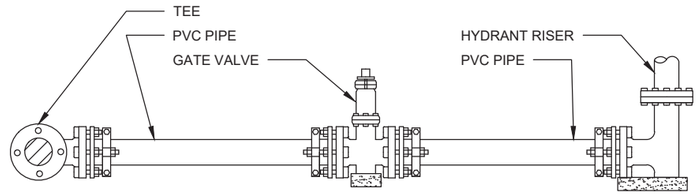
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2" TO 12" DIA.



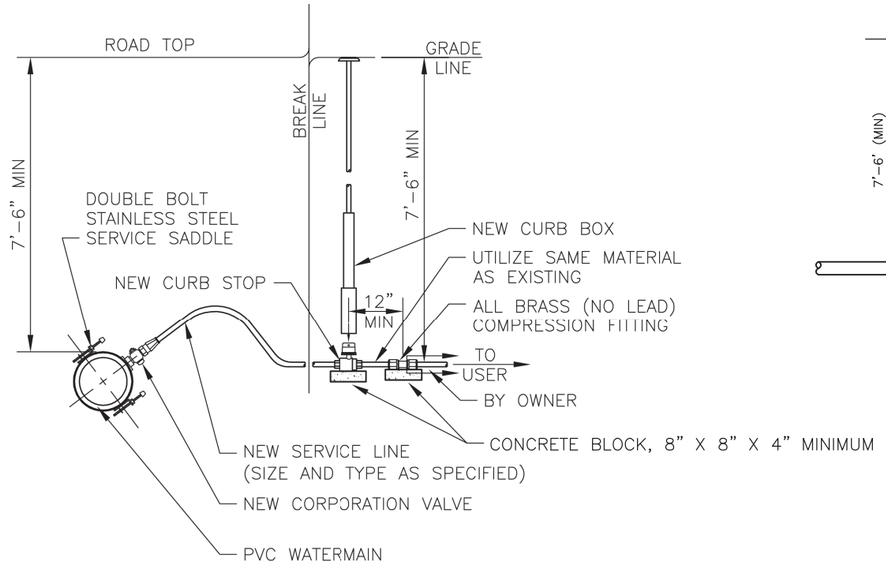
14" TO 36" DIA.



A. RESTRAINING DEVICES SHALL MEET OR EXCEED THE REQUIREMENTS OF ASTM F 1694.
B. APPROVED TYPES ARE UNIFLANGE PVC PIPE RESTRAINTS & EEBA IRON SERIES 2000 PV.
C. ALL METAL FITTINGS AND RESTRAINING DEVICES TO BE WRAPPED IN POLYETHYLENE PLASTIC (8 MIL MIN.).

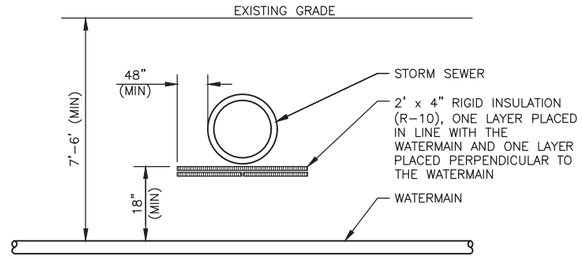
NOTE:

ADDITIONAL LENGTH OF PIPE TO BE RESTRAINED ON EACH SIDE OF ANY RESTRAINED FITTINGS (SEE TABLE BELOW).



NOTE: A 2x4 SHALL BE USED TO MARK THE END OF ANY SERVICE STUBBED OUT.

WATER SERVICE REPLACEMENT



WATERMAIN INSULATION

TYPICAL INSTRUCTIONS

SIZE	45° VERT. OFFSET* (L)	22 1/2° VERT. OFFSET* (L)
6"	15'/8'	7'/4'
8"	19'/11'	9'/5'
10"	23'/13'	11'/6'
12"	27'/15'	13'/8'
16"	35'/20'	17'/10'
18"	58'/12'	28'/6'
20"	64'/13'	31'/6'
24"	74'/15'	36'/7'
30"	89'/17'	43'/9'
36"	103'/20'	50'/10'
42"	120'/24'	58'/12'
48"	134'/27'	65'/13'

* FIRST NUMBER IS THE RECOMMENDED RESTRAINED LENGTH ON EACH SIDE OF THE DOWN BEND, THE SECOND NUMBER IS THE LENGTH FOR EACH SIDE OF THE UP BEND.

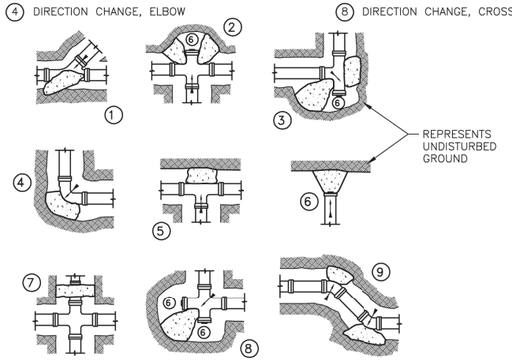
RESTRAINED LENGTHS OF PVC PIPE

NOM. PIPE SIZE	90° BEND (L)	45° BEND (L)	22.5° BEND (L)	11.25° BEND (L)	SIZE ON SIZE TEE(L)*	VALVE/ DEAD-END(L)
6"	19'	8'	4'	2'	2'	35'
8"	25'	11'	5'	3'	13'	45'
10"	31'	13'	6'	3'	23'	55'
12"	36'	15'	8'	4'	33'	65'
16"	47'	20'	10'	5'	52'	84'
18"	49'	21'	10'	5'	62'	96'
20"	53'	22'	11'	6'	73'	106'
24"	61'	26'	13'	6'	95'	125'
30"	72'	30'	15'	8'	125'	152'
36"	82'	34'	17'	9'	155'	180'
42"	91'	38'	19'	9'	189'	212'
48"	101'	42'	21'	10'	219'	239'

* RECOMMENDED RESTRAINED LENGTHS FOR TEES ARE FOR THE BRANCH OUTLET AND ASSUME A MINIMUM 10 FT. SECTION OF PIPE ATTACHED TO EACH SIDE OF THE RUN. RESTRAINT DEVICES ARE ALSO REQUIRED ON BOTH RUN JOINTS OF THE TEE ITSELF.

RESTRAINT DEVICE FOR PVC PIPE BELL

1. THRU LINE CONNECTION, WYE
2. THRU LINE CONNECTION, CROSS USED AS TEE
3. DIRECTION CHANGE, TEE USED AS ELBOW
4. DIRECTION CHANGE, ELBOW
5. THRU LINE CONNECTION, TEE
6. BLOCKING OF PLUG, TO INCLUDE BOND BREAKER
7. CHANGE LINE SIZE, REDUCER
8. DIRECTION CHANGE, CROSS USED AS ELBOW
9. DIRECTION CHANGE, BEND



MINIMUM BEARING SURFACE AREA (SQ. FT.)					
SIZE OF MAIN	HORIZONTAL BENDS				TEE OR DEAD END PLUG
	11.25°	22.5°	45°	90°	
4"	0.00	1.00	1.00	2.50	1.50
6"	0.00	1.25	2.25	5.00	3.00
8"	0.00	2.00	4.00	8.00	5.25
12"	2.25	4.50	8.75	16.25	11.25
16"	3.75	7.50	14.50	24.00	19.00
20"	5.00	10.00	19.50	35.50	25.00
24"	7.00	14.00	27.75	51.00	36.00

NOTES:
1. BLOCKING NOT SHOWN MUST BE APPROVED BY ENGINEER.
2. BEARING SURFACE AREAS SHOWN IN THE TABLE ARE MINIMUMS.
3. BASED ON 150 PSI INTERNAL PIPE PRESSURE PLUS WATER HAMMER: 4", 6", 8" AND 12" WATER HAMMER=110 PSI; 16", 20" AND 24" WATER HAMMER=70 PSI.
4. TABLE VALUES BASED ON 3,000 PSF SOIL BEARING CAPACITY.
5. ALL FITTINGS AND COUPLINGS SHALL BE SET ON A CONCRETE BLOCK ALONG WITH THE THRUST BLOCKING AS SHOWN.
6. CONCRETE FOR THRUST BLOCKING TO CONFORM TO SPECIFICATION SECTION 03 3000.

THRUST BLOCKING

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:29:11-07'00'
NORTH DAKOTA

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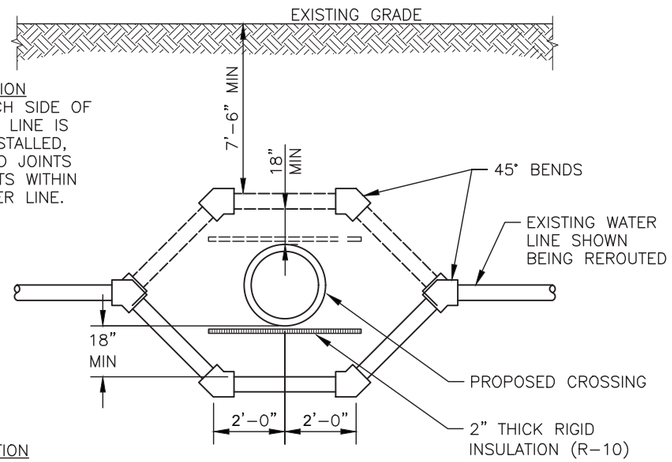
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Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Scott Schneider

Sheet: 20-14

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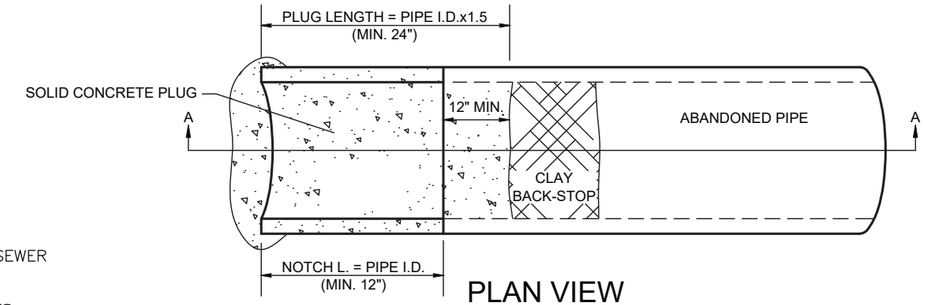


FOR NEW WATER LINE CONSTRUCTION
CENTER WATER PIPE 2 FEET EACH SIDE OF CROSSING. WHEN EXISTING SEWER LINE IS ABOVE THE WATER LINE BEING INSTALLED, INSTALL MECHANICALLY RESTRAINED JOINTS ON THE WATER PIPE AT ALL JOINTS WITHIN 10 FEET EACH SIDE OF THE SEWER LINE.

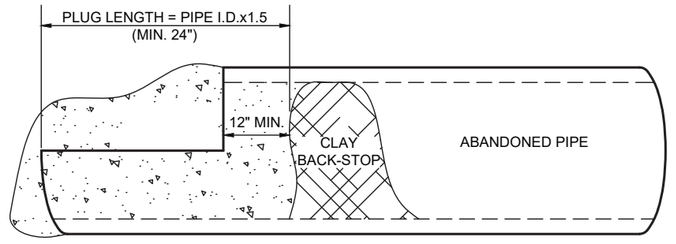
FOR NEW SEWER LINE CONSTRUCTION
CENTER SEWER PIPE 2 FEET EACH SIDE OF CROSSING. WHEN NEW SEWER LINE IS BEING INSTALLED ABOVE AN EXISTING WATER LINE, SLEEVE SDR-35 OR EQUAL PIPE OR USE C-900 OR EQUAL PIPE FROM MANHOLE TO MANHOLE AND RESTRAIN ALL WATER PIPE CONNECTIONS WITHIN 10 FEET EACH SIDE OF SEWER LINE.

WATERMAIN AND WATER SERVICE GRADE CHANGE AT CROSSINGS

NOTES:
1. "WATER" INCLUDES WATERMAINS AND SERVICE LATERALS.
2. "SEWER" INCLUDES SANITARY SEWER, STORM SEWER AND RECLAIMED WATERMAINS AND LATERALS.
3. PROVIDE 18 INCHES MINIMUM OF VERTICAL SEPARATION BETWEEN WATER AND SEWER LINES. WHEN SEPARATION CANNOT BE OBTAINED AND IN CASES WHERE WATER LINES MUST BE ROUTED UNDER EXISTING SEWER LINES, LOWER WATER LINE AS SHOWN ON THIS DETAIL.
4. IF WATER LINE IS 18 INCHES OR GREATER ABOVE THE SEWER LINE, NO SPECIAL CONSTRUCTION IS REQUIRED.
5. RESTRAINT JOINTS REQUIRED ON ALL FITTINGS.
6. BOTH WATER LINE AND SEWER LINE SHALL HAVE ONE (1) FULL PIPE LENGTH AT INTERSECTION OF CROSSING.
7. FOR PURPOSES OF SEPARATIONS AND PROTECTION OF THE WATER SUPPLY, A RECLAIMED WATER LINE SHALL BE CONSIDERED A SEWER LINE. NO CONCRETE SHALL BE PLACED ON RECLAIMED WATER PIPE JOINTS.
8. 22.5° BENDS MAY BE USED IN LIEU OF 45° BENDS.
9. PAYMENT FOR GRADE CHANGE CROSSINGS WILL BE MADE AT THE BID PRICE ON THE BID FORM
10. CONTRACTOR MAY CHOOSE TO USE CLSM FOR BACKFILL IN THIS AREA. THE PRICE OF THIS WORK SHALL BE INCLUDED WITHIN THE COST OF THE WATERMAIN INSTALLATION ON THE BID FORM.
11. INSULATION TO BE INCIDENTAL TO THE WATERMAIN ADJUSTMENT.



PLAN VIEW



SECTION A

NOTES:
1. REMOVE TOP OF PIPE DOWN TO THE SPRING LINE.
2. PLUG PIPE 12" OR SMALLER SHALL HAVE A CUT OPENING OF AT LEAST 12".
3. FILL VOID UP TO CLAY BACK-STOP WITH LOW SLUMP CONCRETE UP TO THE TOP OF PIPE.

PIPE PLUG

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:29:27-07'00'
NORTH DAKOTA

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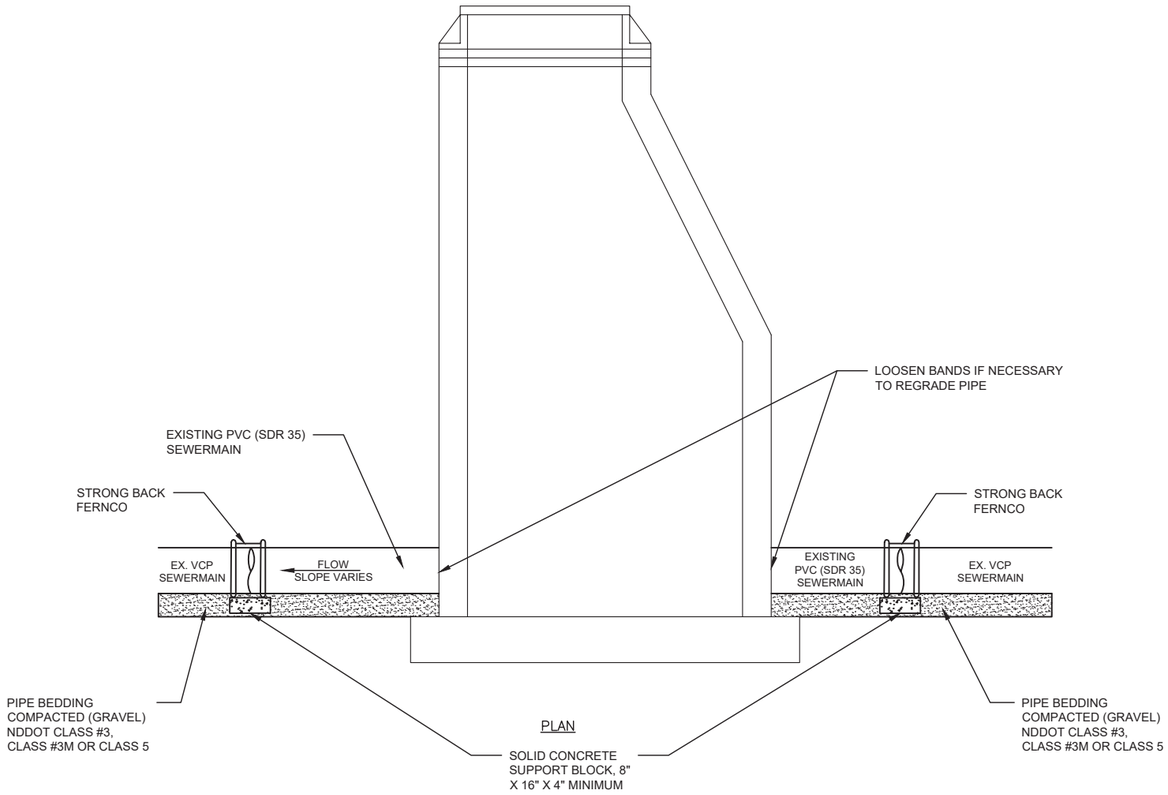
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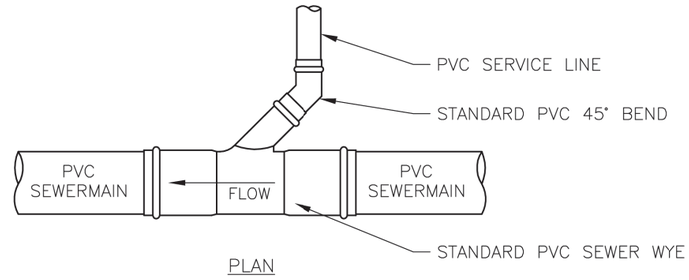
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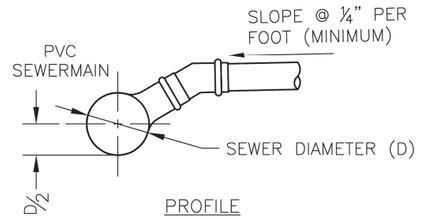
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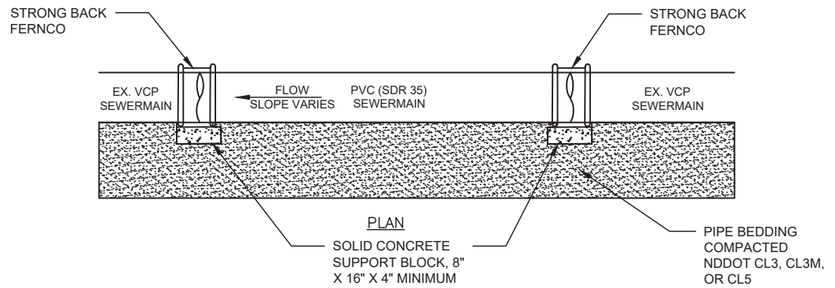
NOTES:
1. CONTRACTOR SHALL REMOVE AND REPLACE CONNECTING SLEEVES (FERNCOS) IF THEY ARE NOT STRONG BACK FERNCOS OR ARE DAMAGED
2. CONTRACTOR SHALL REGRADE PIPE SO THAT INVERTS MATCH AT BOTH ENDS
3. CONTRACTOR SHALL FURNISH AND INSTALL SAND/GRAVEL TO BED AND EXCASE PIPE
4. DRAWING REPRESENTS 2 EACH SEWER MAIN REPAIR

SANITARY SEWER MAIN AT MH REPAIR





SANITARY SEWER SERVICE LINE CONNECTION



NOTES:
1. CONTRACTOR SHALL REMOVE AND REPLACE CONNECTING SLEEVES (FERNCOS) IF THEY ARE NOT STRONG BACK FERNCOS OR ARE DAMAGED
2. CONTRACTOR SHALL REGRADE PIPE SO THAT INVERTS MATCH AT BOTH ENDS
3. CONTRACTOR SHALL FURNISH AND INSTALL SAND/GRAVEL TO BED AND EXCASE PIPE

SANITARY SEWER MAIN REPAIR

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:29:55-07'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

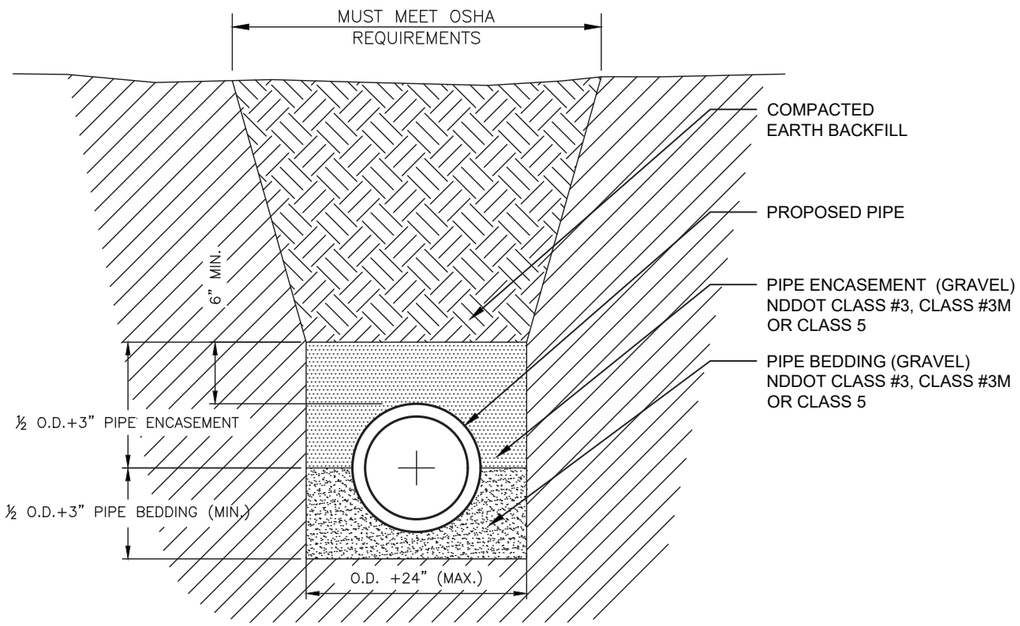
2026 UTILITY & STREET IMPROVEMENTS PROJECT
GENERAL DETAILS

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Scott Schneider

Sheet: 20-16

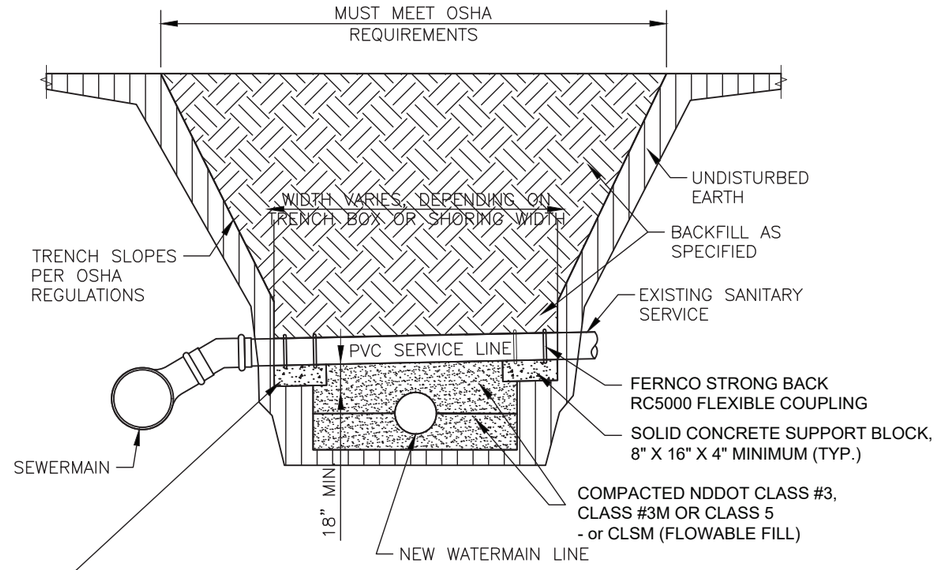
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NOTES:

1. SEE GEOTECHNICAL REPORT FOR PIPE BEDDING AND BACKFILL REQUIREMENTS.
2. ROCK BEDDING IS TO BE USED WHERE GROUNDWATER IS PRESENT (INCIDENTAL).
3. CONTRACTOR MAY USE MATERIAL FROM THE TRENCH THAT MEETS THE PIPE MANUFACTURERS REQUIREMENTS FOR PIPE ENCASEMENT AND BEDDING AROUND PIPE AFTER PROVIDING CERTIFICATION OF MATERIAL.

SEWER/WATERMAIN TRENCH BACKFILL DETAIL



SANITARY SEWER SERVICE LINE REPAIR DETAIL

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:30:15-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

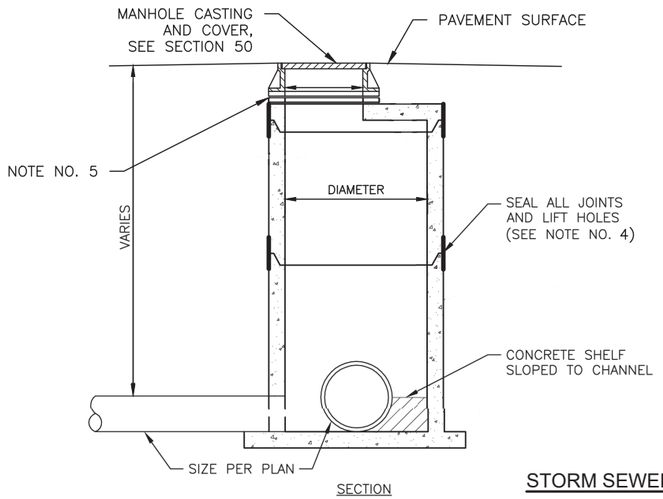
2026 UTILITY & STREET IMPROVEMENTS PROJECT
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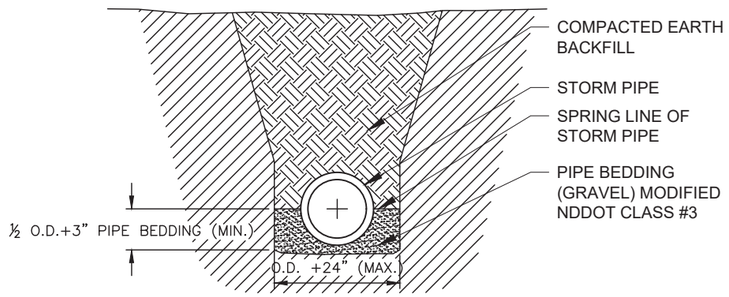
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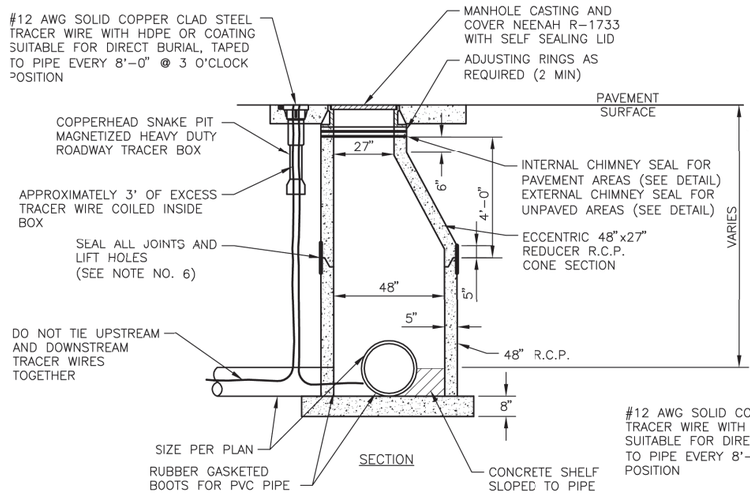
NOTES:
1. ALL MANHOLE SECTIONS SHALL HAVE SCREW STYLE LIFT DEVICES.
2. PROVIDE SLOPED FLOOR WITH CAST-IN-PLACE CONCRETE AS PER SPECIFICATIONS.
3. ALL INVERTS SHALL HAVE A SMOOTH FINISH.
4. CRETEX P2 GASKETED JOINT FOR 48" MANHOLES, CRETEX CX-4 JOINT FOR ALL OTHER SIZES OF MANHOLES OR EXTERIOR SEAL BY PRESS-SEAL GASKET CORP. EZ WRAP AND EZ STIK NO. 4 PRIMER, CRETEX SPECIALTY PRODUCTS "MAC WRAP", OR AN APPROVED EQUAL.
5. ALLOWANCE FOR ADJUSTMENT SHALL BE ±1"

STORM SEWER MANHOLE

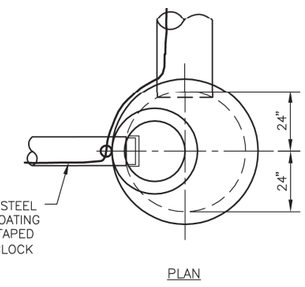


NOTES:
1. SEE GEOTECHNICAL REPORT FOR PIPE BEDDING AND BACKFILL REQUIREMENTS.
2. ALL LIFTING HOLES TO BE PLUGGED & MORTARED.

STORM SEWER TRENCH BACKFILL DETAIL



NOTES:
1. ALL MANHOLE SECTIONS SHALL HAVE SCREW STYLE LIFT DEVICES.
2. PROVIDE SLOPED FLOOR WITH CAST-IN-PLACE CONCRETE AS PER SPECIFICATIONS.
3. ALL INVERTS SHALL HAVE A SMOOTH FINISH.
4. 48" DIAMETER MANHOLE FOR SANITARY SEWER PIPES UP TO 27" IN DIAMETER. MANUFACTURER SHALL SIZE MANHOLE FOR SEWER PIPES LARGER THAN 27" IN DIAMETER.
5. ALL TRACER WIRE TO REMAIN ON THE OUTSIDE OF THE MANHOLE. NO TRACER WIRE REQUIRED ON SANITARY SEWER UNDER THE STREET.
6. 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 PRODUCTS "MAC WRAP". OR AN APPROVED EQUAL.
7. TRACER WIRE AND SNAKE PIT NOT REQUIRED FOR SANITARY SEWER.



SANITARY SEWER MANHOLE - STANDARD

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:30:47-07'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

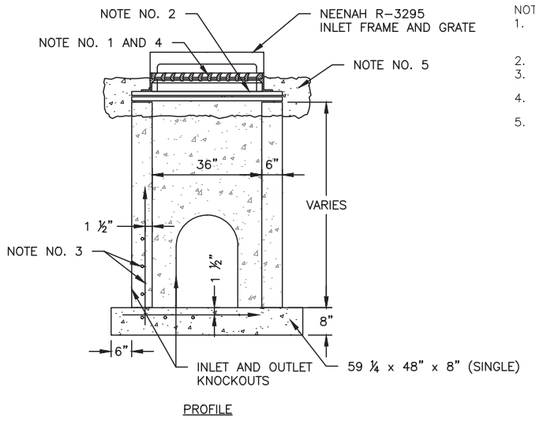
2026 UTILITY & STREET IMPROVEMENTS PROJECT
GENERAL DETAILS

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
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www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Scott Schneider

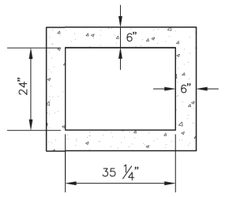
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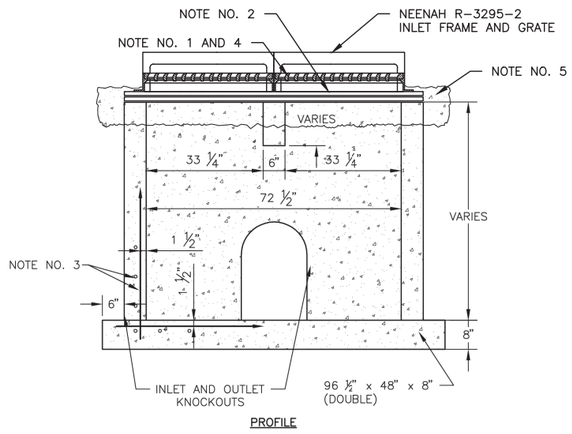
PROFILE

NOTES:
1. INLET CASTING SHALL BE NEENAH TYPE R-3295 WITH TYPE "V" GRATE SERIES OR APPROVED EQUAL. GRATE APERTURES SHALL BE ORIENTED IN THE DIRECTION OF THE PRIMARY INFLOW
2. ALLOWANCE FOR ADJUSTMENT SHALL BE ±1"
3. ALL BARS SHALL BE NO. 5 DEFORMED REINFORCING BARS SPACED 6" CENTER-TO-CENTER BOTH WAYS.
4. BOLTS FOR CASTING SHALL BE TEMPERED FINISH, DOUBLE HEAT TREATED 1038 S.A.E. GRADE 5 WITH CAD-DICHROMATE PLATING.
5. THE INLET CASTING SHALL BE SEALED WITH A CONCRETE COLLAR AROUND THE INLET CASTING AND INLET BOX THAT IS A MINIMUM OF 8" WIDE BY 12" DEEP.



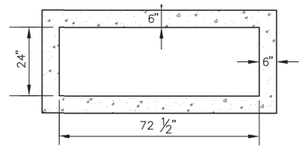
PLAN

STORM SEWER INLET - TYPE 2



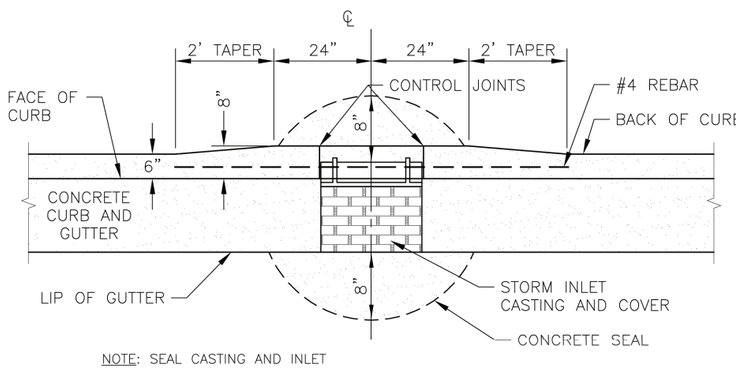
PROFILE

NOTES:
1. INLET CASTING SHALL BE NEENAH TYPE R-3295-2 WITH TYPE "V" GRATE SERIES OR APPROVED EQUAL. GRATE APERTURES SHALL BE ORIENTED IN THE DIRECTION OF THE PRIMARY INFLOW.
2. ALLOWANCE FOR ADJUSTMENT SHALL BE ±1"
3. ALL BARS SHALL BE NO. 5 DEFORMED REINFORCING BARS SPACED 6" CENTER-TO-CENTER BOTH WAYS.
4. BOLTS FOR CASTING SHALL BE TEMPERED FINISH, DOUBLE HEAT TREATED 1038 S.A.E. GRADE 5, WITH CAD-DICHROMATE PLATING.
5. THE INLET CASTING SHALL BE SEALED WITH A CONCRETE COLLAR AROUND THE INLET CASTING AND INLET BOX THAT IS A MINIMUM OF 8" WIDE BY 12" DEEP.



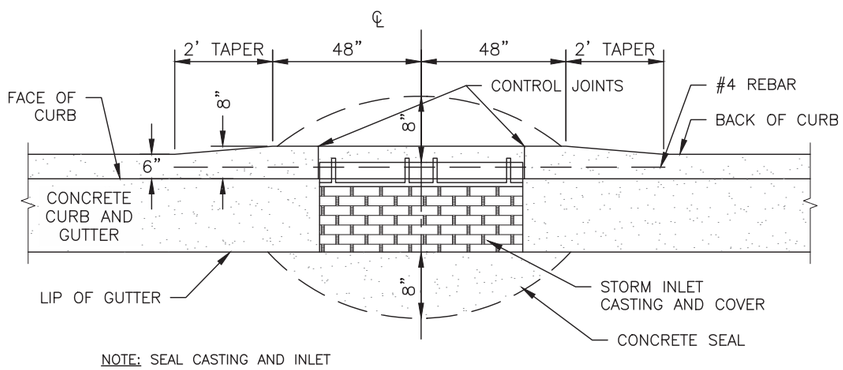
PLAN

STORM SEWER INLET - TYPE 2 DOUBLE



NOTE: SEAL CASTING AND INLET

STORM SEWER INLET CURB PLAN



NOTE: SEAL CASTING AND INLET

STORM SEWER DOUBLE INLET CURB PLAN

REGISTERED PROFESSIONAL ENGINEER
LEVI L CLAGETT
PE-40749
DATE 2026.02.18 08:59:57-06'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

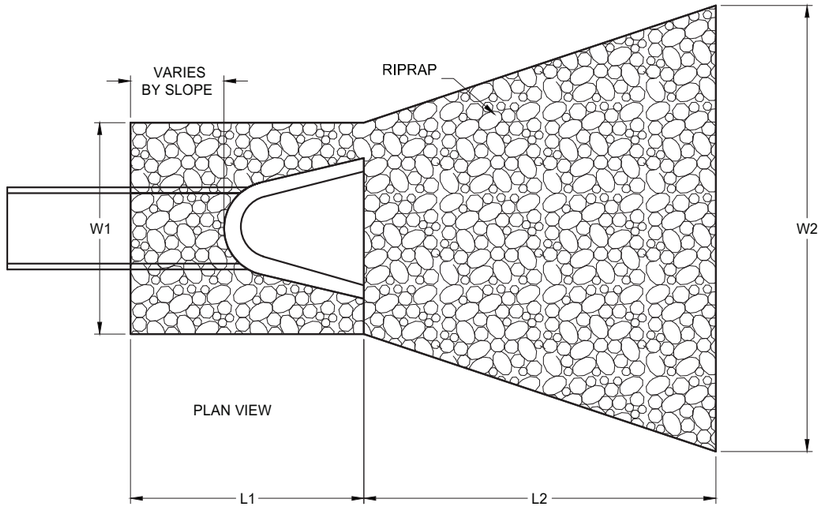
2026 UTILITY & STREET IMPROVEMENTS PROJECT GENERAL DETAILS

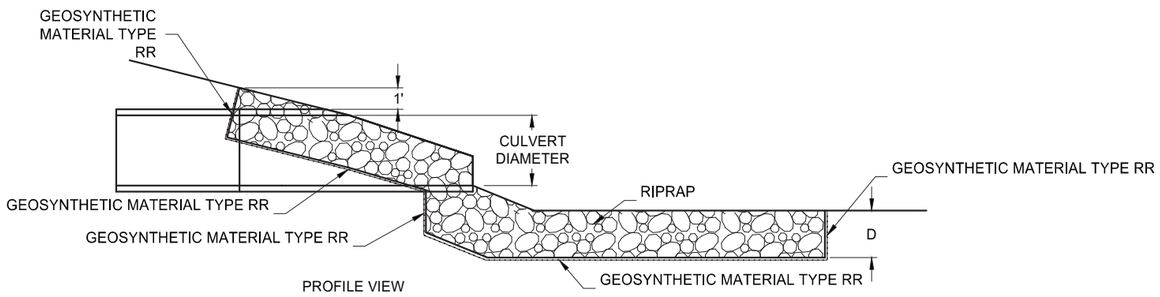
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Levi Clagett

Sheet: 20-19

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RIPRAP AND GEOSYNTHETIC MATERIAL

Alignment	Station	Offset	Pipe Diameter	L1	L2	W1	W2	D	Riprap Grade	RIPRAP GRADE I	GEOSYNTHETIC MATERIAL TYPE RR
			(IN)	(IN)	(FT)	(FT)	(FT)	(FT)		(CY)	(SY)
4th Ave SE	72+09	213' Rt	30	9	12	8	16	2	I	16	39

RIPRAP GRADATIONS

Grade I		Grade II		Grade III	
Size (Inches)	Percent Smaller	Size (Inches)	Percent Smaller	Size (Inches)	Percent Smaller
20	100	28	100	36	100
18	70-90	22	30-80	29	55-85
15	40-60	16	20-50	24	35-50
10	0-10	10	0-5	10	10-15
6	0-2	6	0-2	6	0-2

REGISTERED PROFESSIONAL ENGINEER
LEVI L CLAGETT
PE-40749
DATE 2026.02.18 09:03:15-06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
GENERAL DETAILS

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
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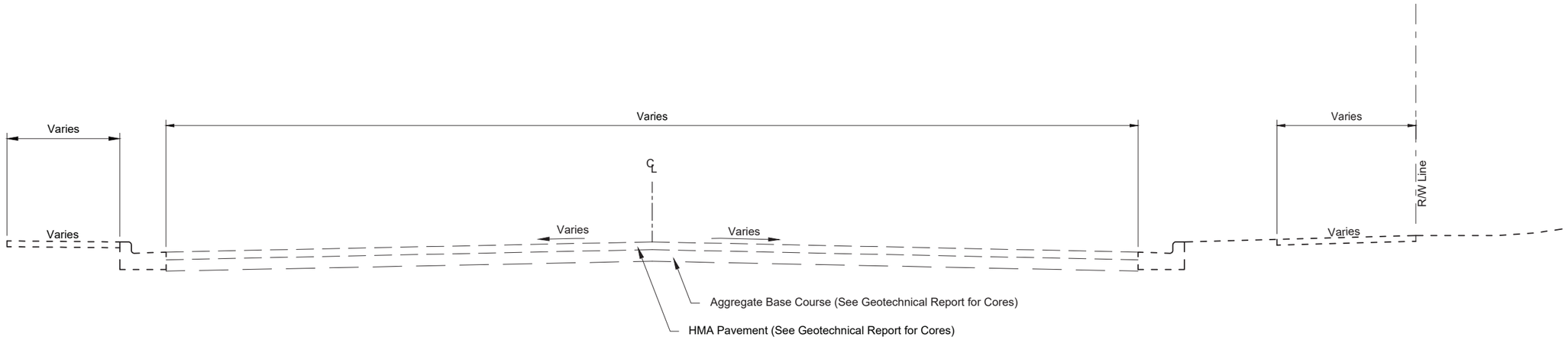
Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Scott Schneider
Approved By: Levi Clagett

Sheet: 20-20

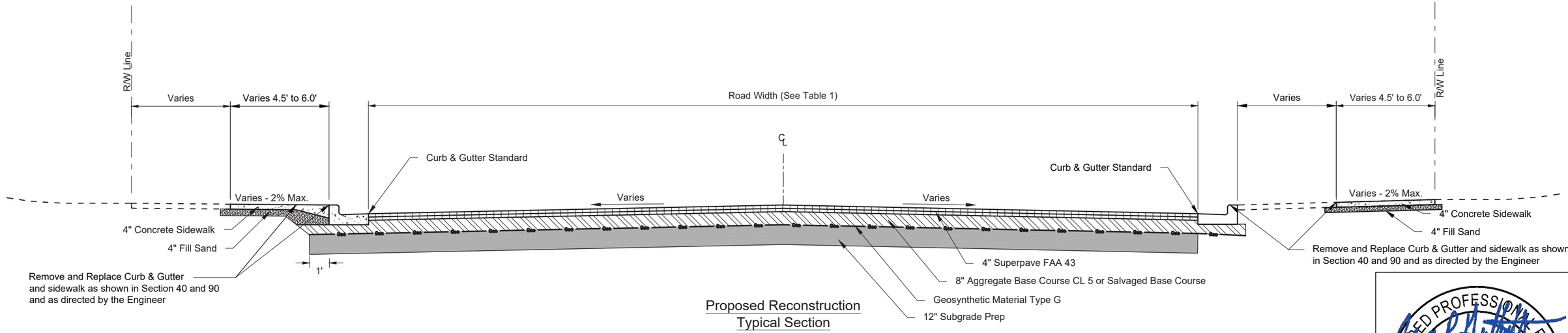
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Road	From	To	Approx. Width (ft)
3rd Ave E	2nd St E	3rd St E	31.0'
3rd Ave E	4th St E	5th St E	31.0'
3rd Ave E	5th St E	6th St E	31.0'
3rd Ave E	6th St E	7th St E	31.0'
1st St SE	S Main Ave	1st Ave SE	32.7'
1st St SE	1st Ave SE	2nd Ave SE	32.6'
1st St SE	2nd Ave SE	3rd Ave SE	32.7'
1st St SE	3rd Ave SE	4th Ave SE	32.9'
1st St SE	4th Ave SE	5th Ave SE	32.7'
2nd St SE	E End	5th Ave SE	31.2'
2nd St SE	5th Ave SE	4th Ave SE	30.9'
2nd St SE	4th Ave SE	3rd Ave SE	30.5'
1st Ave SE	Broadway E	1st St SE	41.8'
1st Ave SE	1st St SE	2nd St SE	32.9'
2nd Ave SE	2nd St SE	1st St SE	30.8'
2nd Ave SE	1st St SE	Broadway E	30.9'
3rd Ave SE	Broadway E	1st St SE	32.8'
3rd Ave SE	1st St SE	2nd St SE	32.6'
4th Ave SE	4th Ave SE	2nd St SE	Varies
4th Ave SE	1st St SE	Broadway E	31.0'
5th Ave SE	Broadway E	1st St SE	30.6'
5th Ave SE	1st St SE	2nd St SE	34.0'

TABLE 1



Existing Typical Section



Proposed Reconstruction
Typical Section

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
16:26:42 -06'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
Typical Sections

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

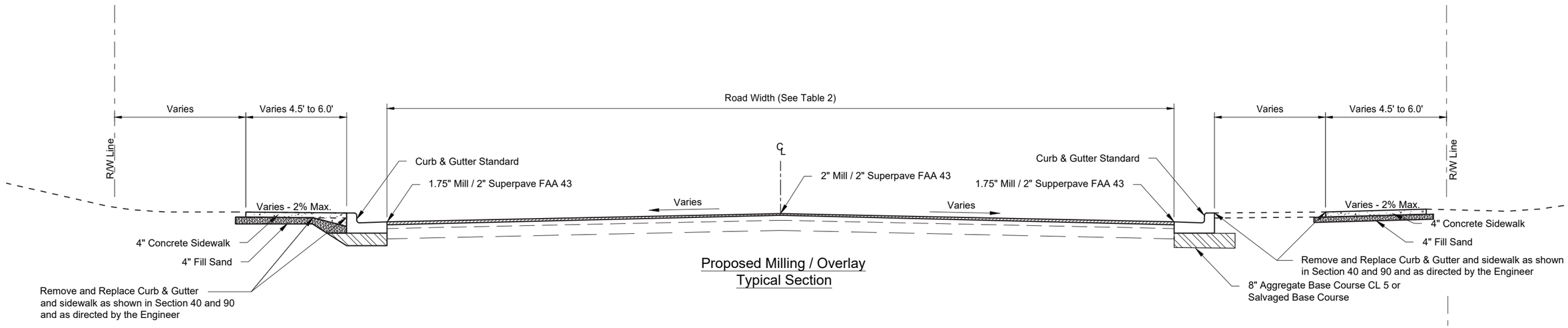
Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Tanner Sanders
Approved By: Jason Gullicks

Sheet: 30-01

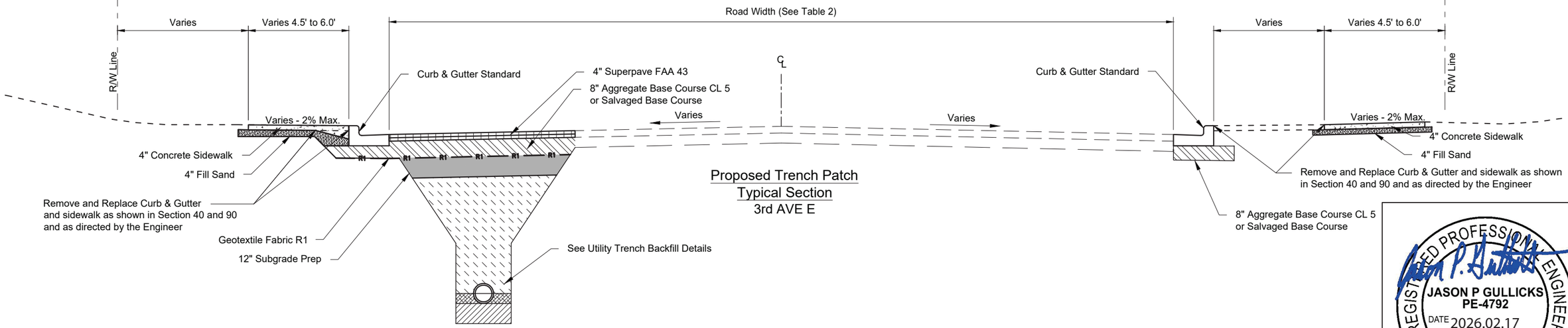
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Road	From	To	Approx. Width (ft)
3rd Ave E	3rd St E	4th St E	31.0'
2nd St SE	3rd Ave SE	2nd Ave SE	31.0'
4th Ave SE	2nd St SE	1st St SE	32.6'

TABLE 2



Proposed Milling / Overlay
Typical Section



Proposed Trench Patch
Typical Section
3rd AVE E

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
16:26:56 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

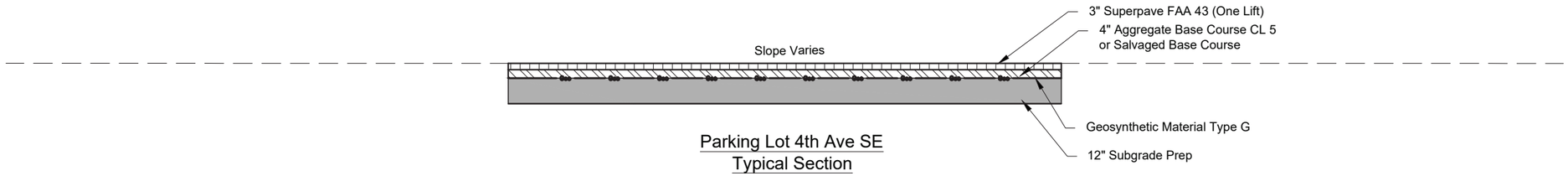
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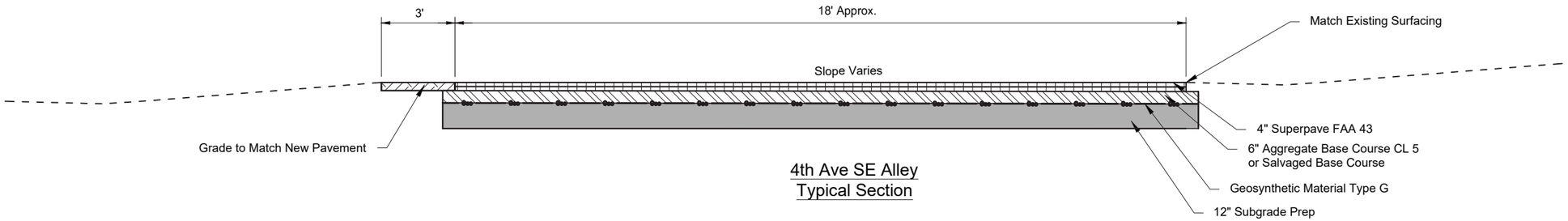
Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Tanner Sanders
Approved By: Jason Gullicks

Sheet: 30-02

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Parking Lot 4th Ave SE
Typical Section



4th Ave SE Alley
Typical Section

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
16:27:19 -06'00'
NORTH DAKOTA

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CITY OF Dickinson North Dakota

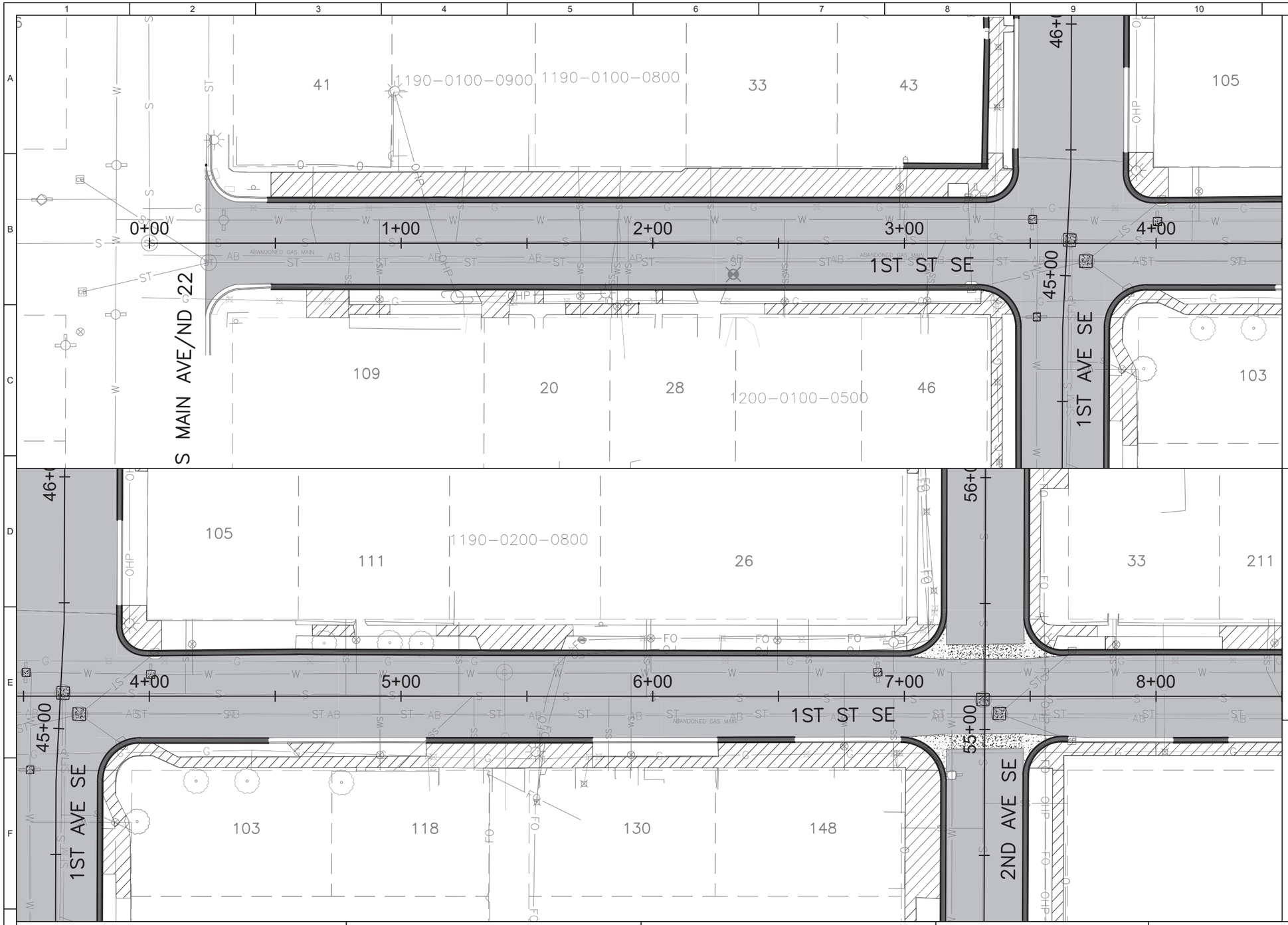
2026 UTILITY & STREET IMPROVEMENTS PROJECT
Typical Sections

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Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Tanner Sanders
Approved By: Jason Gullicks

Sheet:
30-03

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	868	SY
REMOVAL OF CURB AND GUTTER	1286	LF
REMOVAL OF BITUMINOUS SURFACING	2961	SY
REMOVAL OF CONCRETE PAVEMENT	91	SY

LEGEND

- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK
- REMOVAL OF CURB & GUTTER
- MILLING PAVEMENT SURFACE
- REMOVAL OF BITUMINOUS SURFACING

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:28:52 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SURFACE REMOVALS
Sta 0+00 to Sta 8+00
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 40-01

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	706	SY
REMOVAL OF CURB AND GUTTER	1349	LF
REMOVAL OF BITUMINOUS SURFACING	2944	SY
REMOVAL OF CONCRETE PAVEMENT	135	SY

LEGEND

- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK
- REMOVAL OF CURB & GUTTER
- MILLING PAVEMENT SURFACE
- REMOVAL OF BITUMINOUS SURFACING

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:29:12 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

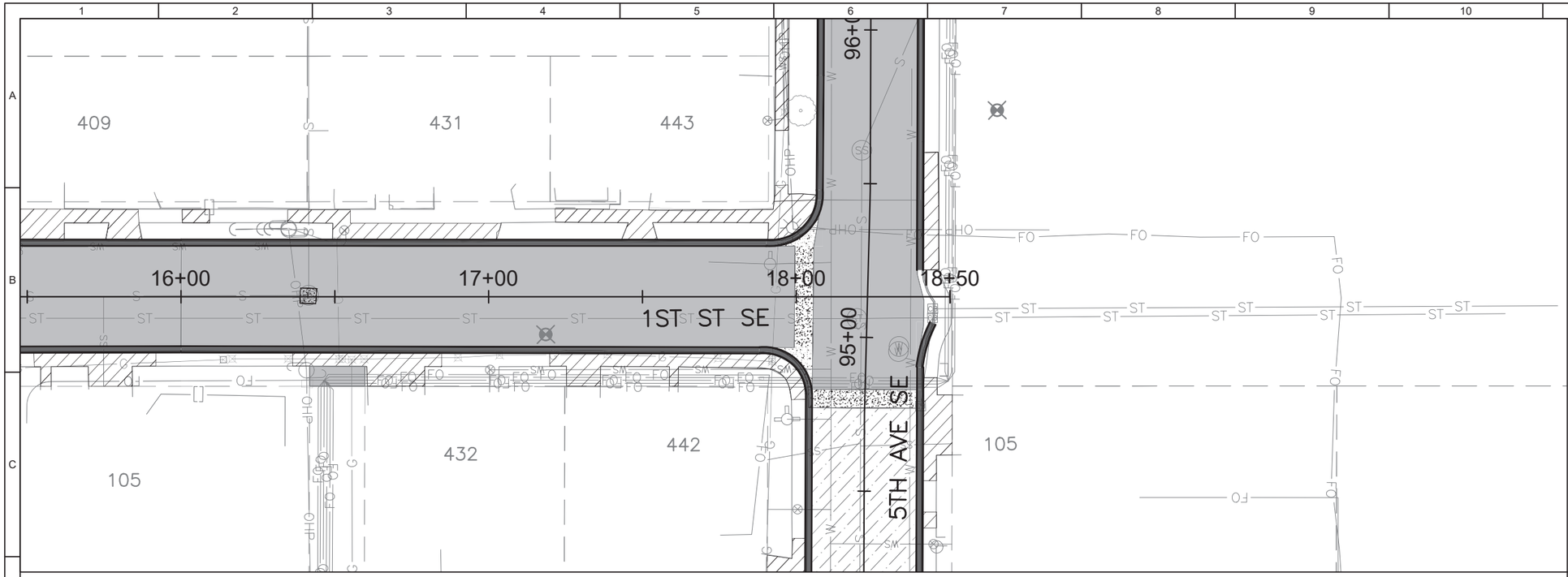
2026 UTILITY & STREET IMPROVEMENTS PROJECT
SURFACE REMOVALS
Sta 8+00 to Sta 16+00
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 40-02

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	213	SY
REMOVAL OF CURB AND GUTTER	430	LF
REMOVAL OF BITUMINOUS SURFACING	970	SY
REMOVAL OF CONCRETE PAVEMENT	61	SY

LEGEND

- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK
- REMOVAL OF CURB & GUTTER
- MILLING PAVEMENT SURFACE
- REMOVAL OF BITUMINOUS SURFACING

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:29:29 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

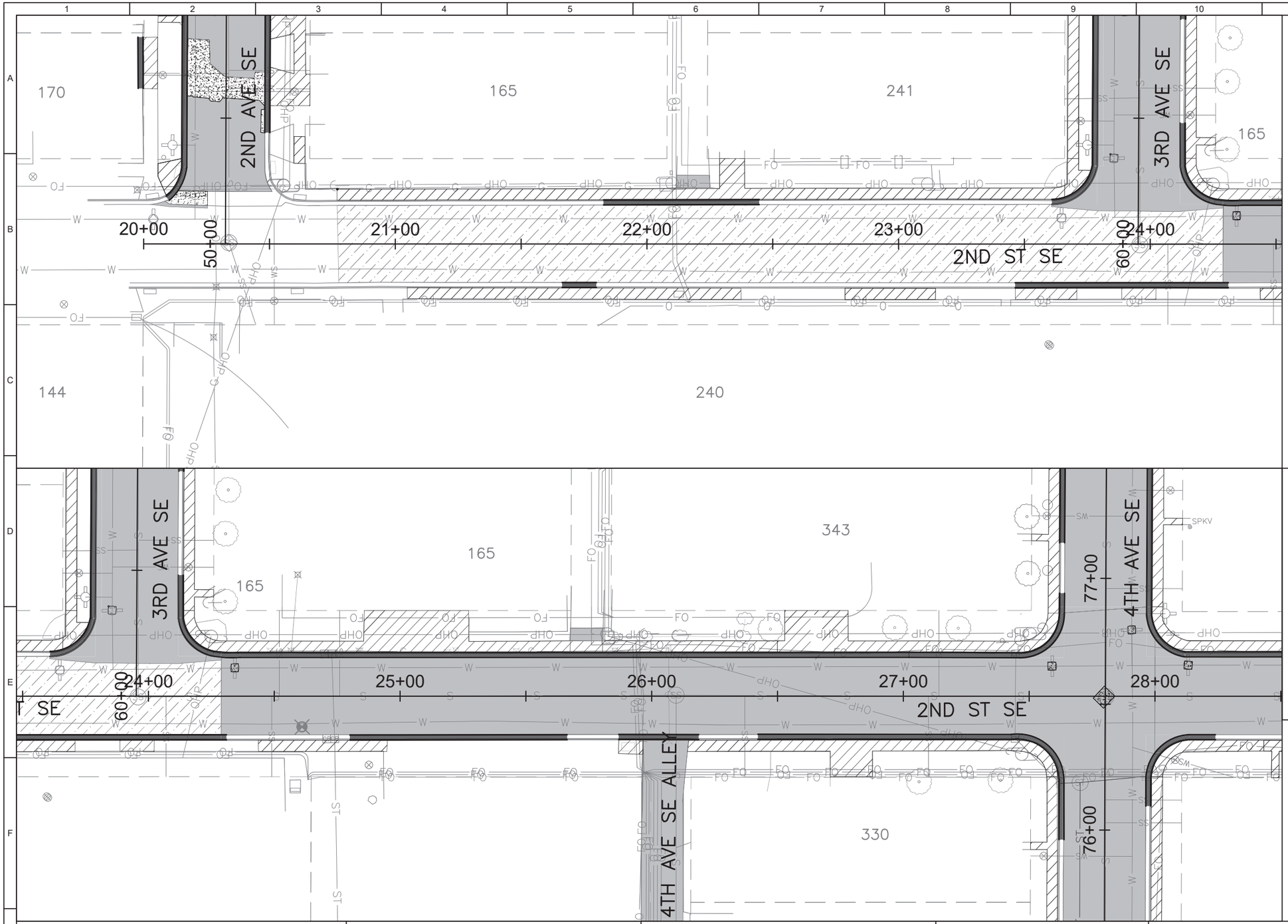
2026 UTILITY & STREET IMPROVEMENTS PROJECT
SURFACE REMOVALS
Sta 16+00 to Sta 18+50
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
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Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 40-03

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	663	SY
REMOVAL OF CURB AND GUTTER	866	LF
REMOVAL OF BITUMINOUS SURFACING	1429	SY
REMOVAL OF CONCRETE PAVEMENT	17	SY
MILLING PAVEMENT SURFACE	1192	SY

LEGEND

- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK
- REMOVAL OF CURB & GUTTER
- MILLING PAVEMENT SURFACE
- REMOVAL OF BITUMINOUS SURFACING

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:29:47 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

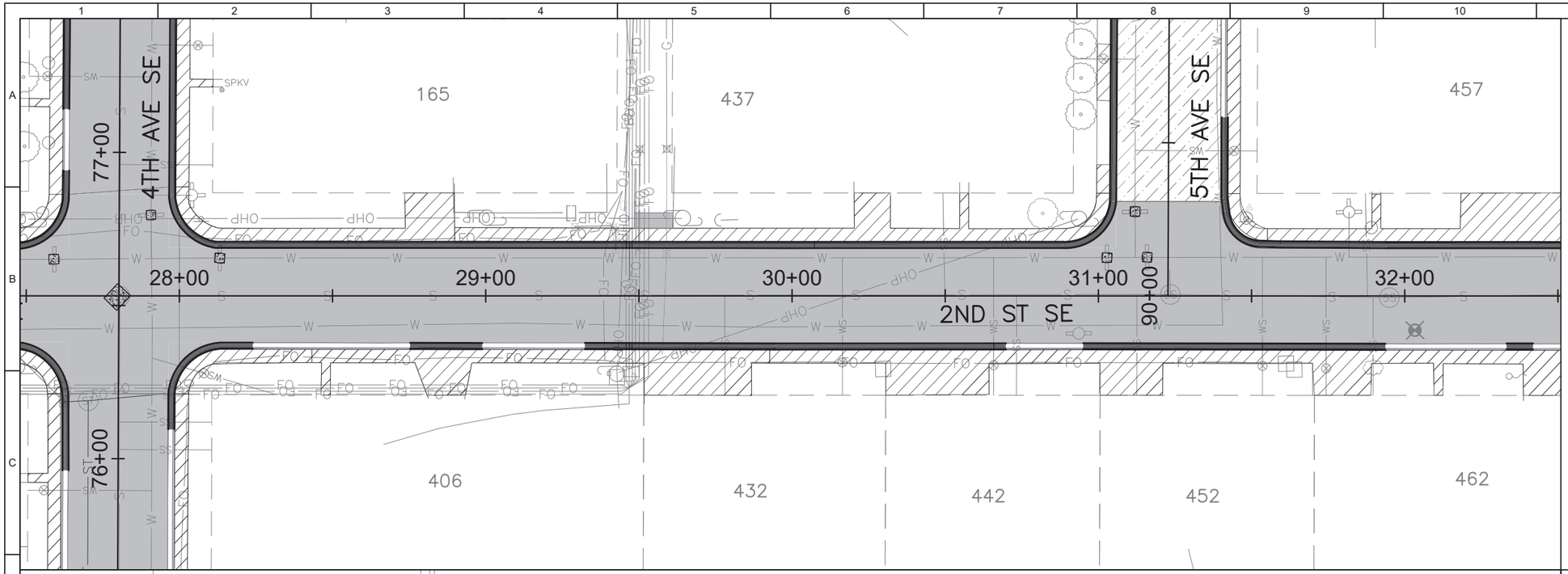
2026 UTILITY & STREET IMPROVEMENTS PROJECT
SURFACE REMOVALS
Sta 20+00 to Sta 28+00
SOUTH AREA

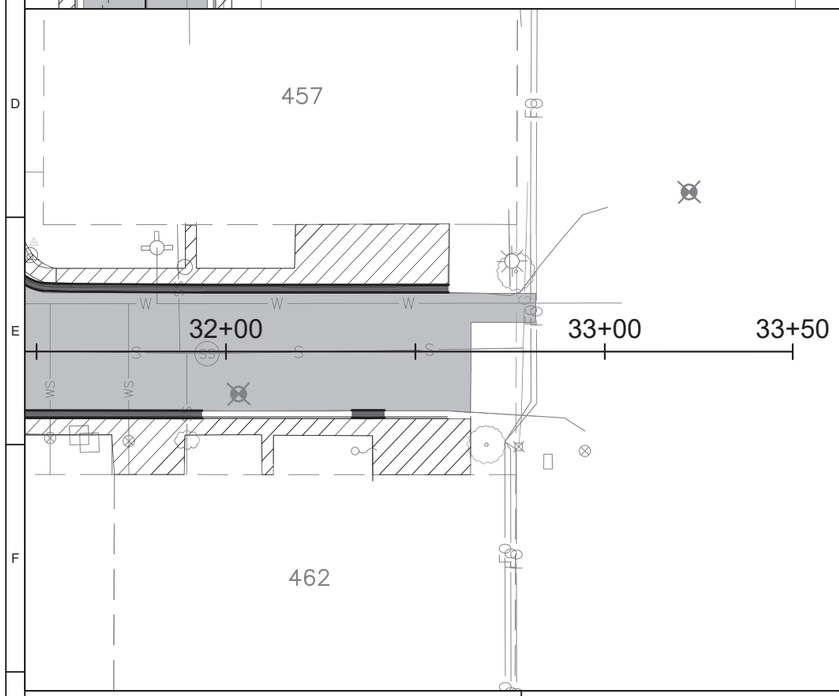
Apex Engineering Group
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204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 40-04

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	721	SY
REMOVAL OF CURB AND GUTTER	696	LF
REMOVAL OF BITUMINOUS SURFACING	1696	SY
REMOVAL OF CONCRETE PAVEMENT	4	SY

LEGEND

- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK
- REMOVAL OF CURB & GUTTER
- MILLING PAVEMENT SURFACE
- REMOVAL OF BITUMINOUS SURFACING

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:30:05 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

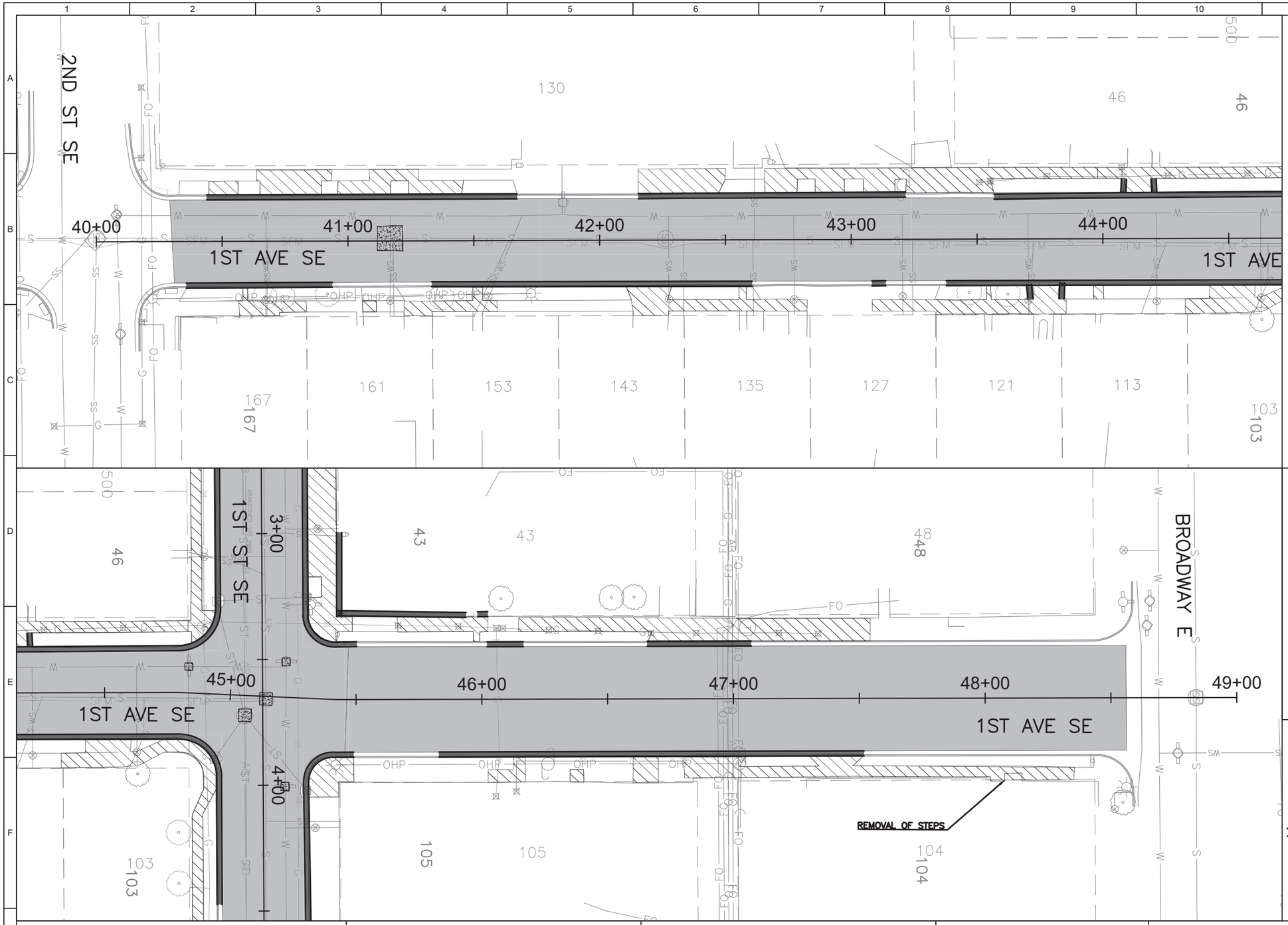
2026 UTILITY & STREET IMPROVEMENTS PROJECT
SURFACE REMOVALS
Sta 28+00 to Sta 33+50
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 40-05

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	721	SY
REMOVAL OF CURB AND GUTTER	987	LF
REMOVAL OF BITUMINOUS SURFACING	3098	SY
REMOVAL OF CONCRETE PAVEMENT	11	SY
REMOVAL OF STEPS	1	EA

LEGEND

- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK
- REMOVAL OF CURB & GUTTER
- MILLING PAVEMENT SURFACE
- REMOVAL OF BITUMINOUS SURFACING

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:30:23 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

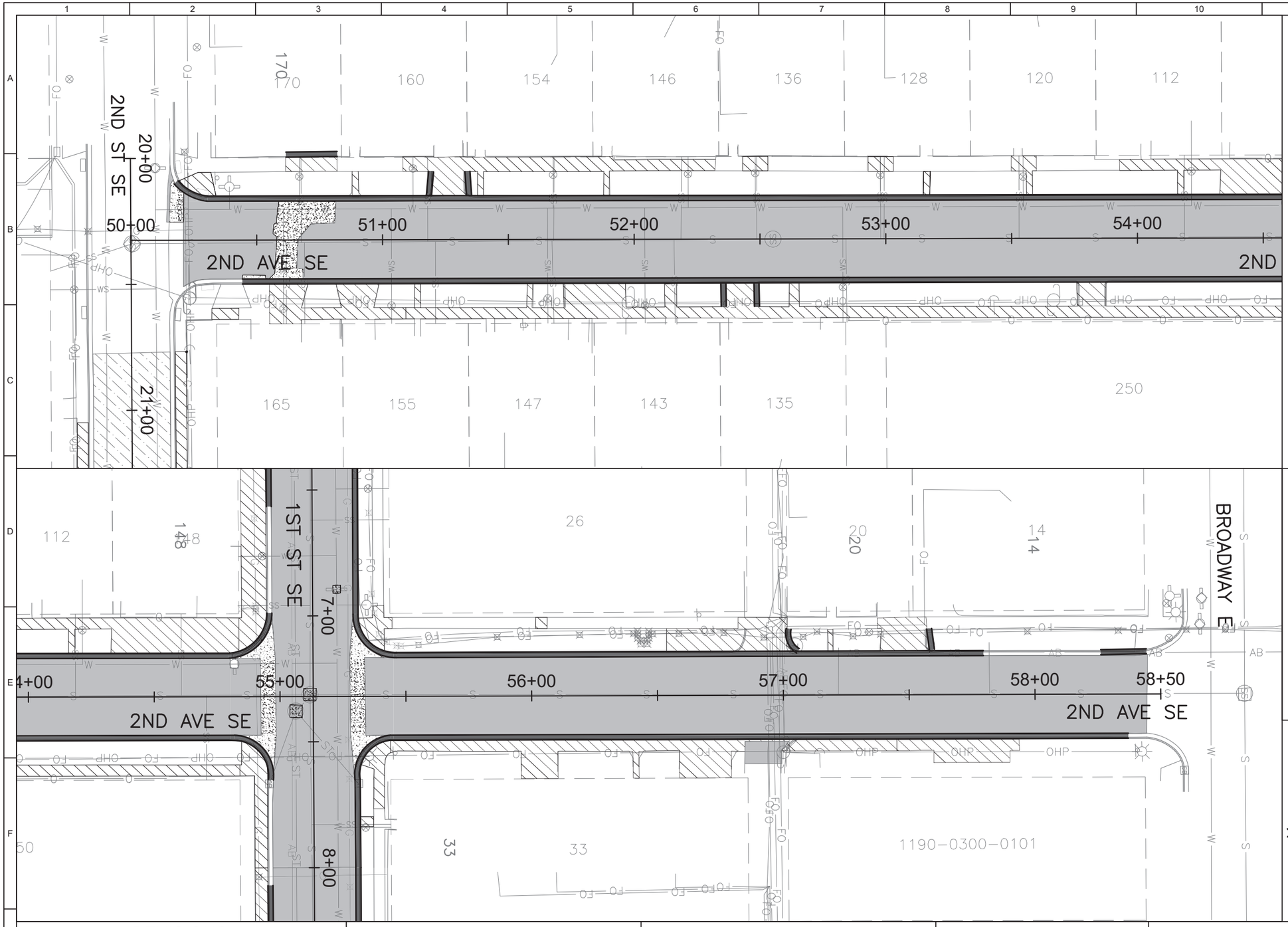
2026 UTILITY & STREET IMPROVEMENTS PROJECT
SURFACE REMOVALS
Sta 40+00 to Sta 49+00
SOUTH AREA

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204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 40-06

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	827	SY
REMOVAL OF CURB AND GUTTER	1522	LF
REMOVAL OF BITUMINOUS SURFACING	2645	SY
REMOVAL OF CONCRETE PAVEMENT	49	SY

LEGEND

- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK
- REMOVAL OF CURB & GUTTER
- MILLING PAVEMENT SURFACE
- REMOVAL OF BITUMINOUS SURFACING

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:30:41 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

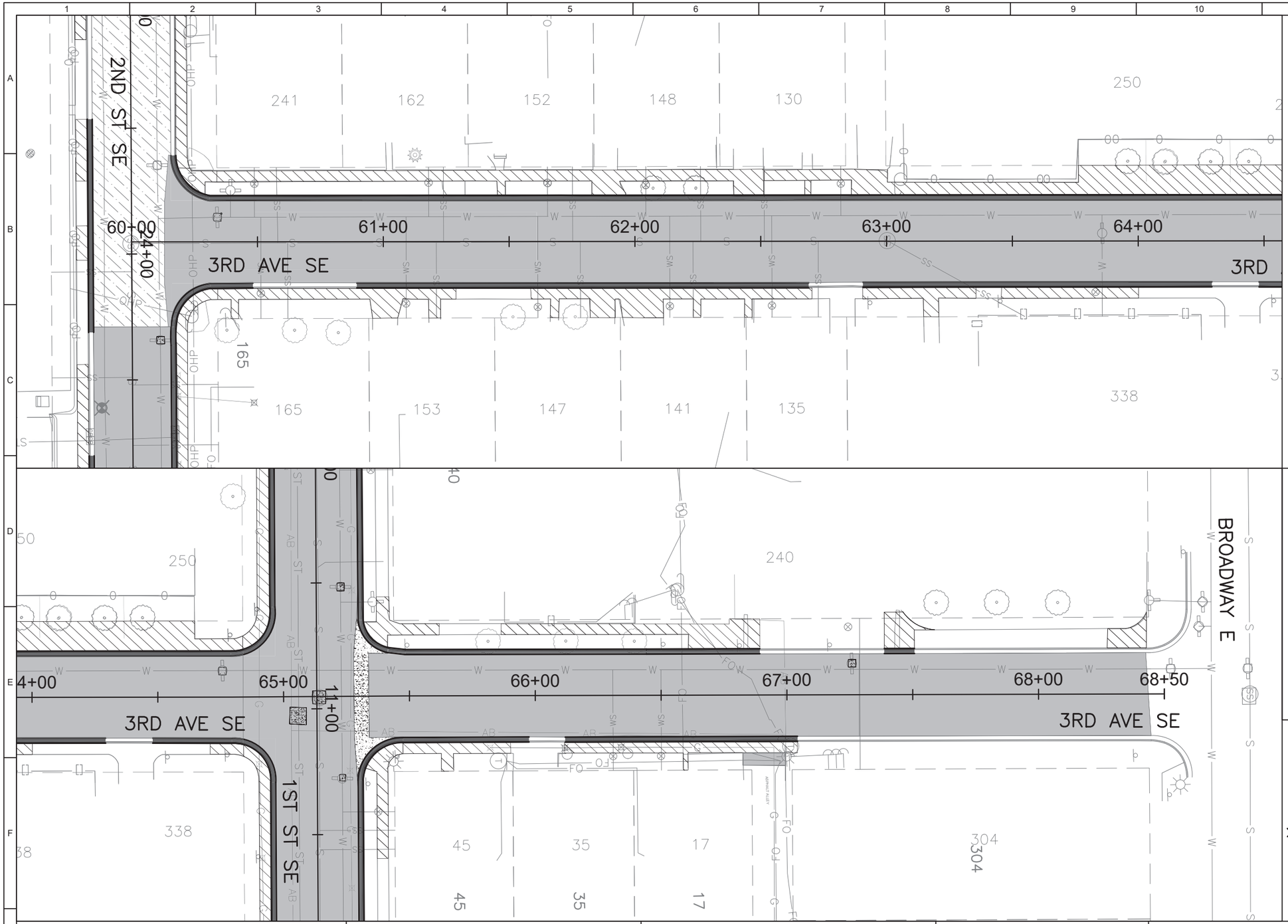
2026 UTILITY & STREET IMPROVEMENTS PROJECT SURFACE REMOVALS Sta 50+00 to Sta 58+50 SOUTH AREA

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204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 40-07

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	703	SY
REMOVAL OF CURB AND GUTTER	1110	LF
REMOVAL OF BITUMINOUS SURFACING	2868	SY
REMOVAL OF CONCRETE PAVEMENT	2	SY

LEGEND

- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK
- REMOVAL OF CURB & GUTTER
- MILLING PAVEMENT SURFACE
- REMOVAL OF BITUMINOUS SURFACING

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
16:30:59 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

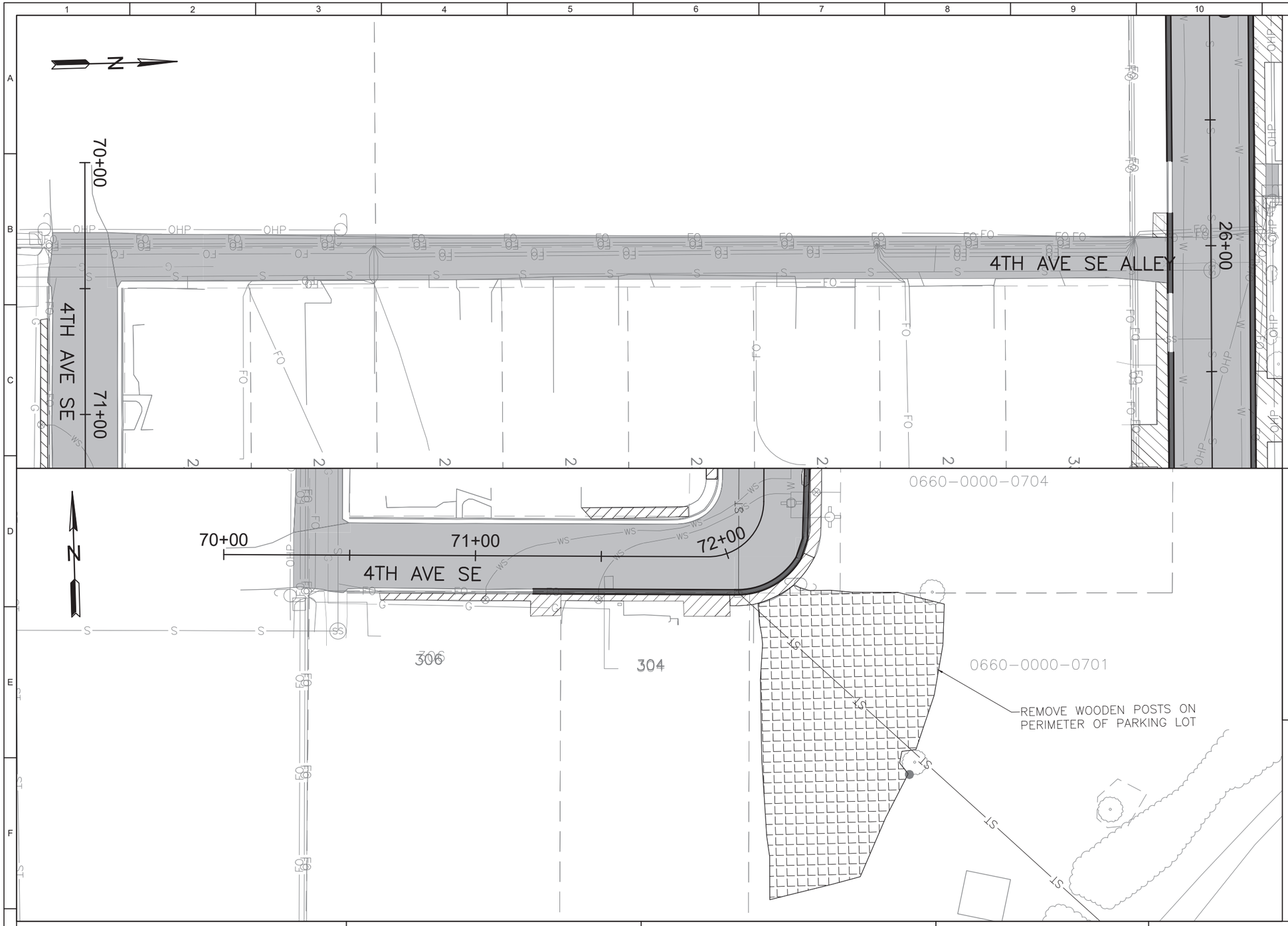
2026 UTILITY & STREET IMPROVEMENTS PROJECT
SURFACE REMOVALS
Sta 60+00 to Sta 68+50
SOUTH AREA

Apex Engineering Group
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Dickinson, North Dakota 58601
Office: 701-264-3939
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Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 40-08

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	128	SY
REMOVAL OF CURB AND GUTTER	155	LF
REMOVAL OF BITUMINOUS SURFACING	1507	SY
REMOVAL OF CONCRETE PAVEMENT	2	SY
DEMOLITION OF PARKING LOT	1	LSUM

LEGEND

- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK
- REMOVAL OF CURB & GUTTER
- MILLING PAVEMENT SURFACE
- REMOVAL OF BITUMINOUS SURFACING
- DEMOLITION OF PARKING LOT

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:32:05 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SURFACE REMOVALS 4TH AVE SE ALLEY Sta 70+00 to 72+00

Apex Engineering Group
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204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 40-09

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	684	SY
REMOVAL OF CURB AND GUTTER	904	LF
REMOVAL OF BITUMINOUS SURFACING	2962	SY
REMOVAL OF CONCRETE PAVEMENT	40	SY

LEGEND

- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK
- REMOVAL OF CURB & GUTTER
- MILLING PAVEMENT SURFACE
- REMOVAL OF BITUMINOUS SURFACING

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:32:23 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SURFACE REMOVALS Sta 72+00 to 81+00 SOUTH AREA

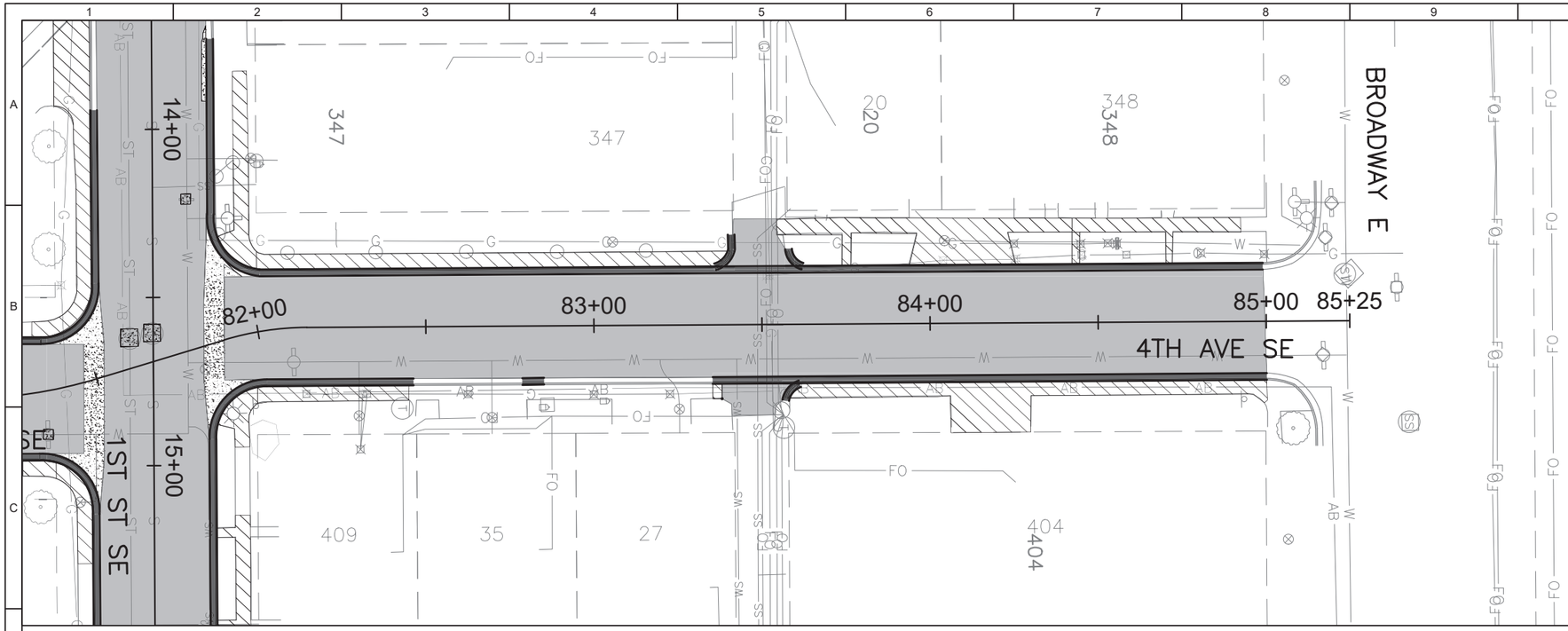
Apex Engineering Group

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204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 40-10

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	294	SY
REMOVAL OF CURB AND GUTTER	539	LF
REMOVAL OF BITUMINOUS SURFACING	1102	SY

LEGEND

- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK
- REMOVAL OF CURB & GUTTER
- MILLING PAVEMENT SURFACE
- REMOVAL OF BITUMINOUS SURFACING

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:32:52 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

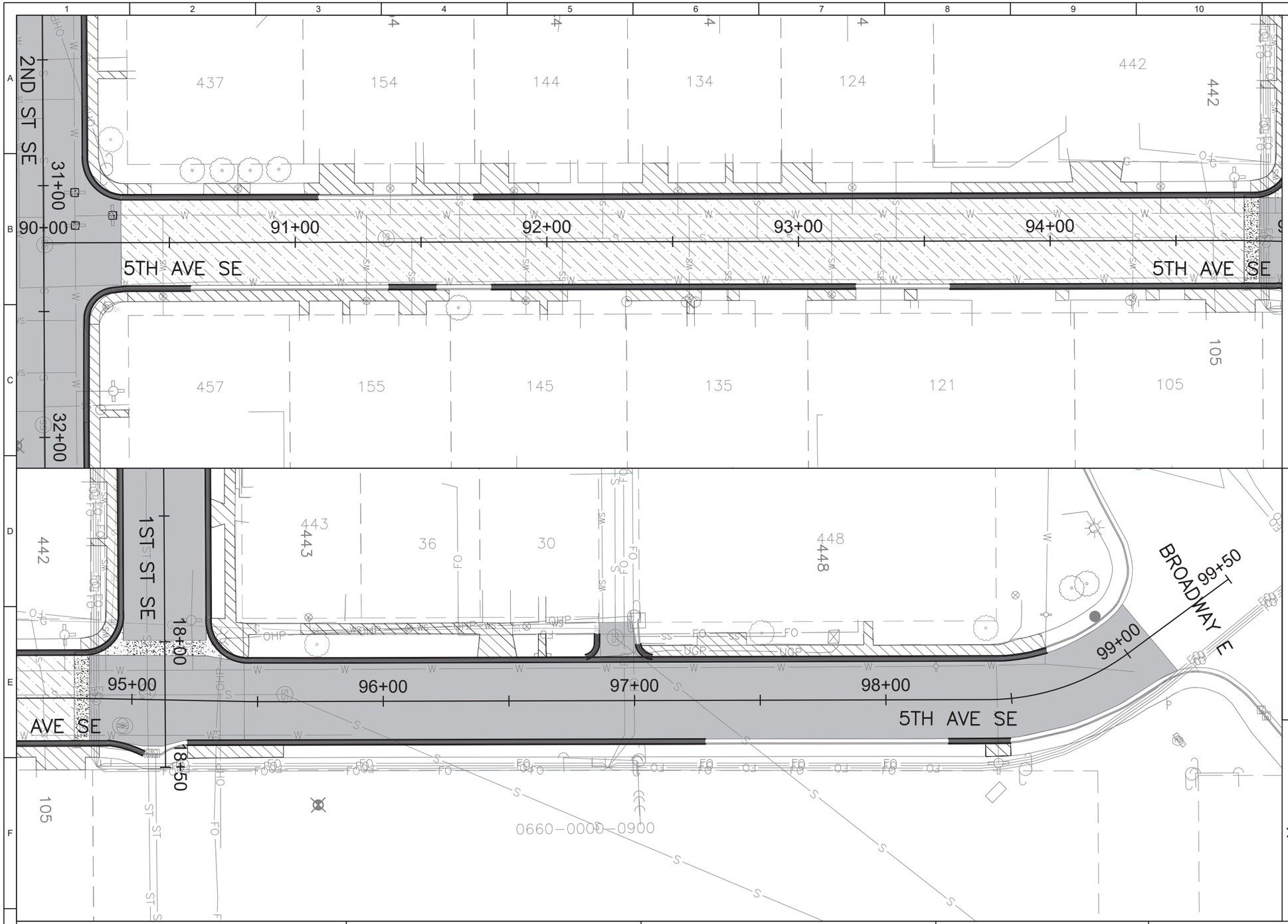
2026 UTILITY & STREET IMPROVEMENTS PROJECT
SURFACE REMOVALS
Sta 81+00 to Sta 85+25
SOUTH AREA

Apex Engineering Group
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204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 40-11

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	503	SY
REMOVAL OF CURB AND GUTTER	1291	LF
REMOVAL OF BITUMINOUS SURFACING	1275	SY
MILLING PAVEMENT SURFACE	1686	SY

LEGEND

- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK
- REMOVAL OF CURB & GUTTER
- MILLING PAVEMENT SURFACE
- REMOVAL OF BITUMINOUS SURFACING

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
16:33:30 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SURFACE REMOVALS
Sta 90+00 to Sta 99+50
SOUTH AREA

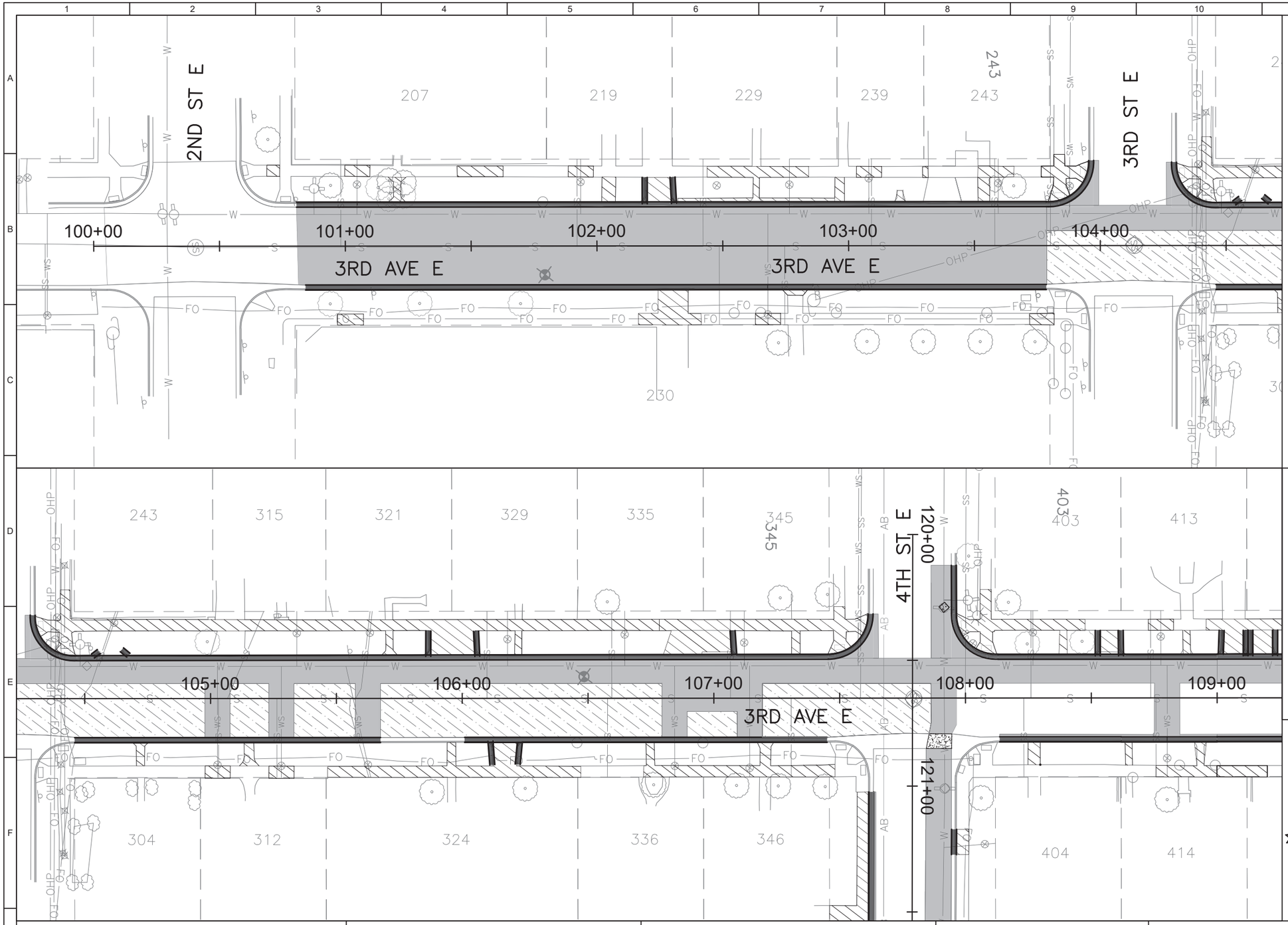
Apex Engineering Group

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Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 40-12

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 040_Removals.dwg



ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	611	SY
REMOVAL OF CURB AND GUTTER	1554	LF
REMOVAL OF BITUMINOUS SURFACING	1855	SY
REMOVAL OF CONCRETE PAVEMENT	7	SY
MILLING PAVEMENT SURFACE	815	SY

LEGEND

- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK
- REMOVAL OF CURB & GUTTER
- MILLING PAVEMENT SURFACE
- REMOVAL OF BITUMINOUS SURFACING

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:33:52 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

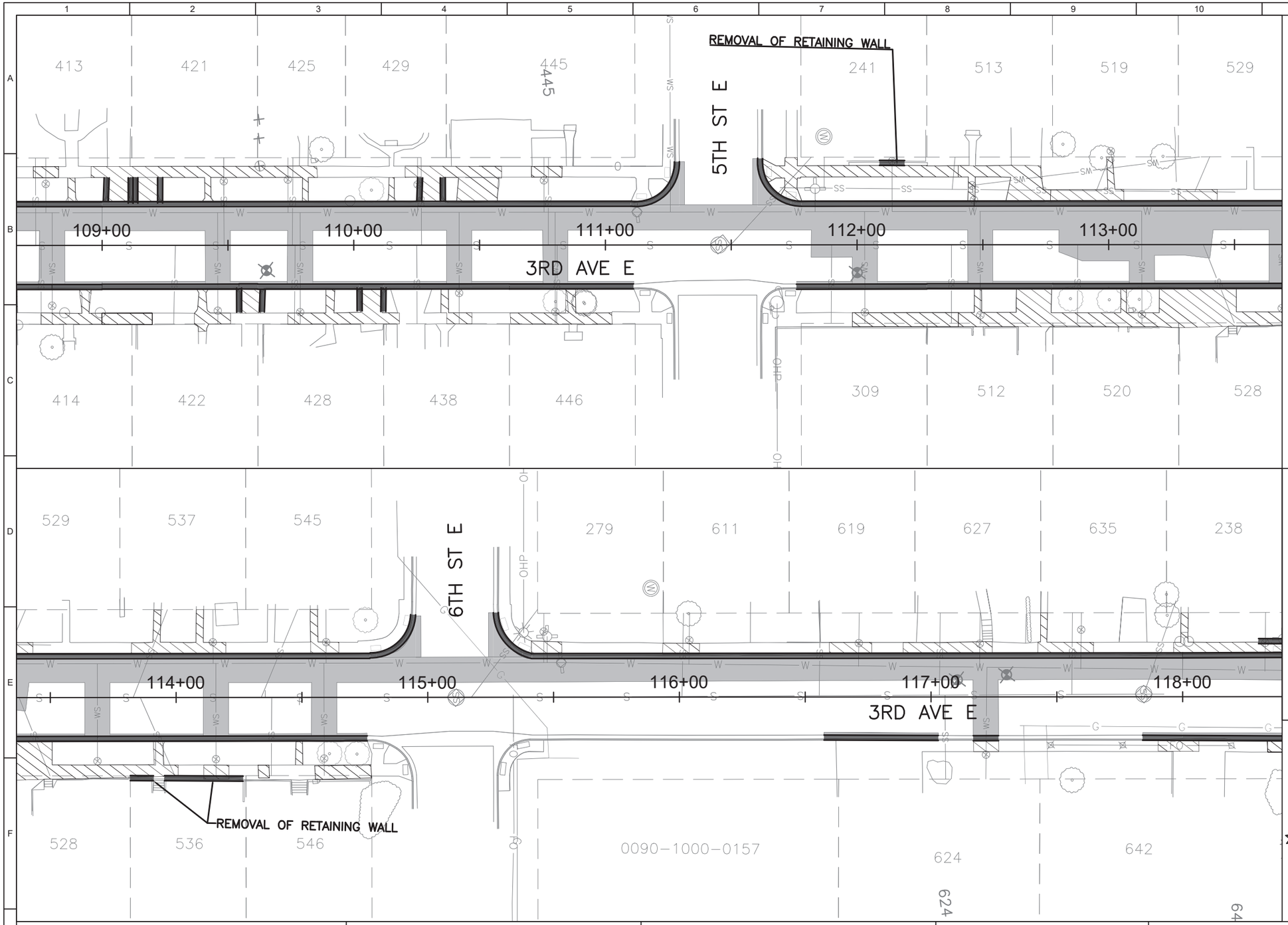
2026 UTILITY & STREET IMPROVEMENTS PROJECT SURFACE REMOVALS Sta 100+00 to Sta 109+00 NORTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 40-13

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	625	SY
REMOVAL OF CURB AND GUTTER	1536	LF
REMOVAL OF BITUMINOUS SURFACING	1371	SY
REMOVAL OF RETAINING WALL	50	LF

LEGEND

- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK
- REMOVAL OF CURB & GUTTER
- MILLING PAVEMENT SURFACE
- REMOVAL OF BITUMINOUS SURFACING

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:34:22 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

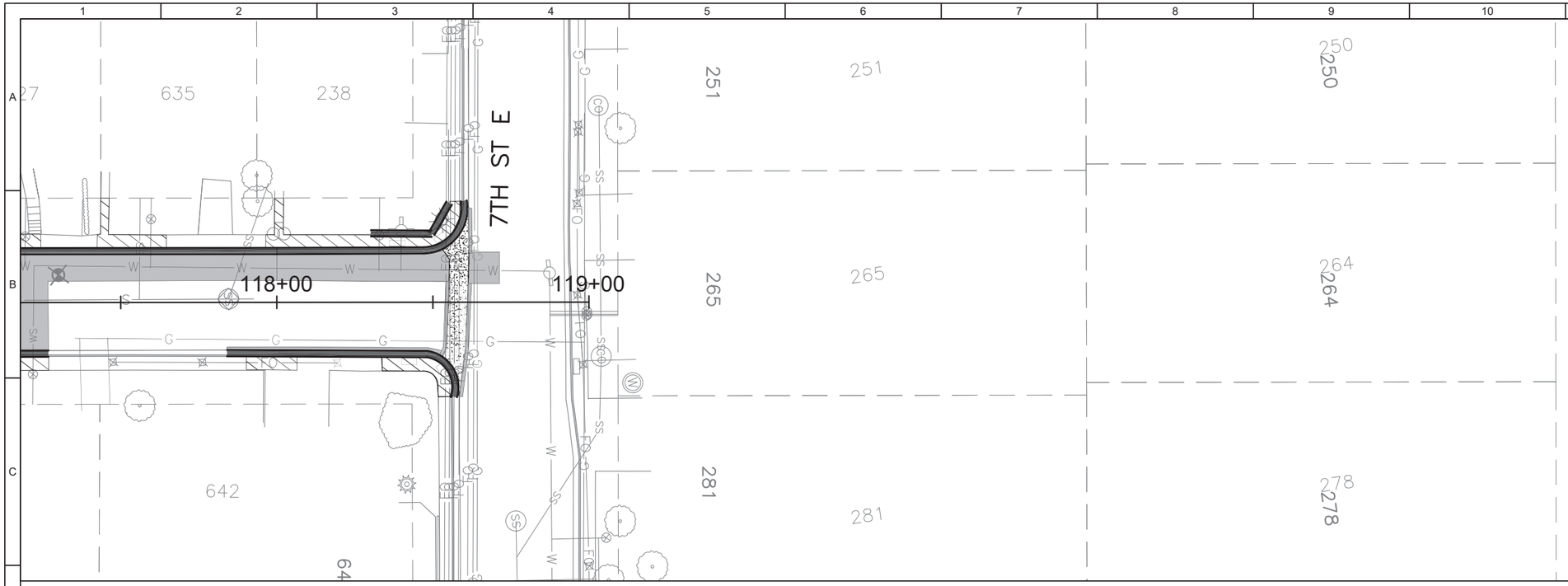
2026 UTILITY & STREET IMPROVEMENTS PROJECT
SURFACE REMOVALS
Sta 109+00 to Sta 118+00
NORTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
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Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 40-14

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	57	SY
REMOVAL OF CURB AND GUTTER	183	LF
REMOVAL OF BITUMINOUS SURFACING	81	SY
REMOVAL OF CONCRETE PAVEMENT	32	SY

LEGEND

- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK
- REMOVAL OF CURB & GUTTER
- MILLING PAVEMENT SURFACE
- REMOVAL OF BITUMINOUS SURFACING

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
16:35:01 -06'00'
NORTH DAKOTA

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Issue #	Description	Date

CITY OF Dickinson North Dakota

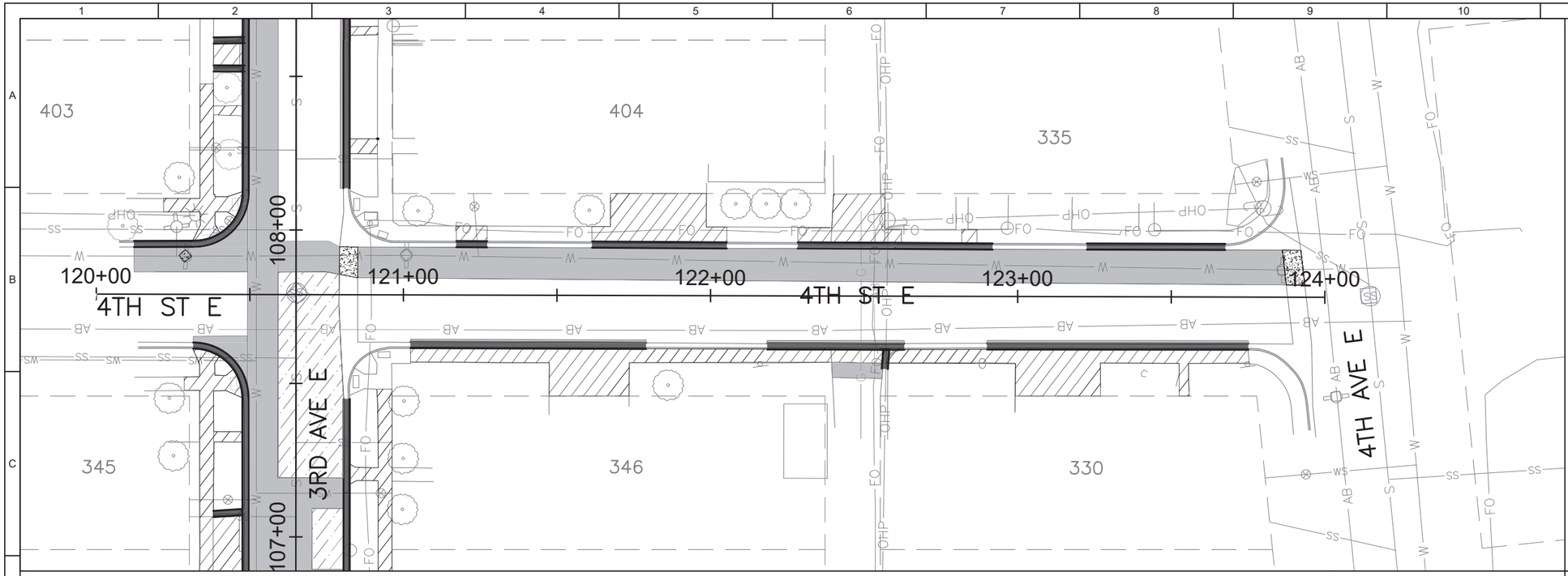
2026 UTILITY & STREET IMPROVEMENTS PROJECT
SURFACE REMOVALS
Sta 118+00 to Sta 119+00
NORTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 40-15

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	313	SY
REMOVAL OF CURB AND GUTTER	375	LF
REMOVAL OF BITUMINOUS SURFACING	389	SY
REMOVAL OF CONCRETE PAVEMENT	8	SY

LEGEND

- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK
- REMOVAL OF CURB & GUTTER
- MILLING PAVEMENT SURFACE
- REMOVAL OF BITUMINOUS SURFACING

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:35:23 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SURFACE REMOVALS
Sta 120+00 to Sta 124+00
North Area

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 40-16

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REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 08:46:26-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

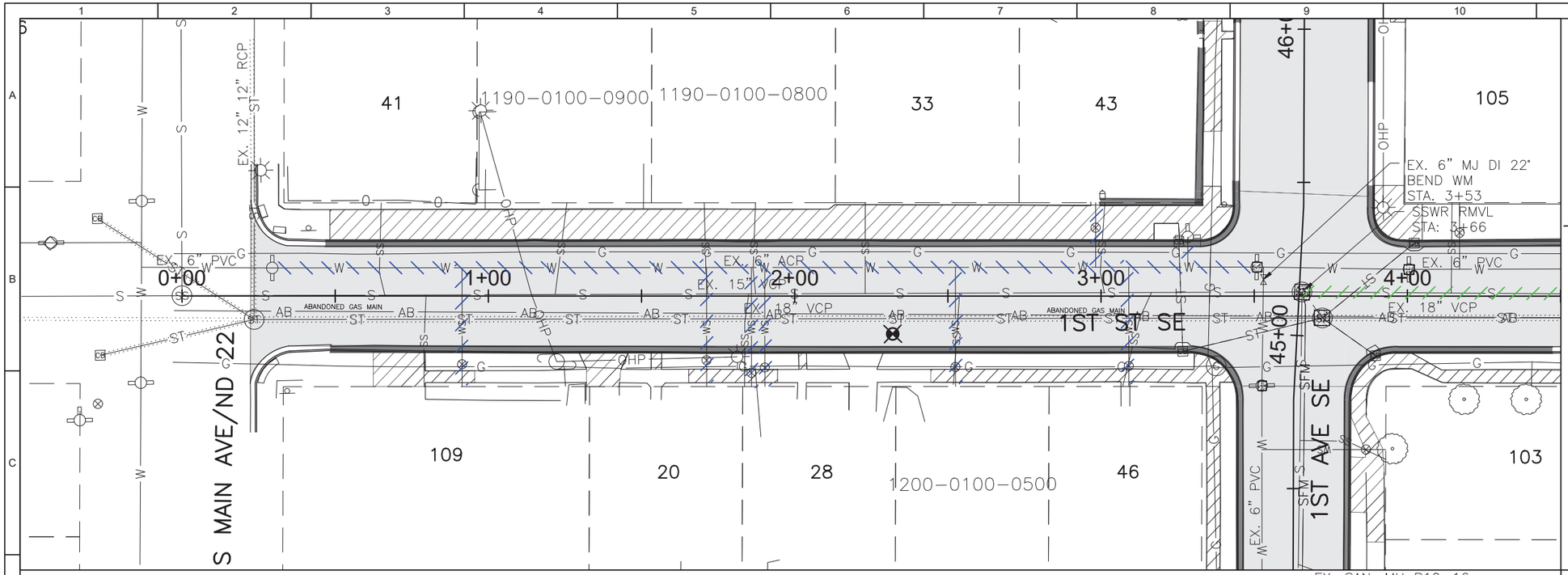
2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 41 & 57 SCOPE MAP

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 41-00

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 041_Overview map.dwg

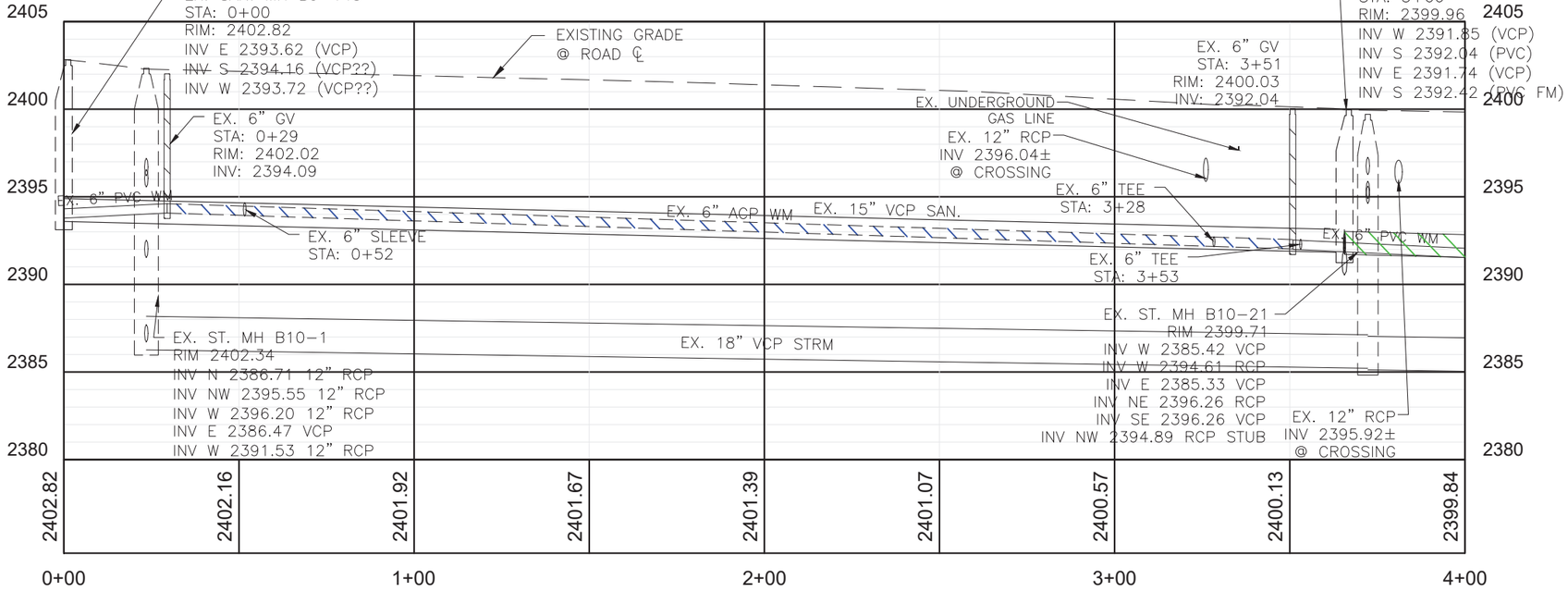


ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF AC PIPE	336	LF
REMOVE AND SALVAGE HYDRANT	1	EA
REMOVE & SALVAGE GV (ALL SIZES)	2	EA

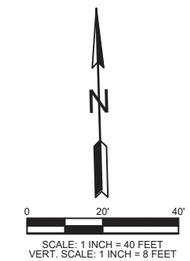
CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. SERVICE LINE INFORMATION WAS OBTAINED FROM THE CITY OF DICKINSON UTILITY DEPARTMENT AND PUBLICLY AVAILABLE RECORD DRAWING INFORMATION. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. NOT ALL UTILITIES ARE SHOWN. THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY THE LOCATIONS AND PRESERVE THE EXISTING UTILITIES.
3. REMOVAL OF PAVEMENT SHALL BE MINIMIZED TO ALLOW FOR CONSTRUCTION. NEAT CUT ALL PAVEMENT AND CURB & GUTTER PRIOR TO REMOVAL.
4. CONTRACTOR SHALL REMOVE AND SALVAGE ALL CONCRETE, ASPHALT, VALVES AND FITTINGS. SEE SPECIFICATIONS FOR REQUIREMENTS.
5. SANITARY SERVICES NOT IN USE AND NOT NEEDED FOR FUTURE USE WHICH ARE EXPOSED DURING CONSTRUCTION SHALL BE PLUGGED WITH BRICK AND MORTAR A MINIMUM OF 6" THICK.



LEGEND

- REMOVE SANITARY PIPE
- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE



REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:32:22-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

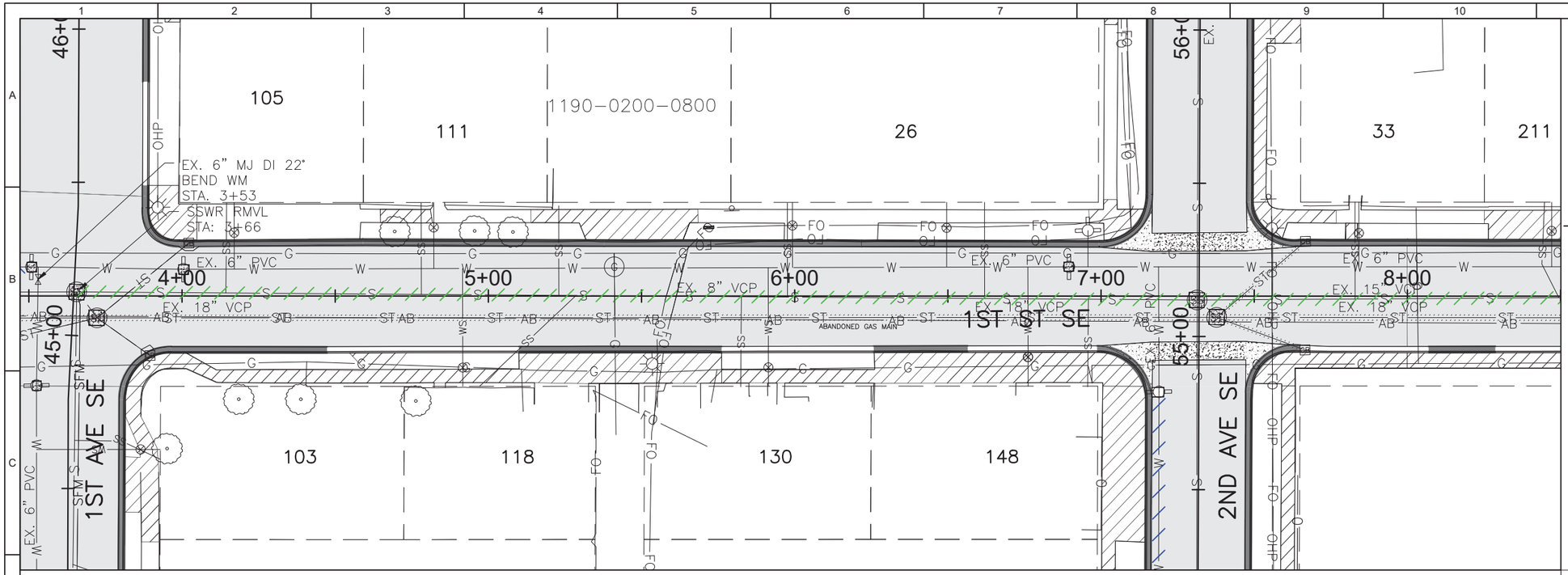
2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY REMOVALS Sta 0+00 to Sta 4+00

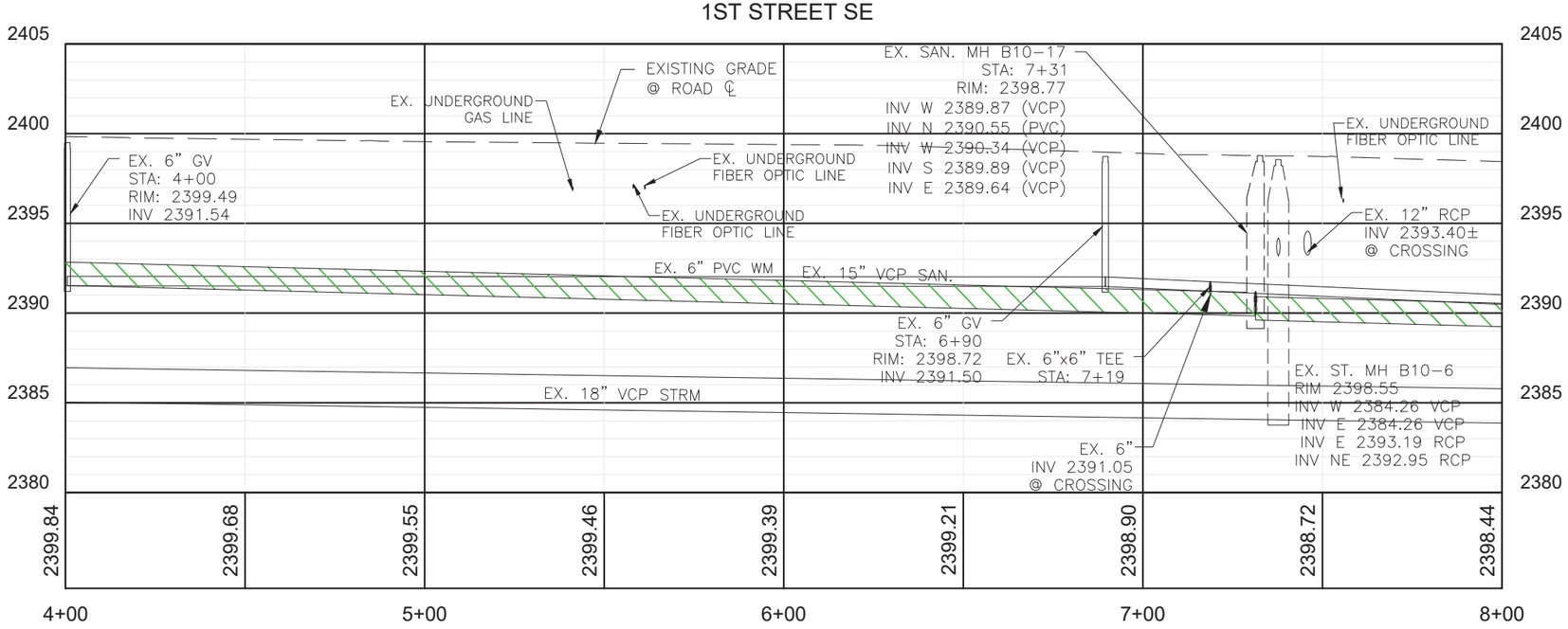
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 41-01

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 041_Util Removals.dwg





ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

No Quantities This Sheet

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. SERVICE LINE INFORMATION WAS OBTAINED FROM THE CITY OF DICKINSON UTILITY DEPARTMENT AND PUBLICLY AVAILABLE RECORD DRAWING INFORMATION. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. NOT ALL UTILITIES ARE SHOWN. THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY THE LOCATIONS AND PRESERVE THE EXISTING UTILITIES.
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5. SANITARY SERVICES NOT IN USE AND NOT NEEDED FOR FUTURE USE WHICH ARE EXPOSED DURING CONSTRUCTION SHALL BE PLUGGED WITH BRICK AND MORTAR A MINIMUM OF 6" THICK.

LEGEND

- REMOVE SANITARY PIPE
- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:32:41-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY REMOVALS
Sta 4+00 to Sta 8+00

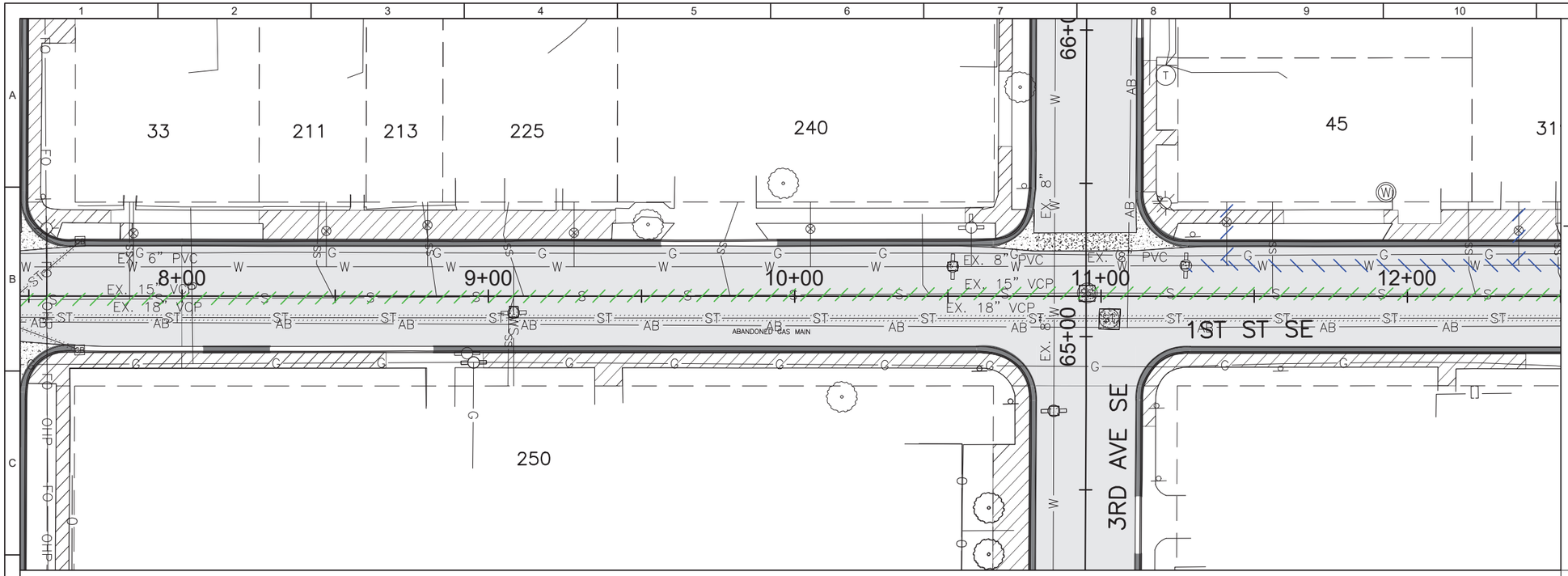
Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 41-02

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 041_Util Removals.dwg

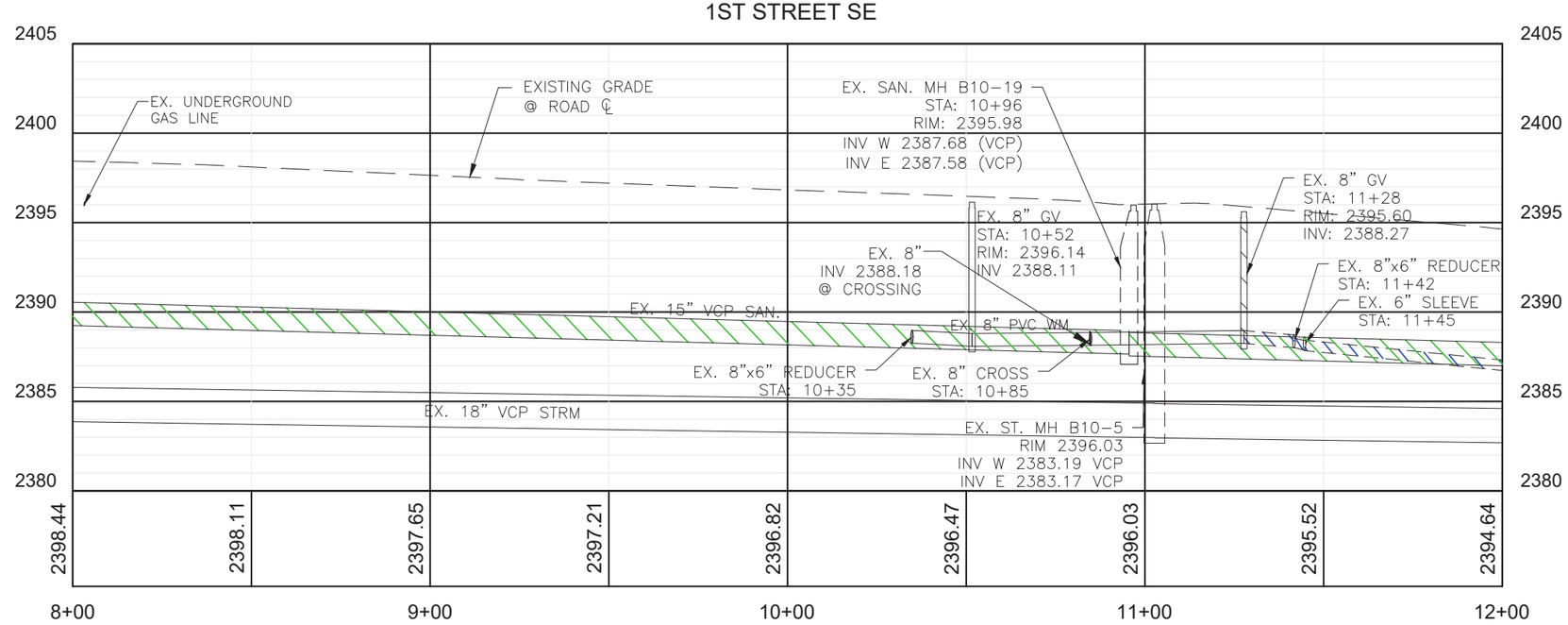


ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVE & SALVAGE GV (ALL SIZES)	1	EA

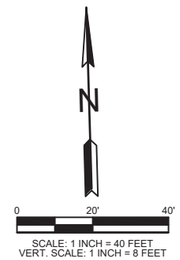
CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. SERVICE LINE INFORMATION WAS OBTAINED FROM THE CITY OF DICKINSON UTILITY DEPARTMENT AND PUBLICLY AVAILABLE RECORD DRAWING INFORMATION. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. NOT ALL UTILITIES ARE SHOWN. THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY THE LOCATIONS AND PRESERVE THE EXISTING UTILITIES.
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4. CONTRACTOR SHALL REMOVE AND SALVAGE ALL CONCRETE, ASPHALT, VALVES AND FITTINGS. SEE SPECIFICATIONS FOR REQUIREMENTS.
5. SANITARY SERVICES NOT IN USE AND NOT NEEDED FOR FUTURE USE WHICH ARE EXPOSED DURING CONSTRUCTION SHALL BE PLUGGED WITH BRICK AND MORTAR A MINIMUM OF 6" THICK.



LEGEND

- REMOVE SANITARY PIPE
- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE



REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:33:00-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

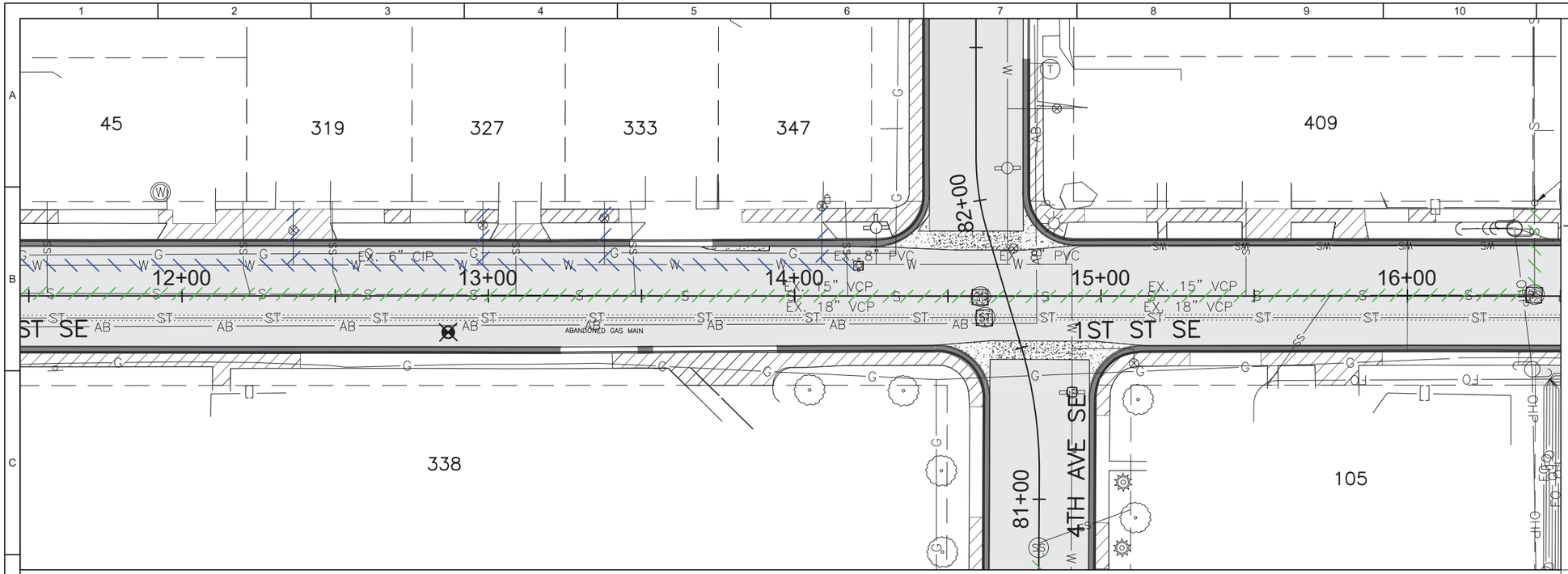
2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY REMOVALS
Sta 8+00 to Sta 12+00

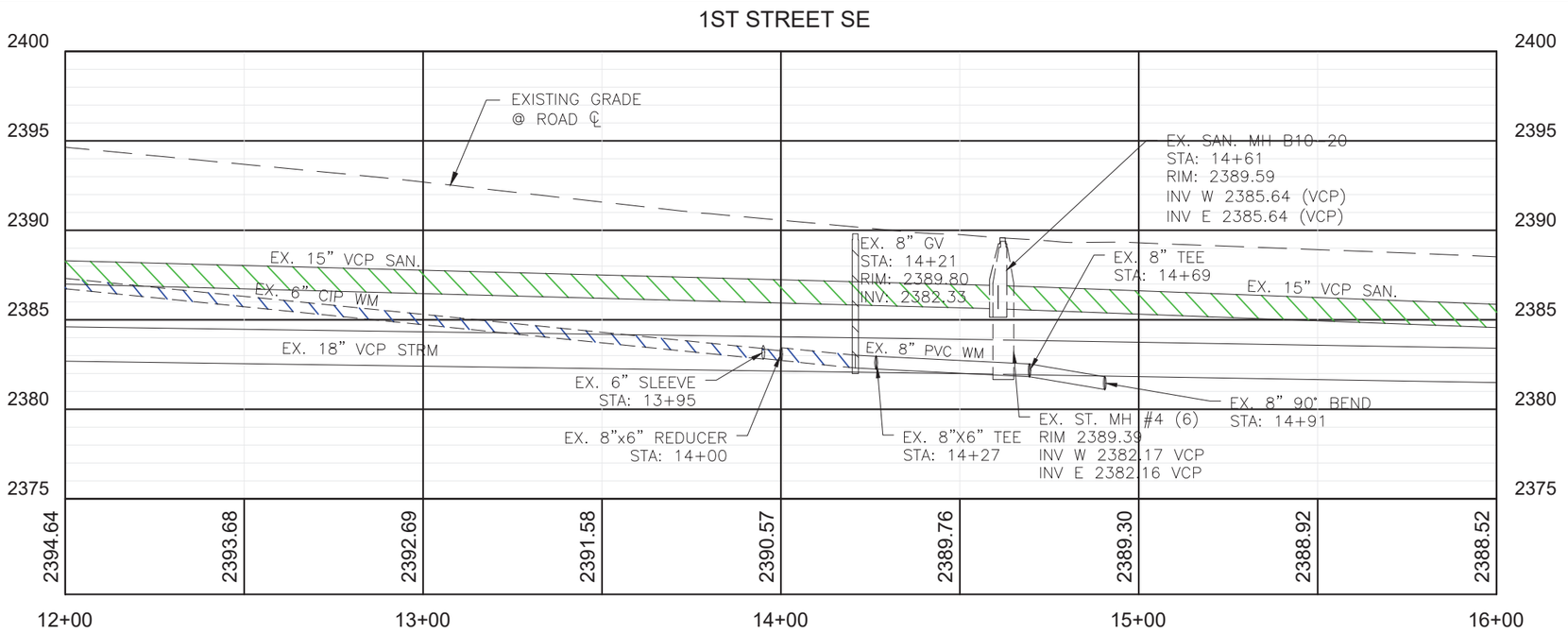
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 41-03

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 041_Util Removals.dwg





ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVE & SALVAGE GV (ALL SIZES)	1	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. SERVICE LINE INFORMATION WAS OBTAINED FROM THE CITY OF DICKINSON UTILITY DEPARTMENT AND PUBLICLY AVAILABLE RECORD DRAWING INFORMATION. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. NOT ALL UTILITIES ARE SHOWN. THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY THE LOCATIONS AND PRESERVE THE EXISTING UTILITIES.
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LEGEND

- REMOVE SANITARY PIPE
- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:33:13-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

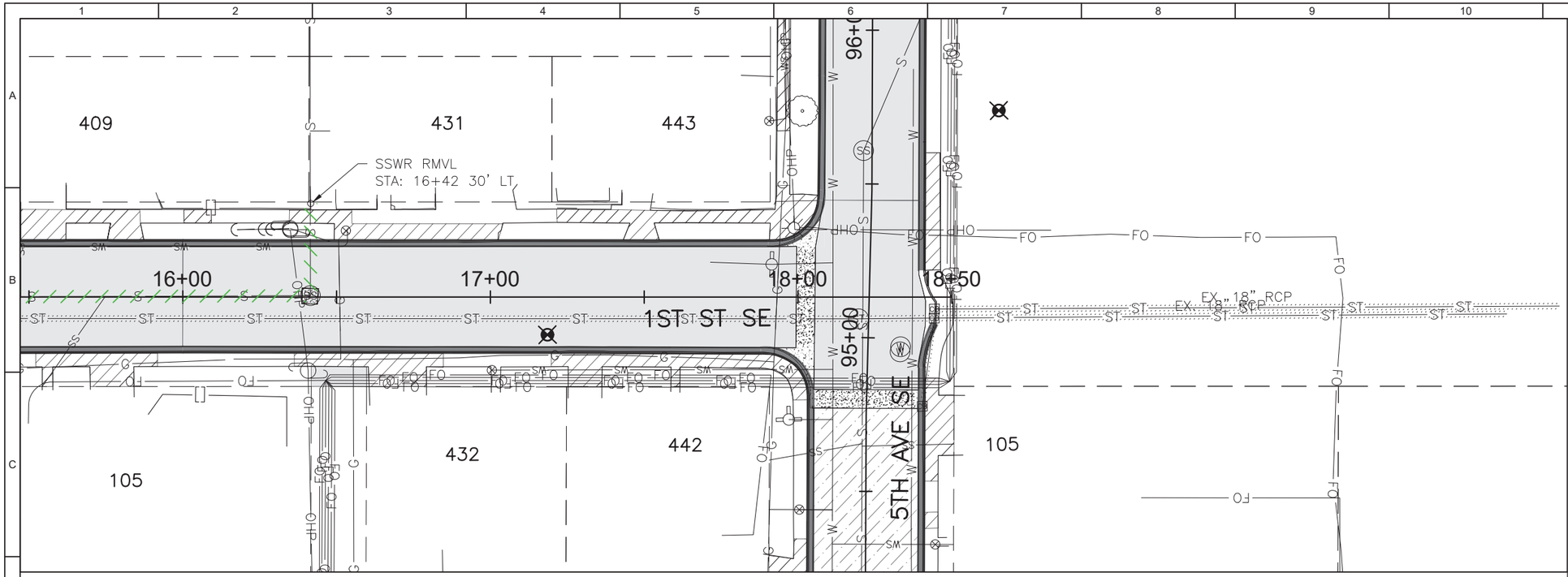
2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY REMOVALS
Sta 12+00 to Sta 16+00

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

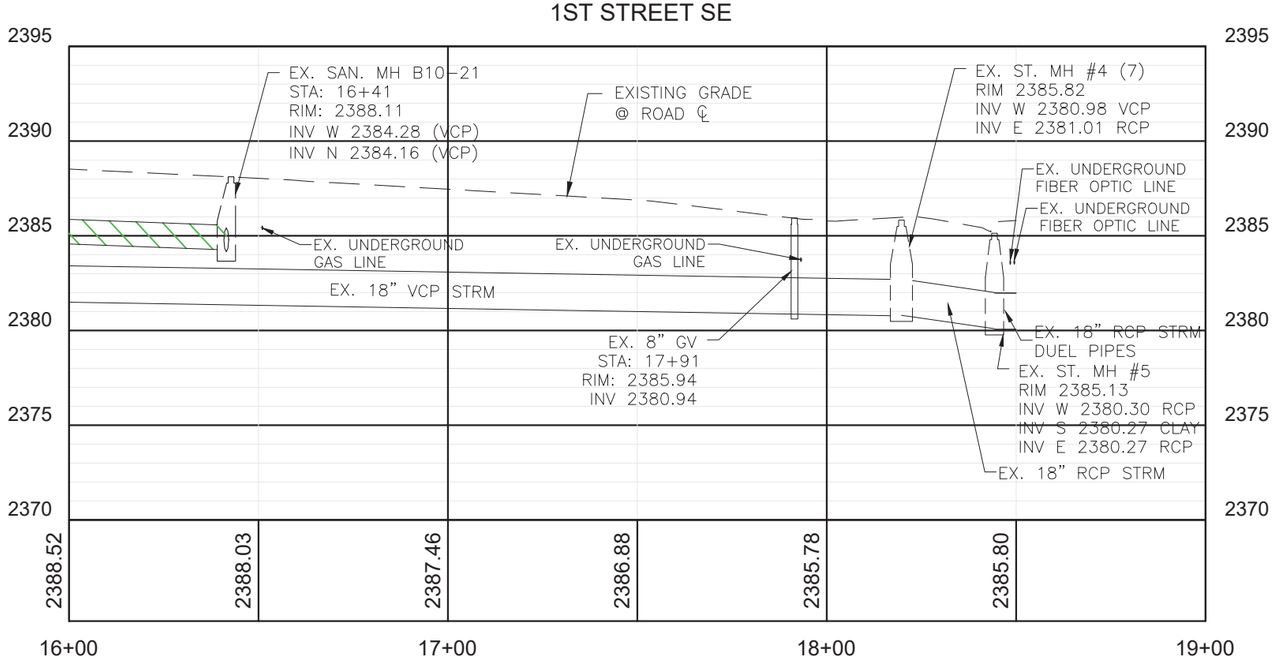
Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 41-04

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1ST STREET SE



ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

No Quantities This Sheet

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. SERVICE LINE INFORMATION WAS OBTAINED FROM THE CITY OF DICKINSON UTILITY DEPARTMENT AND PUBLICLY AVAILABLE RECORD DRAWING INFORMATION. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. NOT ALL UTILITIES ARE SHOWN. THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY THE LOCATIONS AND PRESERVE THE EXISTING UTILITIES.
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5. SANITARY SERVICES NOT IN USE AND NOT NEEDED FOR FUTURE USE WHICH ARE EXPOSED DURING CONSTRUCTION SHALL BE PLUGGED WITH BRICK AND MORTAR A MINIMUM OF 6" THICK.

LEGEND

- REMOVE SANITARY PIPE
- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:33:28-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY REMOVALS
Sta 16+00 to Sta 19+00

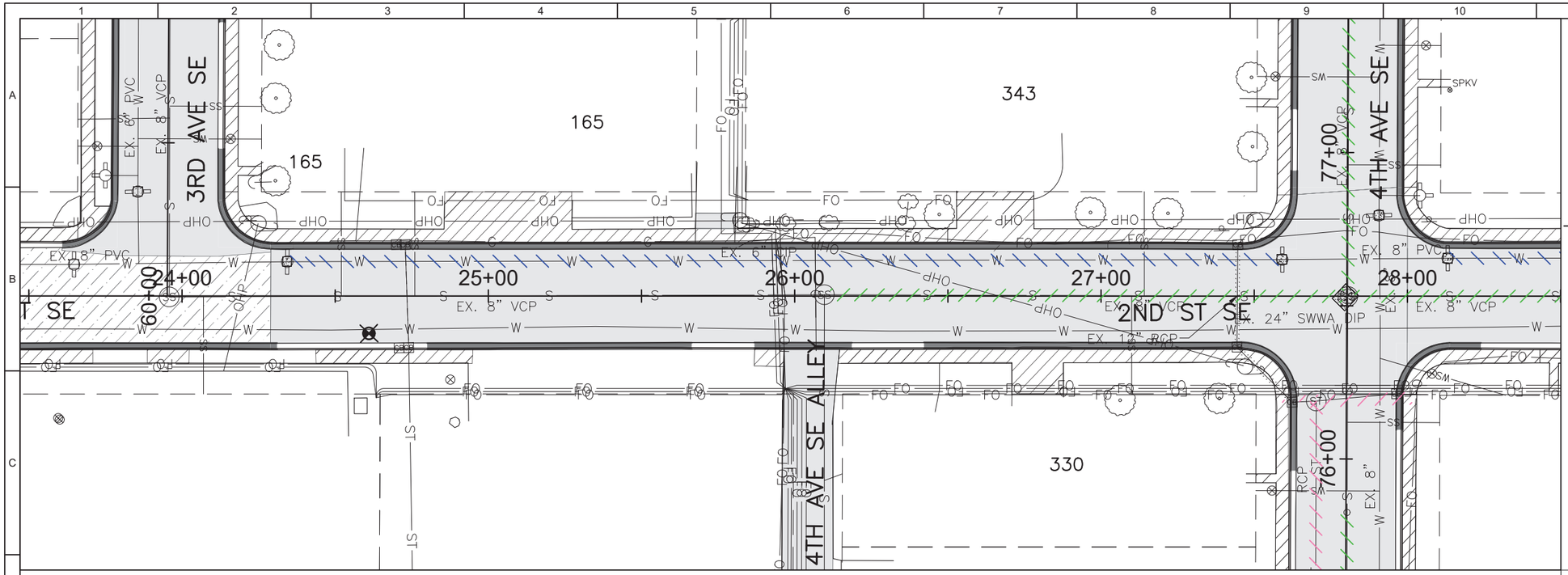
Apex Engineering Group

Bismarck - Detroit Lakes -
Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #:	22.107.0010
Date:	February 2026
Drawn By:	Tanner Sanders
Checked By:	Jon Wilczek
Approved By:	Scott Schneider

Sheet: 41-05

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 041_Util Removals.dwg



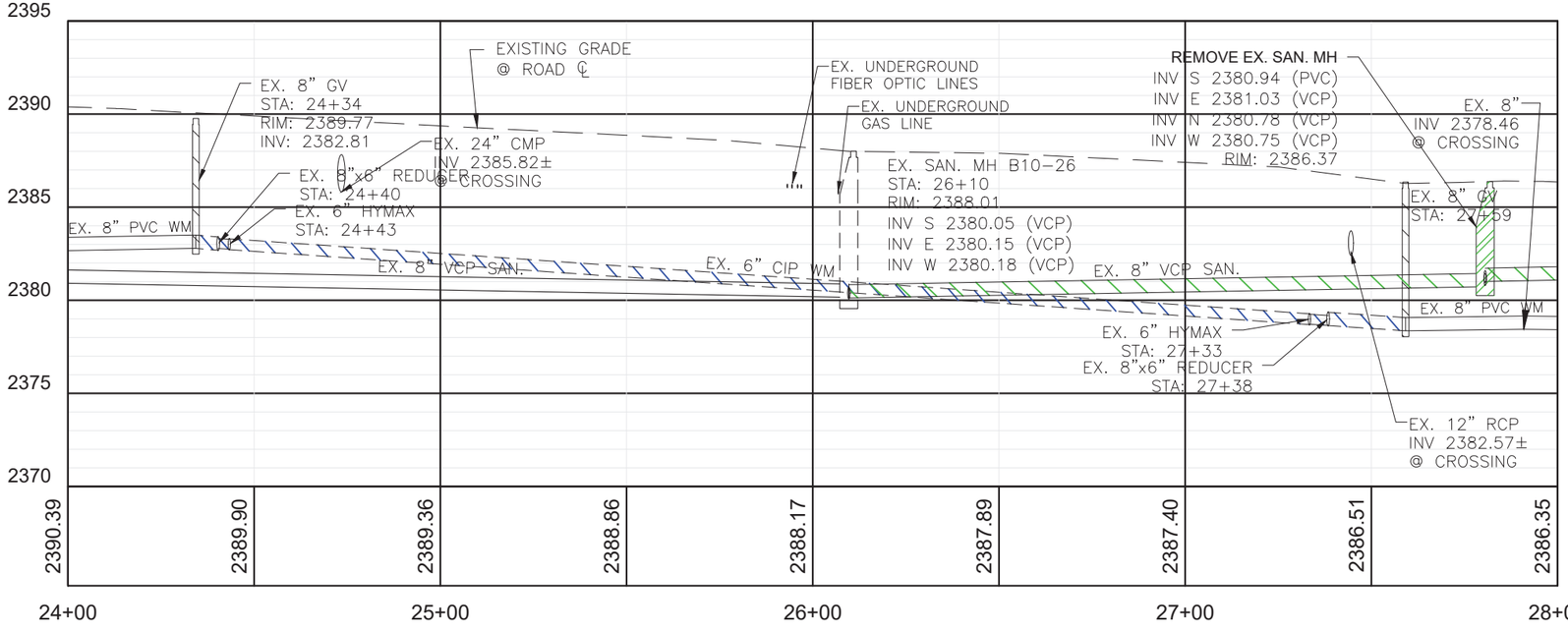
ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVE & SALVAGE GV (ALL SIZES)	2	EA

CONSTRUCTION NOTES

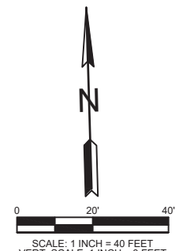
1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. SERVICE LINE INFORMATION WAS OBTAINED FROM THE CITY OF DICKINSON UTILITY DEPARTMENT AND PUBLICLY AVAILABLE RECORD DRAWING INFORMATION. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. NOT ALL UTILITIES ARE SHOWN. THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY THE LOCATIONS AND PRESERVE THE EXISTING UTILITIES.
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4. CONTRACTOR SHALL REMOVE AND SALVAGE ALL CONCRETE, ASPHALT, VALVES AND FITTINGS. SEE SPECIFICATIONS FOR REQUIREMENTS.
5. SANITARY SERVICES NOT IN USE AND NOT NEEDED FOR FUTURE USE WHICH ARE EXPOSED DURING CONSTRUCTION SHALL BE PLUGGED WITH BRICK AND MORTAR A MINIMUM OF 6" THICK.

2ND STREET SE



LEGEND

- REMOVE SANITARY PIPE
- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE



REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:33:39-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

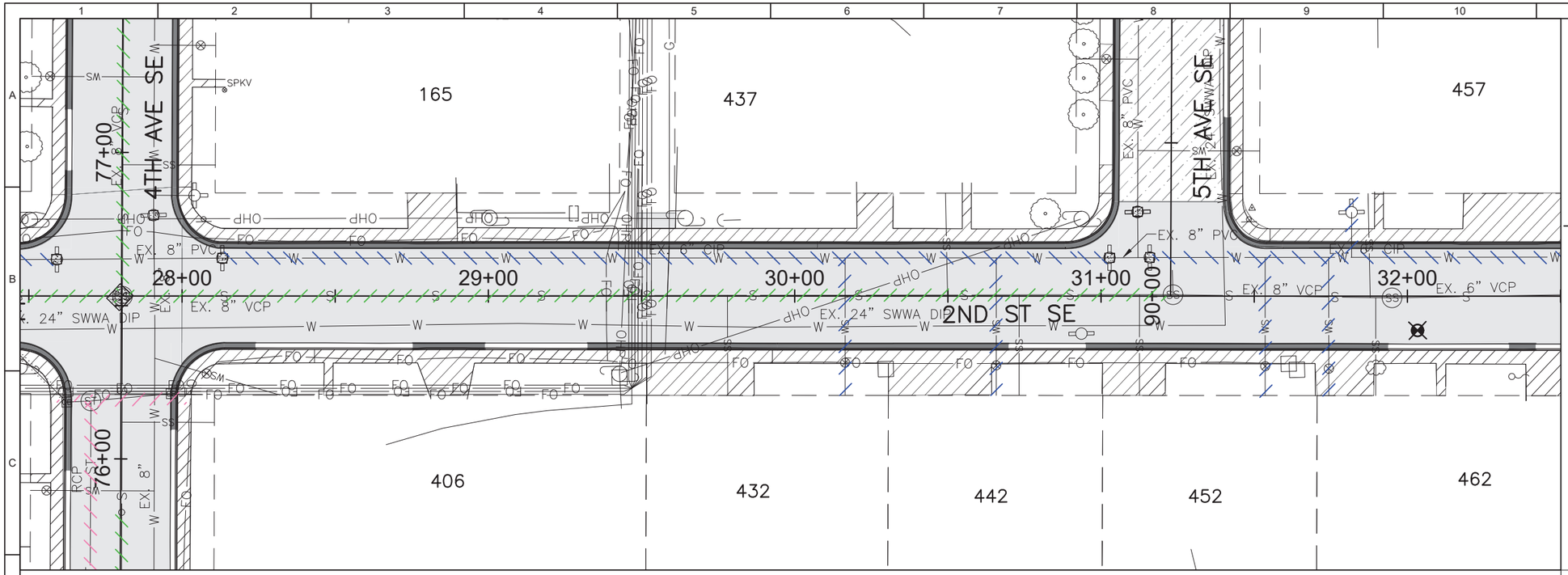
2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY REMOVALS
Sta 24+00 to Sta 28+00

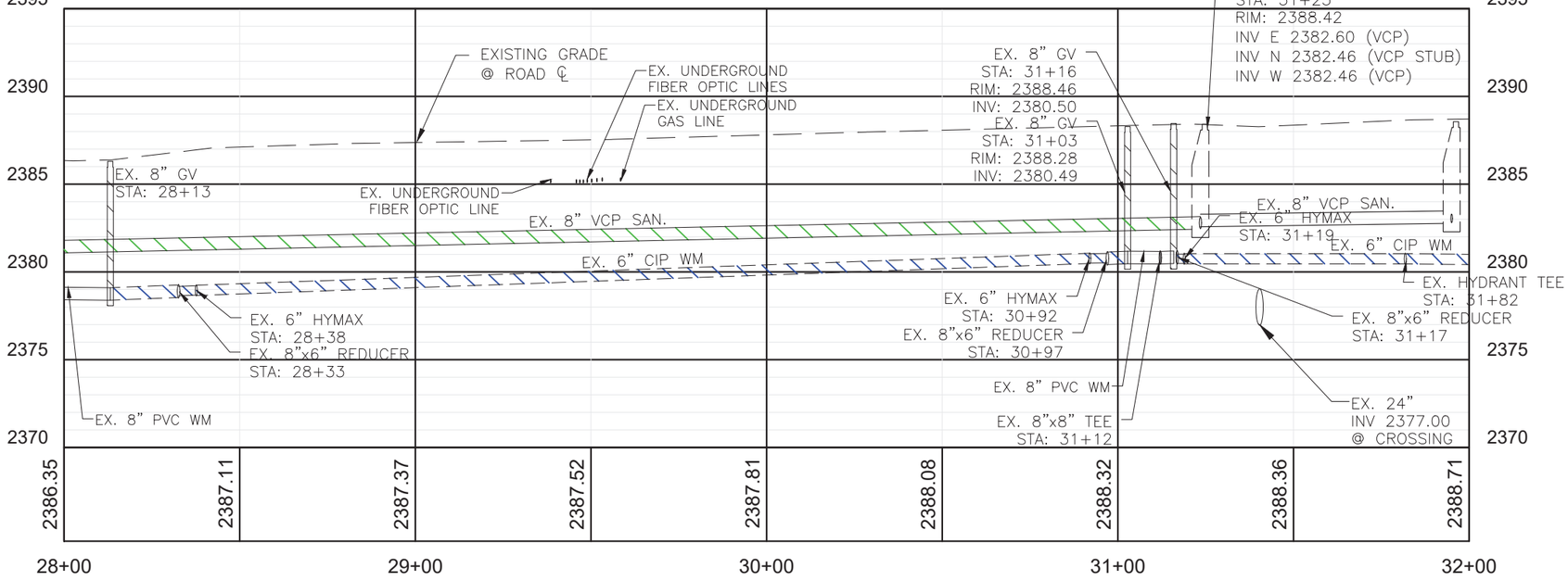
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 41-06

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 041_Util Removals.dwg





ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVE AND SALVAGE HYDRANT	1	EA
REMOVE & SALVAGE GV (ALL SIZES)	3	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. SERVICE LINE INFORMATION WAS OBTAINED FROM THE CITY OF DICKINSON UTILITY DEPARTMENT AND PUBLICLY AVAILABLE RECORD DRAWING INFORMATION. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. NOT ALL UTILITIES ARE SHOWN. THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY THE LOCATIONS AND PRESERVE THE EXISTING UTILITIES.
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5. SANITARY SERVICES NOT IN USE AND NOT NEEDED FOR FUTURE USE WHICH ARE EXPOSED DURING CONSTRUCTION SHALL BE PLUGGED WITH BRICK AND MORTAR A MINIMUM OF 6" THICK.

LEGEND

- REMOVE SANITARY PIPE
- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:33:50-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY REMOVALS
Sta 28+00 to Sta 32+00

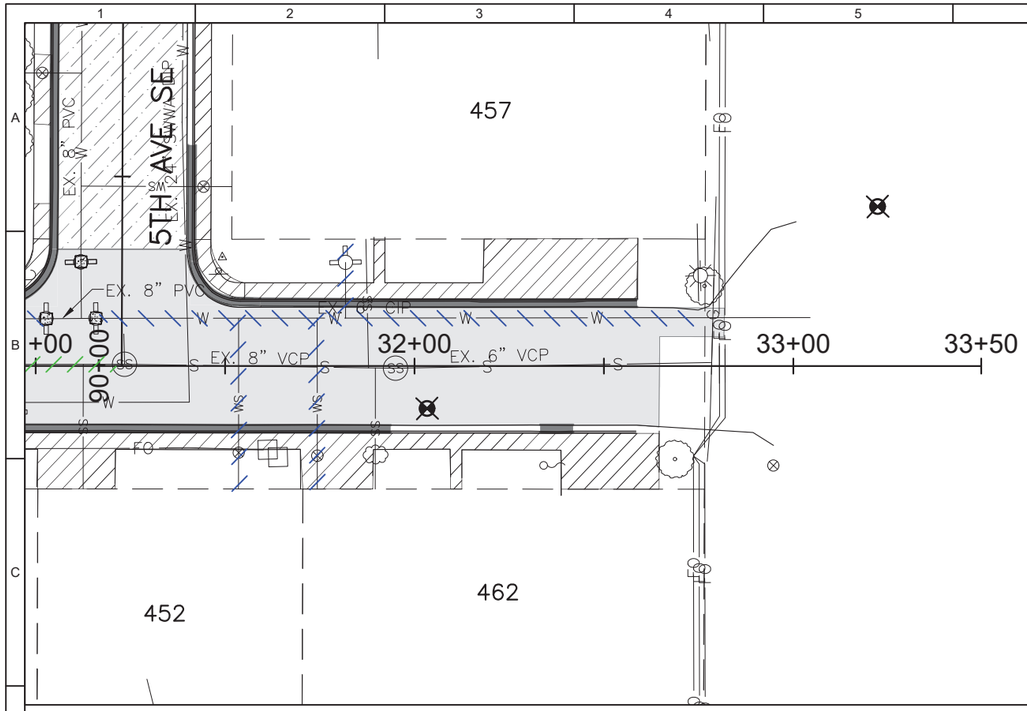
Apex Engineering Group

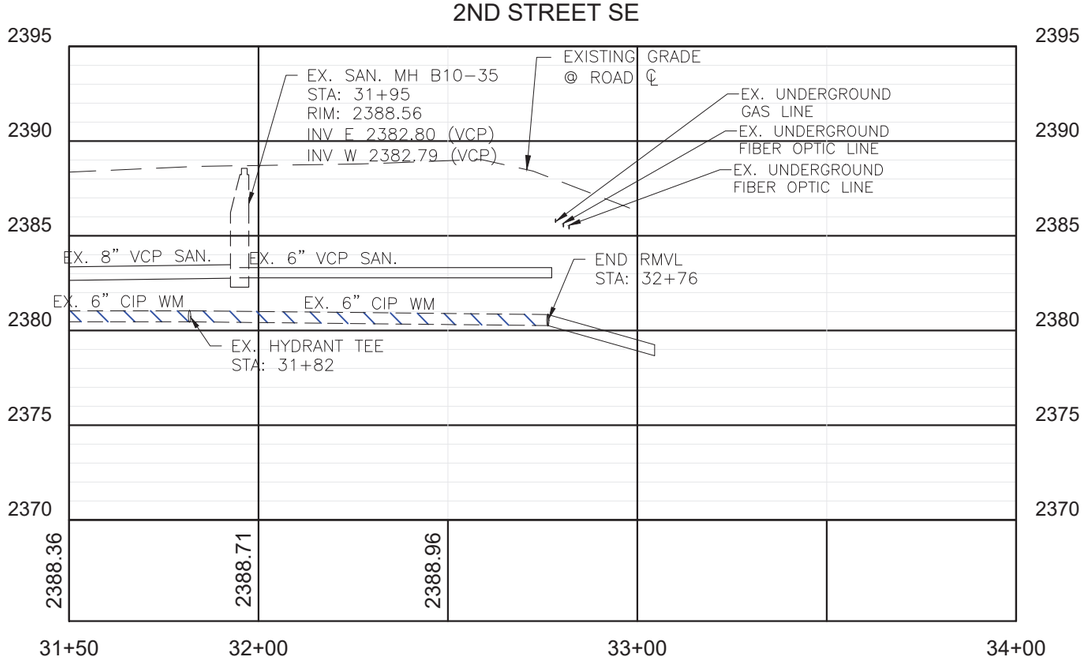
Bismarck - Detroit Lakes -
Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 41-07

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 041_Util Removals.dwg





ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

No Quantities This Sheet

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. SERVICE LINE INFORMATION WAS OBTAINED FROM THE CITY OF DICKINSON UTILITY DEPARTMENT AND PUBLICLY AVAILABLE RECORD DRAWING INFORMATION. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. NOT ALL UTILITIES ARE SHOWN. THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY THE LOCATIONS AND PRESERVE THE EXISTING UTILITIES.
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5. SANITARY SERVICES NOT IN USE AND NOT NEEDED FOR FUTURE USE WHICH ARE EXPOSED DURING CONSTRUCTION SHALL BE PLUGGED WITH BRICK AND MORTAR A MINIMUM OF 6" THICK.

LEGEND

- REMOVE SANITARY PIPE
- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:34:03-07'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY REMOVALS
Sta 31+50 to Sta 34+00

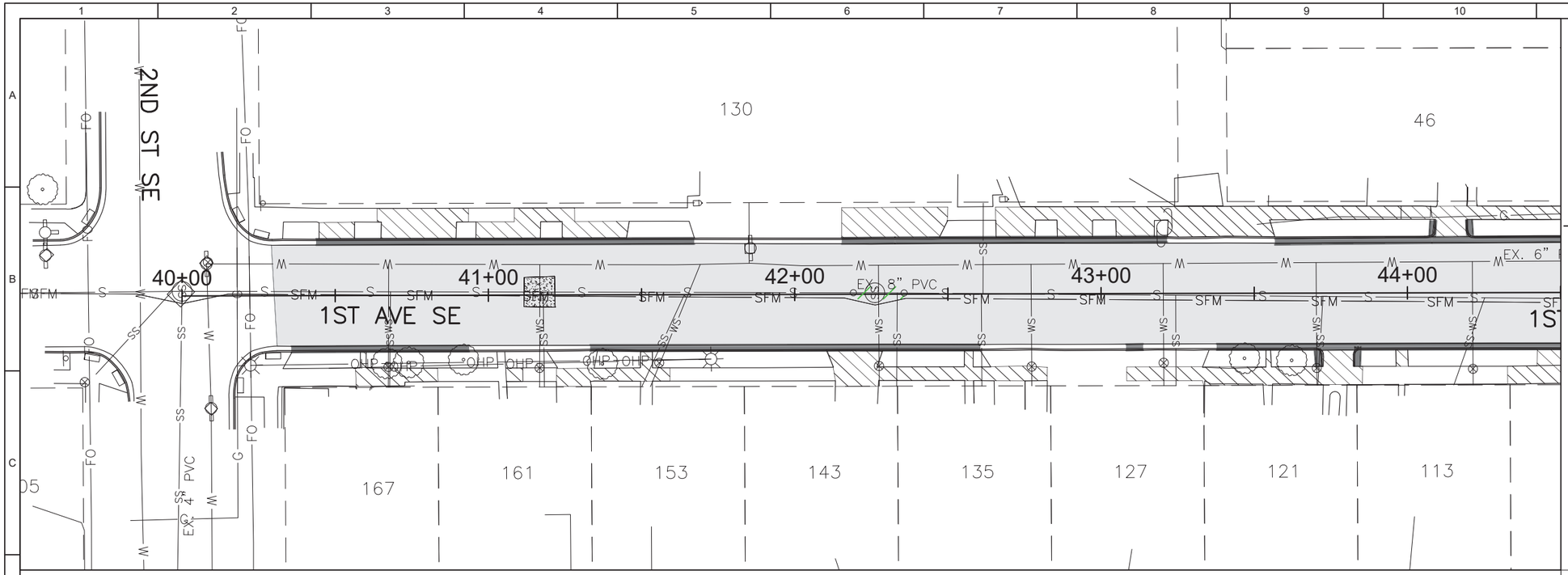
Apex Engineering Group

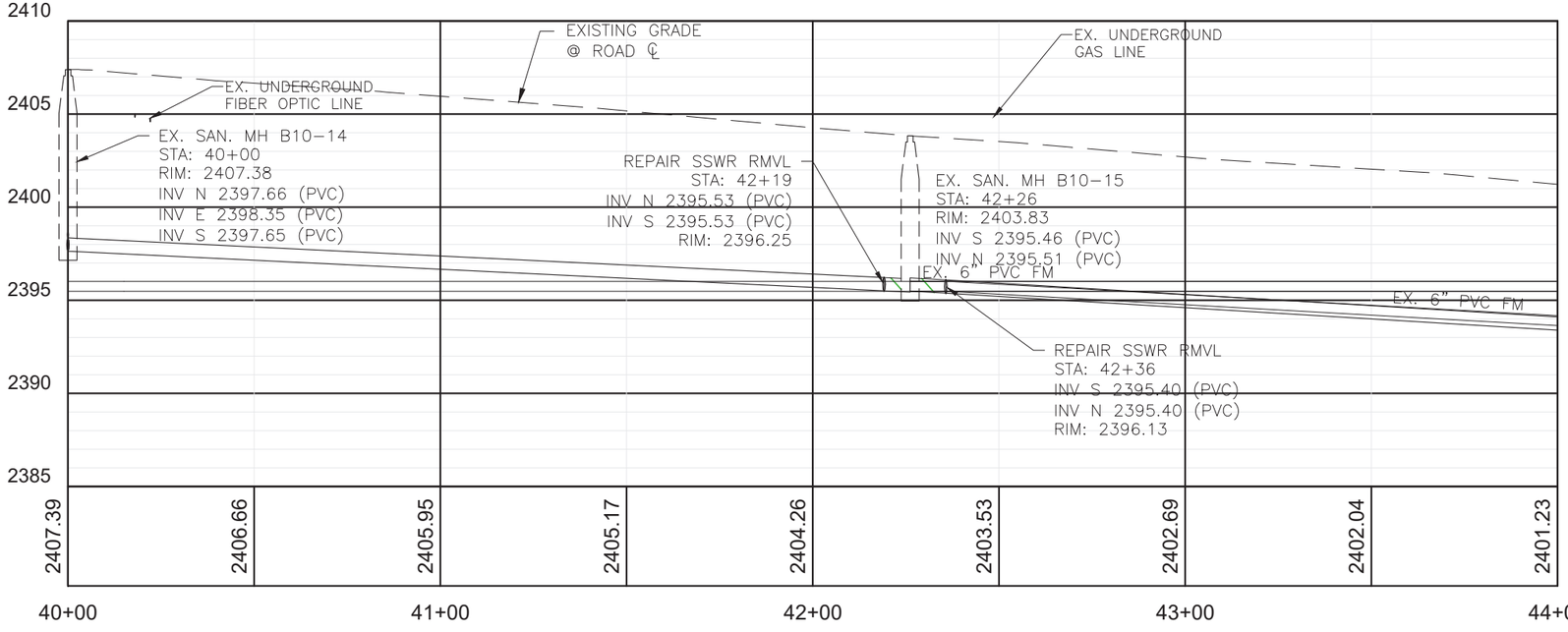
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 41-08

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

No Quantities This Sheet

CONSTRUCTION NOTES

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LEGEND

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- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:34:15-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

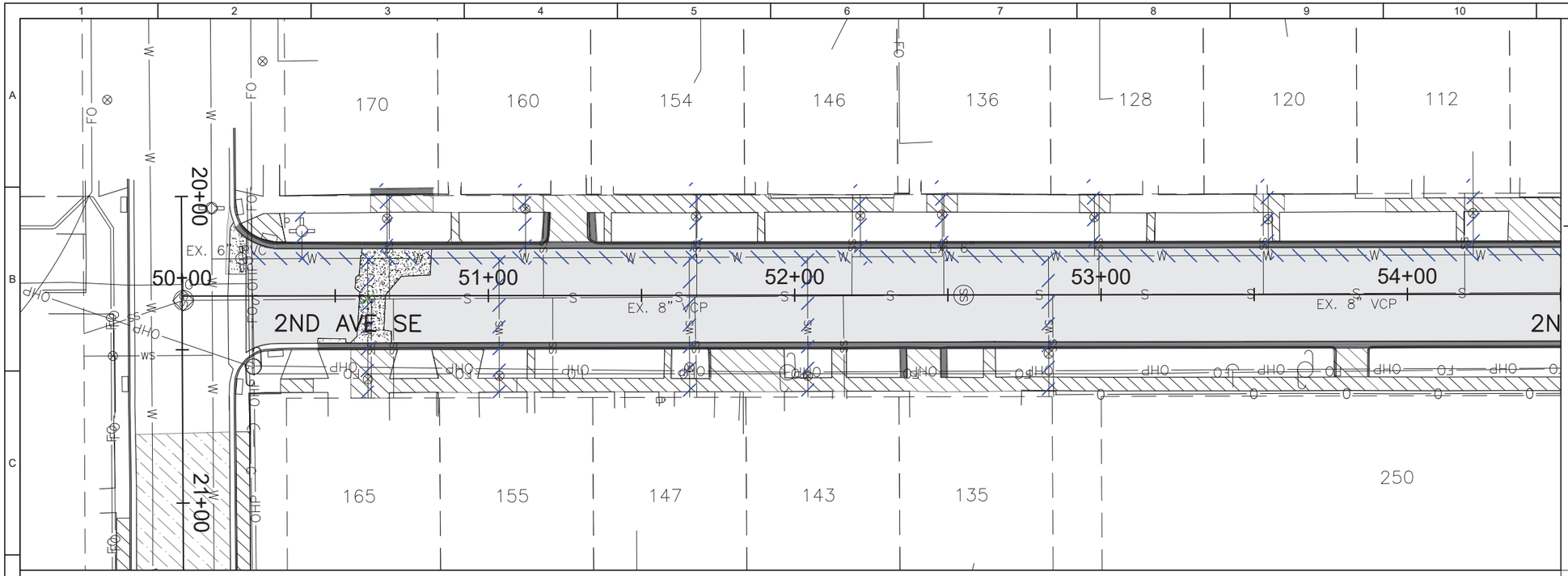
2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY REMOVALS
Sta 40+00 to Sta 44+00

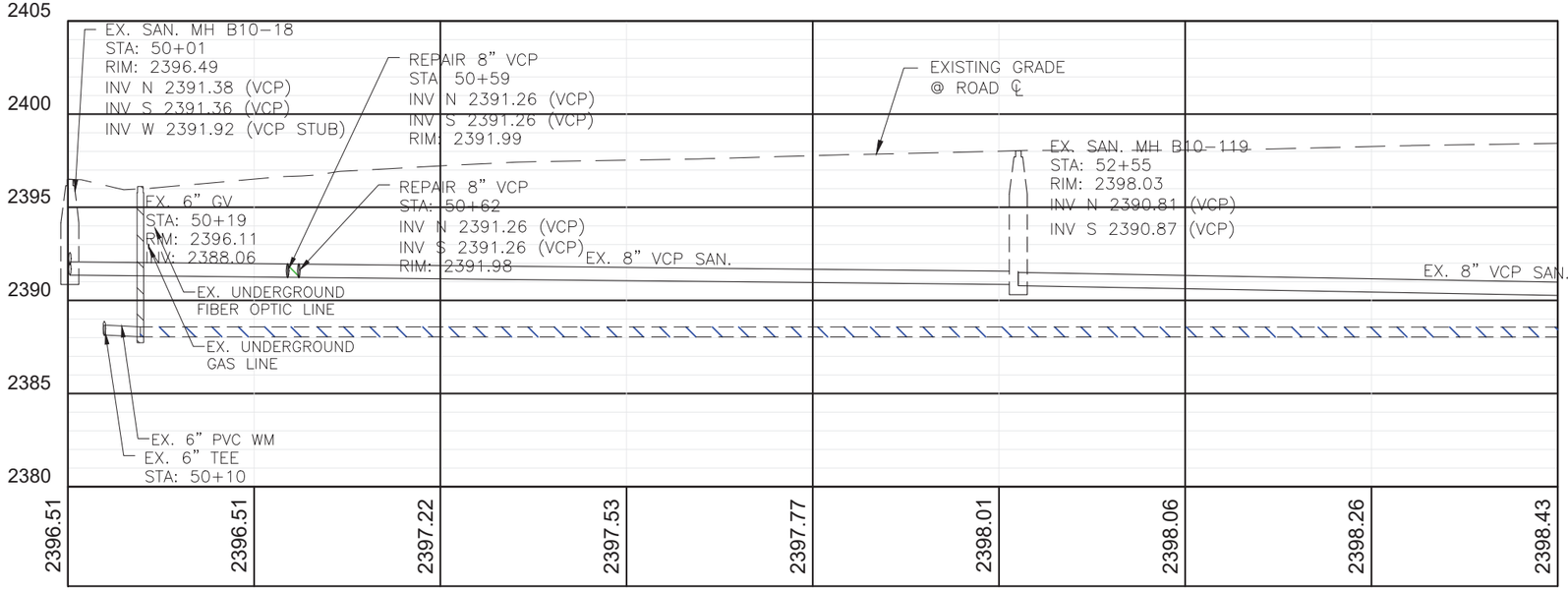
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 41-09

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF AC PIPE	391	LF
REMOVE AND SALVAGE HYDRANT	1	EA
REMOVE & SALVAGE GV (ALL SIZES)	1	EA

CONSTRUCTION NOTES

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LEGEND

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- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:34:26-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

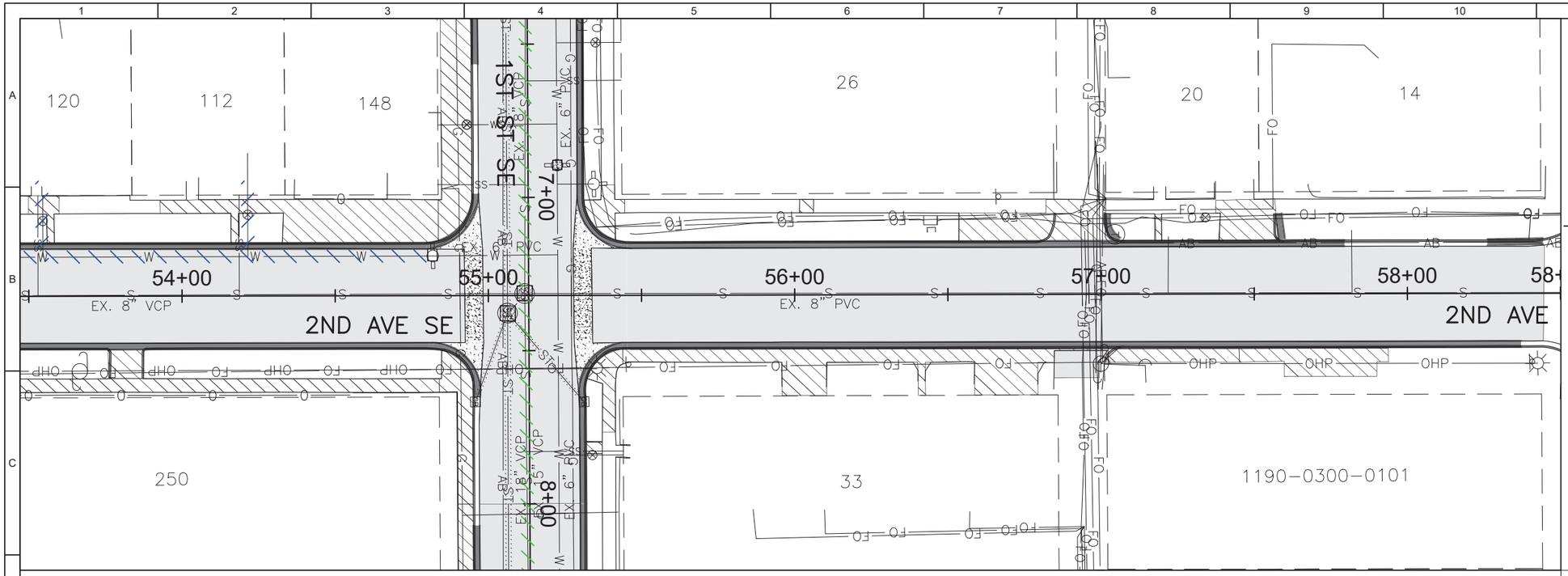
2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY REMOVALS
Sta 50+00 to Sta 54+00

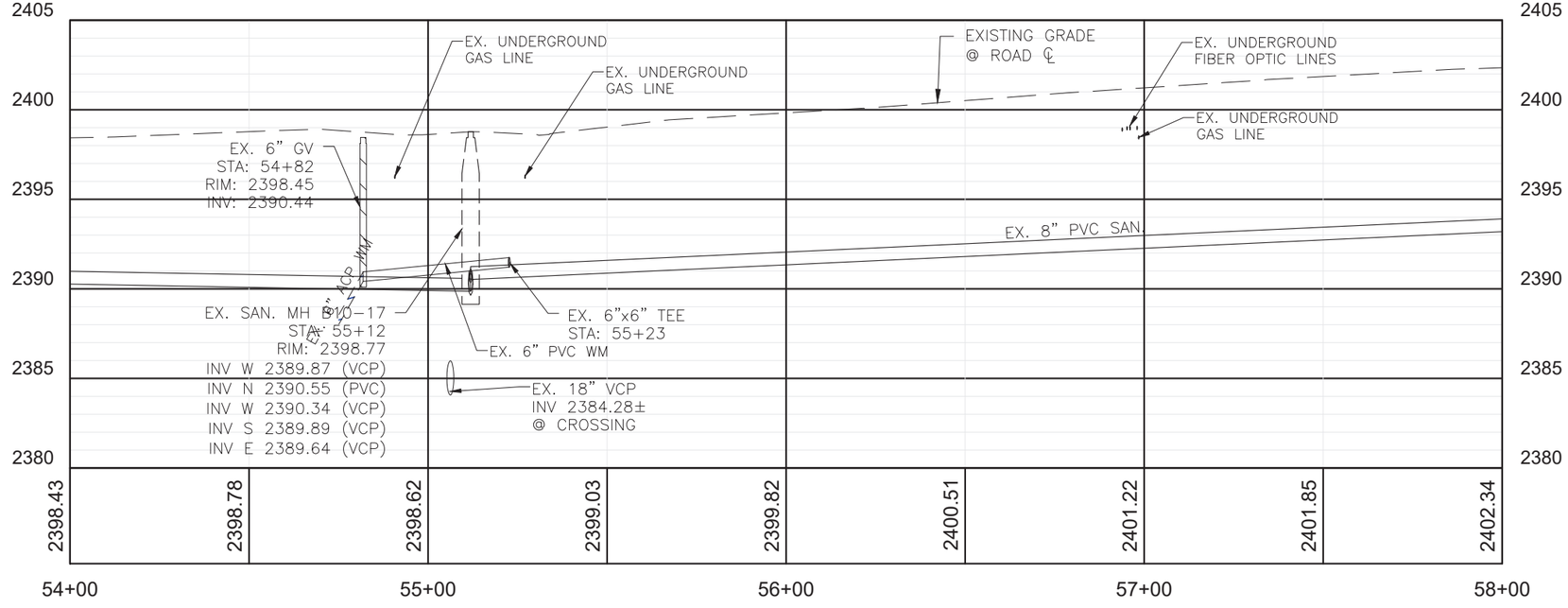
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Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 41-10

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF AC PIPE	83	LF
REMOVE & SALVAGE GV (ALL SIZES)	1	EA

CONSTRUCTION NOTES

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LEGEND

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- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE

N

0 20' 40'
SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:34:38-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

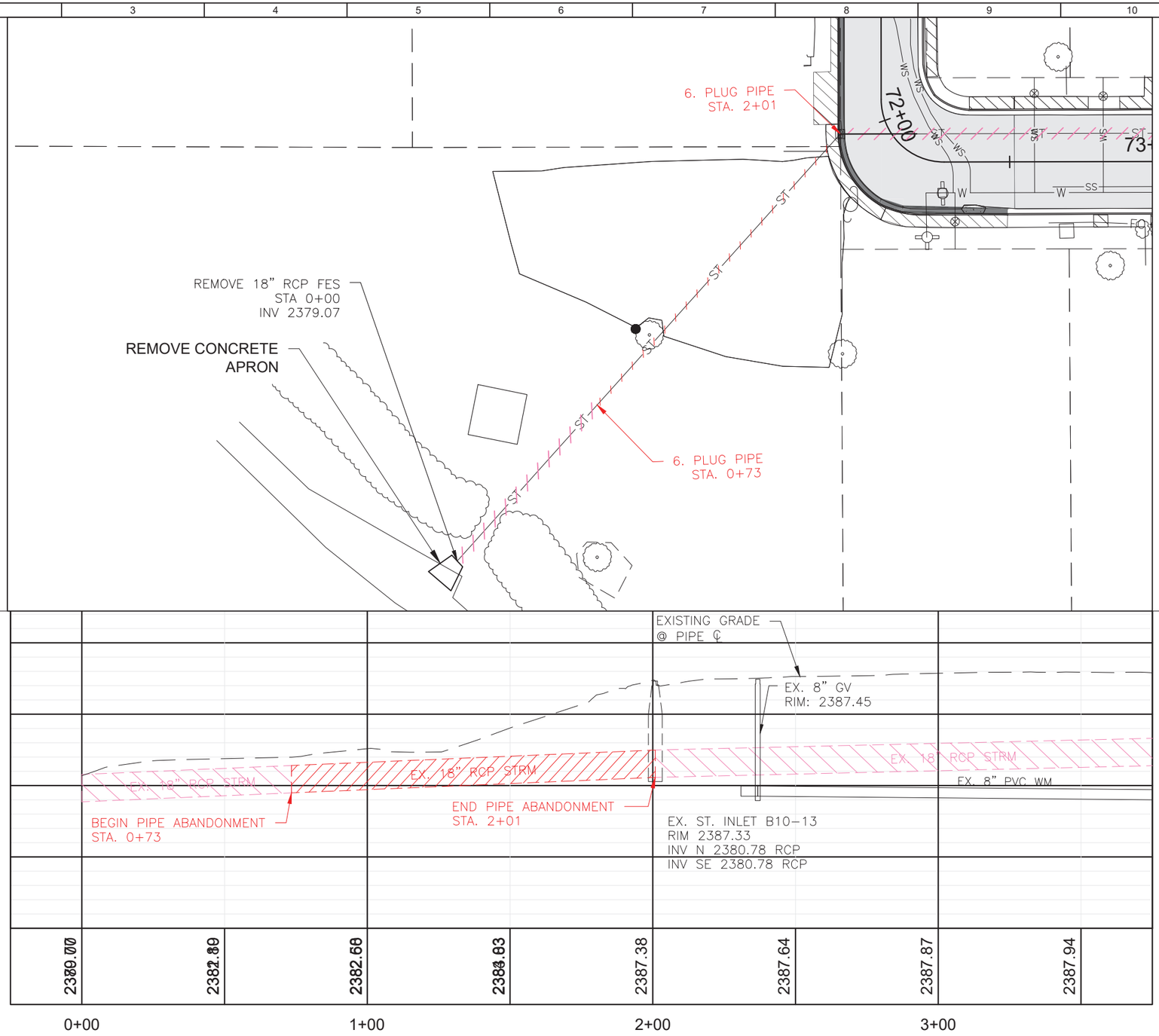
2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY REMOVALS
Sta 54+00 to Sta 58+00

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Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
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Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 41-11

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

No Quantities This Sheet

CONSTRUCTION NOTES

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6. SEE SECTION 20 FOR PLUG PIPE DETAIL

LEGEND

- REMOVE SANITARY PIPE
- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:35:02-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

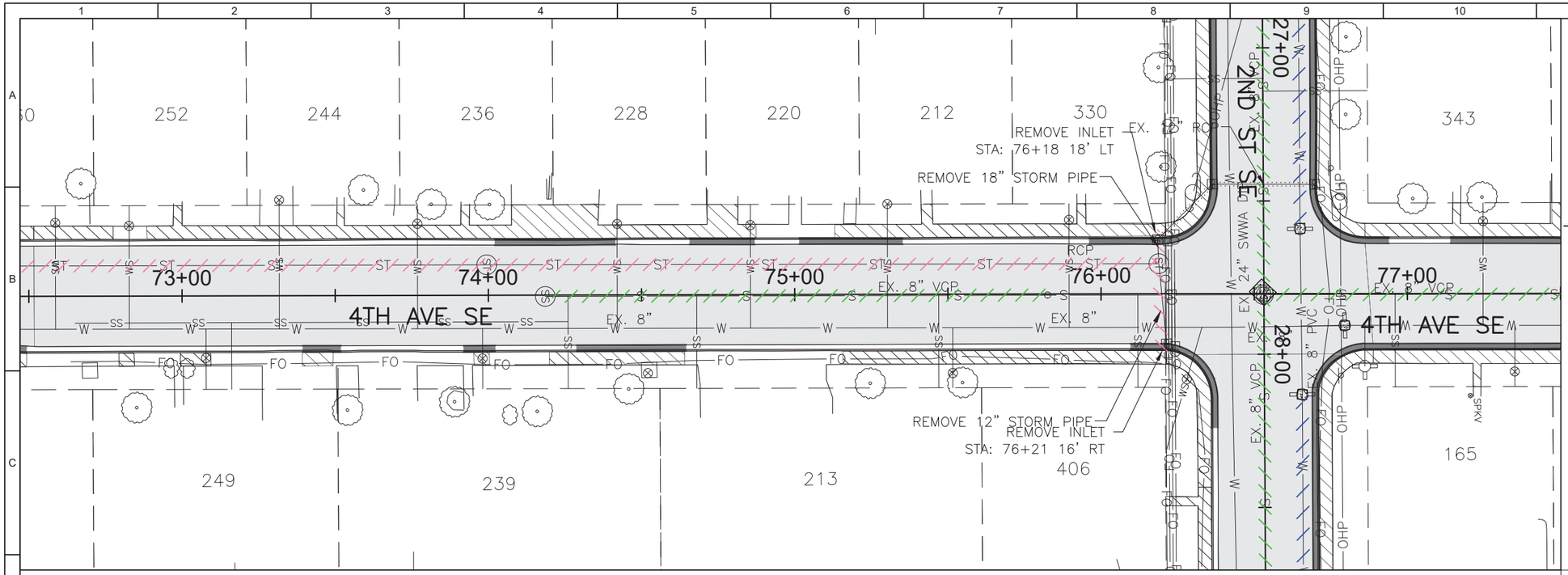
2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY REMOVALS
Sta 73+00 to Sta 77+00

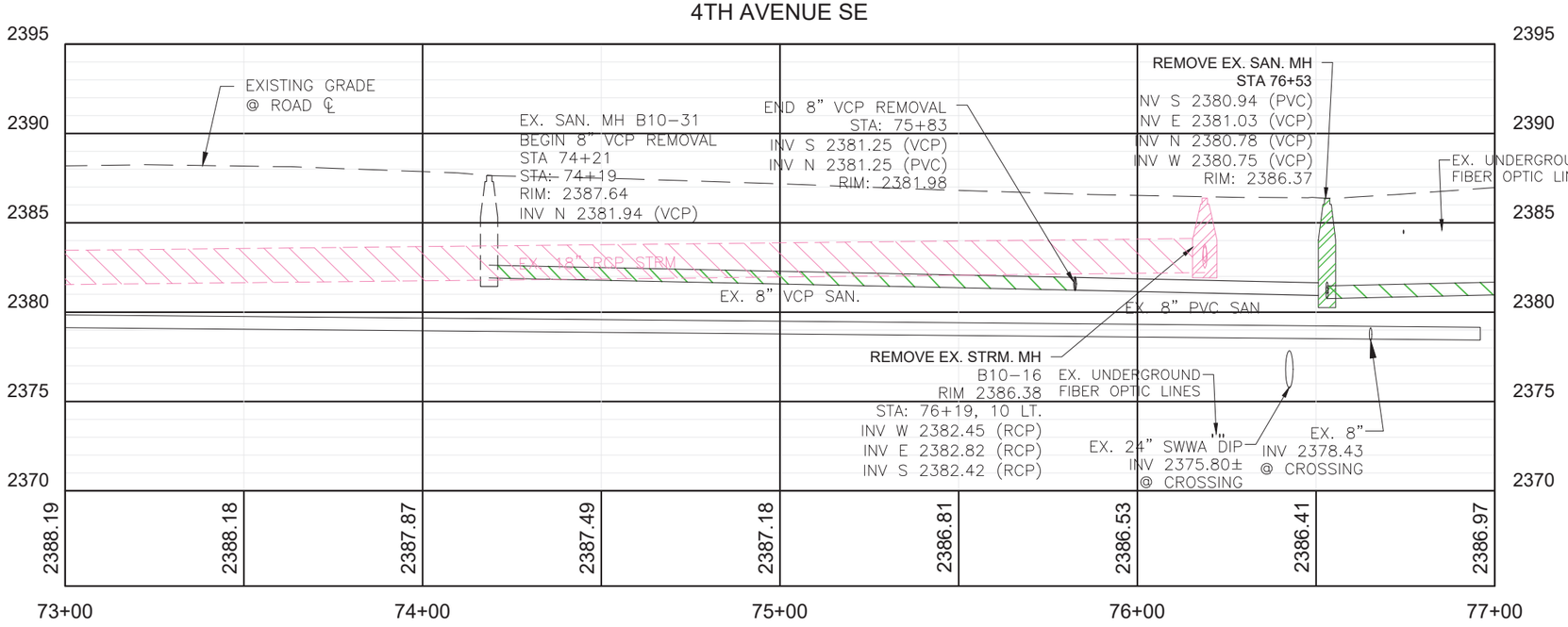
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #:	22.107.0010
Date:	February 2026
Drawn By:	Tanner Sanders
Checked By:	Jon Wilczek
Approved By:	Scott Schneider

Sheet: 41-12

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 041_Util Removals.dwg





ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

No Quantities This Sheet

CONSTRUCTION NOTES

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LEGEND

- REMOVE SANITARY PIPE
- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:35:15-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

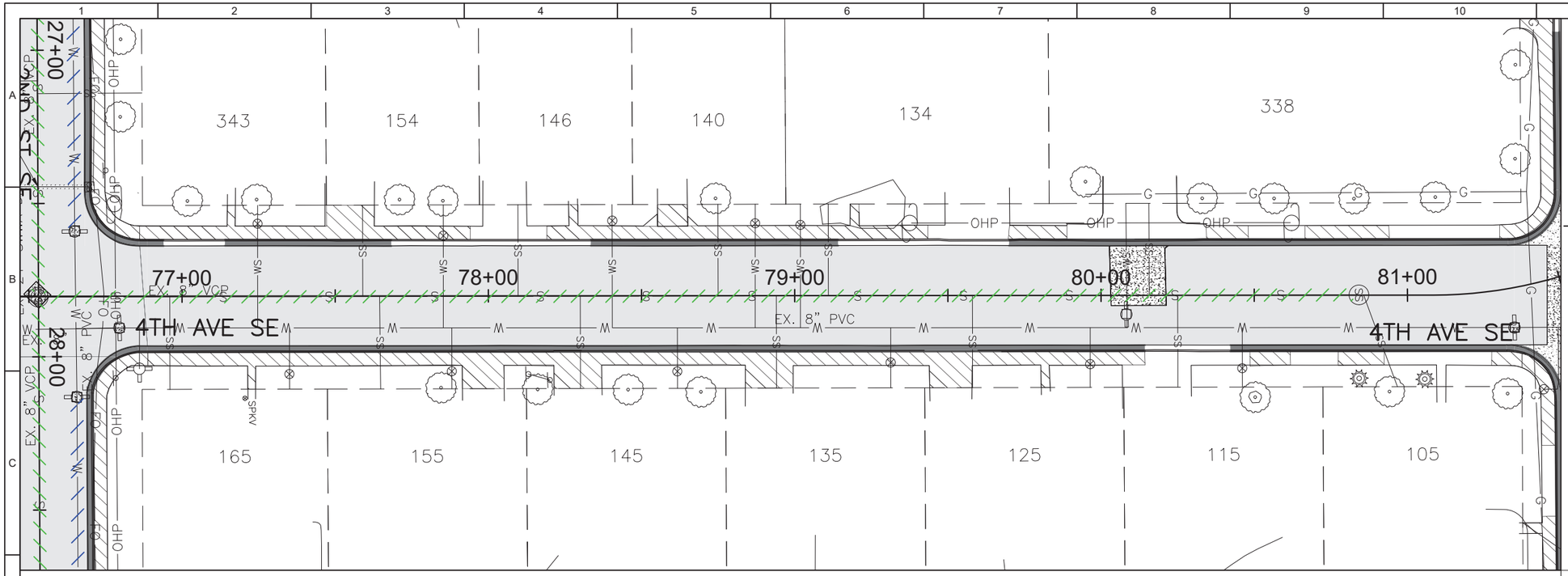
2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY REMOVALS
Sta 73+00 to Sta 77+00

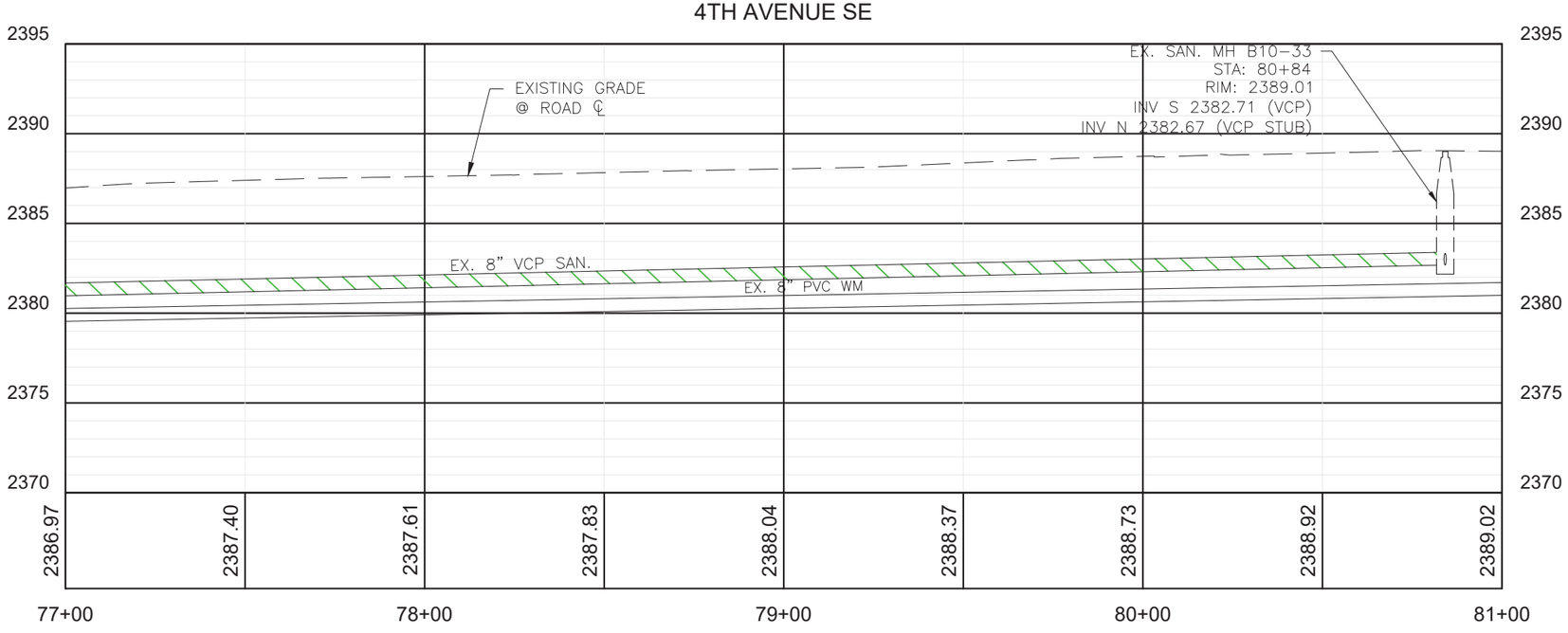
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204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 41-13

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

No Quantities This Sheet

CONSTRUCTION NOTES

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- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
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REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:35:31-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY REMOVALS
Sta 77+00 to Sta 81+00

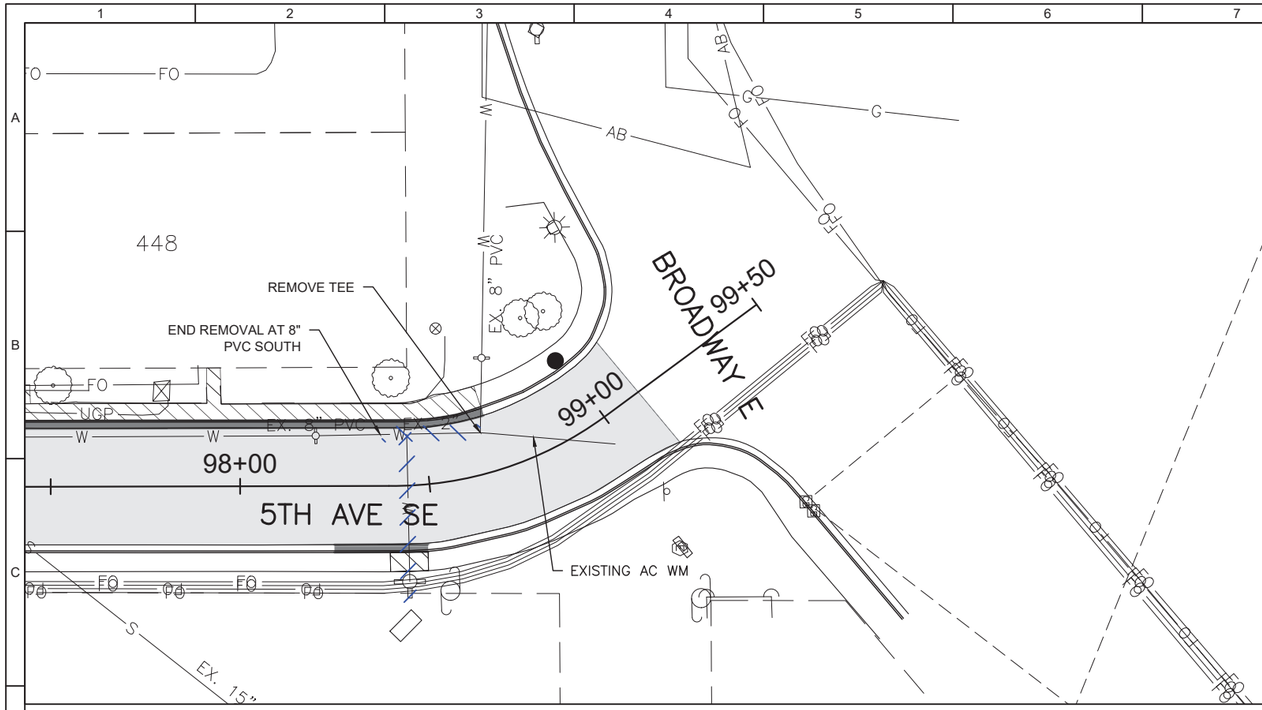
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Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
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Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 41-14

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVAL OF AC PIPE	10	LF
REMOVE AND SALVAGE HYDRANT	1	EA

CONSTRUCTION NOTES

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N

0 20' 40'

SCALE: 1 INCH = 40 FEET
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REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:35:43-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

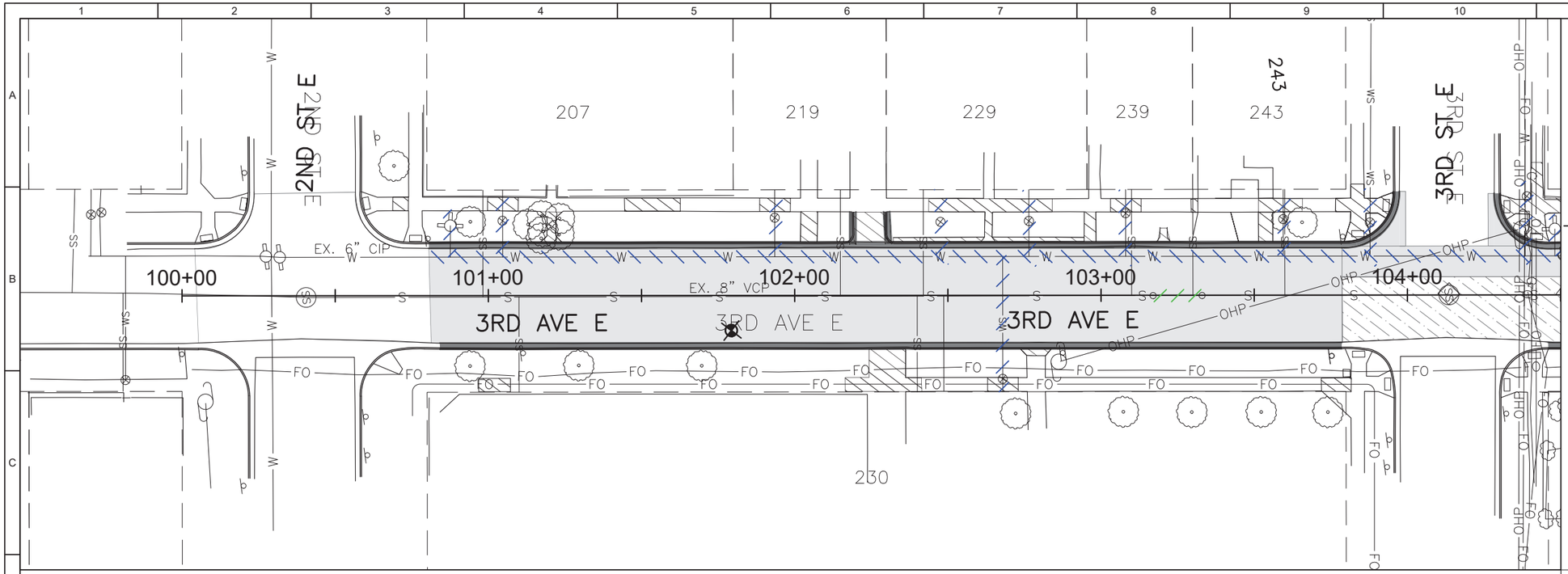
2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY REMOVALS
Sta 98+00 to Sta 99+50

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Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
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Approved By: Scott Schneider

Sheet: 41-15

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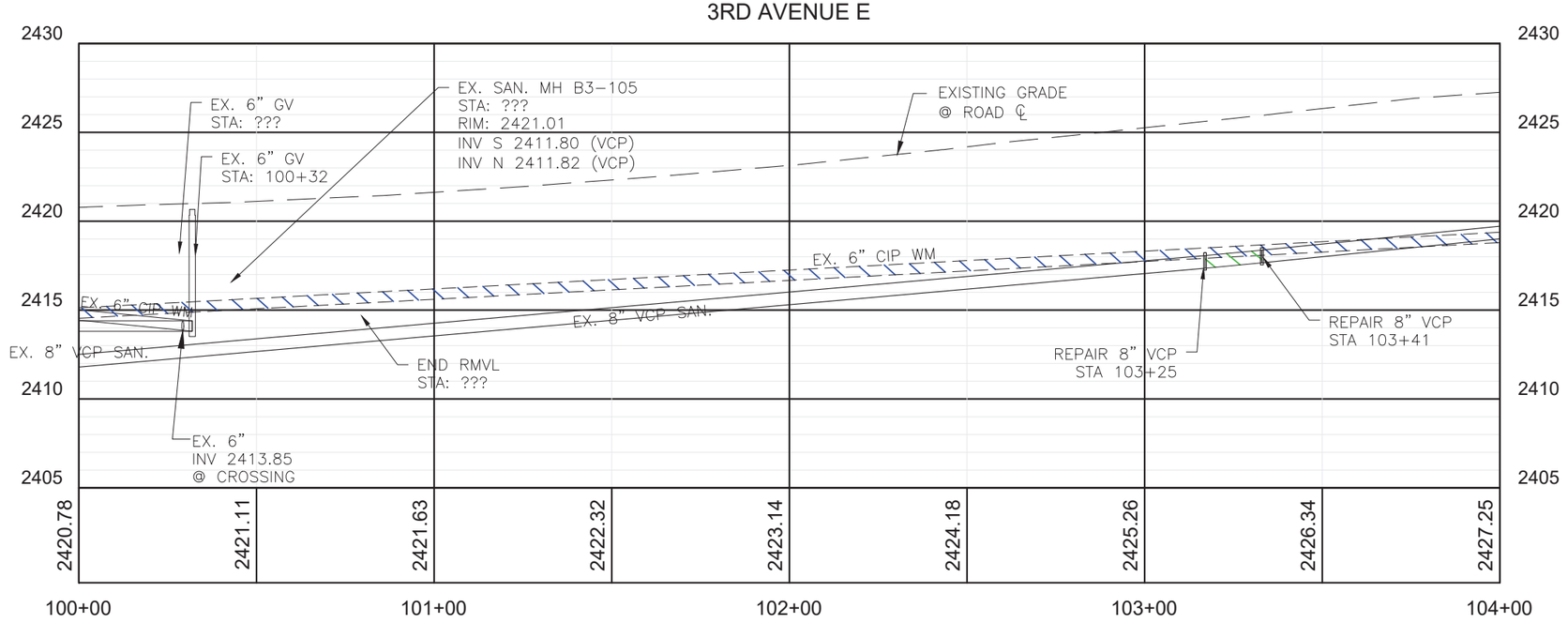


ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVE AND SALVAGE HYDRANT	1	EA

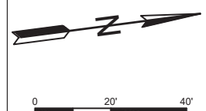
CONSTRUCTION NOTES

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LEGEND

- REMOVE SANITARY PIPE
- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE



SCALE: 1 INCH = 40 FEET
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REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:35:54-07'00'
NORTH DAKOTA

REVISIONS

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CITY OF Dickinson North Dakota

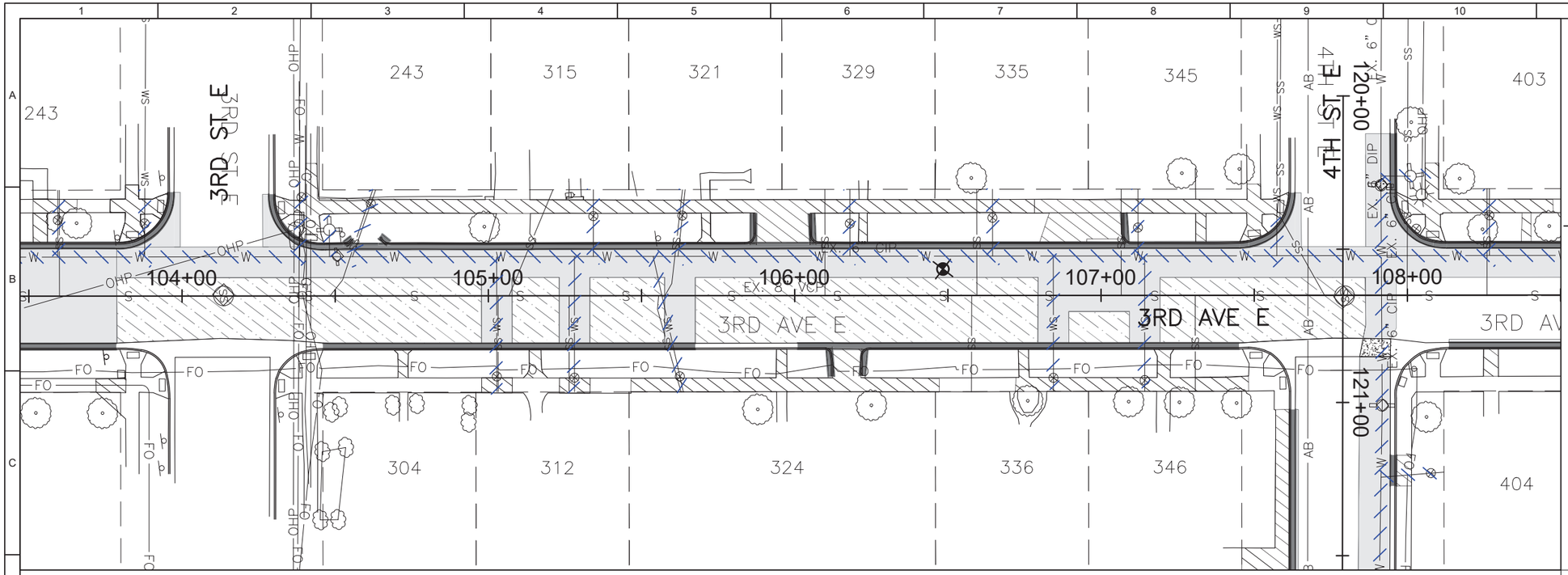
2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY REMOVALS
Sta 100+00 to Sta 104+00

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Office: 701-264-3939
www.apexenggroup.com

Project #:	22.107.0010
Date:	February 2026
Drawn By:	Tanner Sanders
Checked By:	Jon Wilczek
Approved By:	Scott Schneider

Sheet: 41-16

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 041_Util Removals.dwg

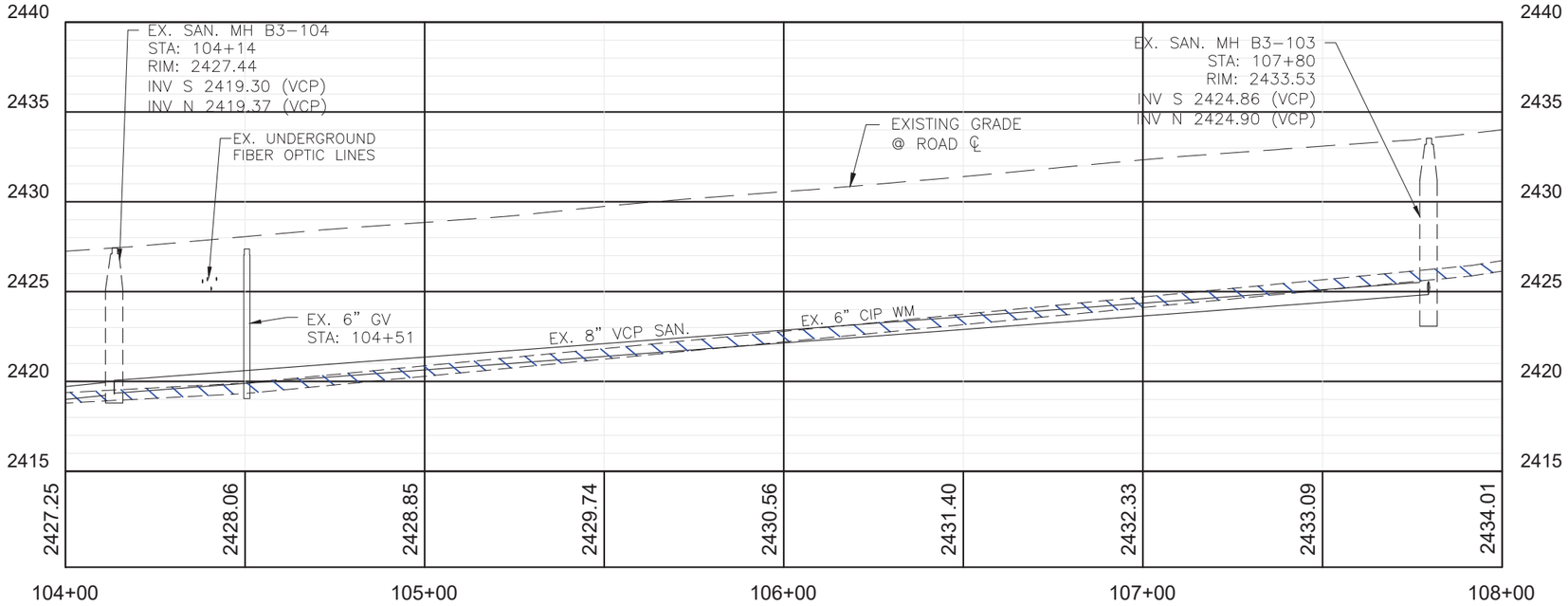


ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVE AND SALVAGE HYDRANT	1	EA
REMOVE & SALVAGE GV (ALL SIZES)	1	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. SERVICE LINE INFORMATION WAS OBTAINED FROM THE CITY OF DICKINSON UTILITY DEPARTMENT AND PUBLICLY AVAILABLE RECORD DRAWING INFORMATION. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. NOT ALL UTILITIES ARE SHOWN. THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY THE LOCATIONS AND PRESERVE THE EXISTING UTILITIES.
3. REMOVAL OF PAVEMENT SHALL BE MINIMIZED TO ALLOW FOR CONSTRUCTION. NEAT CUT ALL PAVEMENT AND CURB & GUTTER PRIOR TO REMOVAL.
4. CONTRACTOR SHALL REMOVE AND SALVAGE ALL CONCRETE, ASPHALT, VALVES AND FITTINGS. SEE SPECIFICATIONS FOR REQUIREMENTS.
5. SANITARY SERVICES NOT IN USE AND NOT NEEDED FOR FUTURE USE WHICH ARE EXPOSED DURING CONSTRUCTION SHALL BE PLUGGED WITH BRICK AND MORTAR A MINIMUM OF 6" THICK.



LEGEND

- REMOVE SANITARY PIPE
- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:36:05-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

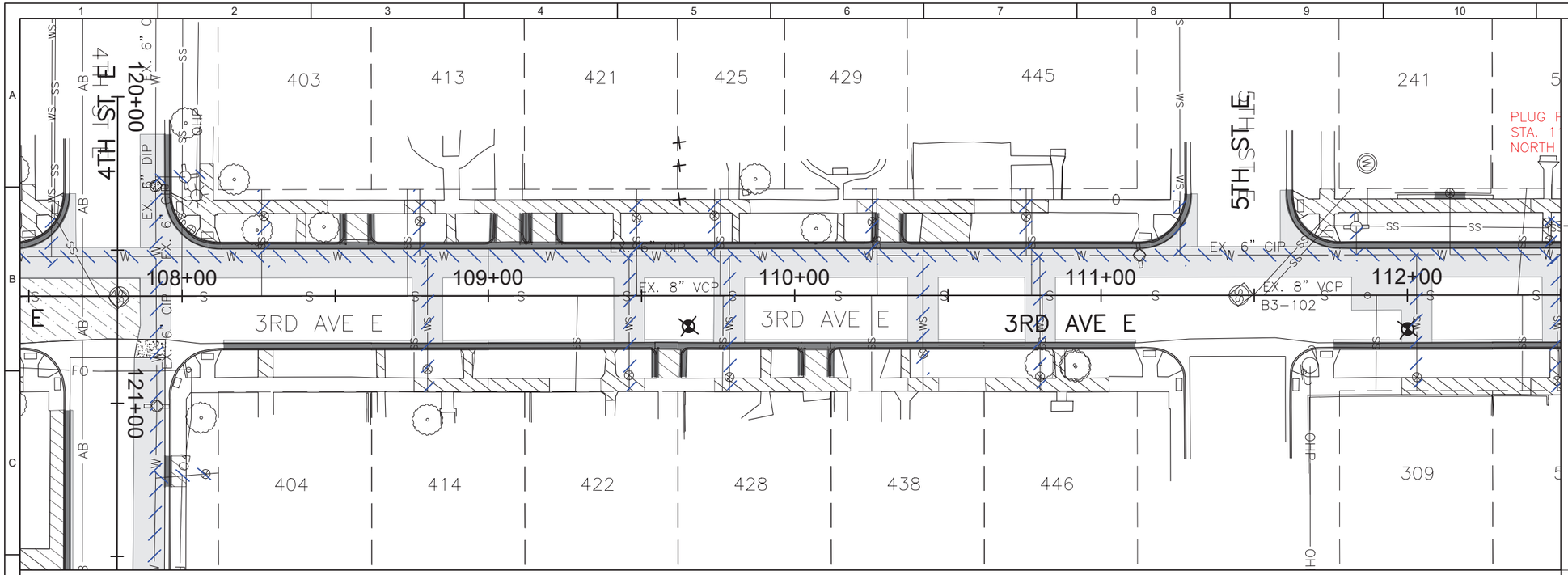
2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY REMOVALS
Sta 104+00 to Sta 108+00

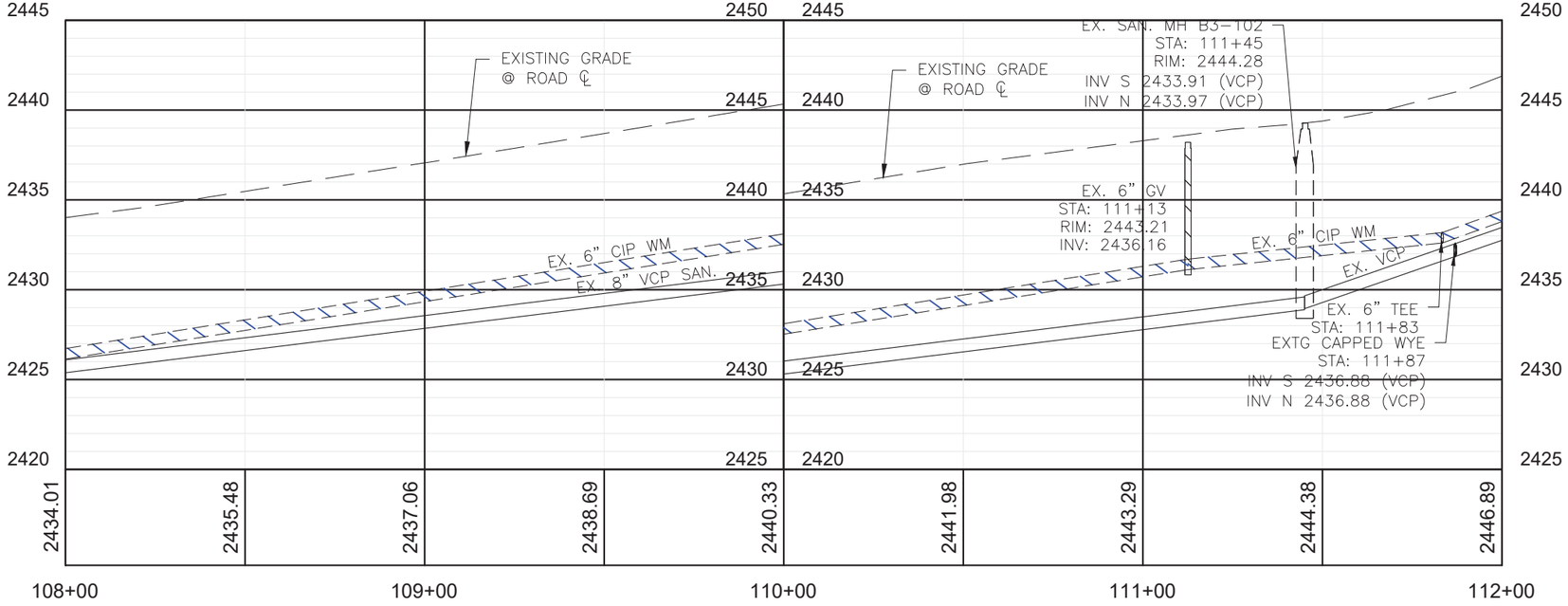
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 41-17

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 041_Util Removals.dwg





ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVE AND SALVAGE HYDRANT	1	EA
REMOVE & SALVAGE GV (ALL SIZES)	1	EA
EXPLORATORY EXC. WATER SERV.	1	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. SERVICE LINE INFORMATION WAS OBTAINED FROM THE CITY OF DICKINSON UTILITY DEPARTMENT AND PUBLICLY AVAILABLE RECORD DRAWING INFORMATION. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. NOT ALL UTILITIES ARE SHOWN. THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY THE LOCATIONS AND PRESERVE THE EXISTING UTILITIES.
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4. CONTRACTOR SHALL REMOVE AND SALVAGE ALL CONCRETE, ASPHALT, VALVES AND FITTINGS. SEE SPECIFICATIONS FOR REQUIREMENTS.
5. SANITARY SERVICES NOT IN USE AND NOT NEEDED FOR FUTURE USE WHICH ARE EXPOSED DURING CONSTRUCTION SHALL BE PLUGGED WITH BRICK AND MORTAR A MINIMUM OF 6" THICK.

LEGEND

- REMOVE SANITARY PIPE
- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:36:19-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

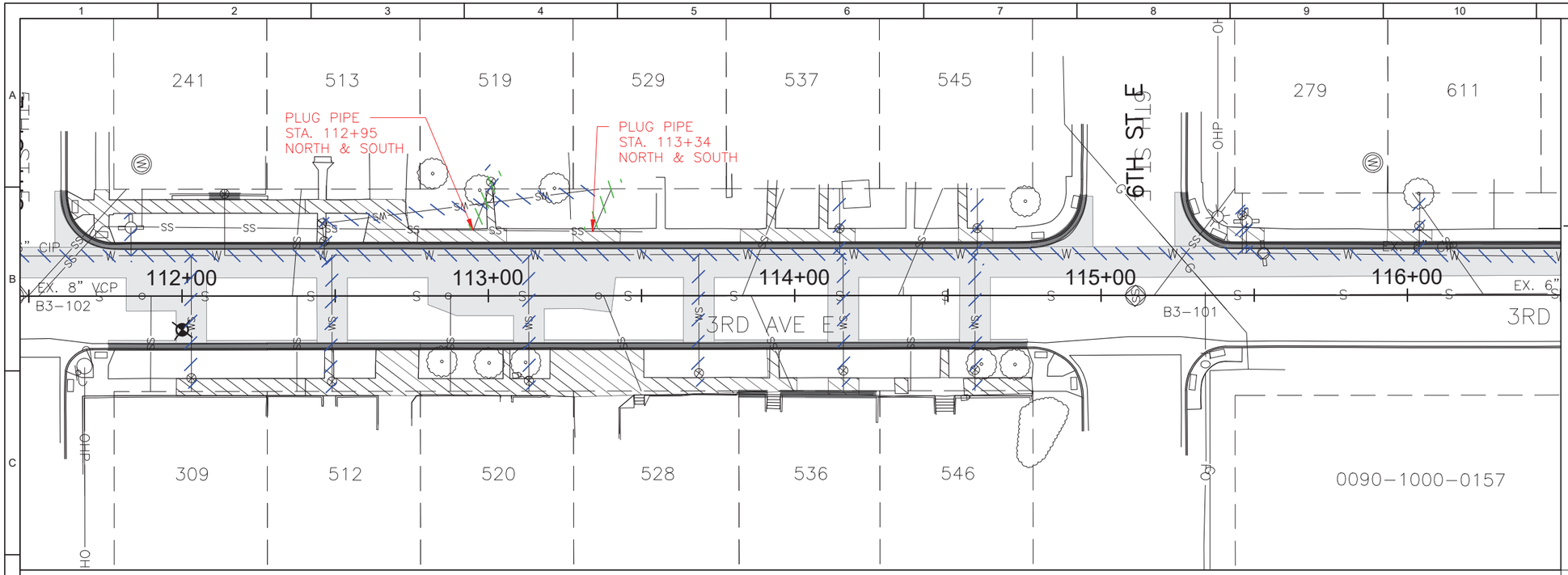
2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY REMOVALS Sta 108+00 to Sta 112+00

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 41-18

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 041_Util Removals.dwg



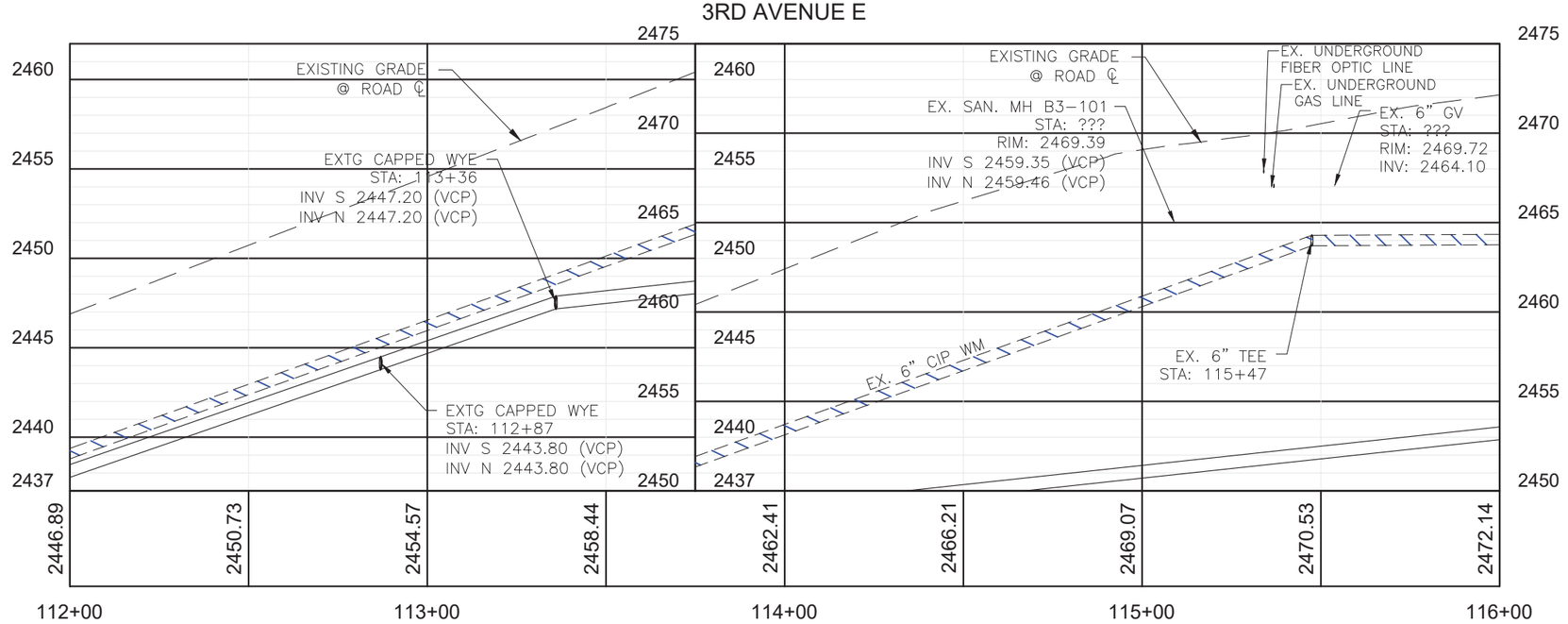
ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVE AND SALVAGE HYDRANT	1	EA
REMOVE & SALVAGE GV (ALL SIZES)	1	EA
EXPLORATORY EXC. SAN. SERVICE	2	EA
EXPLORATORY EXC. WATER SERV.	2	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. SERVICE LINE INFORMATION WAS OBTAINED FROM THE CITY OF DICKINSON UTILITY DEPARTMENT AND PUBLICLY AVAILABLE RECORD DRAWING INFORMATION. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. NOT ALL UTILITIES ARE SHOWN. THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY THE LOCATIONS AND PRESERVE THE EXISTING UTILITIES.
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5. SANITARY SERVICES NOT IN USE AND NOT NEEDED FOR FUTURE USE WHICH ARE EXPOSED DURING CONSTRUCTION SHALL BE PLUGGED WITH BRICK AND MORTAR A MINIMUM OF 6" THICK.

3RD AVENUE E



LEGEND

- REMOVE SANITARY PIPE
- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:36:29-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

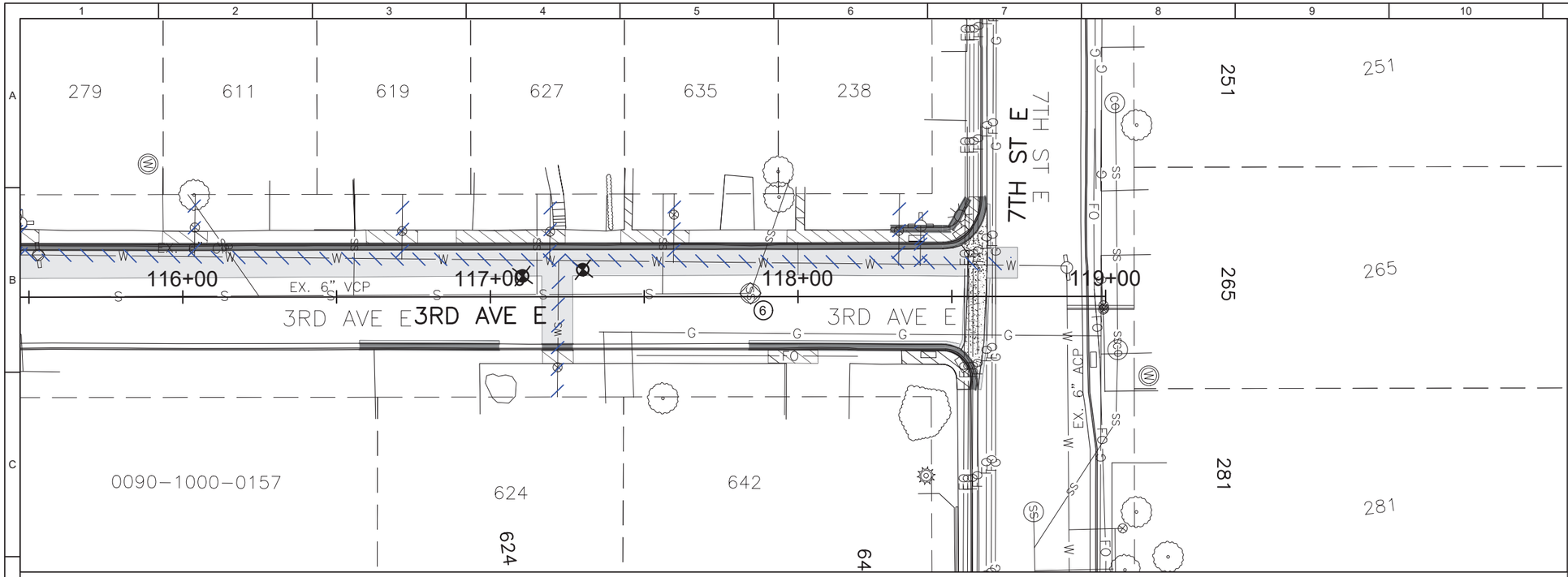
2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY REMOVALS
Sta 112+00 to Sta 116+00

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 41-19

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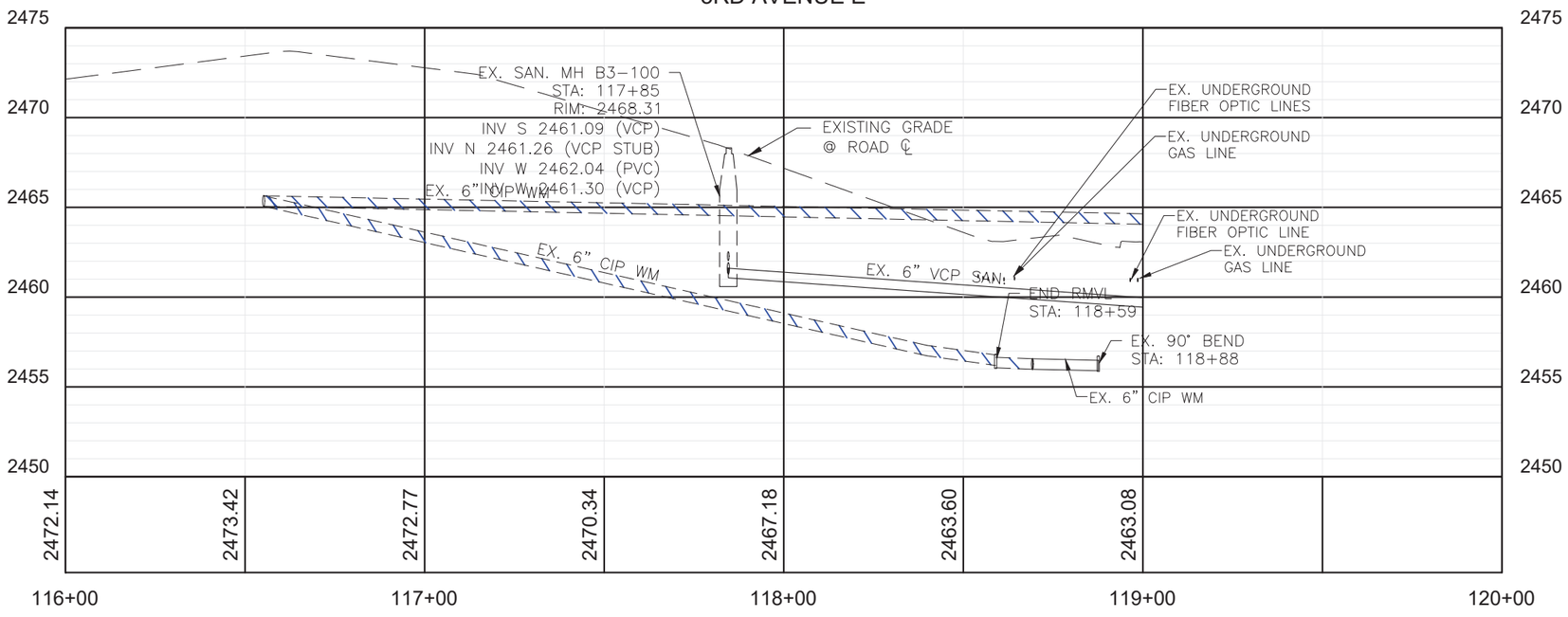
ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVE AND SALVAGE HYDRANT	1	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. SERVICE LINE INFORMATION WAS OBTAINED FROM THE CITY OF DICKINSON UTILITY DEPARTMENT AND PUBLICLY AVAILABLE RECORD DRAWING INFORMATION. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. NOT ALL UTILITIES ARE SHOWN. THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY THE LOCATIONS AND PRESERVE THE EXISTING UTILITIES.
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5. SANITARY SERVICES NOT IN USE AND NOT NEEDED FOR FUTURE USE WHICH ARE EXPOSED DURING CONSTRUCTION SHALL BE PLUGGED WITH BRICK AND MORTAR A MINIMUM OF 6" THICK.

(6) 4" PVC SERVICE GOES INTO MANHOLE CUT OFF 1FT FROM WALL.



LEGEND

- REMOVE SANITARY PIPE
- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:36:40-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

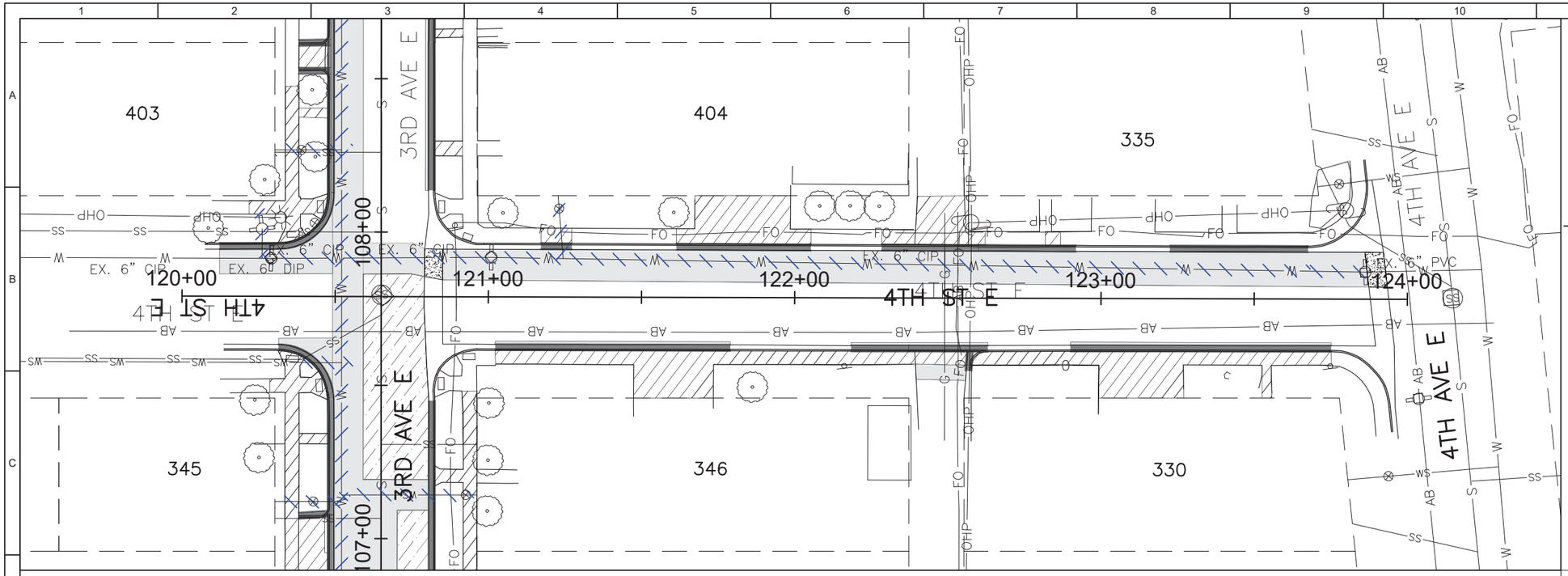
2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY REMOVALS
Sta 116+00 to Sta 120+00

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 41-20

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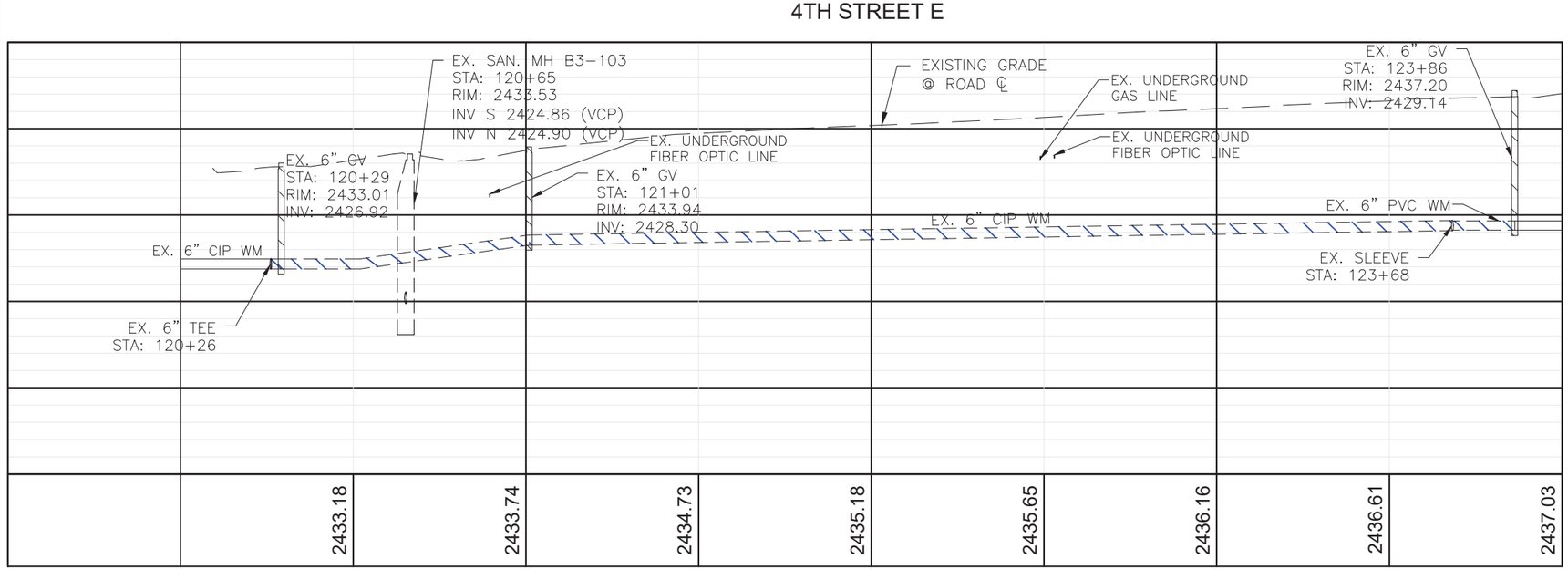
ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
REMOVE AND SALVAGE HYDRANT	1	EA
REMOVE & SALVAGE GV (ALL SIZES)	3	EA

CONSTRUCTION NOTES

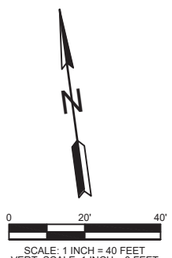
1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
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5. SANITARY SERVICES NOT IN USE AND NOT NEEDED FOR FUTURE USE WHICH ARE EXPOSED DURING CONSTRUCTION SHALL BE PLUGGED WITH BRICK AND MORTAR A MINIMUM OF 6" THICK.

4TH STREET E



LEGEND

- REMOVE SANITARY PIPE
- REMOVE WATERMAIN PIPE
- REMOVE STORM PIPE
- ABANDON STORM PIPE



REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 07:36:51-07'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY REMOVALS
Sta 120+00 to Sta 124+00

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 41-21

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 041_Util Removals.dwg

2026 Utility & Street Improvement Project - 4th Avenue SE Storm Sewer

Structure ID	Station - Offset	Bid Item	Riser Dimension	Casting	Rim/Grate Elev.	Invert Elevations				Riser Height	Base Elev.
ST-1	72+12.3 - 6.6' Lt	MANHOLE 60IN	60"	R-1733	2387.48	N	2379.38	30	"RCP	6.91	2378.99
						S	2383.18	15	"RCP		
						SE	2379.28	30	"RCP		
ST-2	73+99.5 - 9.9' Lt	MANHOLE 48IN	48"	R-1733	2387.64	S	2380.43	30	"RCP	6.09	2380.13
						N	2380.53	30	"RCP		
ST-3	76+18.9 - 9.8' Lt	MANHOLE 72IN	72"	R-1733	2386.15	W	2382.00	24	"RCP	4.00	2380.73
						E	2382.95	18	"RCP		
						S	2381.85	30	"RCP		
ST-3A	76+05.7 - 17.4' Lt	INLET - TYPE 2 DOUBLE	72"X24"	R-3295-2 TYPE V	2385.97	N	2382.50	18	"RCP	4.00	2381.30
ST-3B	76+18.6 - 17.4' Lt	INLET - TYPE 2 DOUBLE	72"X24"	R-3295-2 TYPE V	2385.89	NW	2382.66	15	"RCP Ex	4.00	2381.22
						S	2382.40	18	"RCP		
						E	2382.10	24	"RCP		
ST-3C	76+19.9 - 17.4' Rt	INLET - TYPE 2 DOUBLE	72"X24"	R-3295-2 TYPE V	2386.06	W	2383.10	18	"RCP	4.00	2381.39
						N	2383.20	15	"RCP		
ST-3D	76+69.9 - 34.5' Rt	INLET - TYPE 2	36"X24"	R-3295 TYPE V	2386.32	S	2383.75	15	"RCP	4.00	2381.65

CONSTRUCTION NOTES

1. All inlet structures include a 4" casting height and two (2) adjusting rings for a total of 4", unless otherwise noted.
2. All manhole structures include an 8" cover, a 7" casting height, and two (2) adjusting rings for a total of 4", unless otherwise noted.
3. Manhole ST-2 includes a 6" cover.
4. Manhole ST-3 includes one (1) adjusting ring for a total of 2".
5. Rim/Grate Elevation references the inlet grate elevation in the gutter flow line.

REGISTERED PROFESSIONAL ENGINEER
LEVI L CLAGETT
PE-40749
DATE 2026.02.18 09:55:54-06'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

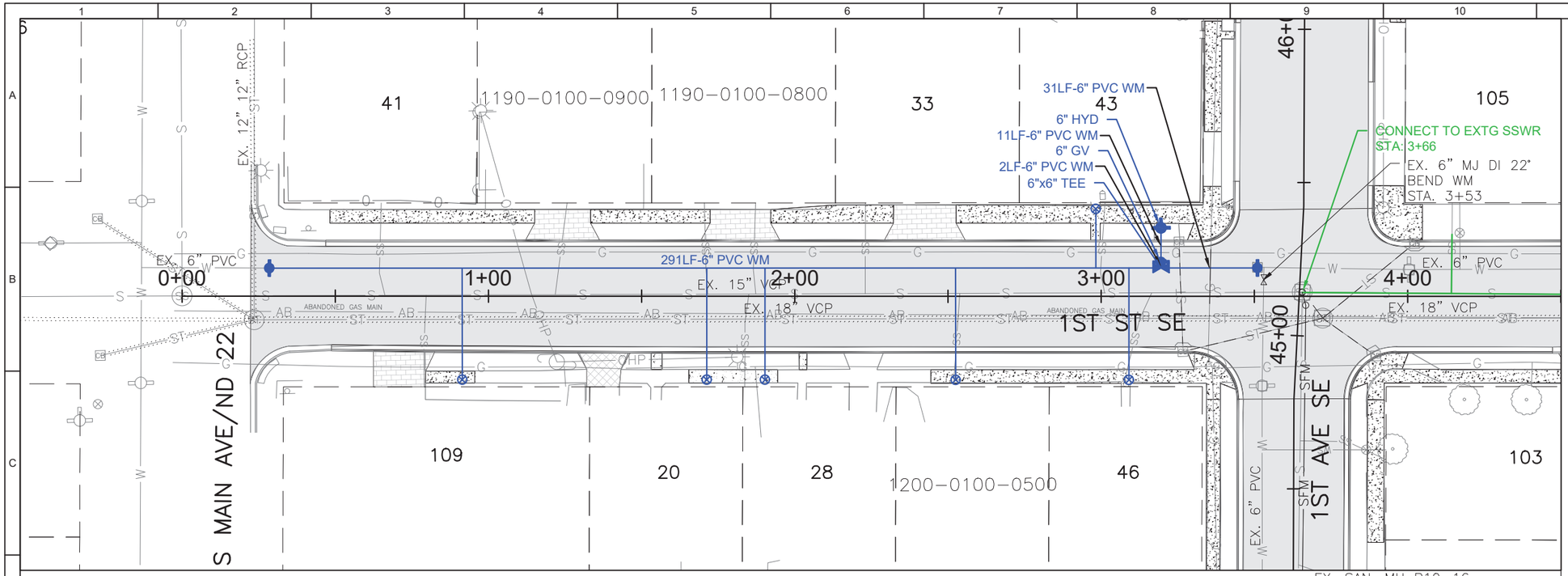
2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 50 STORM STRUCTURE SCHEDULE

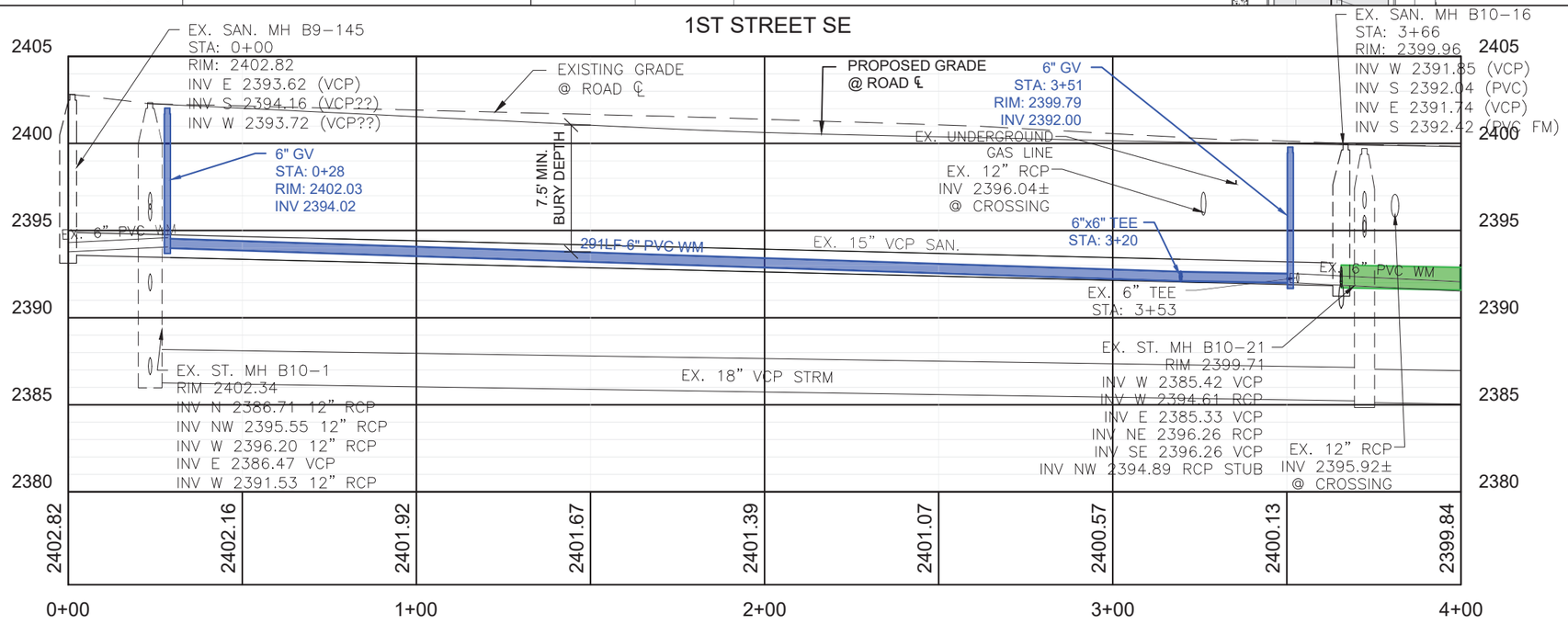
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tyler Madsen
Checked By: Scott Schneider
Approved By: Levi Clagett

Sheet: 50-01

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 050_Util Storm Str. Schedule.dwg



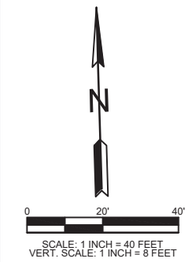


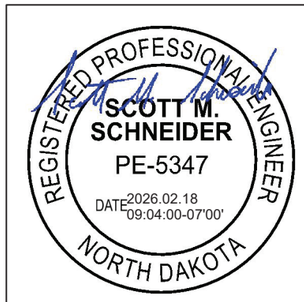
ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
CONNECT TO EXTG SAN. MH	1	EA
15IN SANITARY SEWER PIPE SDR 26	34	LF
BORE WATER SERVICE LINE	190	LF
CURB STOP & BOX 1IN	6	EA
GATE VALVE & BOX 6IN	3	EA
WATERMAIN 6IN PVC	336	LF
SADDLE & CORP 6"	6	EA
WATER SERVICE LINE 1IN POLY	218	LF
WATER MAIN CONNECTION (ALL SIZES)	2	EA
6IN HYDRANT X 8.0' & TEE	1	EA
SANITARY SEWER SERVICE CROSSING	6	EA
STORM SEWER CROSSING	2	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.





REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 0+00 to Sta 4+00

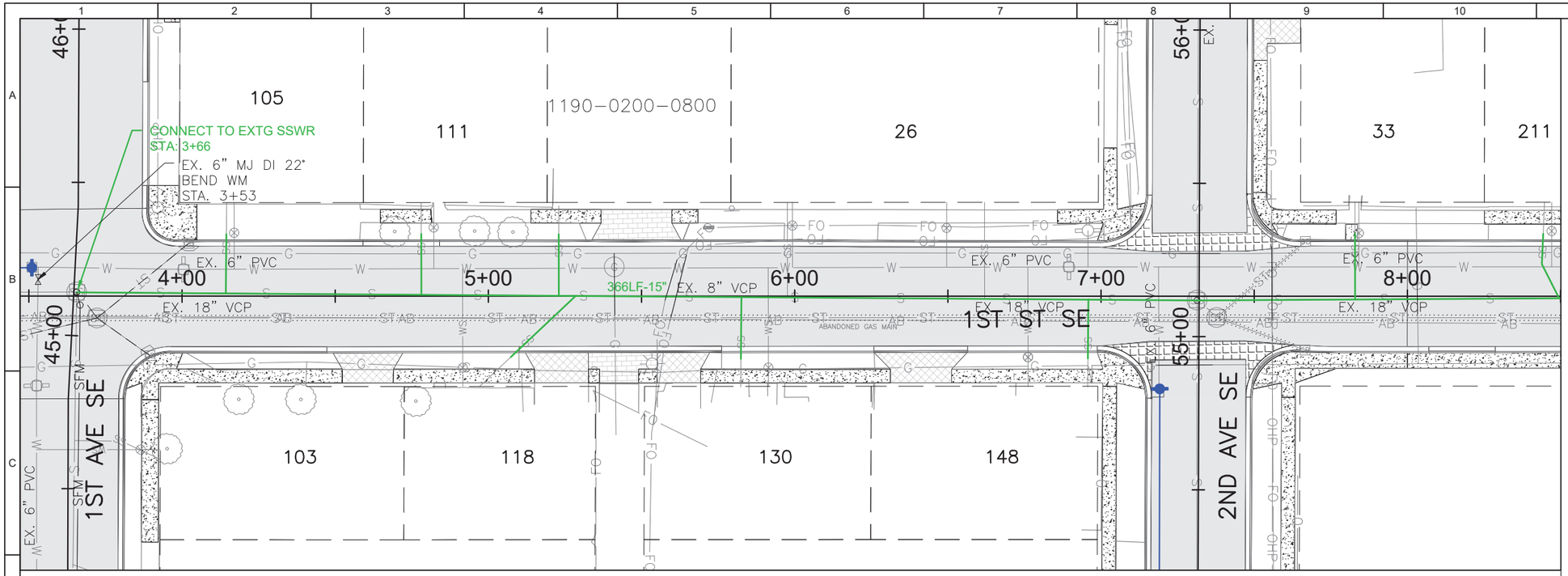
Apex Engineering Group

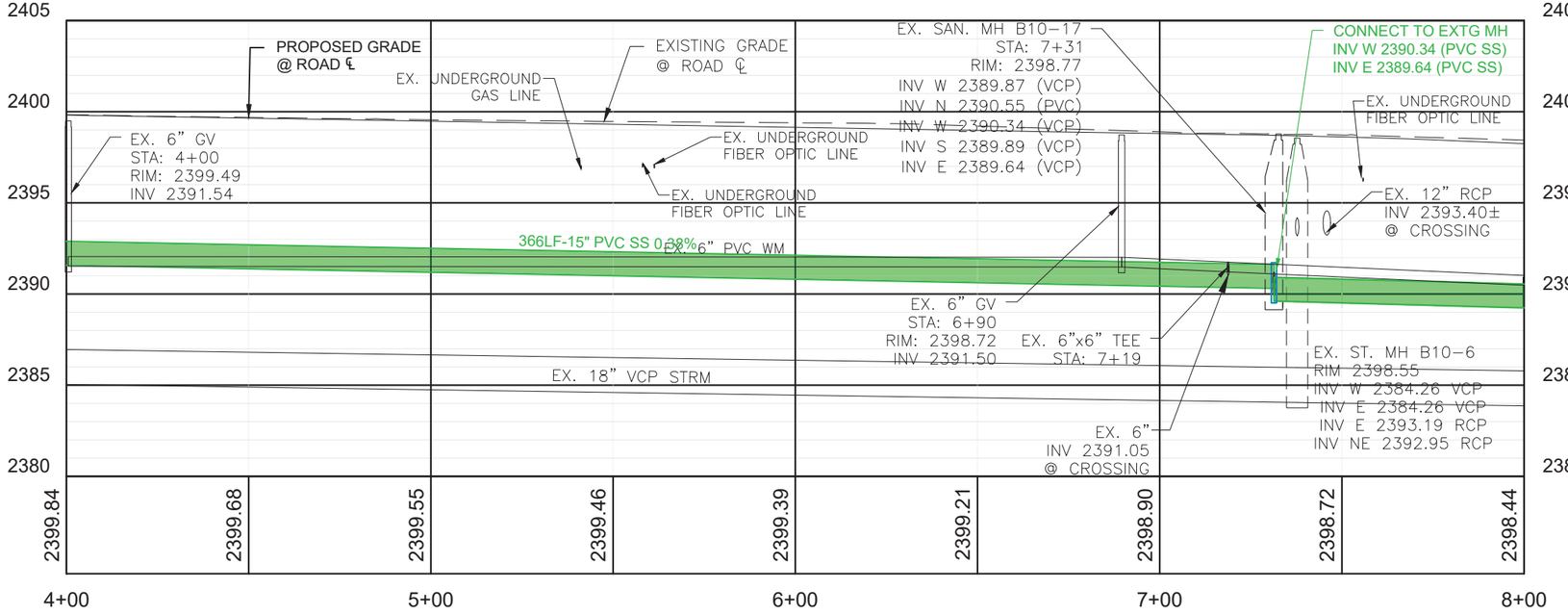
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-01

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 057_Util P&P.dwg





ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
CONNECT TO EXTG SAN. MH	2	EA
15IN X 6IN SEWER WYE BRANCH	8	EA
15IN SANITARY SEWER PIPE SDR 26	400	LF
VERTICAL OFFSET CROSSING WM	1	EA
STORM SEWER CROSSING	1	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. ALL SEWER SERVICES LESS THAN 6' OF COVER SHALL BE INSULATED FROM THE MAIN TO BACK OF CURB.

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 09:04:18-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

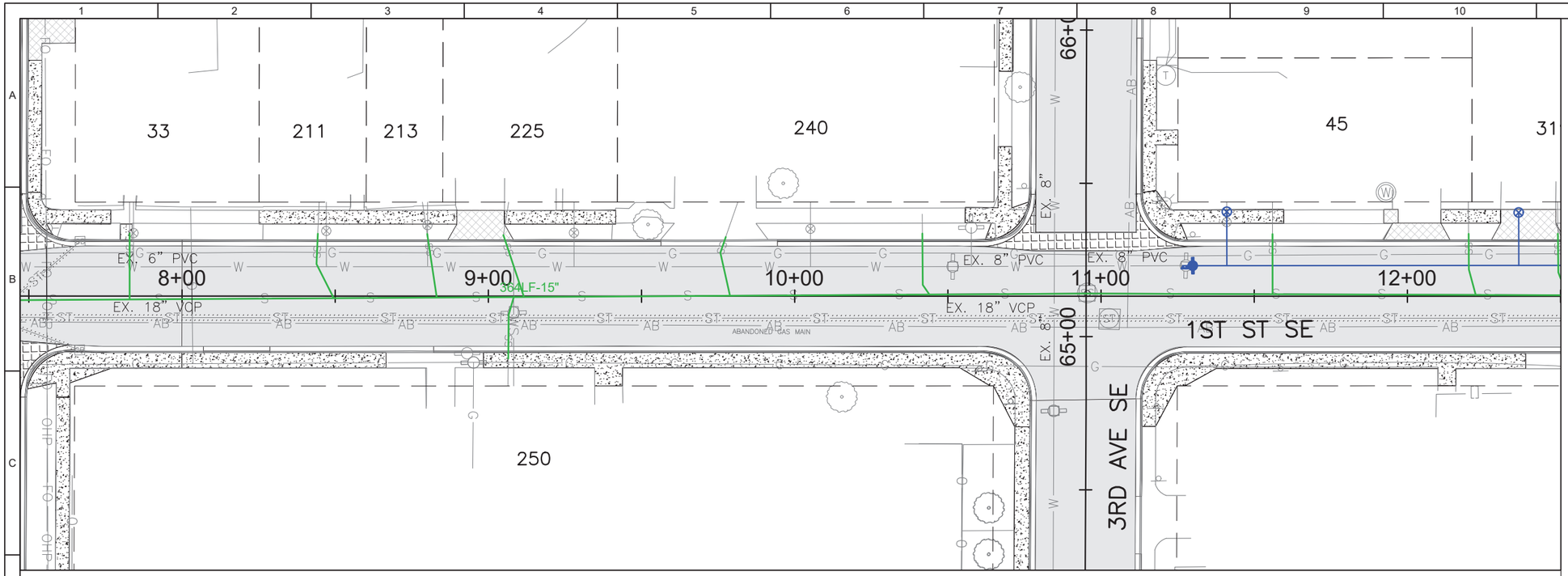
2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 4+00 to Sta 8+00

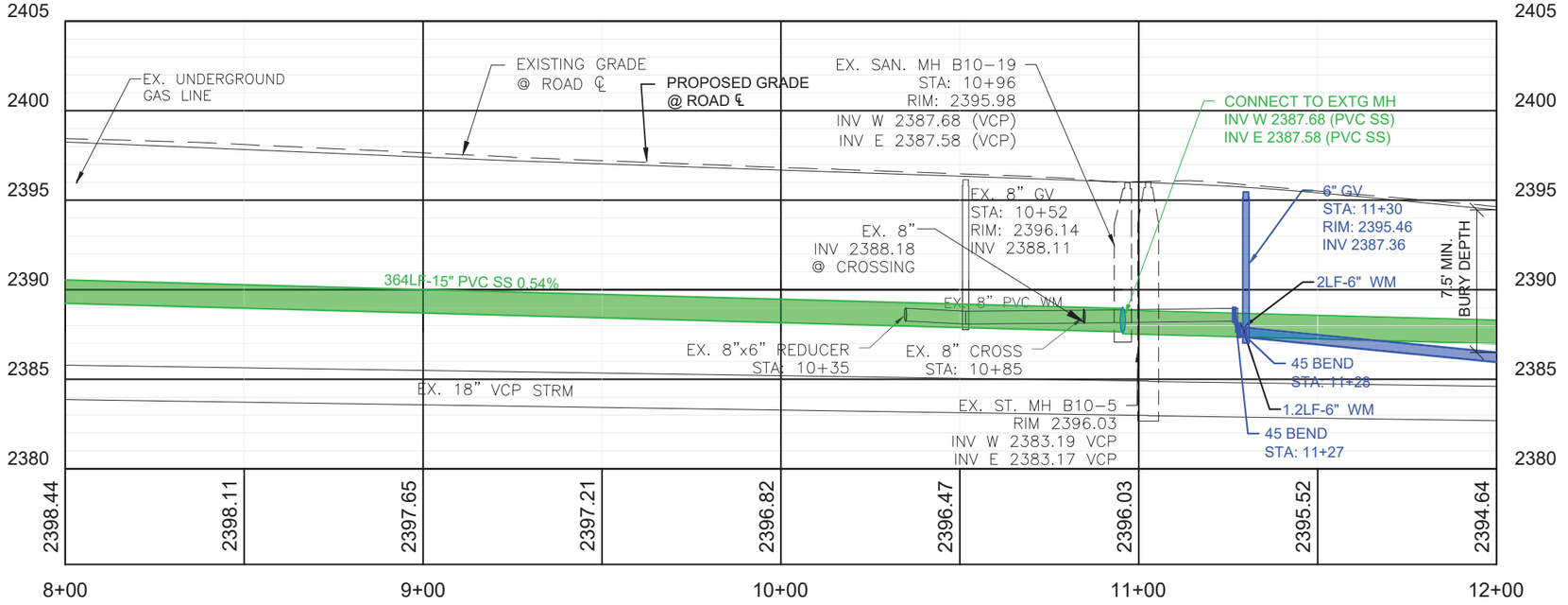
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-02

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 057_Util P&P.dwg





ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
CONNECT TO EXTG SAN. MH	2	EA
15IN X 6IN SEWER WYE BRANCH	7	EA
15IN SANITARY SEWER PIPE SDR 26	400	LF
8" X 6" REDUCER	1	EA
CURB STOP & BOX 1IN	1	EA
GATE VALVE & BOX 6IN	1	EA
WATERMAIN 6IN PVC	74	LF
SADDLE & CORP 6"	1	EA
FLUSHING SADDLE & CORP 6"	1	EA
WATER SERVICE LINE 1IN POLY	19	LF
WATER MAIN CONNECTION (ALL SIZES)	2	EA
VERTICAL OFFSET CONNECT TO EXISTING WM	1	EA
VERTICAL OFFSET CROSSING WM	1	EA
SANITARY SEWER SERVICE CROSSING	1	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. ALL SEWER SERVICES LESS THAN 6' OF COVER SHALL BE INSULATED FROM THE MAIN TO BACK OF CURB.

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 09:04:30-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

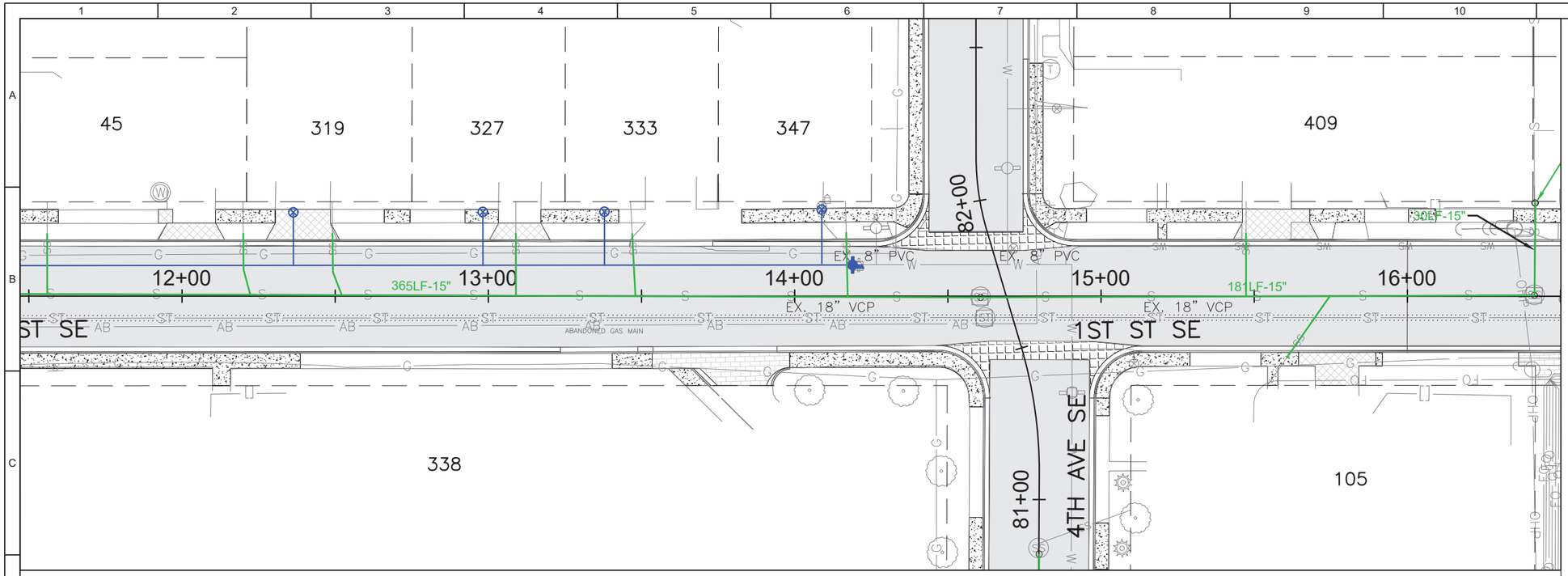
2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 8+00 to Sta 12+00

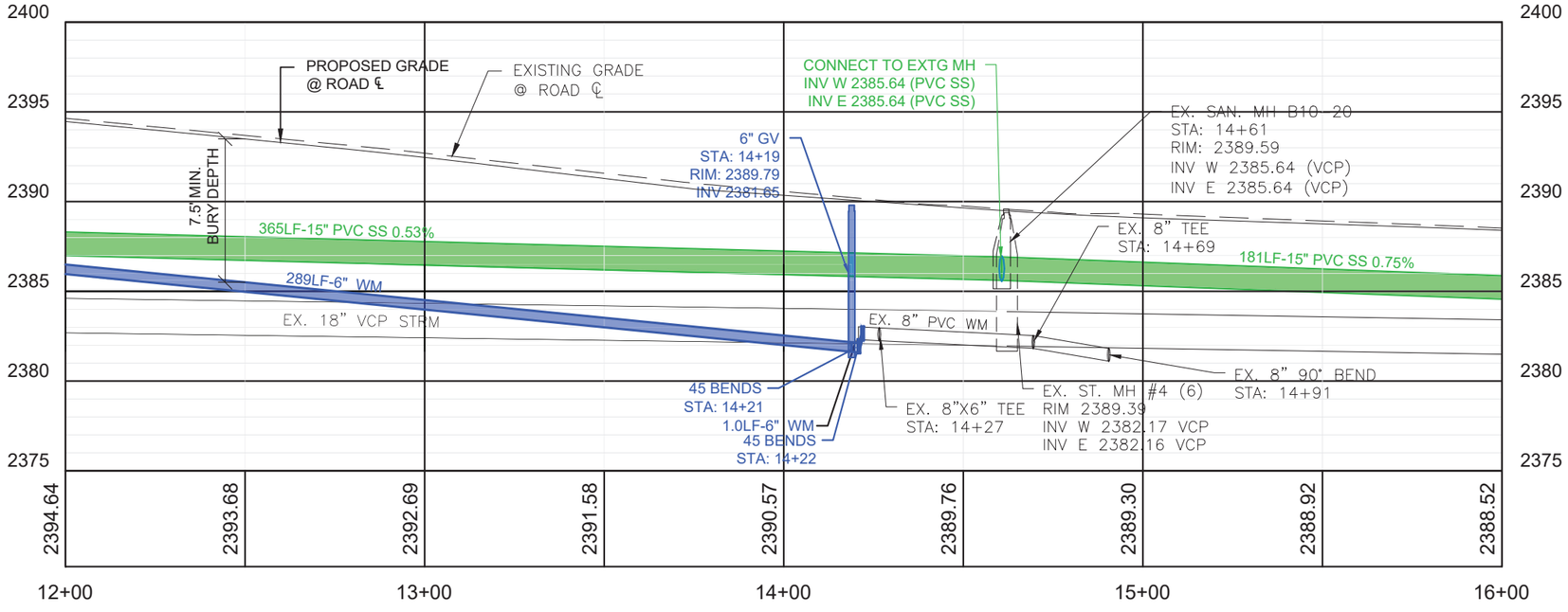
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-03

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 057_Util P&P.dwg





ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
CONNECT TO EXTG SAN. MH	2	EA
15IN X 6IN SEWER WYE BRANCH	7	EA
15IN SANITARY SEWER PIPE SDR 26	400	LF
CURB STOP & BOX 1IN	4	EA
GATE VALVE & BOX 6IN	1	EA
WATERMAIN 6IN PVC	222	LF
SADDLE & CORP 6"	4	EA
WATER SERVICE LINE 1IN POLY	74	LF
WATER MAIN CONNECTION (ALL SIZES)	2	EA
VERTICAL OFFSET CONNECT TO EXISTING WM	1	EA
VERTICAL OFFSET CROSSING WM	1	EA
SANITARY SEWER SERVICE CROSSING	5	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. ALL SEWER SERVICES LESS THAN 6' OF COVER SHALL BE INSULATED FROM THE MAIN TO BACK OF CURB.
3. SANITARY SEWER WITH LESS TAN 4FT OF COVER SHALL BE INSULATED.

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 09:04:42-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 12+00 to Sta 16+00

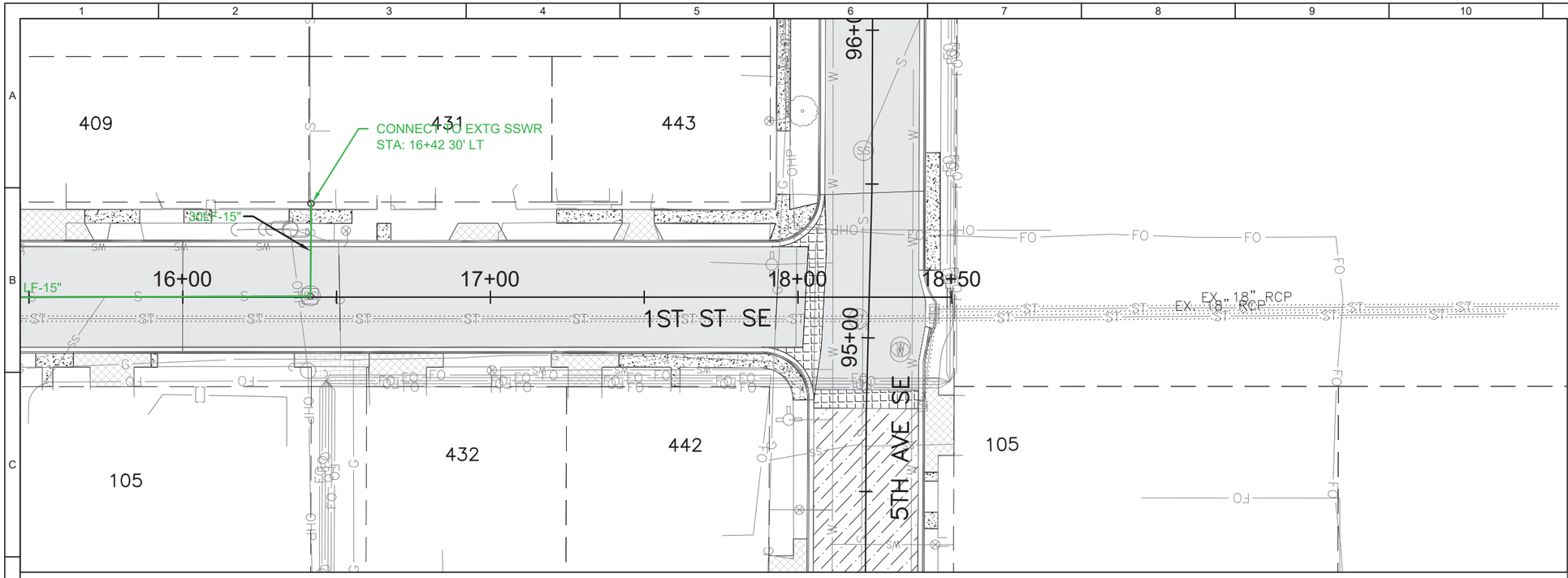
Apex Engineering Group

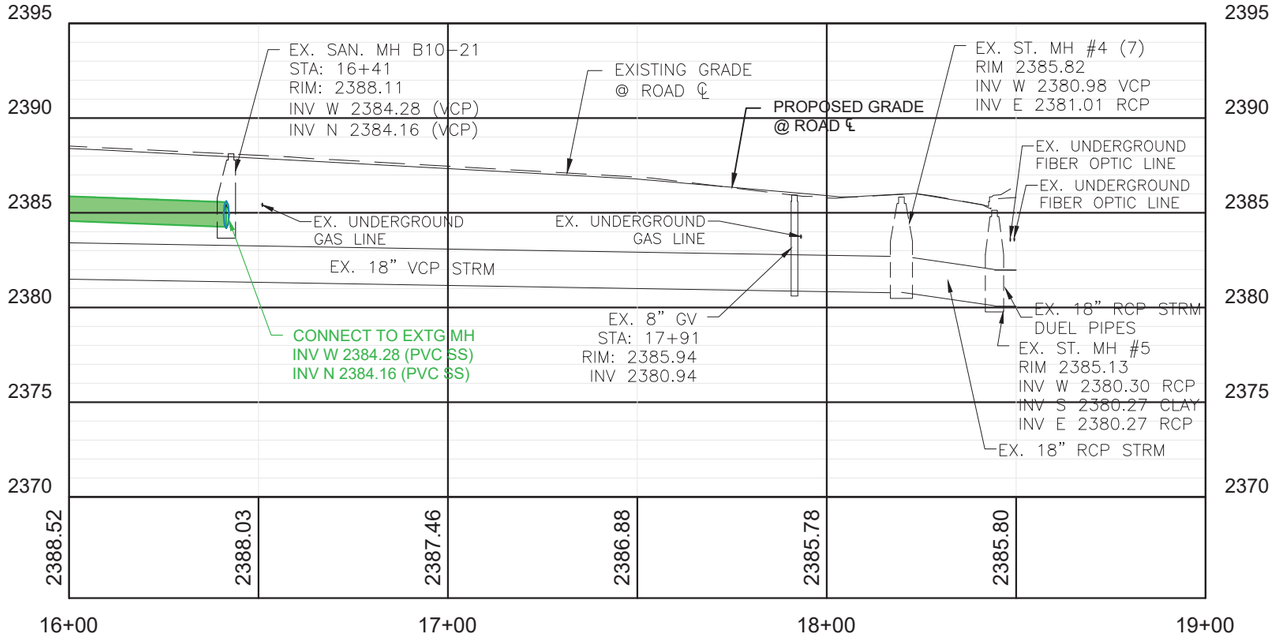
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-04

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 057_Util P&P.dwg





ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
CONNECT TO EXTG SAN. MH	2	EA
CONNECT TO EXTG. SAN. MAIN	1	EA
15IN SANITARY SEWER PIPE SDR 26	71	LF

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. ALL SEWER SERVICES LESS THAN 6' OF COVER SHALL BE INSULATED FROM THE MAIN TO BACK OF CURB.

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 09:05:40-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 16+00 to Sta 20+00

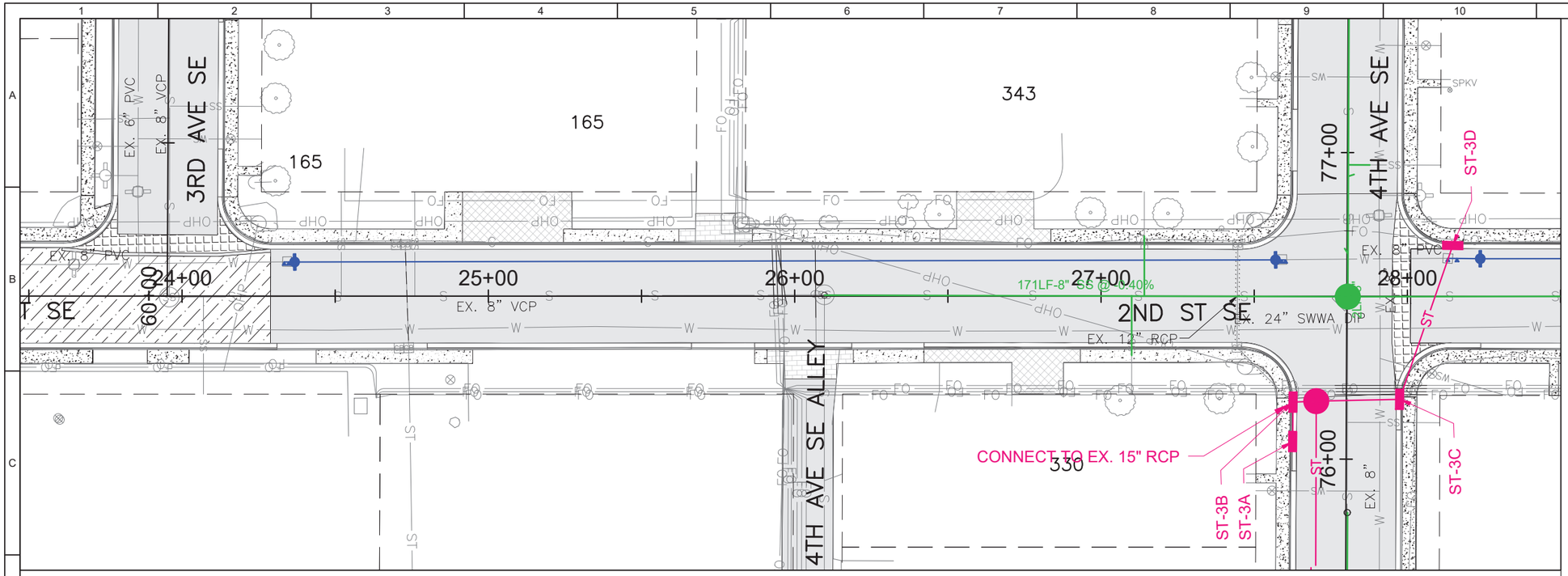
Apex Engineering Group

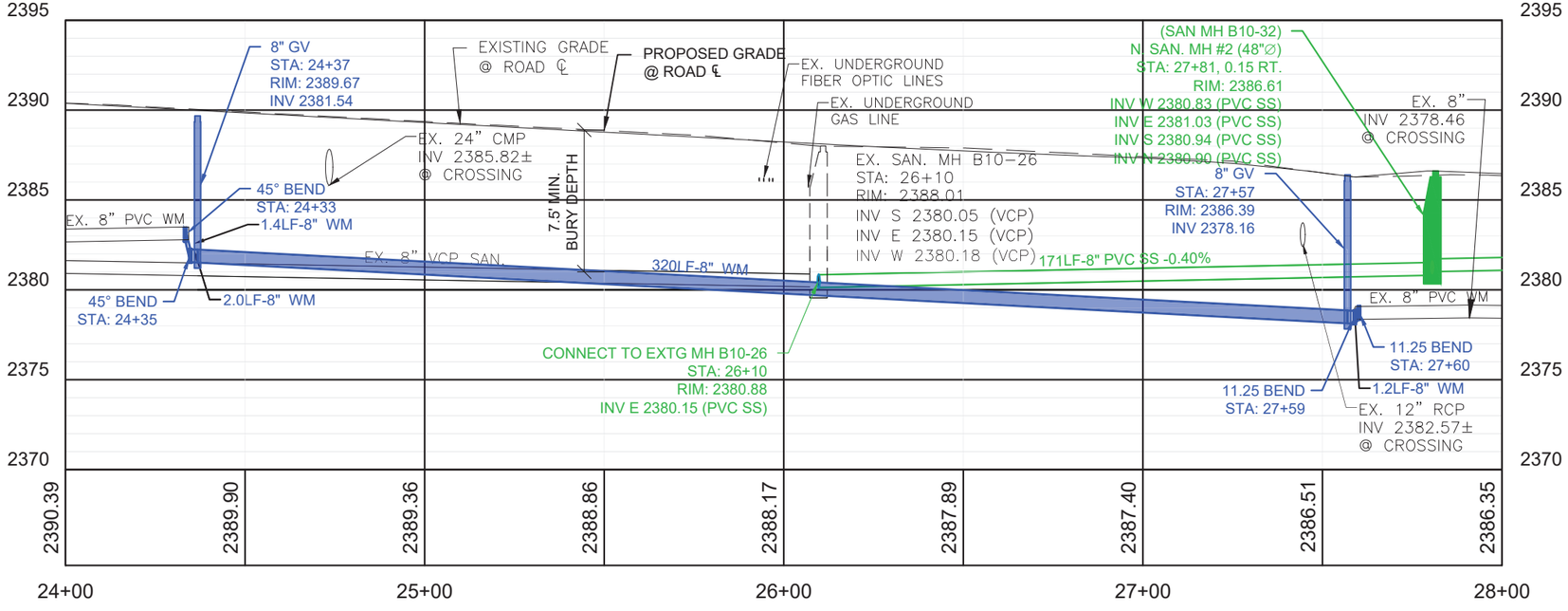
Bismarck - Detroit Lakes -
Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-05

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SANITARY SEWER MANHOLE 48IN	1	EA
CONNECT TO EXTG SAN. MH	1	EA
8IN X 6IN SEWER WYE BRANCH	2	EA
8IN SANITARY SEWER PIPE SDR 35	190	LF
GATE VALVE & BOX 8IN	2	EA
WATERMAIN 8IN PVC	323	LF
FLUSHING SADDLE & CORP 8"	1	EA
VERTICAL OFFSET CONNECT TO EXISTING WM	2	EA
SANITARY SEWER SERVICE CROSSING	3	EA
STORM SEWER CROSSING	3	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. INSULATE BETWEEN SANITARY SEWER AND CATCH BASIN LEAD IF LESS THAN 18".

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 09:05:53-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

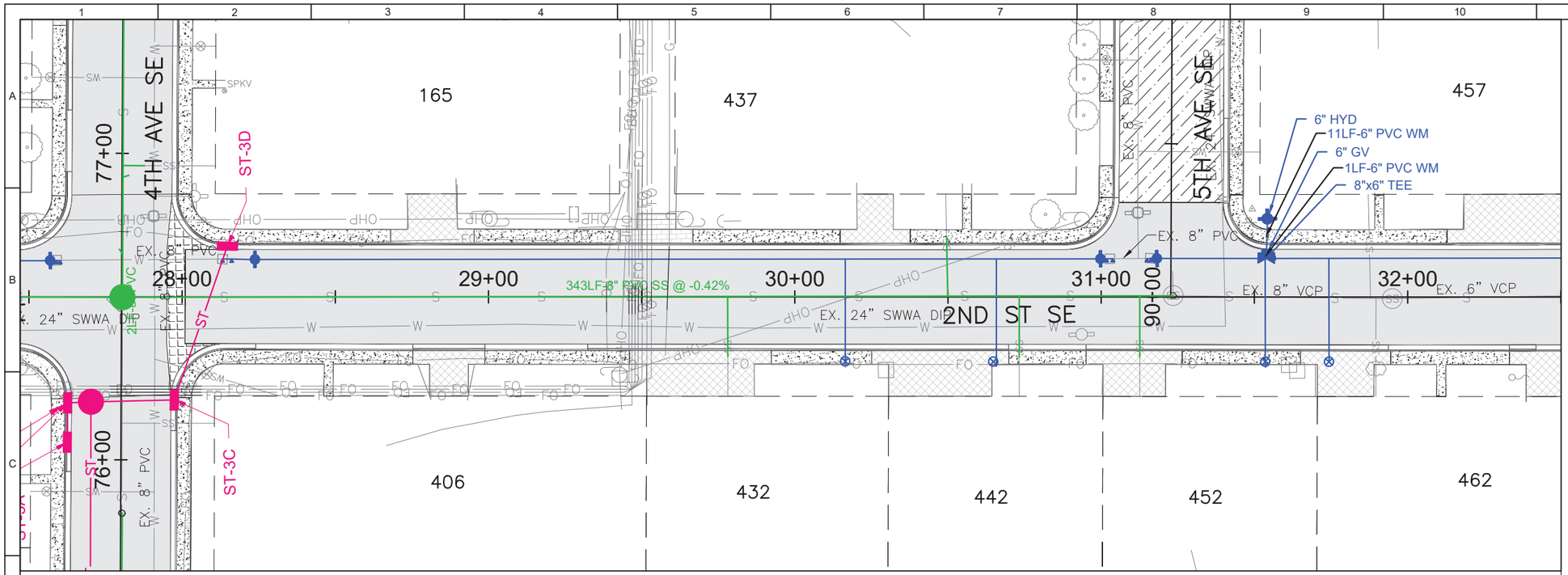
2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 24+00 to Sta 28+00

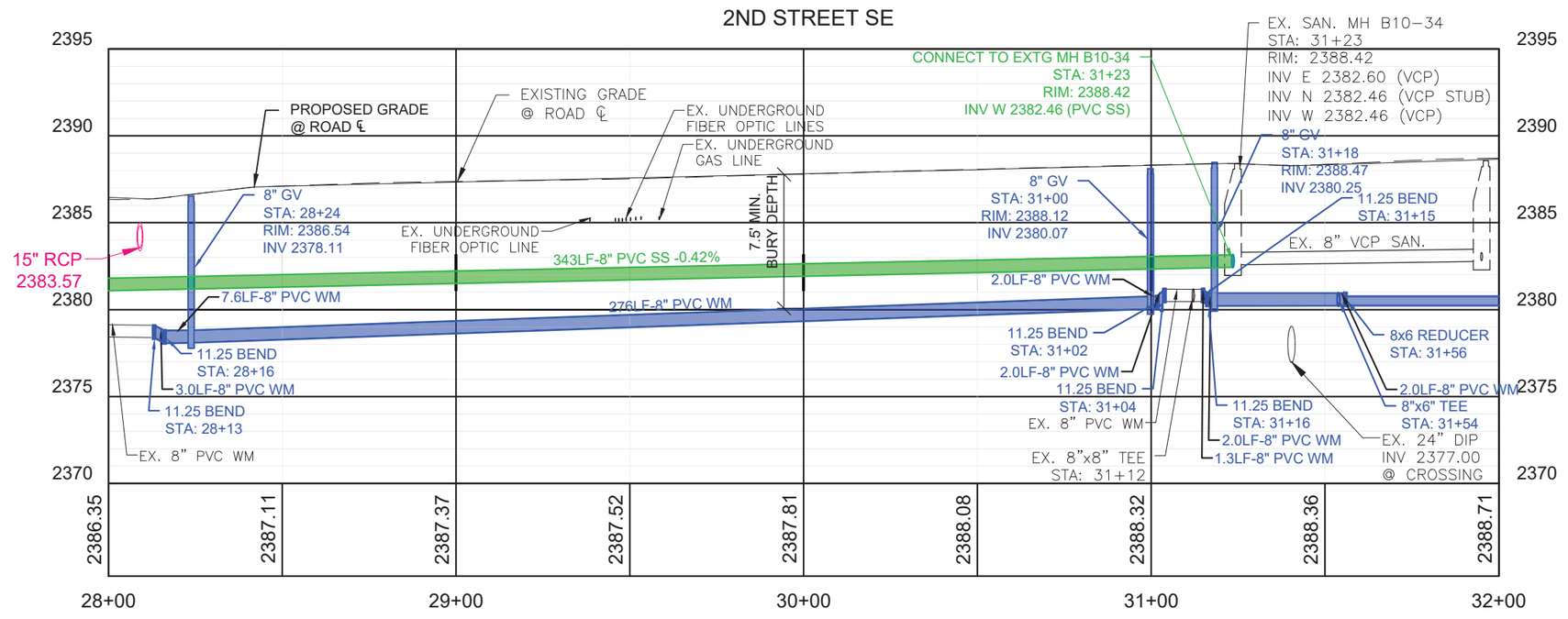
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-06

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 057_Util P&P.dwg





ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
CONNECT TO EXTG SAN. MH	1	EA
8IN X 6IN SEWER WYE BRANCH	3	EA
8IN X 4IN SEWER WYE BRANCH	1	EA
8IN SANITARY SEWER PIPE SDR 35	323	LF
8" X 6" REDUCER	1	EA
CURB STOP & BOX 1IN	4	EA
GATE VALVE & BOX 8IN	3	EA
GATE VALVE & BOX 6IN	1	EA
WATERMAIN 8IN PVC	332	LF
WATERMAIN 6IN PVC	56	LF
SADDLE & CORP 8"	3	EA
SADDLE & CORP 6"	1	EA
FLUSHING SADDLE & CORP 8"	1	EA
WATER SERVICE LINE 1IN POLY	140	LF
VERTICAL OFFSET CONNECT TO EXISTING WM	3	EA
VERTICAL OFFSET CROSSING WM	1	EA
6IN HYDRANT X 8.0' & TEE	1	EA
SANITARY SEWER SERVICE CROSSING	2	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. INSULATE BETWEEN SANITARY SEWER AND CATCH BASIN LEAD IF LESS THAN 18".

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 09:06:06-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 28+00 to Sta 32+00

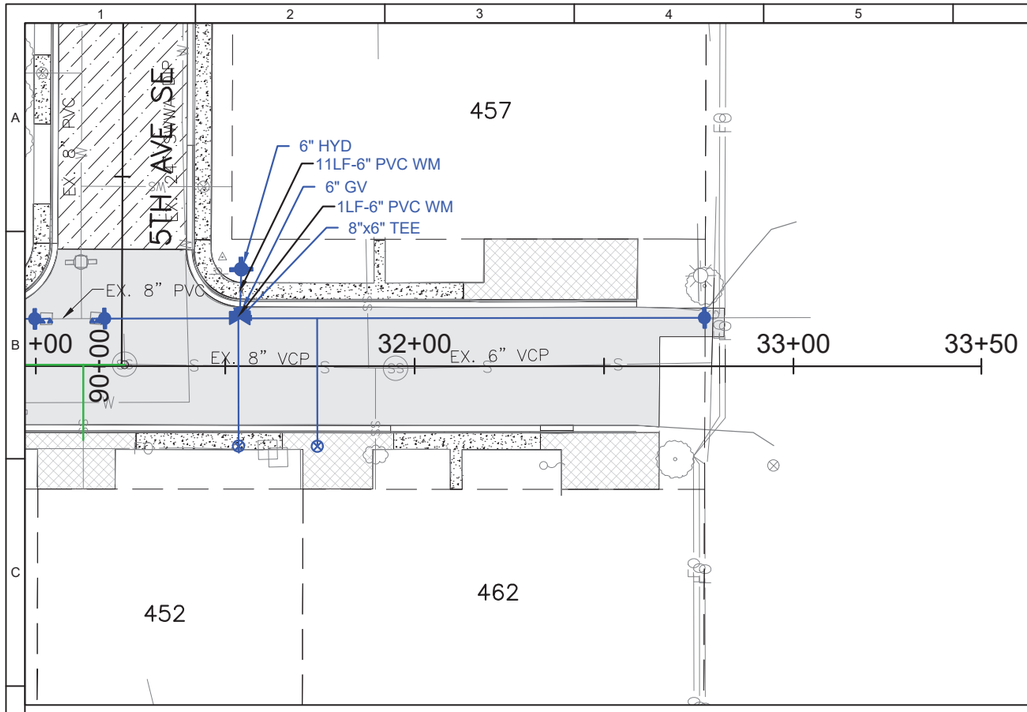
Apex Engineering Group

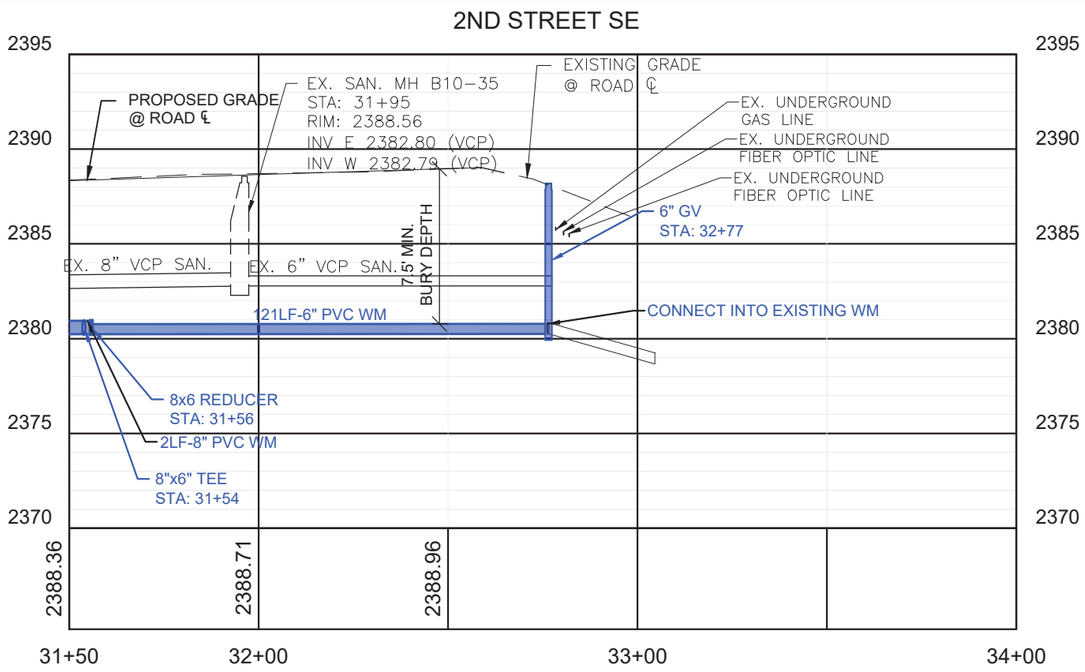
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #:	22.107.0010
Date:	February 2026
Drawn By:	Tanner Sanders
Checked By:	Jon Wilczek
Approved By:	Scott Schneider

Sheet: 57-07

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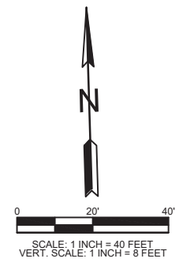


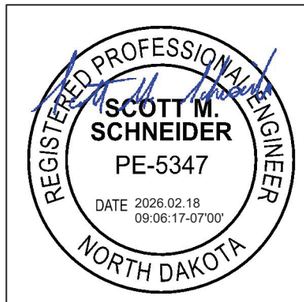
ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
GATE VALVE & BOX 6IN	1	EA
WATERMAIN 6IN PVC	77	LF
FLUSHING SADDLE & CORP 6"	1	EA
RECONNECT SERVICE LINE	1	EA
WATER MAIN CONNECTION (ALL SIZES)	1	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.





REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 31+50 to Sta 34+00

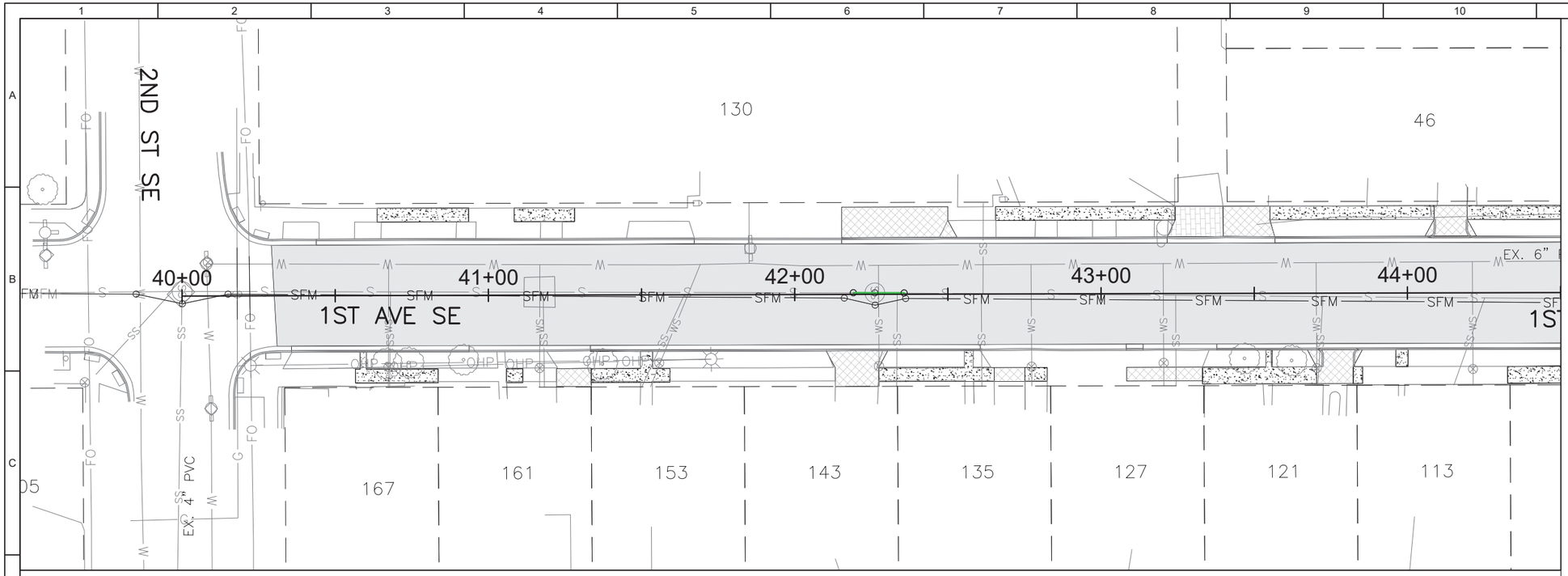
Apex Engineering Group

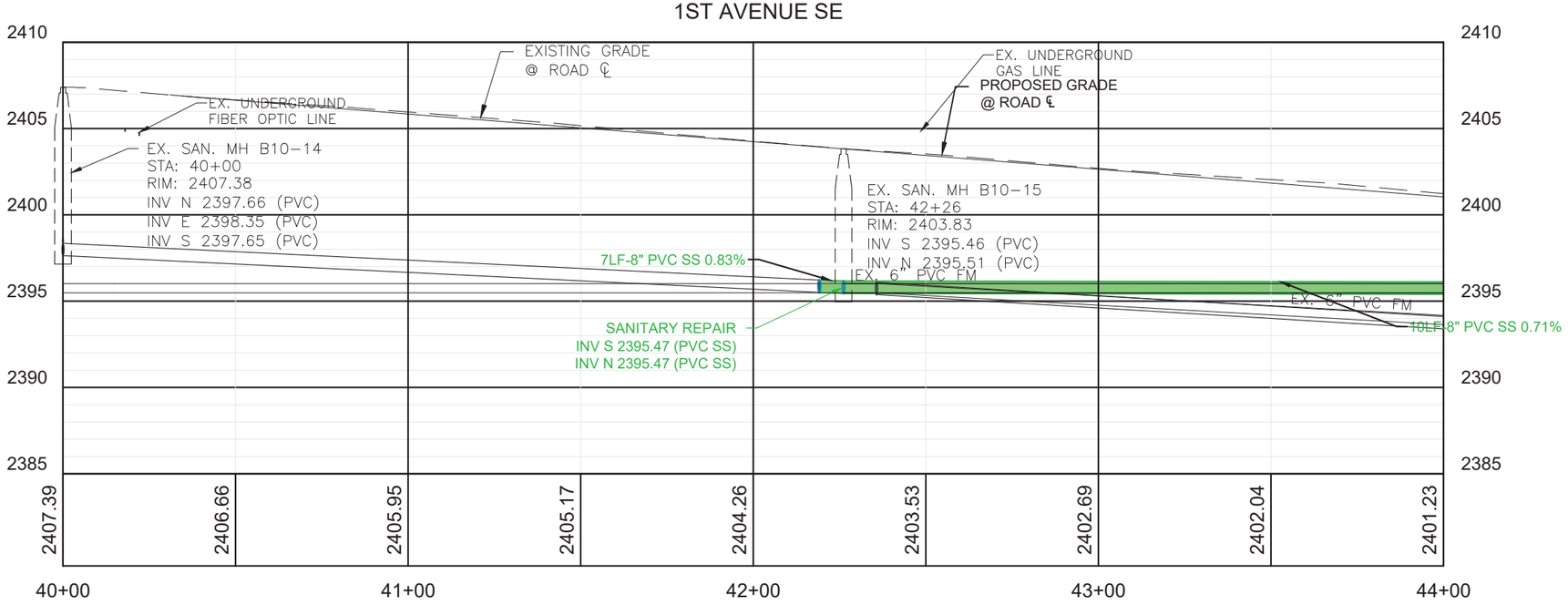
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-08

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 057_Util P&P.dwg





ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SANITARY SEWER MAIN REPAIR AT MH	2	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 09:06:28-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

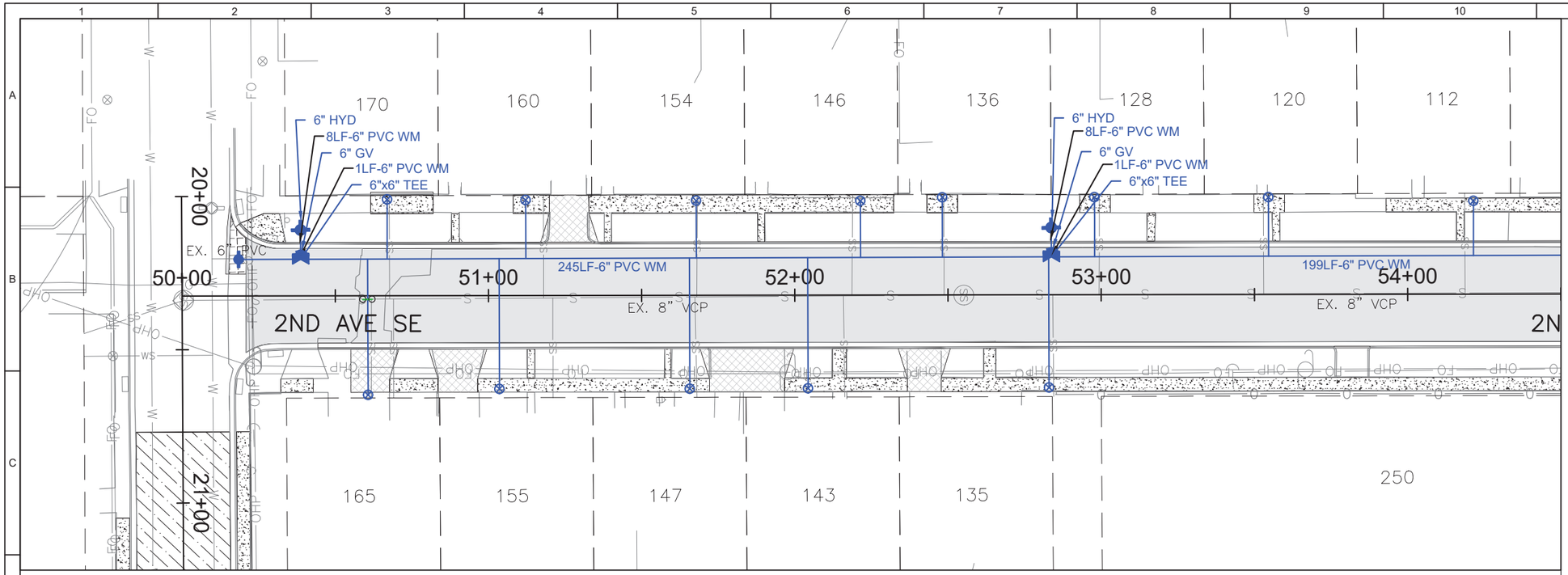
2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 40+00 to Sta 44+00

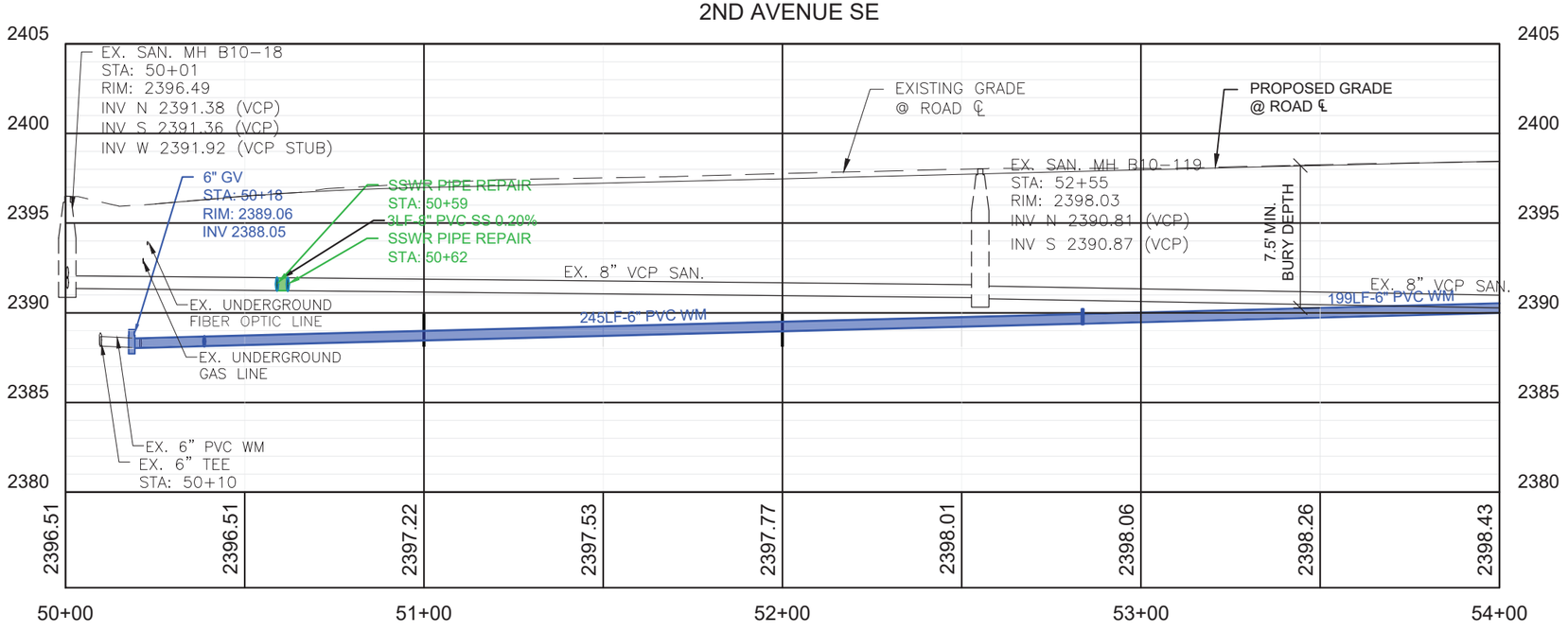
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-09

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SANITARY SEWER MAIN REPAIR	1	EA
CURB STOP & BOX 1IN	12	EA
GATE VALVE & BOX 6IN	3	EA
WATERMAIN 6IN PVC	400	LF
SADDLE & CORP 6"	12	EA
WATER SERVICE LINE 1IN POLY	372	LF
RECONNECT SERVICE LINE	1	EA
WATER MAIN CONNECTION (ALL SIZES)	1	EA
6IN HYDRANT X 8.0' & TEE	2	EA
TYPE A - LEAD SERVICE REPLACEMENT	1	EA
TYPE C - LEAD SERVICE REPLACEMENT	1	EA
SANITARY SEWER SERVICE CROSSING	8	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 09:06:39-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

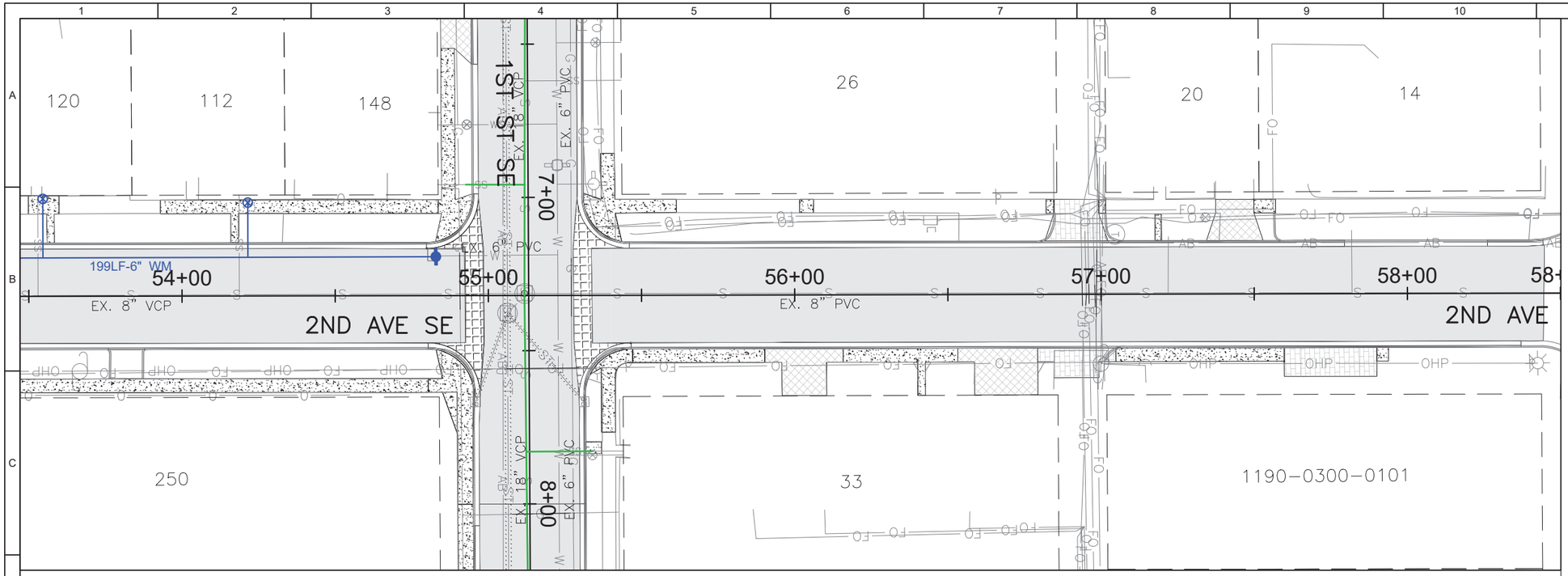
2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 50+00 to Sta 54+00

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-10

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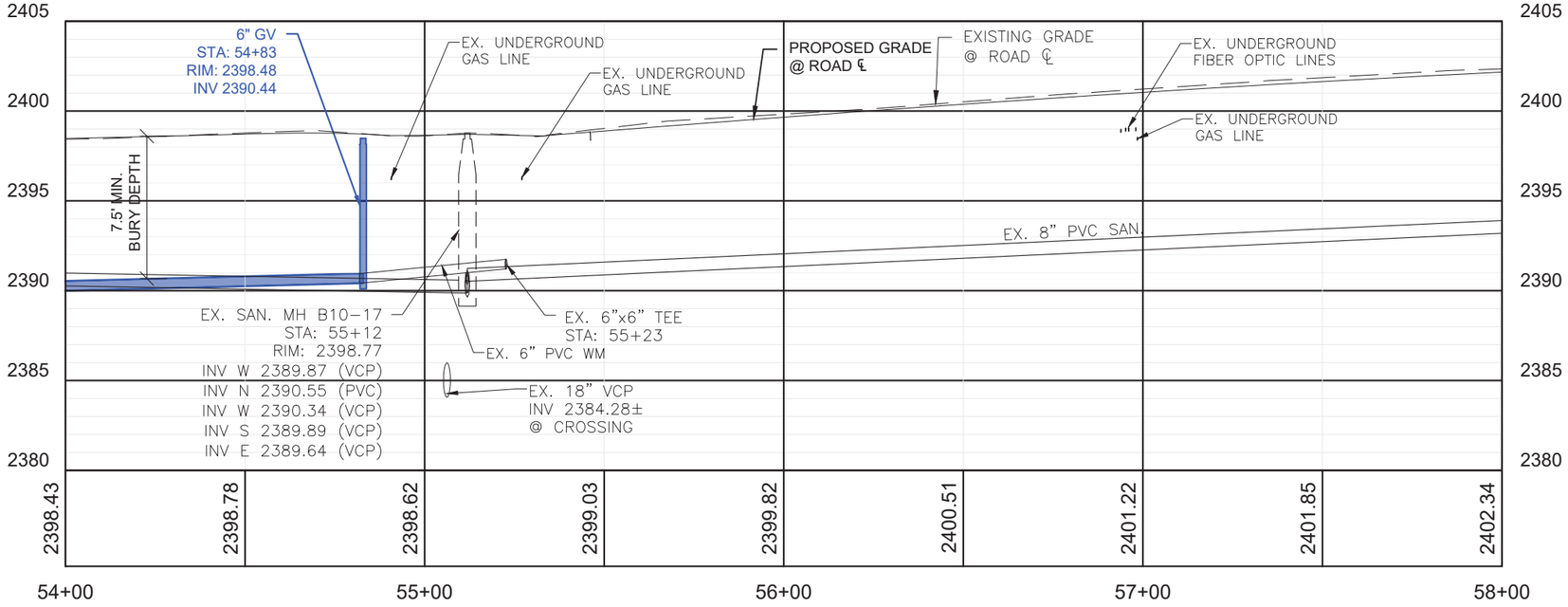


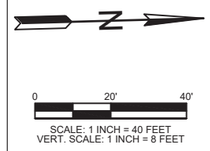
ESTIMATE OF QUANTITIES

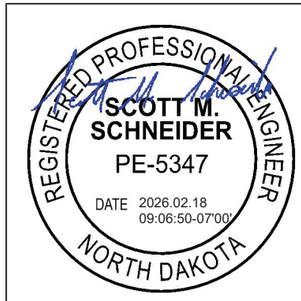
BID ITEM	QTY	UNIT
CURB STOP & BOX 1IN	1	EA
GATE VALVE & BOX 6IN	1	EA
WATERMAIN 6IN PVC	83	LF
SADDLE & CORP 6"	1	EA
WATER SERVICE LINE 1IN POLY	20	LF
WATER MAIN CONNECTION (ALL SIZES)	1	EA
TYPE B - LEAD SERVICE REPLACEMENT	1	EA
SANITARY SEWER SERVICE CROSSING	1	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.







REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 54+00 to Sta 58+00

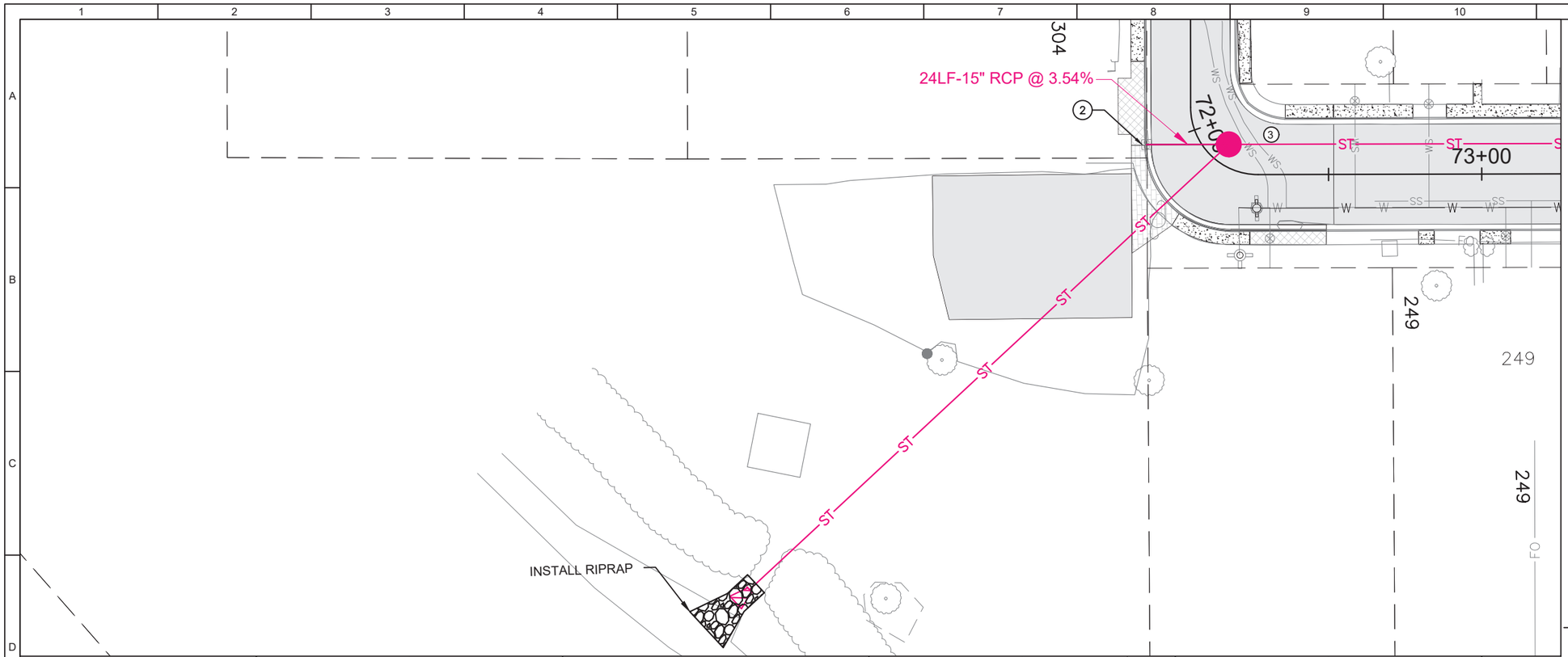
Apex Engineering Group

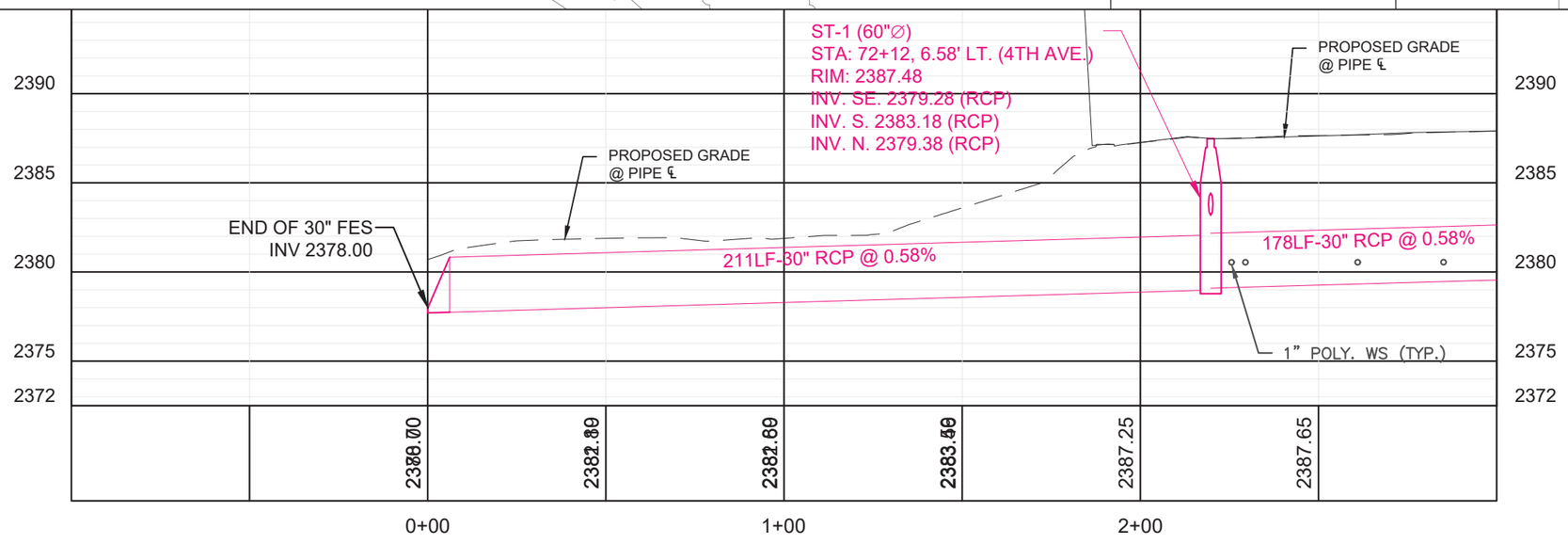
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-11

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
STORM SEWER PIPE - 15IN RCP	24	LF
STORM SEWER PIPE - 30IN RCP	299	LF
MANHOLE 60IN	1	EA
30IN RCP FES	1	EA
RIPRAP CLASS I	1	LSUM

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. CORE HOLE FOR 15" RCP WITH INVERT 2384.13. FILL EXISTING INLET WITH CONCRETE UP TO PROPOSED INVERT.

③ LOWER AND REALIGN SERVICES AS NEEDED TO PROVIDE 18" CLEARANCE ALL DIRECTIONS.

N

0 20' 40'
SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
LEVI L CLAGETT
PE-40749
DATE 2026.02.18 09:46:36-06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

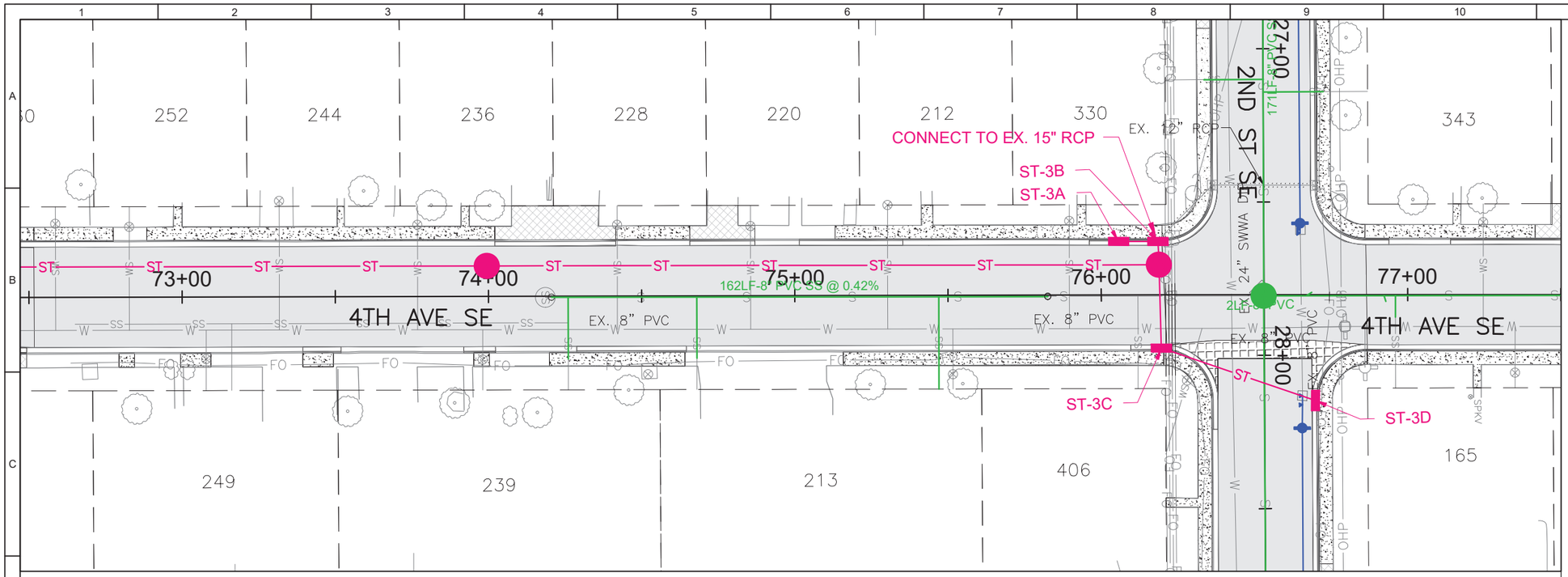
2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE 4TH AVENUE STORM SEWER OUTFALL

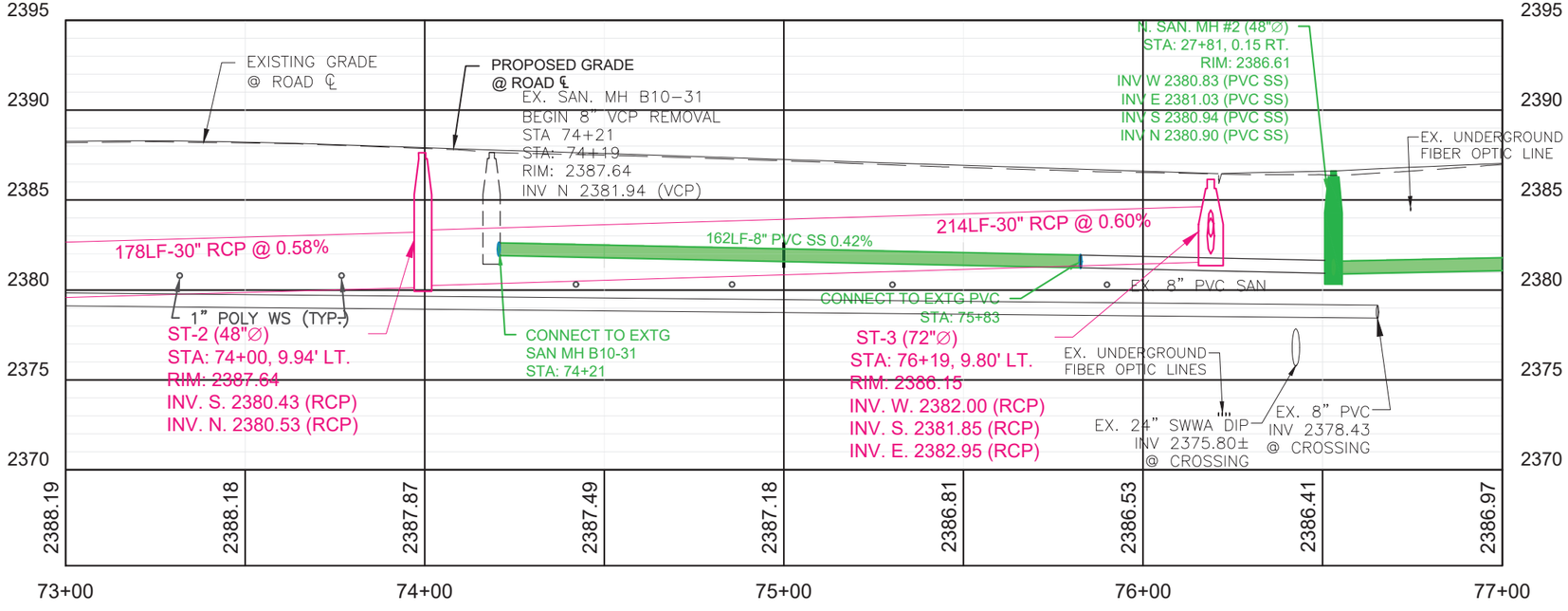
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tyler Madsen
Checked By: Scott Schneider
Approved By: Levi Clagett

Sheet: 57-12

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
CONNECT TO EXTG SAN. MH	1	EA
CONNECT TO EXTG. SAN. MAIN	1	EA
8IN X 6IN SEWER WYE BRANCH	3	EA
8IN X 4IN SEWER WYE BRANCH	1	EA
8IN SANITARY SEWER PIPE SDR 35	164	LF
VERTICAL OFFSET CROSSING WM	1	EA
LOWER WATER SERVICE	4	EA
STORM SEWER PIPE - 15IN RCP	53	LF
STORM SEWER PIPE - 18IN RCP	30	LF
STORM SEWER PIPE - 24IN RCP	4	LF
STORM SEWER PIPE - 30IN RCP	314	LF
MANHOLE 48IN	1	EA
MANHOLE 72IN	1	EA
INLET - TYPE 2	1	EA
INLET - TYPE 2 DOUBLE	3	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. PROVIDE 4IN OF 4'X8' INSULATION BOARD BETWEEN SANITARY AND STORM SEWER AT STA 76+19, 0.0' RT.
3. PROVIDE 18" CLEARANCE BETWEEN WATER SERVICES AND 30" STORM DRAIN.

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
LEVI L CLAGETT
PE-40749
DATE 2026.02.18 09:47:04-06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

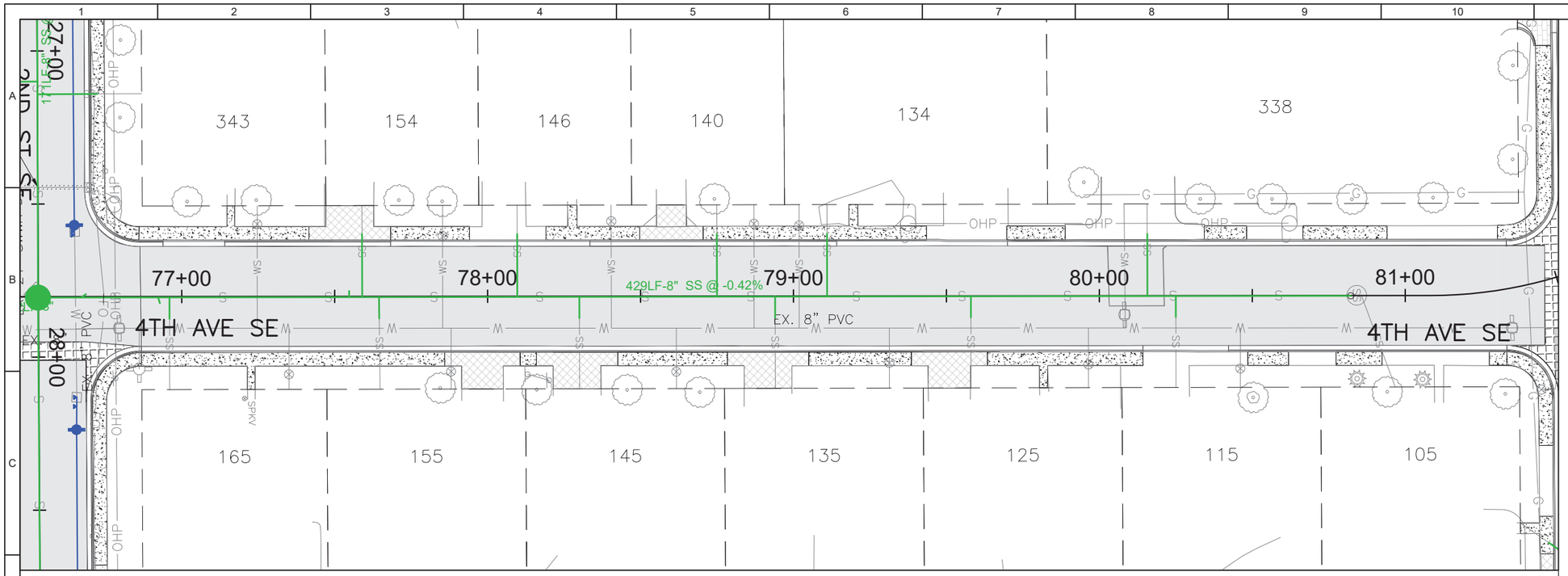
2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 73+00 to Sta 77+00

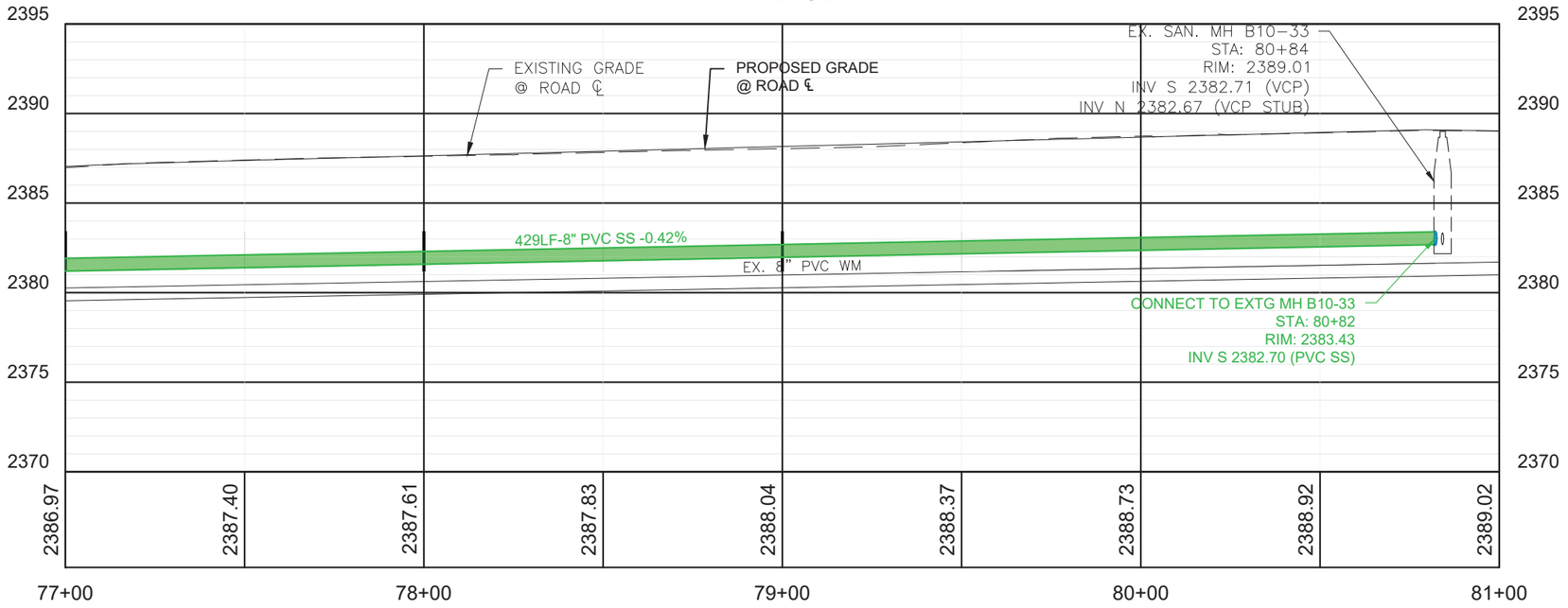
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tyler Madsen
Checked By: Scott Schneider
Approved By: Levi Clagett

Sheet: 57-13

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
CONNECT TO EXTG SAN. MH	1	EA
8IN X 6IN SEWER WYE BRANCH	9	EA
8IN X 4IN SEWER WYE BRANCH	2	EA
8IN SANITARY SEWER PIPE SDR 35	384	LF
LOWER WATER SERVICE	6	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 09:07:08-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

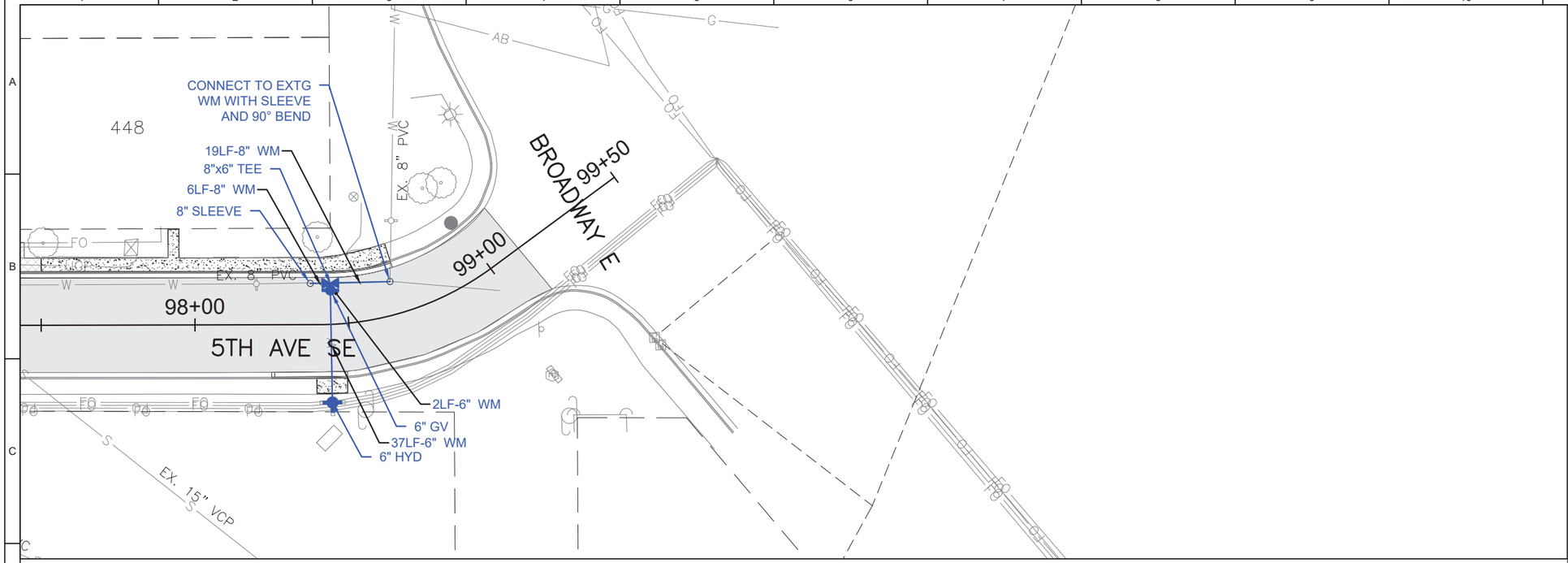
2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 77+00 to Sta 81+00

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Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-14

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
GATE VALVE & BOX 6IN	1	EA
WATERMAIN 8IN PVC	25	LF
WATERMAIN 6IN PVC	37	LF
WATER MAIN CONNECTION (ALL SIZES)	1	EA
6IN HYDRANT X 8.0' & TEE	1	EA
WATERMAIN CONNECTION 5TH & BROADWAY	1	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 09:09:19-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

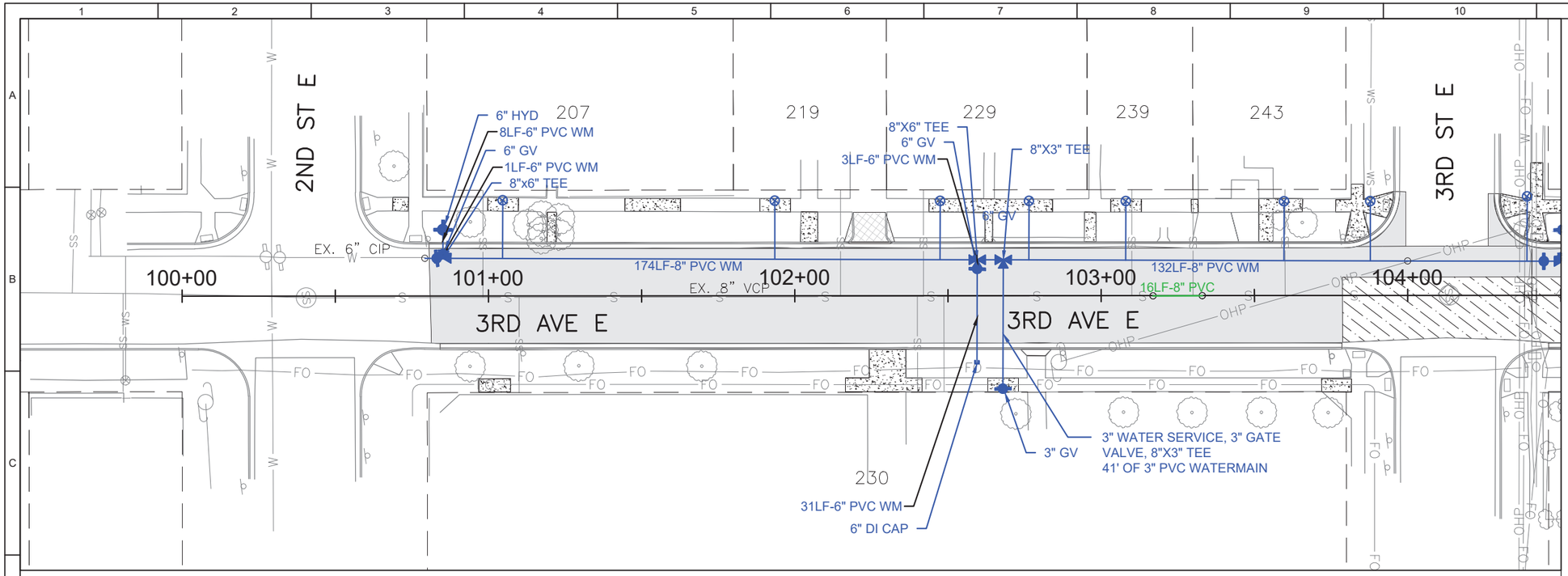
2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY PLAN & PROFILE
Sta 98+00 to Sta 99+50

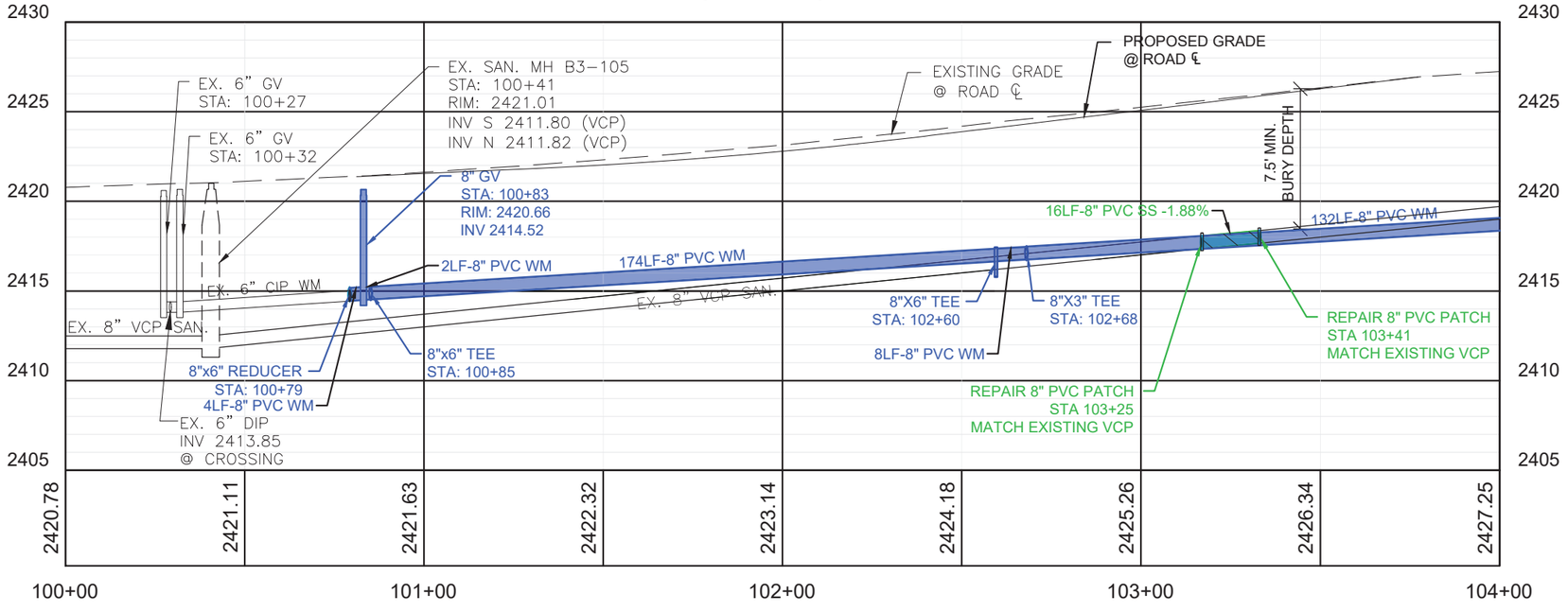
Apex Engineering Group
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Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-15

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SANITARY SEWER MAIN REPAIR	1	EA
8IN X 4IN SEWER WYE BRANCH	1	EA
8" X 6" REDUCER	1	EA
8" X 3" TEE	1	EA
8" X 6" TEE	1	EA
CURB STOP & BOX 1IN	7	EA
GATE VALVE & BOX 8IN	1	EA
GATE VALVE & BOX 6IN	2	EA
GATE VALVE & BOX 3IN	1	EA
WATERMAIN 8IN PVC	321	LF
WATERMAIN 6IN PVC	43	LF
WATERMAIN 3IN PVC	41	LF
WATER SERVICE LINE 1IN POLY	154	LF
WATER MAIN CONNECTION (ALL SIZES)	2	EA
6IN HYDRANT X 8.0' & TEE	1	EA
TYPE A - LEAD SERVICE REPLACEMENT	1	EA
SANITARY SEWER SERVICE CROSSING	5	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.

0 20' 40'
SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 09:07:25-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

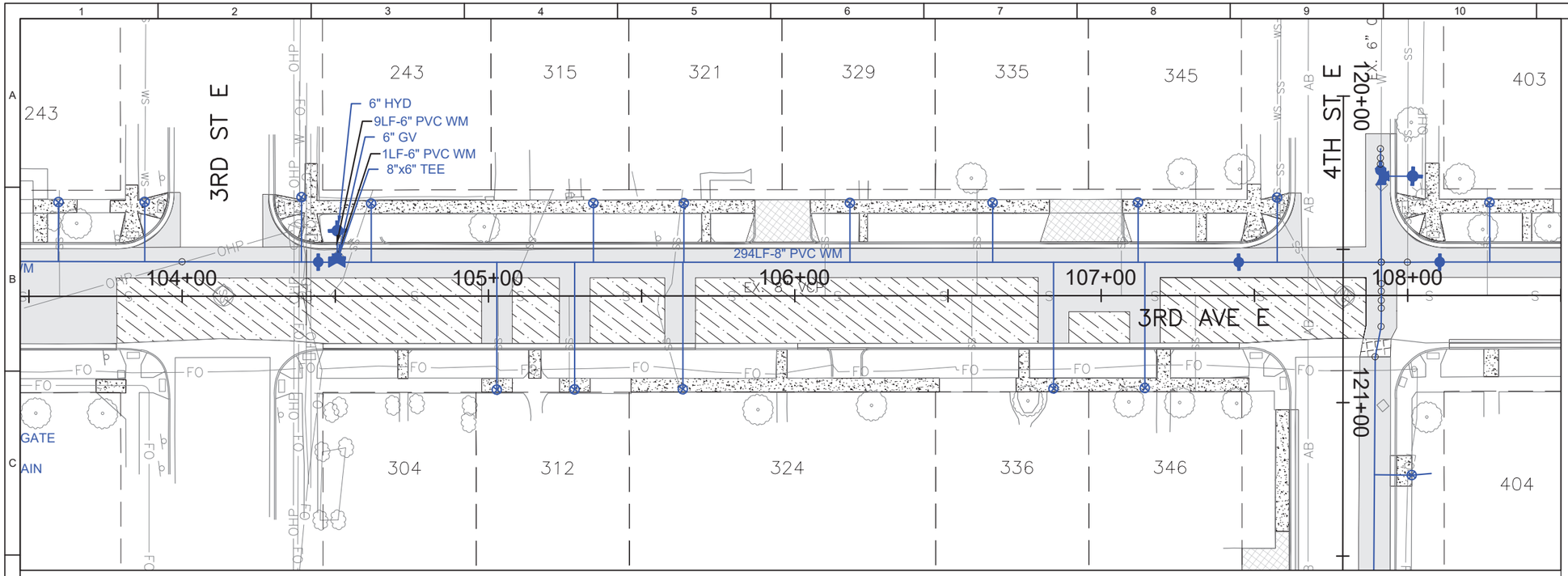
2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 100+00 to Sta 104+00

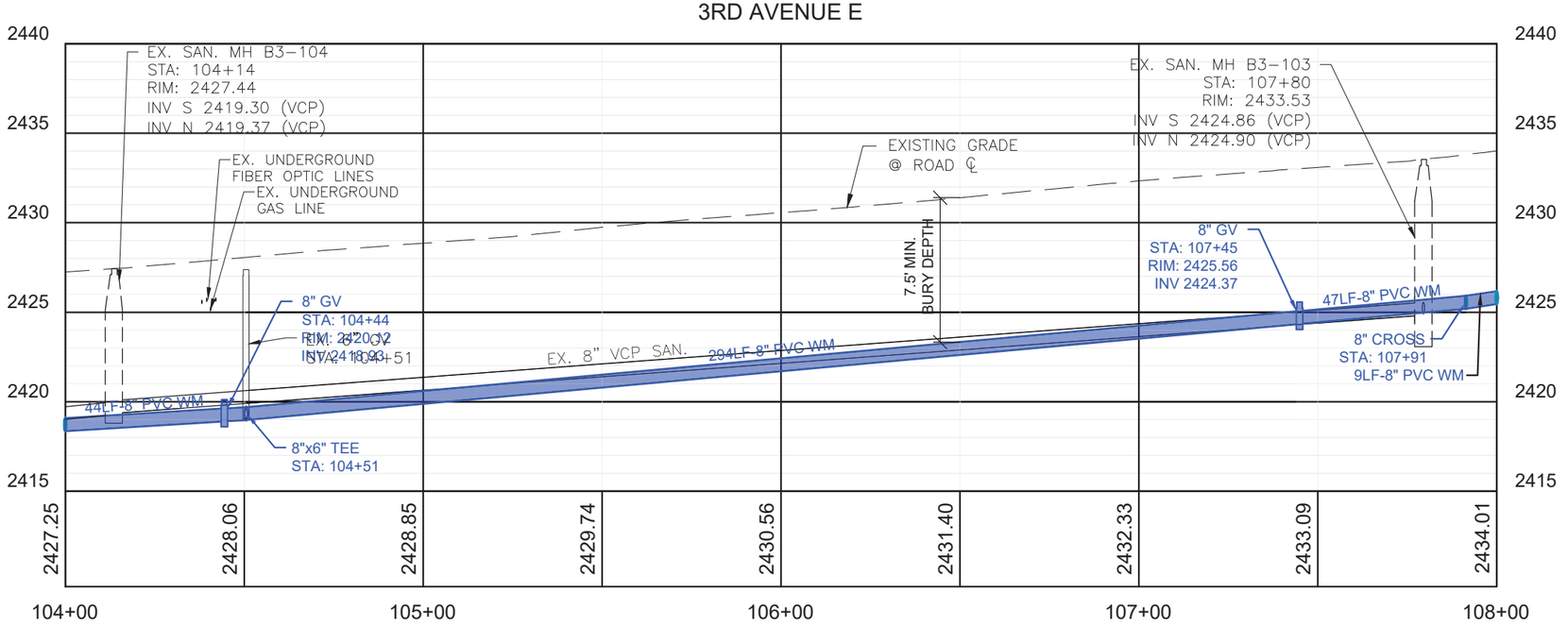
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
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www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-16

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
CURB STOP & BOX 1IN	13	EA
GATE VALVE & BOX 8IN	2	EA
GATE VALVE & BOX 6IN	1	EA
WATERMAIN 8IN PVC	400	LF
WATERMAIN 6IN PVC	10	LF
SADDLE & CORP 8"	13	EA
WATER SERVICE LINE 1IN POLY	389	LF
6IN HYDRANT X 8.0' & TEE	1	EA
TYPE A - LEAD SERVICE REPLACEMENT	1	EA
TYPE B - LEAD SERVICE REPLACEMENT	1	EA
TYPE C - LEAD SERVICE REPLACEMENT	1	EA
SANITARY SEWER SERVICE CROSSING	7	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 09:07:35-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

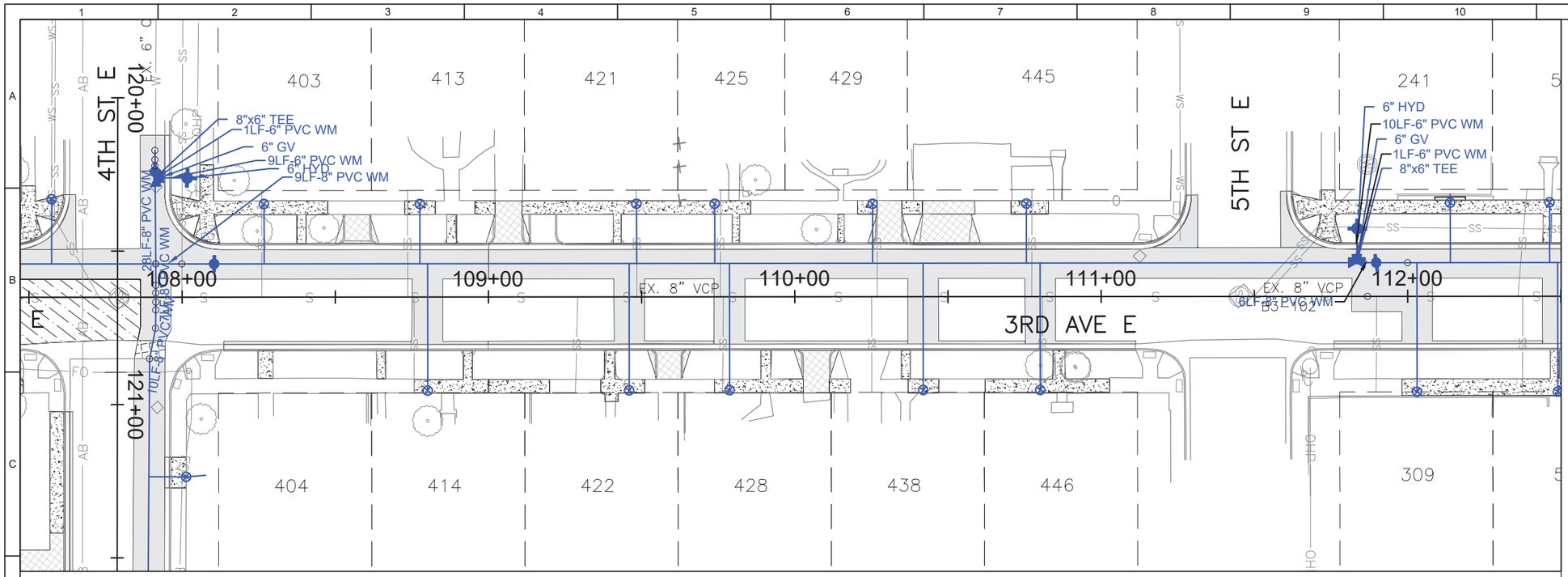
2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 104+00 to Sta 108+00

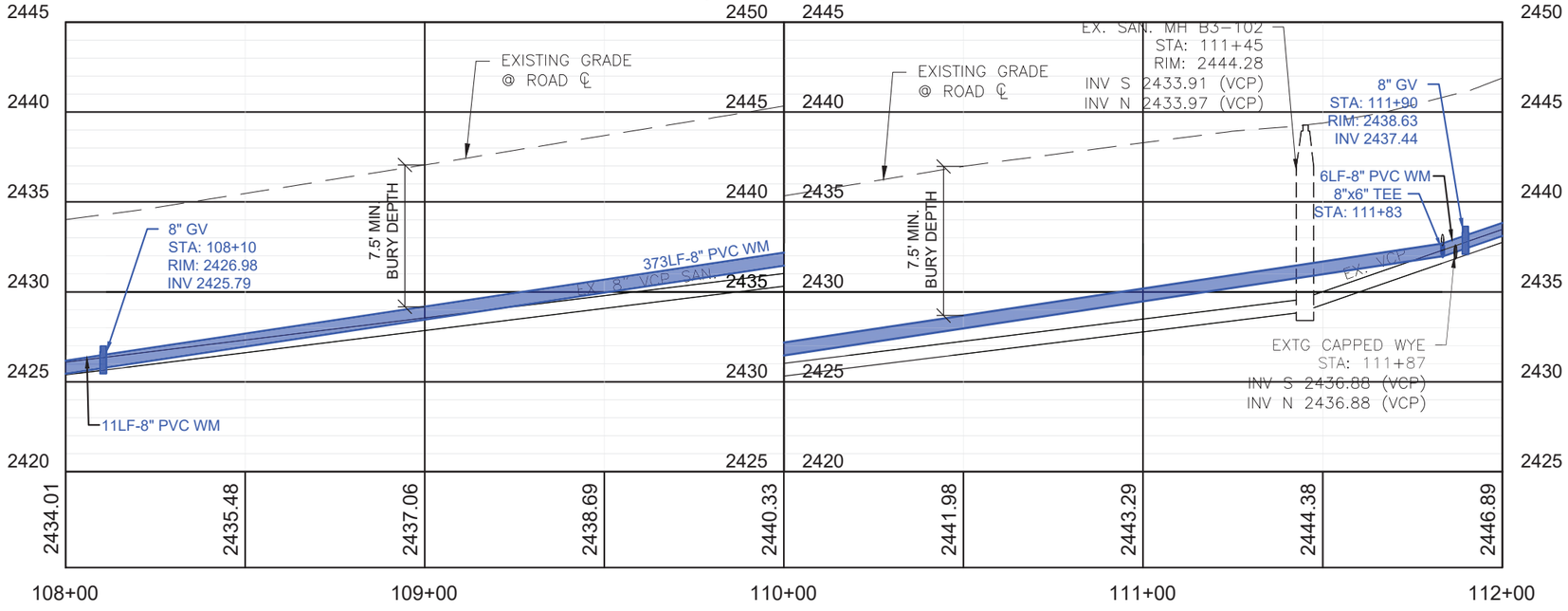
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
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Dickinson, North Dakota 58601
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Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-17

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
CURB STOP & BOX 1IN	11	EA
GATE VALVE & BOX 8IN	2	EA
GATE VALVE & BOX 6IN	1	EA
WATERMAIN 8IN PVC	400	LF
WATERMAIN 6IN PVC	11	LF
SADDLE & CORP 8"	11	EA
WATER SERVICE LINE 1IN POLY	344	LF
TYPE A - LEAD SERVICE REPLACEMENT	2	EA
TYPE B - LEAD SERVICE REPLACEMENT	1	EA
SANITARY SEWER SERVICE CROSSING	6	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.

N

0 20' 40'

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 09:07:45-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

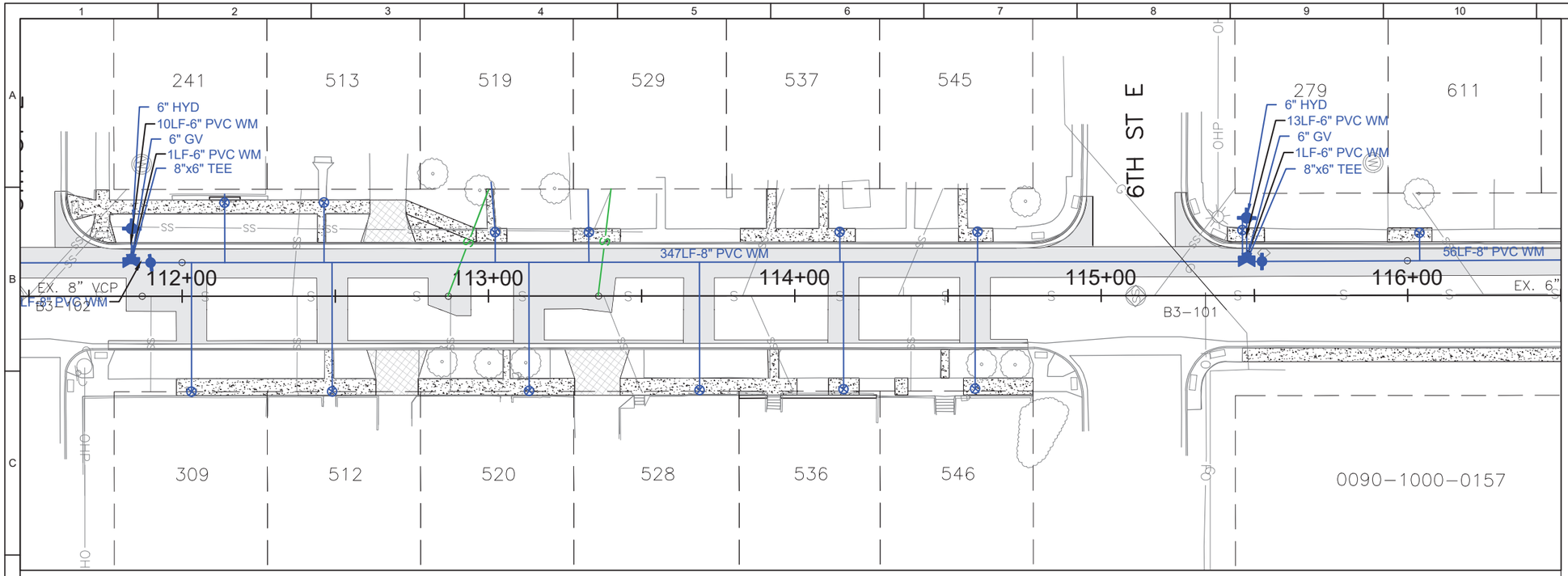
2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 108+00 to Sta 112+00

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
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Office: 701-264-3939
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Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-18

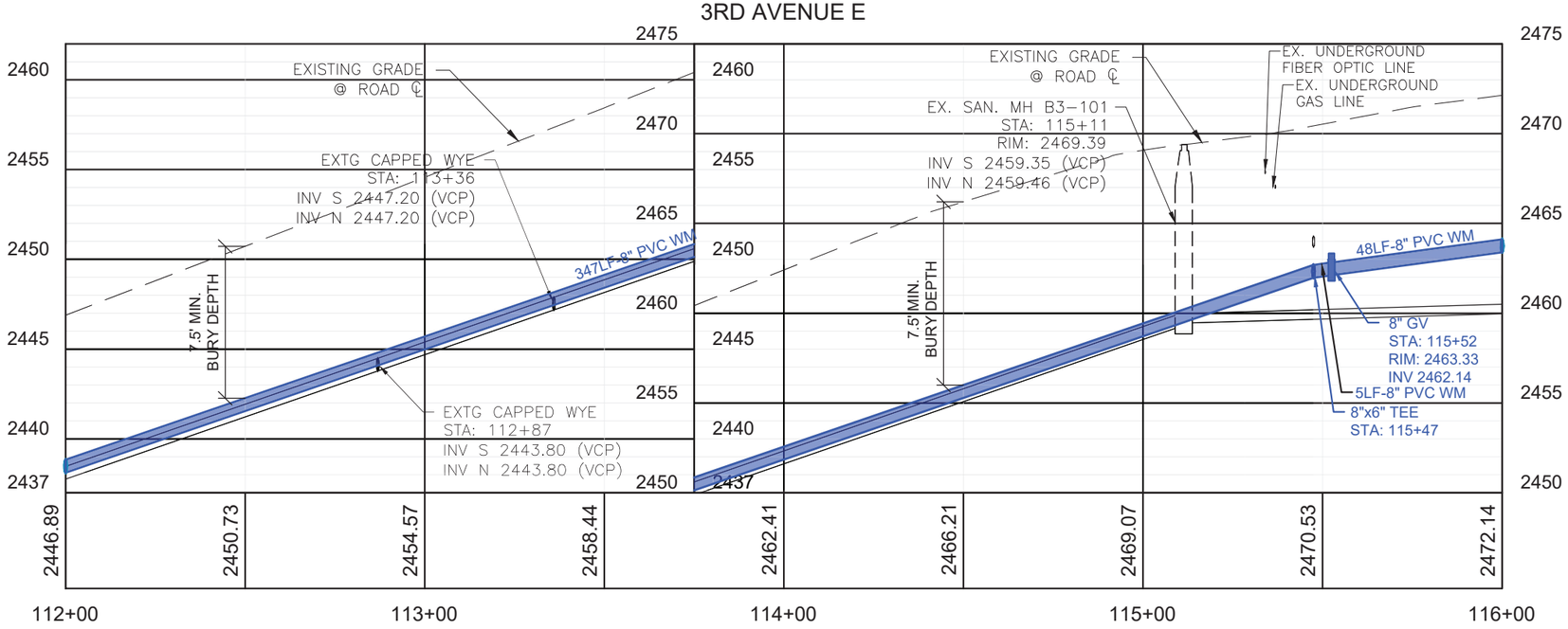
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ESTIMATE OF QUANTITIES

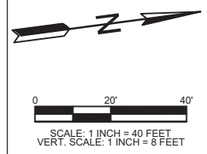
BID ITEM	QTY	UNIT
SEWER SERVICE - 519 3RD AVE E	1	LSUM
SEWER SERVICE - 529 3RD AVE E	1	LSUM
8IN X 6IN SEWER WYE BRANCH	1	EA
8IN X 4IN SEWER WYE BRANCH	1	EA
CURB STOP & BOX 1IN	13	EA
GATE VALVE & BOX 8IN	1	EA
GATE VALVE & BOX 6IN	1	EA
WATERMAIN 8IN PVC	400	LF
WATERMAIN 6IN PVC	14	LF
SADDLE & CORP 8"	13	EA
WATER SERVICE LINE 1IN POLY	362	LF
6IN HYDRANT X 8.0' & TEE	1	EA
TYPE B - LEAD SERVICE REPLACEMENT	1	EA
SANITARY SEWER SERVICE CROSSING	5	EA

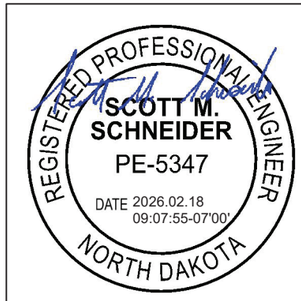
3RD AVENUE E



CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.
2. SANITARY SEWER EXPLORATORY EXCAVATION SHALL BE COMPLETED AT THE ROW LINE TO VERIFY GRADE PRIOR TO SERVICES BEING INSTALLED.





REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 112+00 to Sta 116+00

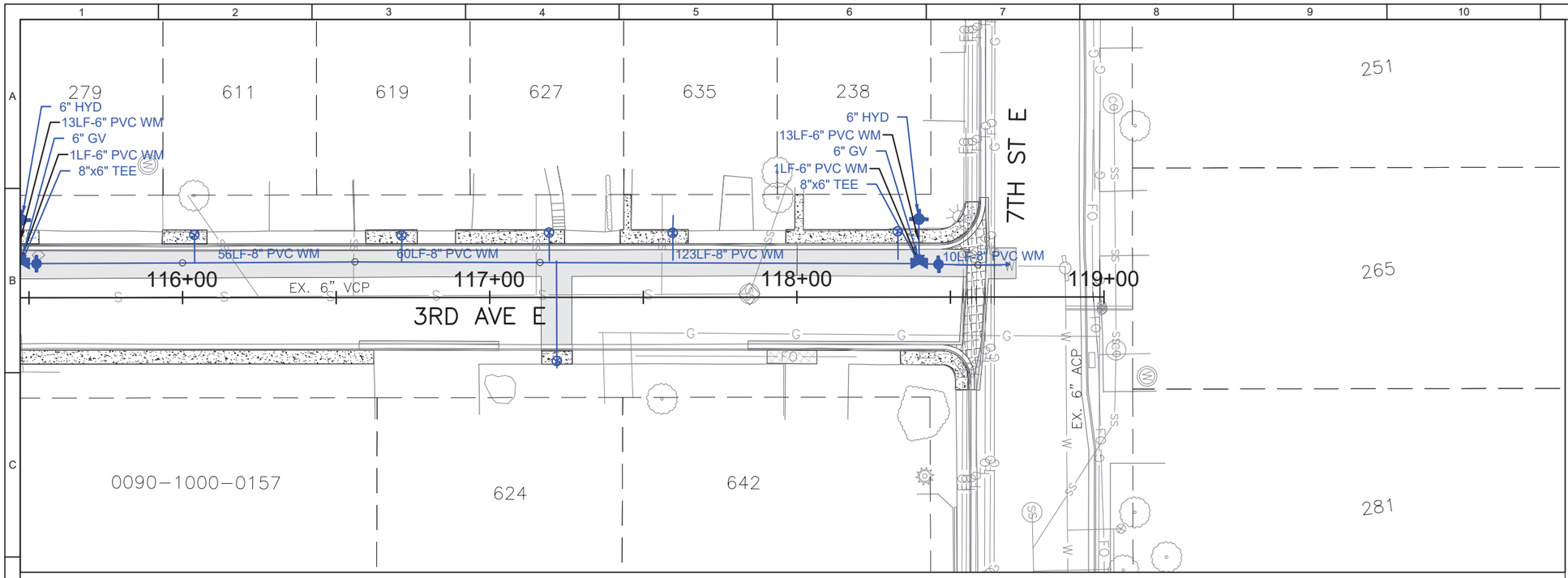
Apex Engineering Group

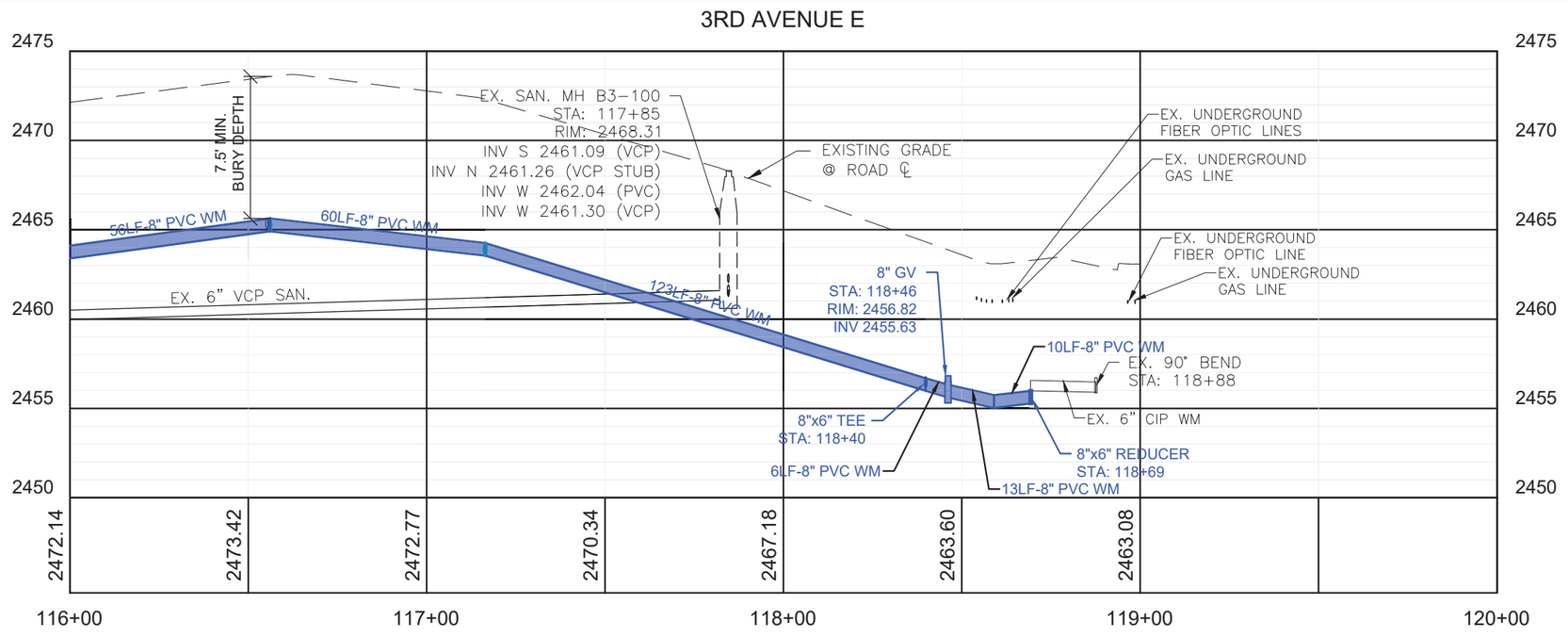
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #:	22.107.0010
Date:	February 2026
Drawn By:	Tanner Sanders
Checked By:	Jon Wilczek
Approved By:	Scott Schneider

Sheet: 57-19

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
8" X 6" REDUCER	1	EA
CURB STOP & BOX 1IN	6	EA
GATE VALVE & BOX 8IN	1	EA
GATE VALVE & BOX 6IN	1	EA
WATERMAIN 8IN PVC	268	LF
WATERMAIN 6IN PVC	14	LF
SADDLE & CORP 8"	6	EA
WATER SERVICE LINE 1IN POLY	92	LF
VERTICAL OFFSET CONNECT TO EXISTING WM	1	EA
SANITARY SEWER SERVICE CROSSING	4	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 09:08:06-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

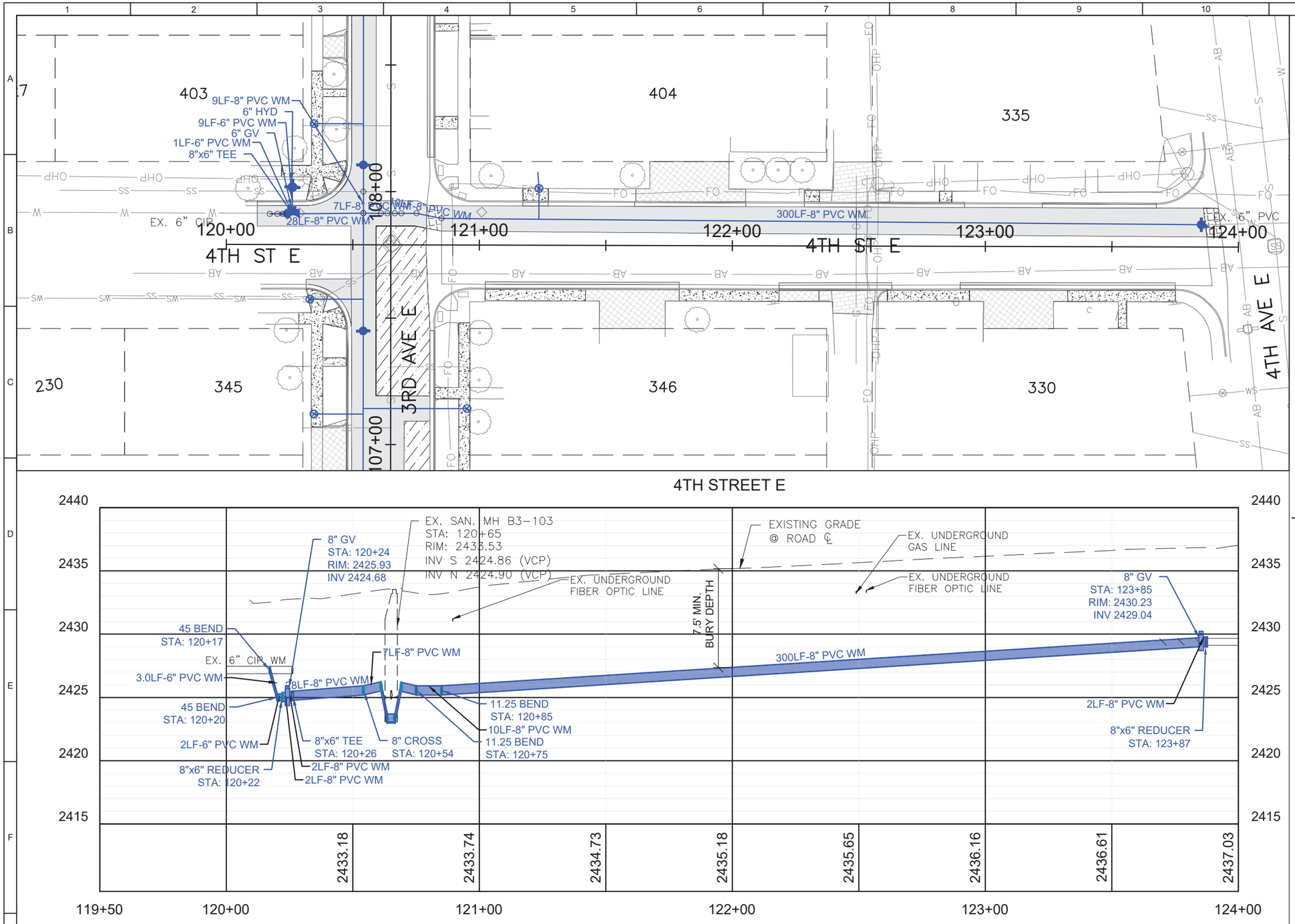
2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 116+00 to Sta 120+00

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Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-20

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
8" X 8" CROSS	1	EA
8" X 6" REDUCER	2	EA
CURB STOP & BOX 1IN	1	EA
WATERMAIN 8IN PVC	368	LF
WATERMAIN 6IN PVC	10	LF
WATER SERVICE LINE 1IN POLY	13	LF
WATER MAIN CONNECTION (ALL SIZES)	1	EA
VERTICAL OFFSET CONNECT TO EXISTING WM	1	EA
HORIZONTAL OFFSET WM	1	EA
VERTICAL OFFSET CROSSING WM	1	EA
6IN HYDRANT X 8.0' & TEE	1	EA

CONSTRUCTION NOTES

1. SEE SECTION 6 SHEETS FOR REPETITIVE GENERAL NOTES.

SCALE: 1 INCH = 40 FEET
VERT. SCALE: 1 INCH = 8 FEET

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 09:08:19-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

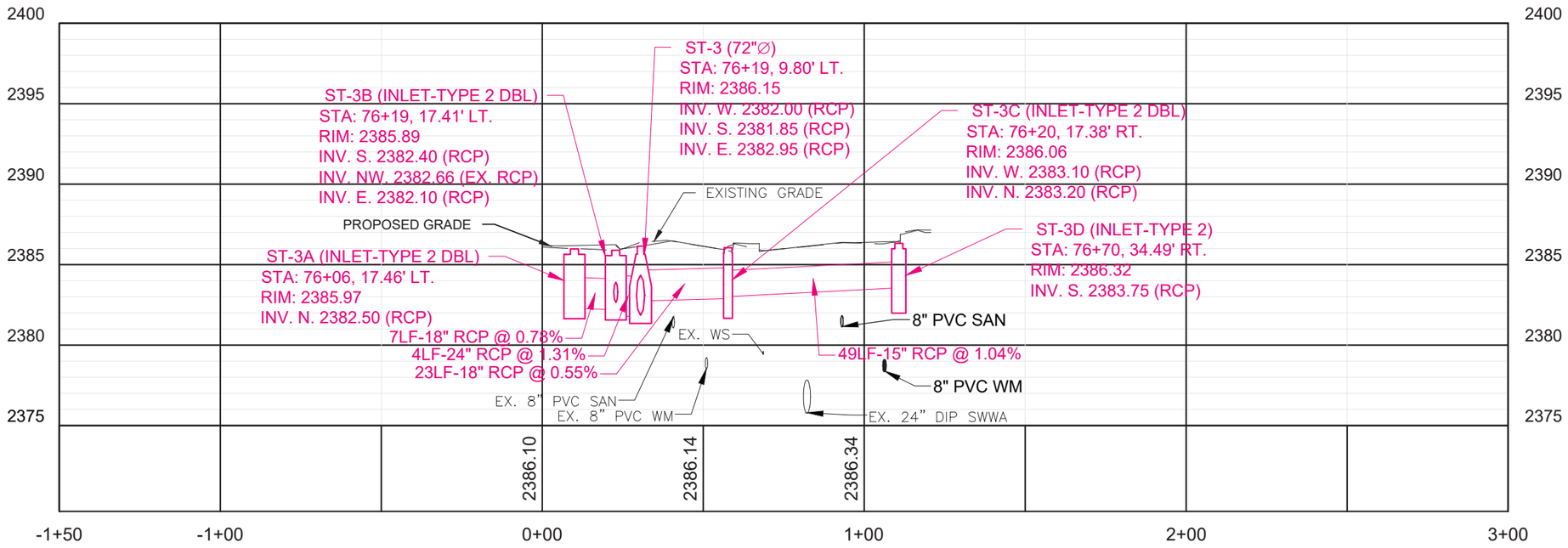
2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE Sta 120+00 to Sta 124+00

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Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-21

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REGISTERED PROFESSIONAL ENGINEER
LEVI L CLAGETT
PE-40749
DATE 2026.02.18 09:55:17-06'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT STORM LEAD STRUCTURES ST-3A TO ST-3D

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
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Project #: 22.107.0010
Date: February 2026
Drawn By: Tyler Madsen
Checked By: Scott Schneider
Approved By: Levi Clagett

Sheet: 57-22

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57-01

WATER SERVICE SUMMARY			
CURBSTOP STATION	ADDRESS	LENGTH (FT)	EXISTING WATER SERVICE TYPE
0+91	109 SOUTH MAIN	38	1" COPPER
1+71	20 1ST ST SE	38	1" POLY
1+90	28 1ST ST SE	38	3/4" POLY
2+52	1200-0100-0500	38	UNKNOWN
2+98	43 1ST ST SE	18	3/4" COPPER
3+09	46 1ST ST SE	38	1" POLY

57-03

WATER SERVICE SUMMARY			
CURBSTOP STATION	ADDRESS	LENGTH (FT)	EXISTING WATER SERVICE TYPE
11+41	45 3RD AVE SE	17	3/4" COPPER

57-04

WATER SERVICE SUMMARY			
CURBSTOP STATION	ADDRESS	LENGTH (FT)	EXISTING WATER SERVICE TYPE
12+36	319 1ST ST SE	16	1" COPPER
12+98	327 1ST ST SE	16	3/4" COPPER
13+38	333 1ST ST SE	17	3/4" COPPER
14+09	347 1ST ST SE	17	1" POLY

57-07

WATER SERVICE SUMMARY			
CURBSTOP STATION	ADDRESS	LENGTH (FT)	EXISTING WATER SERVICE TYPE
30+16	432 2ND ST SE	33	1" COPPER
30+65	442 2ND ST SE	33	1" COPPER
31+54	457 2ND ST SE INV IN S = 2380.252	14	6" HYD
31+54	452 2ND ST SE	33	3/4" COPPER
31+74	462 2ND ST SE	33	1" COPPER

57-10

WATER SERVICE SUMMARY			
CURBSTOP STATION	ADDRESS	LENGTH (FT)	EXISTING WATER SERVICE TYPE
50+61	165 2ND AVE SE	45	1" POLY
50+67	170 2ND AVE SE	19	1" COPPER
51+04	155 2ND AVE SE	43	3/4" COPPER
51+12	160 2ND AVE SE	19	COPPER
51+66	147 2ND AVE SE	43	1" POLY
51+68	154 2ND AVE SE	18	3/4" COPPER
52+04	143 2ND AVE SE	43	3/4" COPPER
52+21	146 2ND AVE SE	18	LEAD
52+48	136 2ND AVE SE	19	1" POLY
52+83	135 2ND AVE SE	43	LEAD
52+98	128 2ND AVE SE	19	3/4" COPPER
53+55	120 2ND AVE SE	19	1" POLY

57-11

WATER SERVICE SUMMARY			
CURBSTOP STATION	ADDRESS	LENGTH (FT)	EXISTING WATER SERVICE TYPE
54+22	112 2ND AVE SE	18	LEAD

57-16

WATER SERVICE SUMMARY			
CURBSTOP STATION	ADDRESS	LENGTH (FT)	EXISTING WATER SERVICE TYPE
101+05	207 3RD AVE E	20	1" COPPER
101+94	219 3RD AVE E	20	1" COPPER
102+47	229 3RD AVE E	20	1" COPPER
102+76	229(1) 3RD AVE E	20	1" COPPER
103+08	239 3RD AVE E	20	1" POLY
103+60	243 3RD AVE E	20	LEAD
103+88	230 3RD ST E	20	3/4" COPPER

57-17

WATER SERVICE SUMMARY			
CURBSTOP STATION	ADDRESS	LENGTH (FT)	EXISTING WATER SERVICE TYPE
104+39	217 3RD ST E	21	3/4" COPPER
104+62	243 3RD ST E	19	LEAD
105+03	304 3RD AVE E	42	1" COPPER
105+28	312 3RD AVE E	42	3/4" COPPER
105+34	315 3RD AVE E	19	3/4" COPPER
105+63	324 3RD AVE E	41	1" POLY
105+64	321 3RD AVE E	19	3/4" COPPER
106+18	329 3RD AVE E	19	LEAD
106+65	335 3RD AVE E	19	3/4" COPPER
106+84	336 3RD AVE E	41	1" COPPER
107+12	345 3RD AVE E	19	3/4" COPPER
107+14	346 3RD AVE E	41	LEAD
107+57	230 4TH ST E	21	3/4" COPPER

57-18

WATER SERVICE SUMMARY			
CURBSTOP STATION	ADDRESS	LENGTH (FT)	EXISTING WATER SERVICE TYPE
108+27	403 3RD AVE E	19	1" COPPER
108+78	413 3RD AVE E	19	3/4" COPPER
108+80	414 3RD AVE E	42	1" POLY
109+46	422 3RD AVE E	42	3/4" COPPER
109+48	421 3RD AVE E	19	LEAD
109+74	425 3RD AVE E	19	3/4" COPPER
109+79	428 3RD AVE E	42	1" COPPER
110+25	429 3RD AVE E	19	3/4" COPPER
110+42	438 3RD AVE E	41	1" COPPER
110+76	445 3RD AVE E	19	LEAD
110+80	446 3RD AVE E	41	LEAD

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 09:08:30-07'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT UTILITY PLAN & PROFILE WATER SERVICE SUMMARY

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-23

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57-19

WATER SERVICE SUMMARY			
CURBSTOP STATION	ADDRESS	LENGTH (FT)	EXISTING WATER SERVICE TYPE
112+03	309 5TH ST E	42	3/4" COPPER
112+14	241 5TH ST E	19	1" POLY
112+46	513 3RD AVE E	20	3/4" COPPER
112+49	512 3RD AVE E	42	3/4" COPPER
113+02	519 3RD AVE E	10	1" POLY
113+13	520 3RD AVE E	42	1" POLY
113+33	529 3RD AVE E INV IN NW = 2423.817	10	LEAD
113+69	528 3RD AVE E	42	3/4" COPPER
114+15	537 3RD AVE E	10	1" POLY
114+16	536 3RD AVE E	42	3/4" POLY
114+59	546 3RD AVE E	41	3/4" COPPER
114+60	545 3RD AVE E	10	1" POLY
115+46	279 6TH ST E	10	3/4" COPPER

57-20

WATER SERVICE SUMMARY			
CURBSTOP STATION	ADDRESS	LENGTH (FT)	EXISTING WATER SERVICE TYPE
116+04	611 3RD AVE E	9	1" COPPER
116+71	619 3RD AVE E	9	1" COPPER
117+19	627 3RD AVE E	10	1" COPPER
117+22	624 3RD AVE E	32	1" POLY
117+60	635 3RD AVE E	10	3/4" COPPER
118+33	238 7TH ST E	10	1" POLY

57-21

WATER SERVICE SUMMARY			
CURBSTOP STATION	ADDRESS	LENGTH (FT)	EXISTING WATER SERVICE TYPE
121+24	404 3RD AVE E	11	1" POLY

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 09:08:40-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY PLAN & PROFILE
WATER SERVICE SUMMARY

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
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Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-24

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
LEAD SERV. LINE REPLACEMENT - MOBILIZATION	3	EA
WATER SERVICE LINE 1IN POLY	60	EA
TYPE A - LEAD SERVICE REPLACEMENT	1	EA
TYPE B - LEAD SERVICE REPLACEMENT	1	EA
REMOVAL OF CONCRETE DRIVEWAY/SIDEWALK	16	SY
REMOVAL OF CURB AND GUTTER	30	LF
REMOVAL OF BITUMINOUS SURFACING	41	SY
CURB & GUTTER - TYPE I	20	LF
SIDEWALK CONCRETE 4IN	13	SY
DRIVEWAY CONCRETE 6IN	3	SY
CURB-TYPE I	10	LF
ASPHALT PAVEMENT REPAIR	41	SY
SEEDING	11	SY
HYDRAULIC MULCH	11	SY
TEMPORARY COVER CROP	11	SY

Note:
Quantities shown on this sheet are for Lead Service Lines outside of project limits.

LEAD SERVICE LINE REPLACEMENT

FULL ADDRESS	EXWS INFO	ASSUMED CATEGORY **
PROJECT AREA		
112 2ND AVENUE SE	Lead	B
135 2ND AVENUE SE	Lead	A
146 2ND AVENUE SE	Lead	C
243 3RD AVENUE E	Lead	A
329 3RD AVENUE E	Lead	B
346 3RD AVENUE E	Lead	C
421 3RD AVENUE E	Lead	A
445 3RD AVENUE E	Lead	B
446 3RD AVENUE E	Lead	A
529 3RD AVENUE E	Lead	A
243 3RD STREET E	Lead	A
OUTSIDE PROJECT AREA		
128 1ST AVENUE SW	Lead	A
145 3RD STREET SW	Lead	--
612 5TH AVENUE W	Lead	B

** CATEGORIES ARE ASSUMED AND ARE SUBJECT TO CHANGE **

NOTES:

1. 128 1ST AVENUE SW - REPLACEMENT OF LEAD IS FROM CURB STOP TO METER.

2. 145 3RD STREET SW - REPLACEMENT OF LEAD IS FROM CURB STOP TO WATERMAIN ONLY. REPLACEMENT WILL REQUIRE STREET AND CURB & GUTTER REMOVALS/REPLACEMENTS.

3. 612 5TH AVENUE W - REPLACEMENT OF LEAD IS FROM WATERMAIN TO METER. REPLACEMENT WILL REQUIRE STREET AND CURB & GUTTER REMOVALS/REPLACEMENTS.

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
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NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY PLAN & PROFILE
LEAD SERVICE LINE REPLACEMENT

Apex Engineering Group
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204 Sims Street, Suite # 201
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Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-25

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57-02

FULL ADDRESS	LENGTH (FT)	EXISTING SS TYPE
105 1ST STREET SE	20	6" VCP
111 1ST STREET SE	20	6" VCP
118 1ST STREET SE	20	6" VCP
130 1ST STREET SE	20	6" VCP
26 2ND AVENUE SE	21	6" VCP
26 2ND AVENUE SE	21	6" VCP
148 1ST STREET SE	20	6" VCP
33 2ND AVENUE SE	21	(6")

(ASSUMED)

57-03

FULL ADDRESS	LENGTH (FT)	EXISTING SS TYPE
211 1ST STREET SE	22	(6")
213 1ST STREET SE	21	(6")
250 1ST STREET SE	22	(6")
225 1ST STREET SE	21	(6")
240 1ST STREET SE	20	(6")
240 1ST STREET SE	21	6" VCP
45 3RD AVENUE SE	20	(6")

(ASSUMED)

57-04

FULL ADDRESS	LENGTH (FT)	EXISTING SS TYPE
45 3RD AVENUE SE	20	(6")
319 1ST STREET SE	20	(6")
327 1ST STREET SE	23	(6")
333 1ST STREET SE	20	(6")
347 1ST STREET SE	21	(6")
409 1ST STREET SE	21	(6")
105 1ST STREET SE	24	(6")

(ASSUMED)

57-06

FULL ADDRESS	LENGTH (FT)	EXISTING SS TYPE
330 2ND STREET SE	20	(6")
343 2ND STREET SE	20	(6")

(ASSUMED)

57-07

FULL ADDRESS	LENGTH (FT)	EXISTING SS TYPE
432 2ND STREET SE	20	6" VCP
437 2ND STREET SE	20	(4")
442 2ND STREET SE	20	6" VCP
452 2ND STREET SE	20	6" VCP

(ASSUMED)

57-13

FULL ADDRESS	LENGTH (FT)	EXISTING SS TYPE
239 4TH AVENUE SE	20	4" PVC
213 4TH AVENUE SE	20	6" PVC
165 4TH AVENUE SE	7	6" VCP

(ASSUMED)

57-14

FULL ADDRESS	LENGTH (FT)	EXISTING SS TYPE
154 4TH AVENUE SE	21	6" VCP
155 4TH AVENUE SE	7	6" VCP
146 4TH AVENUE SE	21	6" VCP
145 4TH AVENUE SE	7	4" PVC
140 4TH AVENUE SE	21	6" VCP
135 4TH AVENUE SE	7	6" VCP
134 4TH AVENUE SE	21	4" PVC
125 4TH AVENUE SE	7	6" VCP
338 4TH AVENUE SE	21	6" PVC
115 4TH AVENUE SE	7	6" VCP
105 4TH AVENUE SE	0	6" VCP

(ASSUMED)

57-16

FULL ADDRESS	LENGTH (FT)	EXISTING SS TYPE
239 3RD AVENUE E	0	(4")

(ASSUMED)

57-19

FULL ADDRESS	LENGTH (FT)	EXISTING SS TYPE
519 3RD AVENUE E	37	(4")
529 3RD AVENUE E	35	6" Clay Tile

(ASSUMED)

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. SCHNEIDER
PE-5347
DATE 2026.02.18 09:09:04-07'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

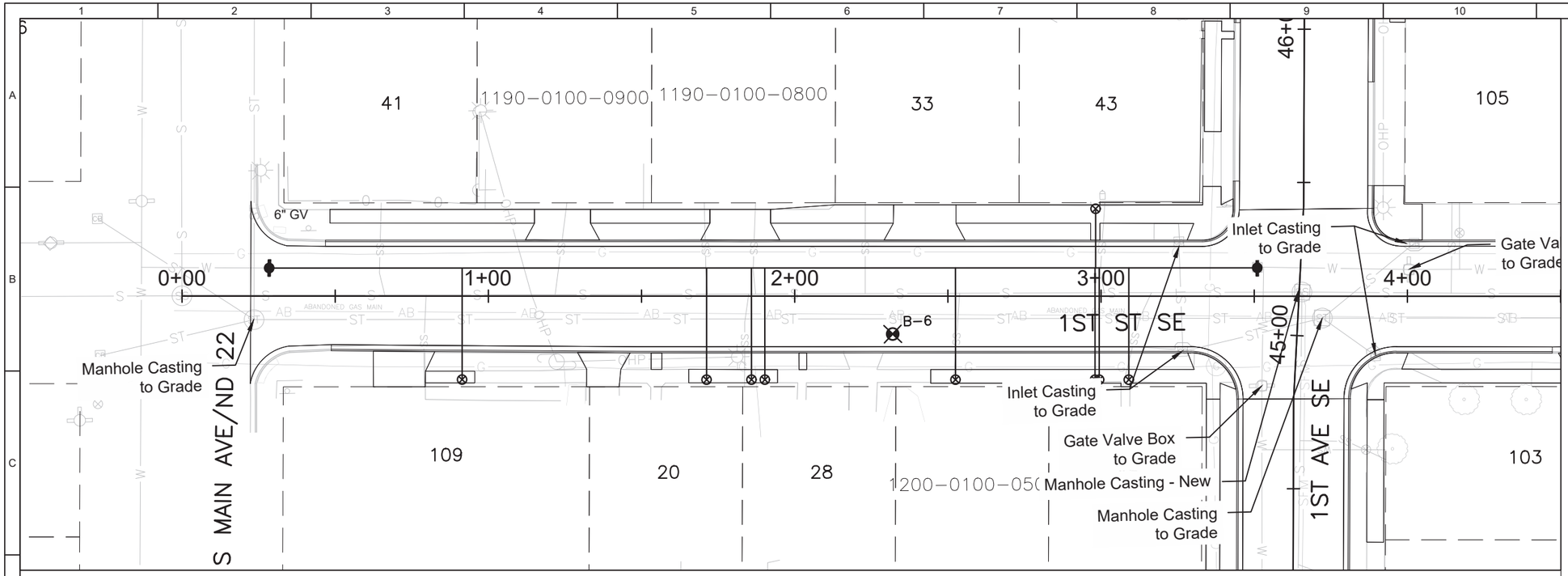
2026 UTILITY & STREET IMPROVEMENTS PROJECT
UTILITY PLAN & PROFILE
SANITARY SEWER SERVICE SUMMARY

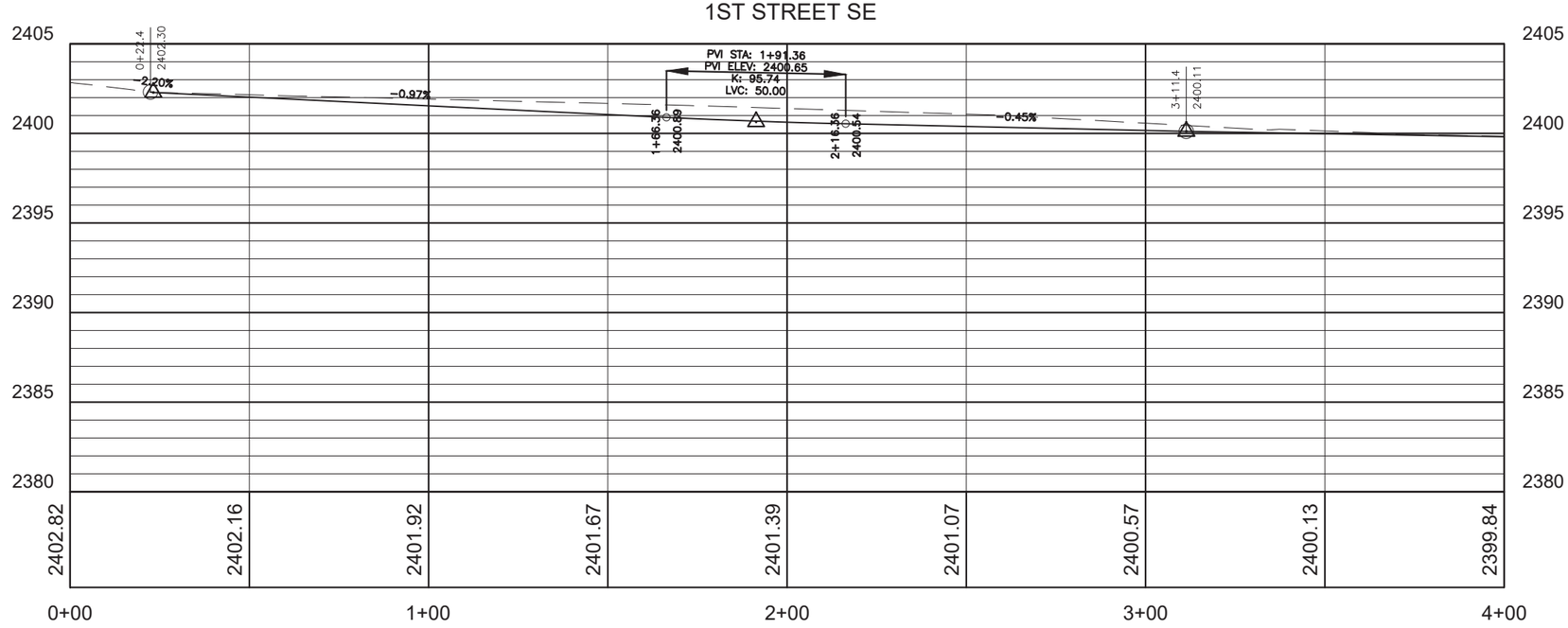
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
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Project #: 22.107.0010
Date: February 2026
Drawn By: Tanner Sanders
Checked By: Jon Wilczek
Approved By: Scott Schneider

Sheet: 57-26

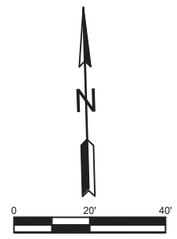
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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
MANHOLE CASTING TO GRADE	2	EA
INLET CASTING TO GRADE	4	EA
GATE VALVE BOX TO GRADE	2	EA
MANHOLE CASTING - NEW	1	EA



REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:51:01 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

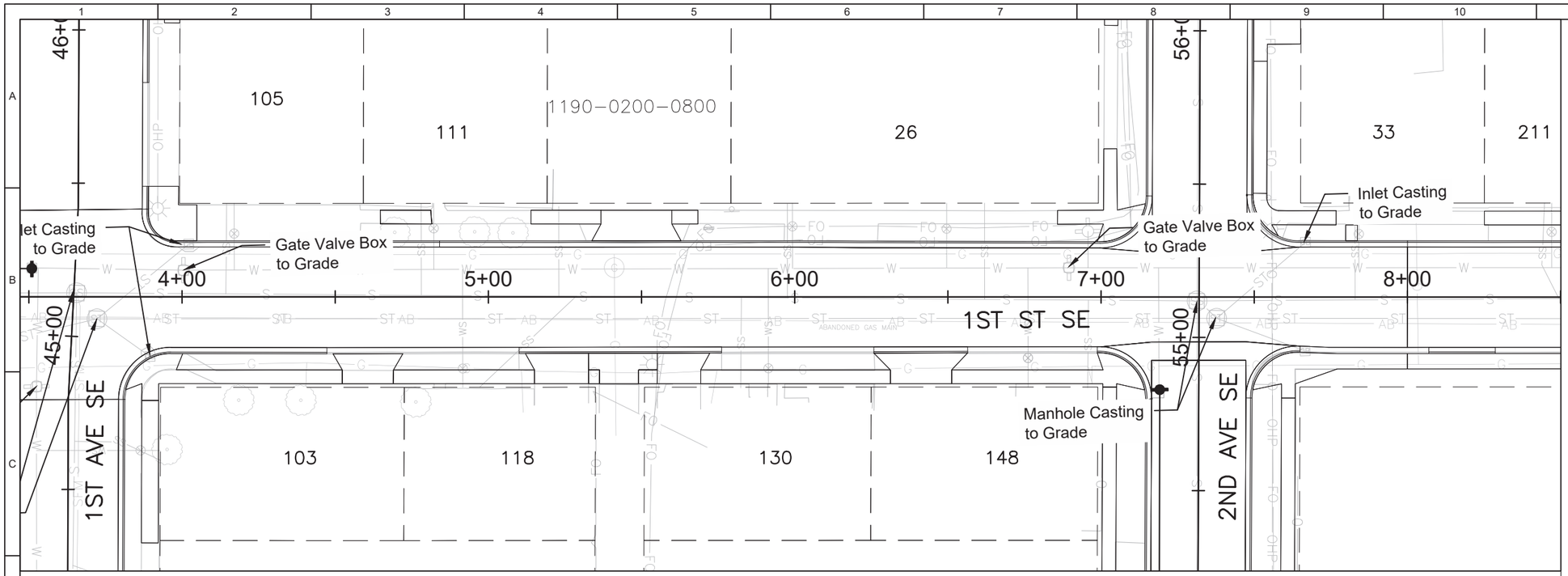
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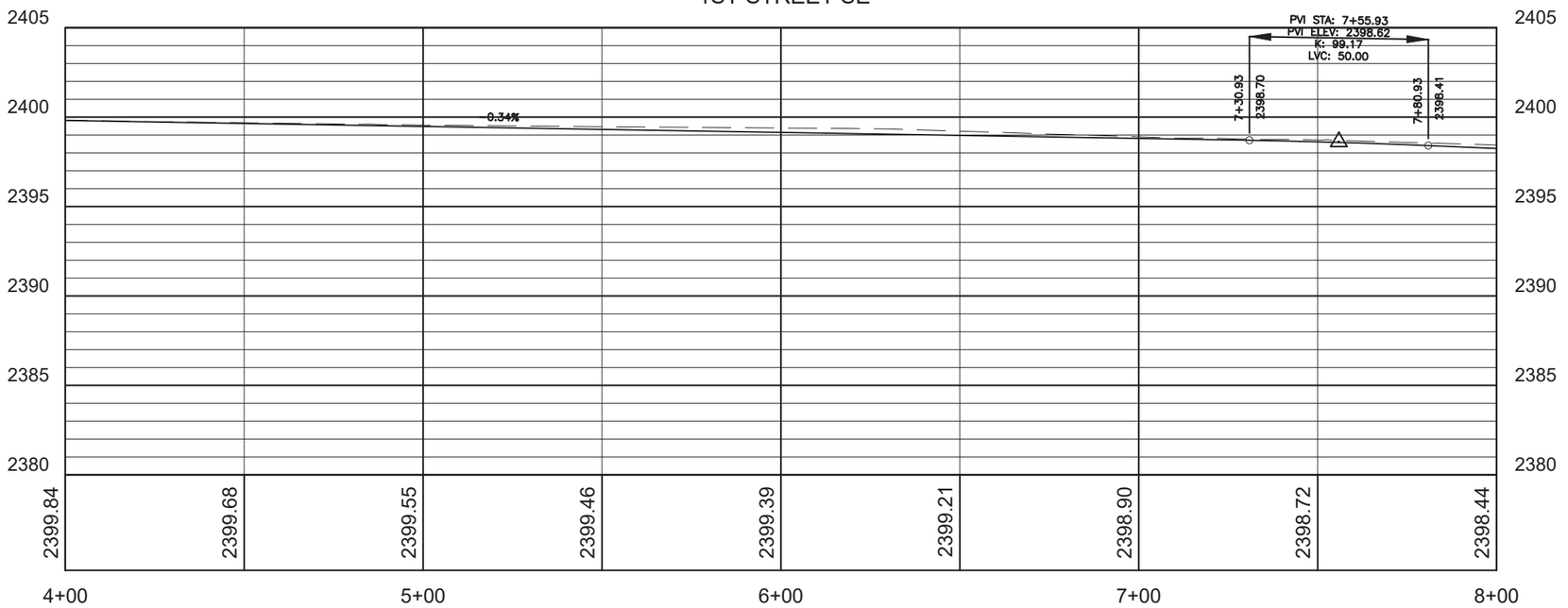
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
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Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-01

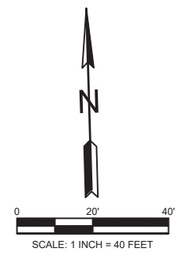
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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
MANHOLE CASTING TO GRADE	2	EA
INLET CASTING TO GRADE	1	EA
GATE VALVE BOX TO GRADE	1	EA



REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:51:19 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

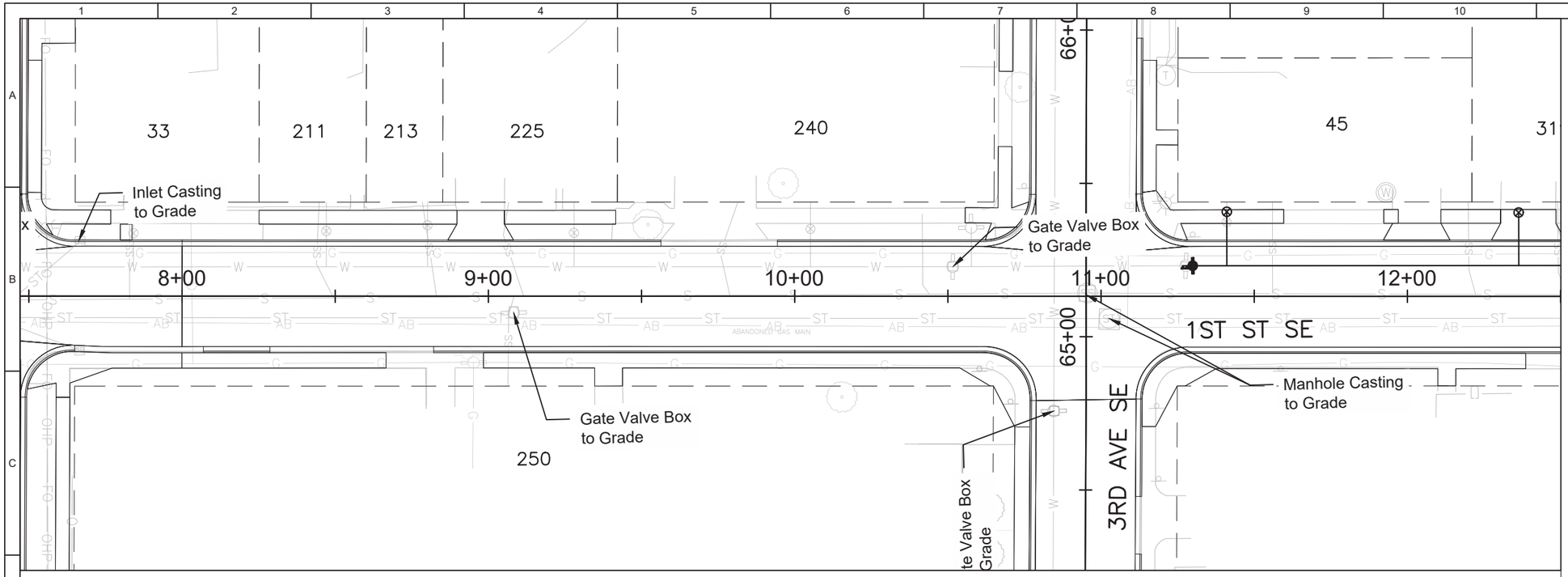
2026 UTILITY & STREET IMPROVEMENTS PROJECT PLAN & PROFILE Sta 4+00 to Sta 8+00 SOUTH AREA

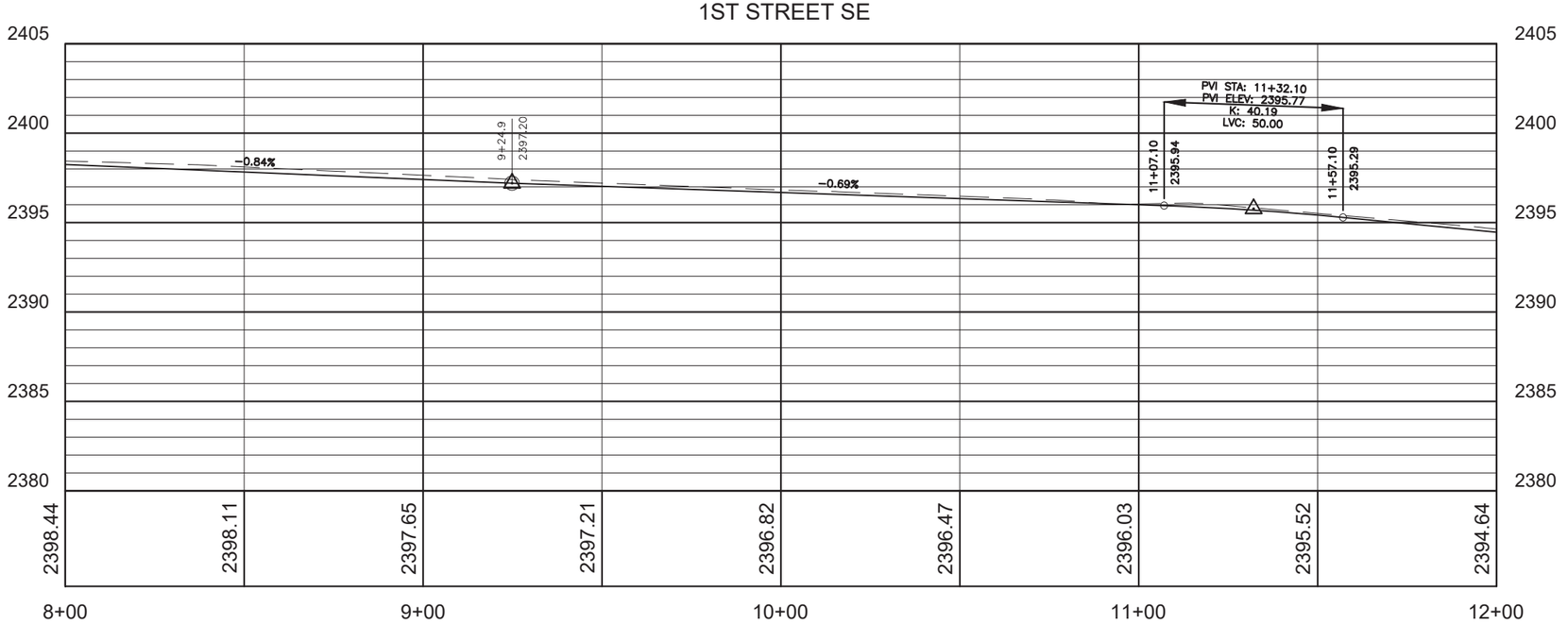
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
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Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-02

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
MANHOLE CASTING TO GRADE	3	EA
GATE VALVE BOX TO GRADE	2	EA

Note:
Casting is oversized. Casting adjustment will be paid for as two "MANHOLE CASTINGS TO GRADE."

N

0 20' 40'
SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
16:51:45 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

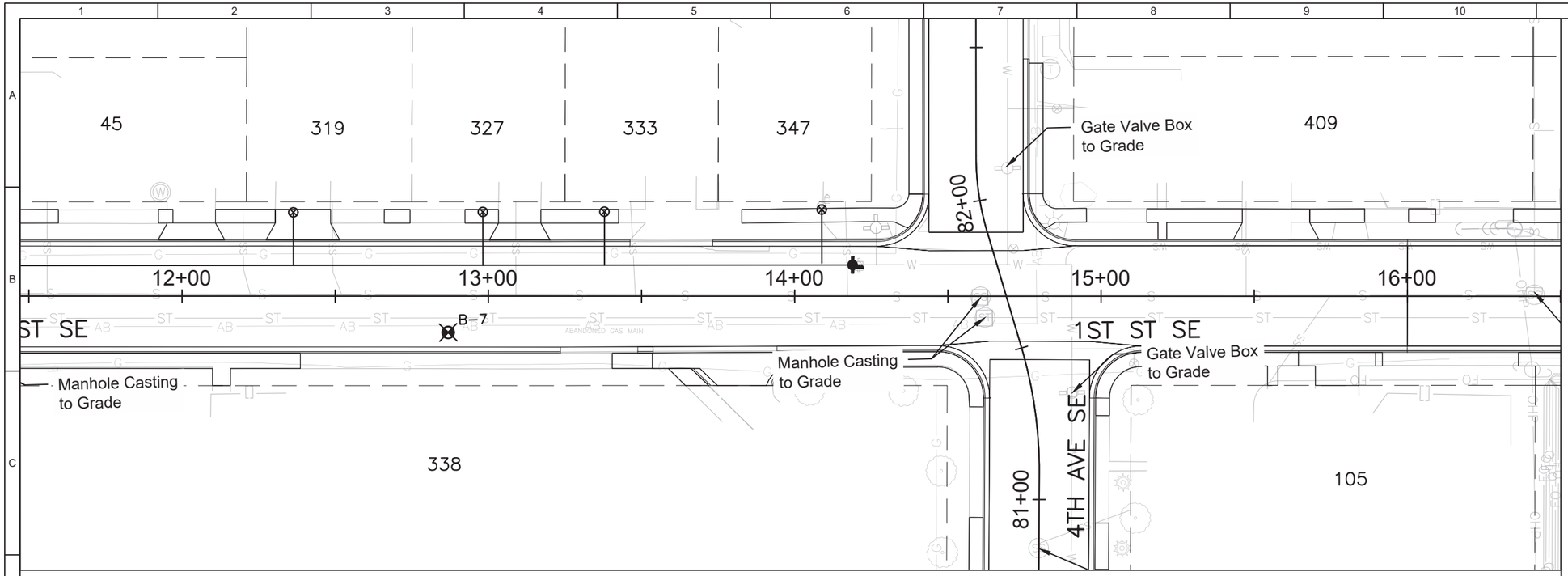
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PLAN & PROFILE
Sta 8+00 to Sta 12+00
SOUTH AREA

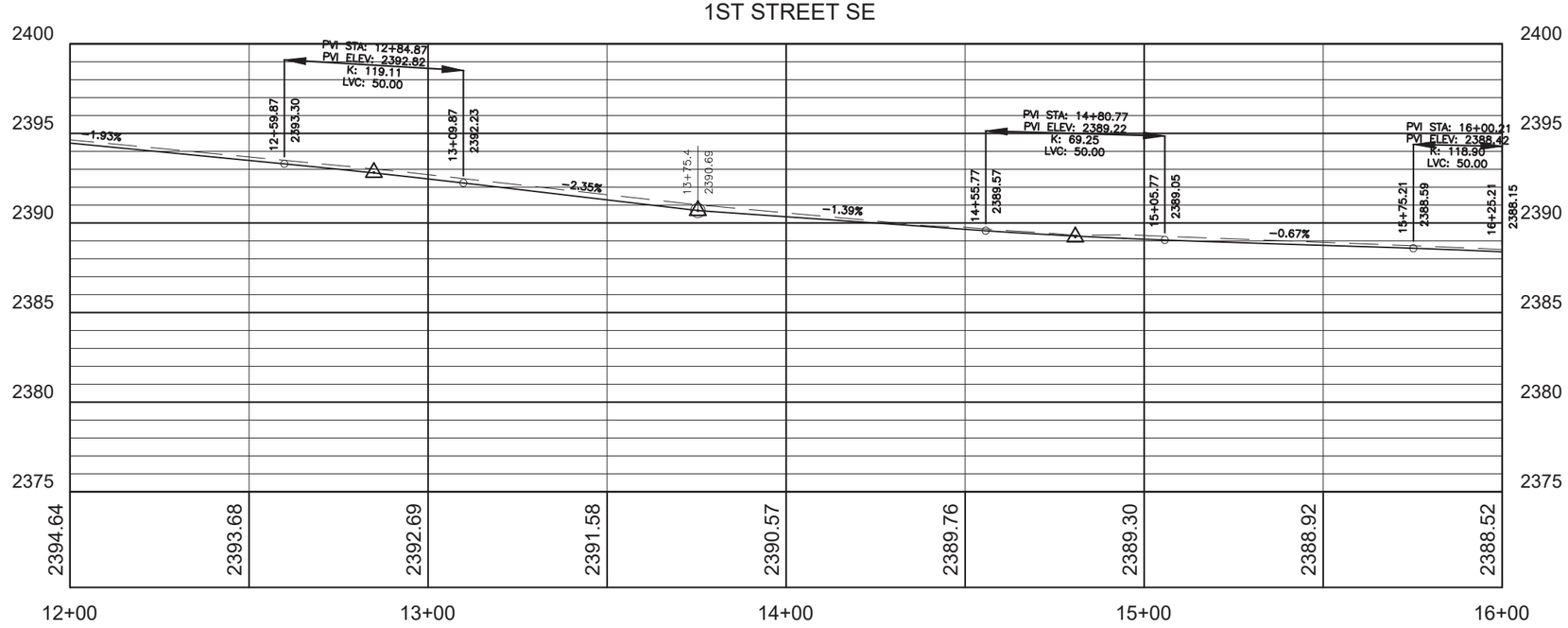
Apex Engineering Group
Bismarck - Detroit Lakes -
Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-03

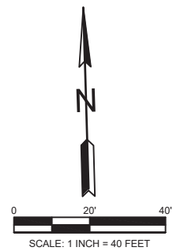
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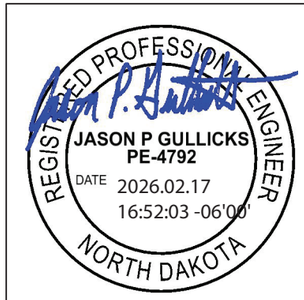




ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
MANHOLE CASTING TO GRADE	2	EA
GATE VALVE BOX TO GRADE	2	EA





REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT PLAN & PROFILE Sta 12+00 to Sta 16+00 SOUTH AREA

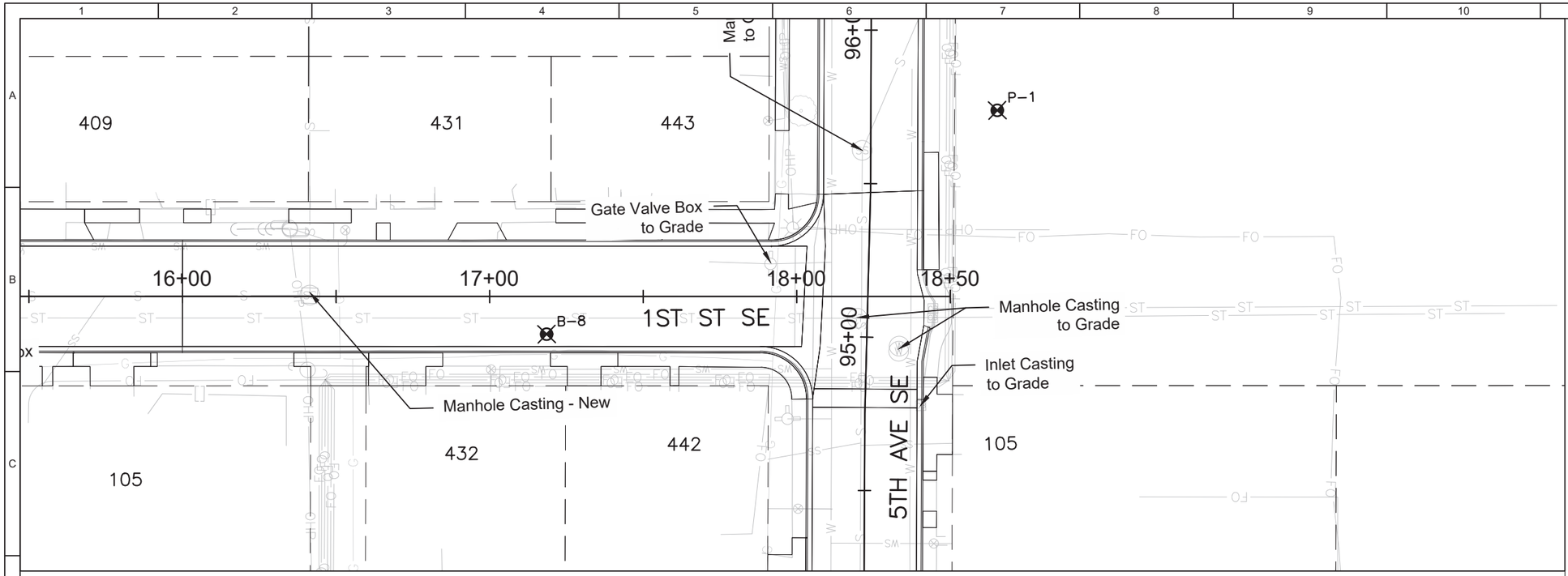
Apex Engineering Group

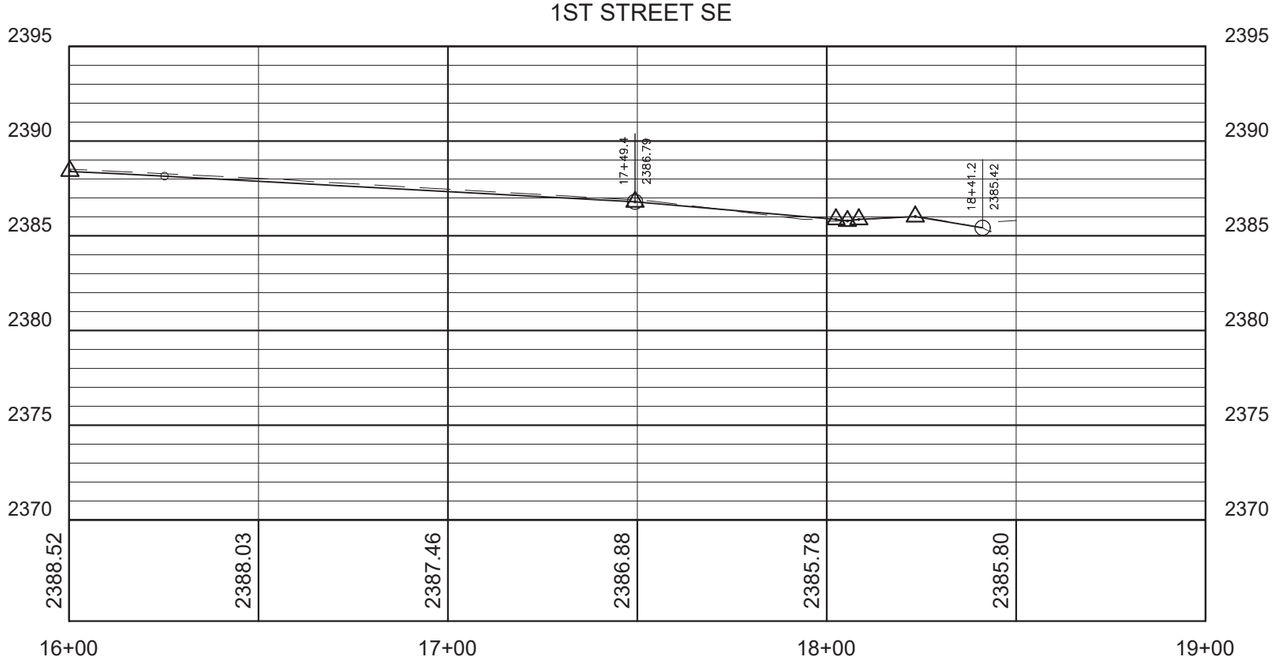
Bismarck - Detroit Lakes -
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204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
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Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-04

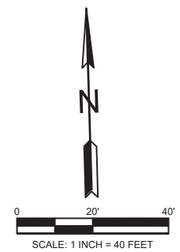
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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
MANHOLE CASTING TO GRADE	2	EA
INLET CASTING TO GRADE	1	EA
GATE VALVE BOX TO GRADE	1	EA
MANHOLE CASTING - NEW	1	EA



REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:52:19 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

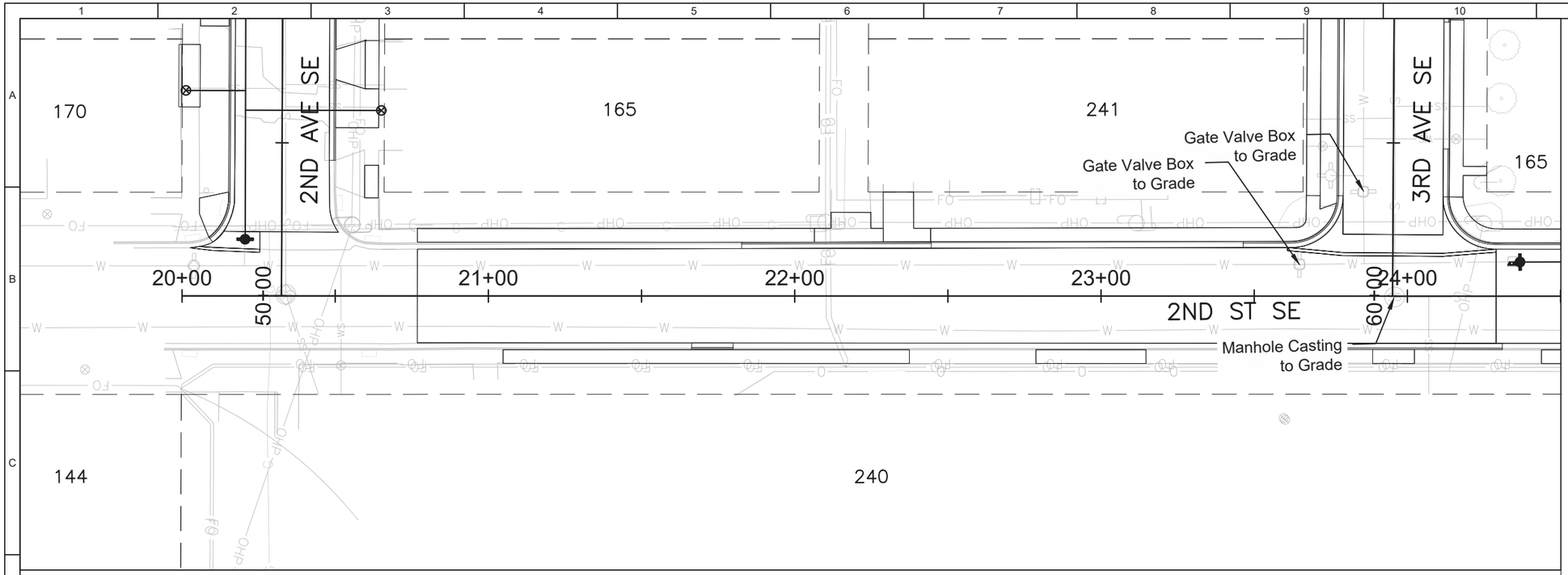
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PLAN & PROFILE
Sta 16+00 to Sta 18+50
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
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Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

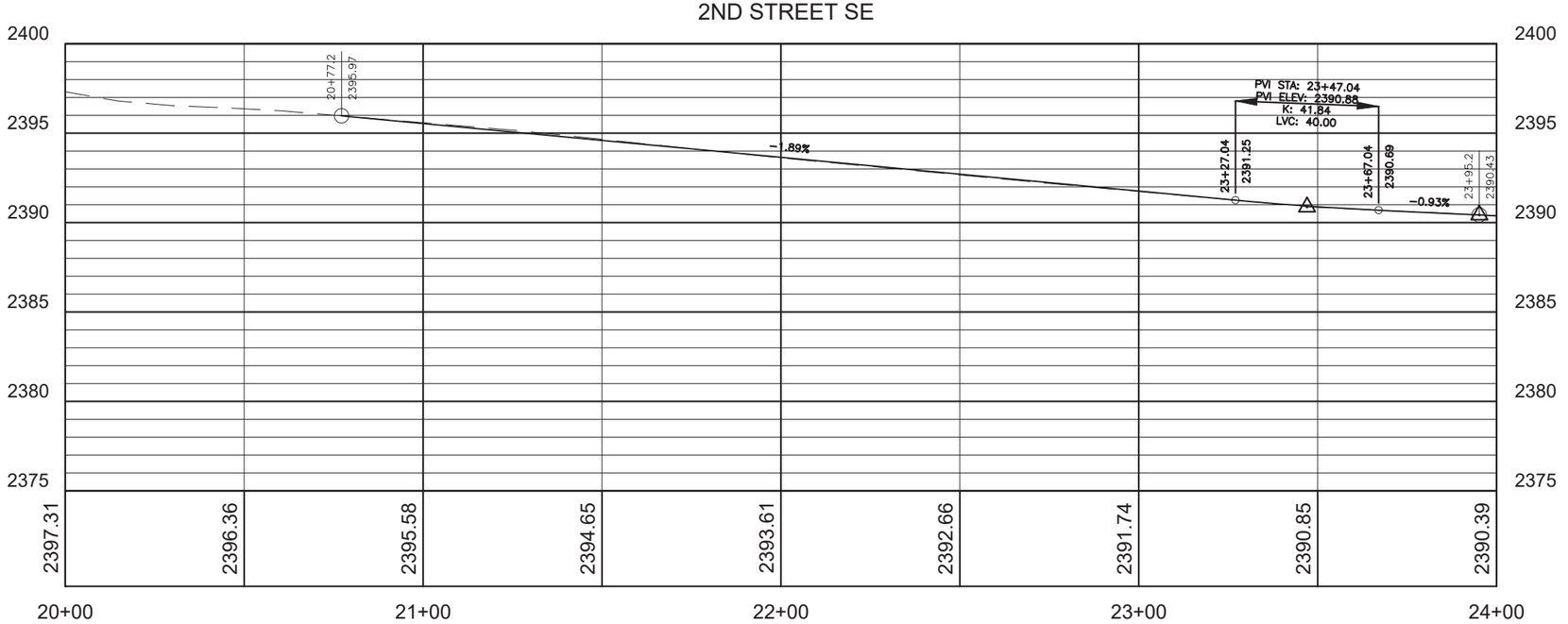
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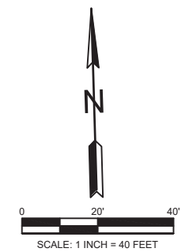
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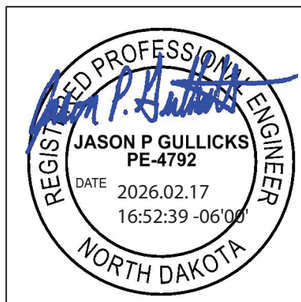


ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
MANHOLE CASTING TO GRADE	1	EA
GATE VALVE BOX TO GRADE	2	EA







REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
PLAN & PROFILE
Sta 20+00 to Sta 24+00
SOUTH AREA

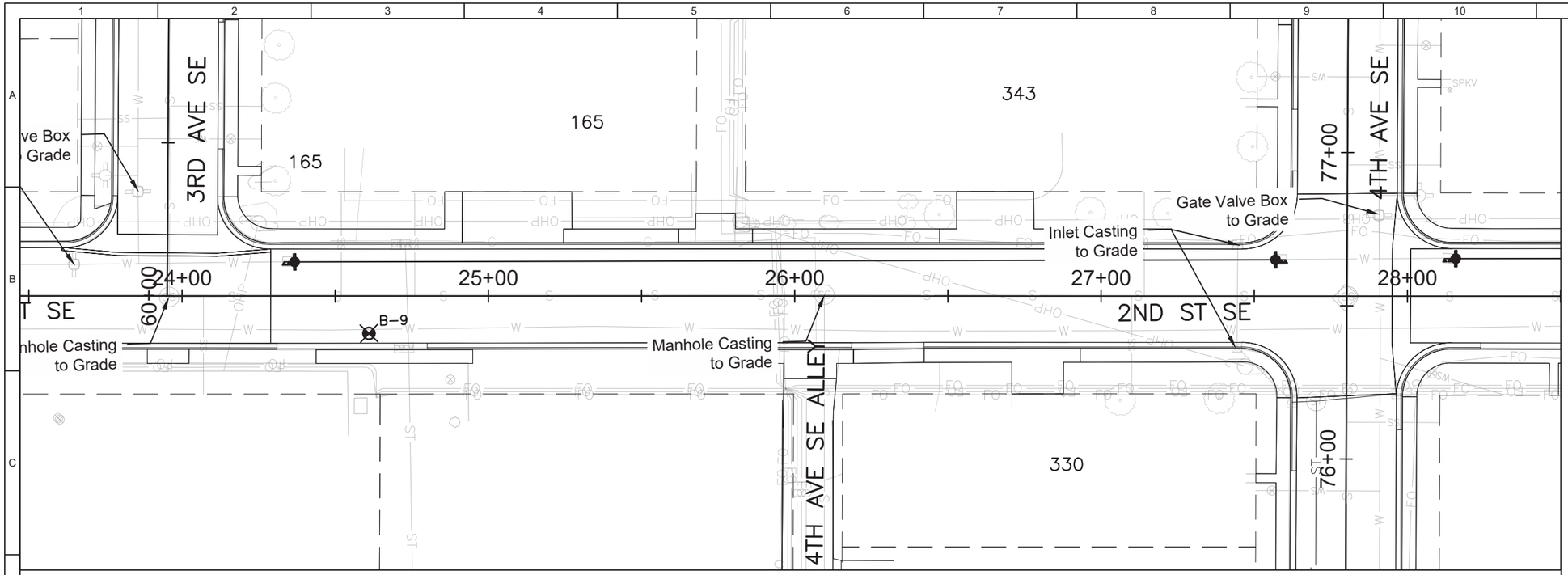
Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

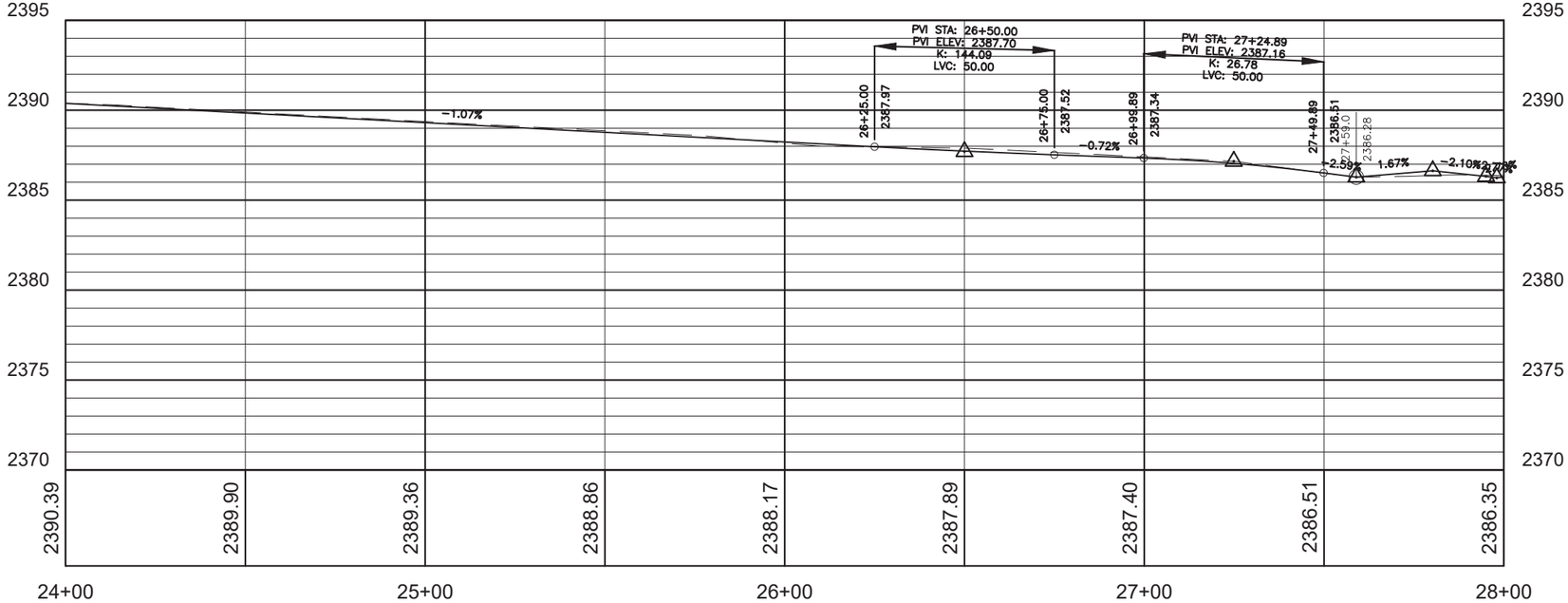
Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

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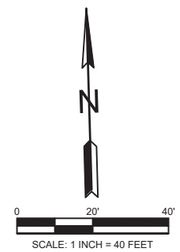


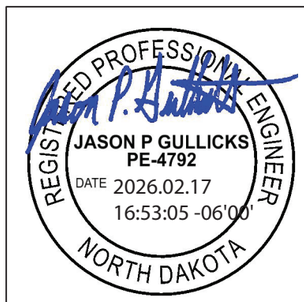
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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
MANHOLE CASTING TO GRADE	1	EA
INLET CASTING TO GRADE	2	EA
GATE VALVE BOX TO GRADE	1	EA





REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT PLAN & PROFILE Sta 24+00 to Sta 28+00 SOUTH AREA

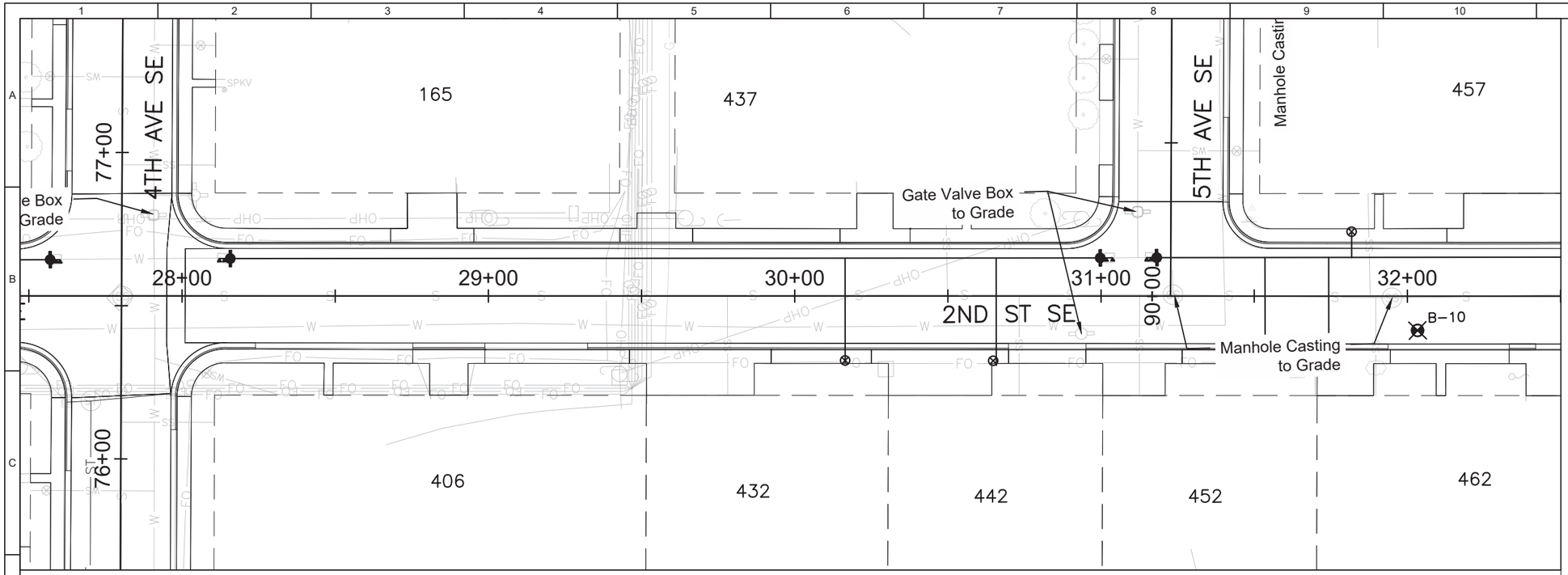
Apex Engineering Group

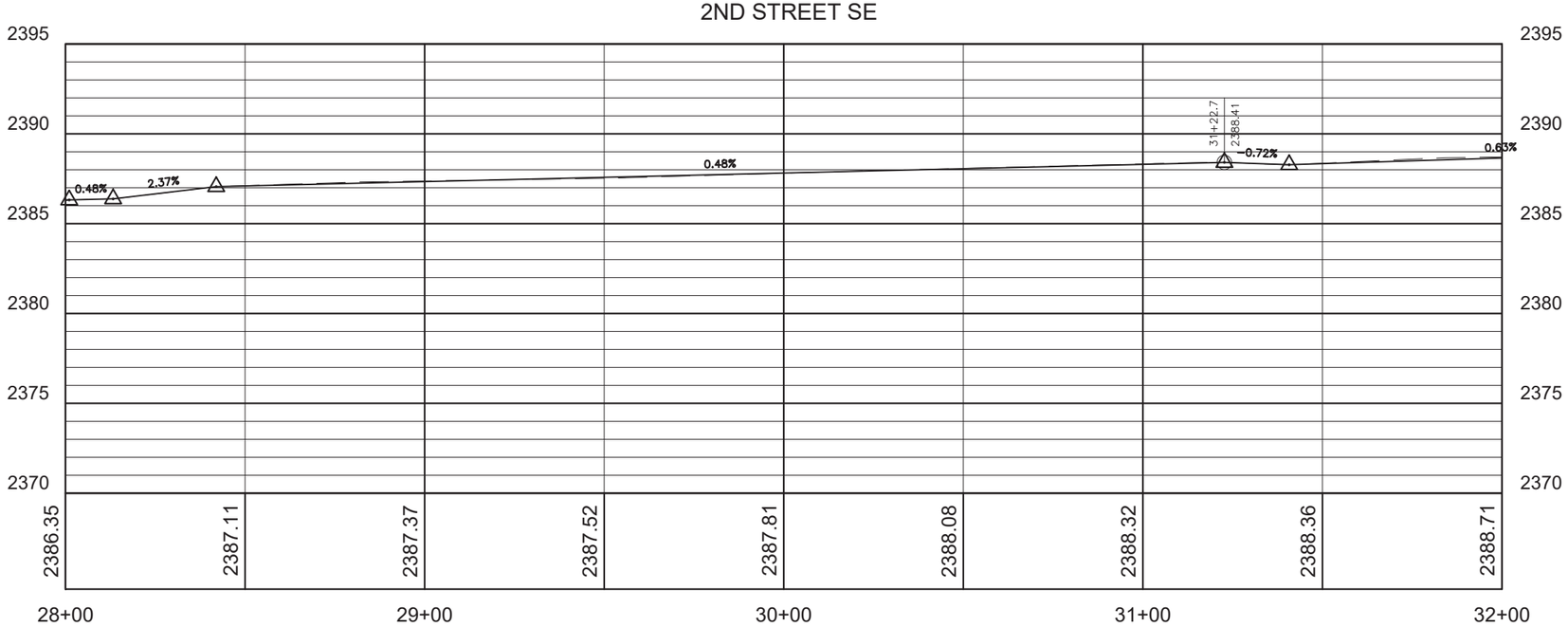
Bismarck - Detroit Lakes -
Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-07

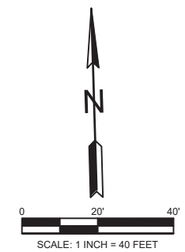
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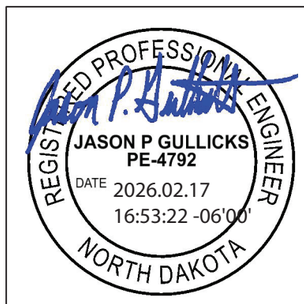




ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
MANHOLE CASTING TO GRADE	2	EA
GATE VALVE BOX TO GRADE	2	EA





REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
PLAN & PROFILE
Sta 28+00 to Sta 32+00
SOUTH AREA

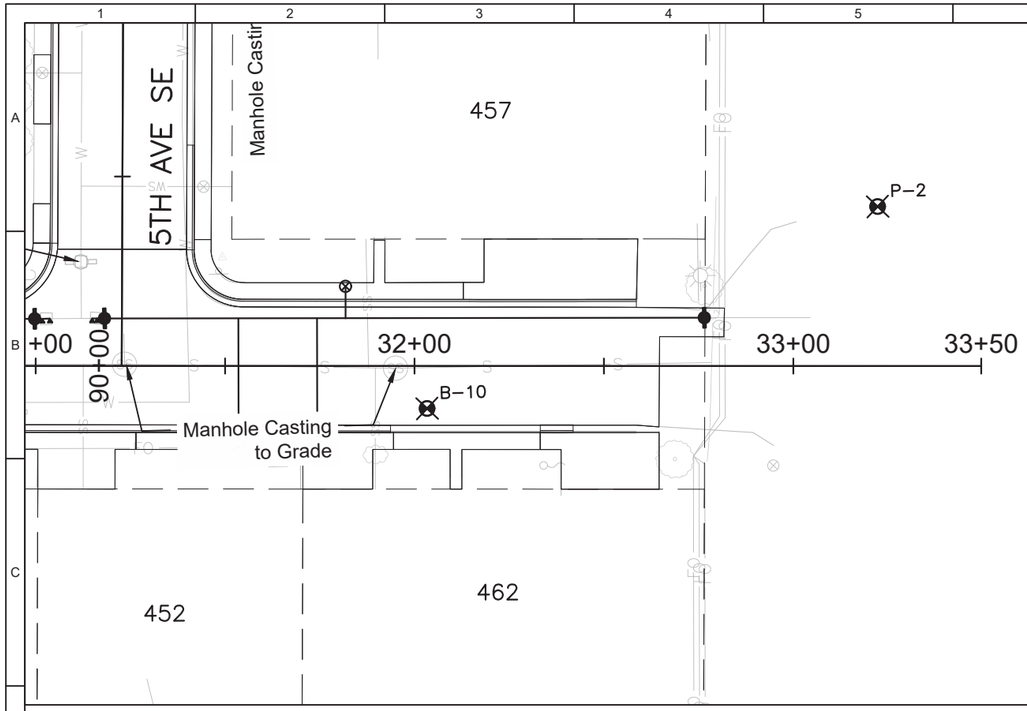
Apex Engineering Group

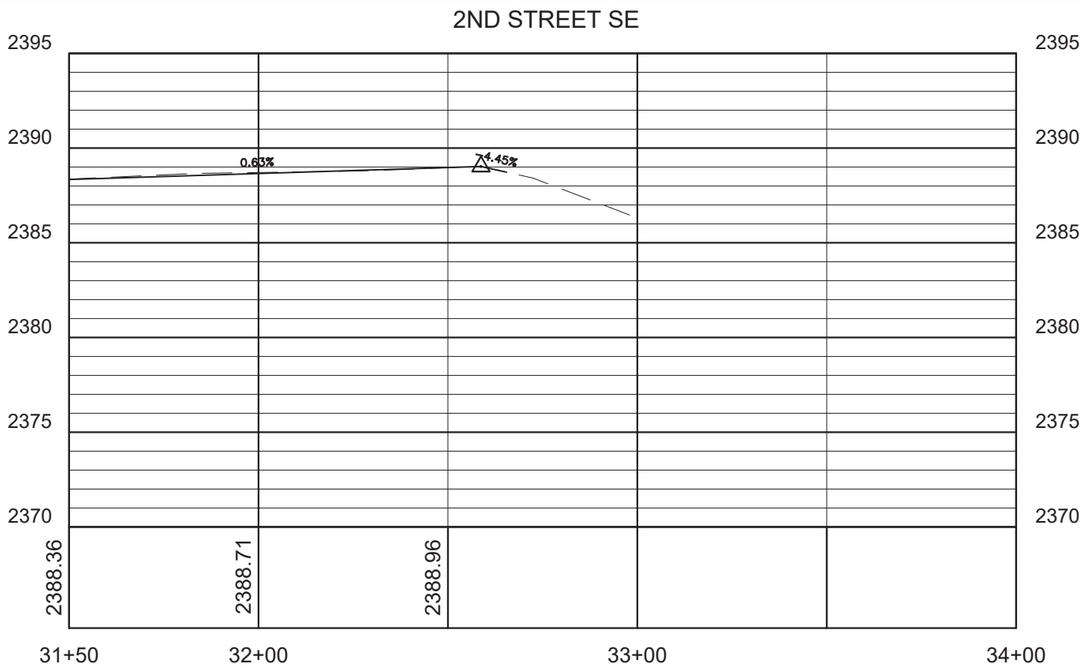
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

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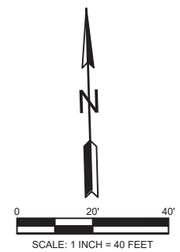




ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

No Quantities This Sheet



REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
16:54:38 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

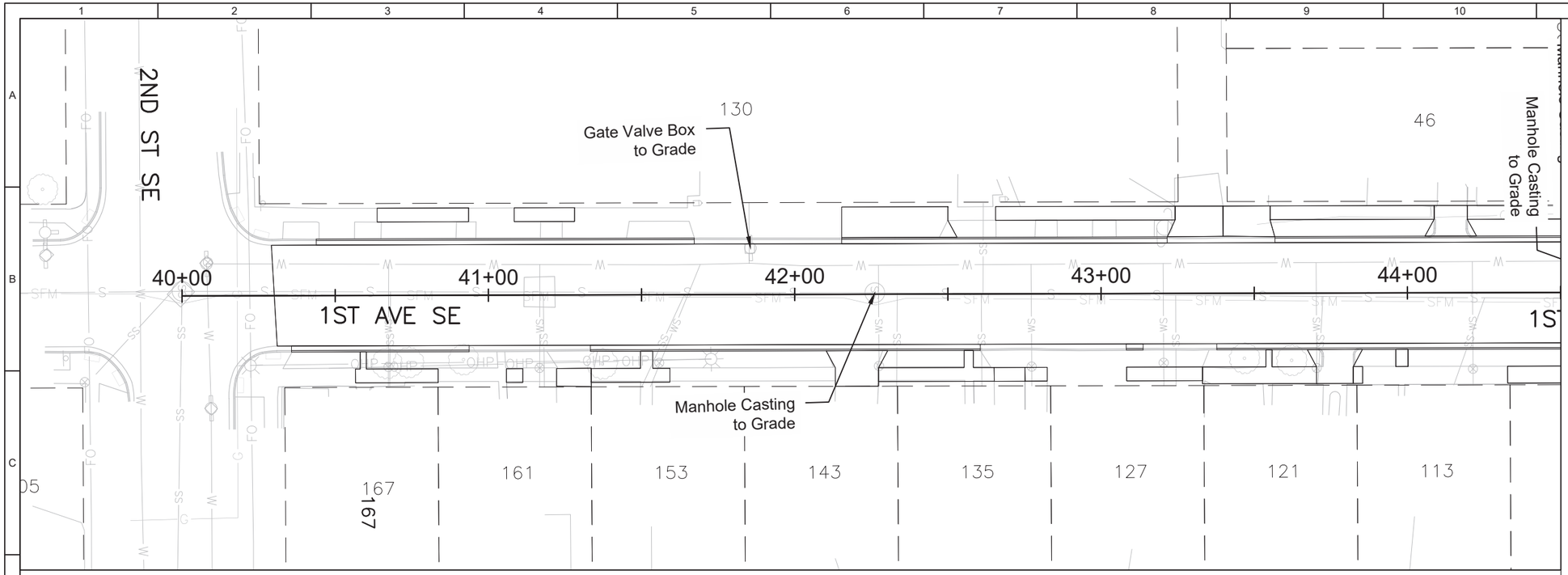
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PLAN & PROFILE
Sta 32+00 to Sta 33+50
SOUTH AREA

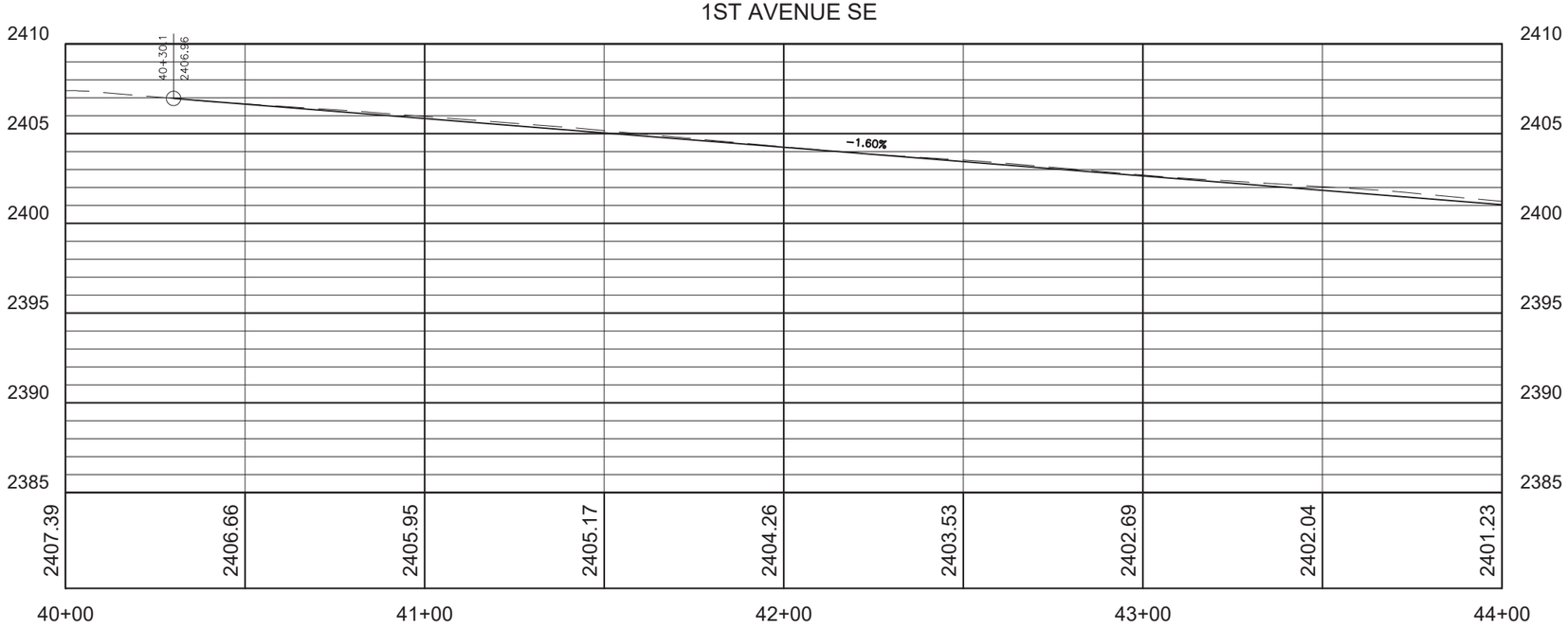
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-09

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
MANHOLE CASTING TO GRADE	1	EA
GATE VALVE BOX TO GRADE	1	EA

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
16:54:58 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

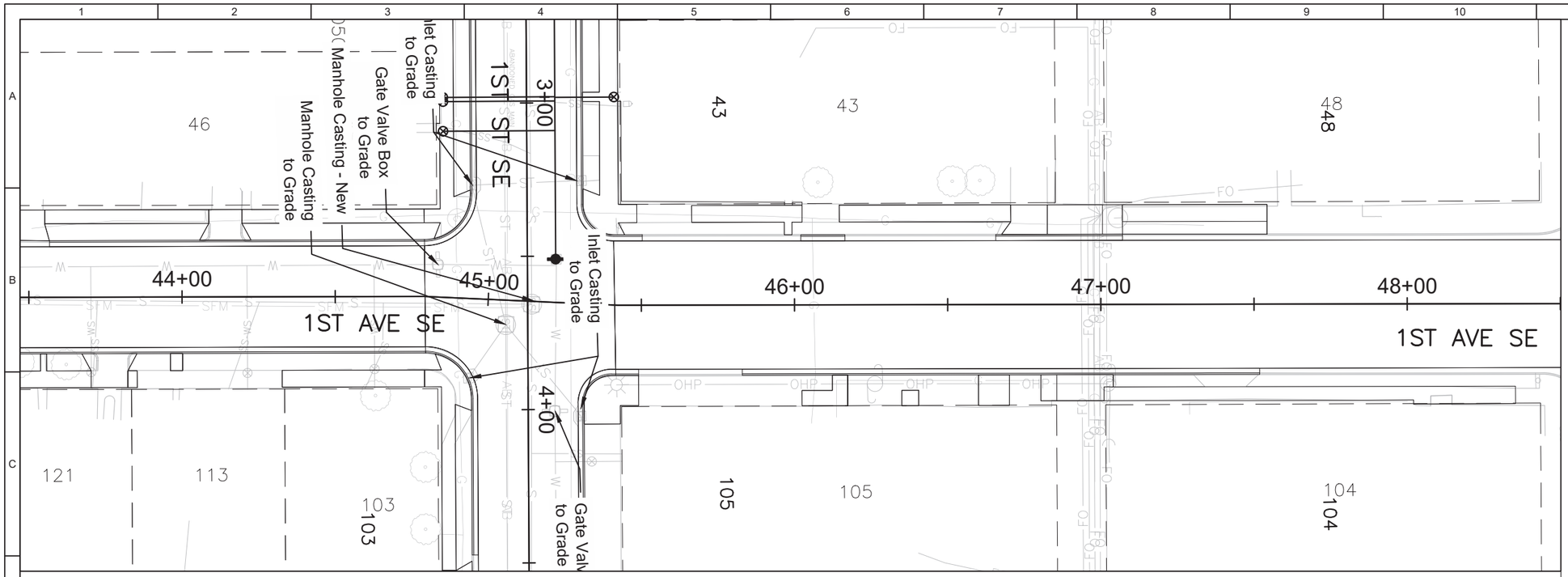
2026 UTILITY & STREET IMPROVEMENTS PROJECT PLAN & PROFILE Sta 40+00 to Sta 44+00 SOUTH AREA

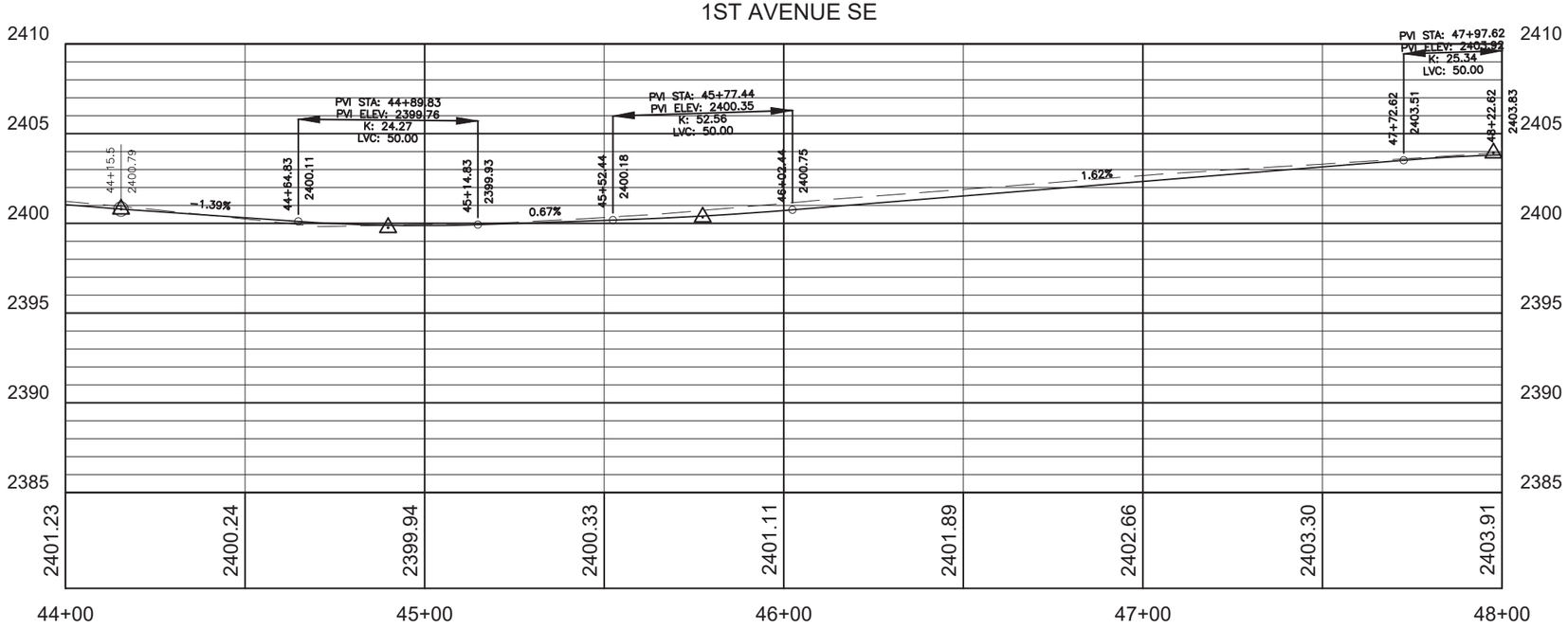
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

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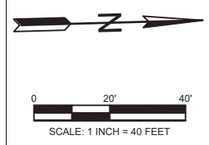


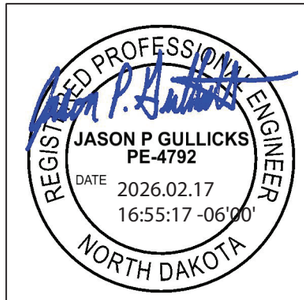


ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

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REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT PLAN & PROFILE Sta 44+00 to Sta 48+00 SOUTH AREA

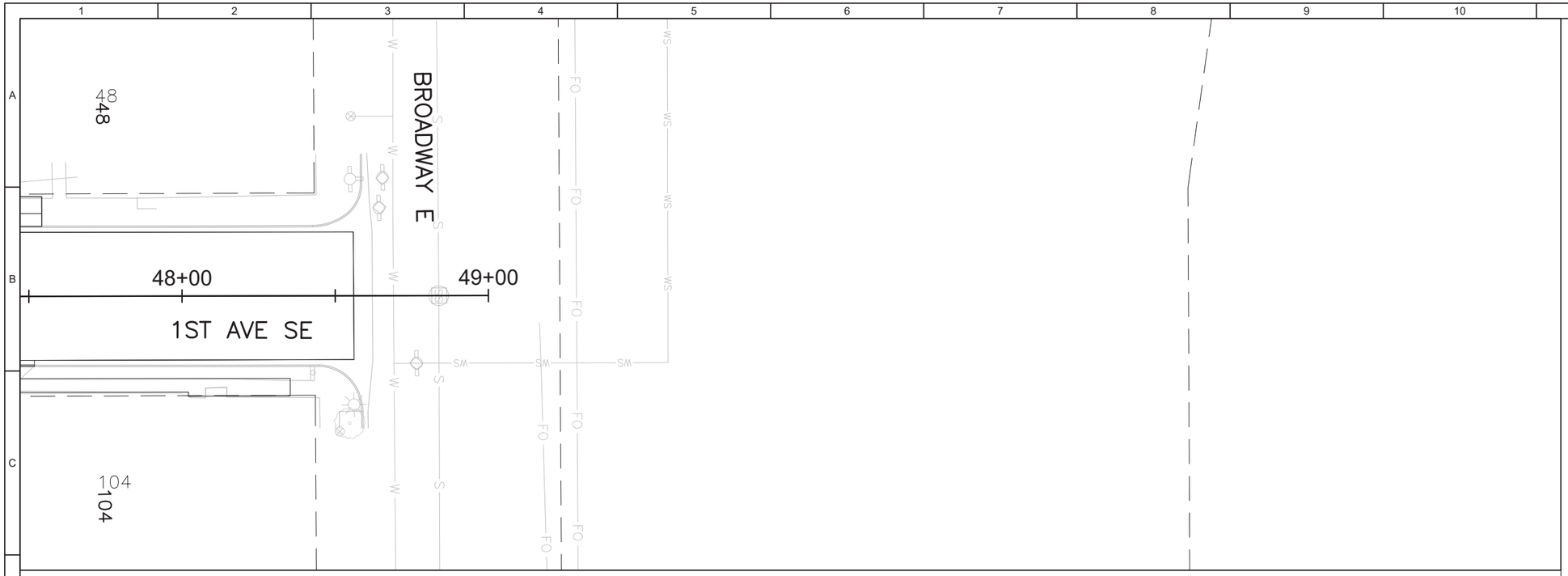
Apex Engineering Group

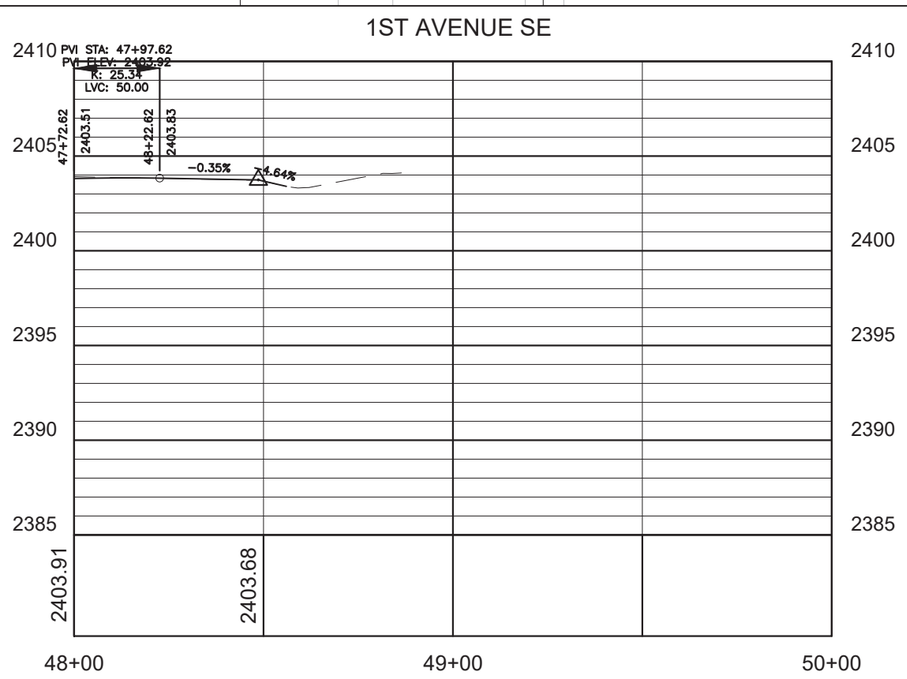
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

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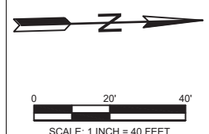




ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

No Quantities This Sheet



REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
16:55:41 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

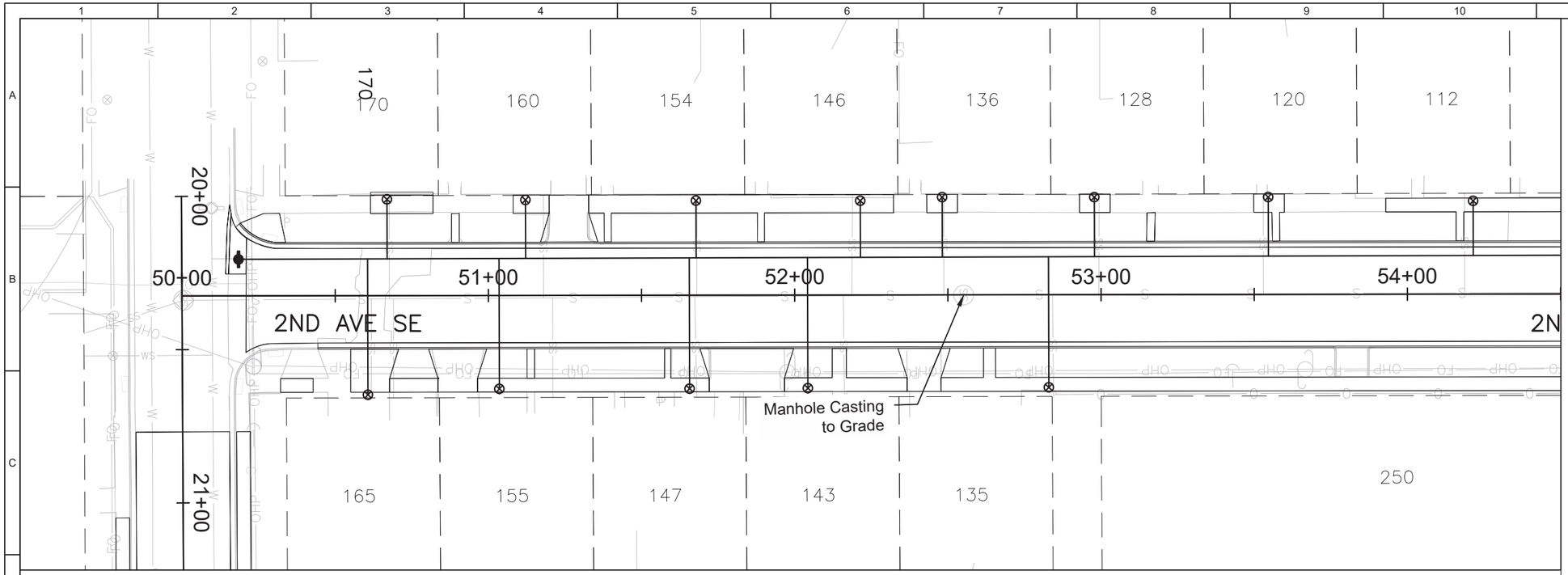
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PLAN & PROFILE
Sta 48+00 to Sta 49+00
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

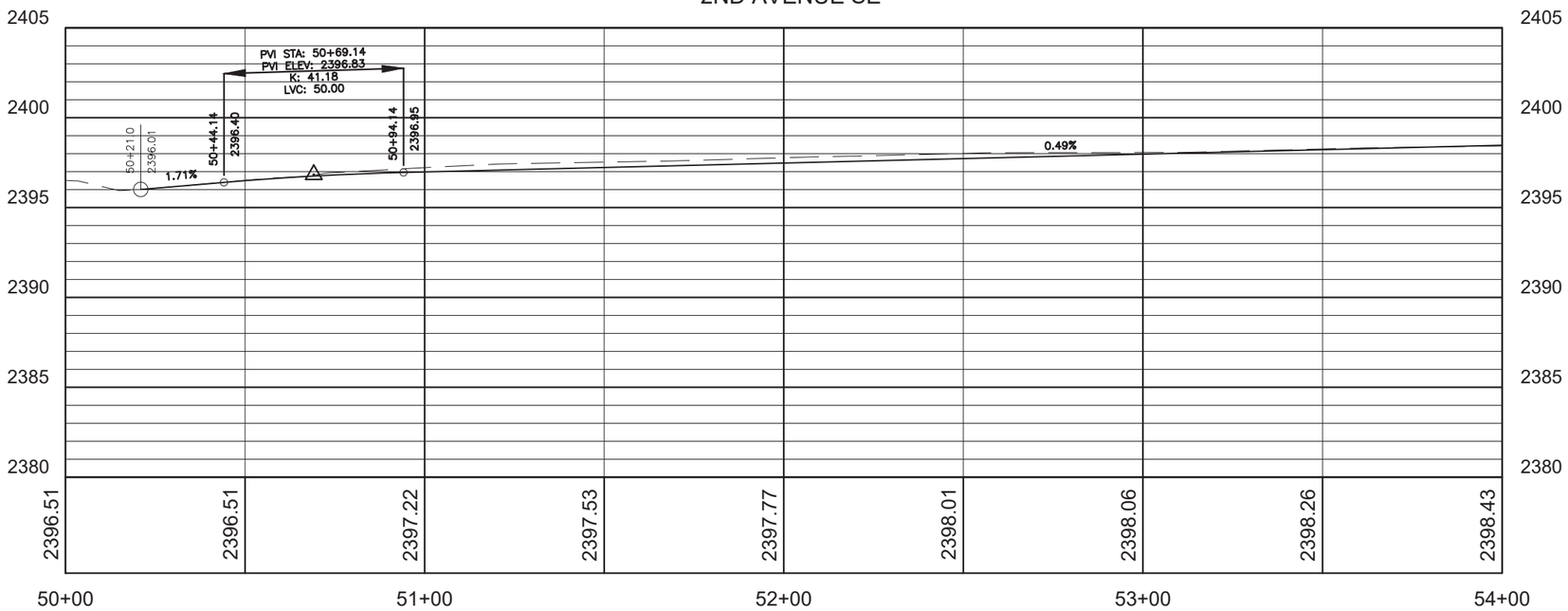
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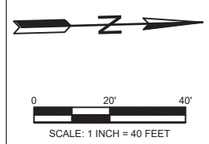
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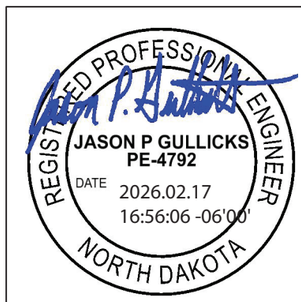


ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
MANHOLE CASTING TO GRADE	1	EA







REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
PLAN & PROFILE
Sta 50+00 to Sta 54+00
SOUTH AREA

Apex Engineering Group

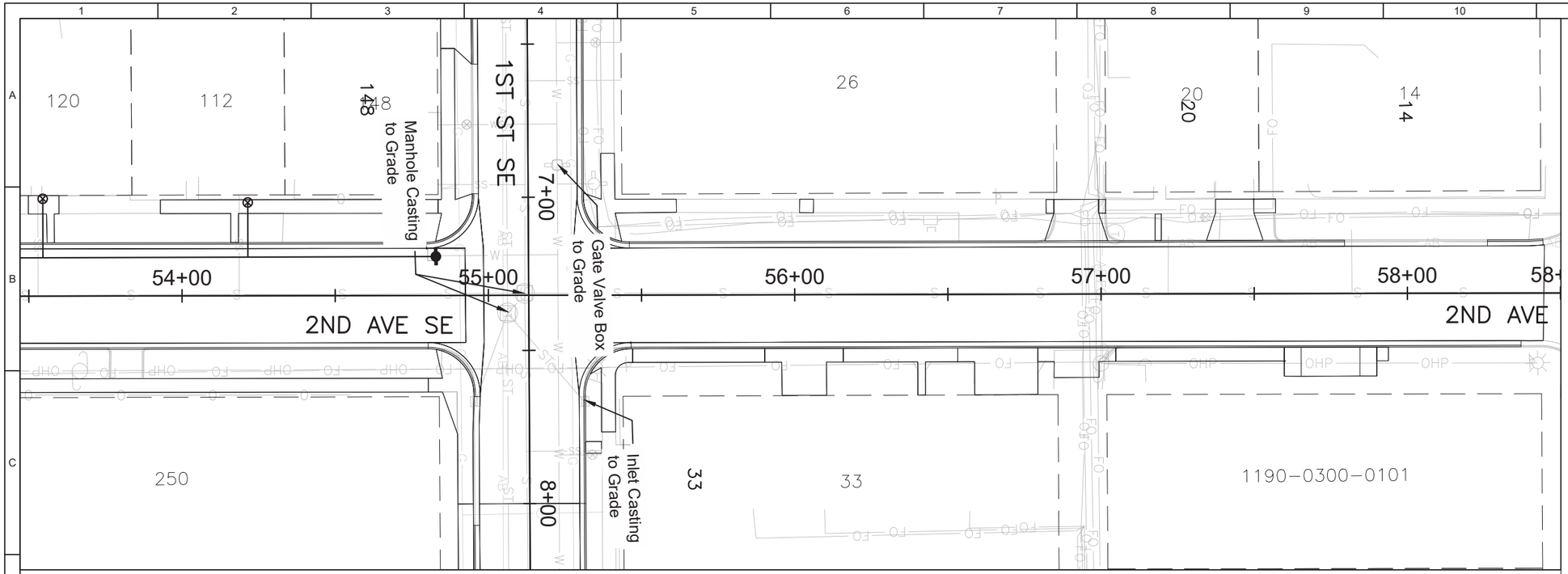
Bismarck - Detroit Lakes -
Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

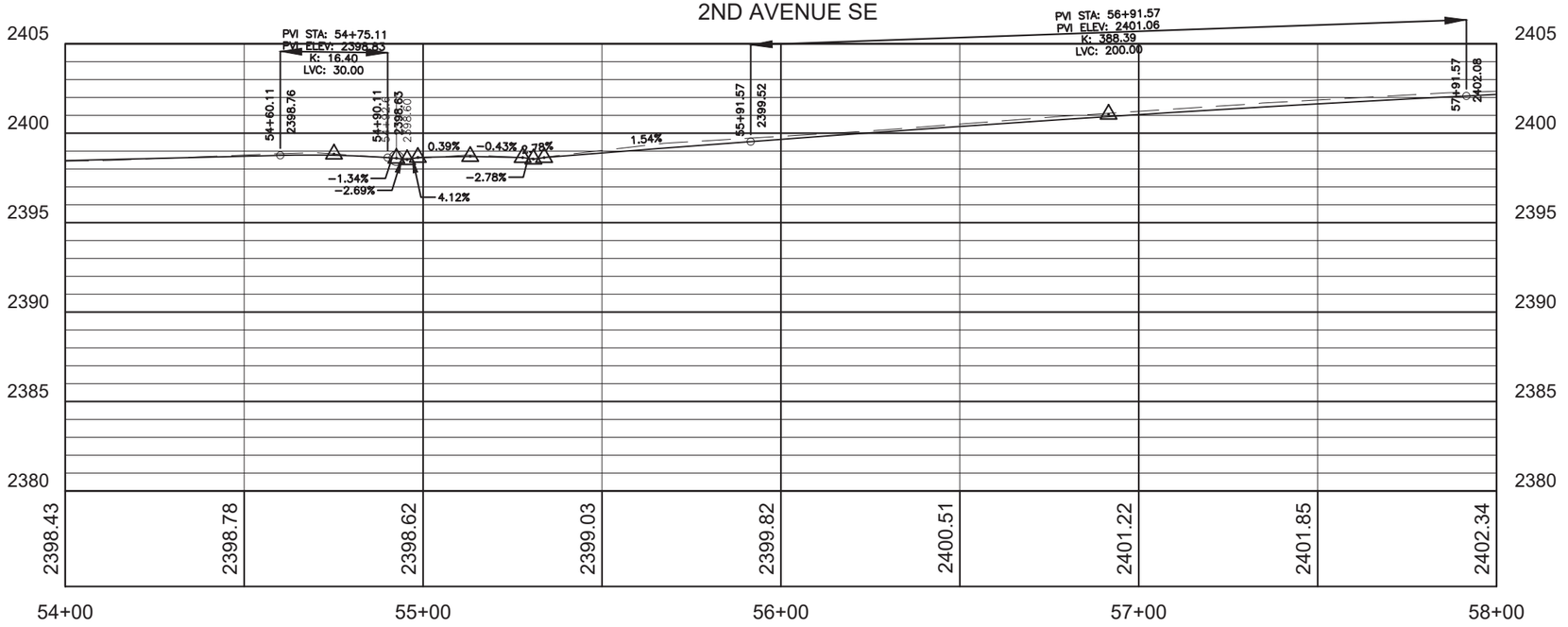
Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

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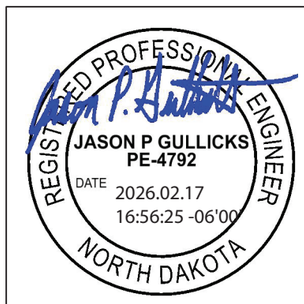


ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

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REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

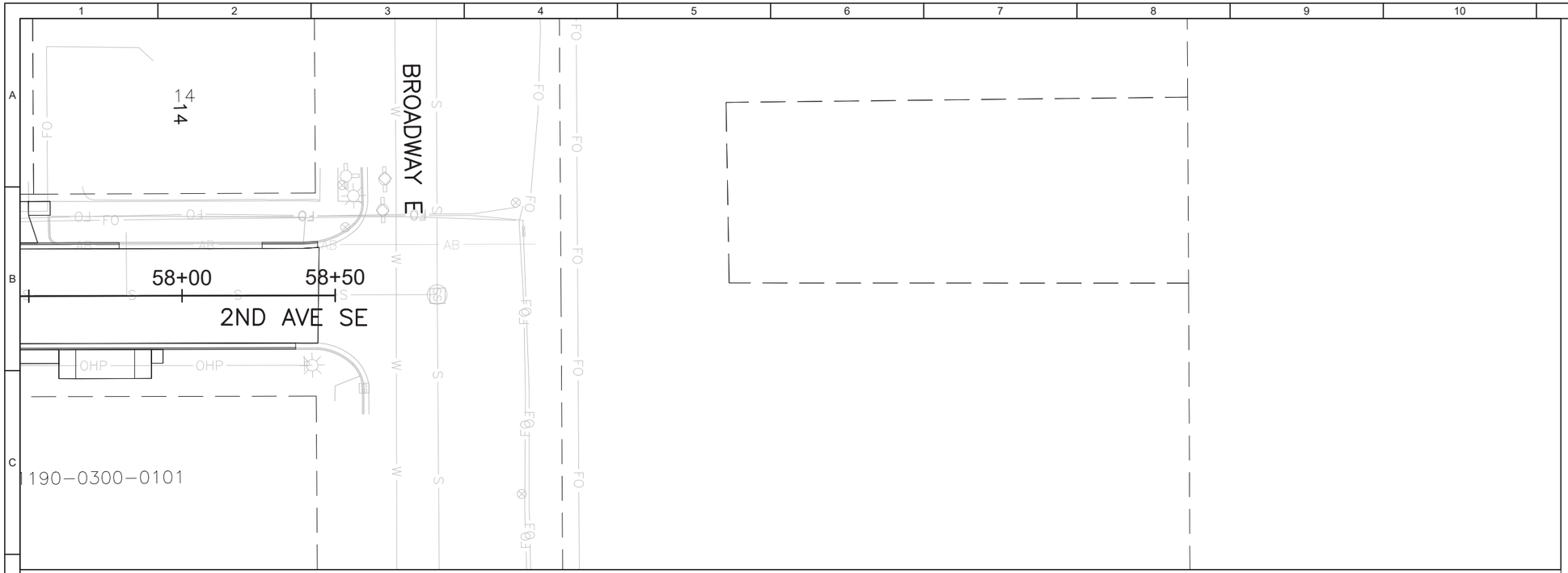
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PLAN & PROFILE
Sta 54+00 to Sta 58+00
SOUTH AREA

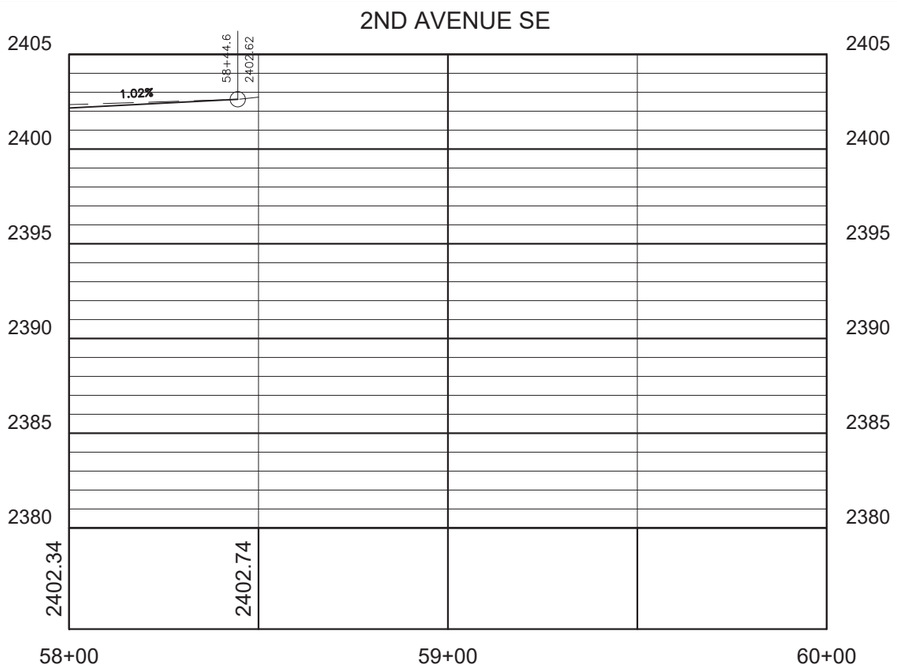
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-14

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

No Quantities This Sheet

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:56:47 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT PLAN & PROFILE Sta 58+00 to Sta 58+50 SOUTH AREA

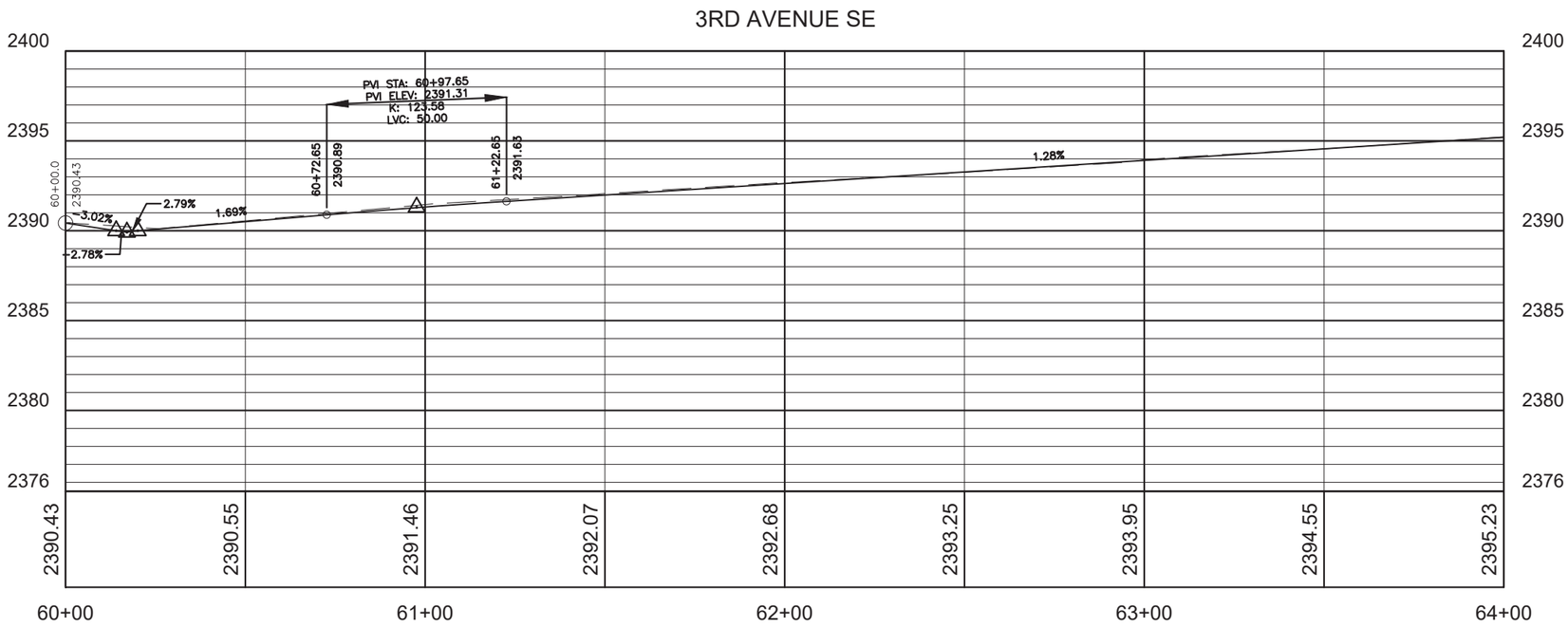
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-15

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
GATE VALVE BOX TO GRADE	1	EA
MANHOLE CASTING - NEW	1	EA

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:57:07 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT PLAN & PROFILE Sta 60+00 to Sta 64+00 SOUTH AREA

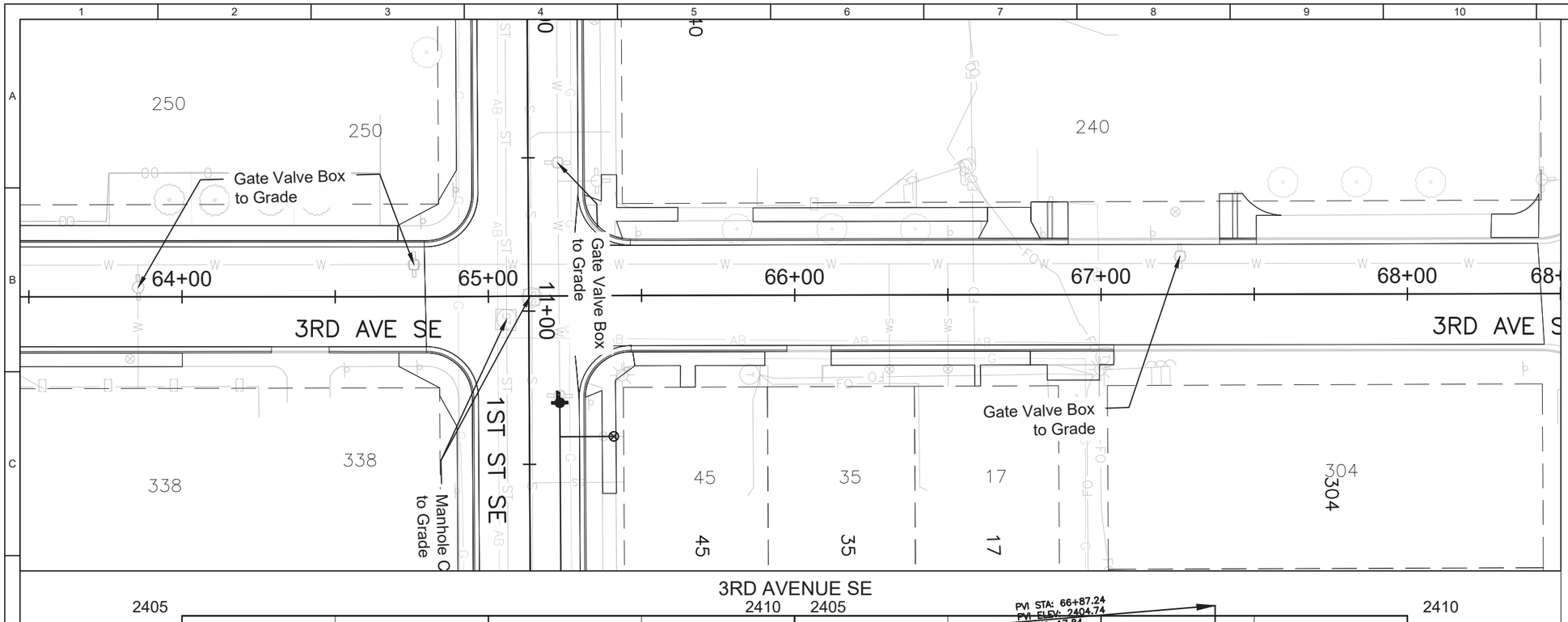
Apex Engineering Group

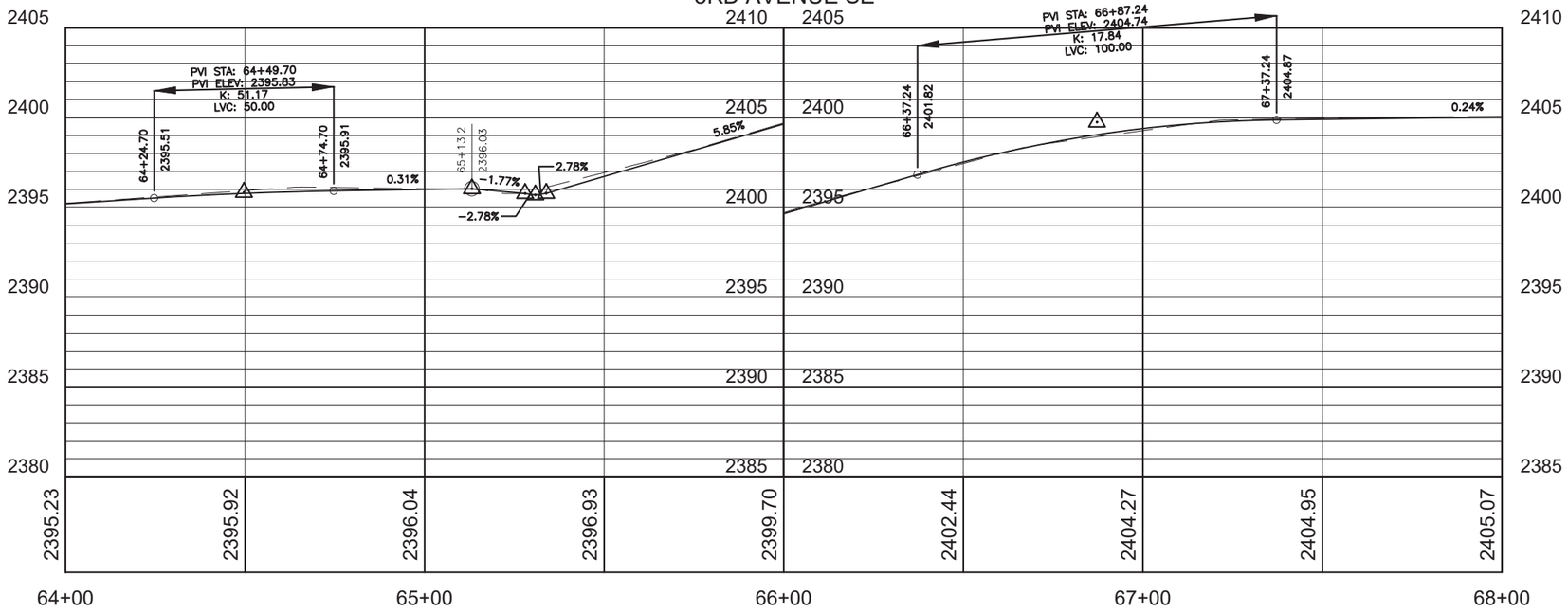
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-16

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 060_P&P.dwg





ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
GATE VALVE BOX TO GRADE	1	EA

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:57:27 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

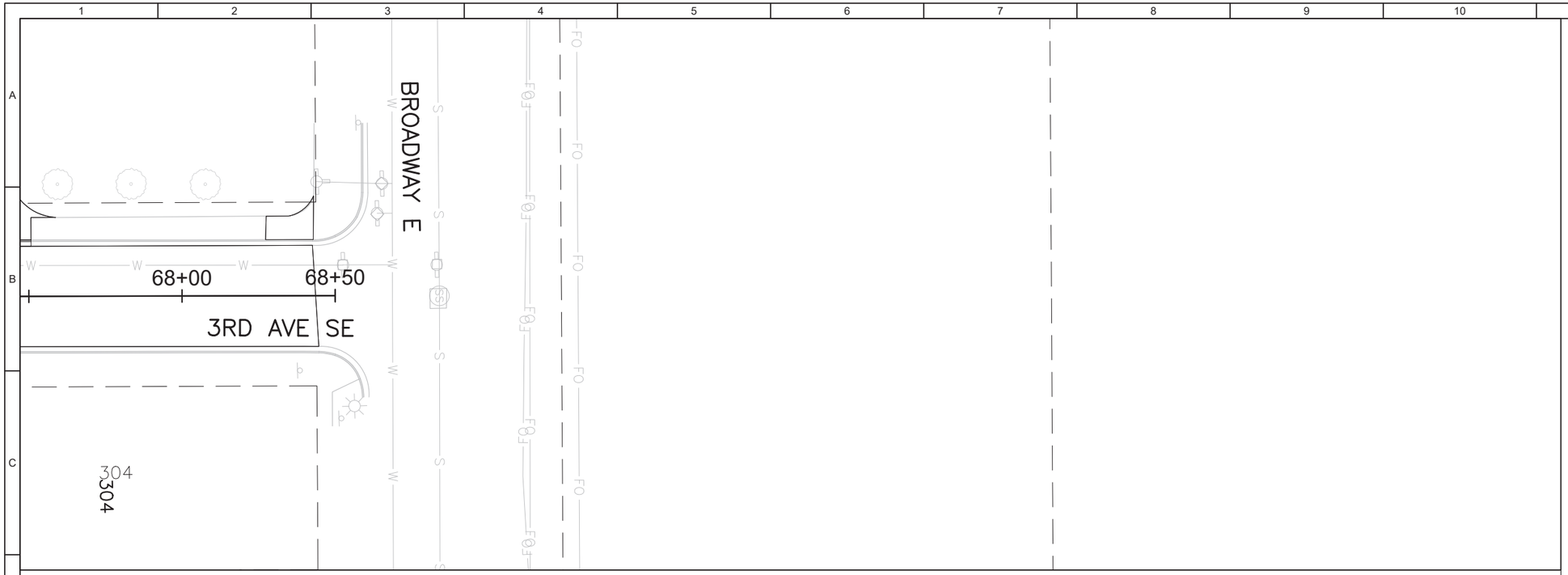
2026 UTILITY & STREET IMPROVEMENTS PROJECT PLAN & PROFILE Sta 64+00 to Sta 68+00 SOUTH AREA

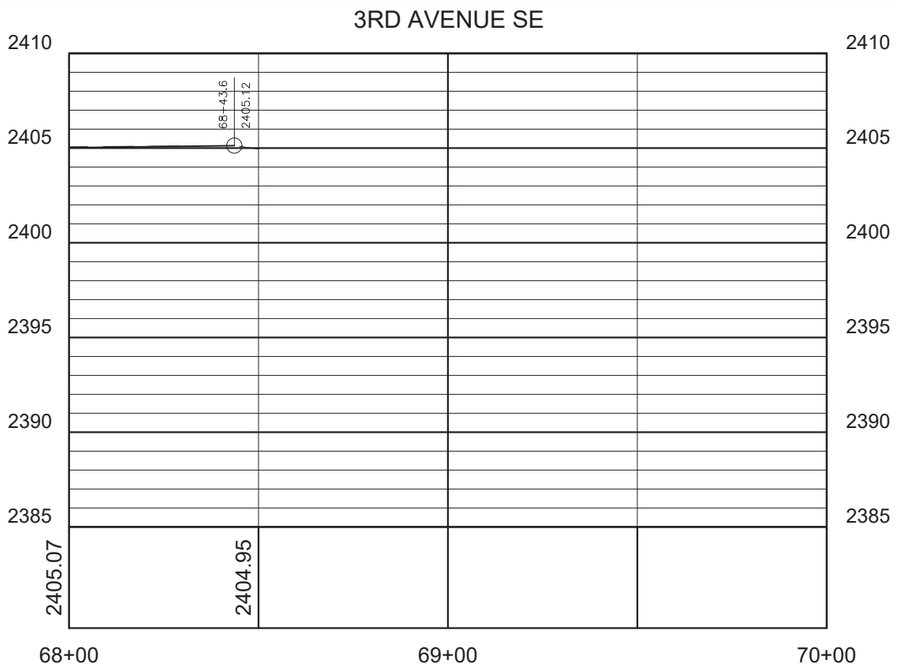
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-17

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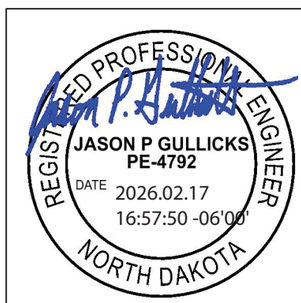
ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

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REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

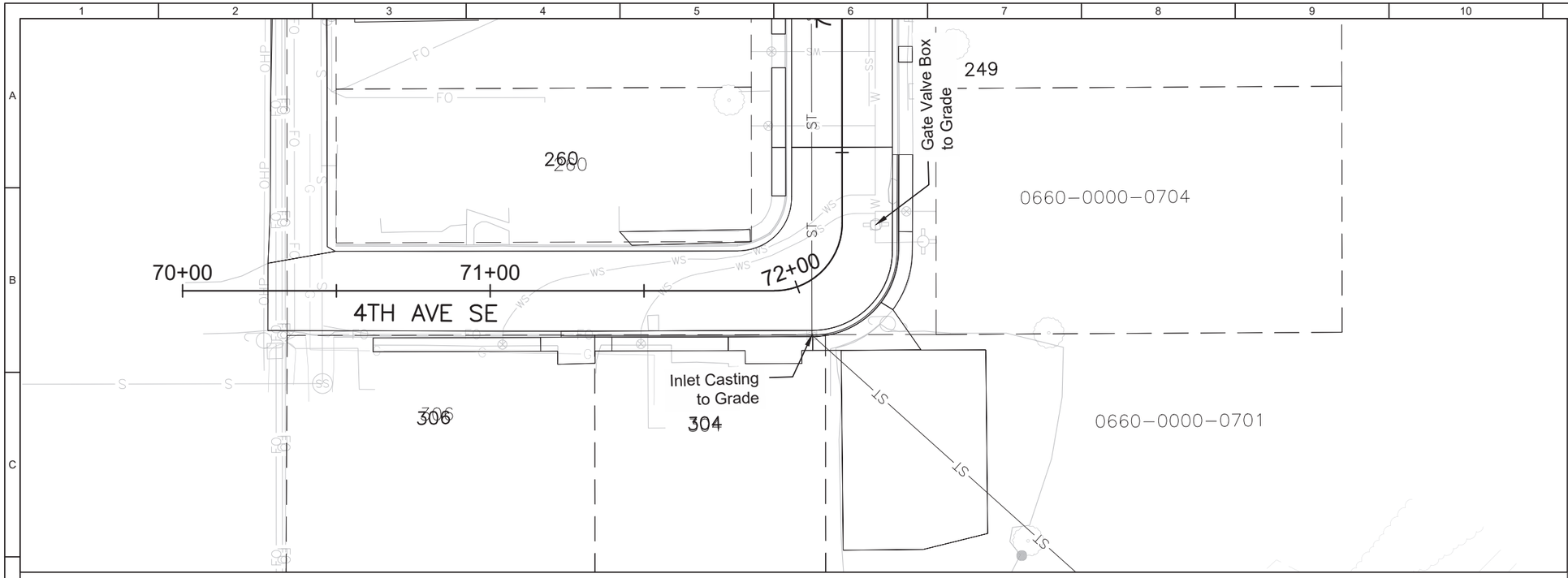
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PLAN & PROFILE
Sta 68+00 to Sta 68+50
SOUTH AREA

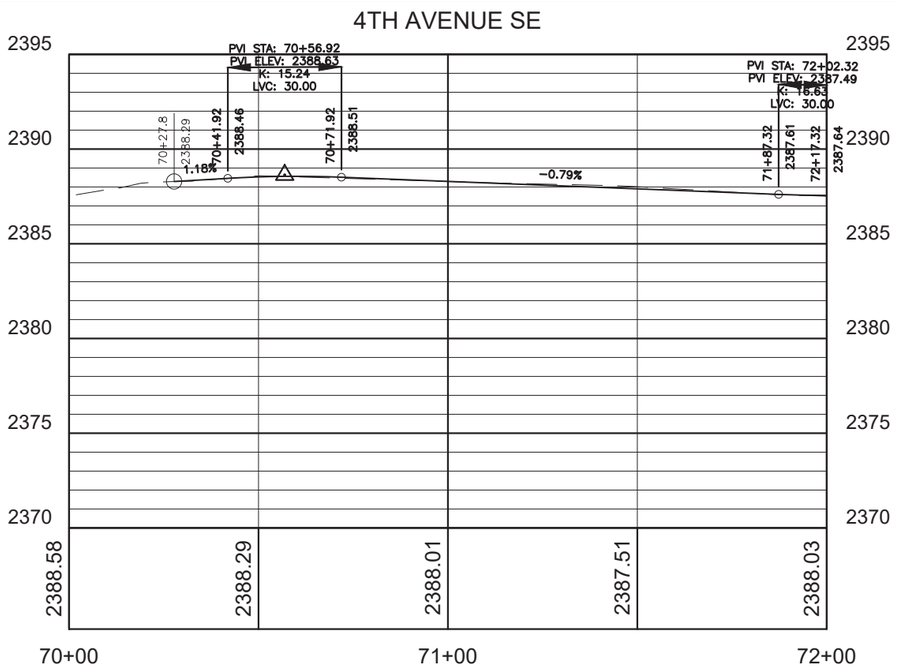
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-18

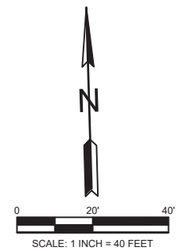
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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
INLET CASTING TO GRADE	1	EA



REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
16:58:08 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

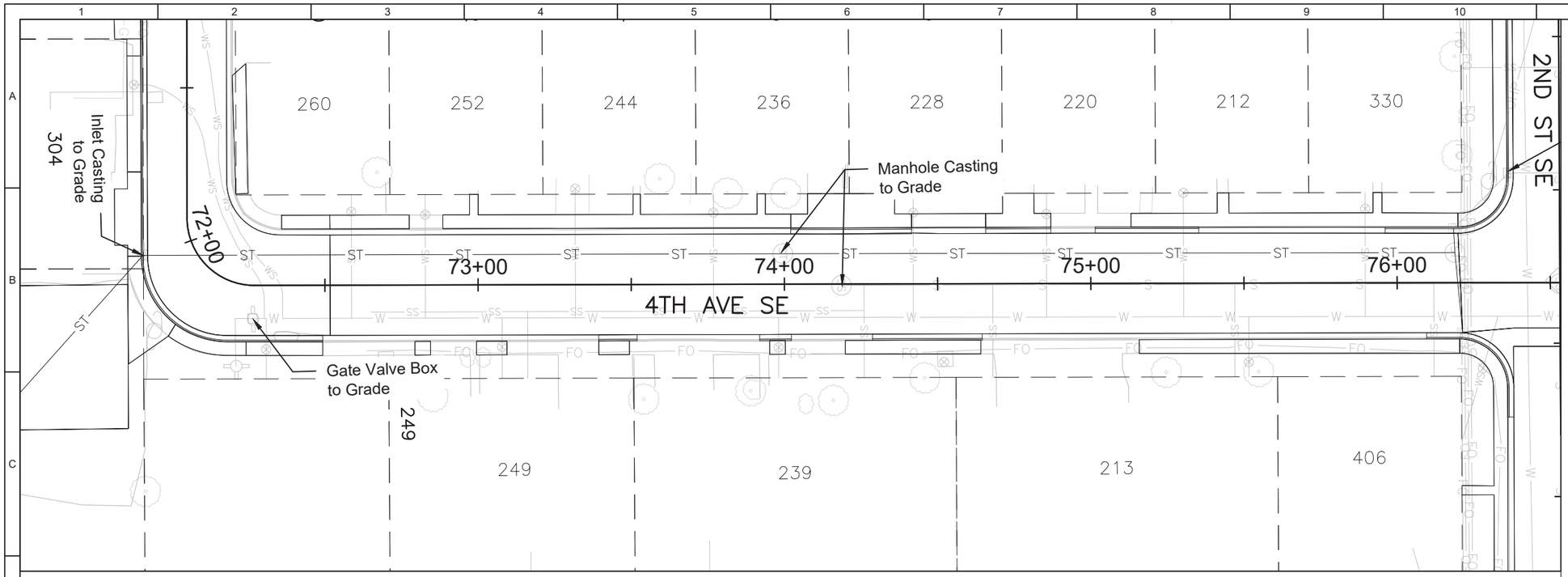
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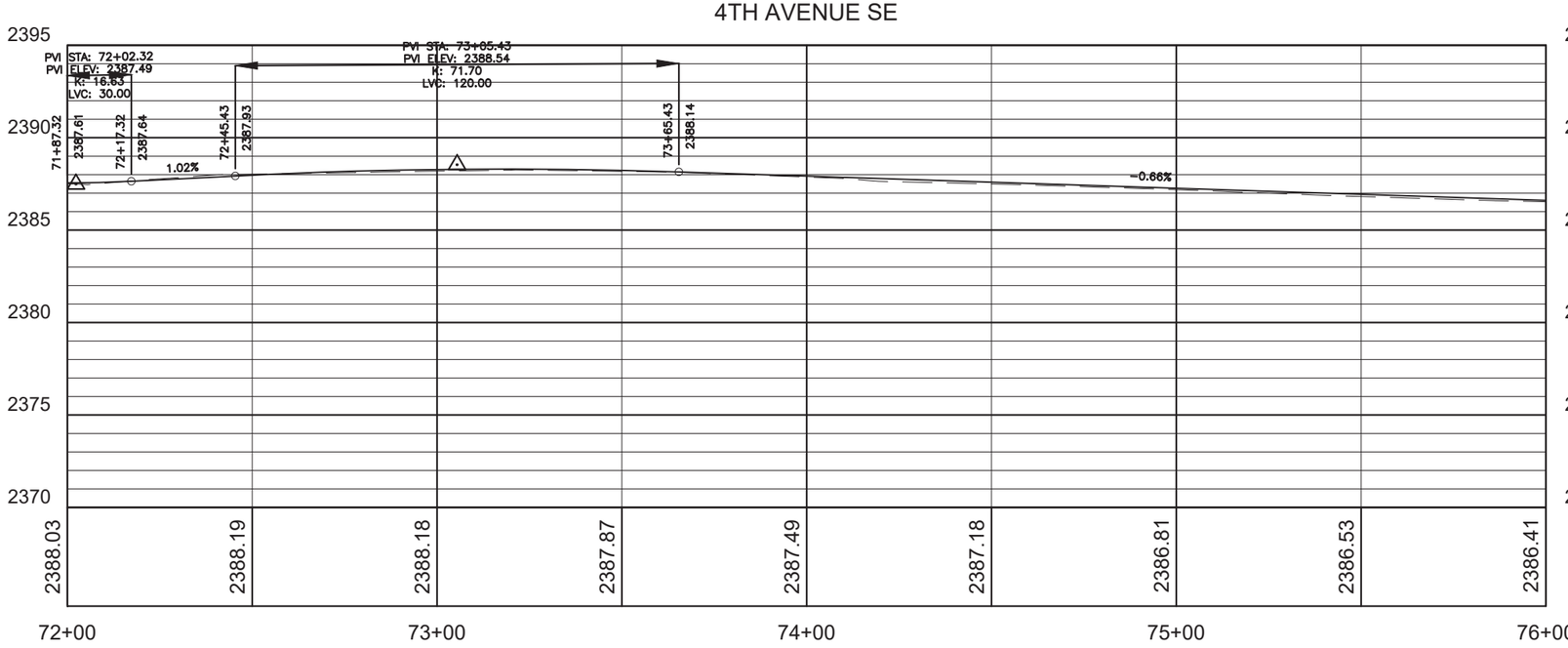
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-19

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
MANHOLE CASTING TO GRADE	2	EA
GATE VALVE BOX TO GRADE	1	EA

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
16:58:37 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT PLAN & PROFILE Sta 72+00 to Sta 76+00 SOUTH AREA

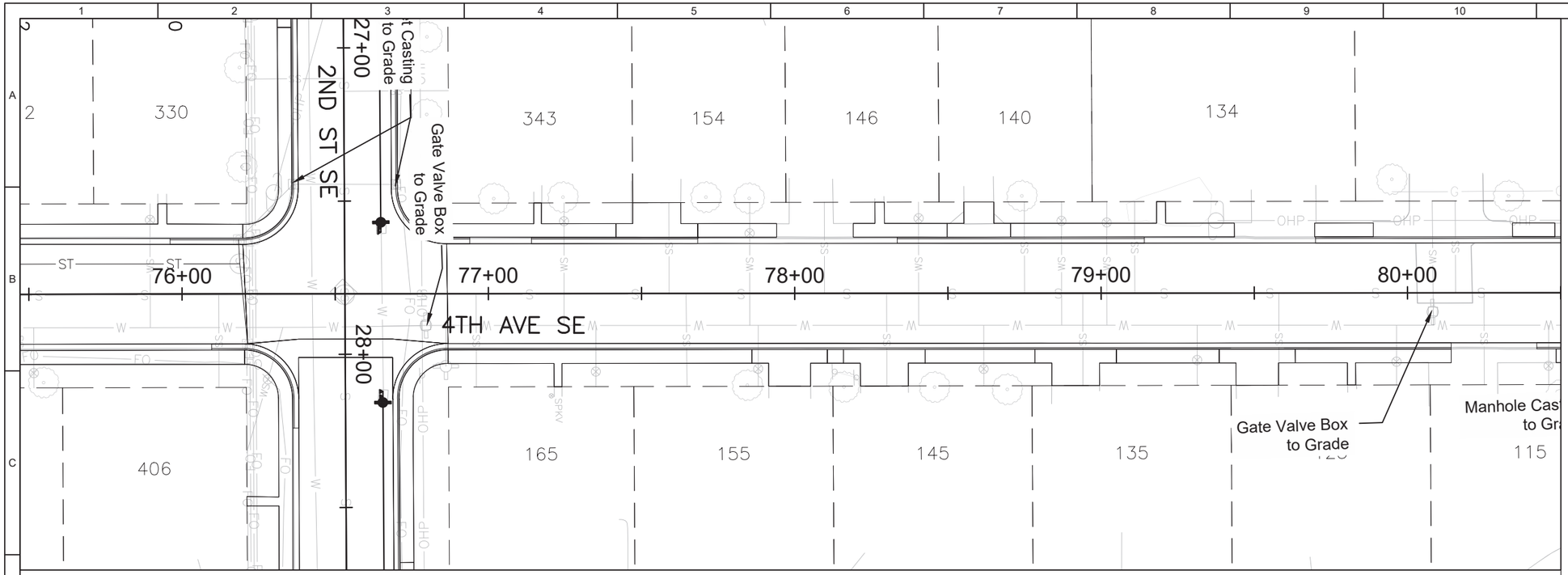
Apex Engineering Group

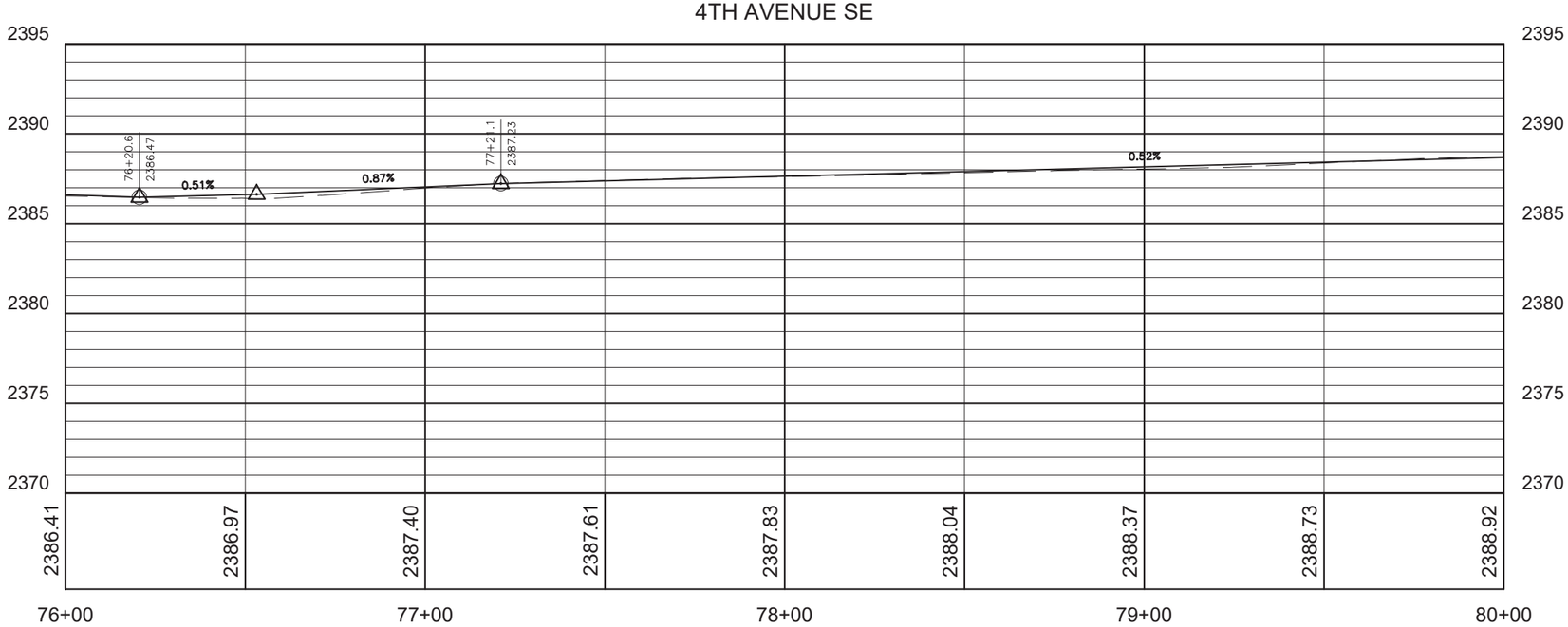
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-20

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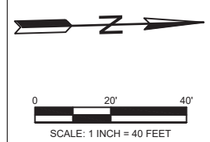


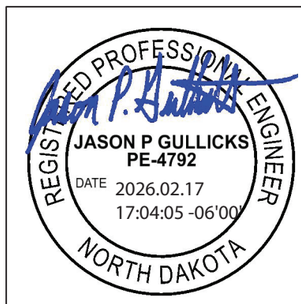


ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

No Quantities This Sheet





REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

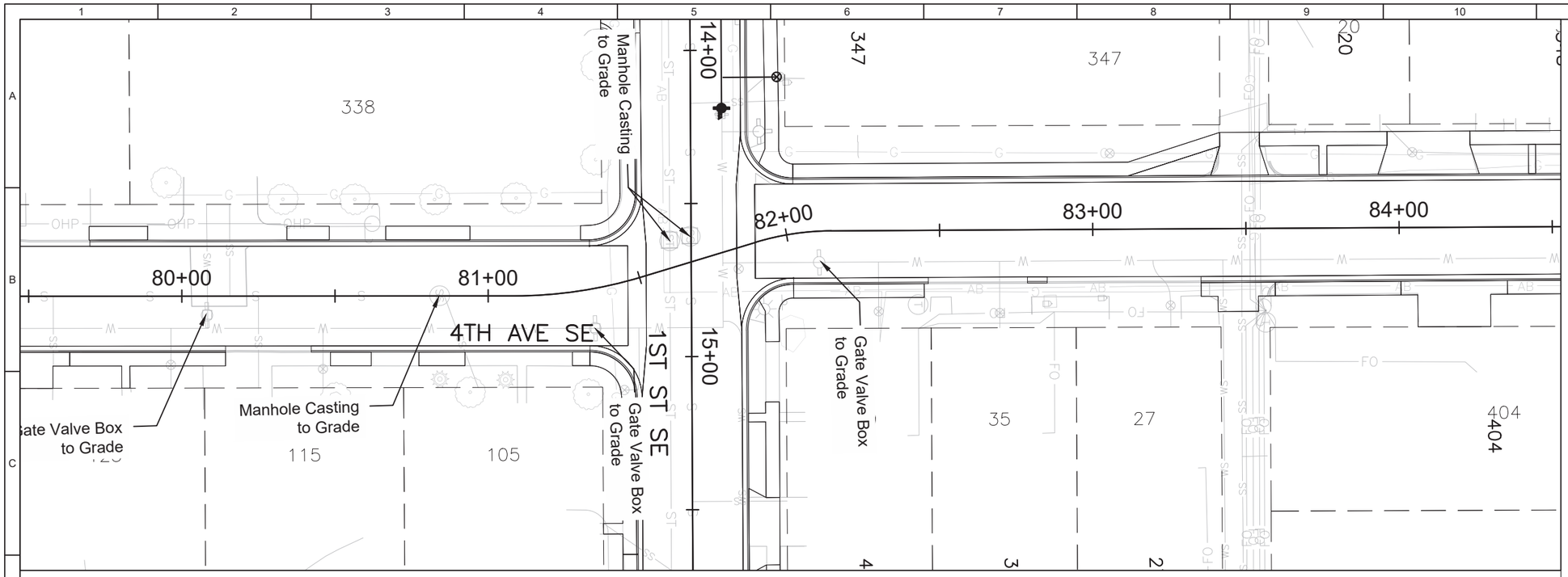
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PLAN & PROFILE
Sta 76+00 to Sta 80+00
SOUTH AREA

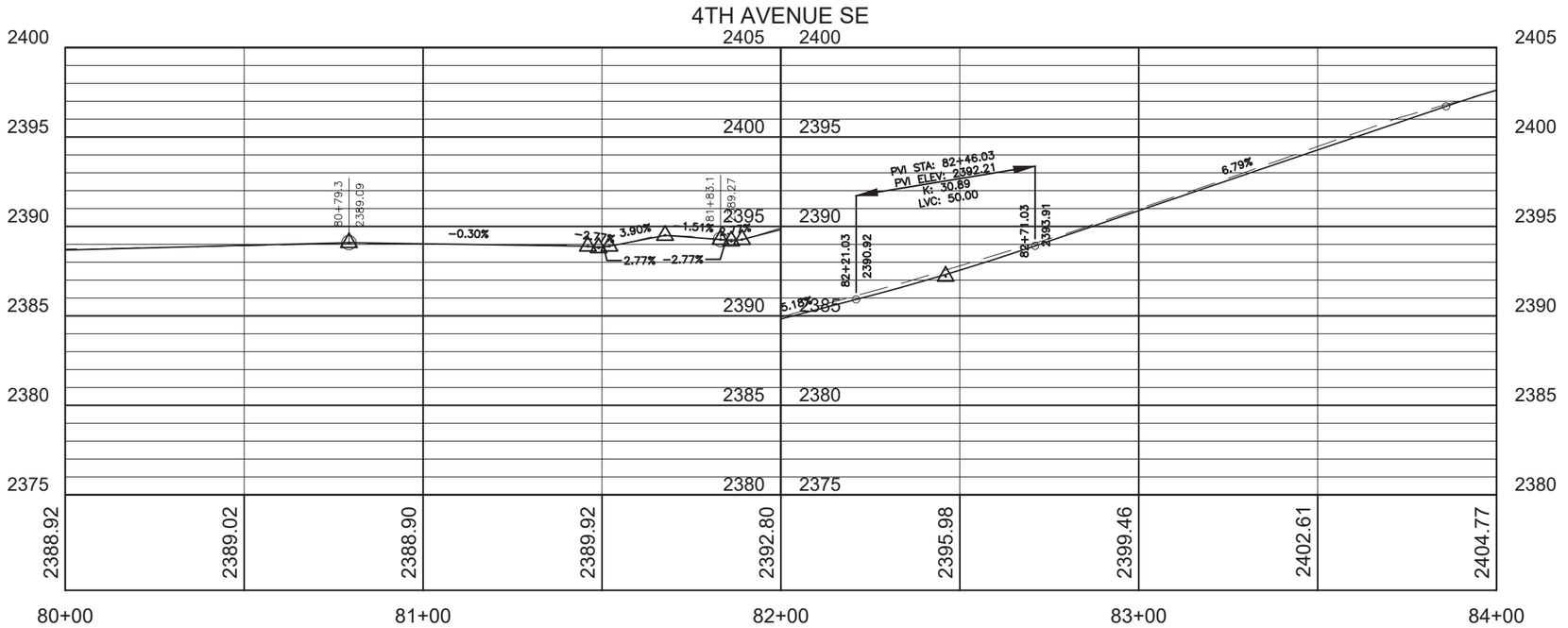
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-21

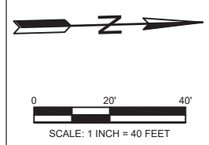
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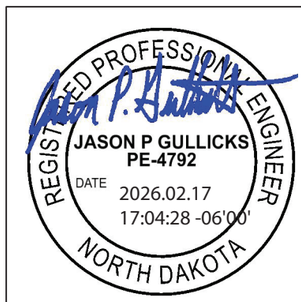




ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
MANHOLE CASTING TO GRADE	1	EA





REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

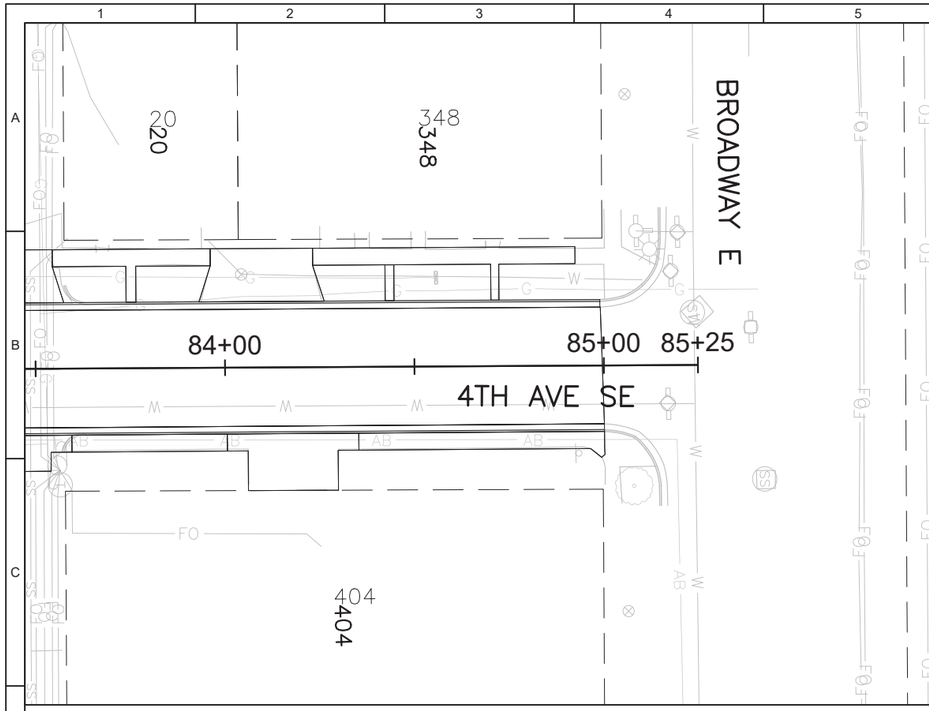
2026 UTILITY & STREET IMPROVEMENTS PROJECT PLAN & PROFILE
Sta 80+00 to Sta 84+00
SOUTH AREA

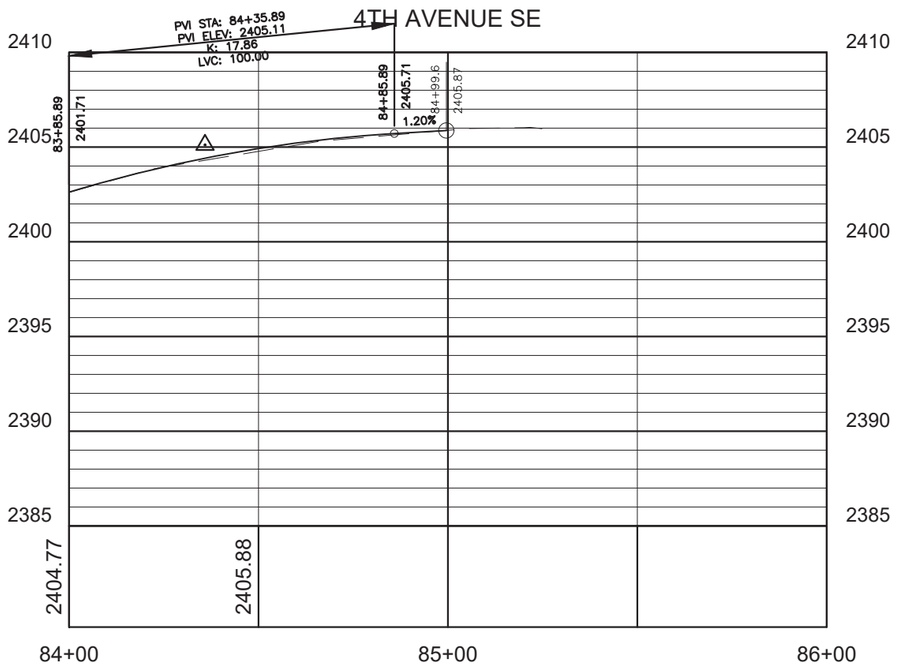
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-22

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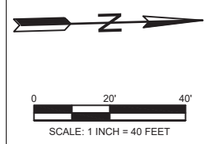




ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

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REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
17:04:59 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
PLAN & PROFILE
Sta 84+00 to Sta 85+25
SOUTH AREA

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

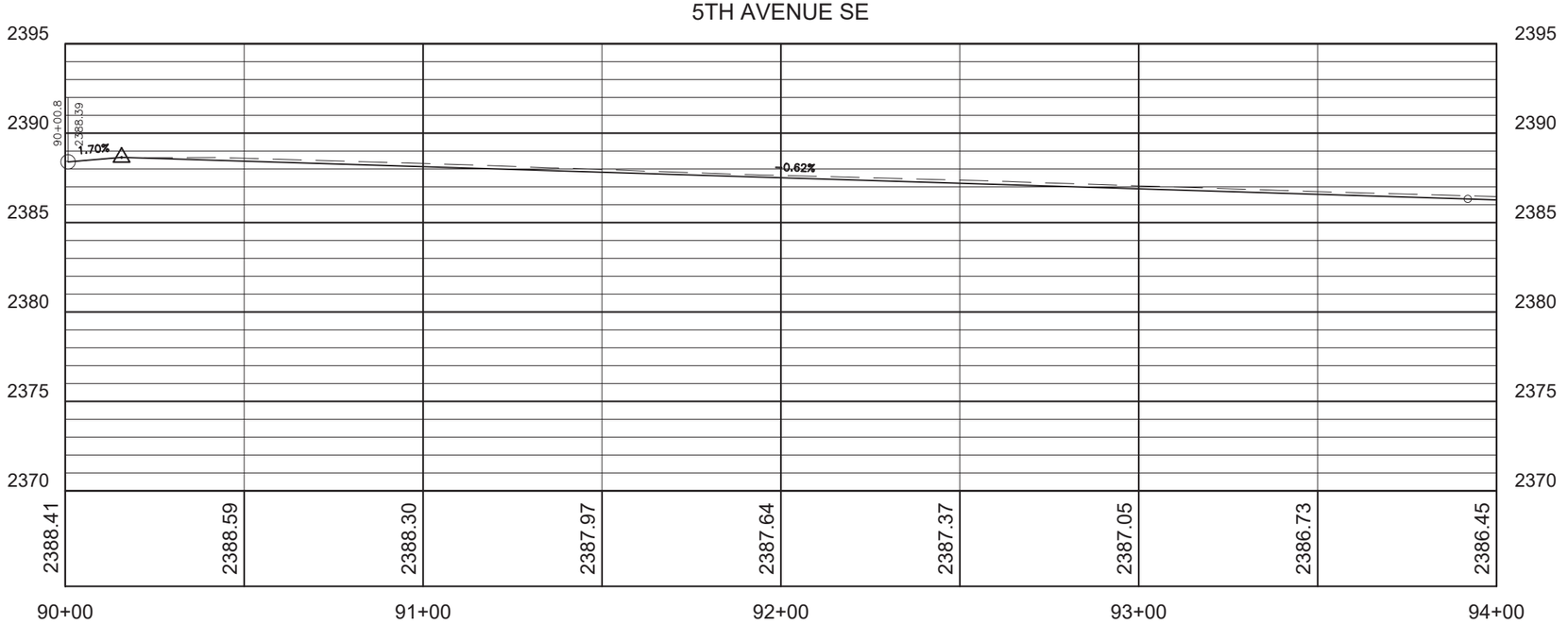
Project #:	22.107.0010
Date:	February 2026
Drawn By:	Caleb Weisgarber
Checked By:	Jason Gullicks
Approved By:	Jason Gullicks

Sheet:

60-23

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
MANHOLE CASTING - NEW	1	EA

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 17:05:34 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

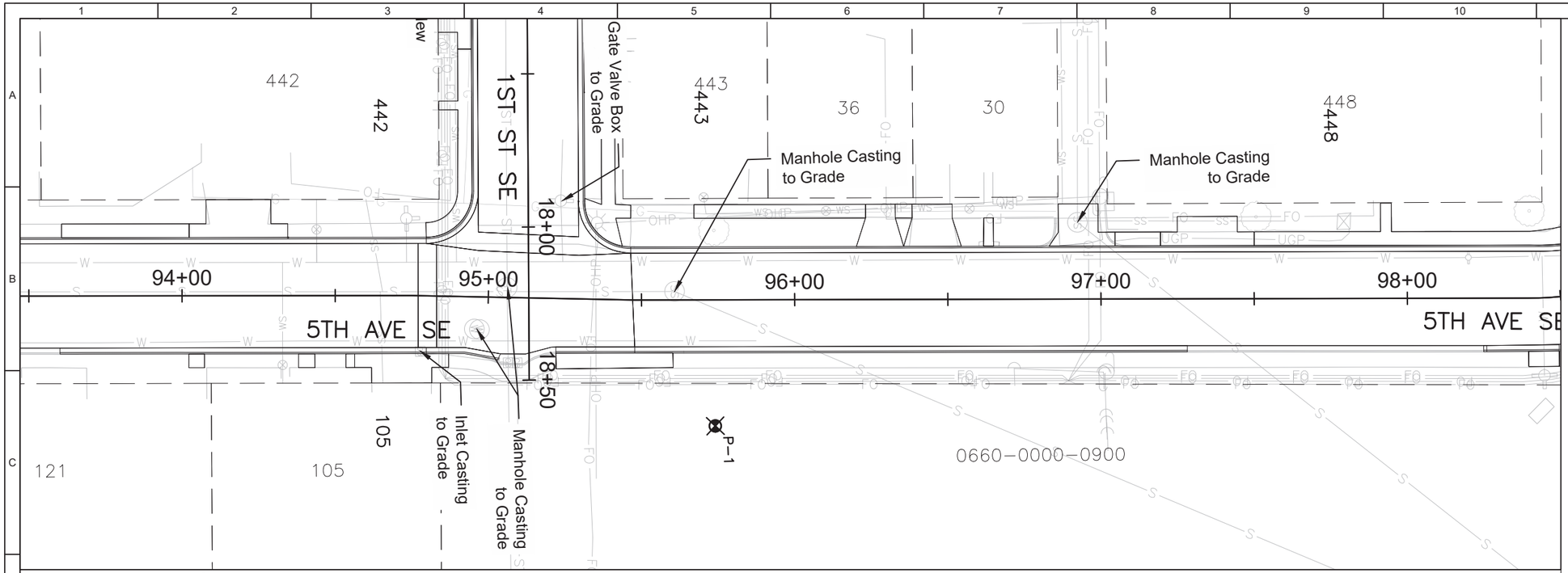
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PLAN & PROFILE
Sta 90+00 to Sta 94+00
SOUTH AREA

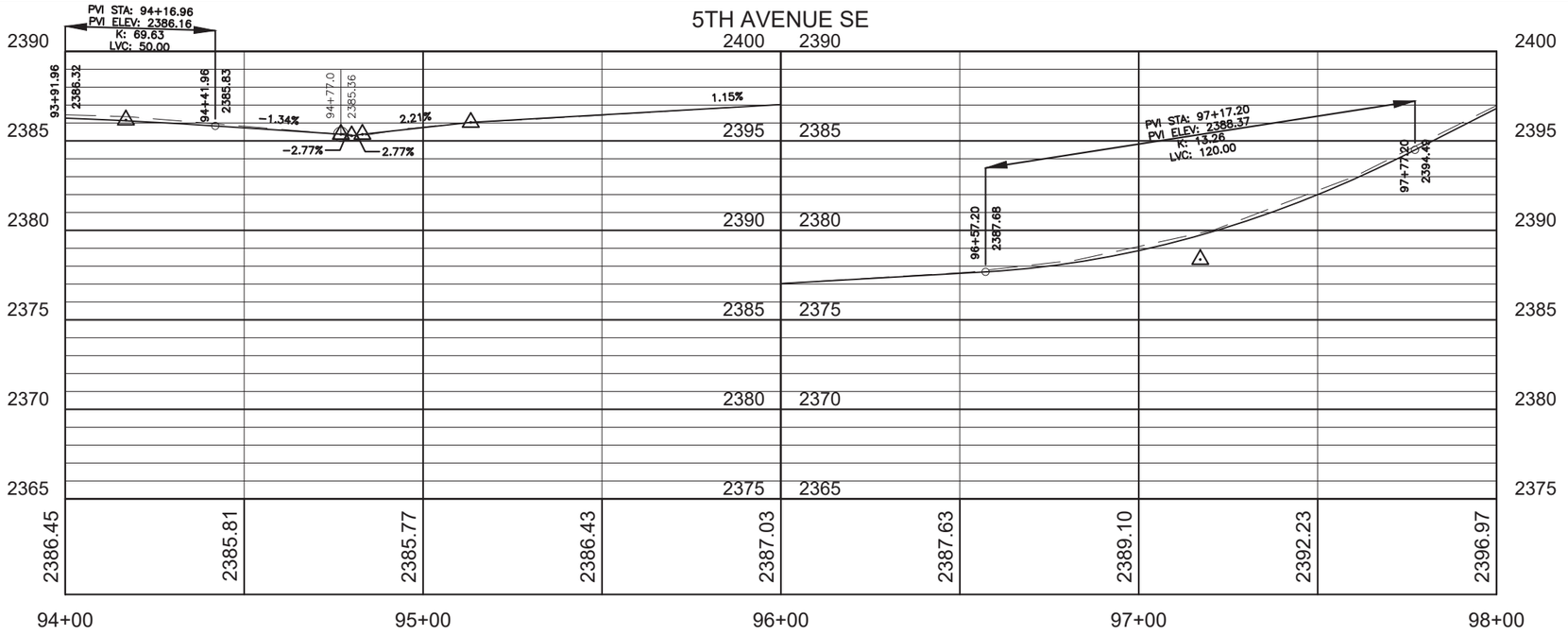
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-24

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
MANHOLE CASTING TO GRADE	2	EA

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 17:06:01 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

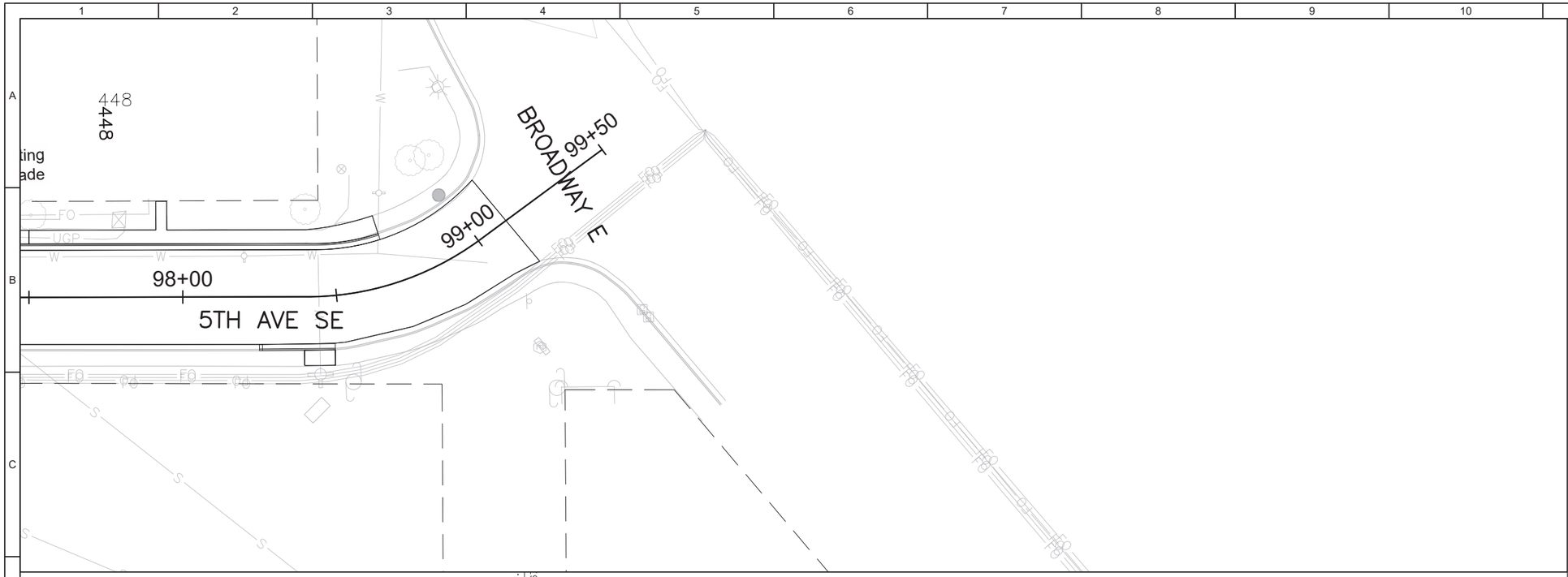
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PLAN & PROFILE
Sta 94+00 to Sta 98+00
SOUTH AREA

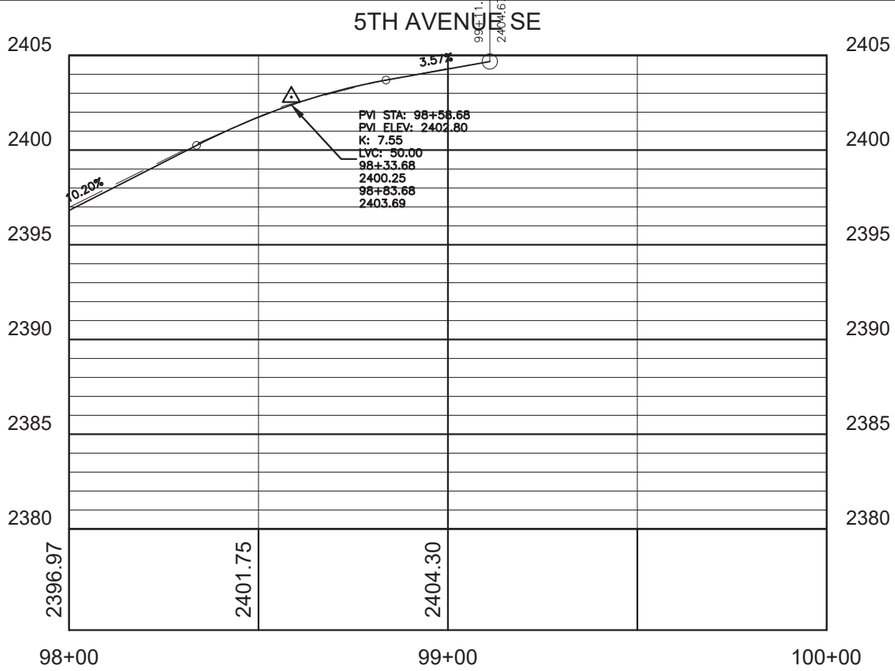
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-25

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

No Quantities This Sheet



REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
17:06:27 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
PLAN & PROFILE
Sta 98+00 to Sta 99+50
SOUTH AREA

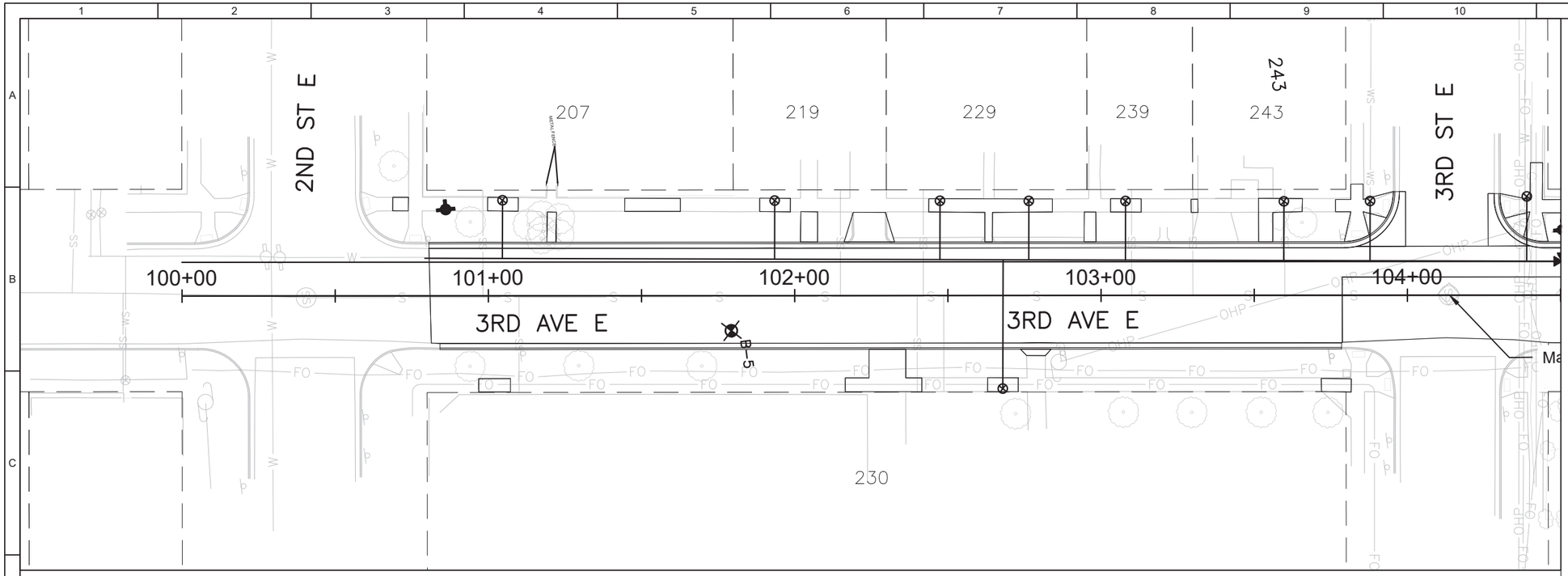
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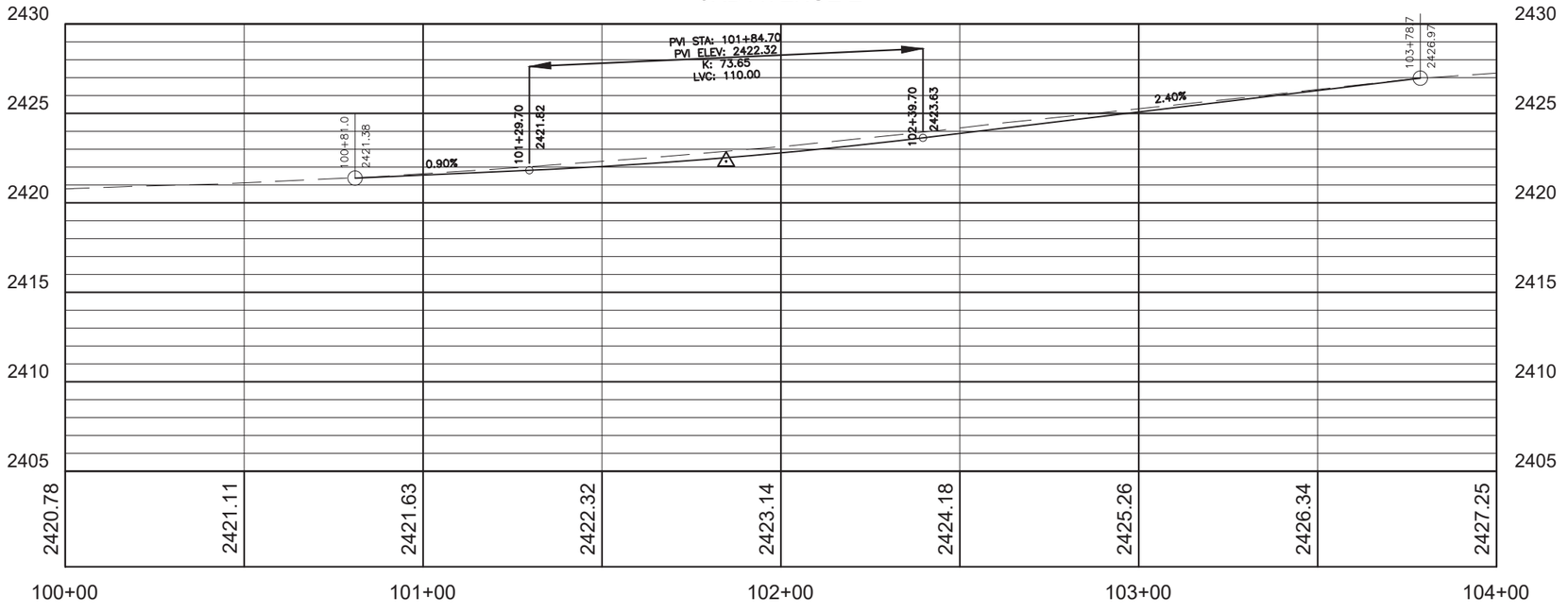
Bismarck - Detroit Lakes -
Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-26

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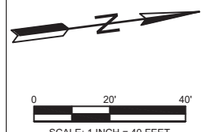




ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

No Quantities This Sheet



REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
17:06:53 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

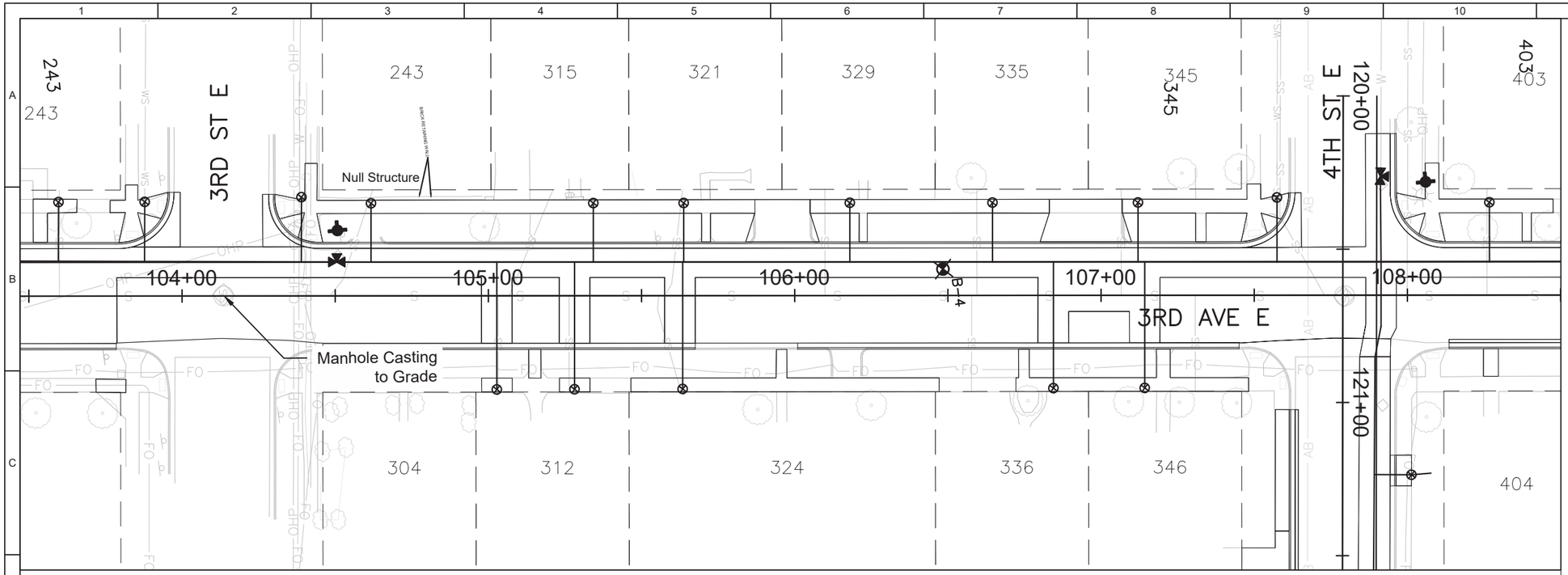
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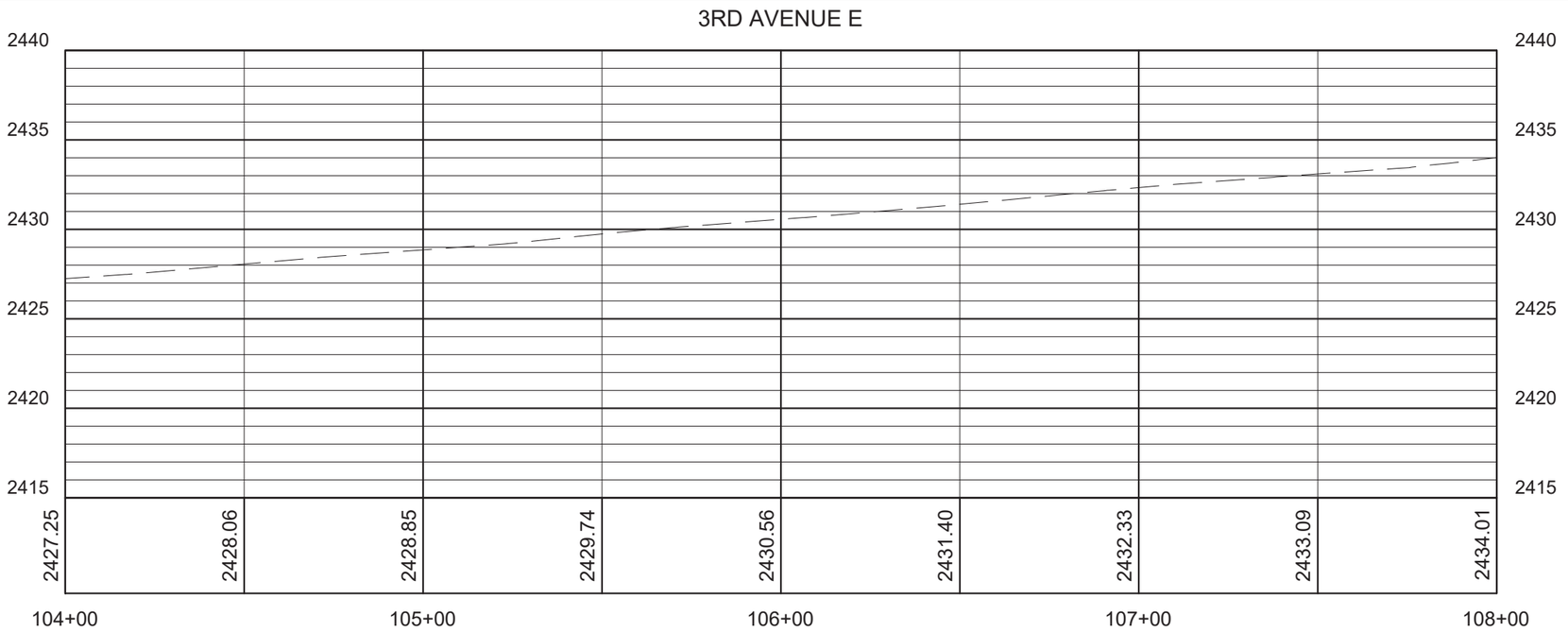
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-27

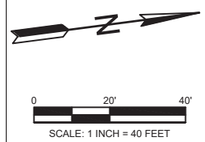
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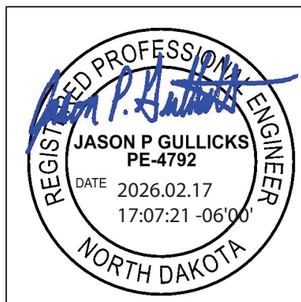




ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
MANHOLE CASTING TO GRADE	1	EA





REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
PLAN & PROFILE
Sta 104+00 to Sta 108+00
NORTH AREA

Apex Engineering Group

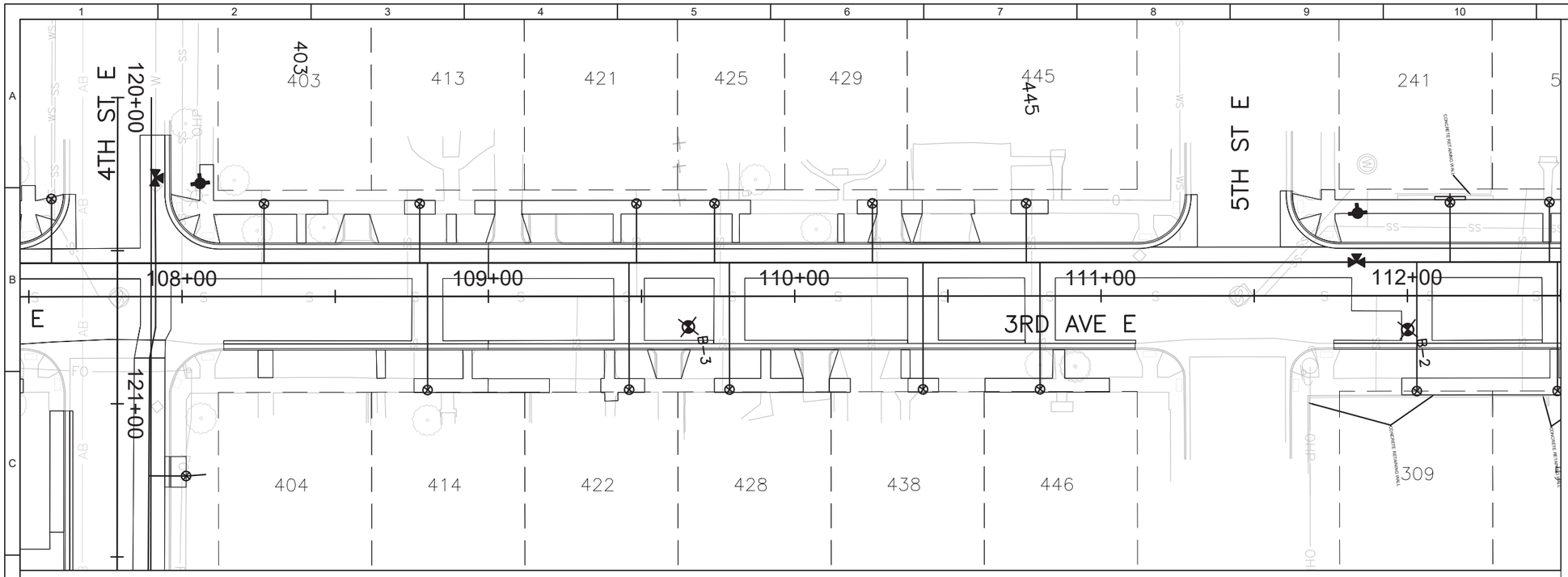
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Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

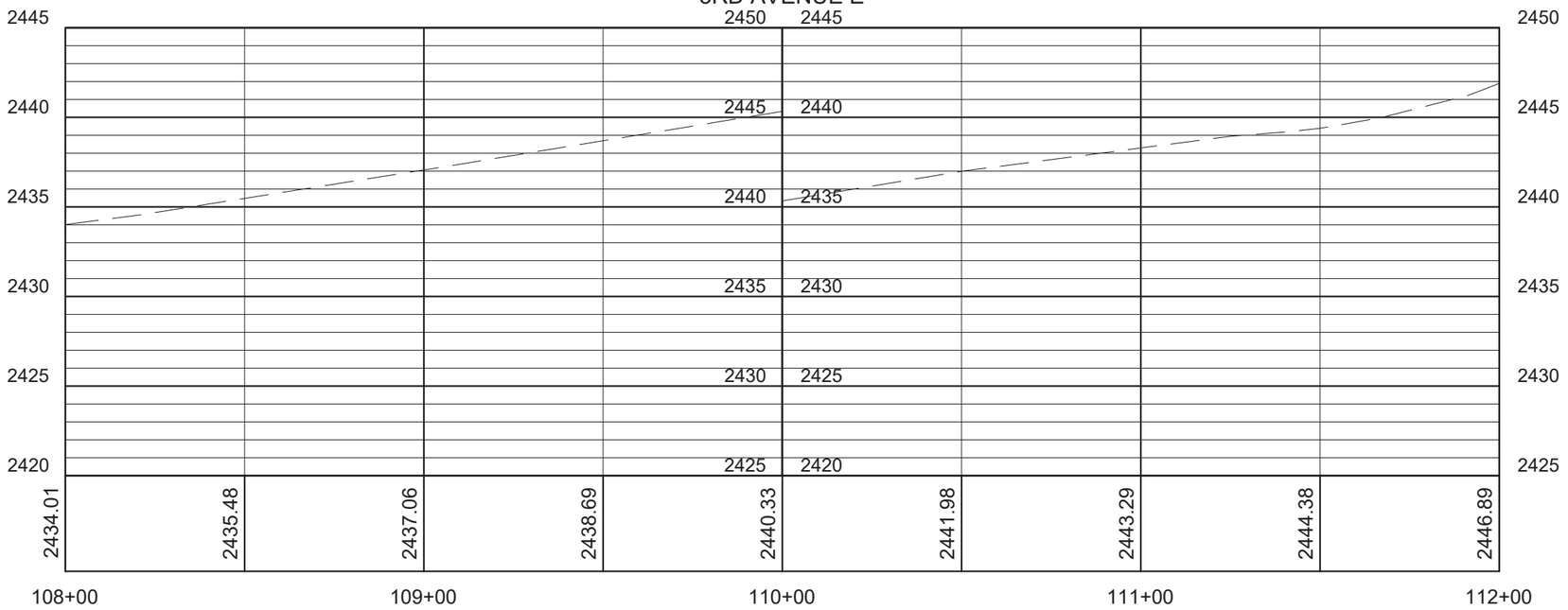
Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet:

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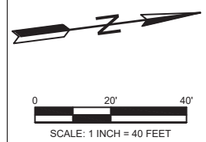


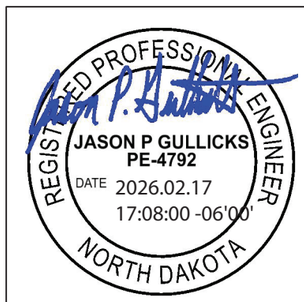


ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

No Quantities This Sheet





REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

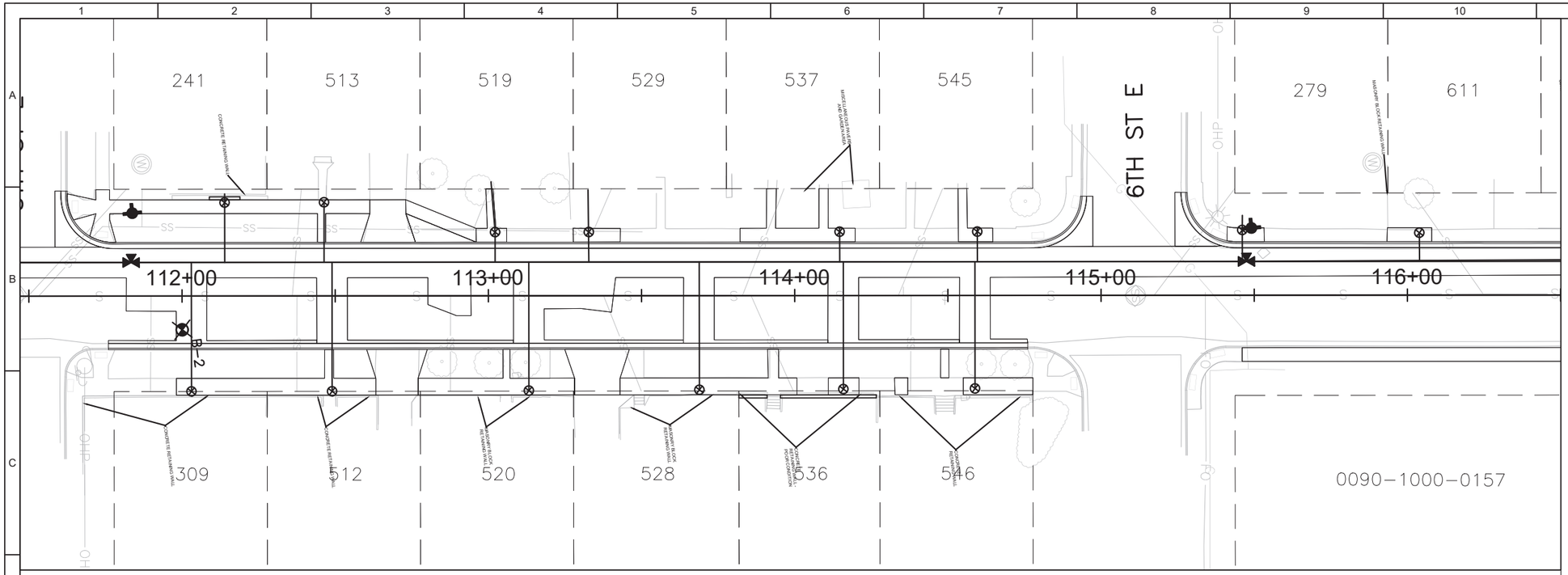
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PLAN & PROFILE
Sta 108+00 to Sta 112+00
NORTH AREA

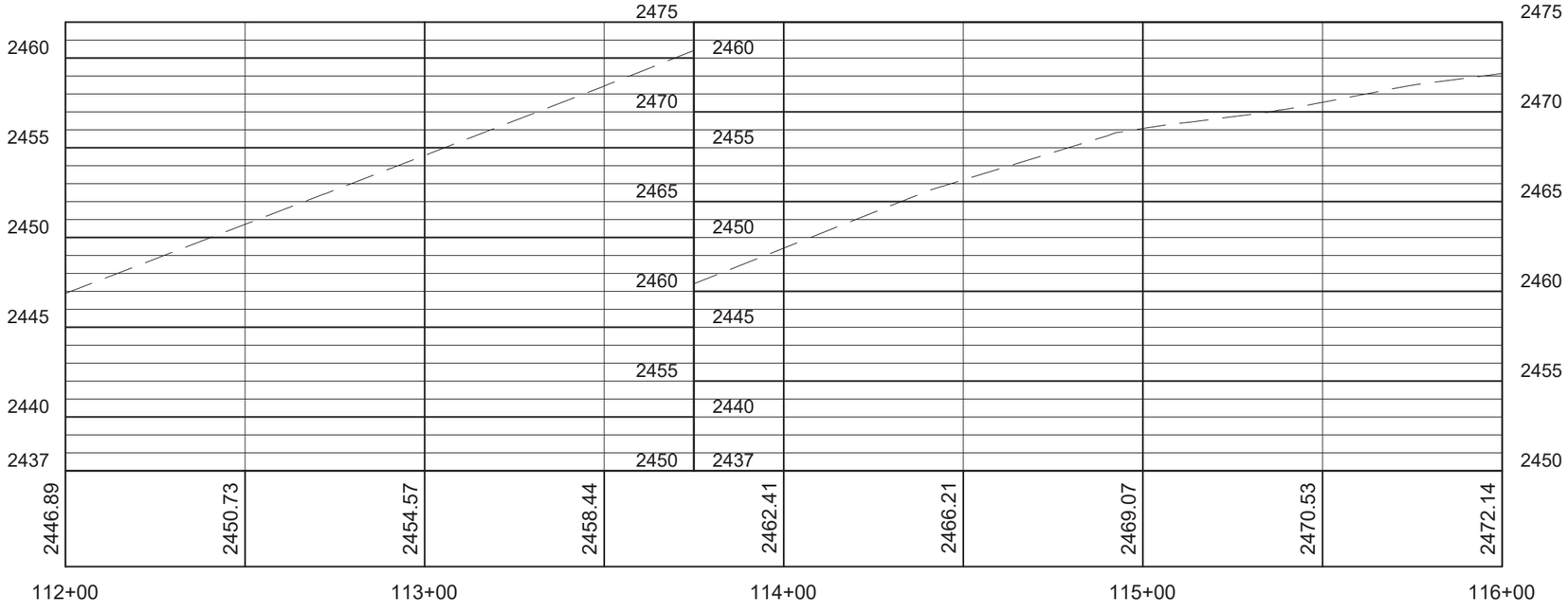
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-29

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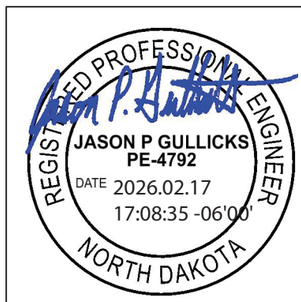


ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

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REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

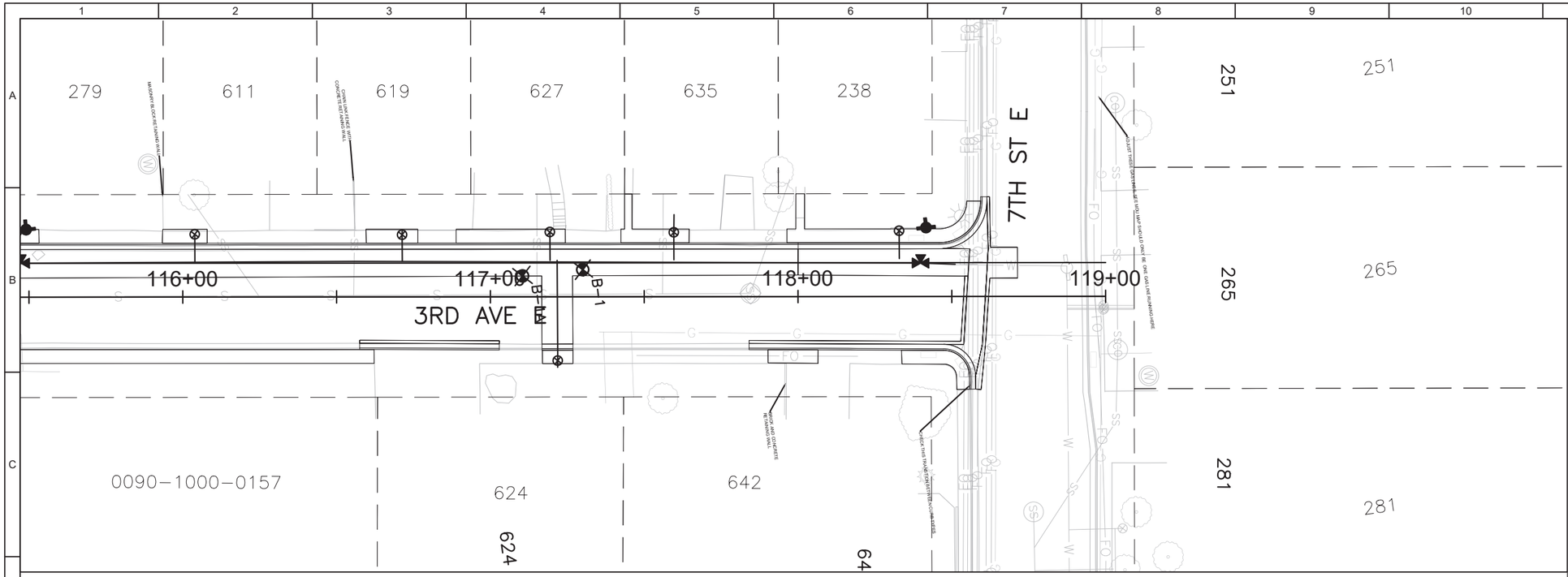
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PLAN & PROFILE
Sta 112+00 to Sta 116+00
NORTH AREA

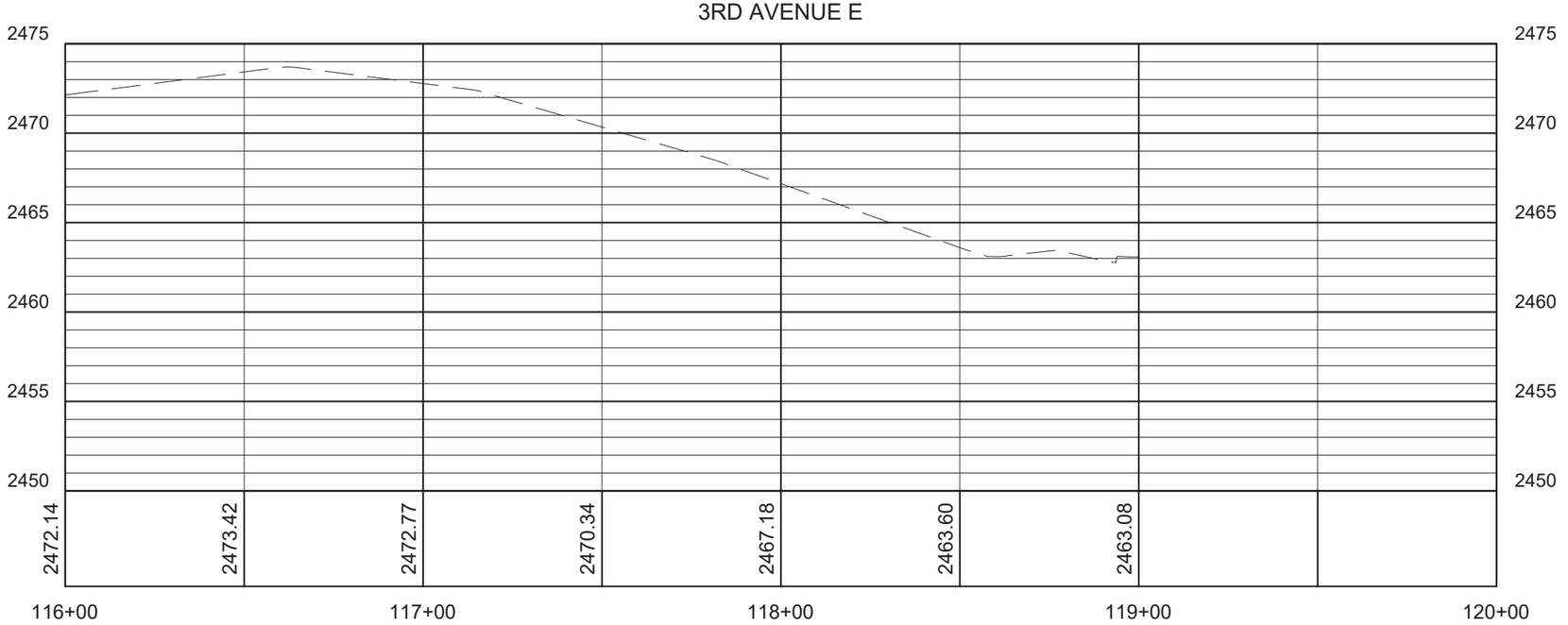
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-30

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

No Quantities This Sheet



REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 17:09:01 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

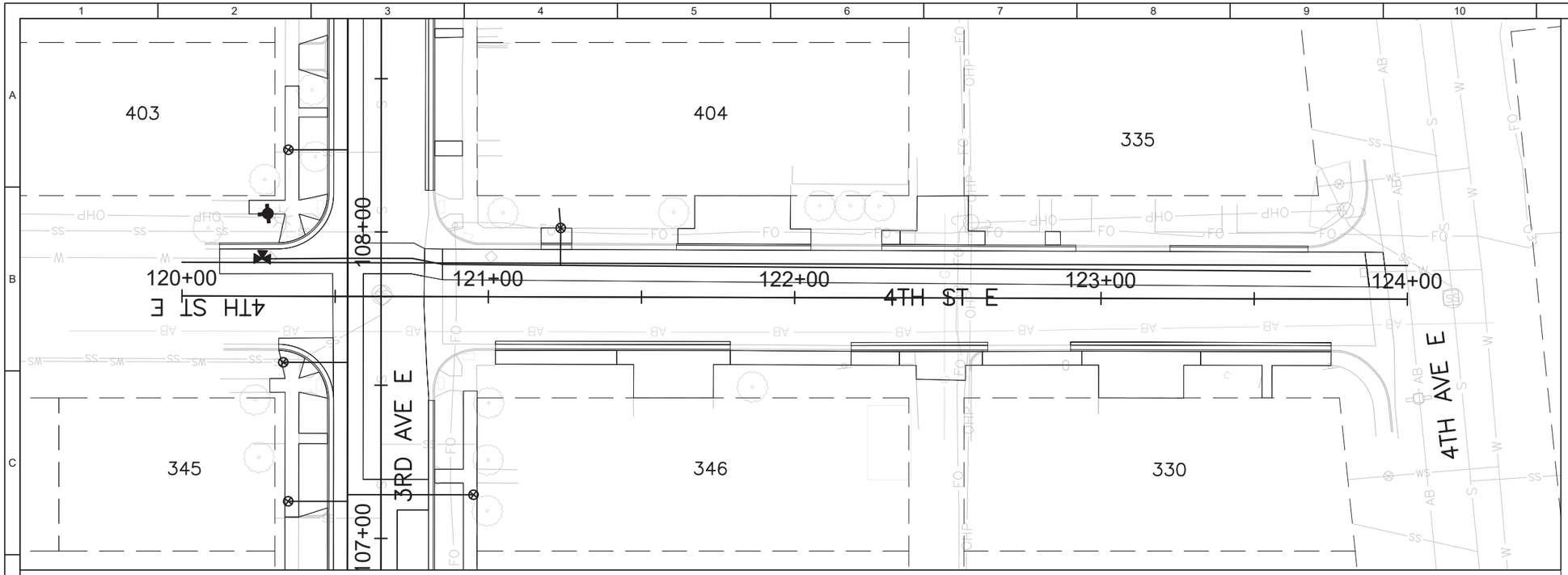
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PLAN & PROFILE
Sta 116+00 to Sta 119+00
NORTH AREA

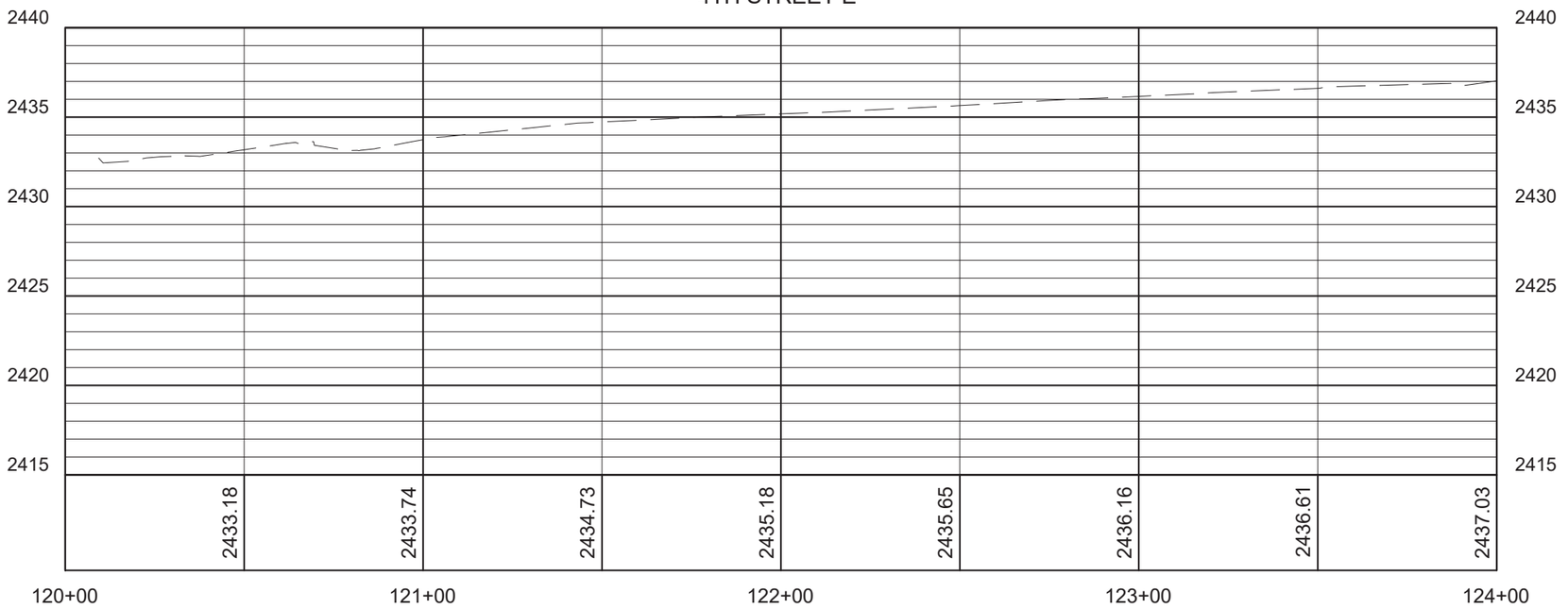
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

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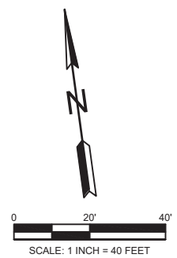


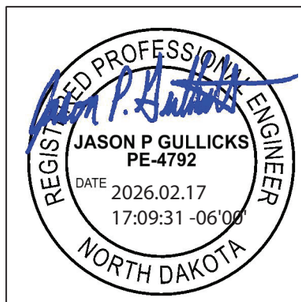


ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT

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REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

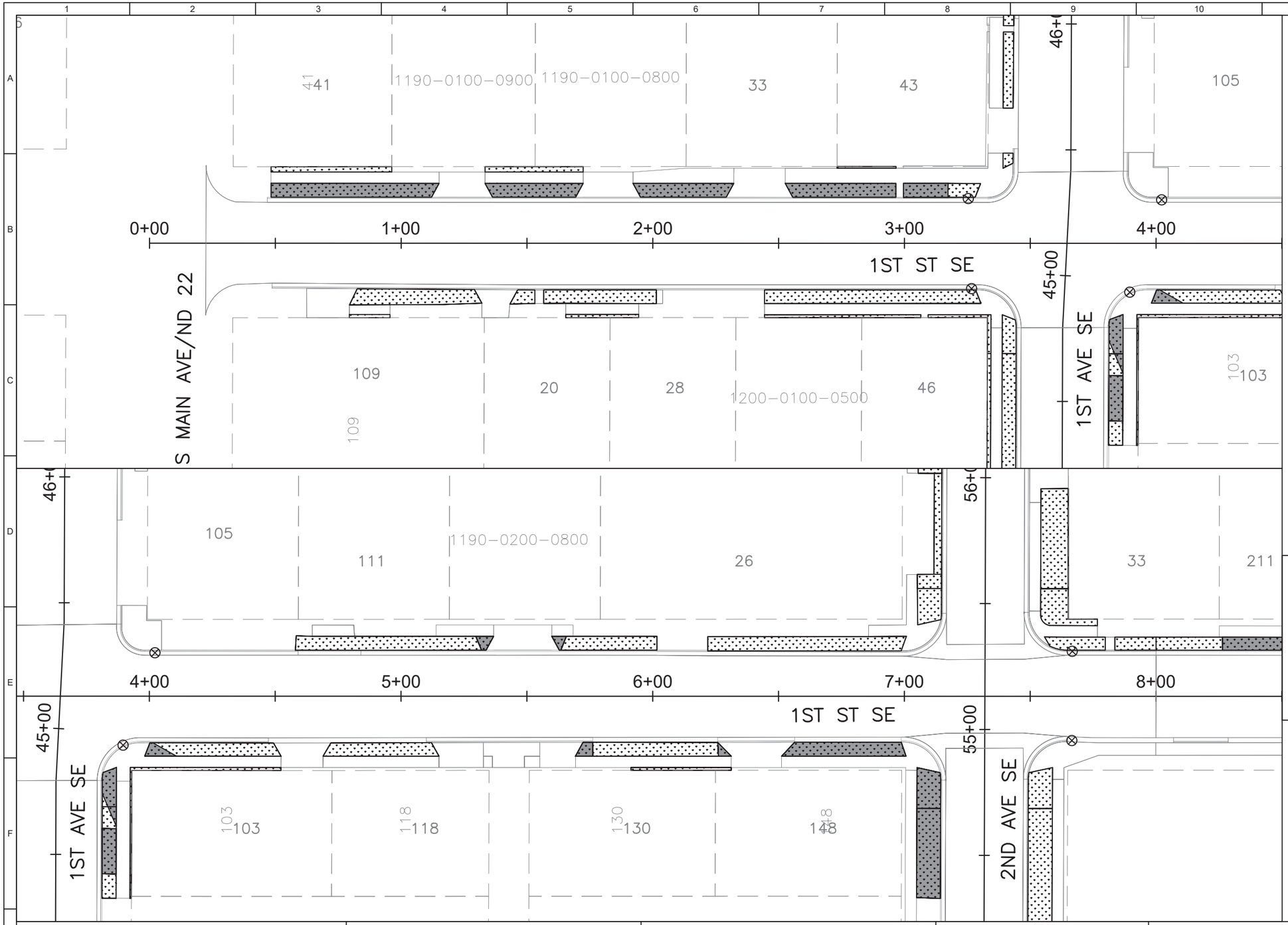
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PLAN & PROFILE
Sta 120+00 to Sta 124+00
NORTH AREA

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Dickinson - Fargo - St. Cloud
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Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 60-32

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SEEDING	652	SY
HYDRAULIC MULCH	652	SY
TEMPORARY COVER CROP	652	SY
TOPSOIL - IMPORTED	32	CY
INLET PROTECTION-SPECIAL TEMPORARY	6	EA

LEGEND

- Topsoil Imported, Temporary Cover Crop, Seeding, & Hydraulic Mulch
- Temporary Cover Crop, Seeding, & Hydraulic Mulch
- ⊗ Inlet Protection - Special Temporary

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:37:02 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

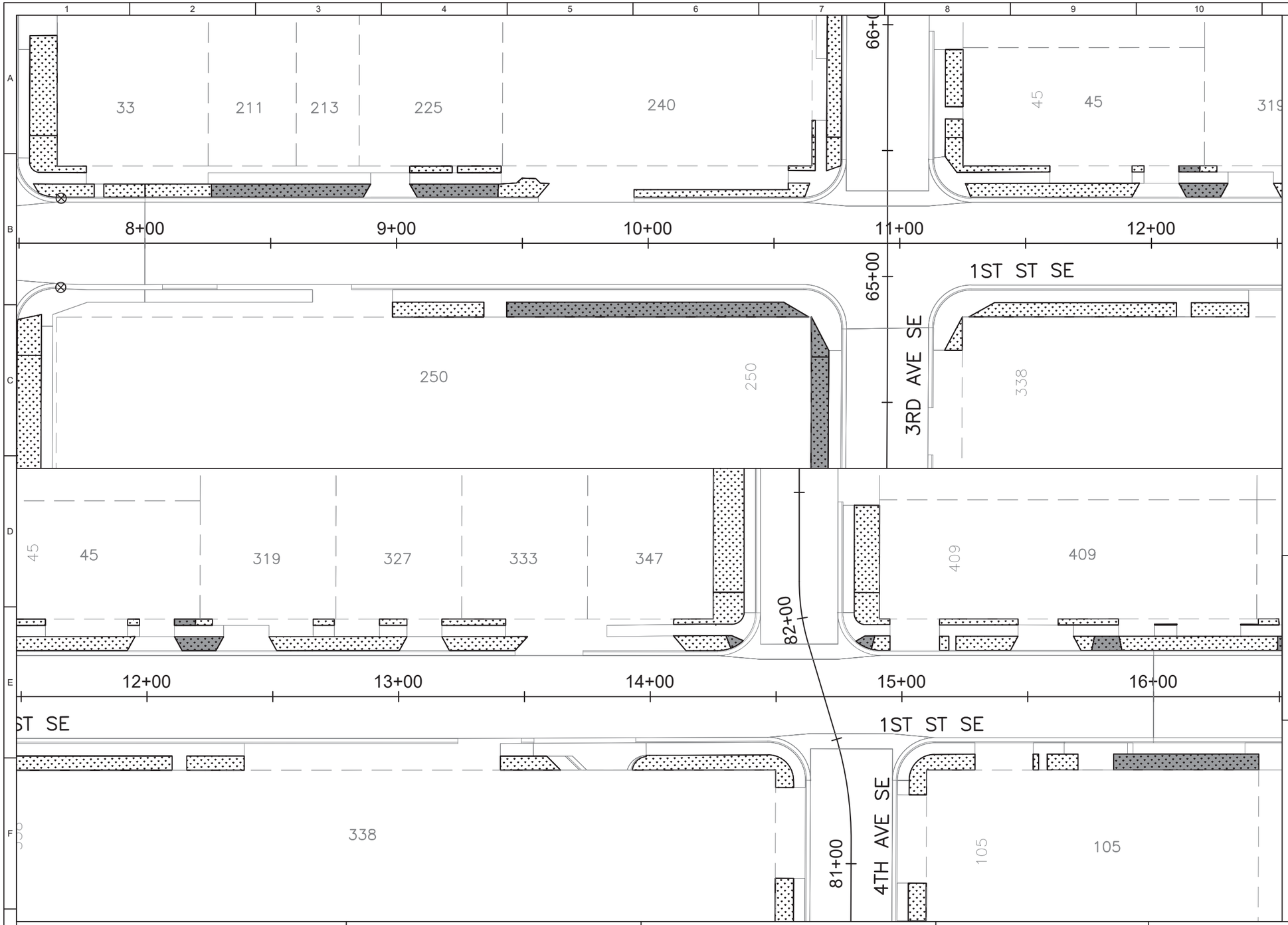
2026 UTILITY & STREET IMPROVEMENTS PROJECT
EROSION CONTROL
Sta 0+00 to Sta 8+00
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 76-01

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SEEDING	631	SY
HYDRAULIC MULCH	631	SY
TEMPORARY COVER CROP	631	SY
TOPSOIL - IMPORTED	27	CY

LEGEND

- Topsoil Imported, Temporary Cover Crop, Seeding, & Hydraulic Mulch
- Temporary Cover Crop, Seeding, & Hydraulic Mulch
- ⊗ Inlet Protection - Special Temporary

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:37:19 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

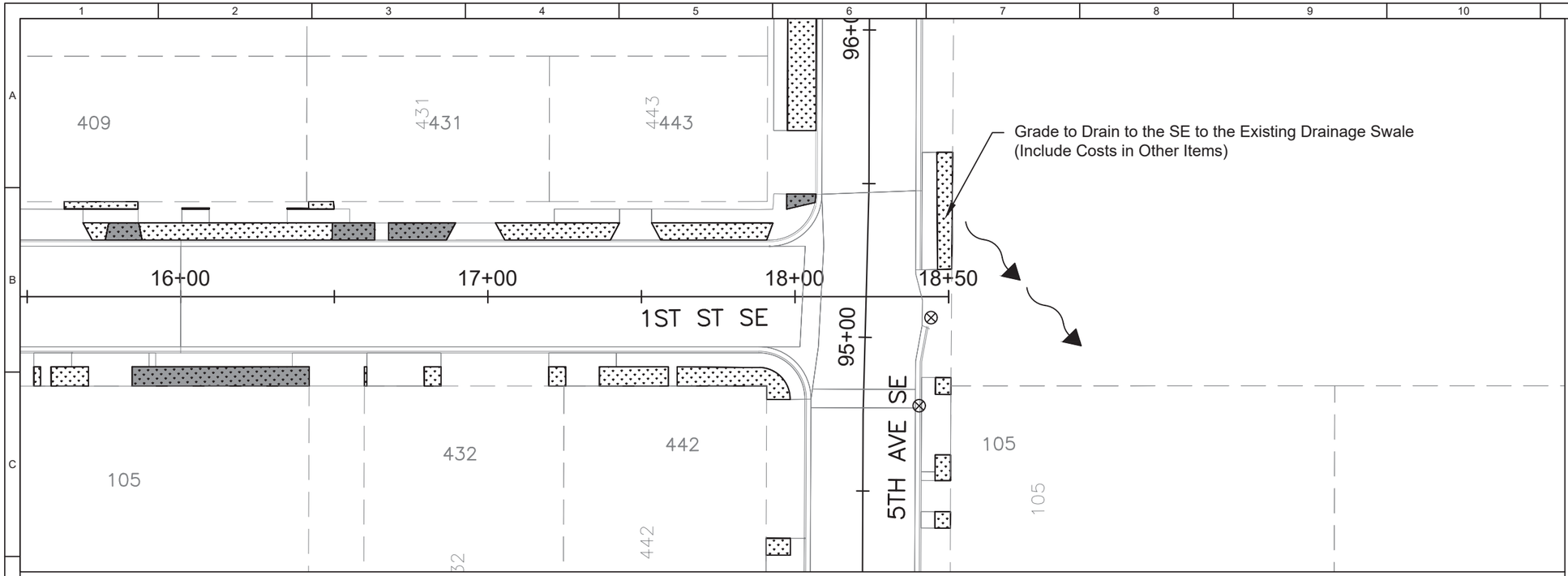
2026 UTILITY & STREET IMPROVEMENTS PROJECT
EROSION CONTROL
Sta 8+00 to Sta 16+00
SOUTH AREA

Apex Engineering Group
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Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 76-02

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SEEDING	227	SY
HYDRAULIC MULCH	227	SY
TEMPORARY COVER CROP	227	SY
TOPSOIL - IMPORTED	11	CY
INLET PROTECTION-SPECIAL TEMPORARY	2	EA

LEGEND

- Topsoil Imported, Temporary Cover Crop, Seeding, & Hydraulic Mulch
- Temporary Cover Crop, Seeding, & Hydraulic Mulch
- ⊗ Inlet Protection - Special Temporary

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:37:36 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

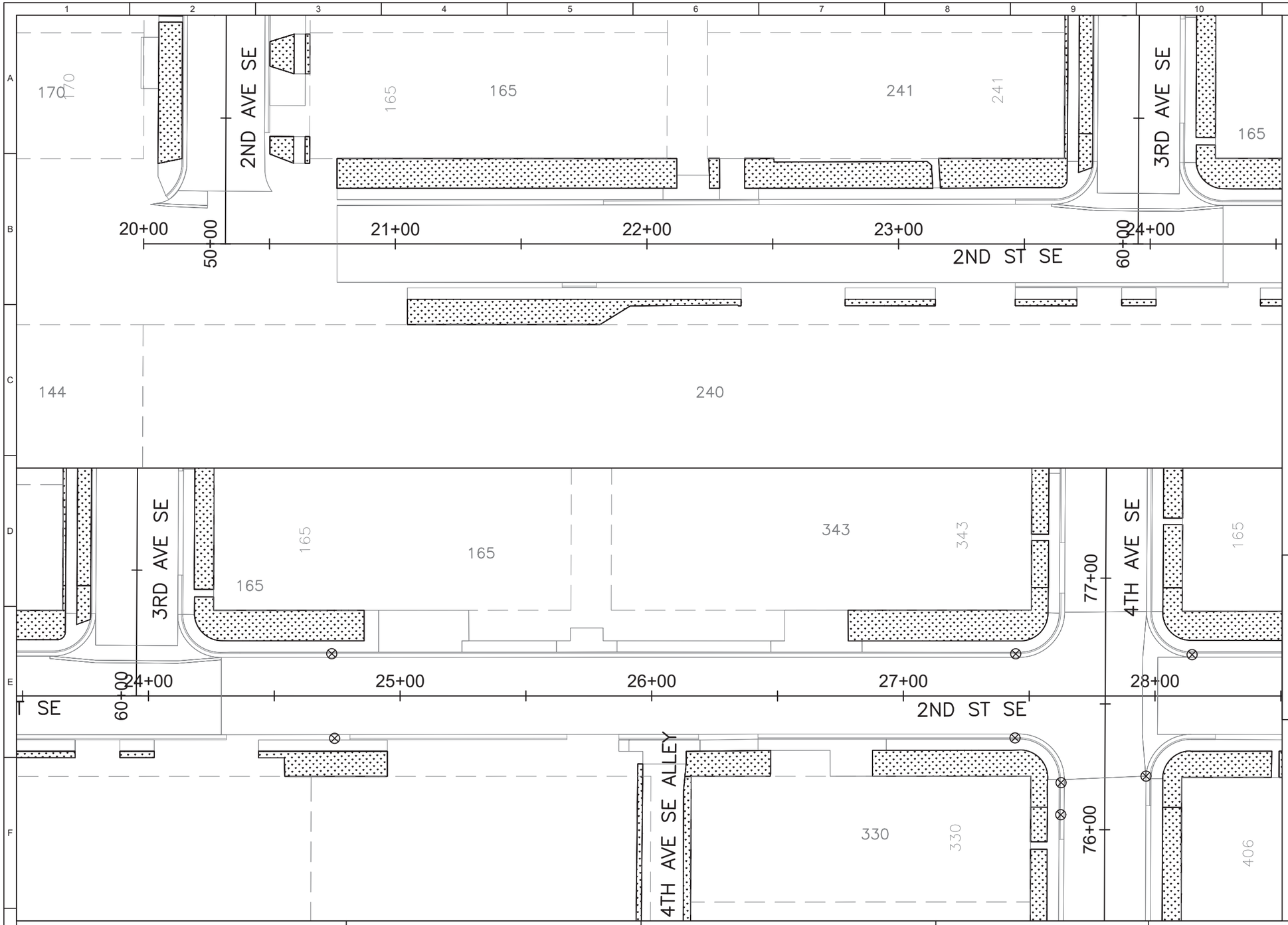
2026 UTILITY & STREET IMPROVEMENTS PROJECT
EROSION CONTROL
Sta 16+00 to Sta 18+50
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
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Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 76-03

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SEEDING	851	SY
HYDRAULIC MULCH	851	SY
TEMPORARY COVER CROP	851	SY
INLET PROTECTION-SPECIAL TEMPORARY	8	EA

LEGEND

- Topsoil Imported, Temporary Cover Crop, Seeding, & Hydraulic Mulch
- Temporary Cover Crop, Seeding, & Hydraulic Mulch
- ⊗ Inlet Protection - Special Temporary

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:37:51 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
EROSION CONTROL
Sta 20+00 to Sta 28+00
SOUTH AREA

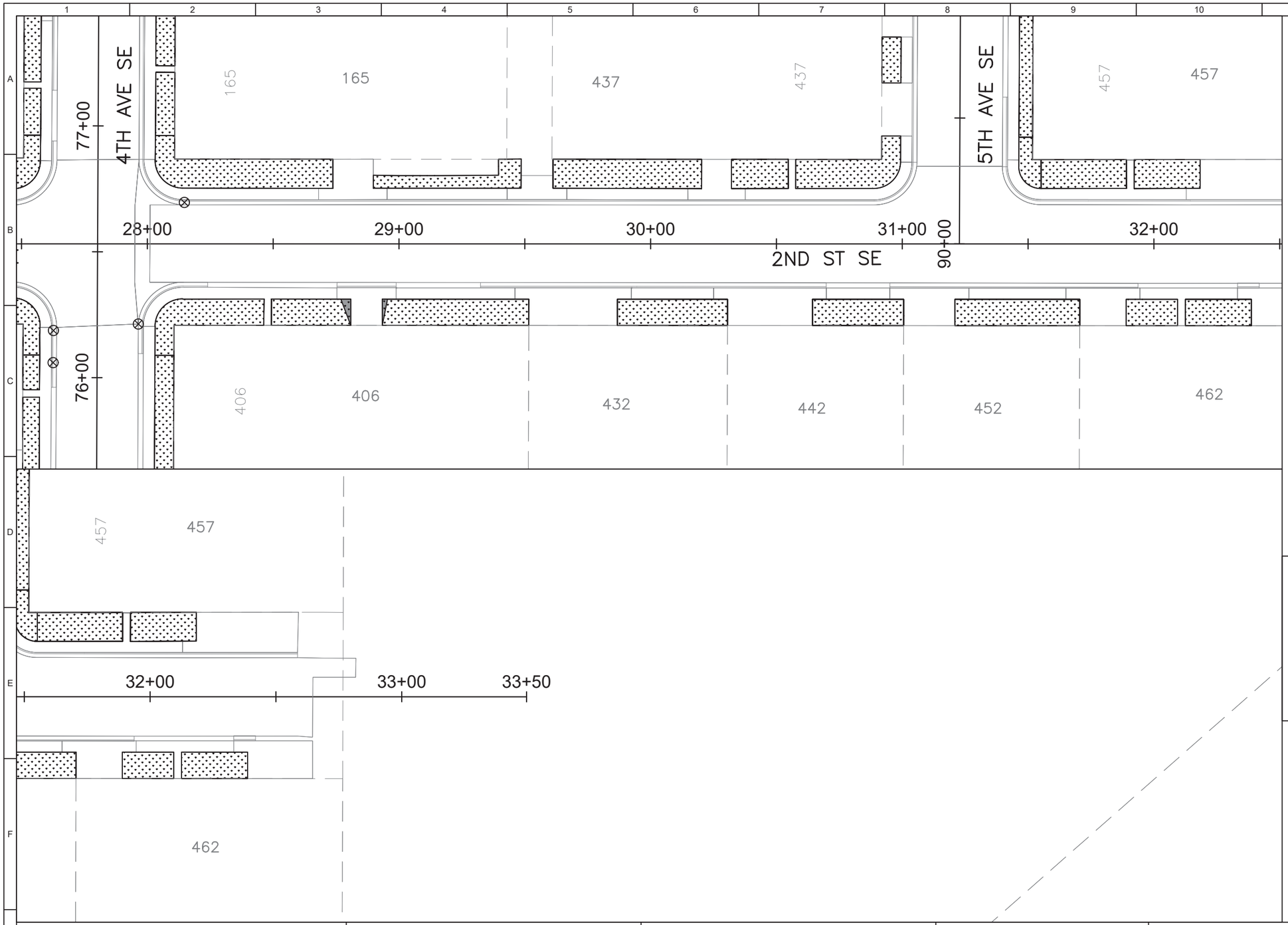
Apex Engineering Group

Bismarck - Detroit Lakes -
Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason Gullicks

Sheet: 76-04

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SEEDING	756	SY
HYDRAULIC MULCH	756	SY
TEMPORARY COVER CROP	756	SY
TOPSOIL - IMPORTED	1	CY

LEGEND

- Topsoil Imported, Temporary Cover Crop, Seeding, & Hydraulic Mulch
- Temporary Cover Crop, Seeding, & Hydraulic Mulch
- ⊗ Inlet Protection - Special Temporary

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:38:08 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

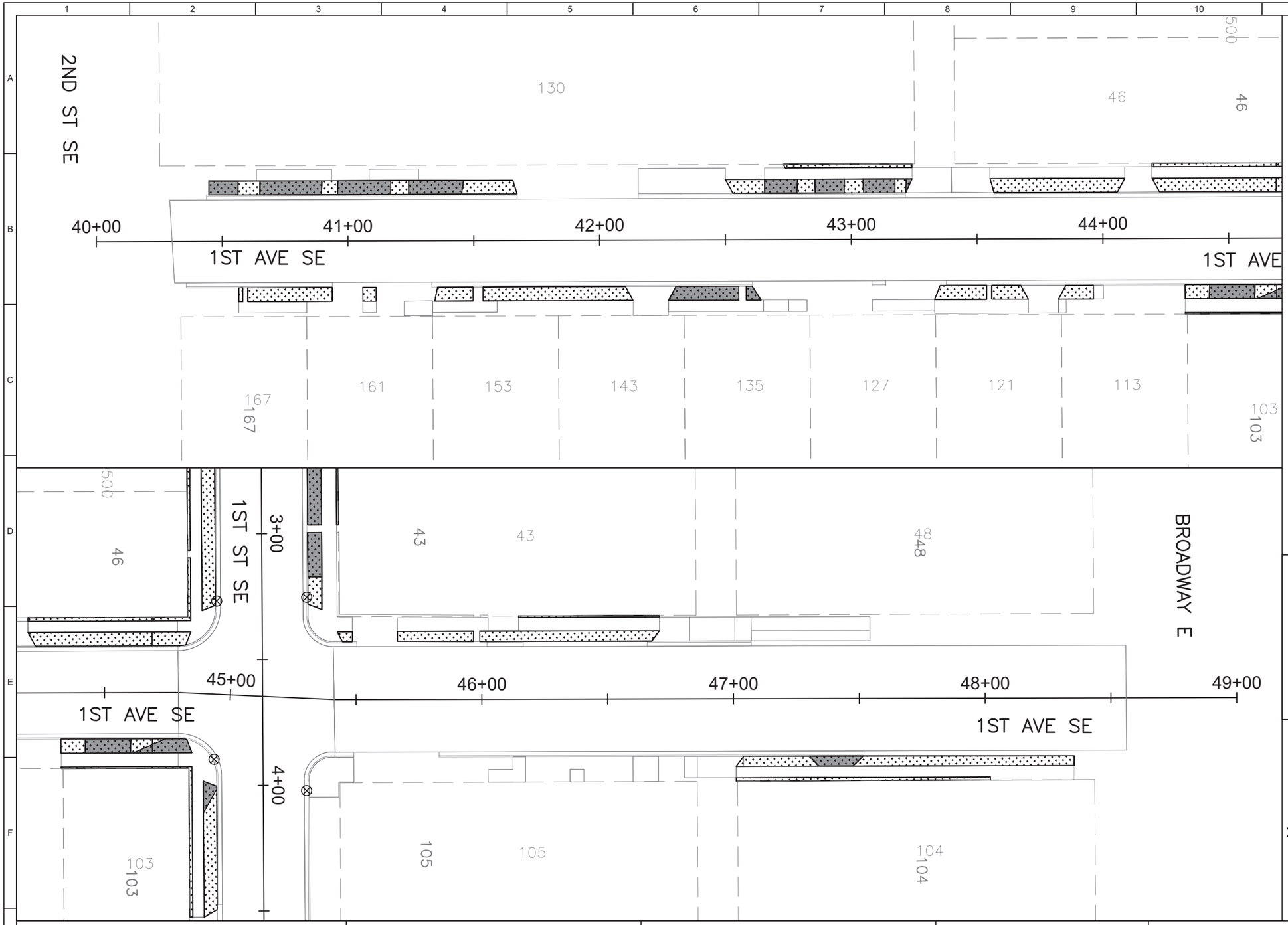
2026 UTILITY & STREET IMPROVEMENTS PROJECT
EROSION CONTROL
Sta 28+00 to Sta 33+50
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 76-05

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SEEDING	459	SY
HYDRAULIC MULCH	459	SY
TEMPORARY COVER CROP	459	SY
TOPSOIL - IMPORTED	19	CY

LEGEND

- Topsoil Imported, Temporary Cover Crop, Seeding, & Hydraulic Mulch
- Temporary Cover Crop, Seeding, & Hydraulic Mulch
- ⊗ Inlet Protection - Special Temporary

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:38:23 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

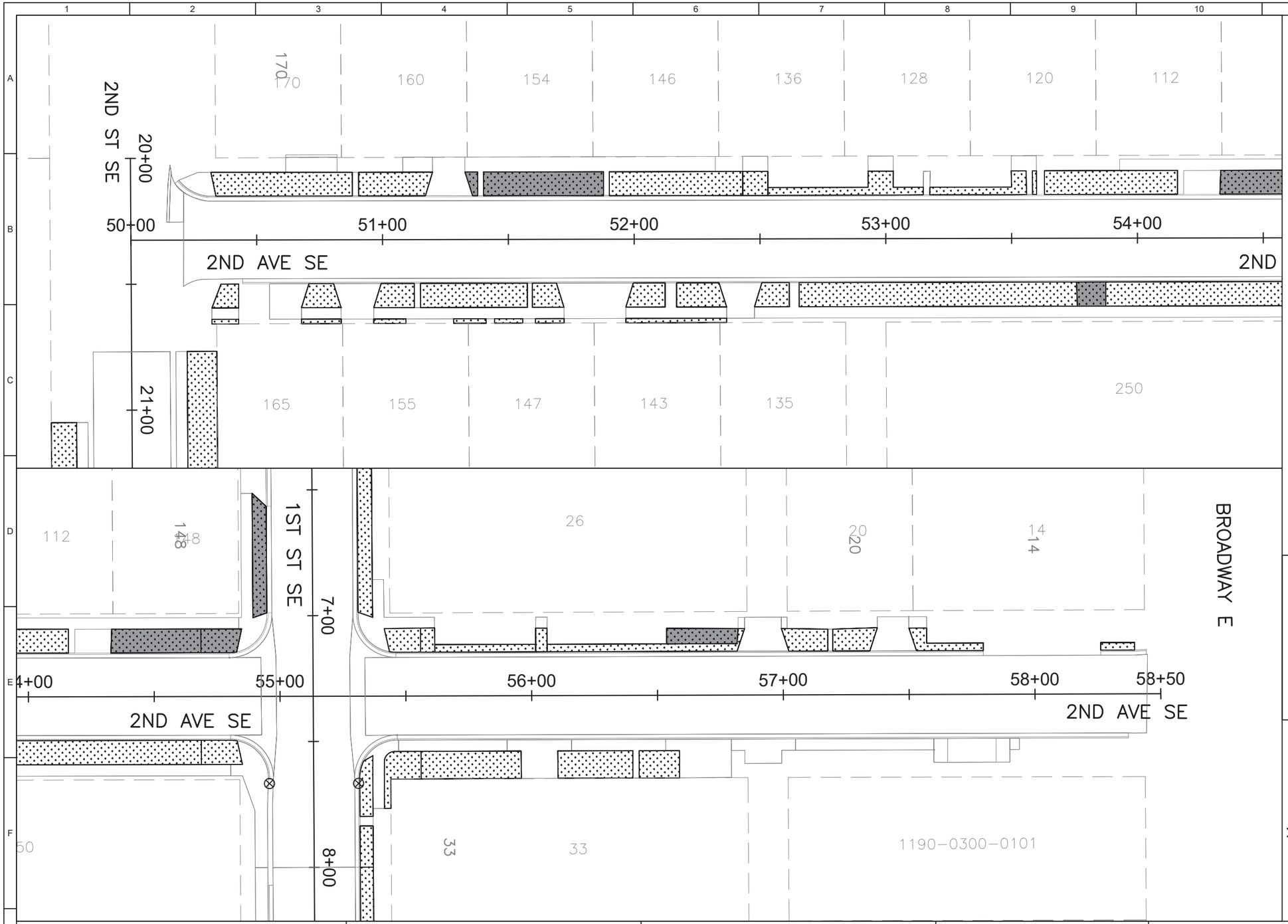
2026 UTILITY & STREET IMPROVEMENTS PROJECT
EROSION CONTROL
Sta 40+00 to 49+00
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason Gullicks

Sheet: 76-06

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SEEDING	954	SY
HYDRAULIC MULCH	954	SY
TEMPORARY COVER CROP	954	SY
TOPSOIL - IMPORTED	21	CY

LEGEND

- Topsoil Imported, Temporary Cover Crop, Seeding, & Hydraulic Mulch
- Temporary Cover Crop, Seeding, & Hydraulic Mulch
- ⊗ Inlet Protection - Special Temporary

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:38:38 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

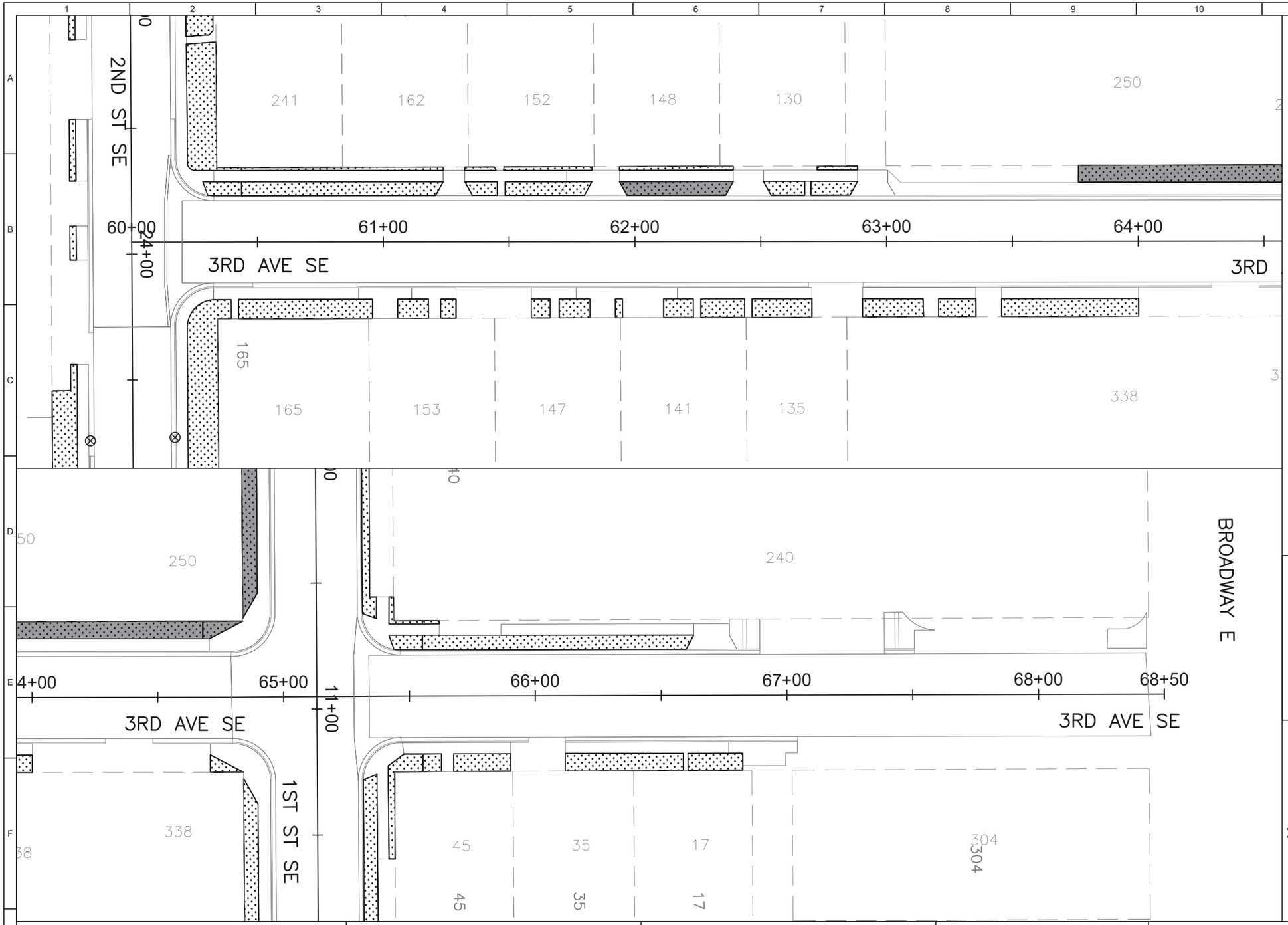
2026 UTILITY & STREET IMPROVEMENTS PROJECT EROSION CONTROL Sta 50+00 to Sta 58+50 SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 76-07

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SEEDING	560	SY
HYDRAULIC MULCH	560	SY
TEMPORARY COVER CROP	560	SY
TOPSOIL - IMPORTED	16	CY

LEGEND

- Topsoil Imported, Temporary Cover Crop, Seeding, & Hydraulic Mulch
- Temporary Cover Crop, Seeding, & Hydraulic Mulch
- ⊗ Inlet Protection - Special Temporary

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:38:54 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

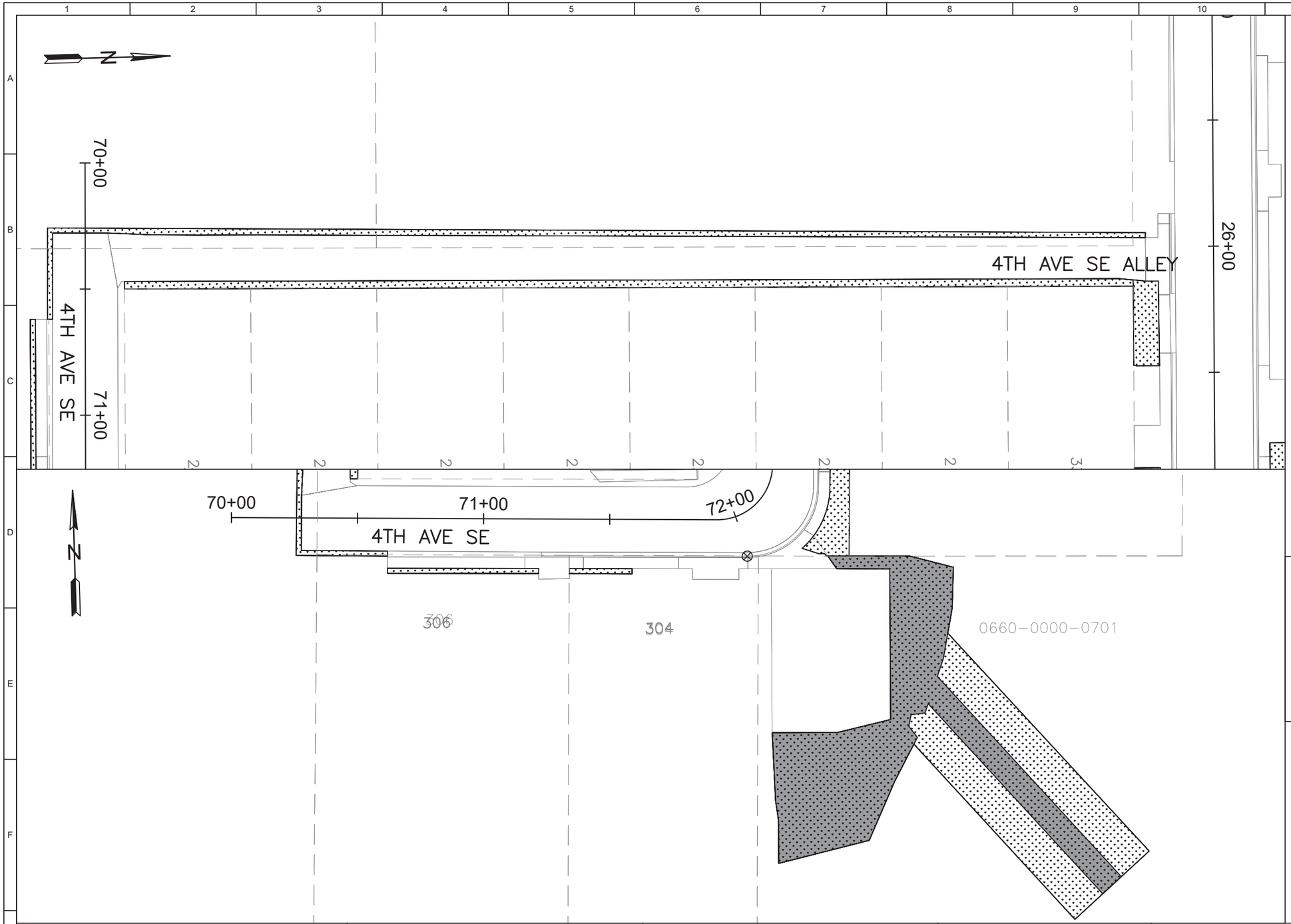
2026 UTILITY & STREET IMPROVEMENTS PROJECT EROSION CONTROL Sta 60+00 to Sta 68+50 SOUTH AREA

Apex Engineering Group
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204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 76-08

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SEEDING	1146	SY
HYDRAULIC MULCH	1146	SY
TEMPORARY COVER CROP	1146	SY
TOPSOIL - IMPORTED	88	CY
INLET PROTECTION-SPECIAL TEMPORARY	1	EA

LEGEND

- Topsoil Imported, Temporary Cover Crop, Seeding, & Hydraulic Mulch
- Temporary Cover Crop, Seeding, & Hydraulic Mulch
- ⊗ Inlet Protection - Special Temporary

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
16:39:23 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

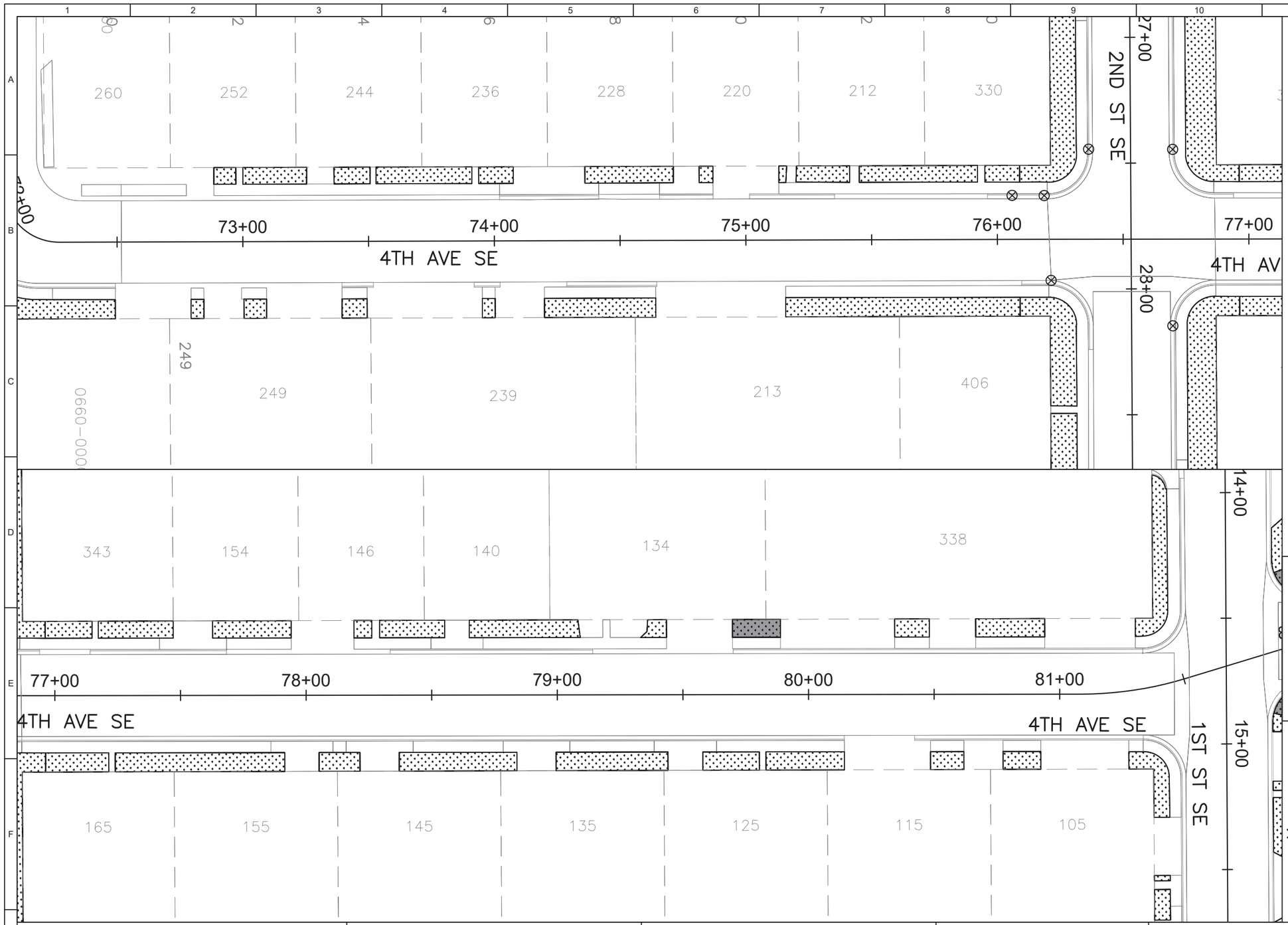
2026 UTILITY & STREET IMPROVEMENTS PROJECT
EROSION CONTROL
4TH AVE SE ALLEY
Sta 70+00 to Sta 72+00

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 76-09

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SEEDING	775	SY
HYDRAULIC MULCH	775	SY
TEMPORARY COVER CROP	775	SY
TOPSOIL - IMPORTED	3	CY

LEGEND

- Topsoil Imported, Temporary Cover Crop, Seeding, & Hydraulic Mulch
- Temporary Cover Crop, Seeding, & Hydraulic Mulch
- ⊗ Inlet Protection - Special Temporary

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:39:44 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT EROSION CONTROL Sta 72+00 to Sta 81+00 SOUTH AREA

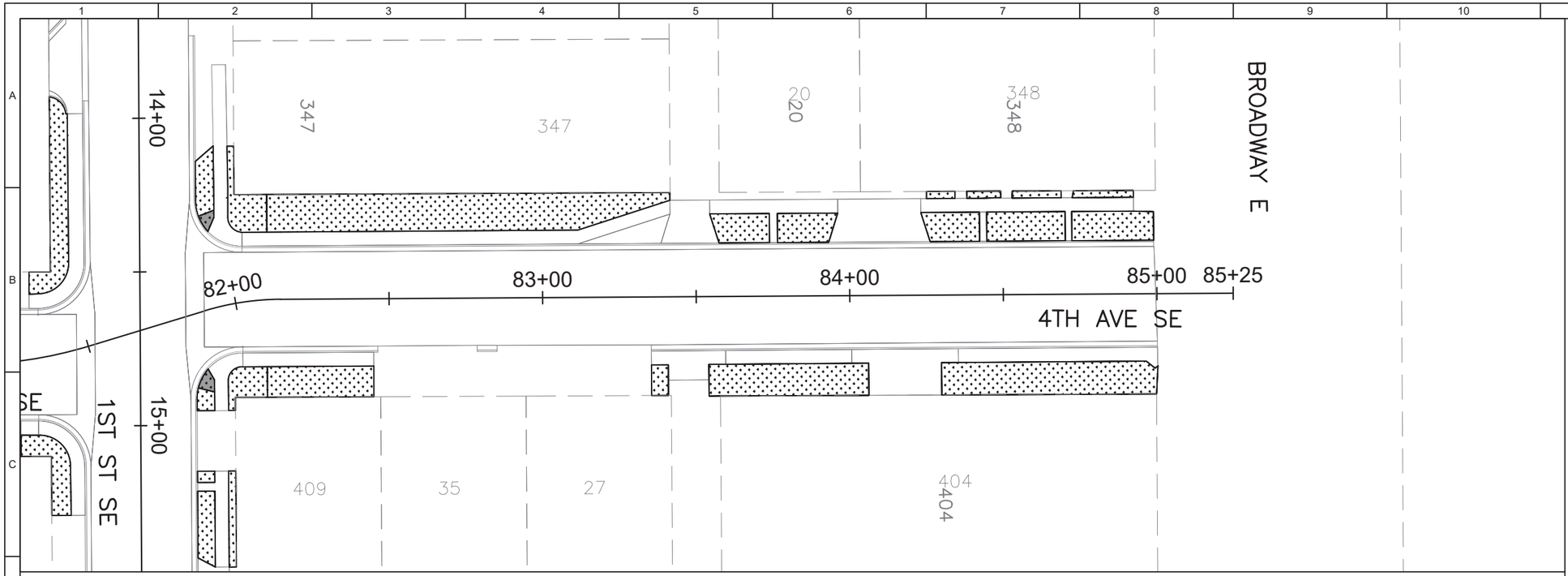
Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 76-10

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SEEDING	474	SY
HYDRAULIC MULCH	474	SY
TEMPORARY COVER CROP	474	SY

LEGEND

- Topsoil Imported, Temporary Cover Crop, Seeding, & Hydraulic Mulch
- Temporary Cover Crop, Seeding, & Hydraulic Mulch
- ⊗ Inlet Protection - Special Temporary

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:40:01 -06'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

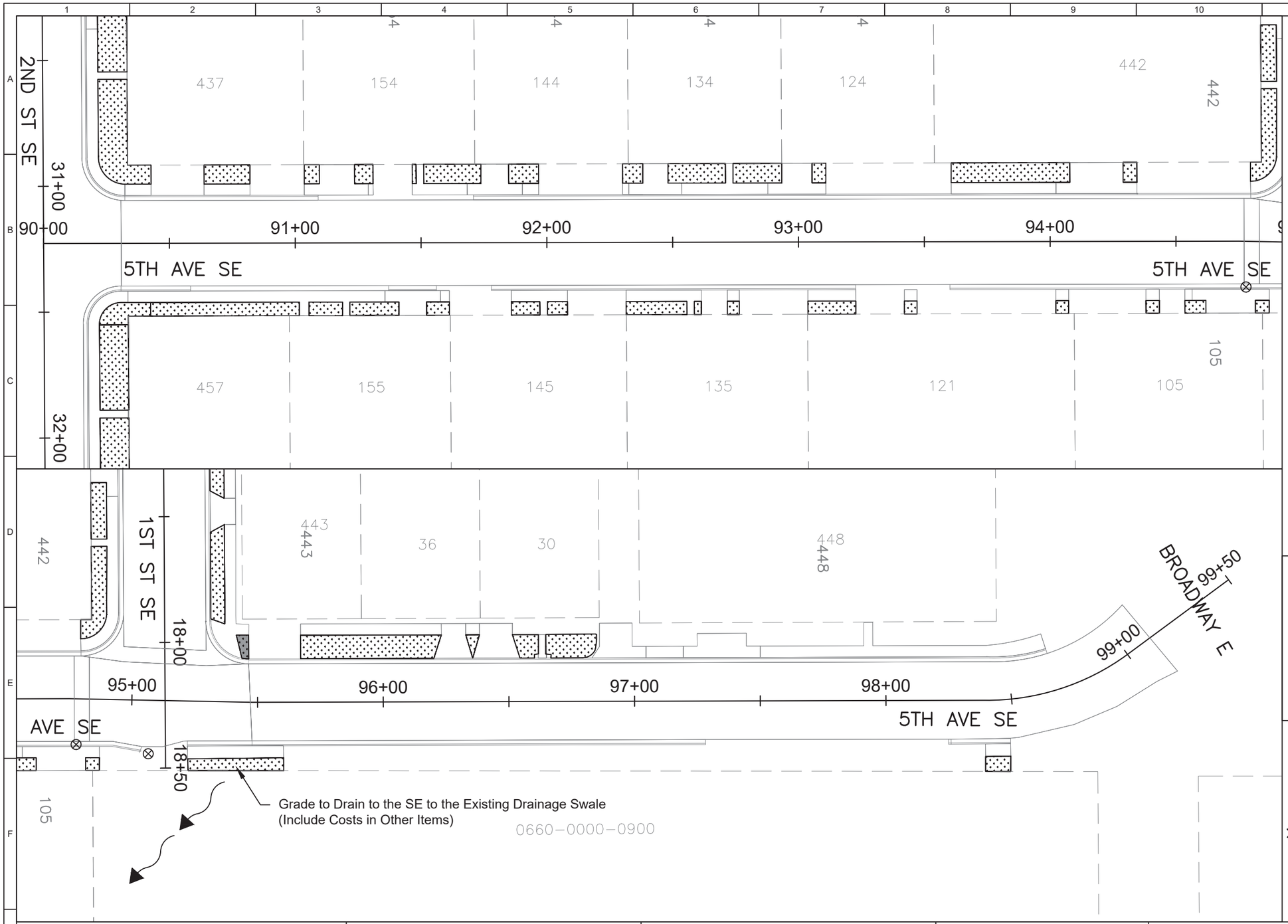
2026 UTILITY & STREET IMPROVEMENTS PROJECT EROSION CONTROL Sta 81+00 to Sta 85+25 SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
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Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 76-11

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 076_T_Erosion.dwg



ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SEEDING	361	SY
HYDRAULIC MULCH	361	SY
TEMPORARY COVER CROP	361	SY

LEGEND

- Topsoil Imported, Temporary Cover Crop, Seeding, & Hydraulic Mulch
- Temporary Cover Crop, Seeding, & Hydraulic Mulch
- ⊗ Inlet Protection - Special Temporary

N

0 20' 40'
SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:40:20 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

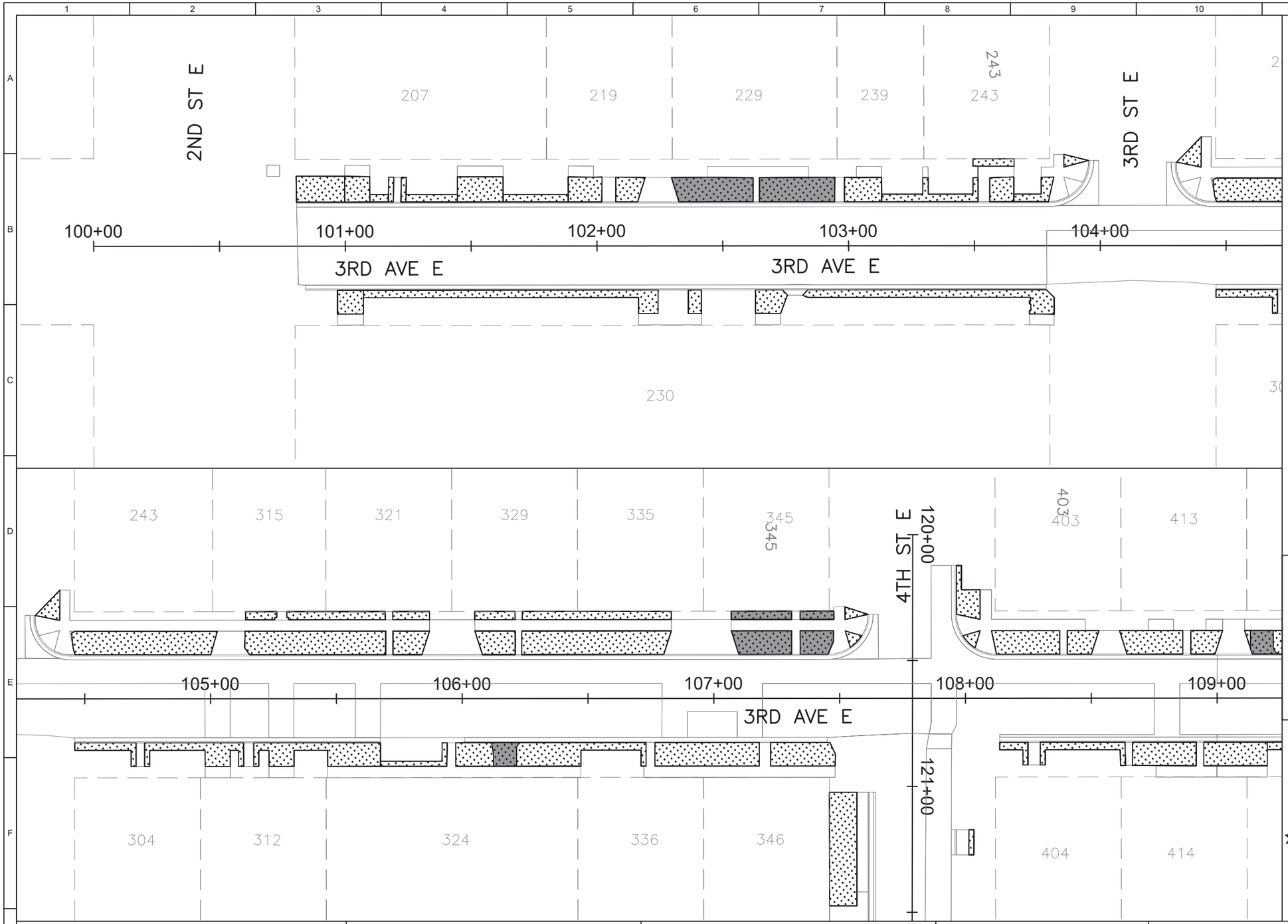
2026 UTILITY & STREET IMPROVEMENTS PROJECT
EROSION CONTROL
Sta 90+00 to Sta 99+50
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
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www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 76-12

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SEEDING	1002	SY
HYDRAULIC MULCH	1002	SY
TEMPORARY COVER CROP	1002	SY
TOPSOIL - IMPORTED	21	CY

LEGEND

- Topsoil Imported, Temporary Cover Crop, Seeding, & Hydraulic Mulch
- Temporary Cover Crop, Seeding, & Hydraulic Mulch
- ⊗ Inlet Protection - Special Temporary

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:40:40 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

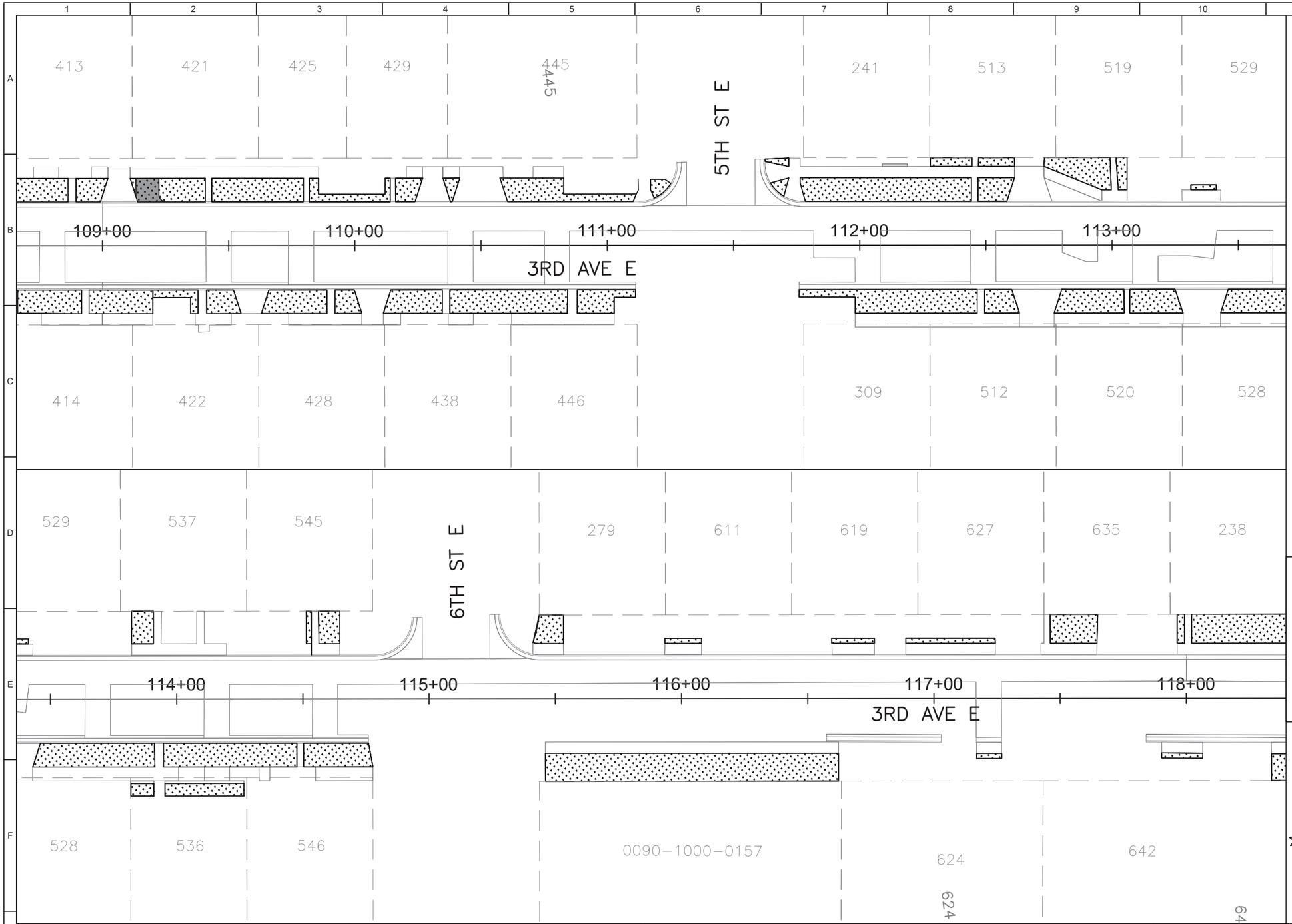
2026 UTILITY & STREET IMPROVEMENTS PROJECT EROSION CONTROL Sta 100+00 to Sta 109+00 NORTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 76-13

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SEEDING	942	SY
HYDRAULIC MULCH	942	SY
TEMPORARY COVER CROP	942	SY
TOPSOIL - IMPORTED	2	CY

LEGEND

- Topsoil Imported, Temporary Cover Crop, Seeding, & Hydraulic Mulch
- Temporary Cover Crop, Seeding, & Hydraulic Mulch
- ⊗ Inlet Protection - Special Temporary

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:40:56 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

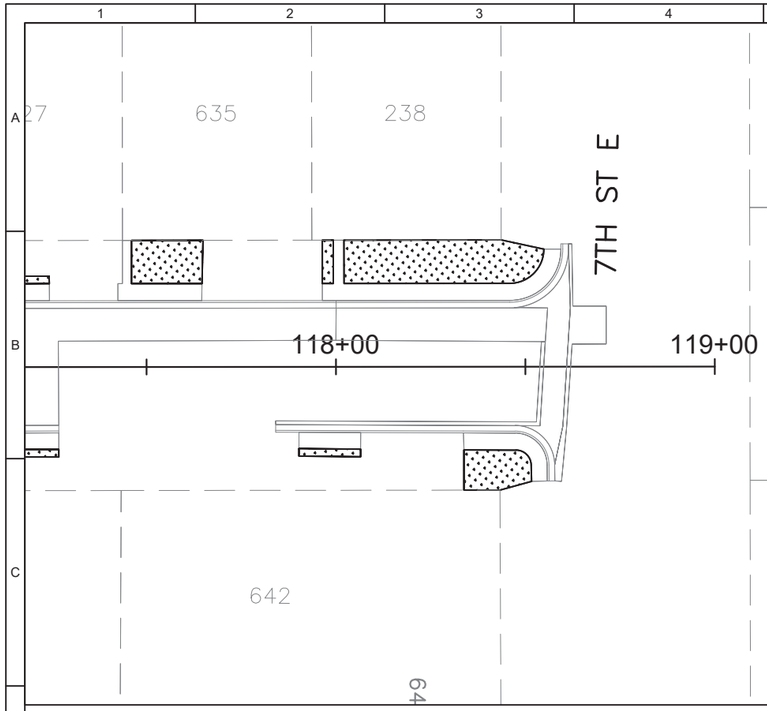
2026 UTILITY & STREET IMPROVEMENTS PROJECT
EROSION CONTROL
Sta 109+00 to Sta 118+00
NORTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
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Dickinson, North Dakota 58601
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Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 76-14

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SEEDING	83	SY
HYDRAULIC MULCH	83	SY
TEMPORARY COVER CROP	83	SY

LEGEND

- Topsoil Imported, Temporary Cover Crop, Seeding, & Hydraulic Mulch
- Temporary Cover Crop, Seeding, & Hydraulic Mulch
- Inlet Protection - Special Temporary

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:41:14 -06'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

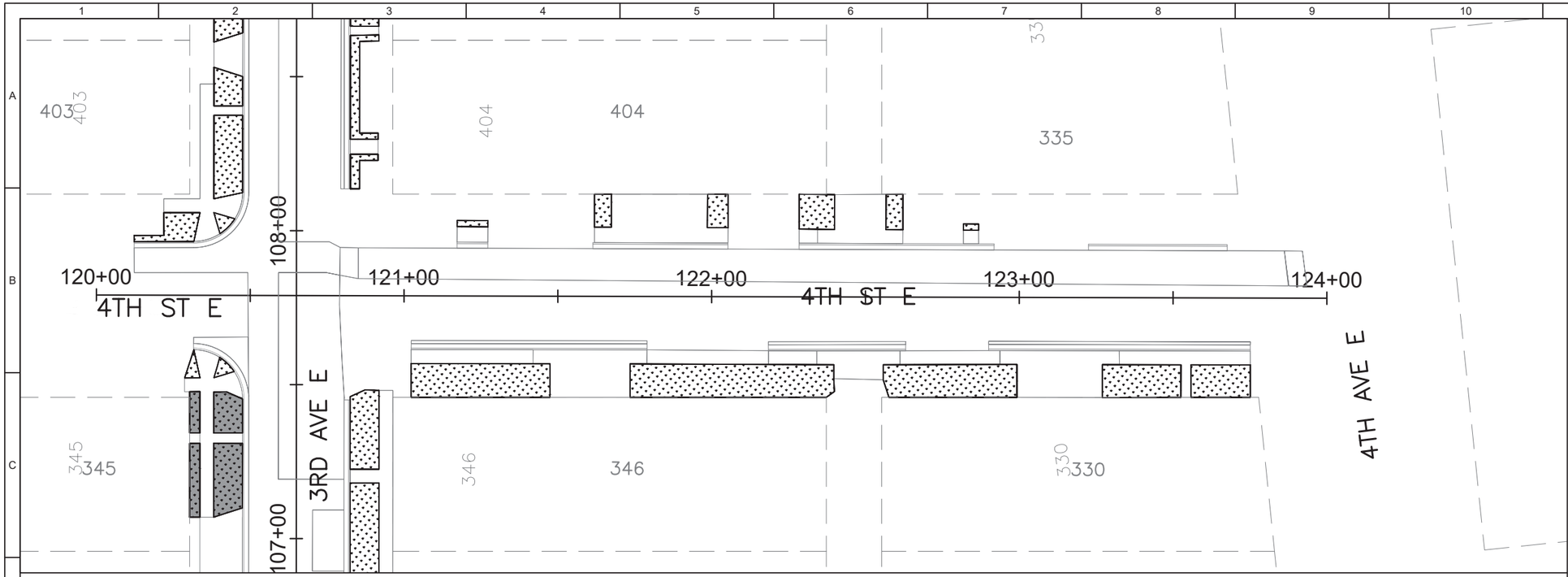
2026 UTILITY & STREET IMPROVEMENTS PROJECT
EROSION CONTROL
Sta 118+00 to Sta 119+00
NORTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
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Dickinson, North Dakota 58601
Office: 701-264-3939
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Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 76-15

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 076_T_Erosion.dwg



ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SEEDING	277	SY
HYDRAULIC MULCH	277	SY
TEMPORARY COVER CROP	277	SY

LEGEND

- Topsoil Imported, Temporary Cover Crop, Seeding, & Hydraulic Mulch
- Temporary Cover Crop, Seeding, & Hydraulic Mulch
- ⊗ Inlet Protection - Special Temporary

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:41:33 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

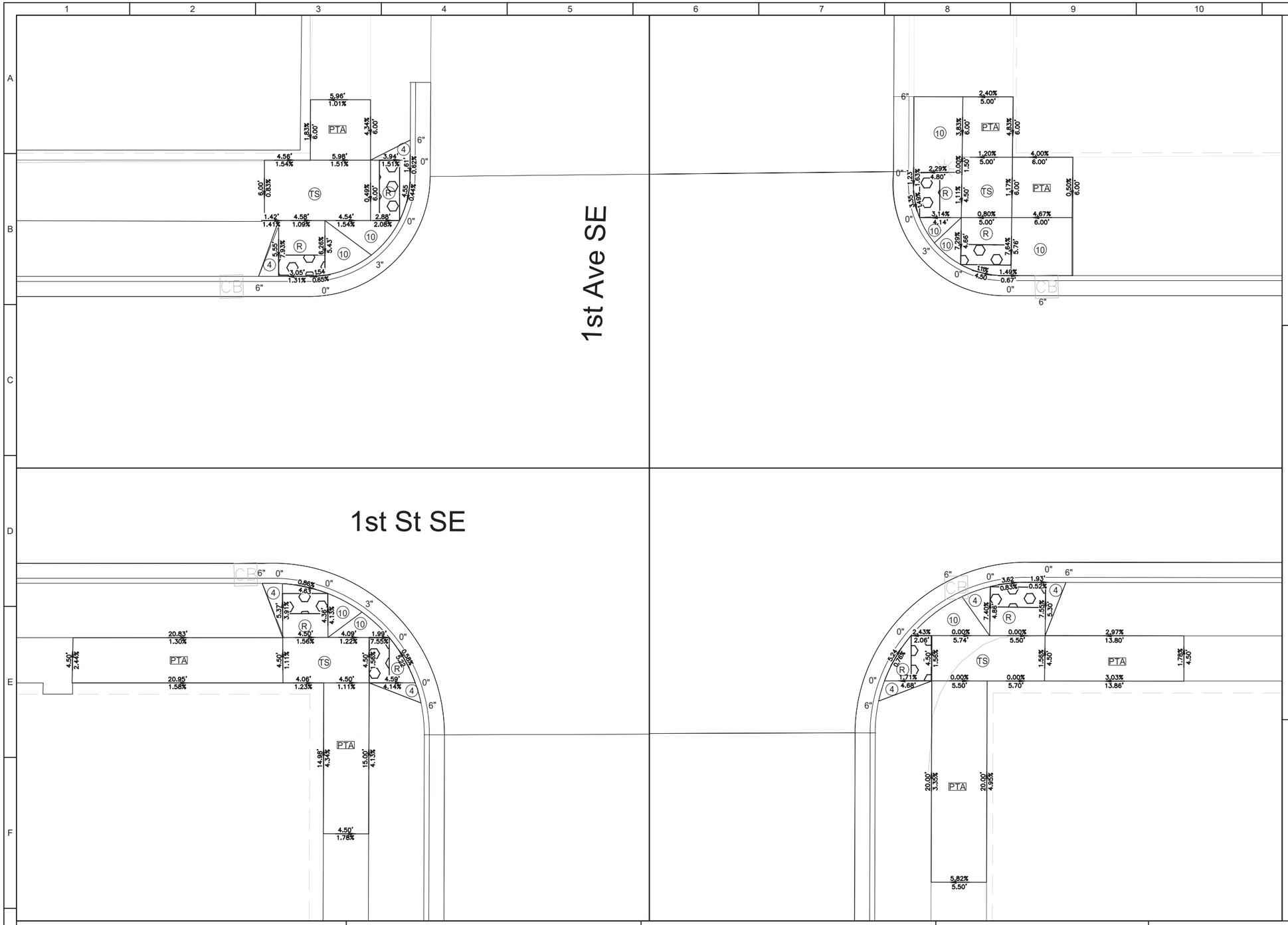
2026 UTILITY & STREET IMPROVEMENTS PROJECT
EROSION CONTROL
Sta 120+00 to Sta 124+00
NORTH AREA

Apex Engineering Group
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204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
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Project #: 22.107.0010
Date: February 2026
Drawn By: Carter Schoneberg
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 76-16

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NOTES:

1. ANY RAMP FOUND TO BE IN NONCOMPLIANCE WILL BE REMOVED AND REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
2. SEE SECTION 20 SHEET 7 FOR MORE DETAILS.

LEGEND

(TS) TURNING SPACE
- SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- ALL DIRECTIONS

(R) RAMP
- RUNNING SLOPE LESS THAN 8.3% / 5% TO 7.5% PREFERRED
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED

[PTA] PEDESTRIAN ACCESS TRANSITION AREA
- RUNNING SLOPE LESS THAN 4.9%
- TRANSITION CROSS SECTION AT $\frac{1}{4}$% PER FOOT FROM RAMP AREA TO EXISITING PEDESTRIAN FACILITY

(B) BASE
- CROSS SLOPE LESS THAN 2% / 1.5% PREFERRED
- RUNNING SLOPE CONSISTENT WITH THE EPF
- COUNTER SLOPE 5.0% MAX / 4.7% PREFERRED

FLARE
(10) - SLOPE MAXIMUM OF 10:1
(4) - SLOPE MAXIMUM OF 4:1

(BT) BLENDED TRANSITION
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- RUNNING SLOPE LESS THAN 5.0%

N

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2026.02.17 16:27:38 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

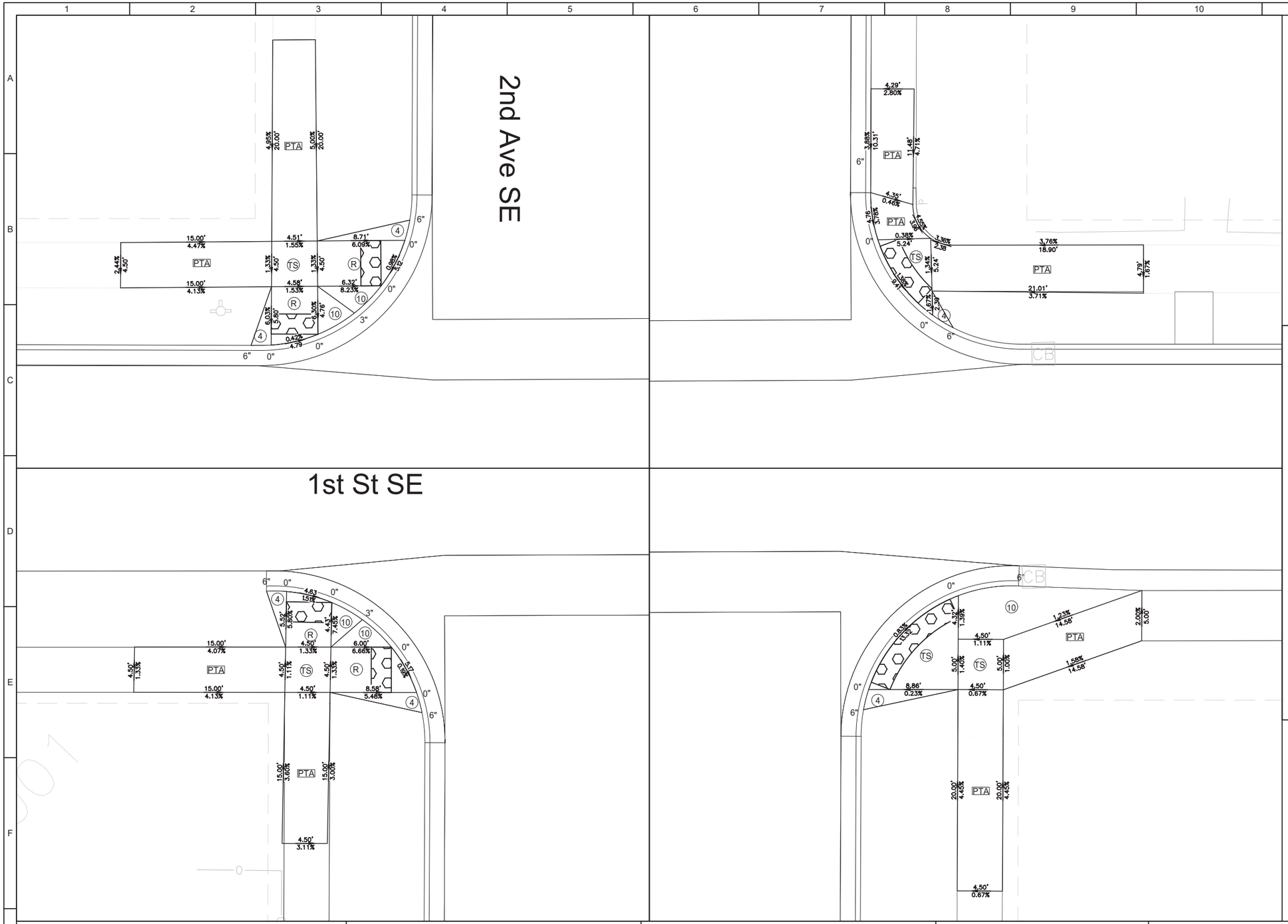
2026 UTILITY & STREET IMPROVEMENTS PROJECT ADA LAYOUTS 1ST ST SE & 1ST AVE SE SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason P. Gullicks
Approved By: Jason P. Gullicks

Sheet: 80-01

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 080_Layouts.dwg



1st St SE & 2nd Ave SE Radial Detectable Warning Panels		
Quad	Length (On Curb Side)	Radius (On Curb Side)
SE	11.5'	15'
NE	7.0'	15'

NOTES:

1. ANY RAMP FOUND TO BE IN NONCOMPLIANCE WILL BE REMOVED AND REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
2. SEE SECTION 20 SHEET 7 FOR MORE DETAILS.

LEGEND

(TS) TURNING SPACE
- SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- ALL DIRECTIONS

(R) RAMP
- RUNNING SLOPE LESS THAN 8.3% / 5% TO 7.5% PREFERRED
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED

PTA PEDESTRIAN ACCESS TRANSITION AREA
- RUNNING SLOPE LESS THAN 4.9%
- TRANSITION CROSS SECTION AT $\frac{1}{4}$% PER FOOT FROM RAMP AREA TO EXISITING PEDESTRIAN FACILITY

(B) BASE
- CROSS SLOPE LESS THAN 2% / 1.5% PREFERRED
- RUNNING SLOPE CONSISTENT WITH THE EPF
- COUNTER SLOPE 5.0% MAX / 4.7% PREFERRED

(10) (4) FLARE
- SLOPE MAXIMUM OF 10:1
- SLOPE MAXIMUM OF 4:1

(BT) BLENDED TRANSITION
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- RUNNING SLOPE LESS THAN 5.0%

N

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2026.02.17 16:28:04 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

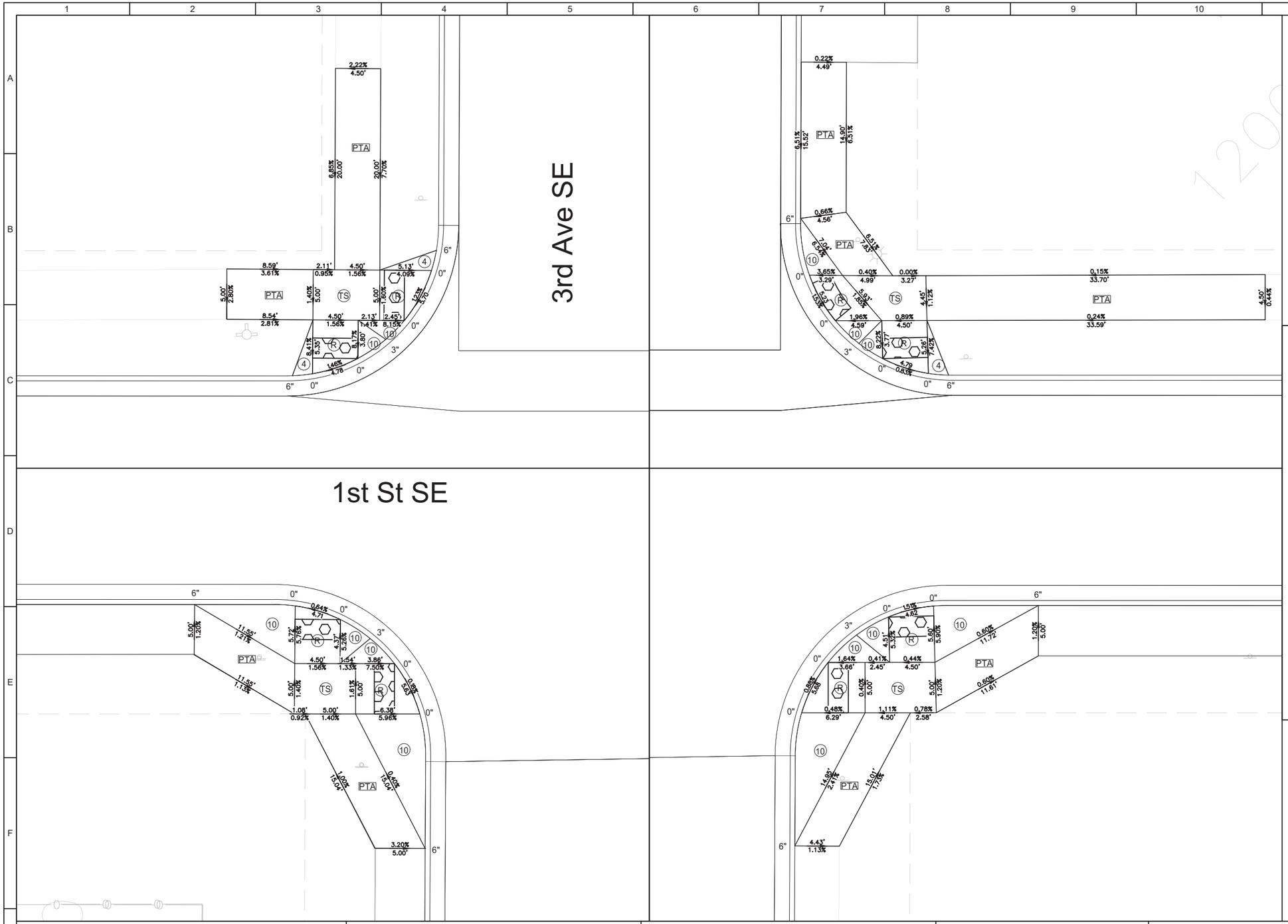
2026 UTILITY & STREET IMPROVEMENTS PROJECT
ADA LAYOUTS
1ST ST SE & 2ND AVE SE
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
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Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason P. Gullicks
Approved By: Jason P. Gullicks

Sheet: 80-02

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 080_Layouts.dwg



1st St SE & 3rd Ave SE Radial Detectable Warning Panels		
Quad	Length (On Curb Side)	Radius (On Curb Side)
NE	4.5'	15'

NOTES:

1. ANY RAMP FOUND TO BE IN NONCOMPLIANCE WILL BE REMOVED AND REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
2. SEE SECTION 20 SHEET 7 FOR MORE DETAILS.

LEGEND

(TS) TURNING SPACE
- SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- ALL DIRECTIONS

(R) RAMP
- RUNNING SLOPE LESS THAN 8.3% / 5% TO 7.5% PREFERRED
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED

PTA PEDESTRIAN ACCESS TRANSITION AREA
- RUNNING SLOPE LESS THAN 4.9%
- TRANSITION CROSS SECTION AT ¼% PER FOOT FROM RAMP AREA TO EXISITING PEDESTRIAN FACILITY

(B) BASE
- CROSS SLOPE LESS THAN 2% / 1.5% PREFERRED
- RUNNING SLOPE CONSISTENT WITH THE EPF
- COUNTER SLOPE 5.0% MAX / 4.7% PREFERRED

FLARE
(10) - SLOPE MAXIMUM OF 10:1
(4) - SLOPE MAXIMUM OF 4:1

(BT) BLENDED TRANSITION
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- RUNNING SLOPE LESS THAN 5.0%

N

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2026.02.17 16:28:27 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

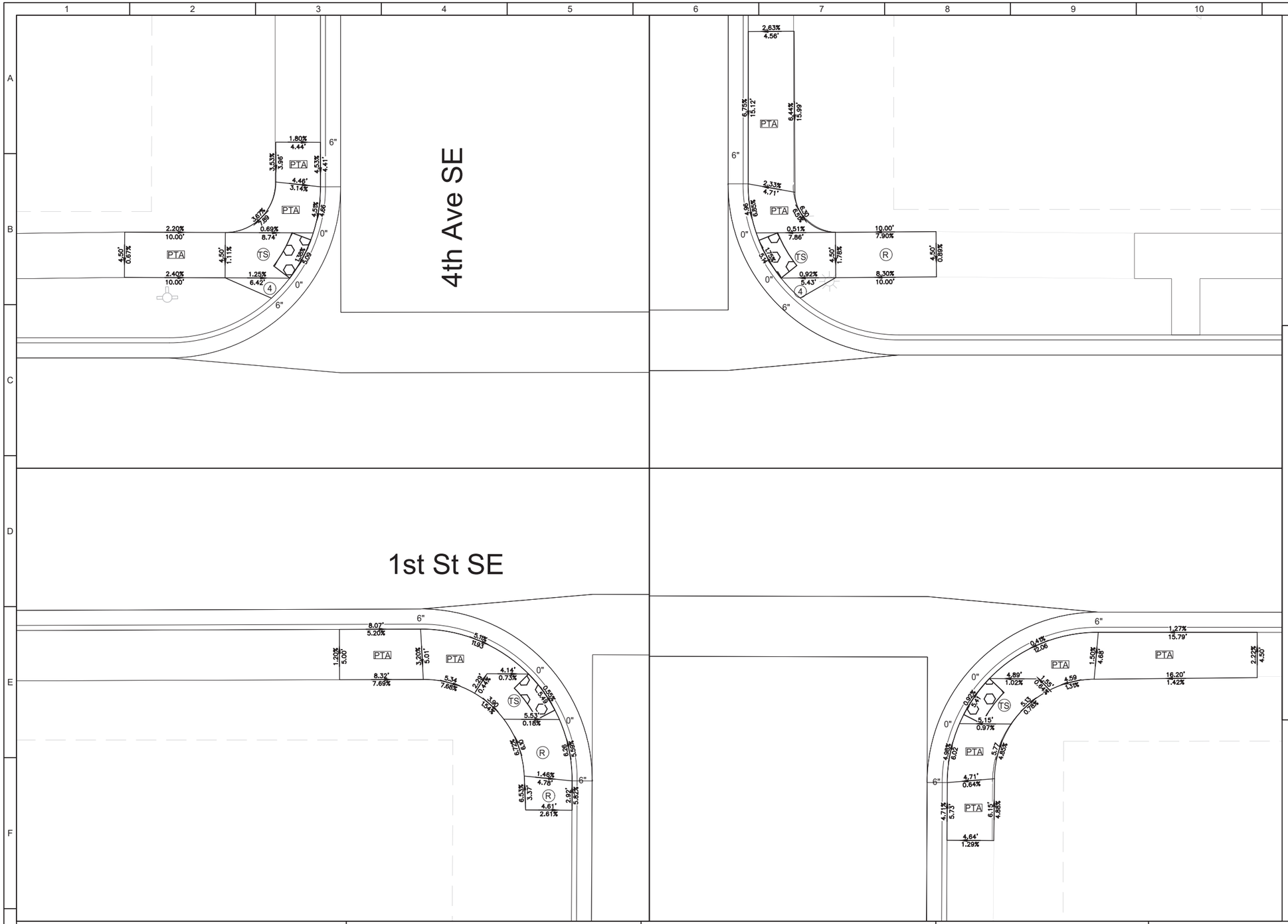
2026 UTILITY & STREET IMPROVEMENTS PROJECT
ADA LAYOUTS
1ST ST SE & 3RD AVE SE
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
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Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason P. Gullicks
Approved By: Jason P. Gullicks

Sheet: 80-03

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1st St SE & 4th Ave SE Radial Detectable Warning Panels		
Quad	Length (On Curb Side)	Radius (On Curb Side)
SW	4.5'	15'
NW	4.5'	15'
SE	4.5'	15'
NE	4.5'	15'

NOTES:

1. ANY RAMP FOUND TO BE IN NONCOMPLIANCE WILL BE REMOVED AND REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
2. SEE SECTION 20 SHEET 7 FOR MORE DETAILS.

LEGEND

(TS) TURNING SPACE
- SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- ALL DIRECTIONS

(R) RAMP
- RUNNING SLOPE LESS THAN 8.3% / 5% TO 7.5% PREFERRED
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED

[PTA] PEDESTRIAN ACCESS TRANSITION AREA
- RUNNING SLOPE LESS THAN 4.9%
- TRANSITION CROSS SECTION AT $\frac{1}{4}$% PER FOOT FROM RAMP AREA TO EXISITING PEDESTRIAN FACILITY

(B) BASE
- CROSS SLOPE LESS THAN 2% / 1.5% PREFERRED
- RUNNING SLOPE CONSISTENT WITH THE EPF
- COUNTER SLOPE 5.0% MAX / 4.7% PREFERRED

FLARE
- (10) SLOPE MAXIMUM OF 10:1
- (4) SLOPE MAXIMUM OF 4:1

(BT) BLENDED TRANSITION
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- RUNNING SLOPE LESS THAN 5.0%

N

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2026.02.17 16:28:52 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
ADA LAYOUTS
1ST ST SE & 4TH AVE SE
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason P. Gullicks
Approved By: Jason P. Gullicks

Sheet: 80-04

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1st St SE & 5th Ave SE Radial Detectable Warning Panels		
Quad	Length (On Curb Side)	Radius (On Curb Side)
SW	4.5'	15'

NOTES:

1. ANY RAMP FOUND TO BE IN NONCOMPLIANCE WILL BE REMOVED AND REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
2. SEE SECTION 20 SHEET 7 FOR MORE DETAILS.

LEGEND

(TS) TURNING SPACE
- SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- ALL DIRECTIONS

(R) RAMP
- RUNNING SLOPE LESS THAN 8.3% / 5% TO 7.5% PREFERRED
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED

PTA PEDESTRIAN ACCESS TRANSITION AREA
- RUNNING SLOPE LESS THAN 4.9%
- TRANSITION CROSS SECTION AT ¼% PER FOOT FROM RAMP AREA TO EXISITING PEDESTRIAN FACILITY

(B) BASE
- CROSS SLOPE LESS THAN 2% / 1.5% PREFERRED
- RUNNING SLOPE CONSISTENT WITH THE EPF
- COUNTER SLOPE 5.0% MAX / 4.7% PREFERRED

(10) (4) FLARE
- SLOPE MAXIMUM OF 10:1
- SLOPE MAXIMUM OF 4:1

(BT) BLENDED TRANSITION
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- RUNNING SLOPE LESS THAN 5.0%

N

REGISTERED PROFESSIONAL ENGINEER
CALEB J. WEISGARBER
PE-40595
DATE 2026.02.17 16:29:26 -06'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

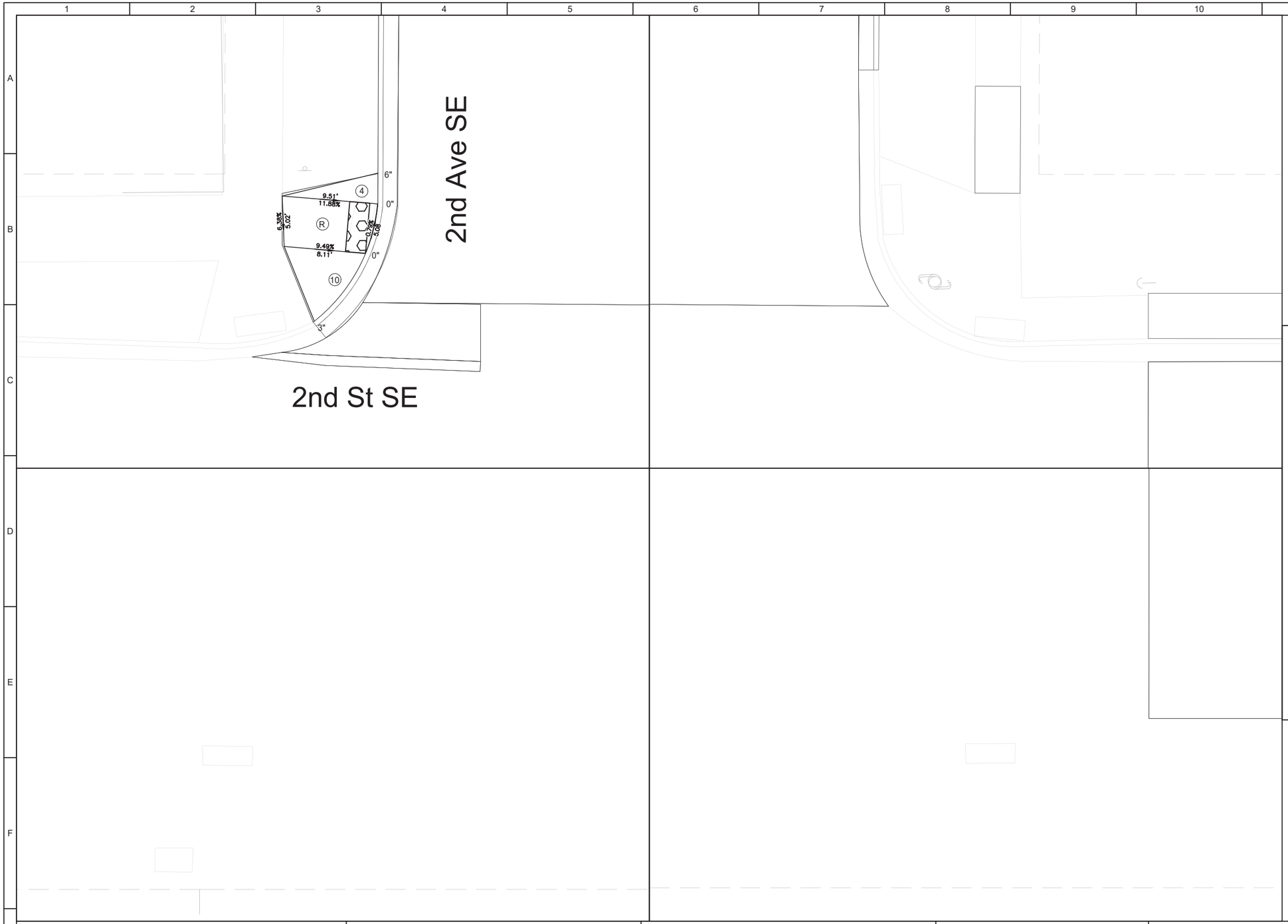
2026 UTILITY & STREET IMPROVEMENTS PROJECT
ADA LAYOUTS
1ST ST SE & 5TH AVE SE
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason P. Gullicks
Approved By: Jason P. Gullicks

Sheet: 80-05

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 080_Layouts.dwg



NOTES:

1. ANY RAMP FOUND TO BE IN NONCOMPLIANCE WILL BE REMOVED AND REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
2. SEE SECTION 20 SHEET 7 FOR MORE DETAILS.

LEGEND

(TS) TURNING SPACE
- SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- ALL DIRECTIONS

(R) RAMP
- RUNNING SLOPE LESS THAN 8.3% / 5% TO 7.5% PREFERRED
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED

[PTA] PEDESTRIAN ACCESS TRANSITION AREA
- RUNNING SLOPE LESS THAN 4.9%
- TRANSITION CROSS SECTION AT ¼% PER FOOT FROM RAMP AREA TO EXISITING PEDESTRIAN FACILITY

(B) BASE
- CROSS SLOPE LESS THAN 2% / 1.5% PREFERRED
- RUNNING SLOPE CONSISTENT WITH THE EPF
- COUNTER SLOPE 5.0% MAX / 4.7% PREFERRED

FLARE
(10) (4)
- SLOPE MAXIMUM OF 10:1
- SLOPE MAXIMUM OF 4:1

(BT) BLENDED TRANSITION
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- RUNNING SLOPE LESS THAN 5.0%

N

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2026.02.17 16:29:52 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
ADA LAYOUTS
2ND ST SE & 2ND AVE SE
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason P. Gullicks
Approved By: Jason P. Gullicks

Sheet: 80-06

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NOTES:

1. ANY RAMP FOUND TO BE IN NONCOMPLIANCE WILL BE REMOVED AND REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
2. SEE SECTION 20 SHEET 7 FOR MORE DETAILS.

LEGEND

(TS) TURNING SPACE
- SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- ALL DIRECTIONS

(R) RAMP
- RUNNING SLOPE LESS THAN 8.3% / 5% TO 7.5% PREFERRED
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED

[PTA] PEDESTRIAN ACCESS TRANSITION AREA
- RUNNING SLOPE LESS THAN 4.9%
- TRANSITION CROSS SECTION AT ¼% PER FOOT FROM RAMP AREA TO EXISITING PEDESTRIAN FACILITY

(B) BASE
- CROSS SLOPE LESS THAN 2% / 1.5% PREFERRED
- RUNNING SLOPE CONSISTENT WITH THE EPF
- COUNTER SLOPE 5.0% MAX / 4.7% PREFERRED

FLARE
(10) - SLOPE MAXIMUM OF 10:1
(4) - SLOPE MAXIMUM OF 4:1

(BT) BLENDED TRANSITION
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- RUNNING SLOPE LESS THAN 5.0%

N

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2026.02.17 16:30:20 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

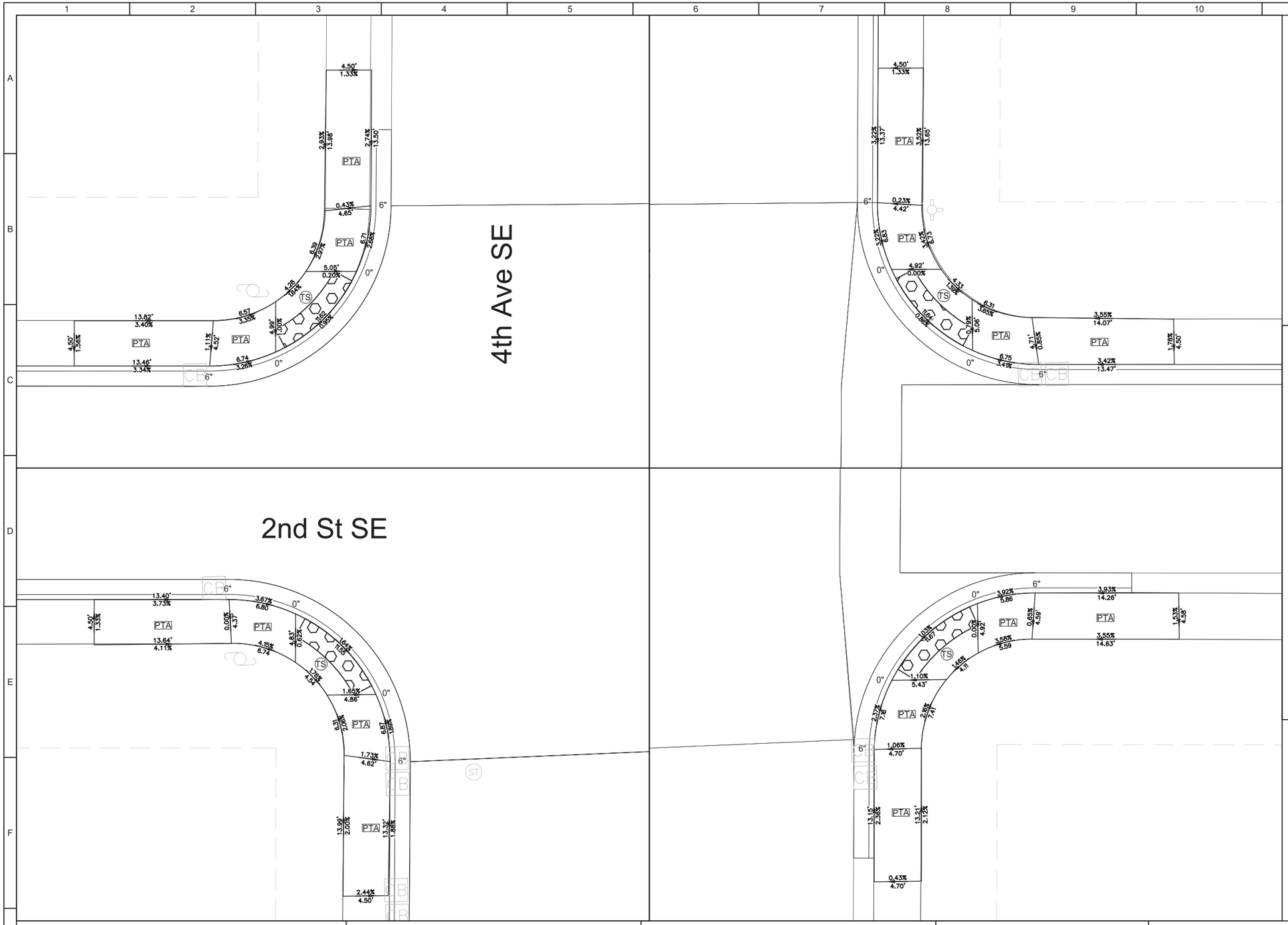
2026 UTILITY & STREET IMPROVEMENTS PROJECT
ADA LAYOUTS
2ND ST SE & 3RD AVE SE
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
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Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason P. Gullicks
Approved By: Jason P. Gullicks

Sheet: 80-07

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 080_Layouts.dwg



2nd St SE & 4th Ave SE Radial Detectable Warning Panels		
Quad	Length (On Curb Side)	Radius (On Curb Side)
SW	9.5'	16'
NW	9.5'	16'
SE	9.5'	16'
NE	9.5'	16'

NOTES:

1. ANY RAMP FOUND TO BE IN NONCOMPLIANCE WILL BE REMOVED AND REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
2. SEE SECTION 20 SHEET 7 FOR MORE DETAILS.

LEGEND

(TS) TURNING SPACE
- SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- ALL DIRECTIONS

(R) RAMP
- RUNNING SLOPE LESS THAN 8.3% / 5% TO 7.5% PREFERRED
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED

PTA PEDESTRIAN ACCESS TRANSITION AREA
- RUNNING SLOPE LESS THAN 4.9%
- TRANSITION CROSS SECTION AT $\frac{1}{4}$% PER FOOT FROM RAMP AREA TO EXISITING PEDESTRIAN FACILITY

(B) BASE
- CROSS SLOPE LESS THAN 2% / 1.5% PREFERRED
- RUNNING SLOPE CONSISTENT WITH THE EPF
- COUNTER SLOPE 5.0% MAX / 4.7% PREFERRED

(10) (4) FLARE
- SLOPE MAXIMUM OF 10:1
- SLOPE MAXIMUM OF 4:1

(BT) BLENDED TRANSITION
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- RUNNING SLOPE LESS THAN 5.0%

N

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2026.02.17 16:30:47 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

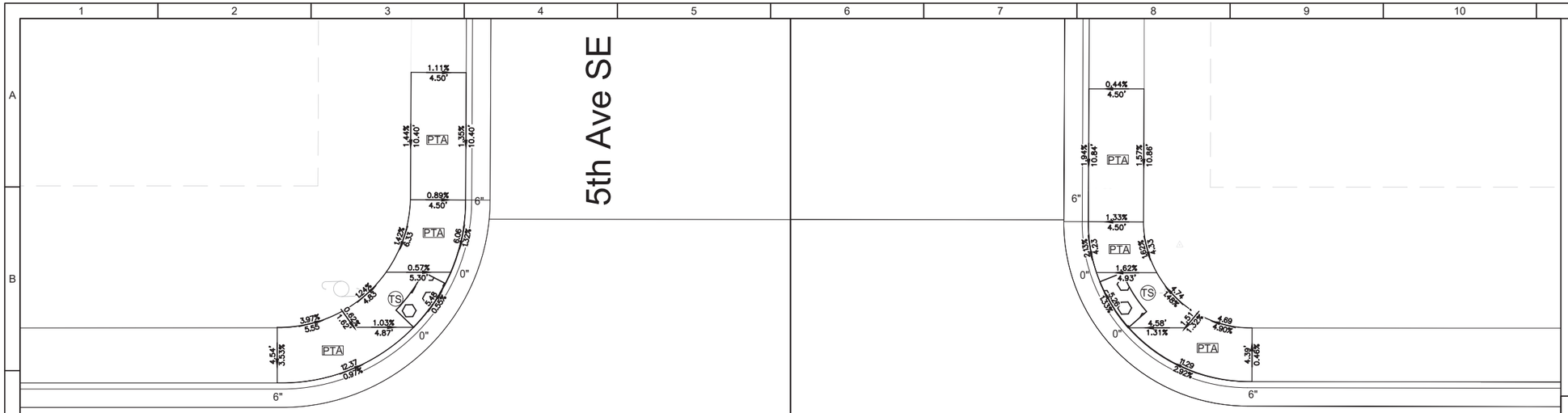
2026 UTILITY & STREET IMPROVEMENTS PROJECT
ADA LAYOUTS
2ND ST SE & 4TH AVE SE
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
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Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason P. Gullicks
Approved By: Jason P. Gullicks

Sheet: 80-08

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 080_Layouts.dwg



2nd St SE & 5th Ave SE Radial Detectable Warning Panels		
Quad	Length (On Curb Side)	Radius (On Curb Side)
NW	4.5'	15'
NE	4.5'	13'

NOTES:

1. ANY RAMP FOUND TO BE IN NONCOMPLIANCE WILL BE REMOVED AND REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
2. SEE SECTION 20 SHEET 7 FOR MORE DETAILS.

LEGEND

(TS) TURNING SPACE
- SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- ALL DIRECTIONS

(R) RAMP
- RUNNING SLOPE LESS THAN 8.3% / 5% TO 7.5% PREFERRED
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED

PTA PEDESTRIAN ACCESS TRANSITION AREA
- RUNNING SLOPE LESS THAN 4.9%
- TRANSITION CROSS SECTION AT ¼% PER FOOT FROM RAMP AREA TO EXISITING PEDESTRIAN FACILITY

(B) BASE
- CROSS SLOPE LESS THAN 2% / 1.5% PREFERRED
- RUNNING SLOPE CONSISTENT WITH THE EPF
- COUNTER SLOPE 5.0% MAX / 4.7% PREFERRED

FLARE
(10) - SLOPE MAXIMUM OF 10:1
(4) - SLOPE MAXIMUM OF 4:1

(BT) BLENDED TRANSITION
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- RUNNING SLOPE LESS THAN 5.0%

N

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2026.02.17 16:31:21 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
ADA LAYOUTS
2ND ST SE & 5TH AVE SE
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
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Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason P. Gullicks
Approved By: Jason P. Gullicks

Sheet: 80-09

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 080_Layouts.dwg



NOTES:

1. ANY RAMP FOUND TO BE IN NONCOMPLIANCE WILL BE REMOVED AND REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
2. SEE SECTION 20 SHEET 7 FOR MORE DETAILS.

LEGEND

(TS) TURNING SPACE
- SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- ALL DIRECTIONS

(R) RAMP
- RUNNING SLOPE LESS THAN 8.3% / 5% TO 7.5% PREFERRED
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED

PTA PEDESTRIAN ACCESS TRANSITION AREA
- RUNNING SLOPE LESS THAN 4.9%
- TRANSITION CROSS SECTION AT ¼" PER FOOT FROM RAMP AREA TO EXISITING PEDESTRIAN FACILITY

(B) BASE
- CROSS SLOPE LESS THAN 2% / 1.5% PREFERRED
- RUNNING SLOPE CONSISTENT WITH THE EPF
- COUNTER SLOPE 5.0% MAX / 4.7% PREFERRED

FLARE
(10) (4)
- SLOPE MAXIMUM OF 10:1
- SLOPE MAXIMUM OF 4:1

(BT) BLENDED TRANSITION
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- RUNNING SLOPE LESS THAN 5.0%

N

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2026.02.17 16:31:46 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

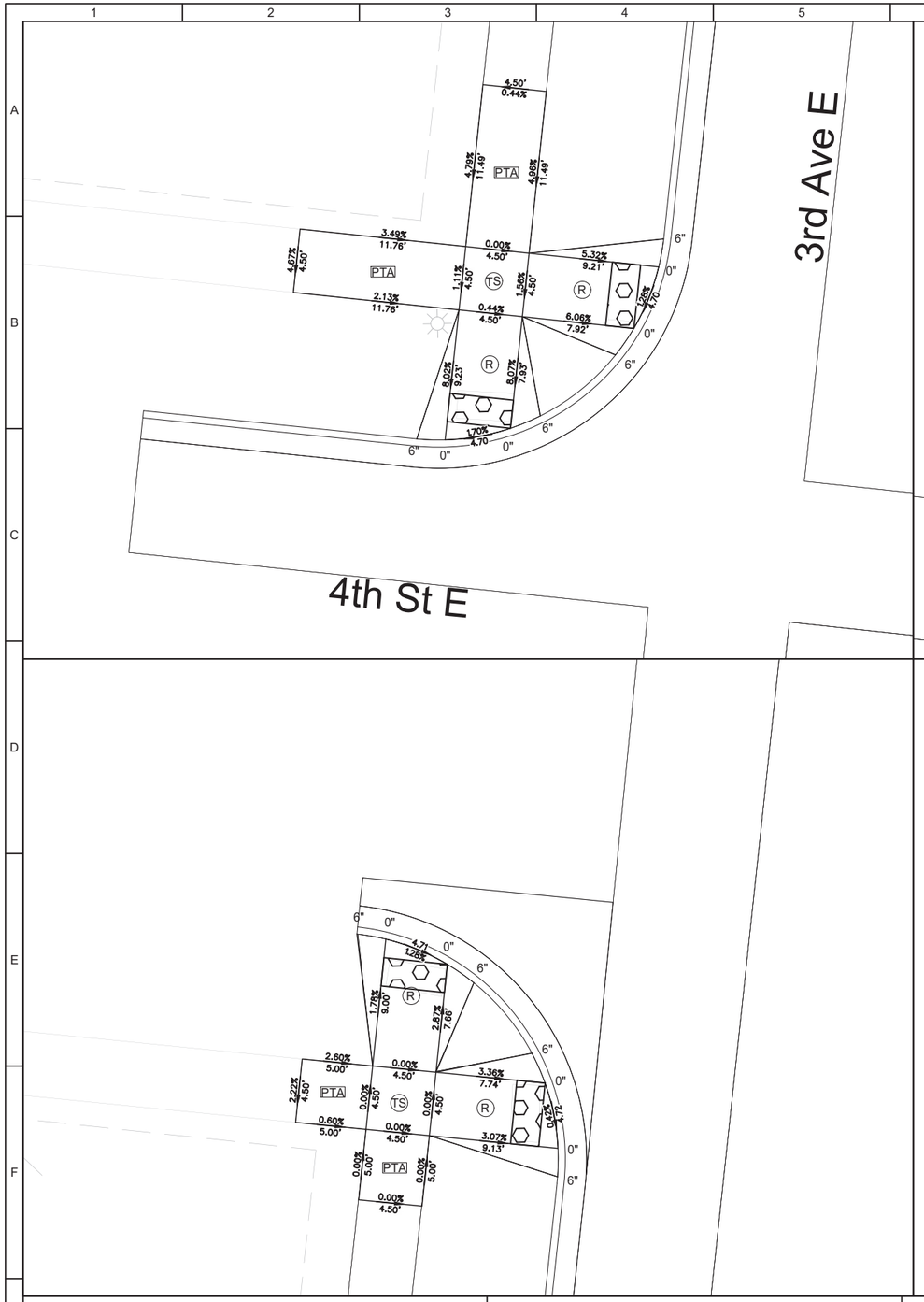
2026 UTILITY & STREET IMPROVEMENTS PROJECT
ADA LAYOUTS
3RD ST E & 3RD AVE E
NORTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
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Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason P. Gullicks
Approved By: Jason P. Gullicks

Sheet: 80-10

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 080_Layouts.dwg



NOTES:

1. ANY RAMP FOUND TO BE IN NONCOMPLIANCE WILL BE REMOVED AND REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
2. SEE SECTION 20 SHEET 7 FOR MORE DETAILS.

LEGEND

(TS) TURNING SPACE
- SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- ALL DIRECTIONS

(R) RAMP
- RUNNING SLOPE LESS THAN 8.3% / 5% TO 7.5% PREFERRED
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED

PTA PEDESTRIAN ACCESS TRANSITION AREA
- RUNNING SLOPE LESS THAN 4.9%
- TRANSITION CROSS SECTION AT 1/4" PER FOOT FROM RAMP AREA TO EXISITING PEDESTRIAN FACILITY

(B) BASE
- CROSS SLOPE LESS THAN 2% / 1.5% PREFERRED
- RUNNING SLOPE CONSISTENT WITH THE EPF
- COUNTER SLOPE 5.0% MAX / 4.7% PREFERRED

FLARE
- (10) (4) SLOPE MAXIMUM OF 10:1
- SLOPE MAXIMUM OF 4:1

(BT) BLENDED TRANSITION
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- RUNNING SLOPE LESS THAN 5.0%

N

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2026.02.17 16:32:23 -06'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

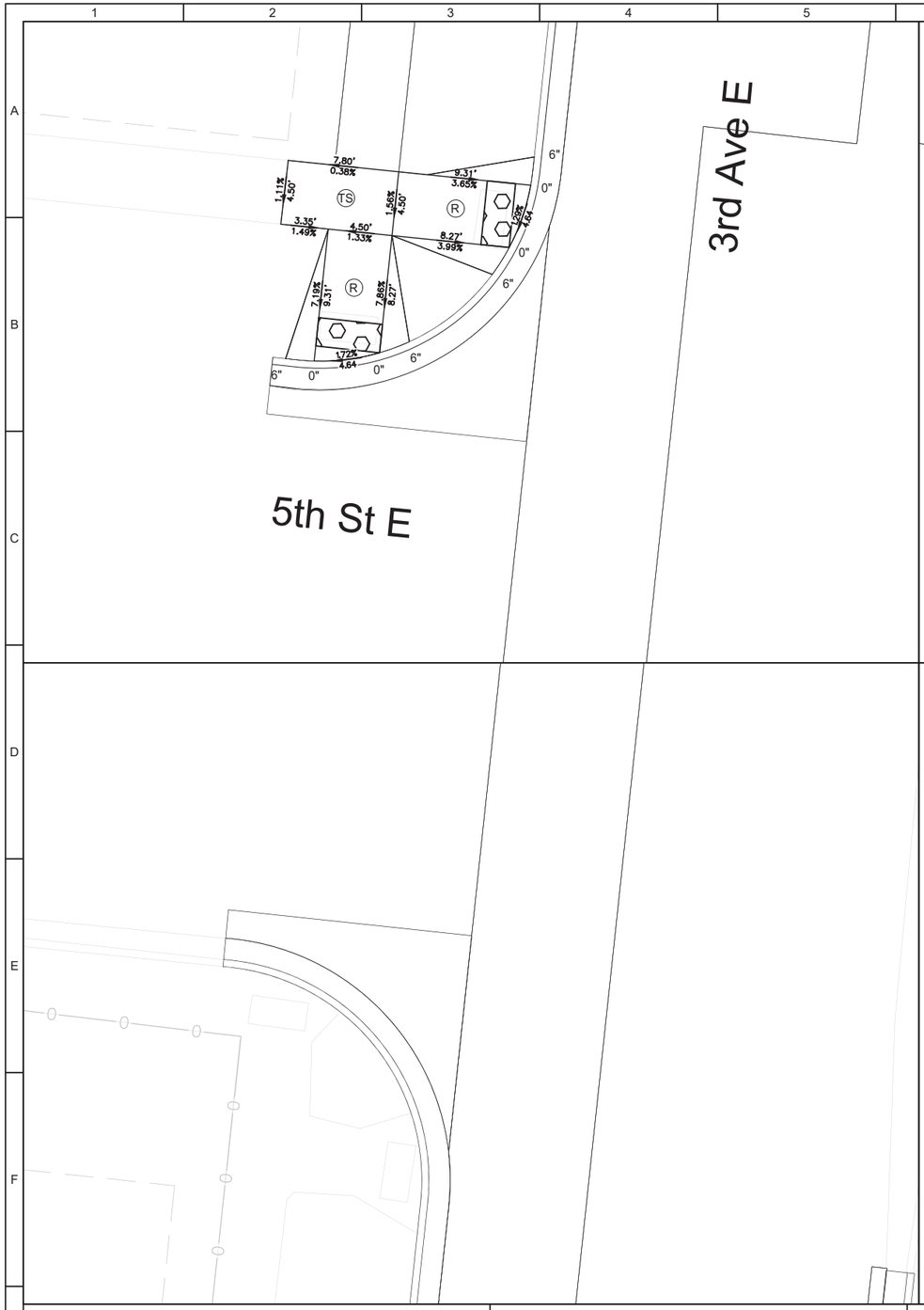
2026 UTILITY & STREET IMPROVEMENTS PROJECT
ADA LAYOUTS
4TH ST E & 3RD AVE E
NORTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason P. Gullicks
Approved By: Jason P. Gullicks

Sheet: 80-11

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 080_Layouts.dwg



NOTES:

1. ANY RAMP FOUND TO BE IN NONCOMPLIANCE WILL BE REMOVED AND REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
2. SEE SECTION 20 SHEET 7 FOR MORE DETAILS.

LEGEND

(TS) TURNING SPACE
- SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- ALL DIRECTIONS

(R) RAMP
- RUNNING SLOPE LESS THAN 8.3% / 5% TO 7.5% PREFERRED
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED

PTA PEDESTRIAN ACCESS TRANSITION AREA
- RUNNING SLOPE LESS THAN 4.9%
- TRANSITION CROSS SECTION AT $\frac{1}{4}$% PER FOOT FROM RAMP AREA TO EXISITING PEDESTRIAN FACILITY

(B) BASE
- CROSS SLOPE LESS THAN 2% / 1.5% PREFERRED
- RUNNING SLOPE CONSISTENT WITH THE EPF
- COUNTER SLOPE 5.0% MAX / 4.7% PREFERRED

FLARE
(10) - SLOPE MAXIMUM OF 10:1
(4) - SLOPE MAXIMUM OF 4:1

(BT) BLENDED TRANSITION
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- RUNNING SLOPE LESS THAN 5.0%

N

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2026.02.17 16:33:16 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT ADA LAYOUTS 5TH ST E & 3RD AVE E NORTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason P. Gullicks
Approved By: Jason P. Gullicks

Sheet: 80-12

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3rd Ave E & 7th St E Radial Detectable Warning Panels		
Quad	Length (On Curb Side)	Radius (On Curb Side)
SE	8.5'	8.5'

NOTES:

1. ANY RAMP FOUND TO BE IN NONCOMPLIANCE WILL BE REMOVED AND REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
2. SEE SECTION 20 SHEET 7 FOR MORE DETAILS.

LEGEND

(TS) TURNING SPACE
- SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- ALL DIRECTIONS

(R) RAMP
- RUNNING SLOPE LESS THAN 8.3% / 5% TO 7.5% PREFERRED
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED

PTA PEDESTRIAN ACCESS TRANSITION AREA
- RUNNING SLOPE LESS THAN 4.9%
- TRANSITION CROSS SECTION AT $\frac{1}{4}$" PER FOOT FROM RAMP AREA TO EXISITING PEDESTRIAN FACILITY

(B) BASE
- CROSS SLOPE LESS THAN 2% / 1.5% PREFERRED
- RUNNING SLOPE CONSISTENT WITH THE EPF
- COUNTER SLOPE 5.0% MAX / 4.7% PREFERRED

FLARE
(10) - SLOPE MAXIMUM OF 10:1
(4) - SLOPE MAXIMUM OF 4:1

(BT) BLENDED TRANSITION
- CROSS SLOPE MAXIMUM OF 2.0% / 1.5% PREFERRED
- RUNNING SLOPE LESS THAN 5.0%

N

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2026.02.17 16:33:49 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

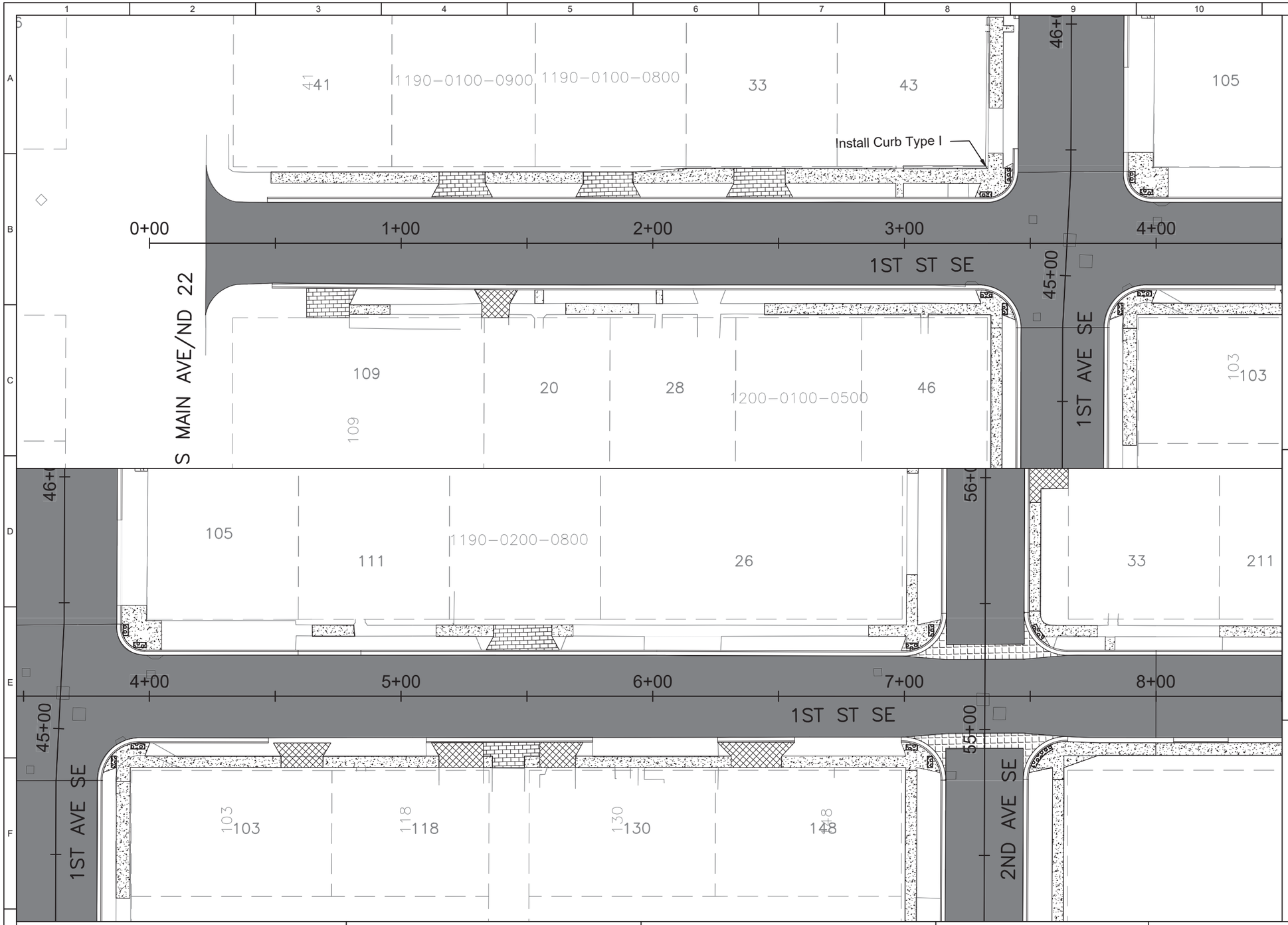
2026 UTILITY & STREET IMPROVEMENTS PROJECT ADA LAYOUTS 7TH ST E & 3RD AVE E NORTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason P. Gullicks
Approved By: Jason P. Gullicks

Sheet: 80-13

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 080_Layouts.dwg



ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SUBGRADE PREPARATION 12 IN	3438	SY
GEOSYNTHETIC MATERIAL TYPE G	3438	SY
SALVAGED BASE COURSE	1528	TONS
SUPERPAVE FAA 43	655	TONS
ASPHALT CEMENT (PG58H-34)	39	TONS
CURB & GUTTER - TYPE I	1249	LF
VALLEY GUTTER	74	SY
SIDEWALK CONCRETE 4IN	510	SY
DRIVEWAY CONCRETE 6IN	98	SY
DRIVEWAY CONCRETE 8IN	145	SY
DETECTABLE WARNING PANELS	149	SF
CURB-TYPE I	33	LF

LEGEND

- SIDEWALK CONCRETE 4IN
- VALLEY GUTTER
- DRIVEWAY CONCRETE 6IN
- DRIVEWAY CONCRETE 8IN
- SUPERPAVE FAA 43
- SUPERPAVE FAA 43 OVERLAY
- CURB & GUTTER

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:43:04 -06'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

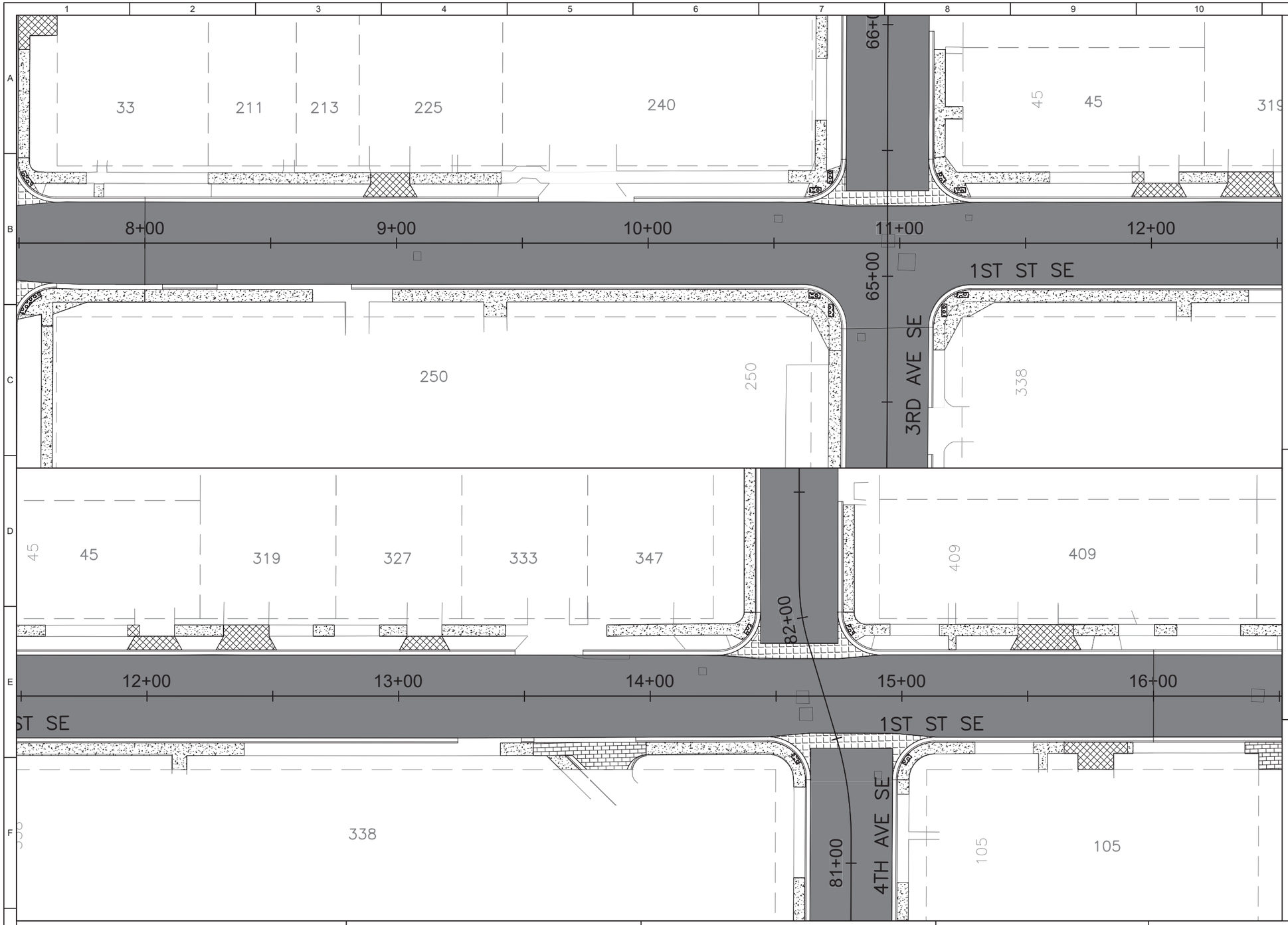
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PAVING LAYOUT
Sta 0+00 to Sta 8+00
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 90-01

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 090_Paving.dwg



ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SUBGRADE PREPARATION 12 IN	3528	SY
GEOSYNTHETIC MATERIAL TYPE G	3528	SY
SALVAGED BASE COURSE	1568	TONS
SUPERPAVE FAA 43	658	TONS
ASPHALT CEMENT (PG58H-34)	39	TONS
CURB & GUTTER - TYPE I	1357	LF
VALLEY GUTTER	114	SY
SIDEWALK CONCRETE 4IN	539	SY
DRIVEWAY CONCRETE 6IN	113	SY
DRIVEWAY CONCRETE 8IN	39	SY
DETECTABLE WARNING PANELS	106	SF

LEGEND

- SIDEWALK CONCRETE 4IN
- VALLEY GUTTER
- DRIVEWAY CONCRETE 6IN
- DRIVEWAY CONCRETE 8IN
- SUPERPAVE FAA 43
- SUPERPAVE FAA 43 OVERLAY
- CURB & GUTTER

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:43:27 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

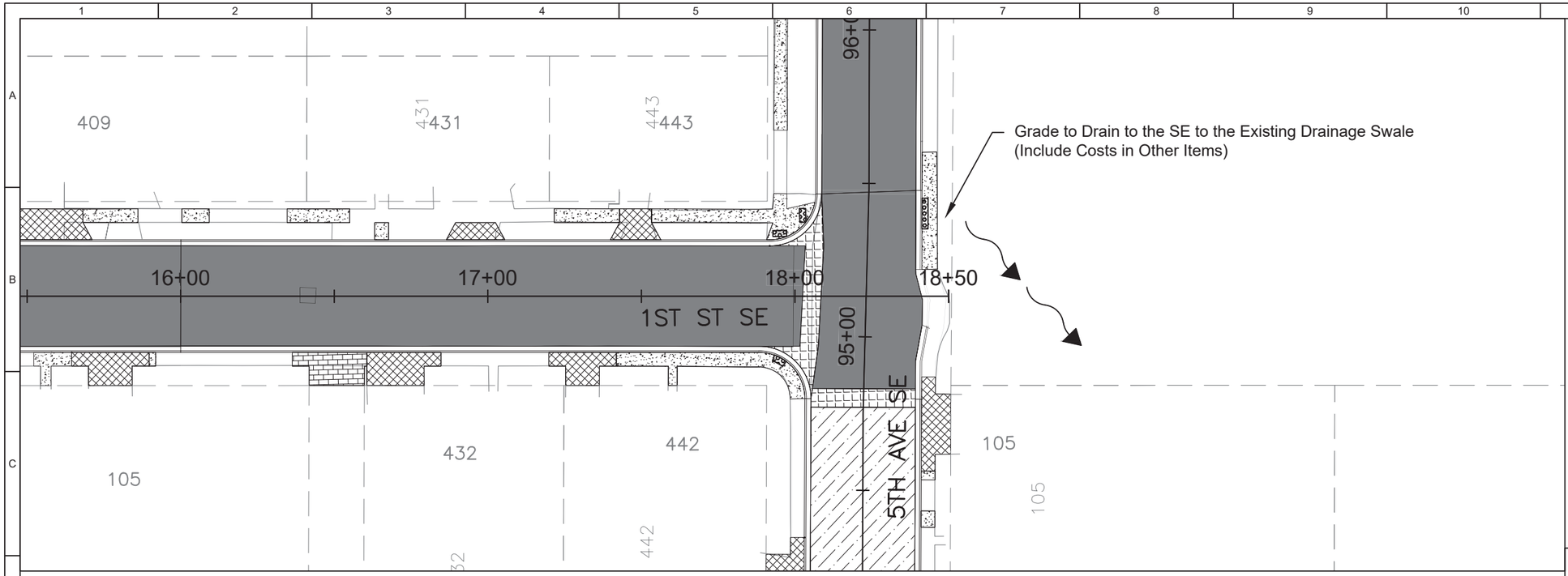
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PAVING LAYOUT
Sta 8+00 to Sta 16+00
SOUTH AREA

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 90-02

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 090_Paving.dwg



ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SUBGRADE PREPARATION 12 IN	1181	SY
GEOSYNTHETIC MATERIAL TYPE G	1181	SY
SALVAGED BASE COURSE	525	TONS
SUPERPAVE FAA 43	214	TONS
ASPHALT CEMENT (PG58H-34)	13	TONS
CURB & GUTTER - TYPE I	478	LF
VALLEY GUTTER	61	SY
SIDEWALK CONCRETE 4IN	115	SY
DRIVEWAY CONCRETE 6IN	67	SY
DRIVEWAY CONCRETE 8IN	25	SY
DETECTABLE WARNING PANELS	46	SF

LEGEND

- SIDEWALK CONCRETE 4IN
- VALLEY GUTTER
- DRIVEWAY CONCRETE 6IN
- DRIVEWAY CONCRETE 8IN
- SUPERPAVE FAA 43
- SUPERPAVE FAA 43 OVERLAY
- CURB & GUTTER

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:43:49 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
PAVING LAYOUT
Sta 16+00 to Sta 18+50
SOUTH AREA

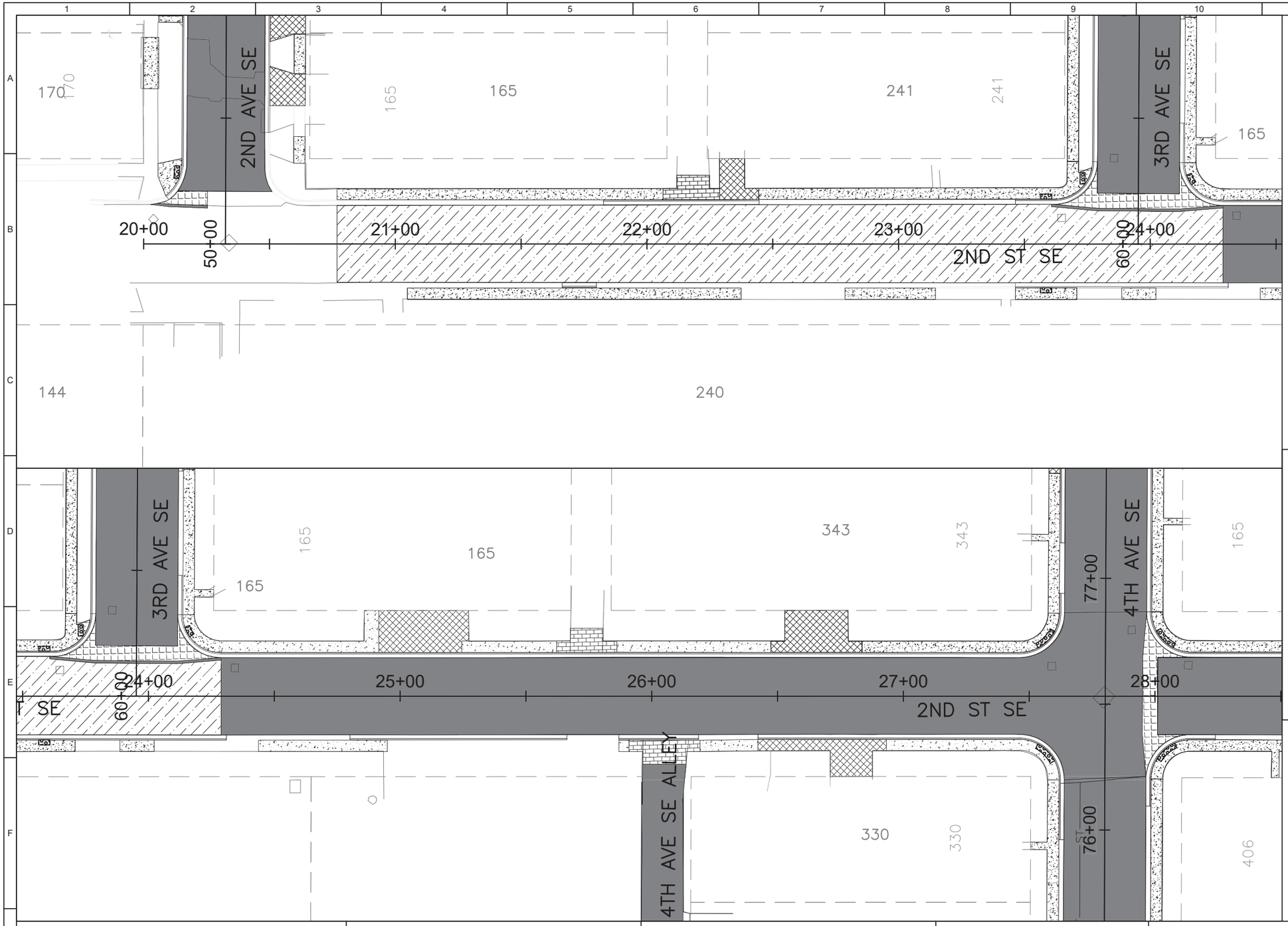
Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
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Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 90-03

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SUBGRADE PREPARATION 12 IN	1761	SY
GEOSYNTHETIC MATERIAL TYPE G	1761	SY
SALVAGED BASE COURSE	783	TONS
SUPERPAVE FAA 43	442	TONS
ASPHALT CEMENT (PG58H-34)	27	TONS
CURB & GUTTER - TYPE I	839	LF
VALLEY GUTTER	86	SY
SIDEWALK CONCRETE 4IN	456	SY
DRIVEWAY CONCRETE 6IN	183	SY
DRIVEWAY CONCRETE 8IN	62	SY
DETECTABLE WARNING PANELS	107	SF

LEGEND

- SIDEWALK CONCRETE 4IN
- VALLEY GUTTER
- DRIVEWAY CONCRETE 6IN
- DRIVEWAY CONCRETE 8IN
- SUPERPAVE FAA 43
- SUPERPAVE FAA 43 OVERLAY
- CURB & GUTTER

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:44:16 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT PAVING LAYOUT Sta 20+00 to Sta 28+00 SOUTH AREA

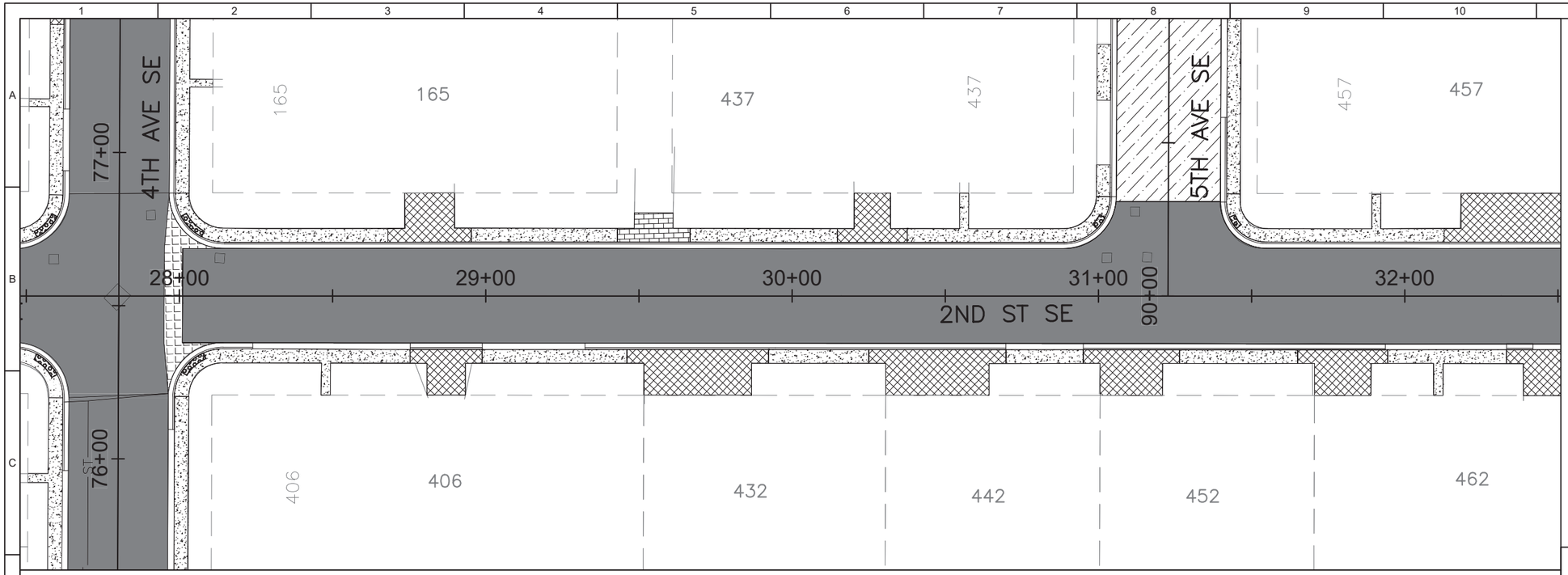
Apex Engineering Group

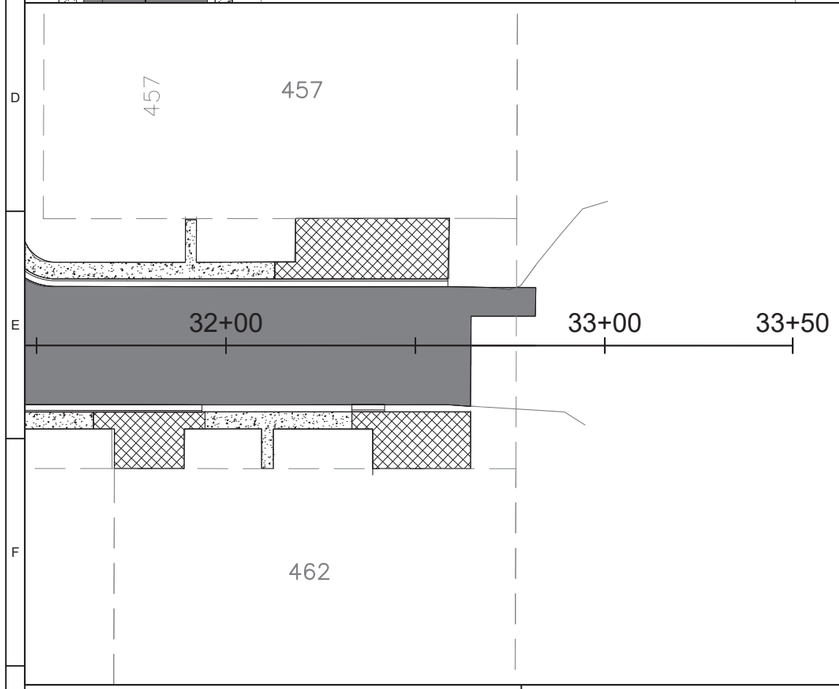
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
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Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 90-04

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 090_Paving.dwg





ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SUBGRADE PREPARATION 12 IN	1931	SY
GEOSYNTHETIC MATERIAL TYPE G	1931	SY
SALVAGED BASE COURSE	858	TONS
SUPERPAVE FAA 43	373	TONS
ASPHALT CEMENT (PG58H-34)	22	TONS
CURB & GUTTER - TYPE I	753	LF
SIDEWALK CONCRETE 4IN	307	SY
DRIVEWAY CONCRETE 6IN	408	SY
DRIVEWAY CONCRETE 8IN	19	SY
DETECTABLE WARNING PANELS	16	SF

LEGEND

- SIDEWALK CONCRETE 4IN
- VALLEY GUTTER
- DRIVEWAY CONCRETE 6IN
- DRIVEWAY CONCRETE 8IN
- SUPERPAVE FAA 43
- SUPERPAVE FAA 43 OVERLAY
- CURB & GUTTER

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:44:34 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
PAVING LAYOUT
Sta 28+00 to Sta 33+50
SOUTH AREA

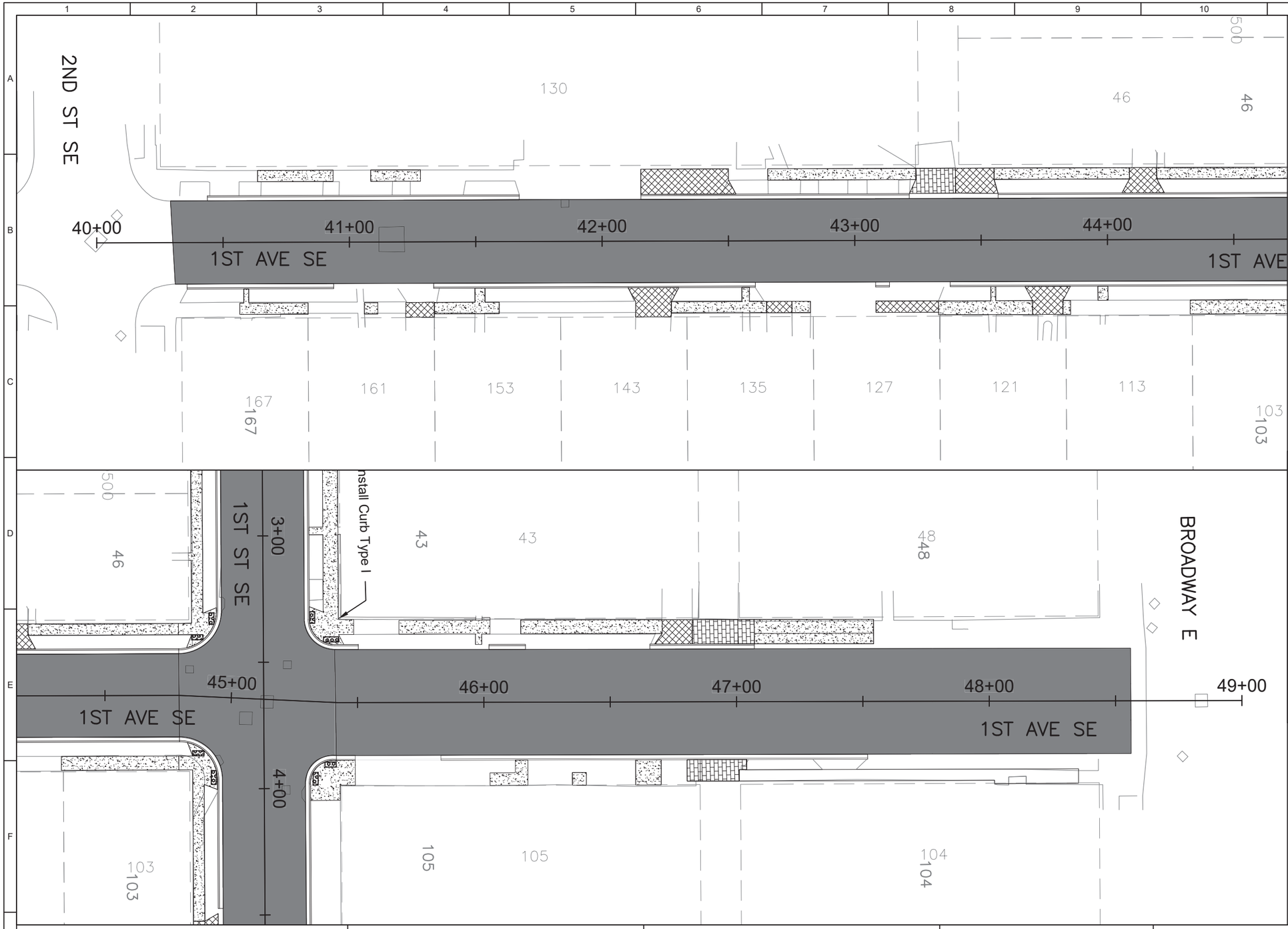
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Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 90-05

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SUBGRADE PREPARATION 12 IN	3406	SY
GEOSYNTHETIC MATERIAL TYPE G	3406	SY
AGGREGATE BASE COURSE CLASS 5	259	TONS
SALVAGED BASE COURSE	1238	TONS
SUPERPAVE FAA 43	690	TONS
ASPHALT CEMENT (PG58H-34)	41	TONS
CURB & GUTTER - TYPE I	909	LF
SIDEWALK CONCRETE 4IN	358	SY
DRIVEWAY CONCRETE 6IN	146	SY
DRIVEWAY CONCRETE 8IN	65	SY
CURB-TYPE I	53	LF

LEGEND

- SIDEWALK CONCRETE 4IN
- VALLEY GUTTER
- DRIVEWAY CONCRETE 6IN
- DRIVEWAY CONCRETE 8IN
- SUPERPAVE FAA 43
- SUPERPAVE FAA 43 OVERLAY
- CURB & GUTTER

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17
16:44:54 -06'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

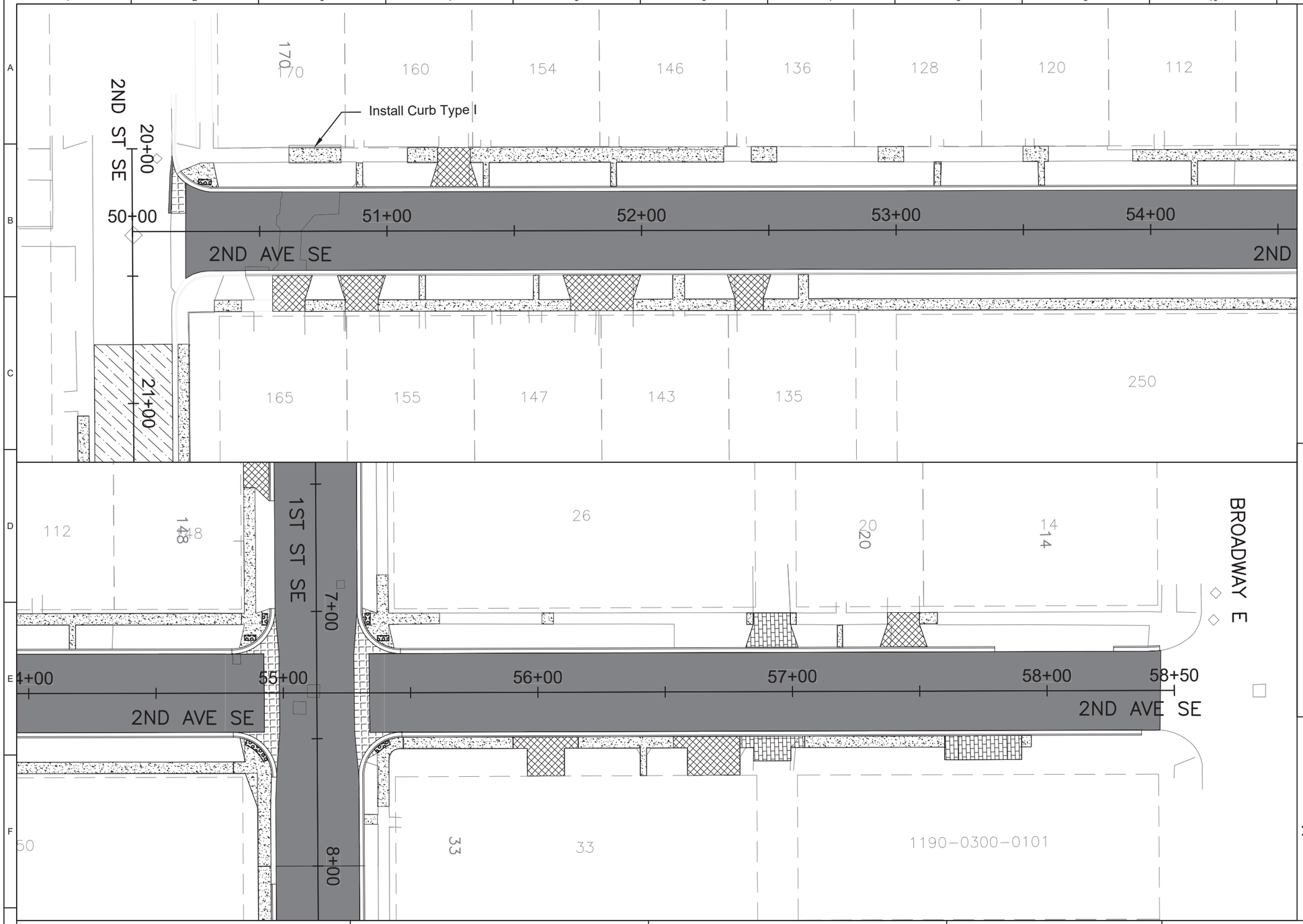
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PAVING LAYOUT
Sta 40+00 to Sta 49+00
SOUTH AREA

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Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 90-06

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SUBGRADE PREPARATION 12 IN	3164	SY
GEOSYNTHETIC MATERIAL TYPE G	3164	SY
AGGREGATE BASE COURSE CLASS 5	1318	TONS
SUPERPAVE FAA 43	596	TONS
ASPHALT CEMENT (PG58H-34)	36	TONS
CURB & GUTTER - TYPE I	1441	LF
SIDEWALK CONCRETE 4IN	463	SY
DRIVEWAY CONCRETE 6IN	222	SY
DRIVEWAY CONCRETE 8IN	78	SY
DETECTABLE WARNING PANELS	10	SF
CURB-TYPE I	20	LF

LEGEND

- SIDEWALK CONCRETE 4IN
- VALLEY GUTTER
- DRIVEWAY CONCRETE 6IN
- DRIVEWAY CONCRETE 8IN
- SUPERPAVE FAA 43
- SUPERPAVE FAA 43 OVERLAY
- CURB & GUTTER

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:45:11 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

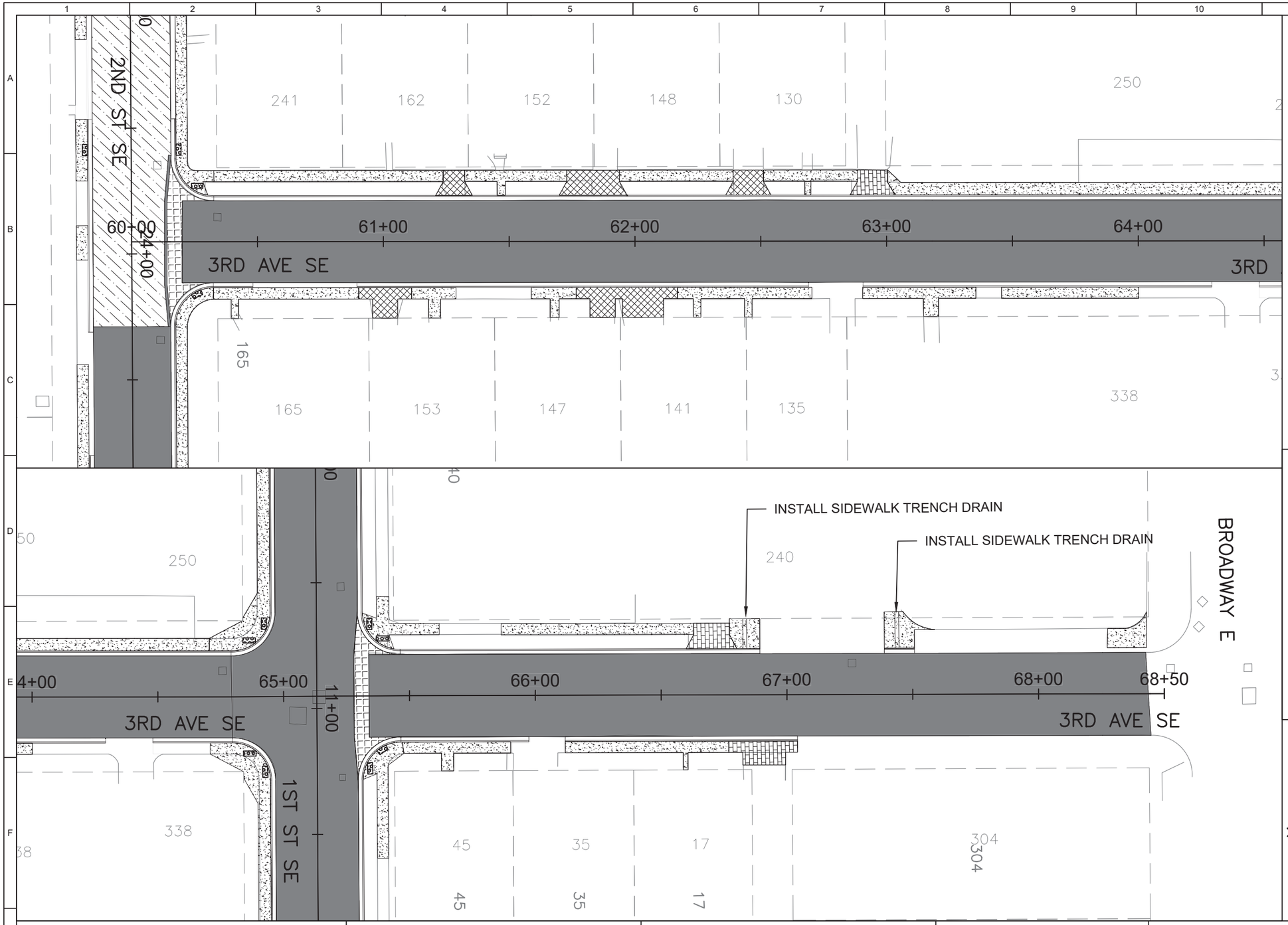
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PAVING LAYOUT
Sta 50+00 to Sta 58+50
SOUTH AREA

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Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 90-07

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SUBGRADE PREPARATION 12 IN	3157	SY
GEOSYNTHETIC MATERIAL TYPE G	3157	SY
AGGREGATE BASE COURSE CLASS 5	1315	TONS
SUPERPAVE FAA 43	620	TONS
ASPHALT CEMENT (PG58H-34)	37	TONS
CURB & GUTTER - TYPE I	1094	LF
SIDEWALK CONCRETE 4IN	494	SY
DRIVEWAY CONCRETE 6IN	113	SY
DRIVEWAY CONCRETE 8IN	56	SY
SIDEWALK TRENCH DRAIN	29	LF

Note:
Prior to "SIDEWALK TRENCH DRAIN" fabrication contractor shall discuss lengths of drains and sidewalk grade breaks with the engineer.

LEGEND

- SIDEWALK CONCRETE 4IN
- VALLEY GUTTER
- DRIVEWAY CONCRETE 6IN
- DRIVEWAY CONCRETE 8IN
- SUPERPAVE FAA 43
- SUPERPAVE FAA 43 OVERLAY
- CURB & GUTTER

N

0 20' 40'
SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:45:29 -06'00'
NORTH DAKOTA

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Issue #	Description	Date

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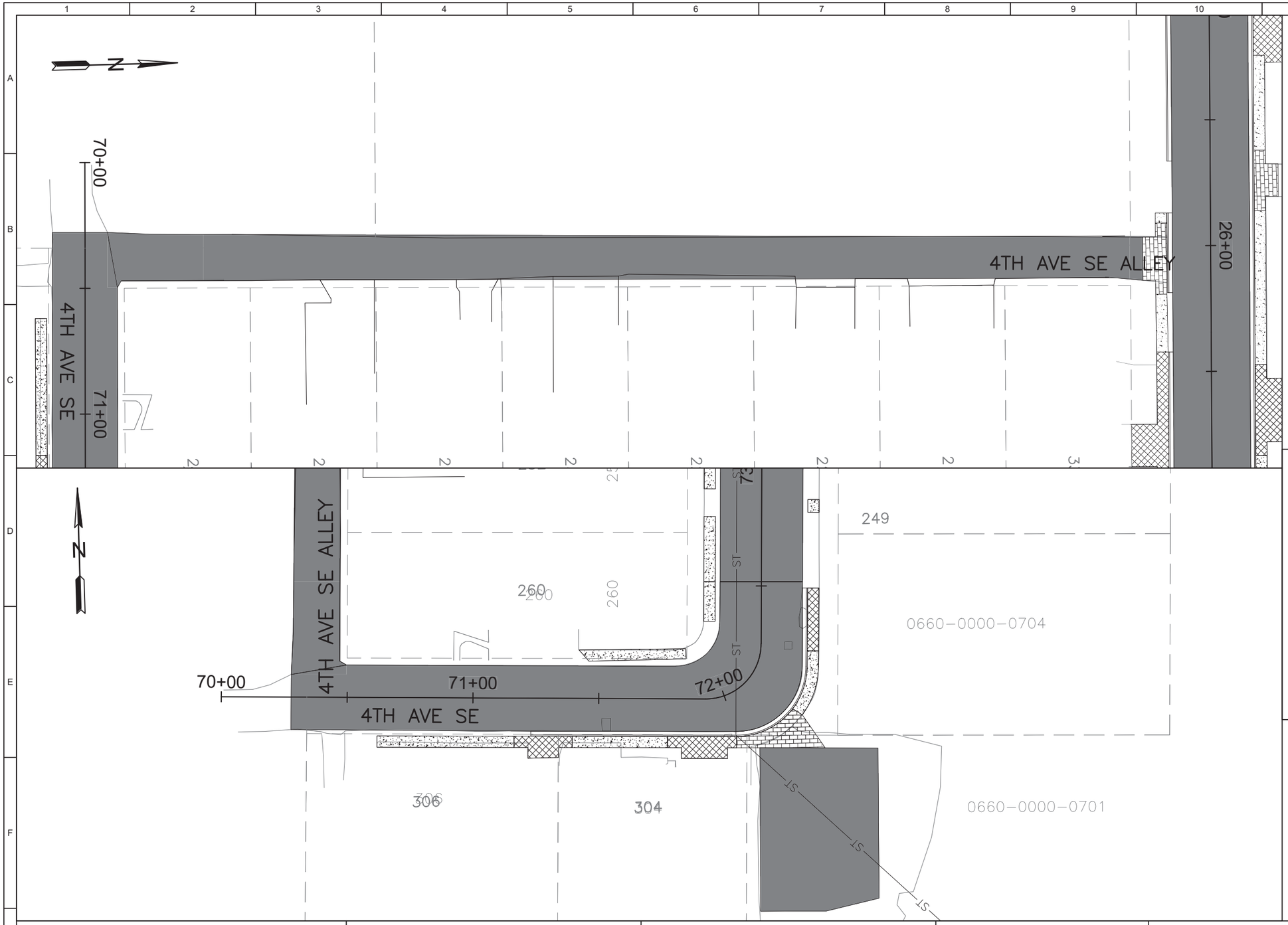
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PAVING LAYOUT
Sta 60+00 to Sta 68+50
SOUTH AREA

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Project #:	22.107.0010
Date:	February 2026
Drawn By:	Logan Fridgen
Checked By:	Caleb Weisgarber
Approved By:	Jason P. Gullicks

Sheet: 90-08

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 090_Paving.dwg



ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SUBGRADE PREPARATION 12 IN	1790	SY
GEOSYNTHETIC MATERIAL TYPE G	1790	SY
AGGREGATE BASE COURSE CLASS 5	746	TONS
SUPERPAVE FAA 43	386	TONS
ASPHALT CEMENT (PG58H-34)	23	TONS
CURB & GUTTER - TYPE I	156	LF
SIDEWALK CONCRETE 4IN	86	SY
DRIVEWAY CONCRETE 6IN	52	SY
DRIVEWAY CONCRETE 8IN	32	SY

LEGEND

- SIDEWALK CONCRETE 4IN
- VALLEY GUTTER
- DRIVEWAY CONCRETE 6IN
- DRIVEWAY CONCRETE 8IN
- SUPERPAVE FAA 43
- SUPERPAVE FAA 43 OVERLAY
- CURB & GUTTER

0 20' 40'
SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:45:46 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

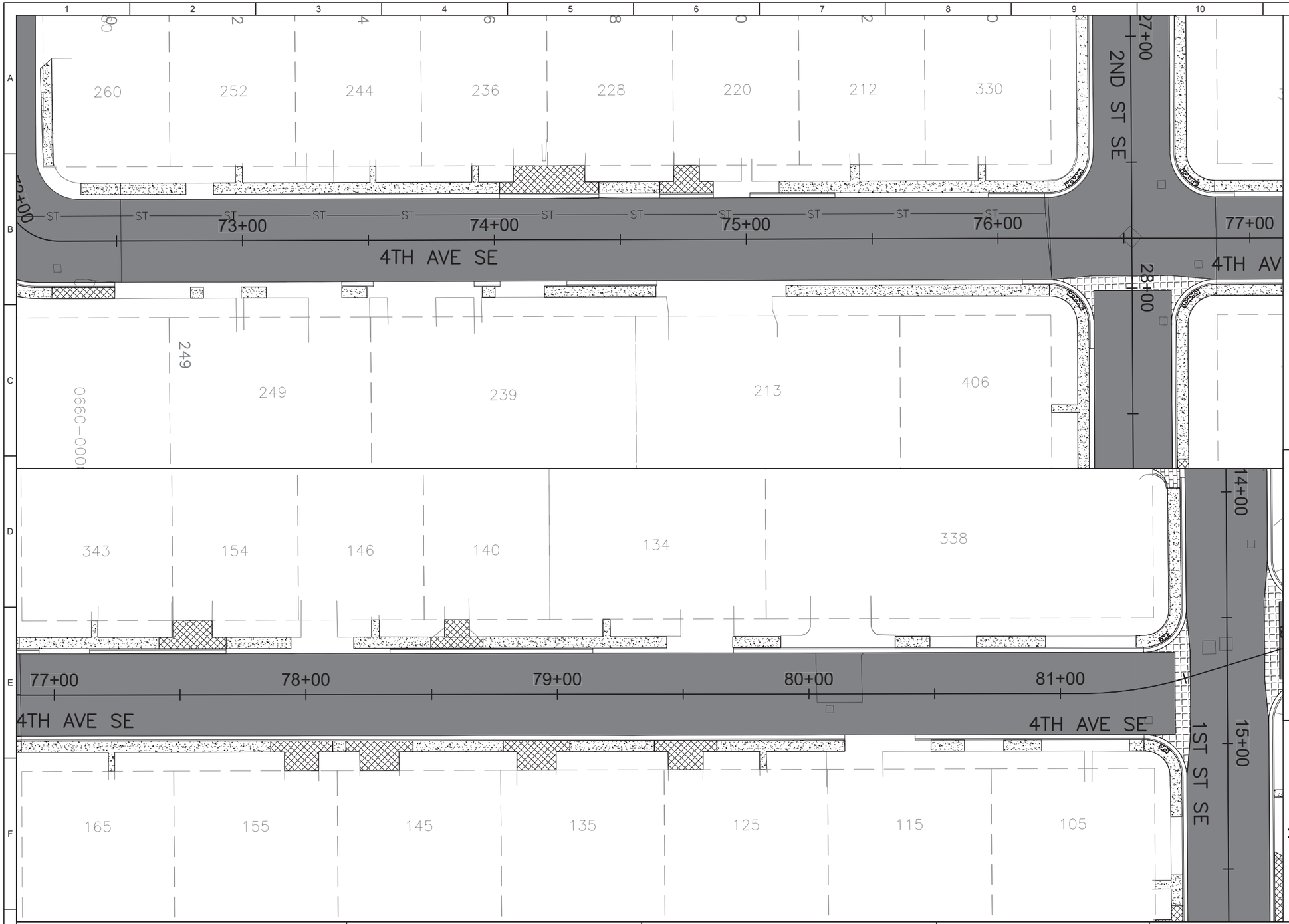
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PAVING LAYOUT
4TH AVE SE ALLEY
Sta 70+00 to Sta 72+00

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204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
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Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 90-09

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 090_Paving.dwg



ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SUBGRADE PREPARATION 12 IN	3306	SY
GEOSYNTHETIC MATERIAL TYPE G	3306	SY
AGGREGATE BASE COURSE CLASS 5	1377	TONS
SUPERPAVE FAA 43	668	TONS
ASPHALT CEMENT (PG58H-34)	40	TONS
CURB & GUTTER - TYPE I	905	LF
SIDEWALK CONCRETE 4IN	500	SY
DRIVEWAY CONCRETE 6IN	202	SY

LEGEND

- SIDEWALK CONCRETE 4IN
- VALLEY GUTTER
- DRIVEWAY CONCRETE 6IN
- DRIVEWAY CONCRETE 8IN
- SUPERPAVE FAA 43
- SUPERPAVE FAA 43 OVERLAY
- CURB & GUTTER

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:46:06 -06'00'
NORTH DAKOTA

REVISIONS

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CITY OF Dickinson North Dakota

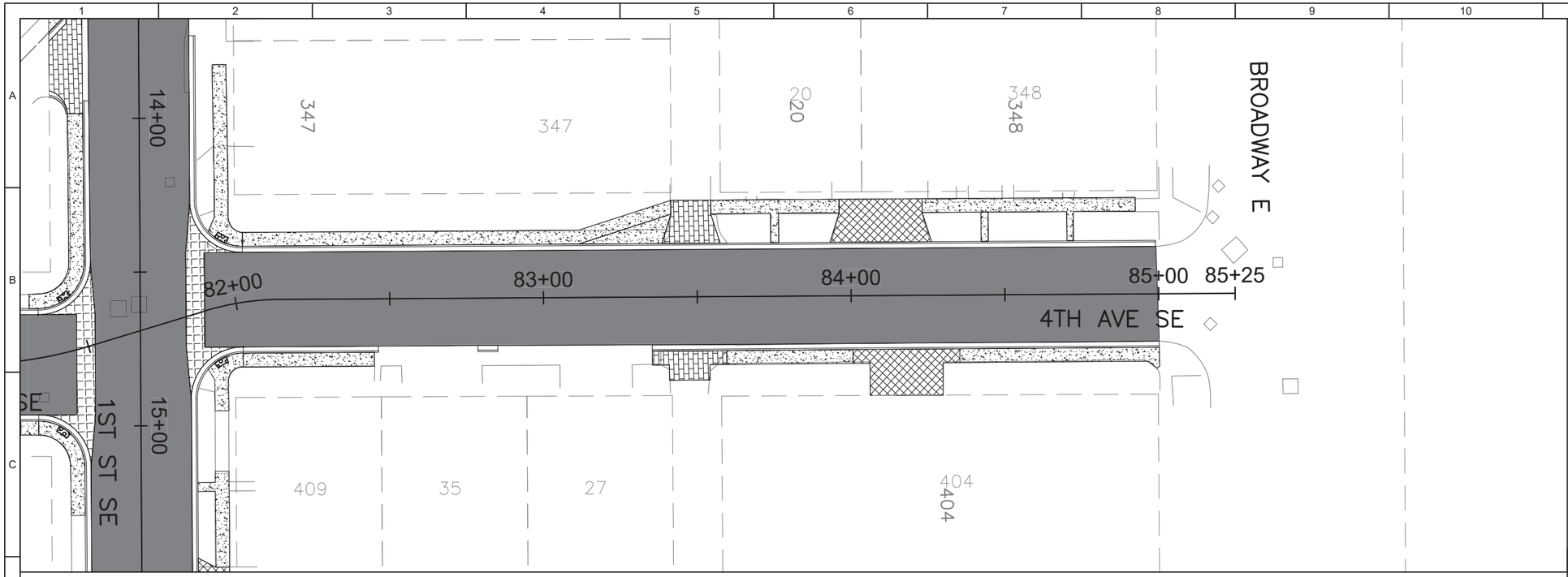
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PAVING LAYOUT
Sta 72+00 to Sta 81+00
SOUTH AREA

Apex Engineering Group
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Dickinson, North Dakota 58601
Office: 701-264-3939
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Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 90-10

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SUBGRADE PREPARATION 12 IN	1234	SY
GEOSYNTHETIC MATERIAL TYPE G	1234	SY
AGGREGATE BASE COURSE CLASS 5	514	TONS
SUPERPAVE FAA 43	236	TONS
ASPHALT CEMENT (PG58H-34)	14	TONS
CURB & GUTTER - TYPE I	512	LF
SIDEWALK CONCRETE 4IN	222	SY
DRIVEWAY CONCRETE 6IN	90	SY
DRIVEWAY CONCRETE 8IN	43	SY

LEGEND

- SIDEWALK CONCRETE 4IN
- VALLEY GUTTER
- DRIVEWAY CONCRETE 6IN
- DRIVEWAY CONCRETE 8IN
- SUPERPAVE FAA 43
- SUPERPAVE FAA 43 OVERLAY
- CURB & GUTTER

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:46:22 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
PAVING LAYOUT
Sta 81+00 to Sta 85+25
SOUTH AREA

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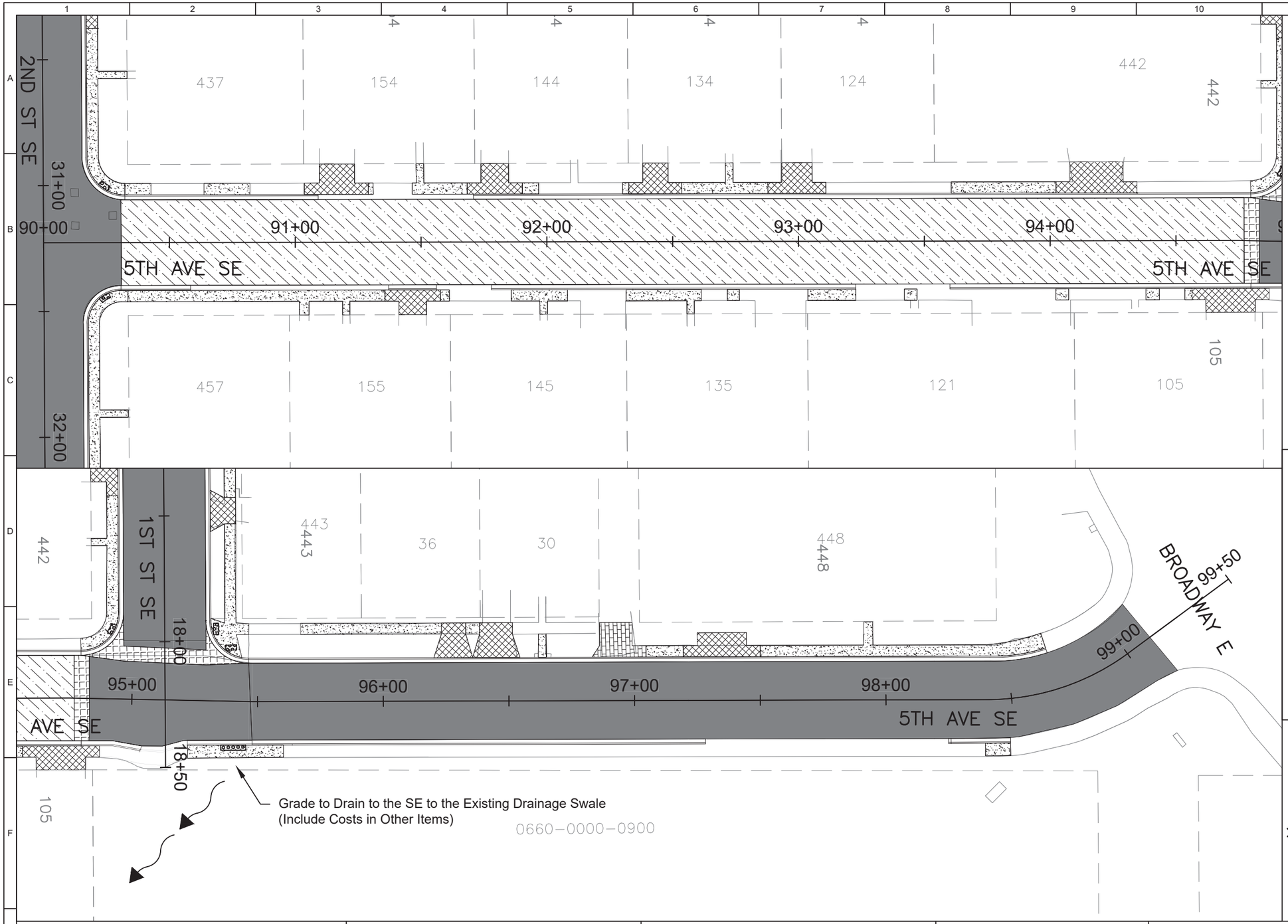
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Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet:

90-11

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SUBGRADE PREPARATION 12 IN	1644	SY
GEOSYNTHETIC MATERIAL TYPE G	1644	SY
AGGREGATE BASE COURSE CLASS 5	685	TONS
SUPERPAVE FAA 43	462	TONS
ASPHALT CEMENT (PG58H-34)	28	TONS
CURB & GUTTER - TYPE I	1219	LF
SIDEWALK CONCRETE 4IN	291	SY
DRIVEWAY CONCRETE 6IN	232	SY
DRIVEWAY CONCRETE 8IN	23	SY

LEGEND

- SIDEWALK CONCRETE 4IN
- VALLEY GUTTER
- DRIVEWAY CONCRETE 6IN
- DRIVEWAY CONCRETE 8IN
- SUPERPAVE FAA 43
- SUPERPAVE FAA 43 OVERLAY
- CURB & GUTTER

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:46:39 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

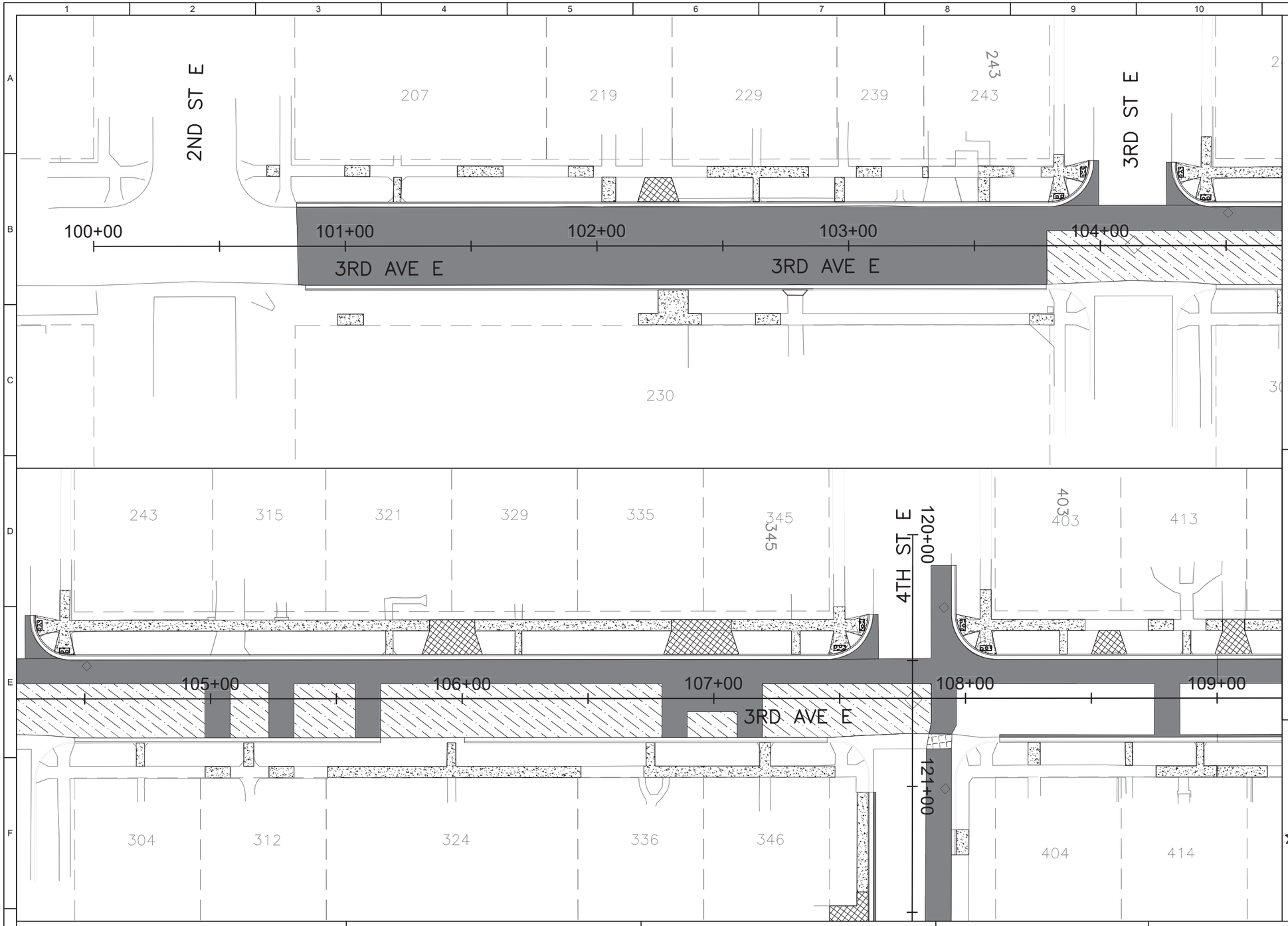
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PAVING LAYOUT
Sta 90+00 to Sta 99+50
SOUTH AREA

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204 Sims Street, Suite # 201
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Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 90-12

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SUBGRADE PREPARATION 12 IN	2348	SY
GEOSYNTHETIC MATERIAL TYPE G	1323	SY
GEOTEXTILE FABRIC R1	1025	SY
AGGREGATE BASE COURSE CLASS 5	978	TONS
SUPERPAVE FAA 43	504	TONS
ASPHALT CEMENT (PG58H-34)	30	TONS
CURB & GUTTER - TYPE I	1455	LF
VALLEY GUTTER	6	SY
SIDEWALK CONCRETE 4IN	505	SY
DRIVEWAY CONCRETE 6IN	97	SY
DETECTABLE WARNING PANELS	68	SF

LEGEND

- SIDEWALK CONCRETE 4IN
- VALLEY GUTTER
- DRIVEWAY CONCRETE 6IN
- DRIVEWAY CONCRETE 8IN
- SUPERPAVE FAA 43
- SUPERPAVE FAA 43 OVERLAY
- CURB & GUTTER

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:46:56 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

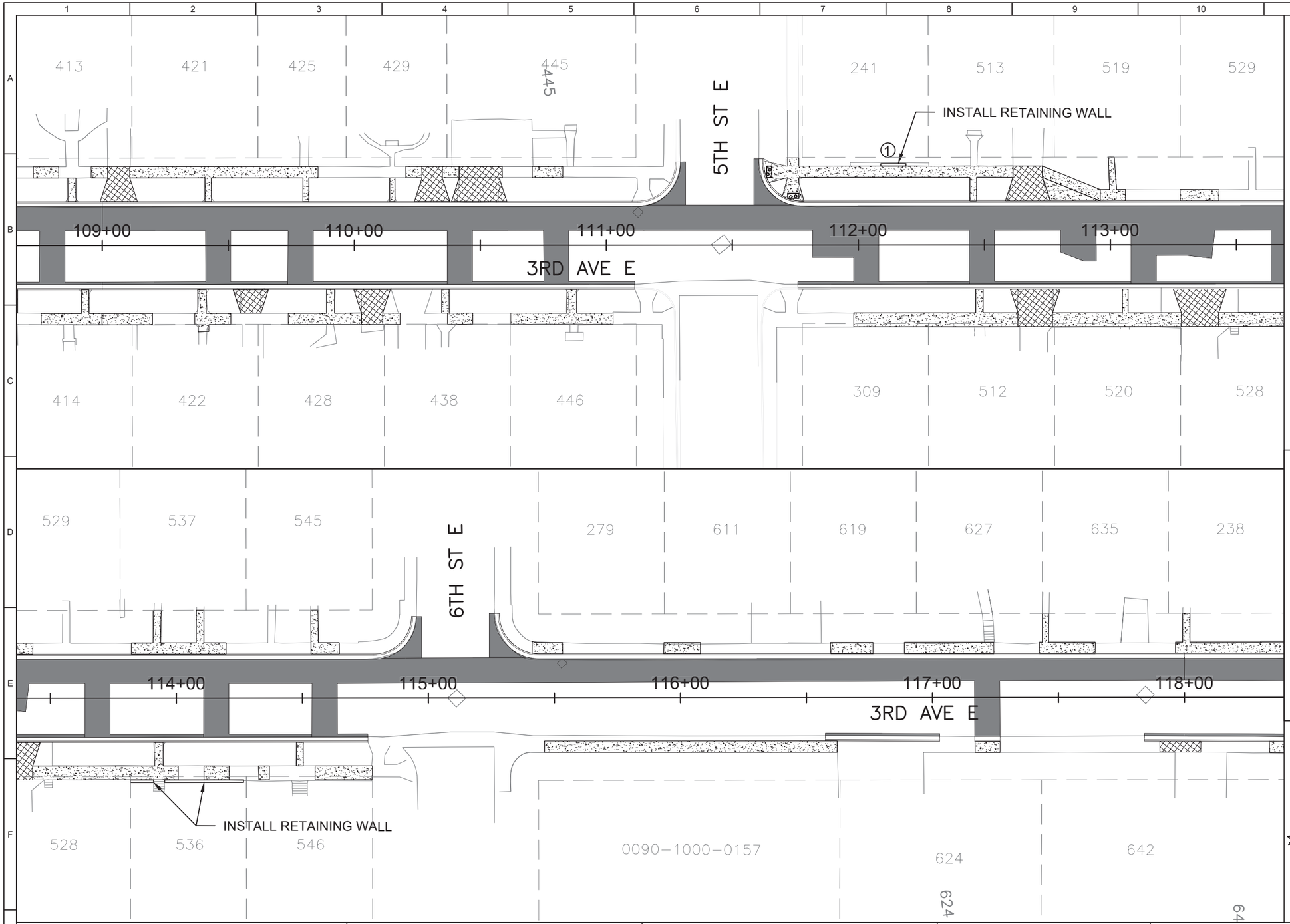
2026 UTILITY & STREET IMPROVEMENTS PROJECT PAVING LAYOUT
Sta 100+00 to Sta 109+00
NORTH AREA

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204 Sims Street, Suite # 201
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Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 90-13

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SUBGRADE PREPARATION 12 IN	1843	SY
GEOTEXTILE FABRIC R1	1843	SY
AGGREGATE BASE COURSE CLASS 5	768	TONS
SUPERPAVE FAA 43	303	TONS
ASPHALT CEMENT (PG58H-34)	18	TONS
CURB & GUTTER - TYPE I	1437	LF
SIDEWALK CONCRETE 4IN	527	SY
DRIVEWAY CONCRETE 6IN	163	SY
DETECTABLE WARNING PANELS	18	SF
RETAINING WALL	50	LF

① Match existing retaining wall dimensions for installation of new retaining wall segment. Include all costs for installation in unit price bid for "RETAINING WALL"

LEGEND

- SIDEWALK CONCRETE 4IN
- VALLEY GUTTER
- DRIVEWAY CONCRETE 6IN
- DRIVEWAY CONCRETE 8IN
- SUPERPAVE FAA 43
- SUPERPAVE FAA 43 OVERLAY
- CURB & GUTTER

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:47:13 -06'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT PAVING LAYOUT Sta 109+00 to Sta 118+00 NORTH AREA

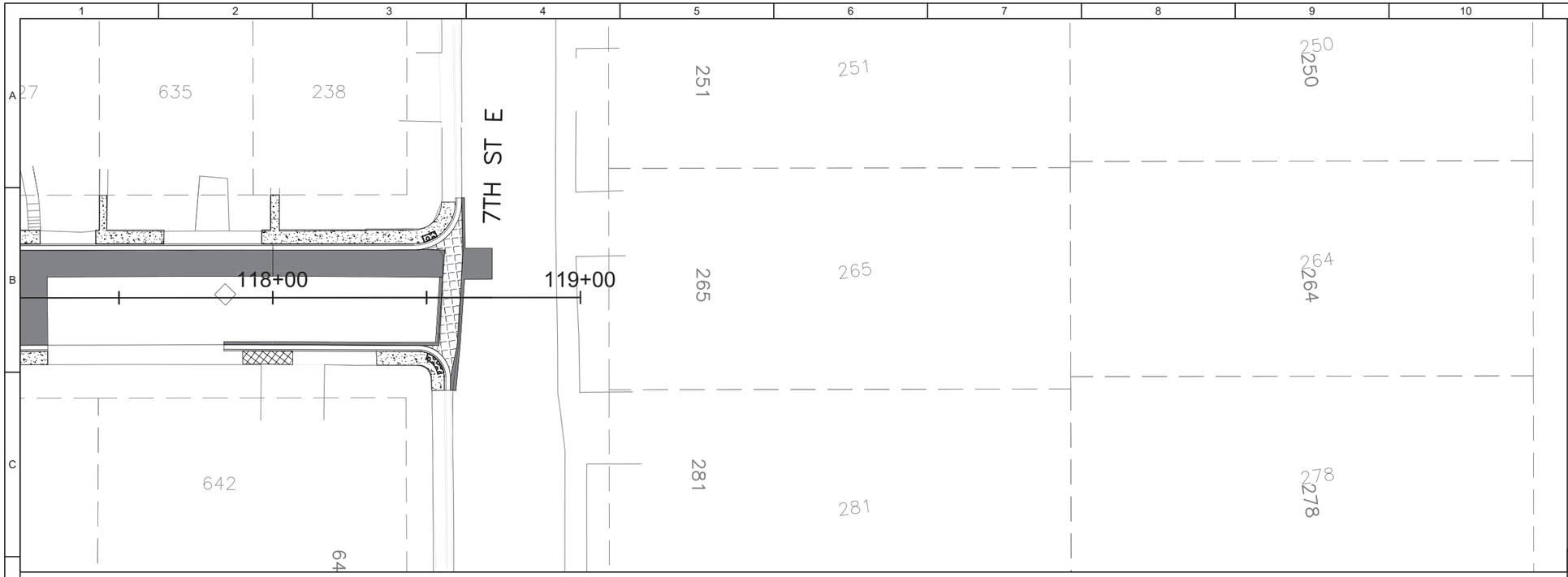
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Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 90-14

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SUBGRADE PREPARATION 12 IN	162	SY
GEOTEXTILE FABRIC R1	162	SY
AGGREGATE BASE COURSE CLASS 5	68	TONS
SUPERPAVE FAA 43	18	TONS
ASPHALT CEMENT (PG58H-34)	1	TONS
CURB & GUTTER - TYPE I	150	LF
VALLEY GUTTER	31	SY
SIDEWALK CONCRETE 4IN	51	SY
DRIVEWAY CONCRETE 6IN	8	SY
DETECTABLE WARNING PANELS	28	SF

LEGEND

- SIDEWALK CONCRETE 4IN
- VALLEY GUTTER
- DRIVEWAY CONCRETE 6IN
- DRIVEWAY CONCRETE 8IN
- SUPERPAVE FAA 43
- SUPERPAVE FAA 43 OVERLAY
- CURB & GUTTER

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:47:31 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

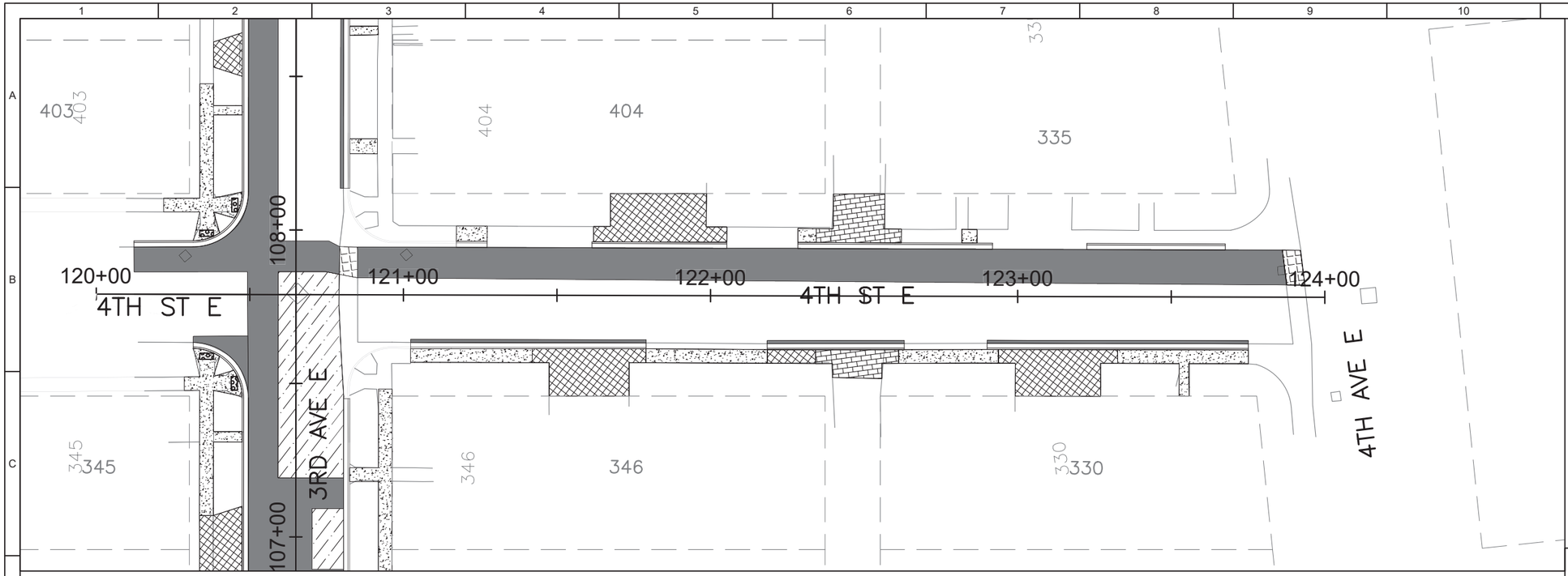
2026 UTILITY & STREET IMPROVEMENTS PROJECT
PAVING LAYOUT
Sta 118+00 to Sta 119+00
NORTH AREA

Apex Engineering Group
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Dickinson, North Dakota 58601
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Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet: 90-15

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ESTIMATE OF QUANTITIES

BID ITEM	QTY	UNIT
SUBGRADE PREPARATION 12 IN	511	SY
GEOTEXTILE FABRIC R1	511	SY
AGGREGATE BASE COURSE CLASS 5	213	TONS
SUPERPAVE FAA 43	85	TONS
ASPHALT CEMENT (PG58H-34)	5	TONS
CURB & GUTTER - TYPE I	369	LF
VALLEY GUTTER	7	SY
SIDEWALK CONCRETE 4IN	92	SY
DRIVEWAY CONCRETE 6IN	172	SY
DRIVEWAY CONCRETE 8IN	57	SY

LEGEND

- SIDEWALK CONCRETE 4IN
- VALLEY GUTTER
- DRIVEWAY CONCRETE 6IN
- DRIVEWAY CONCRETE 8IN
- SUPERPAVE FAA 43
- SUPERPAVE FAA 43 OVERLAY
- CURB & GUTTER

N

0 20' 40'

SCALE: 1 INCH = 40 FEET

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:47:48 -06'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
PAVING LAYOUT
Sta 120+00 to Sta 124+00
NORTH AREA

Apex Engineering Group

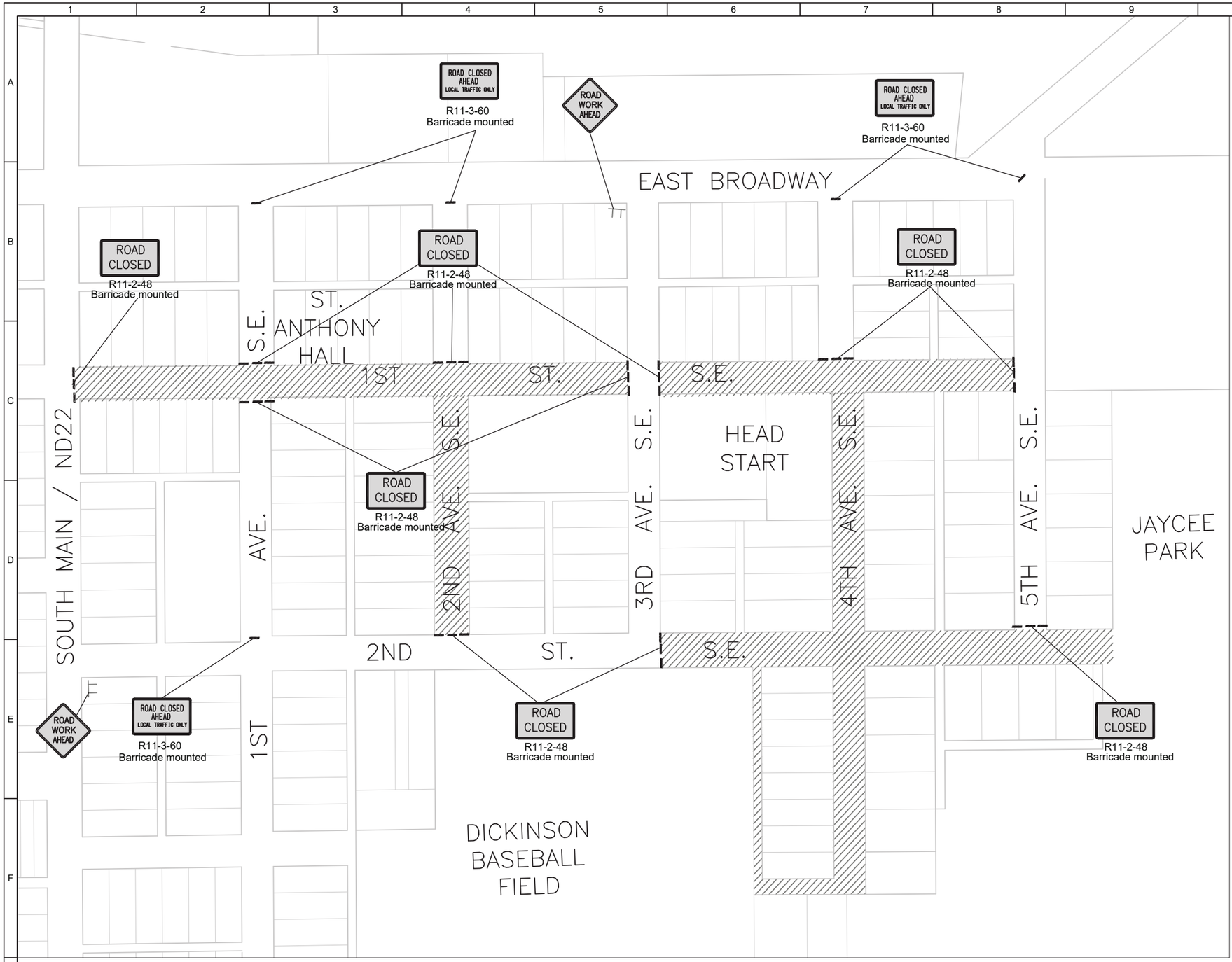
Bismarck - Detroit Lakes -
Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Logan Fridgen
Checked By: Caleb Weisgarber
Approved By: Jason P. Gullicks

Sheet:

90-16

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General Notes:

1. Devices shall remain in place until Substantial Completion or the Engineer has approved the removal of devices.
2. Signs shall be taken down or completely covered while not in use.
3. A Traffic Control Supervisor AND a Watchperson ARE required for this project.
4. Emergency access must be provided at all times.
5. Contractor shall obtain a permit from the City Engineer a minimum of 7 calendar days in advance of any traffic control requiring lane closures. Upon approval of closure permit, a minimum of 24 hour notice must be given to the City's Police Department dispatcher prior to placement of traffic control devices. Closures are subject to Engineer approval. Engineer shall be included in closure notification and documentation.
6. Contractor shall notify all property owners and/or residents adjacent to the construction site a minimum of two working days in advance for any closures and/or access restrictions.
7. Contractor shall be responsible for coordinating with owners of parked vehicles, and/or towing (incidental).
8. Contractor to coordinate and maintain access to all Businesses, Schools, and residential properties through work areas.
9. Contractor shall use W8-3 "Pavement Ends" and/or W8-1"Bump" signs (minimum 36 inch by 36 inch) at each location where mainline traffic must be directed through aggregate material, if approved by the Engineer. All costs associated with use of these signs shall be included in the contract price of Temporary Traffic Control. Refer to NDDOT Standard Drawing D-704-26, Type FF.

Applicable NDDOT Standard Drawings:

D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube
D-704-8	Breakaway Systems For Construction Zone Signs - U-Channel Post
D-704-9	Construction Sign Details - Terminal And Guide Signs
D-704-10	Construction Sign Details - Regulatory Signs
D-704-13	Barricade And Channelizing Device Details
D-704-14	Construction Sign Punching And Mounting Details
D-704-15	Road Closure Layouts
D-704-21	Detour And Roadway Diversion Sign Layouts
D-704-26	Miscellaneous Sign Layouts

Traffic Control Notes:

1. Contractor to provide a plan to maintain access to St. Anthony Hall and Head Start to Engineer. Engineer will approve or provide comments on plan to Contractor within 7 calendar days.
2. Coordinate the closure of 5th Avenue SE with the adjacent East Broadway Dam Replacement Project. (See 100-02)
3. Contractor shall limit construction to non-adjacent Avenues or Streets and adjust traffic control devices accordingly.
4. 2nd Street SE from ND22 to the east side of 3rd Avenue SE and 3rd Avenue SE from 2nd Street SE to East Broadway shall remain open until the completion of the Dickinson Big Sticks season.
5. Work can be completed in the 3rd Avenue SE and 1st Street SE intersection on days that no events are scheduled at the Dickinson Baseball Field prior to the completion of the Dickinson Big Sticks season. Intersection can be closed after this date.

Legend:

Work Area

N

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:14:43 -06'00'
NORTH DAKOTA

REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
TEMPORARY TRAFFIC CONTROL PLAN
UTILITY WORK

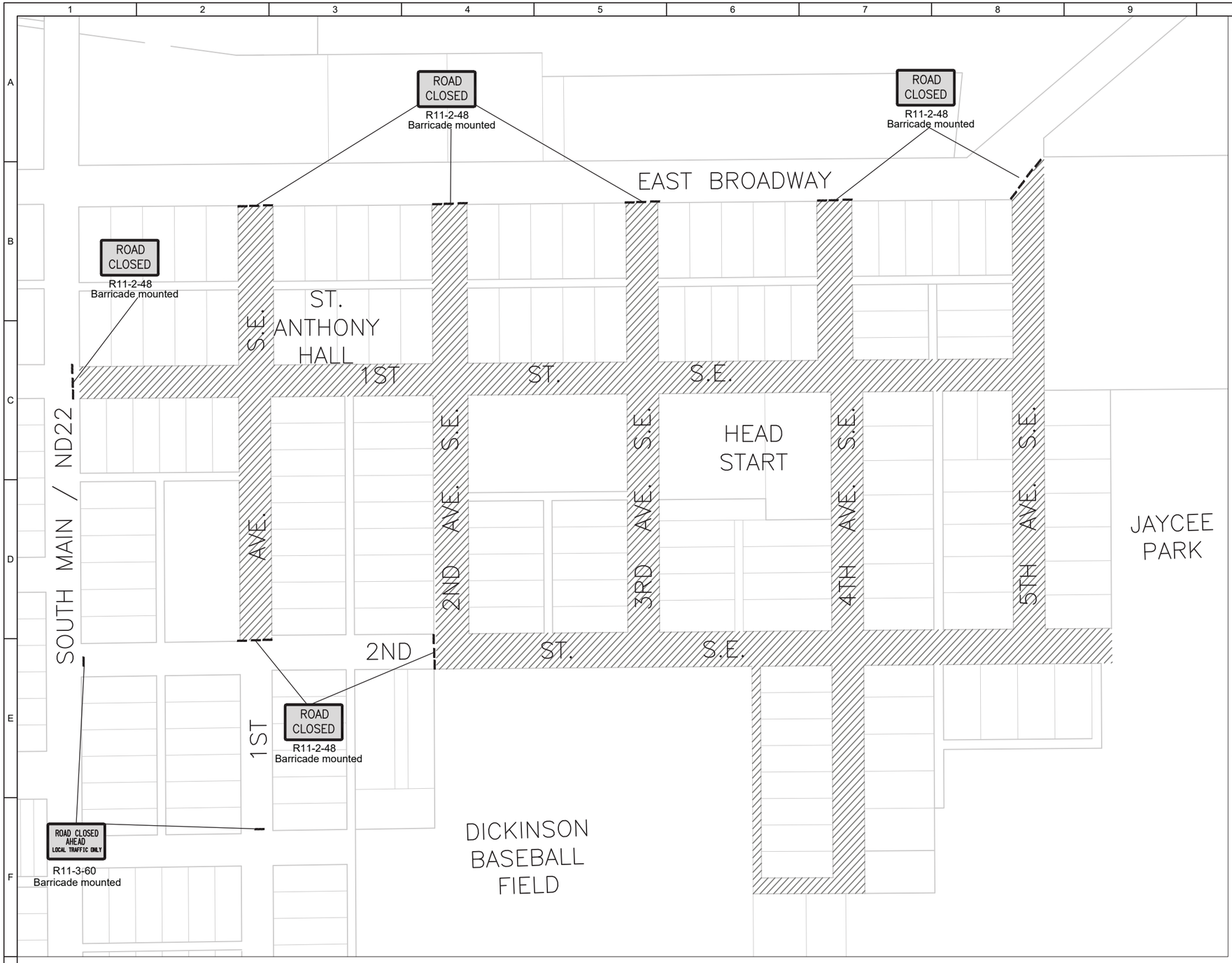
Apex Engineering Group

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Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 100-01

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 100_WZTC.dwg



Traffic Control Notes:

1. Contractor to provide a plan to maintain access to St. Anthony Hall and Head Start to Engineer. Engineer will approve or provide comments on plan to Contractor within 7 calendar days.
2. Coordinate the closure of 5th Avenue SE with the adjacent East Broadway Dam Replacement Project. (See 100-02)
3. Contractor shall limit construction to non-adjacent Avenues or Streets and adjust traffic control devices accordingly.
4. 2nd Street SE from ND22 to the east side of 3rd Avenue SE and 3rd Avenue SE from 2nd Street SE to East Broadway shall remain open until the completion of the Dickinson Big Sticks season.
5. Work can be completed in the 3rd Avenue SE and 1st Street SE intersection on days that no events are scheduled at the Dickinson Baseball Field prior to completion of the Dickinson Big Sticks season. Intersection can be closed after this date.

Legend:

Work Area

N

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:14:58 -06'00'
NORTH DAKOTA

REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

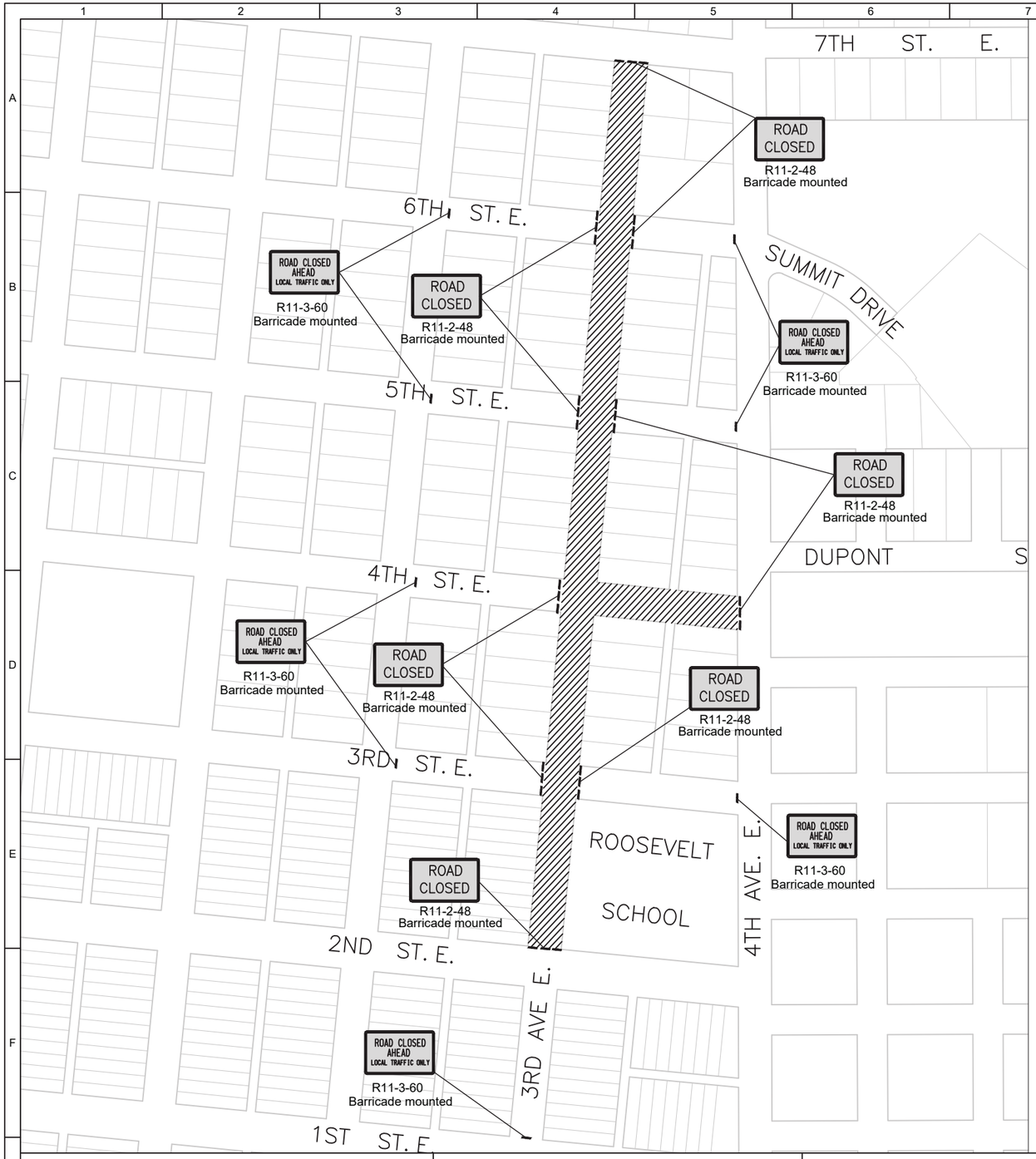
2026 UTILITY & STREET IMPROVEMENTS PROJECT TEMPORARY TRAFFIC CONTROL PLAN ROADWAY WORK

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Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 100-02

N:\Projects\2022\22.107.0010 DIK – Watermain Replacement Project\2026 Improvement Project\Design\Dwgs\Plan Sheets\Sec 100_WZTC.dwg



Traffic Control Notes:

1. 3rd Avenue E from 2nd Street E through the north side of 3rd Street E adjacent to Roosevelt School shall be completed between May 26, 2026 and August 15, 2026.

Legend:

Work Area

N

REGISTERED PROFESSIONAL ENGINEER
JASON P GULLICKS
PE-4792
DATE 2026.02.17 16:15:18 -06'00'
NORTH DAKOTA

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Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT TEMPORARY TRAFFIC CONTROL PLAN

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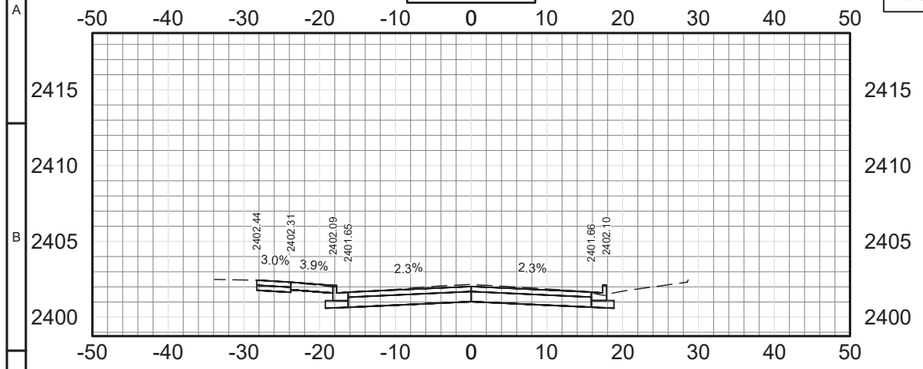
Project #: 22.107.0010
Date: February 2026
Drawn By: Caleb Weisgarber
Checked By: Jason Gullicks
Approved By: Jason Gullicks

Sheet: 100-03

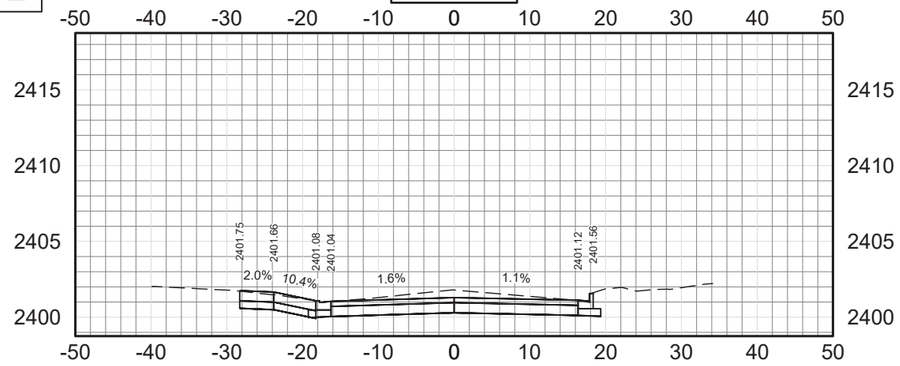
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1st St SE

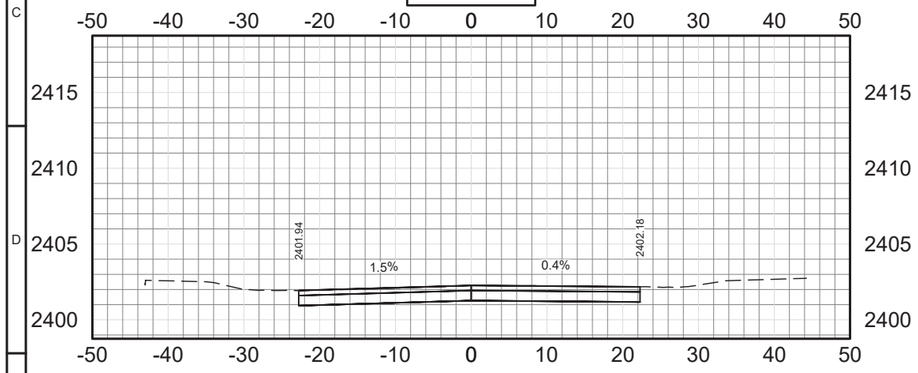
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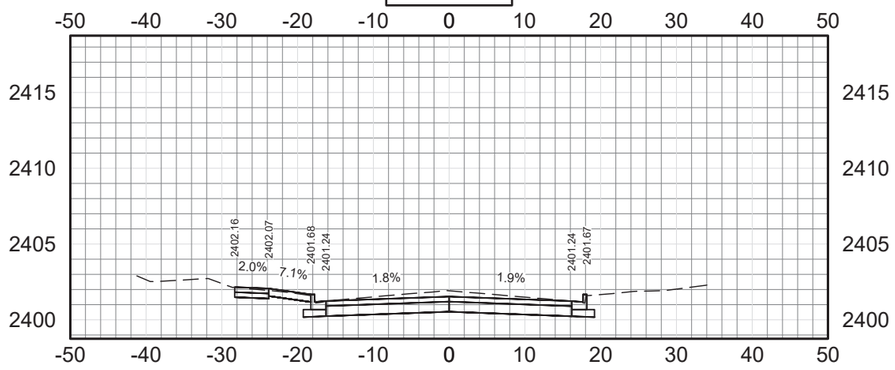
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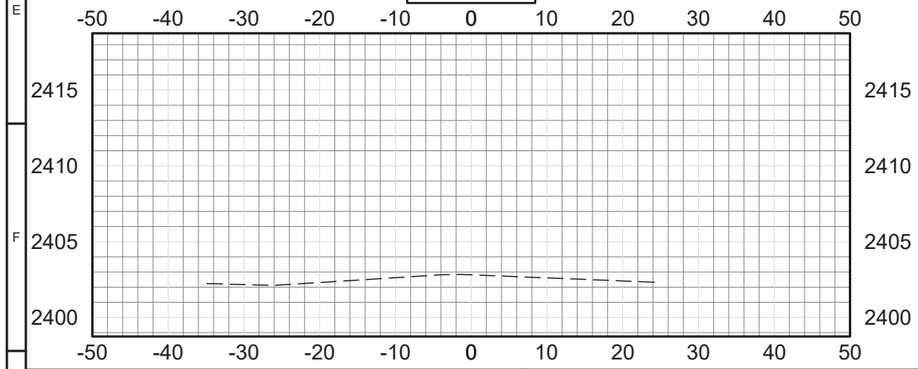
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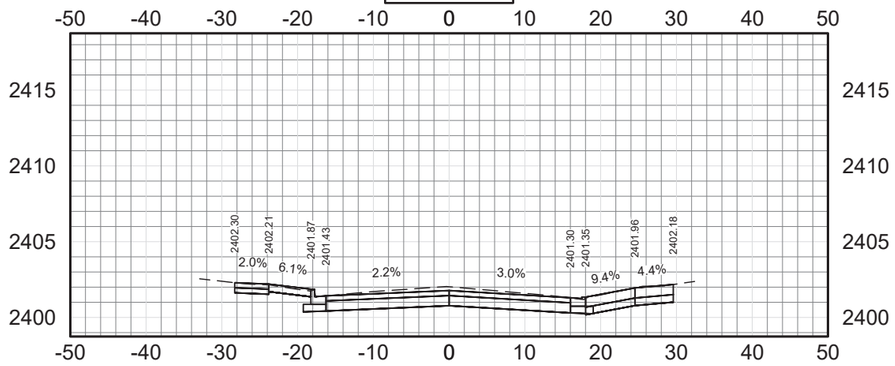
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REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

Apex Engineering Group

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Dickinson, North Dakota 58601
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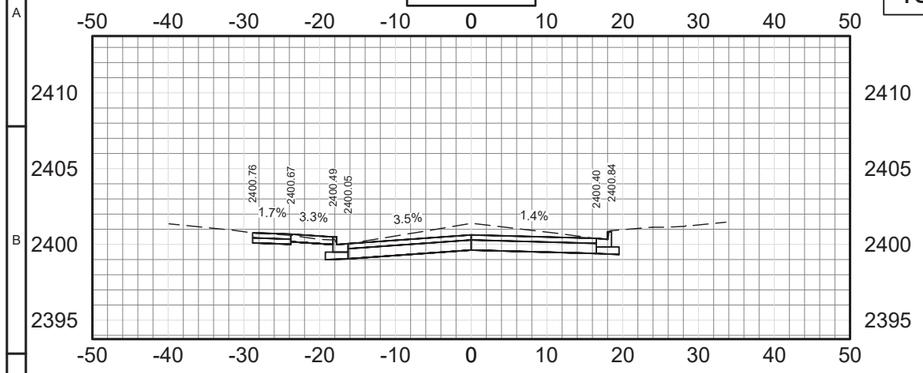
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-1

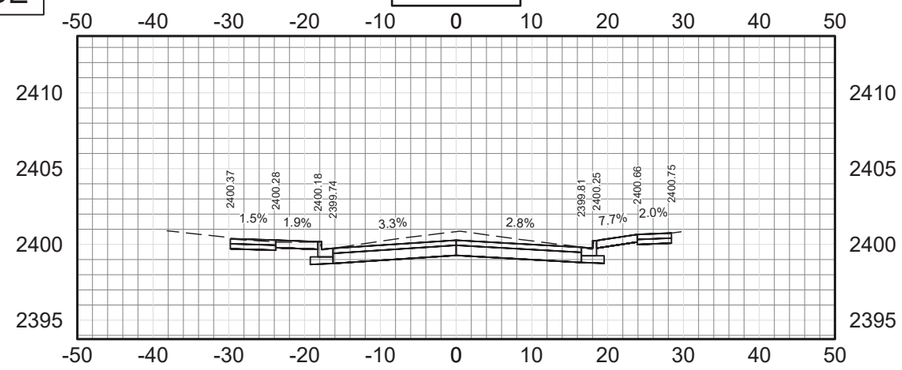
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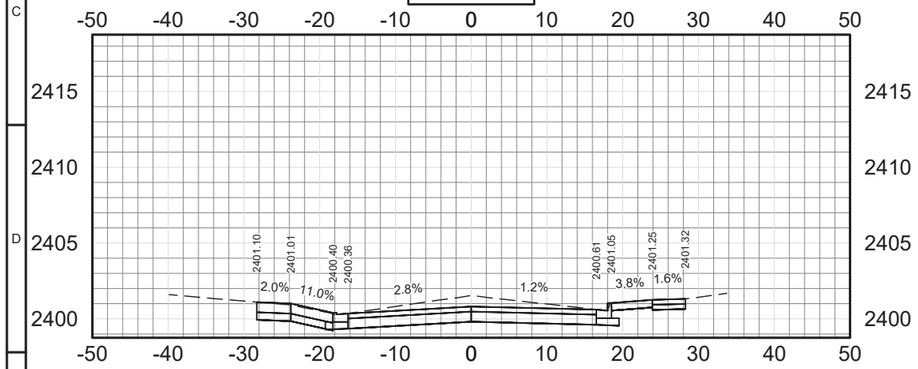
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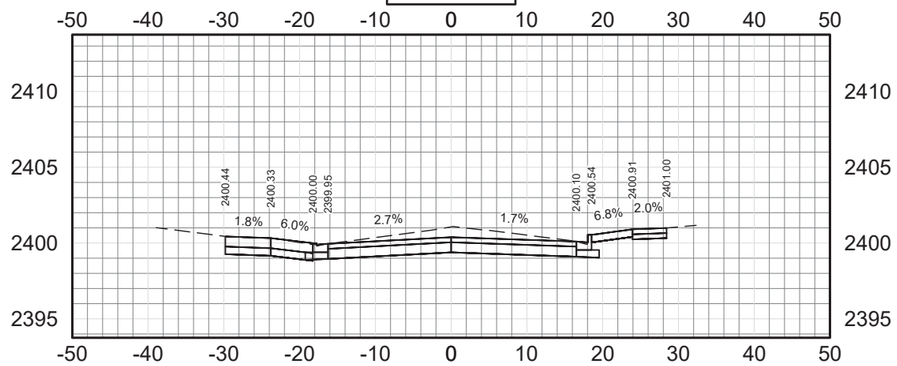
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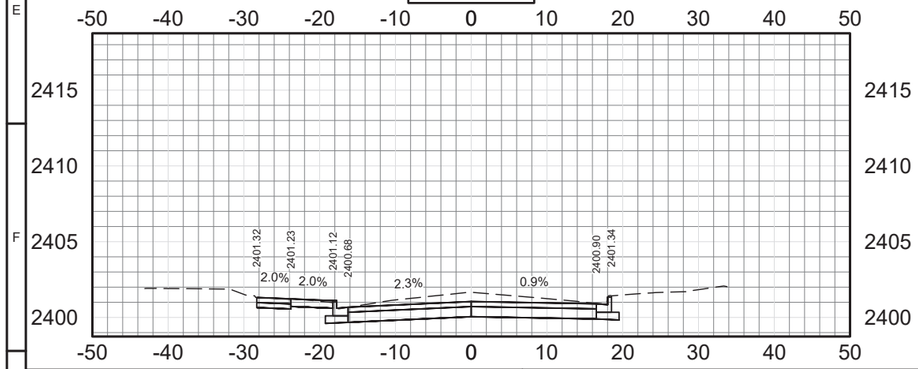
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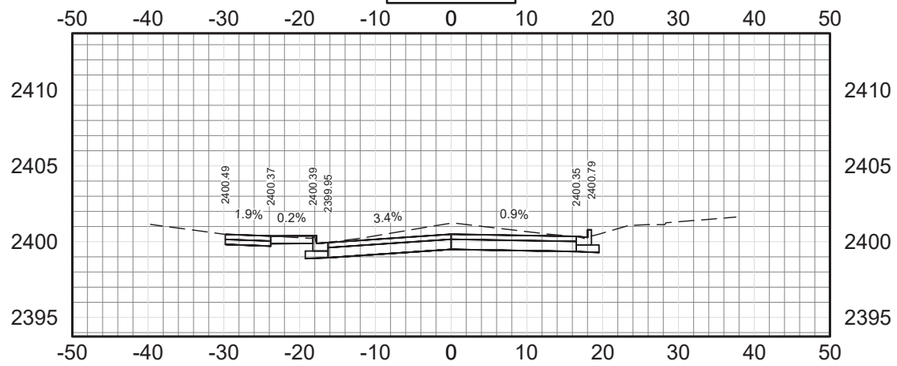
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REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

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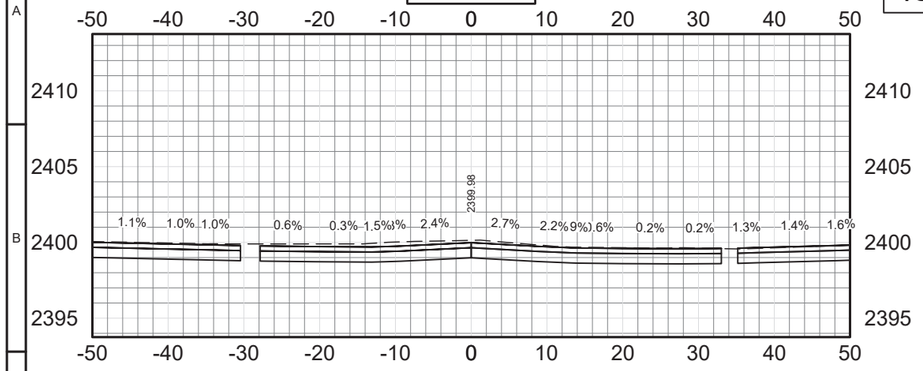
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-2

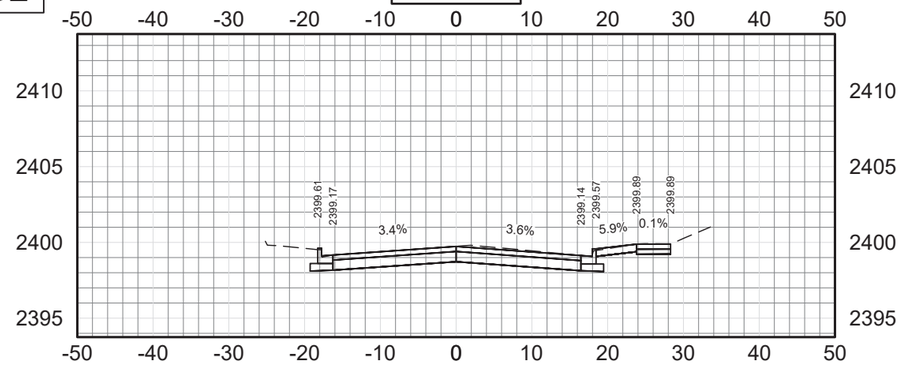
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1st St SE

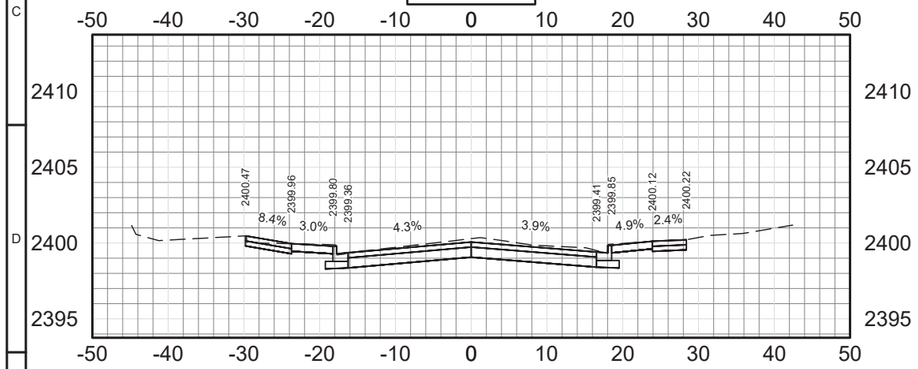
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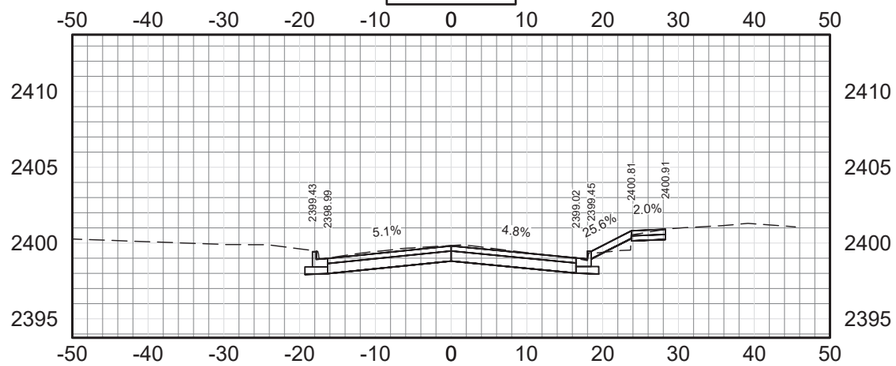
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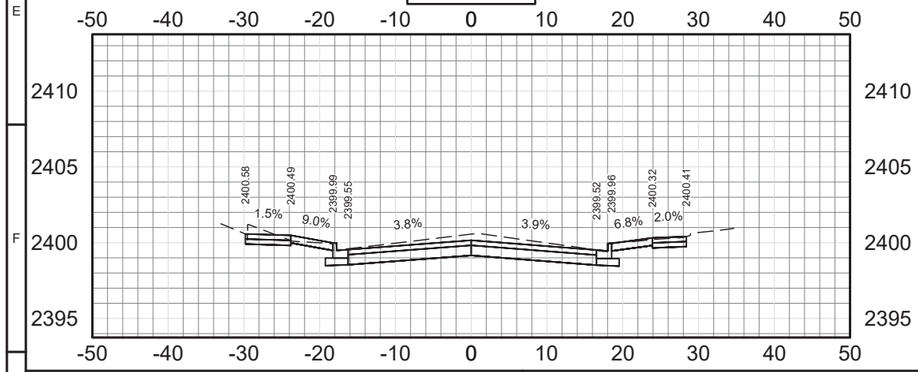
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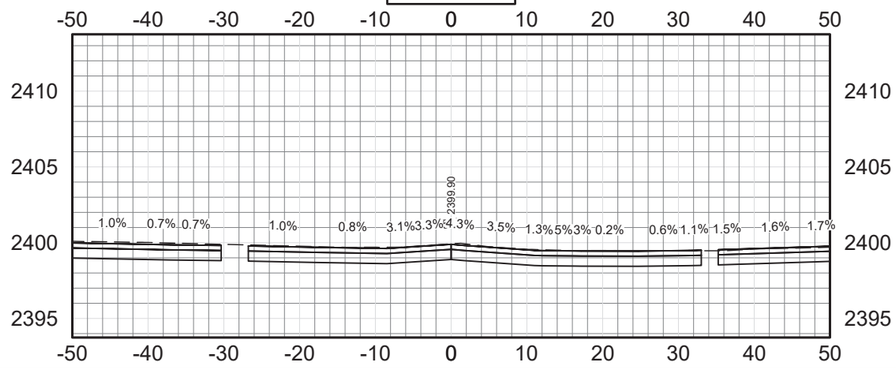
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REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

Apex Engineering Group

Bismarck - Detroit Lakes -
Dickinson - Fargo - St. Cloud
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Dickinson, North Dakota 58601
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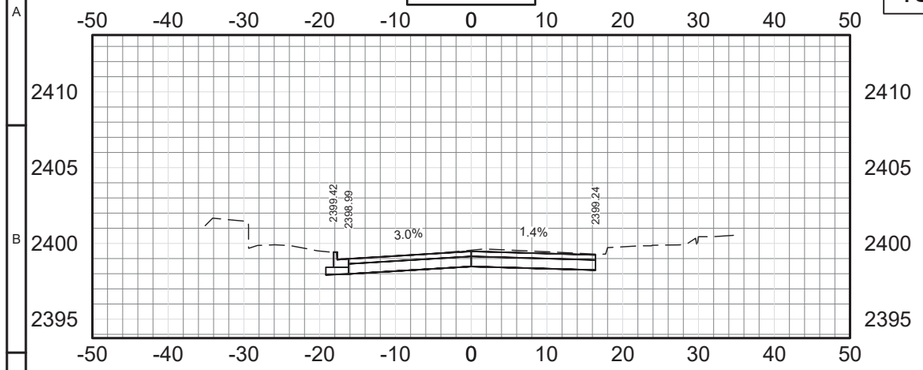
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-3

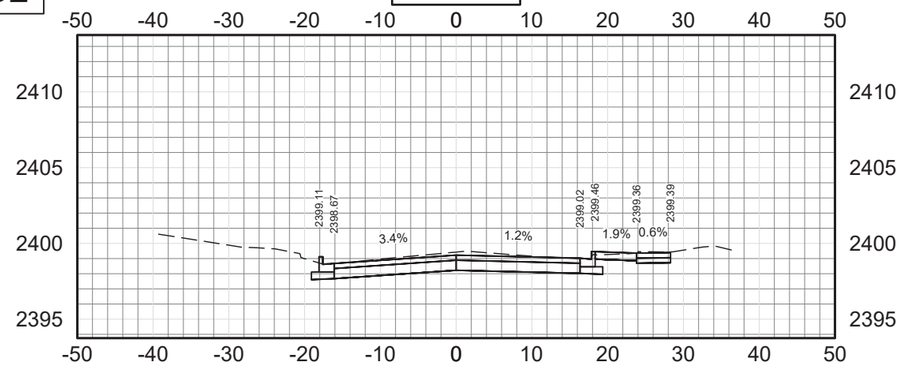
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1st St SE

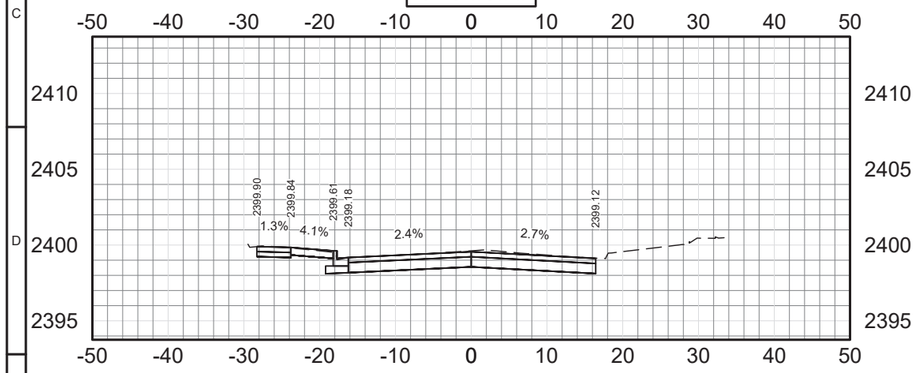
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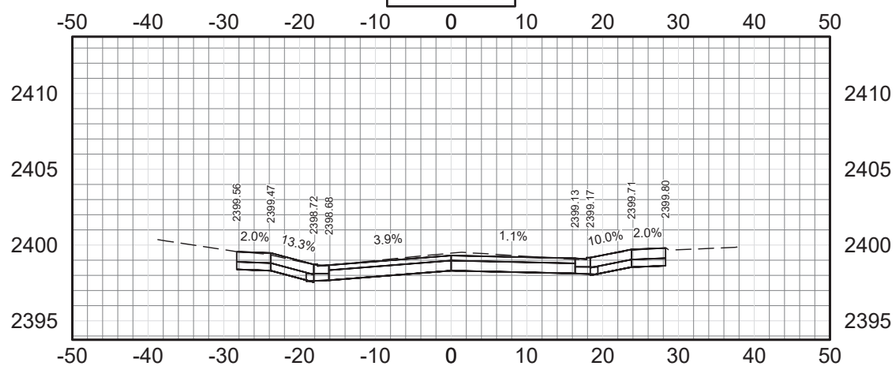
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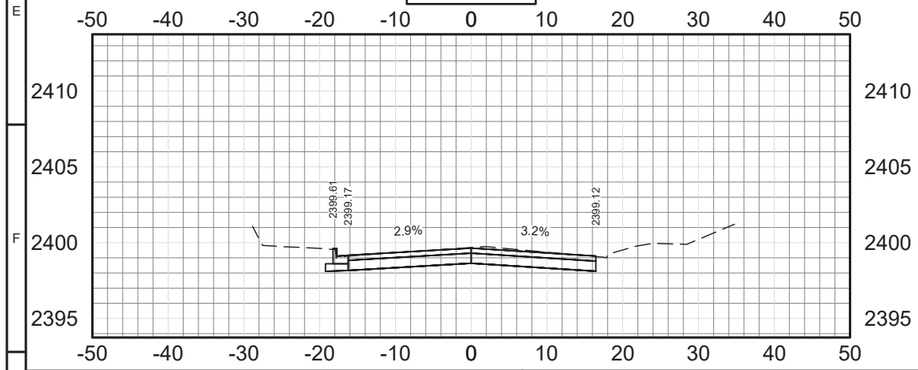
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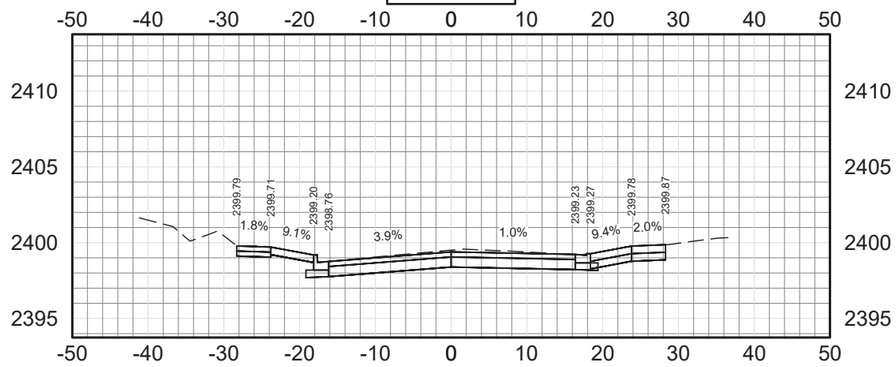
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4+50.00



5+25.00



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Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

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Office: 701-264-3939
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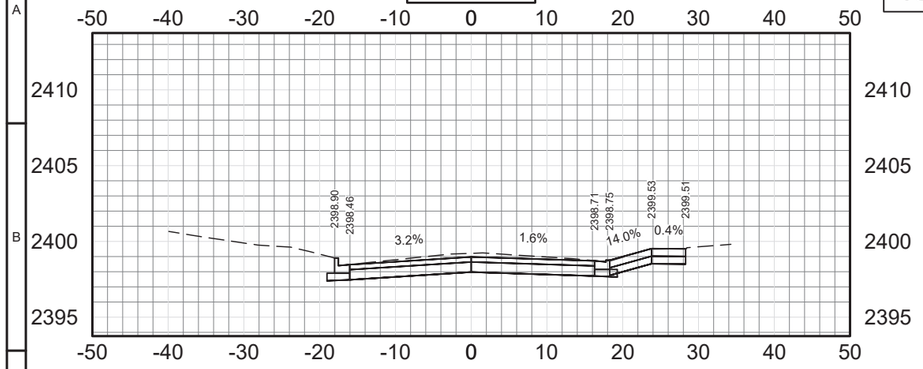
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

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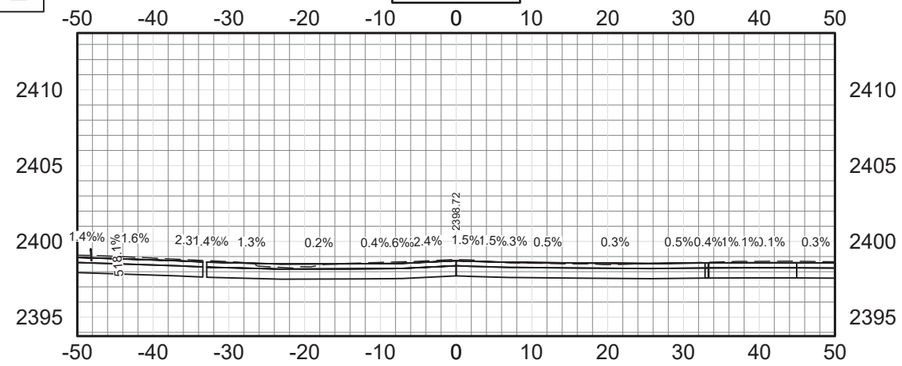
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1st St SE

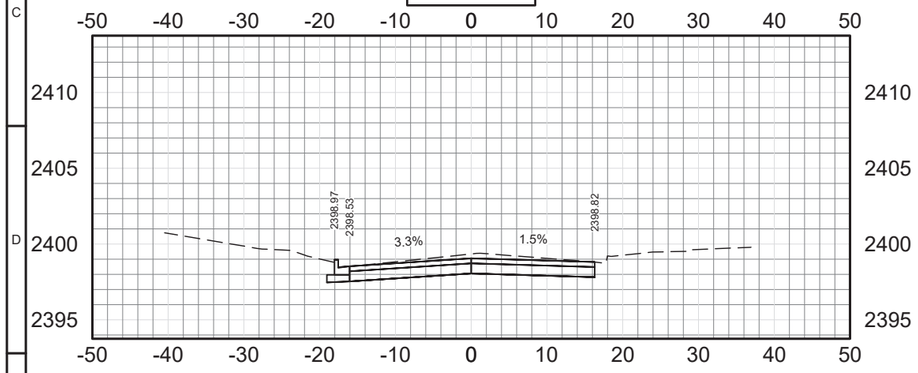
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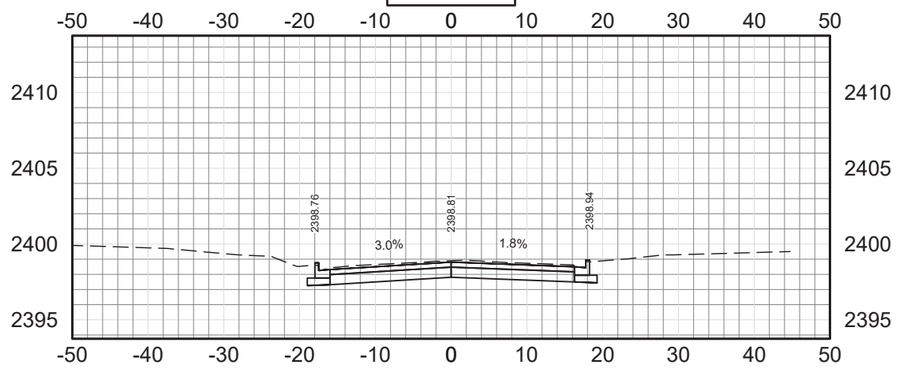
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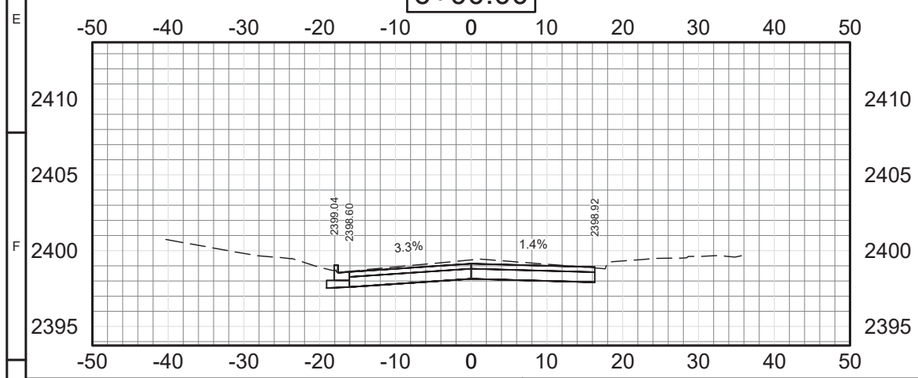
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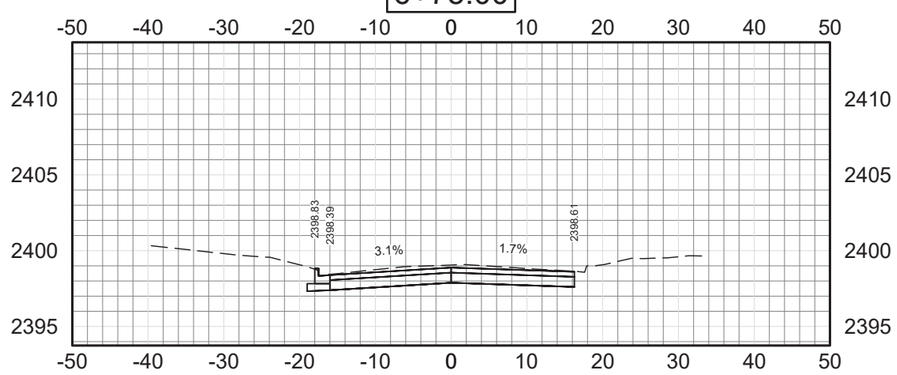
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REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

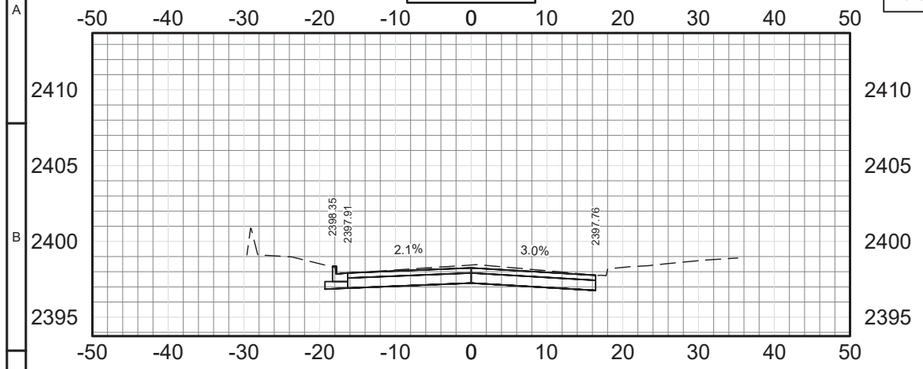
Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-5

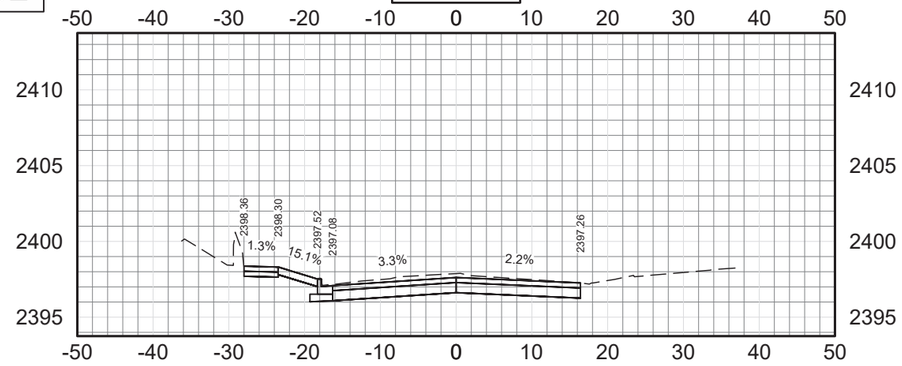
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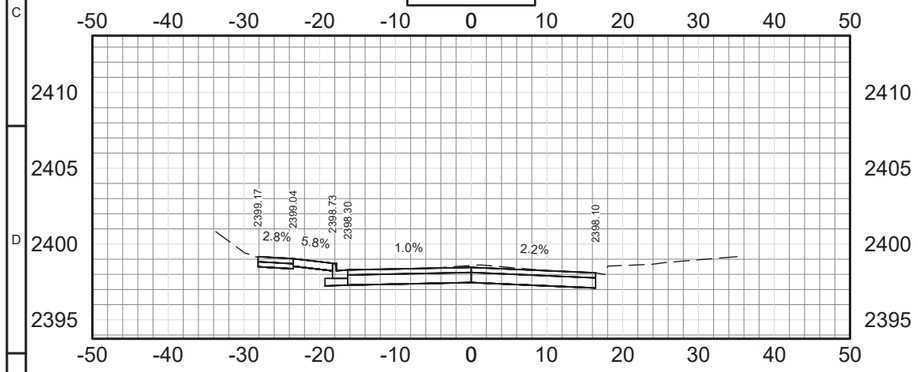


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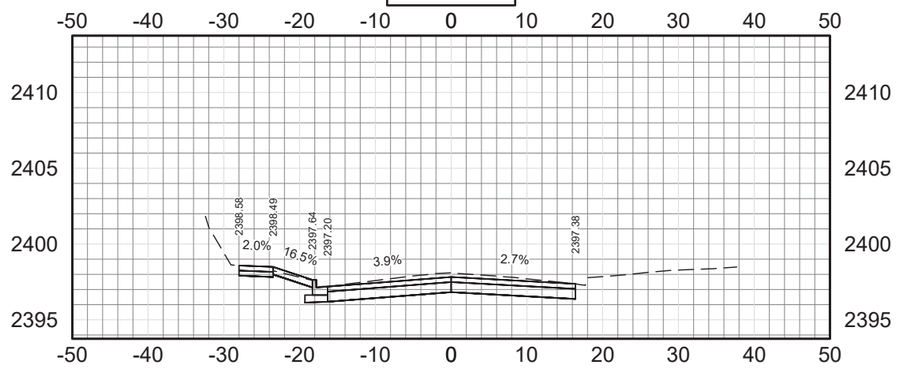
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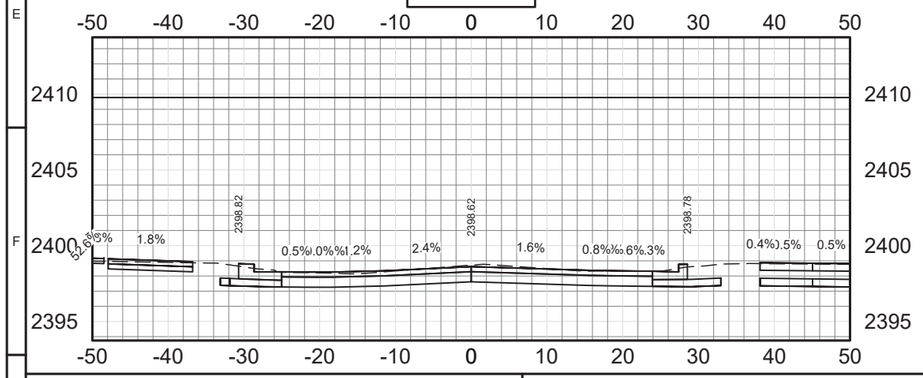
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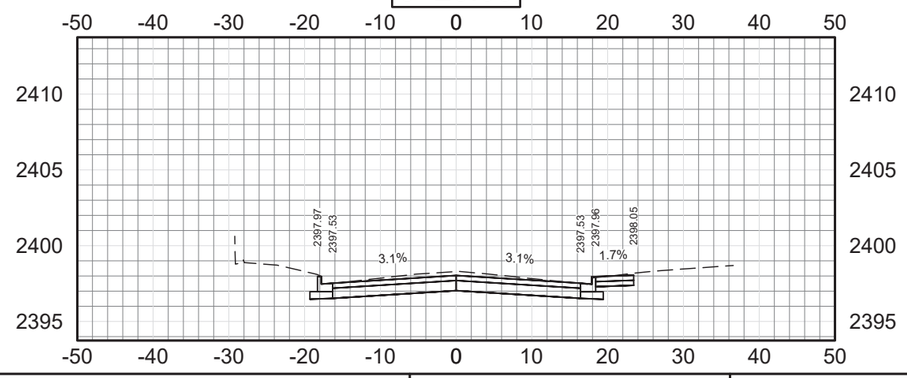
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8+25.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

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204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
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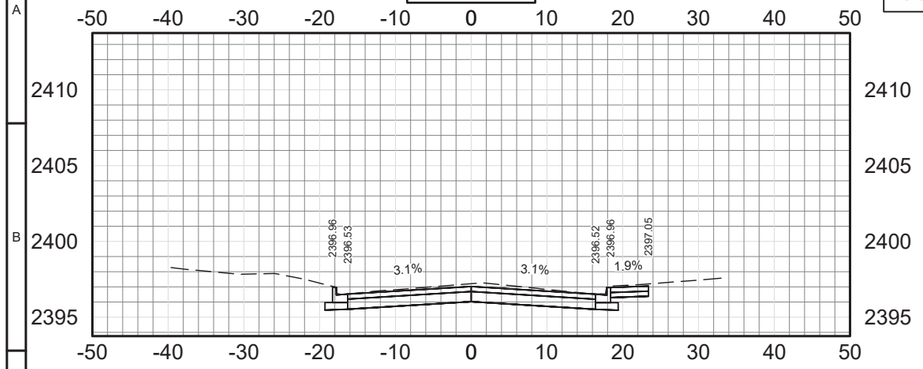
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

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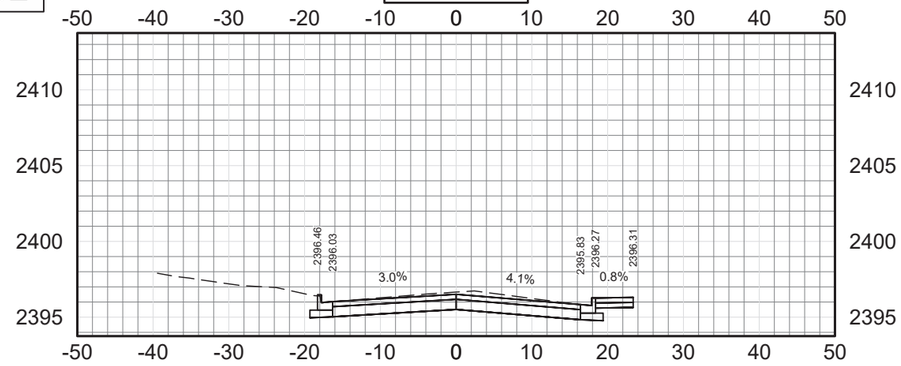
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1st St SE

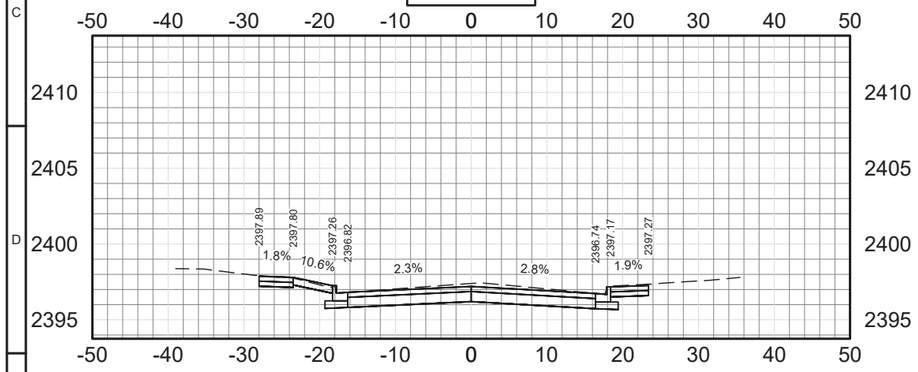
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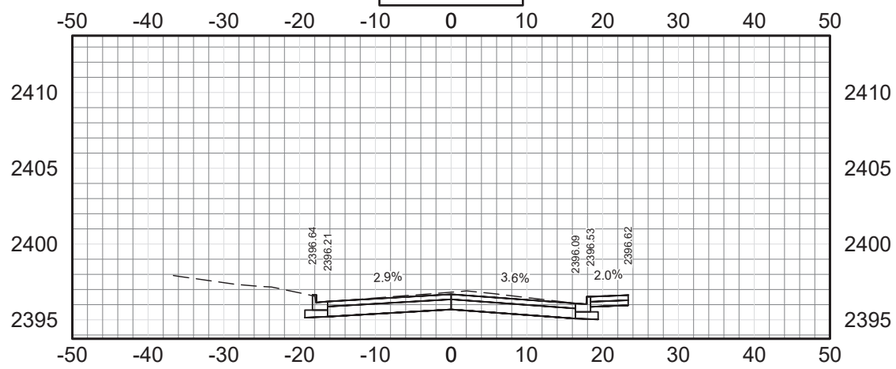
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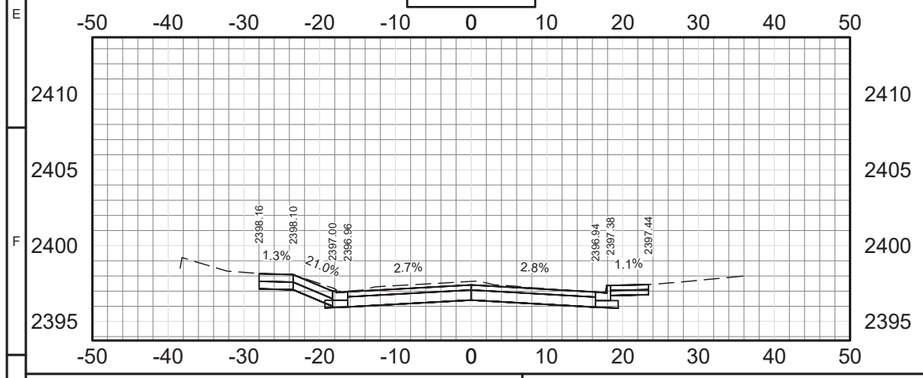
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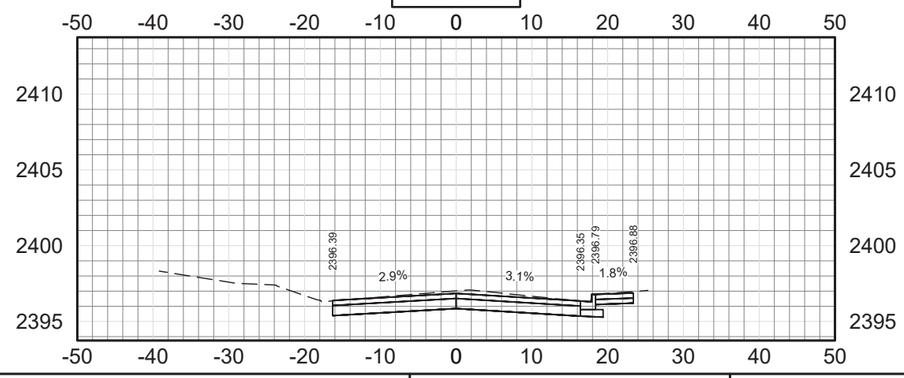
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9+00.00



9+75.00



REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

Apex Engineering Group

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Dickinson, North Dakota 58601
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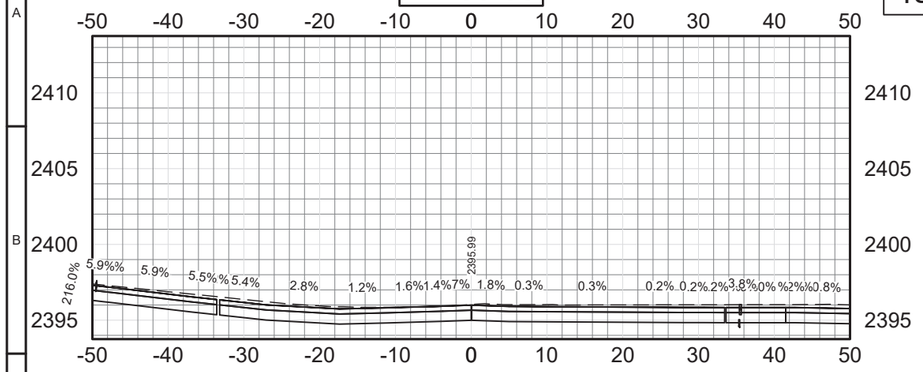
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

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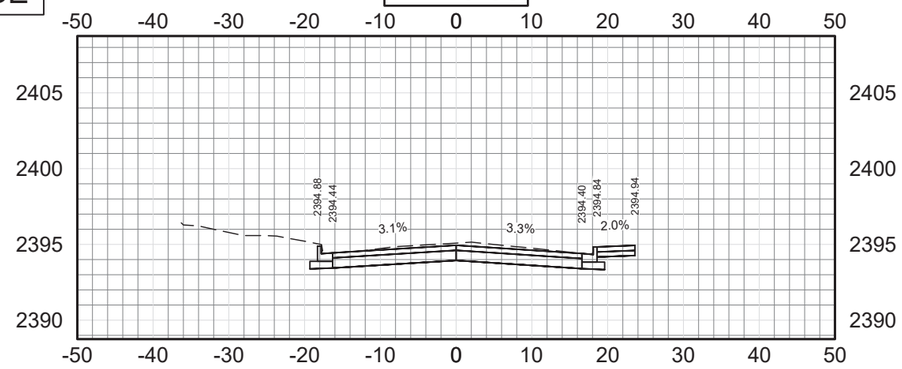
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1st St SE

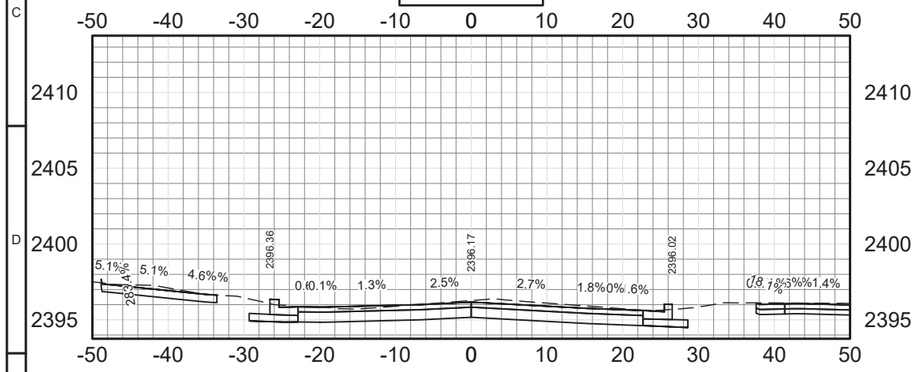
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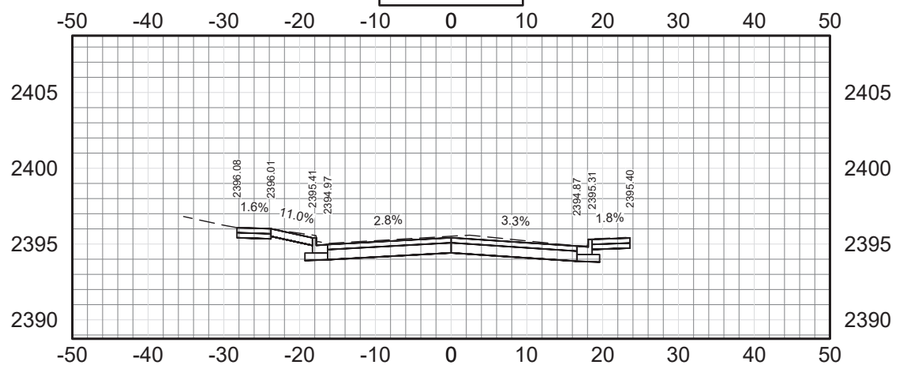
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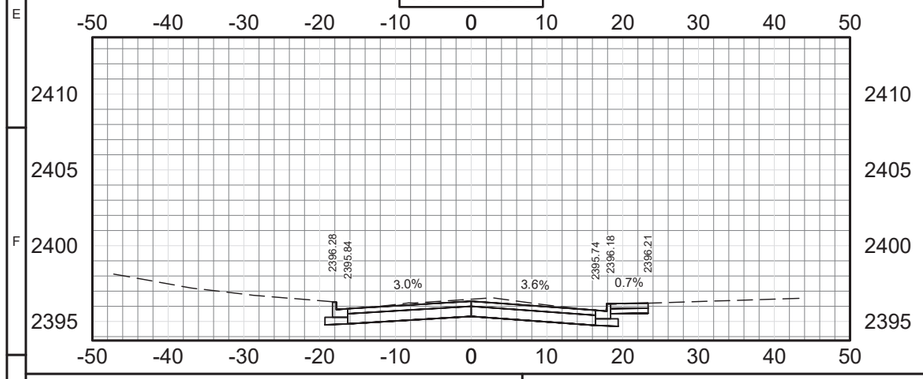
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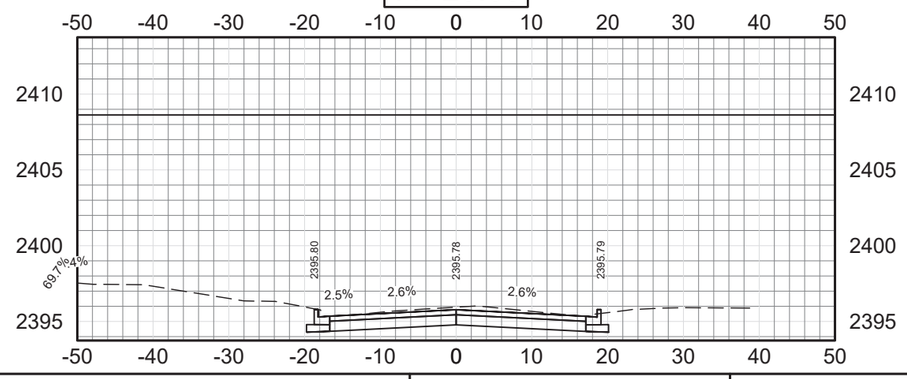
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11+25.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

Apex Engineering Group

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204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
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www.apexenggroup.com

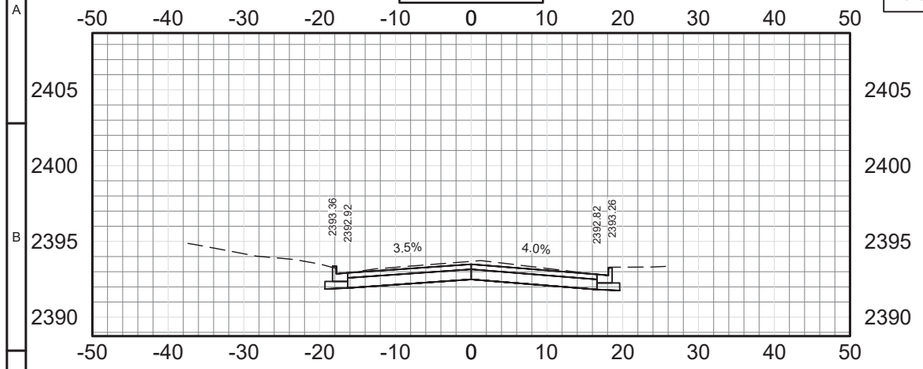
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Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

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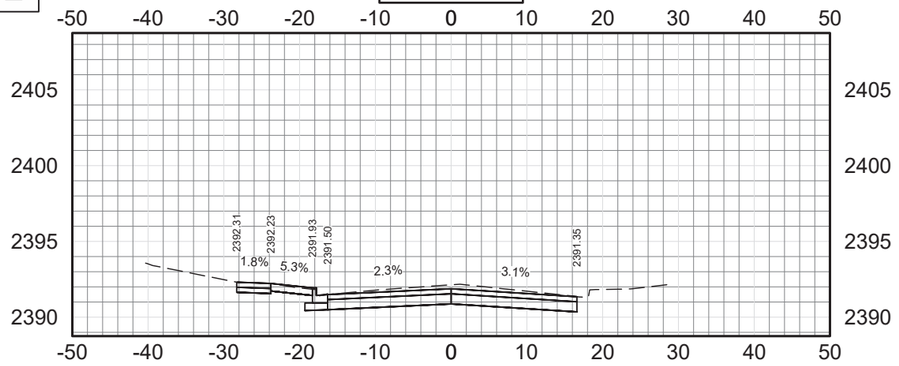
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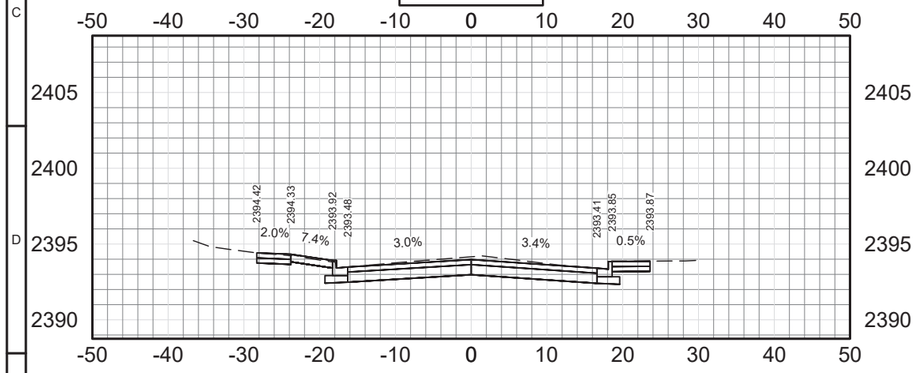
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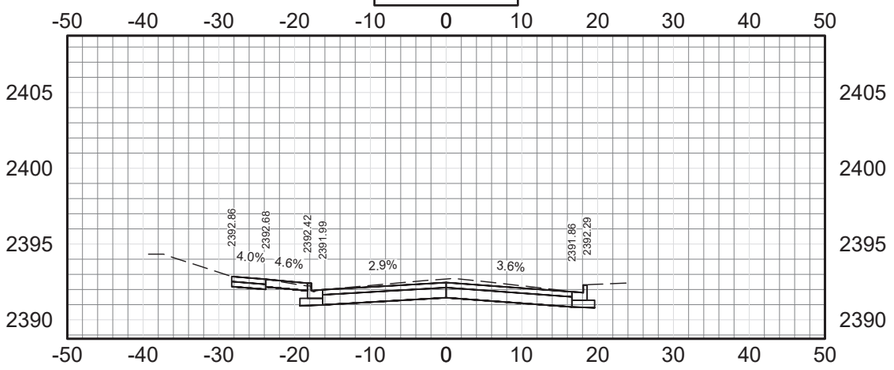
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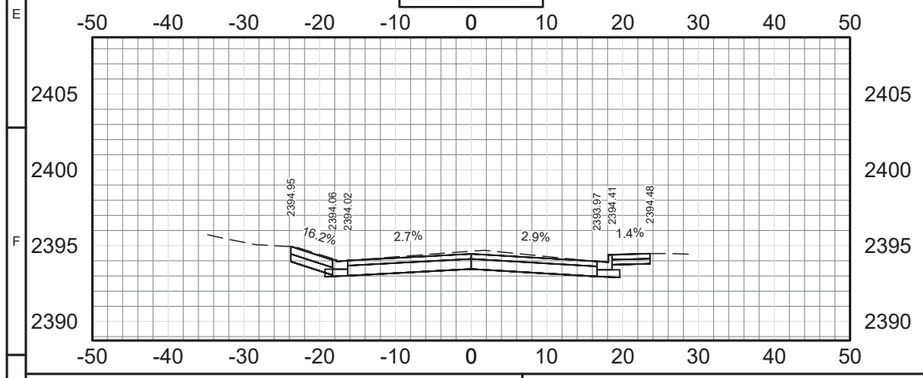
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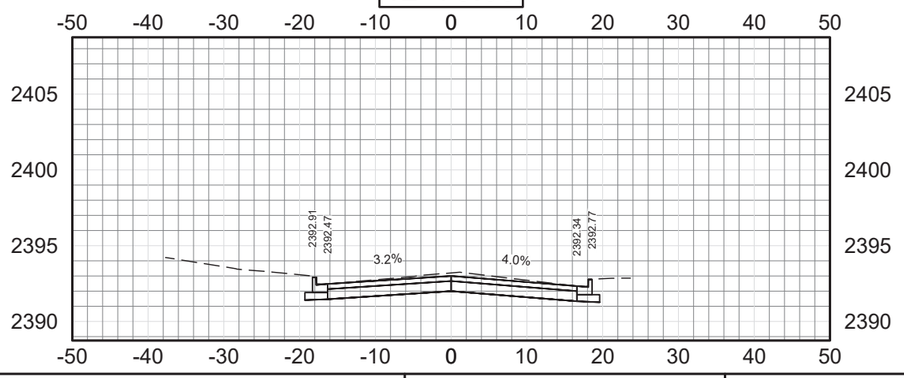
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REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

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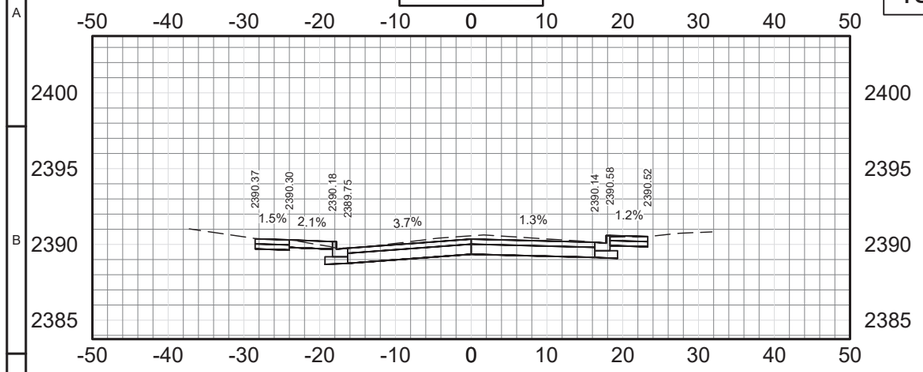
Bismarck - Detroit Lakes -
Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
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Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-9

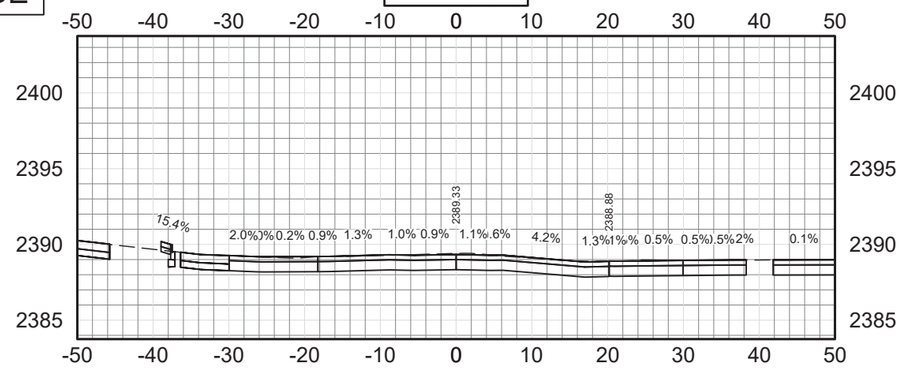
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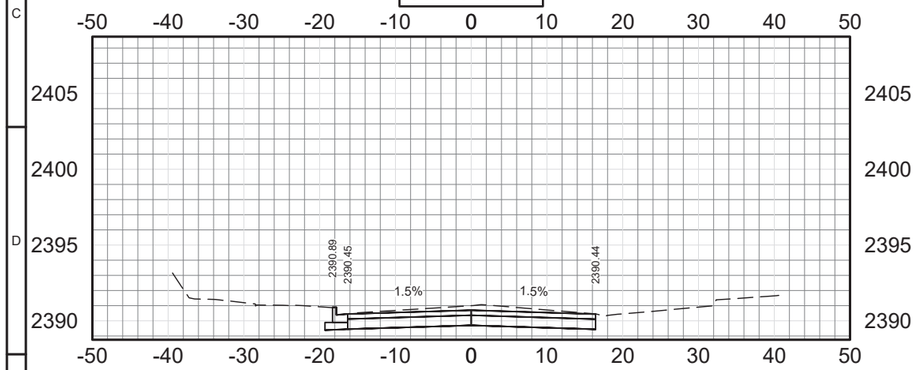


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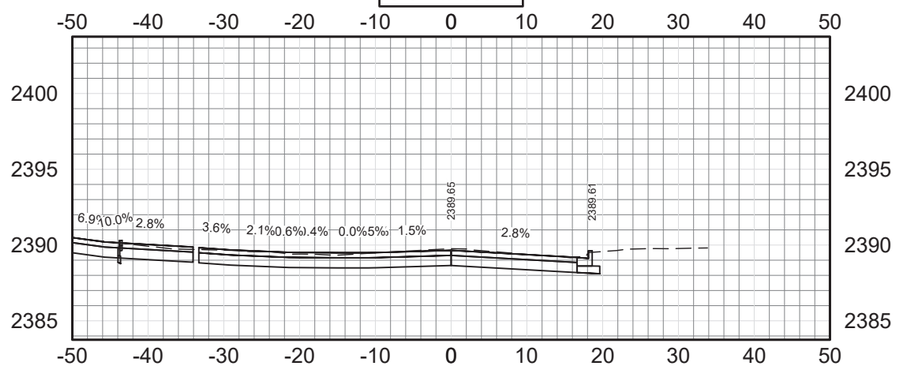
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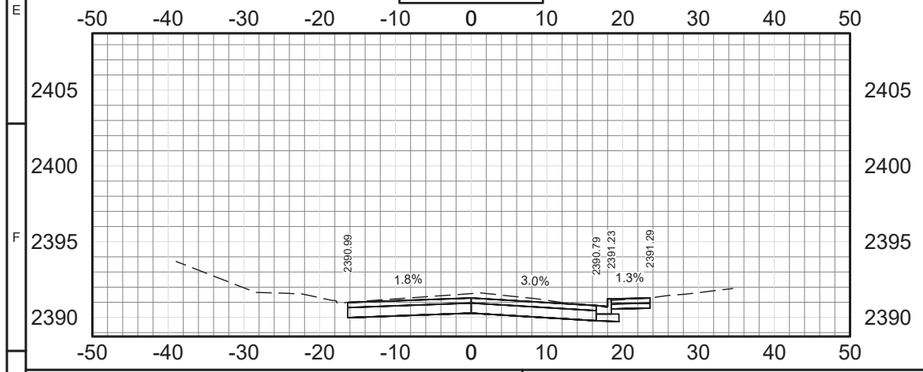
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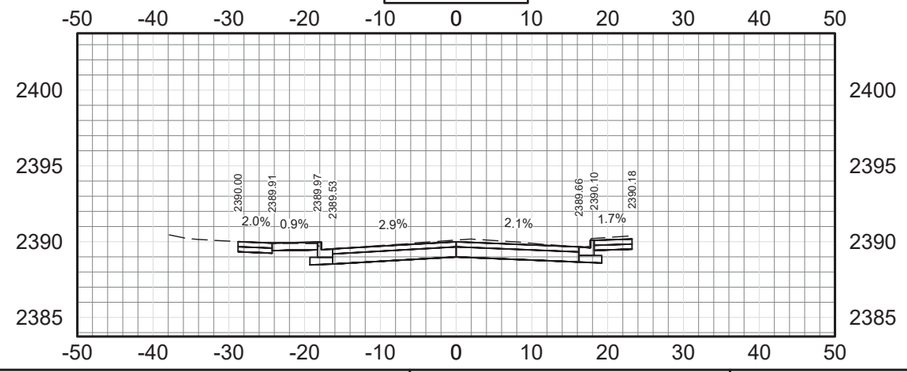
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13+50.00



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REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

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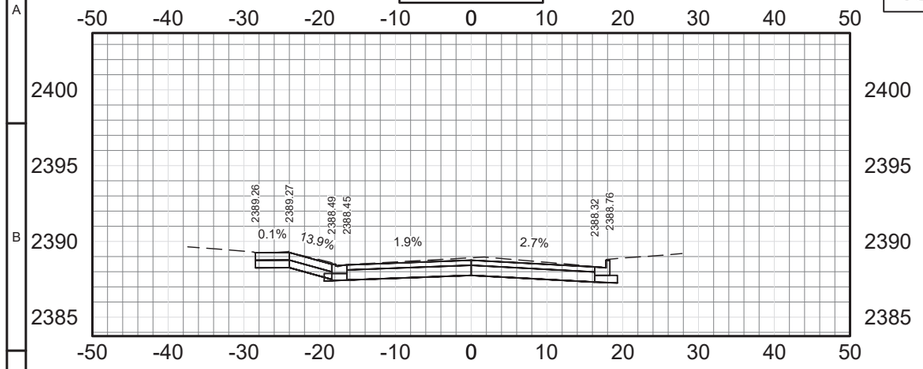
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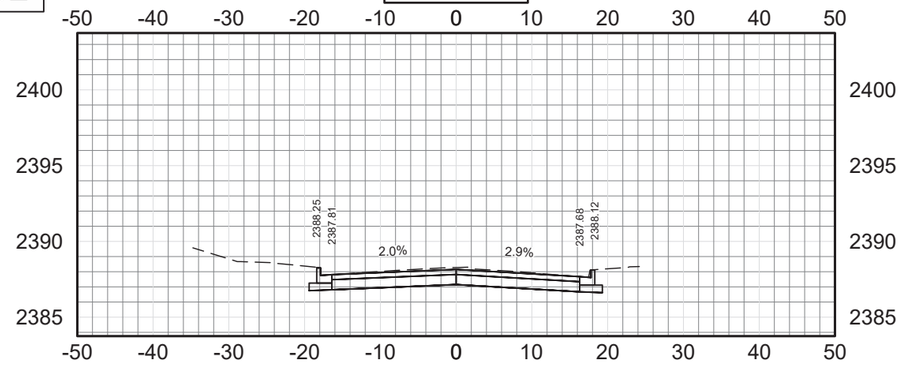
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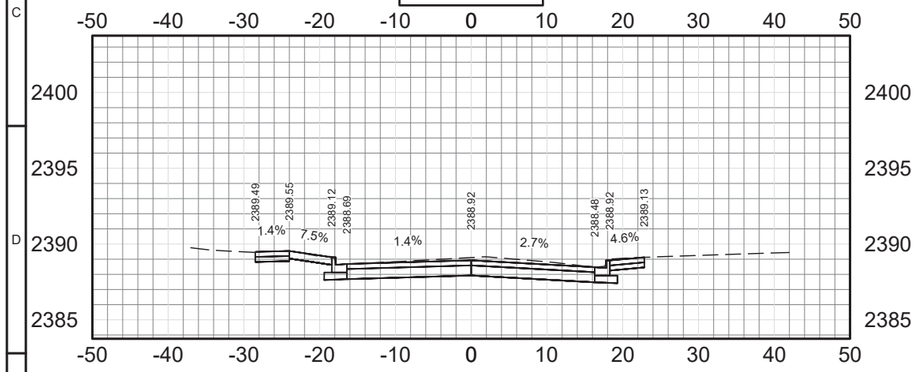
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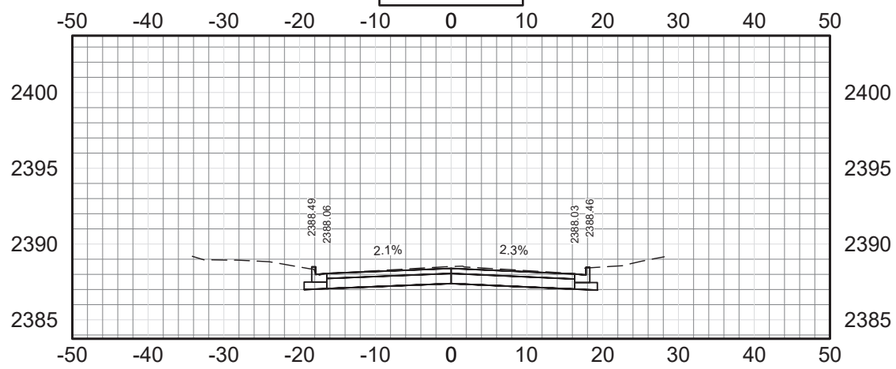
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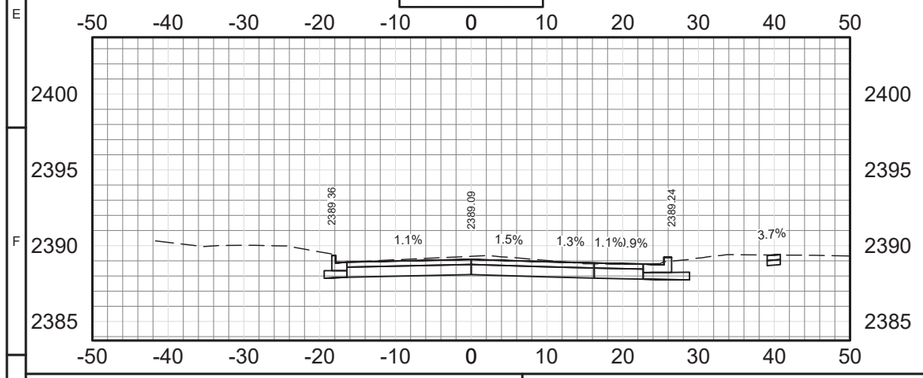
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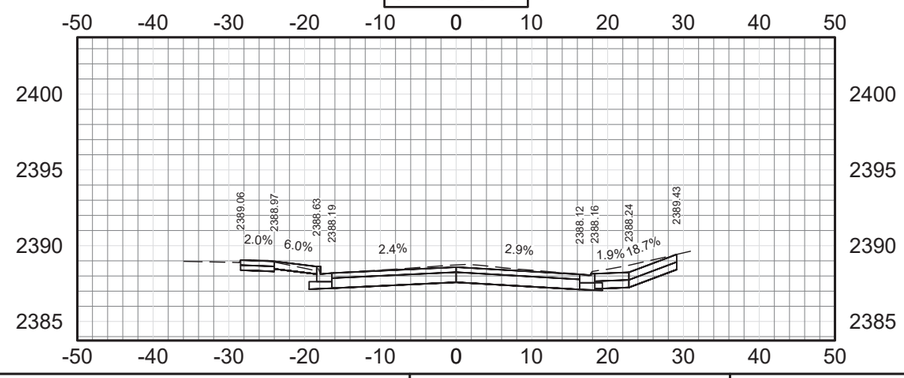
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15+00.00



15+75.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

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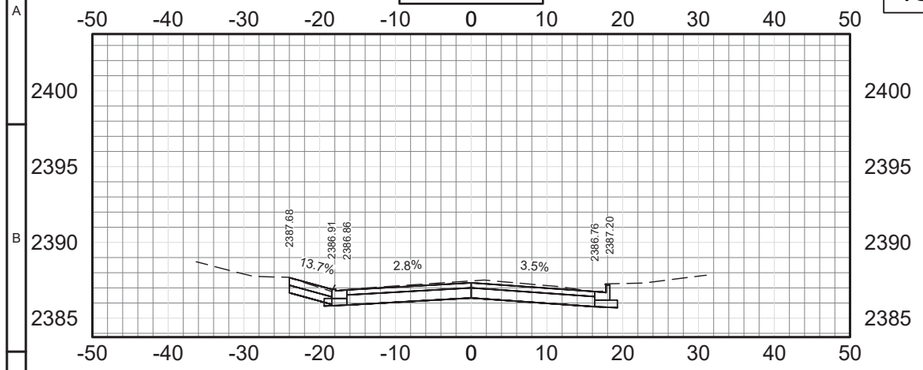
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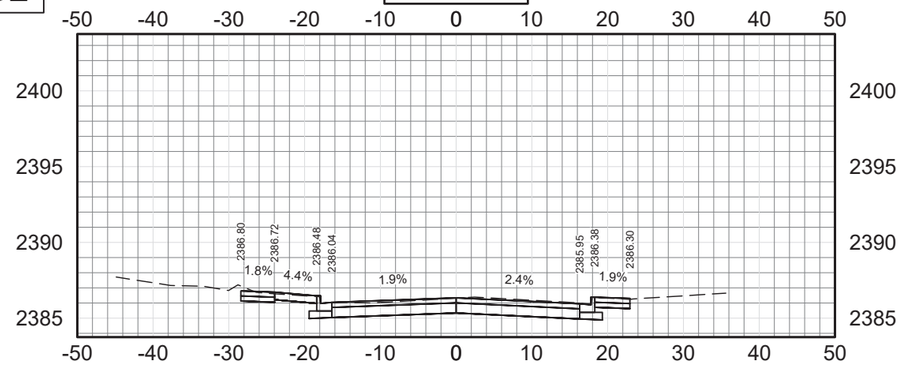
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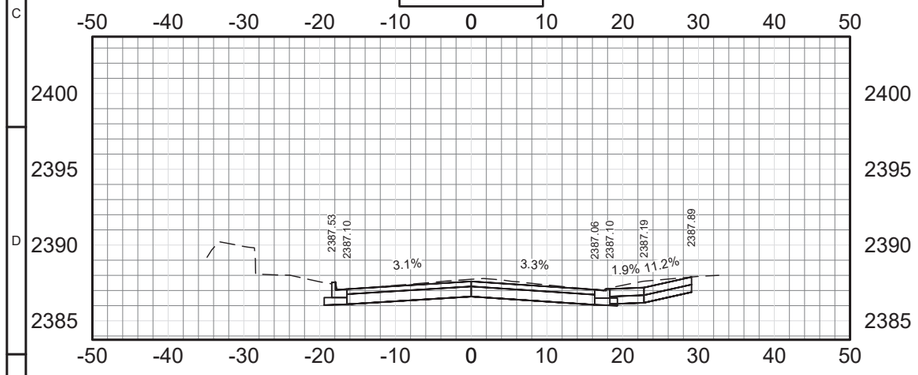


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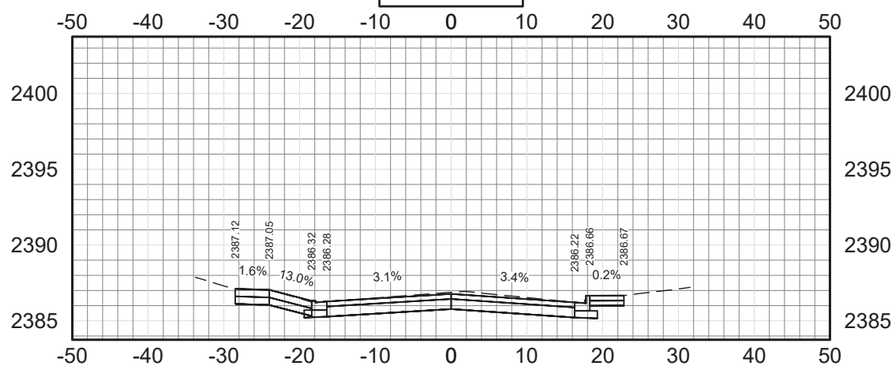
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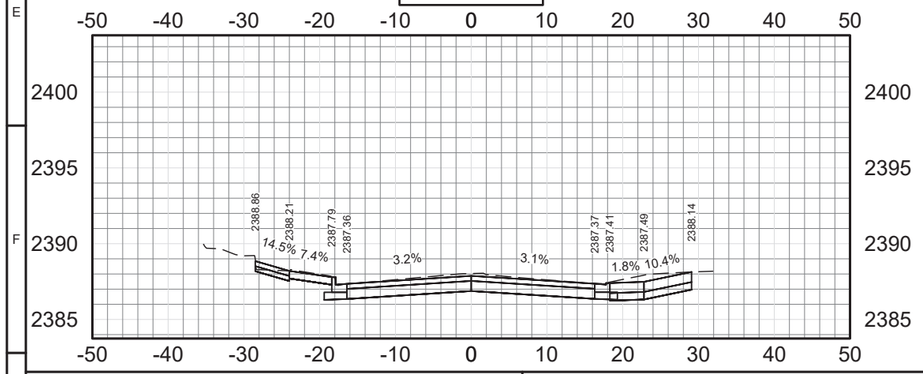
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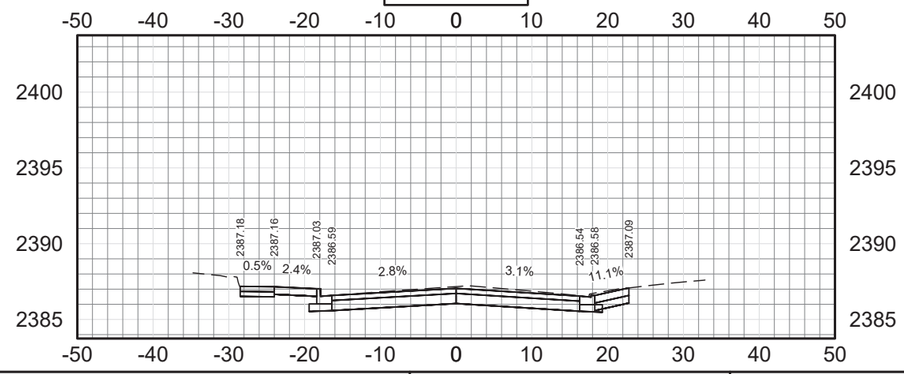
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16+50.00



17+25.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

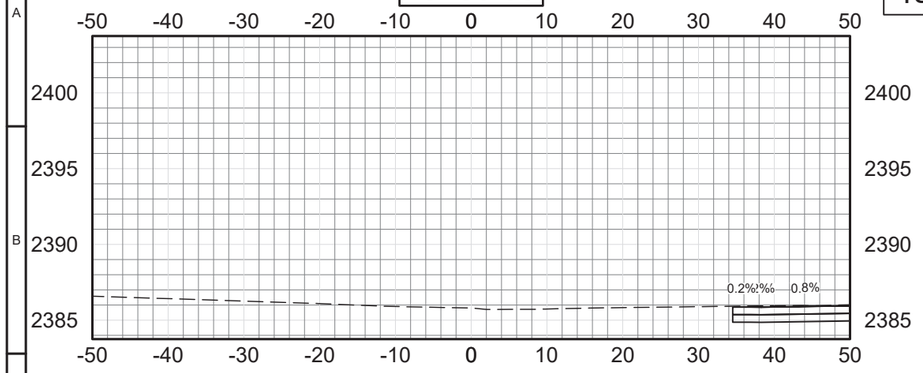
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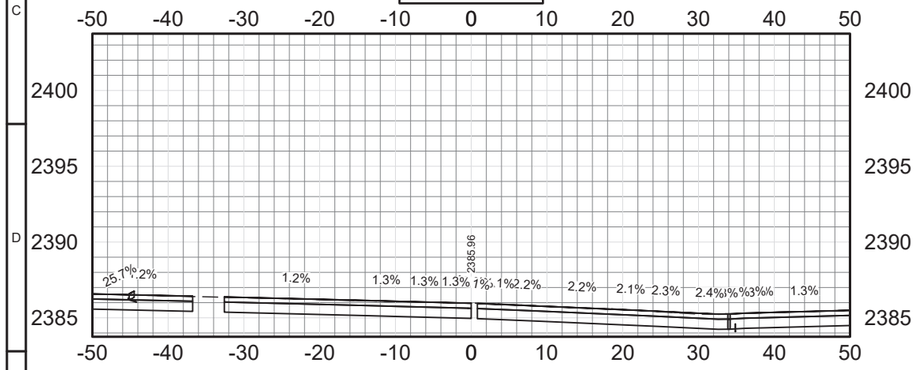
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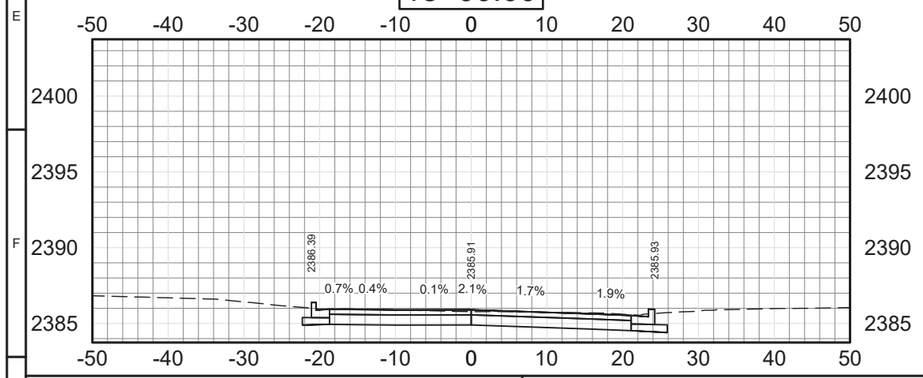
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18+25.00



18+00.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

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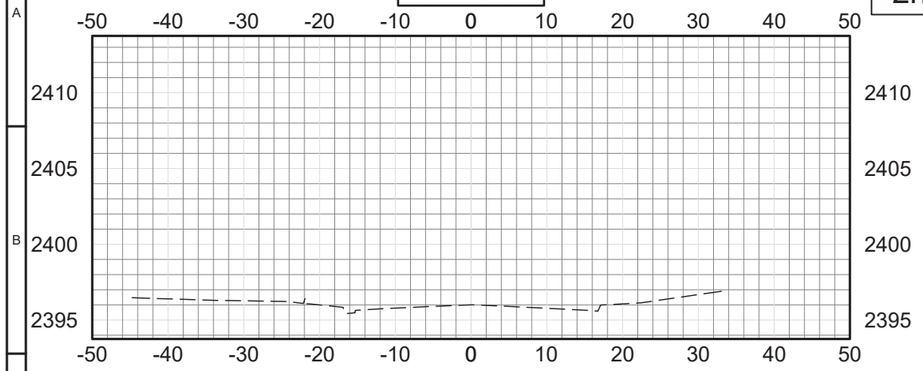
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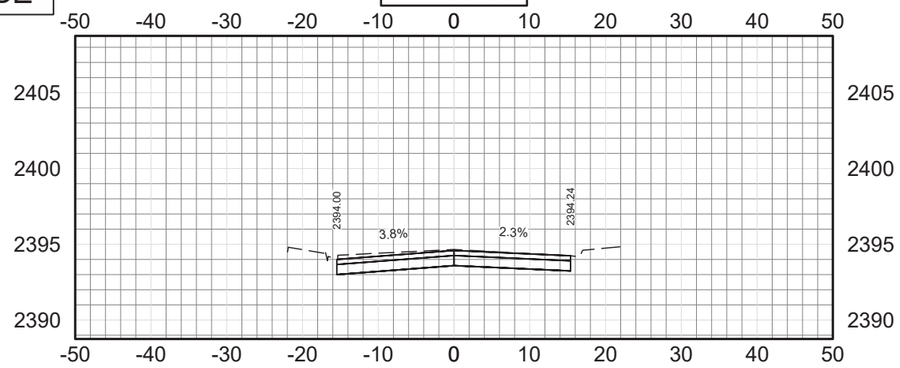
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2nd St SE

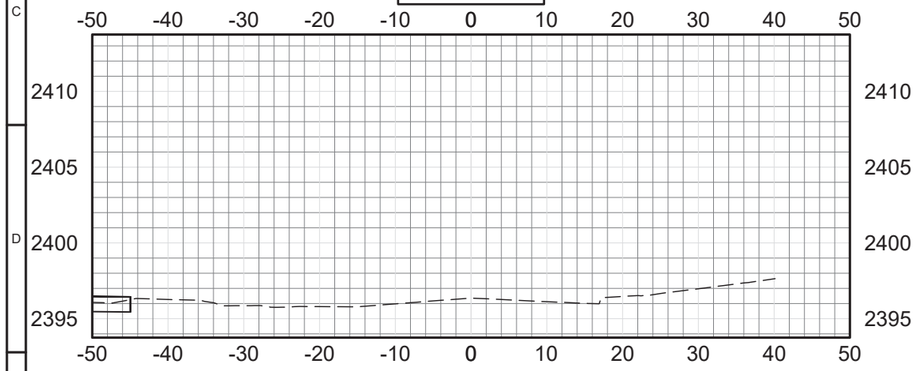
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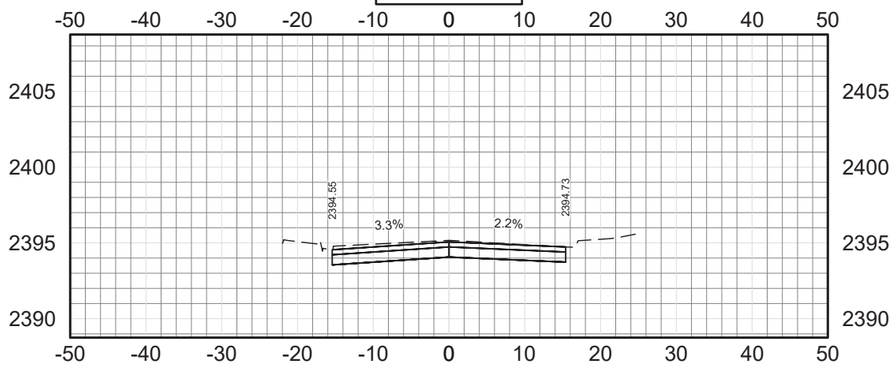
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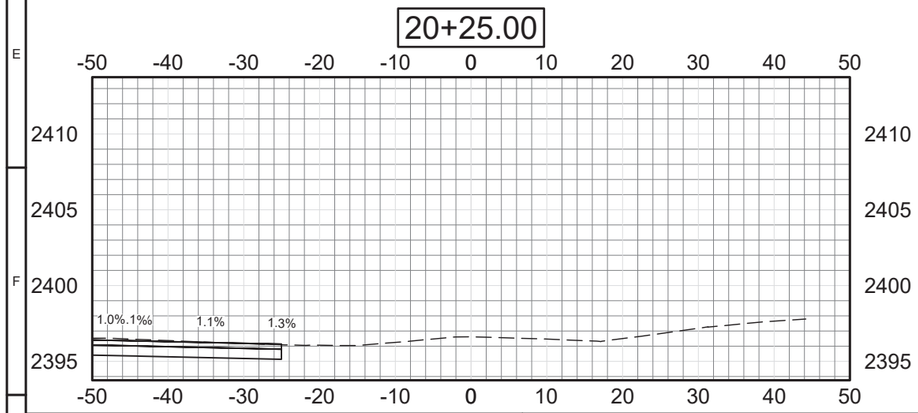
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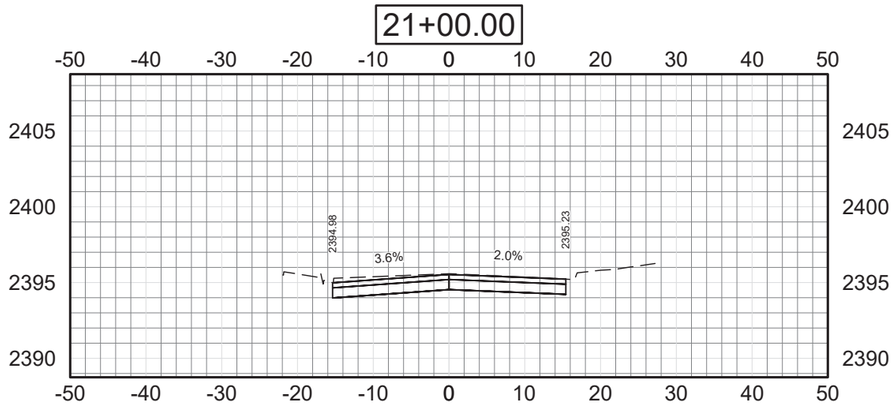
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20+25.00



21+00.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

Apex Engineering Group

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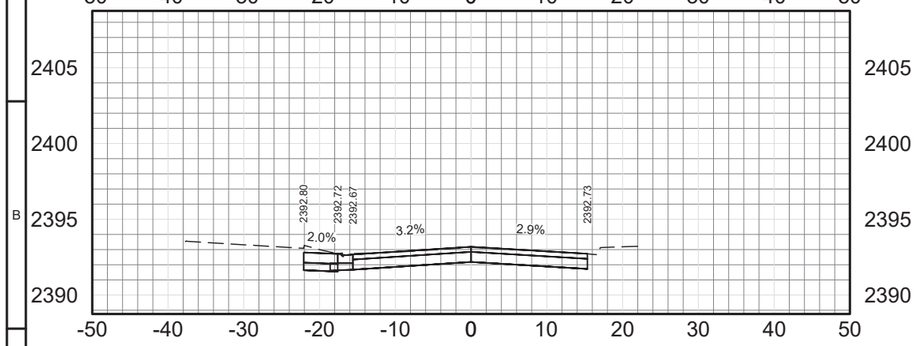
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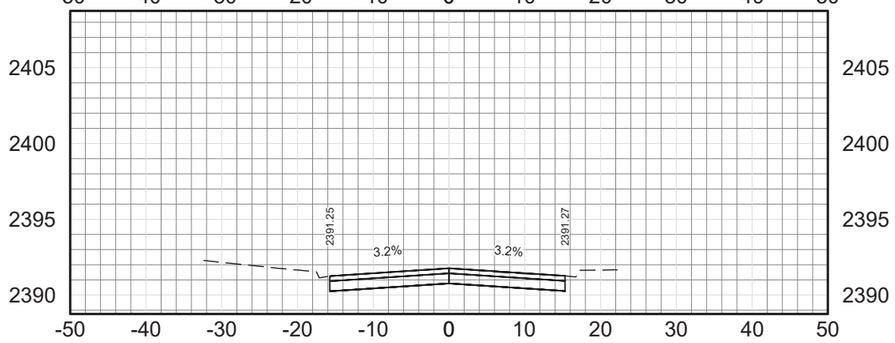
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2nd St SE

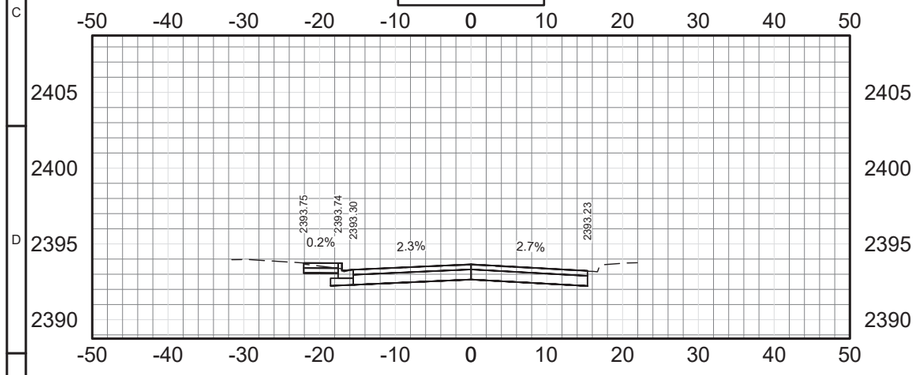
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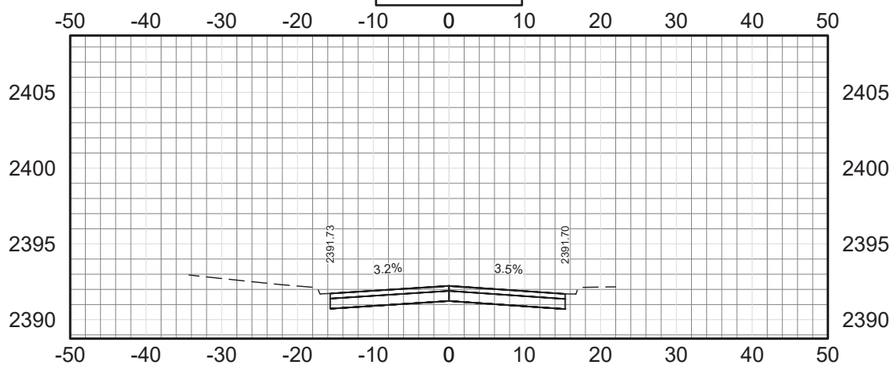
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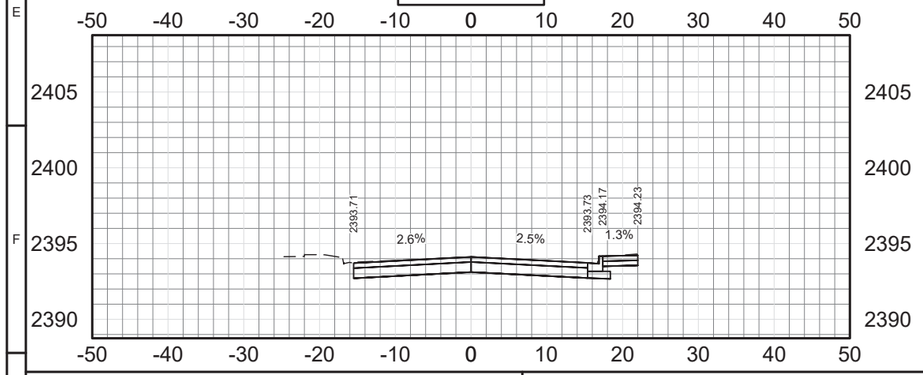
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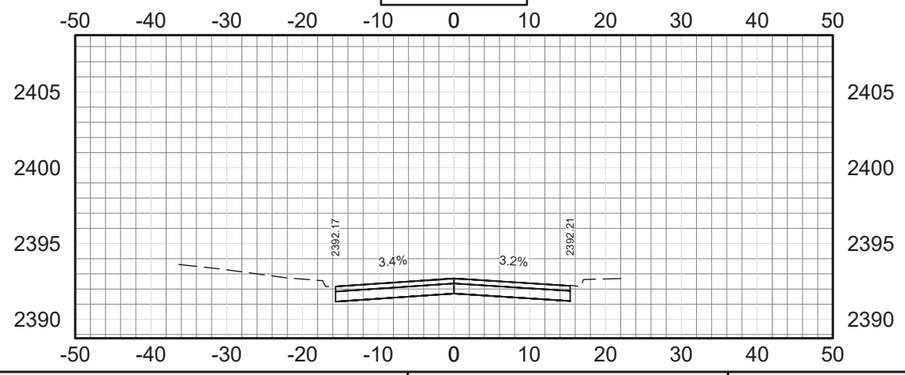
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21+75.00



22+50.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

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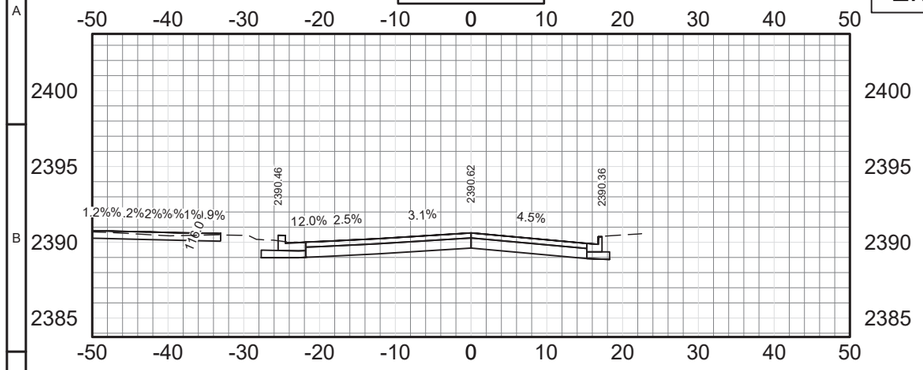
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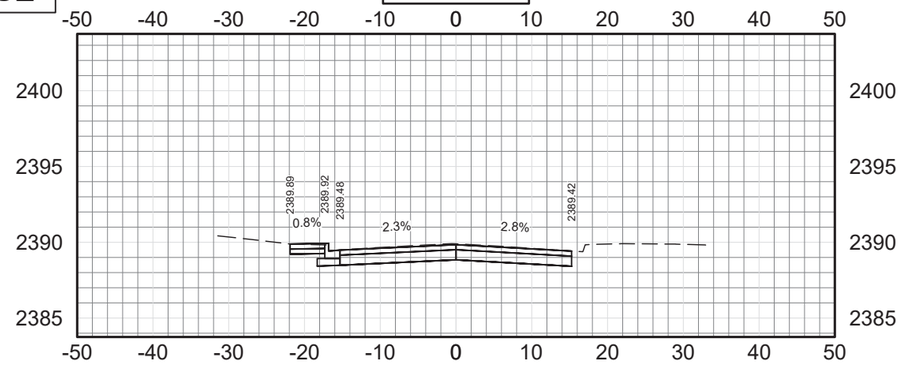
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2nd St SE

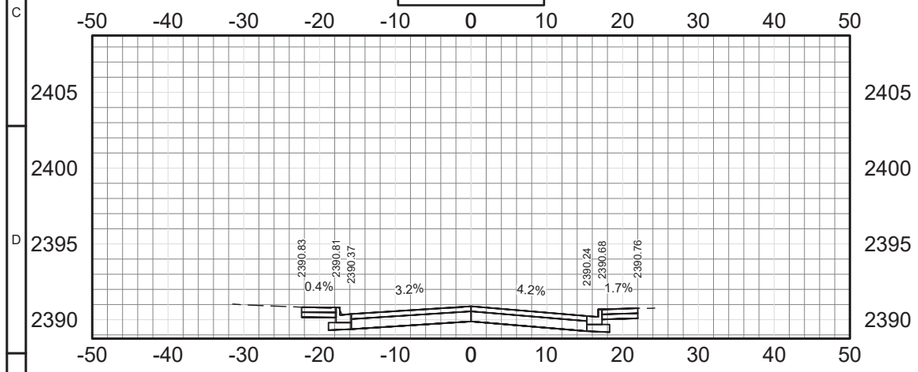
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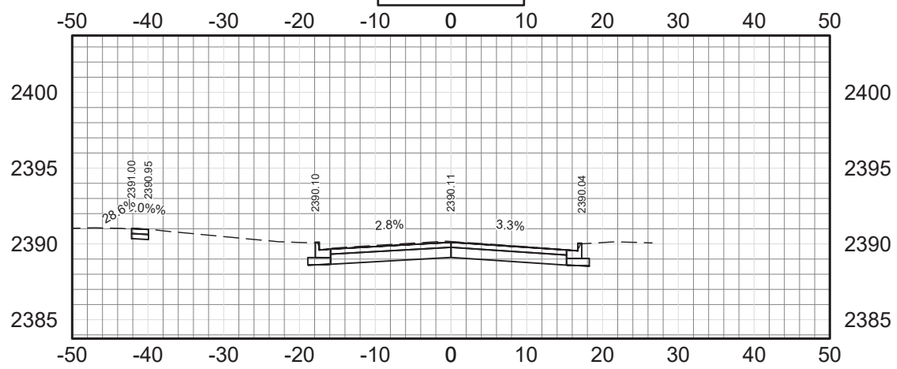
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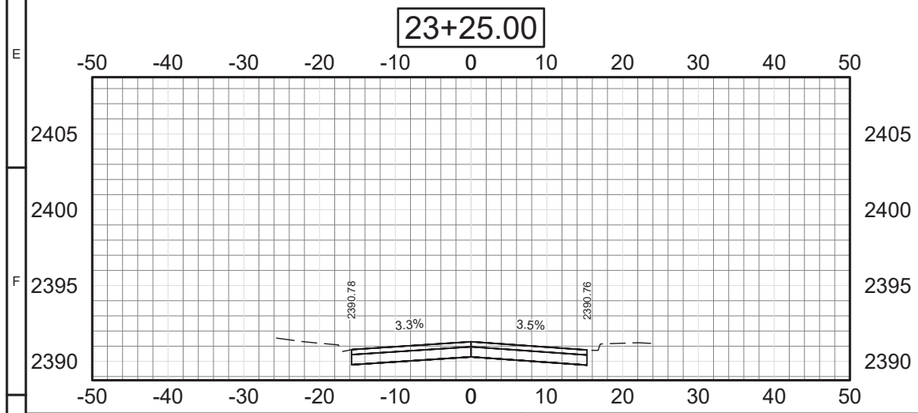
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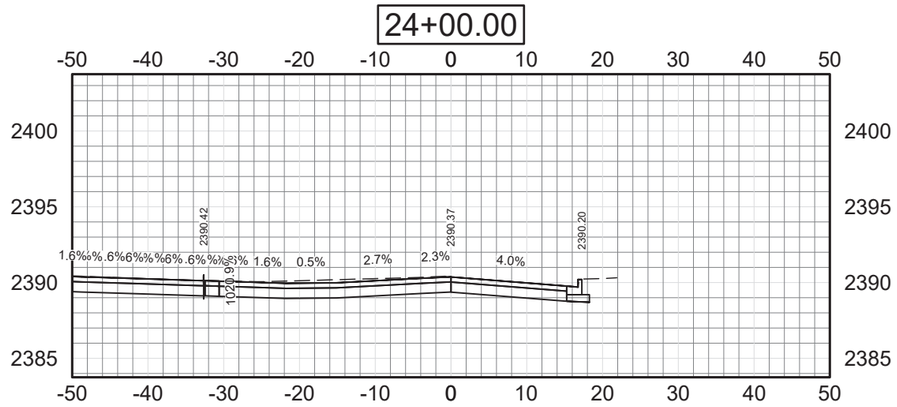
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24+00.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

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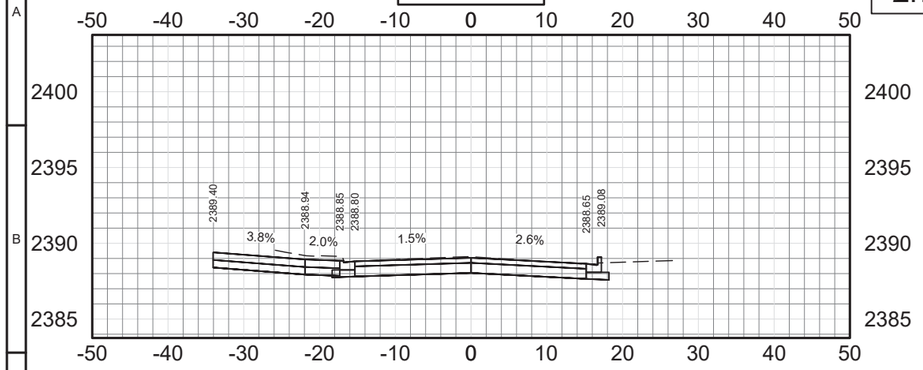
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

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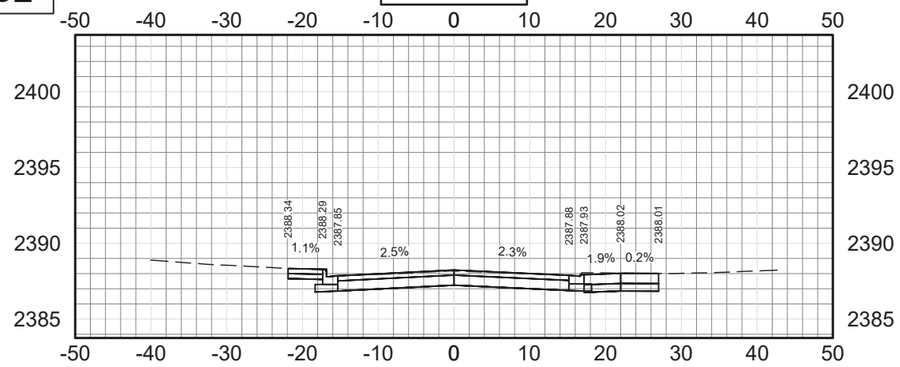
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2nd St SE

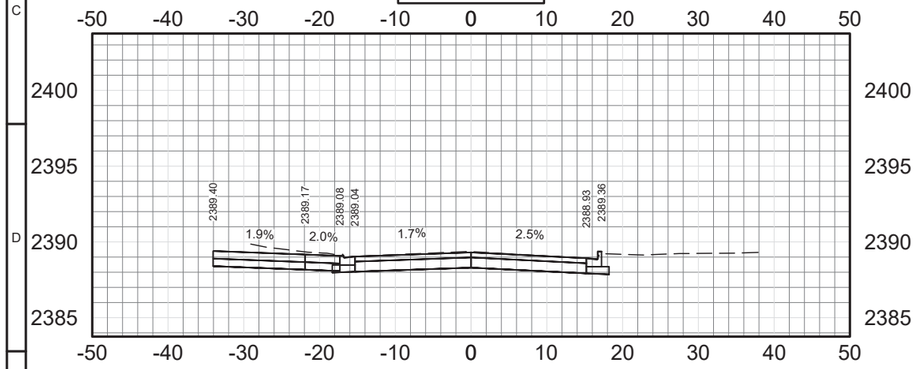
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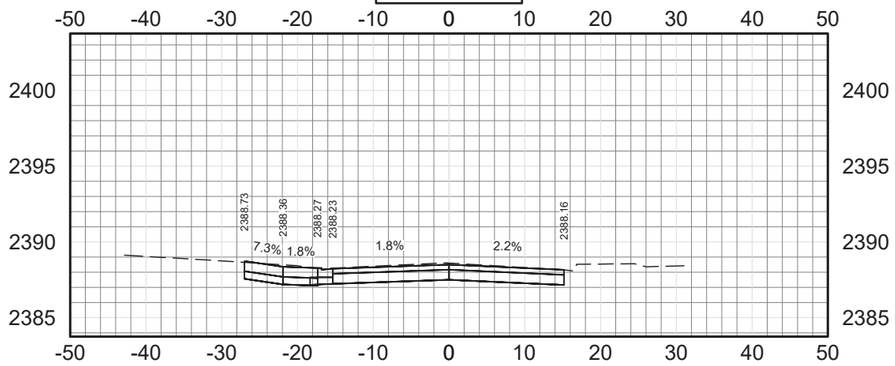
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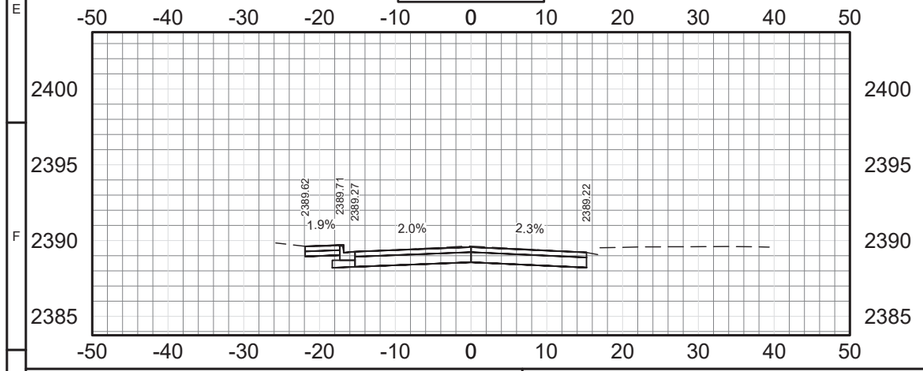
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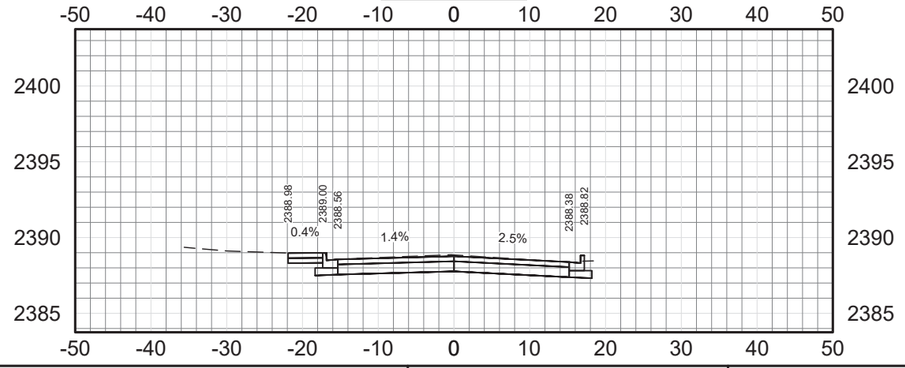
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25+50.00



REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

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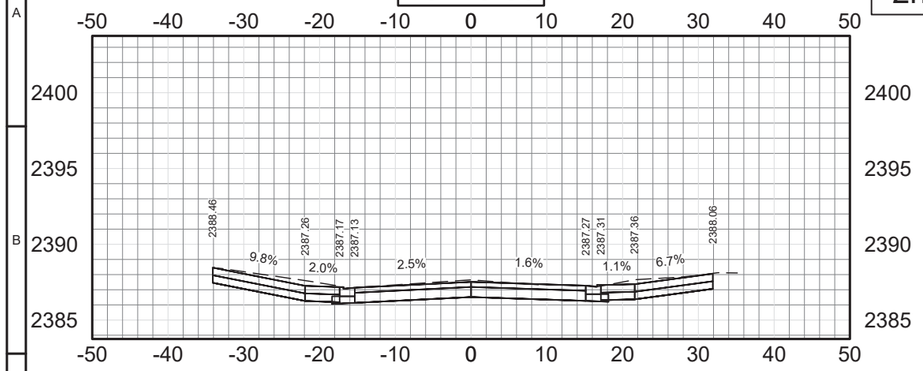
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

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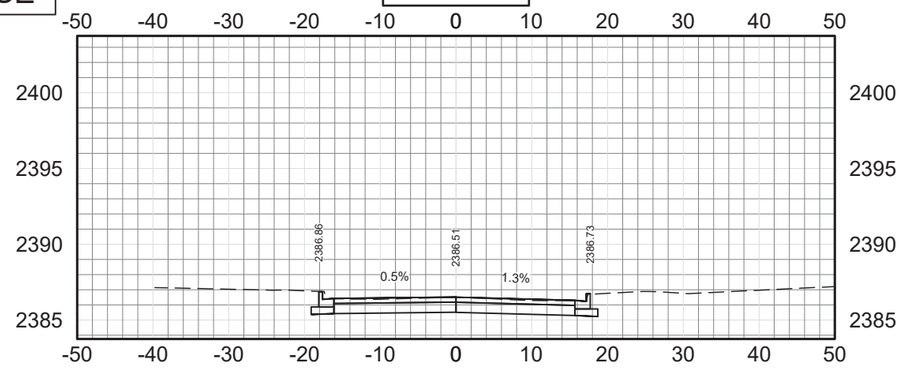
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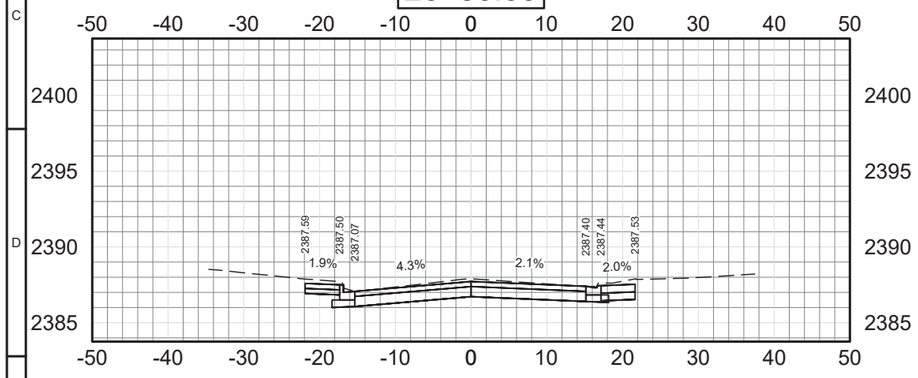
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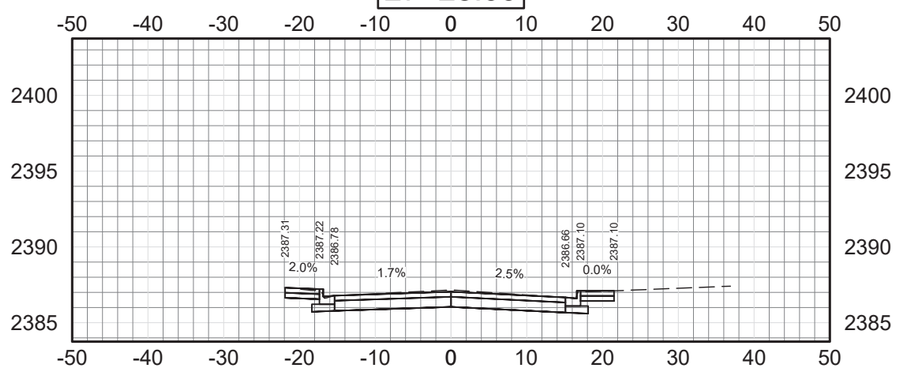
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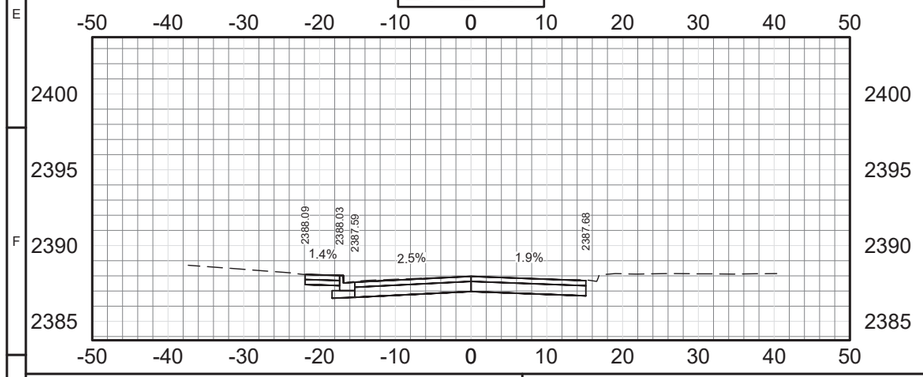
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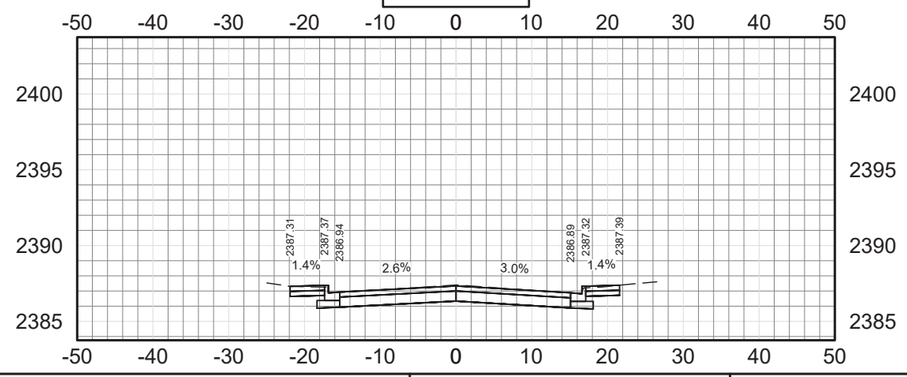
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Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

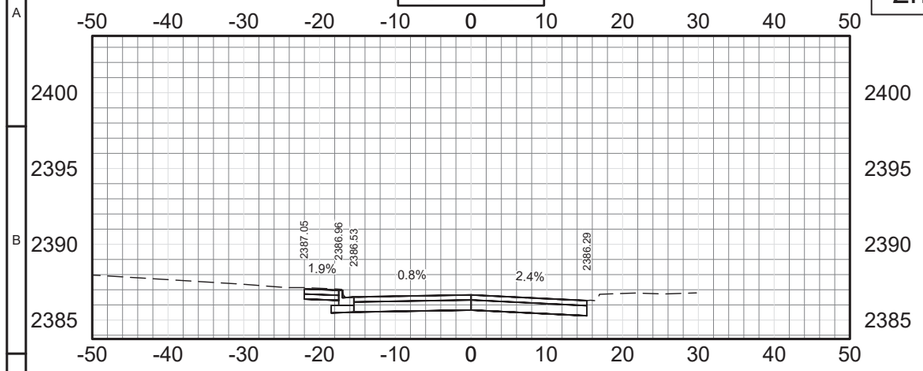
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
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Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-18

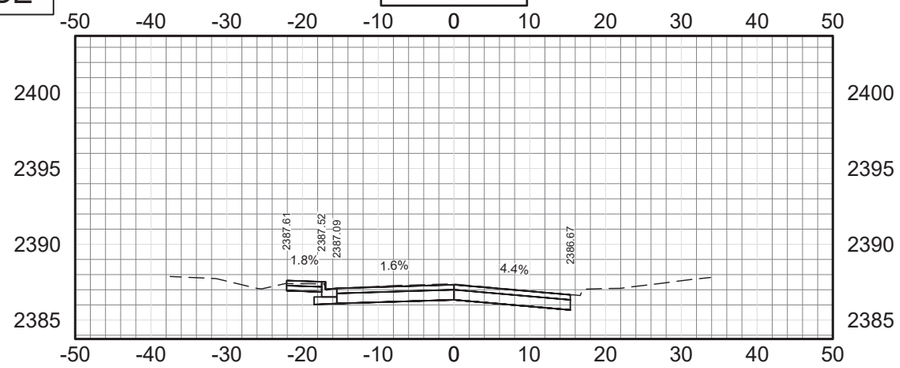
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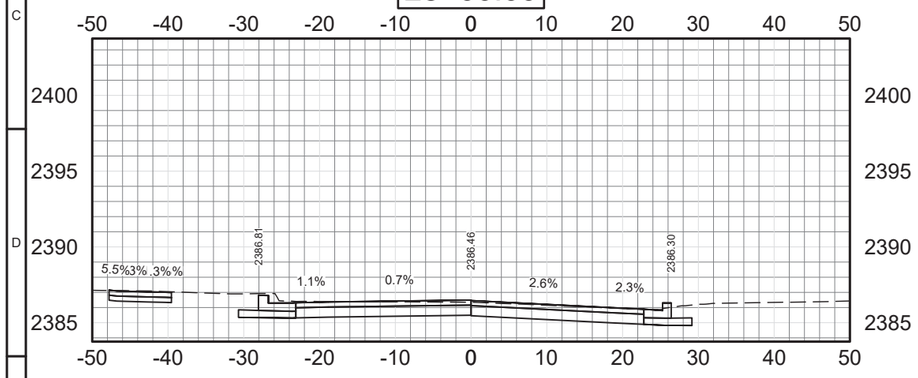


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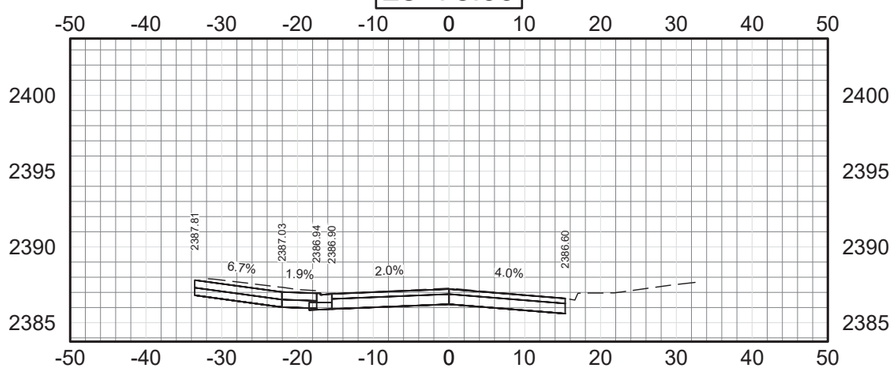
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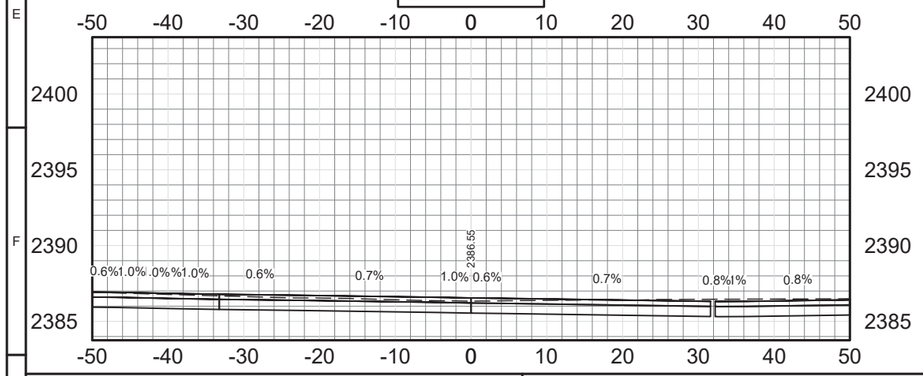
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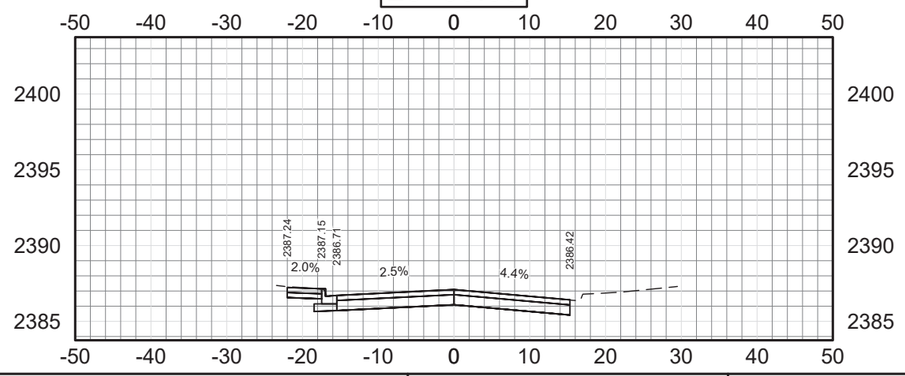
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27+75.00



28+50.00



REVISIONS

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CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

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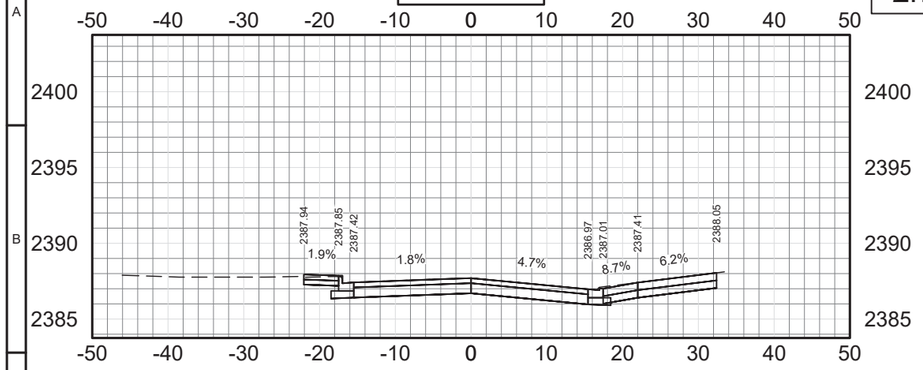
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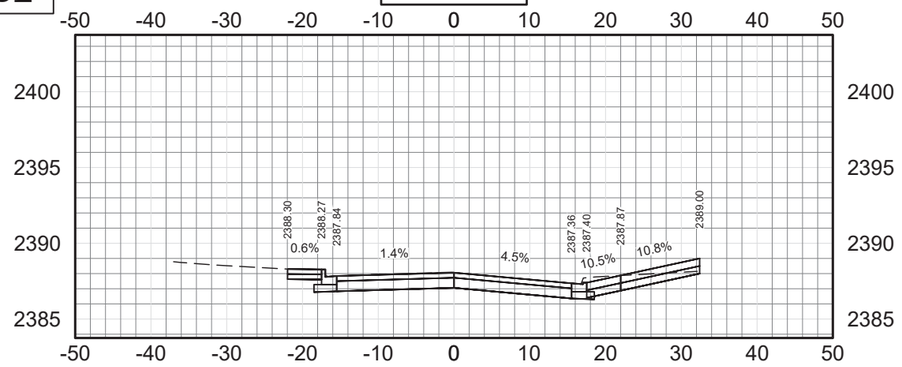
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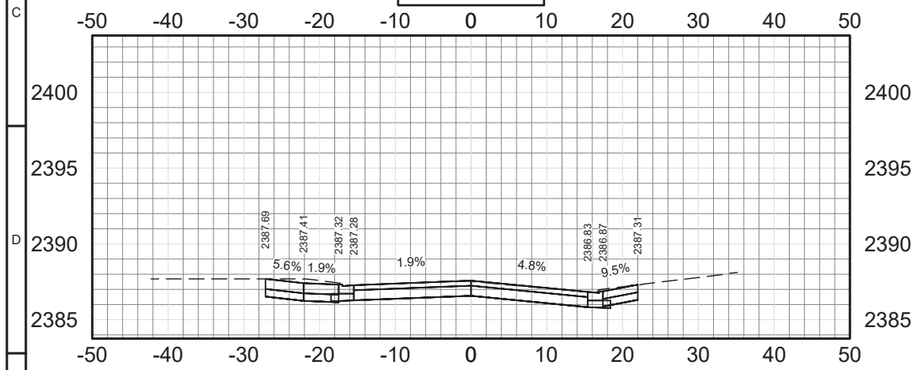


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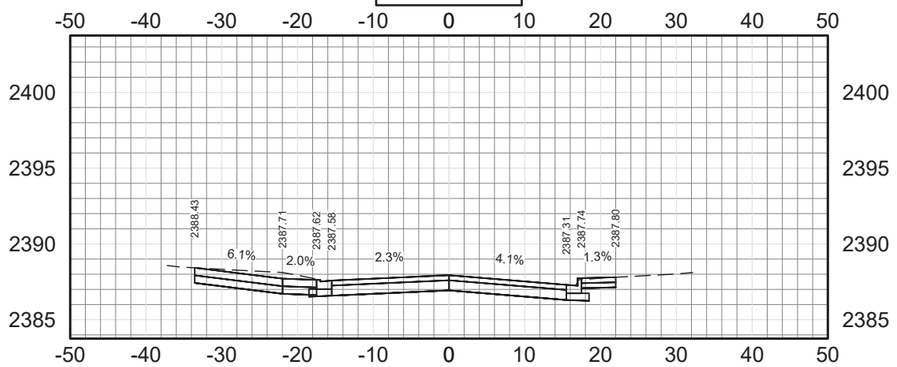
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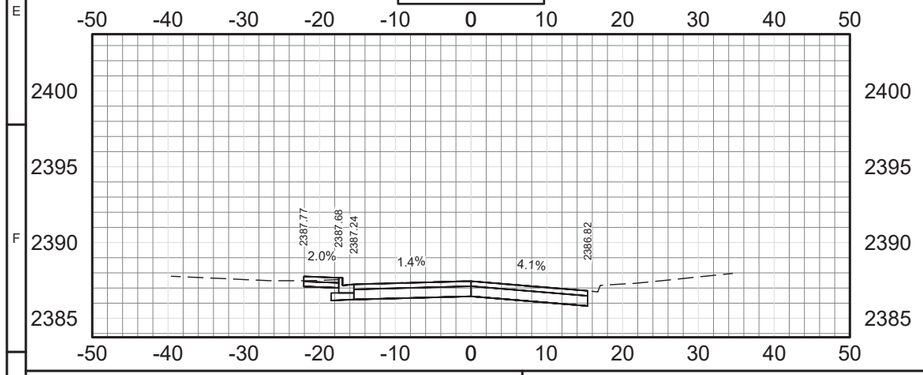
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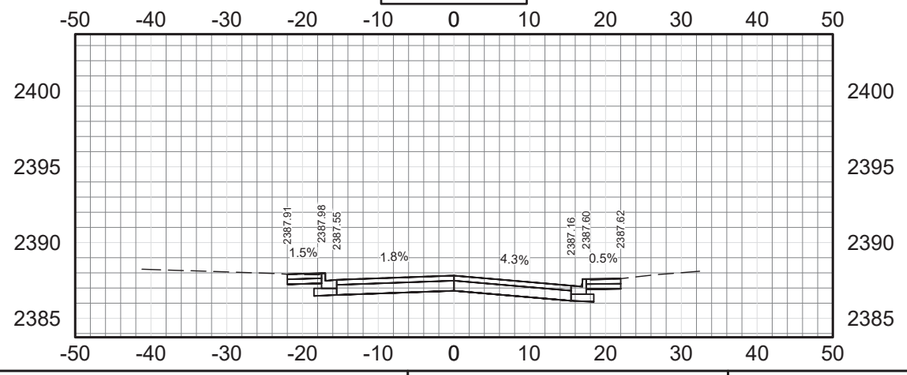
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REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

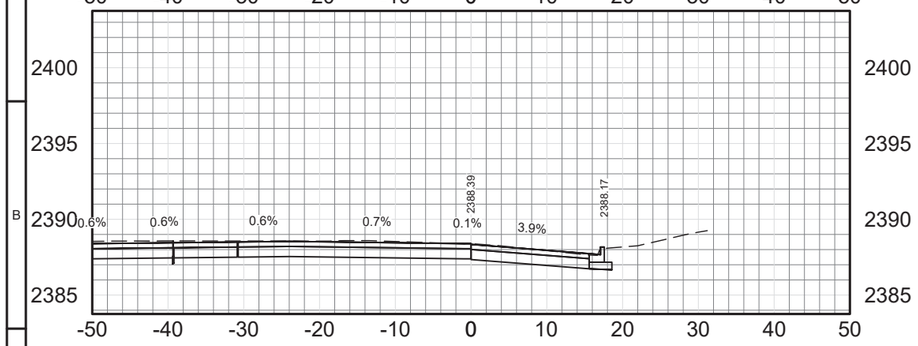
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-20

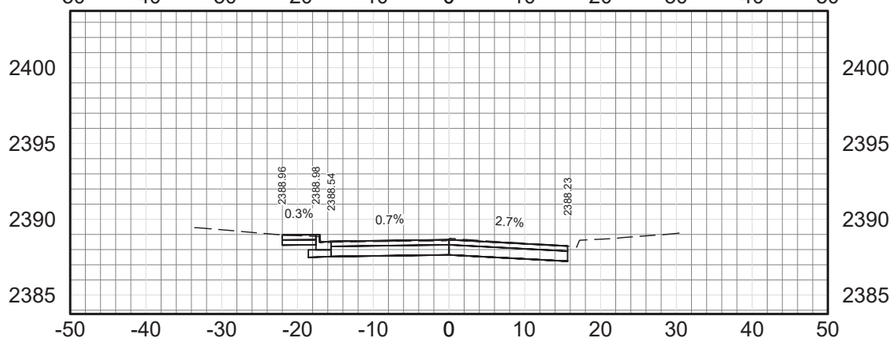
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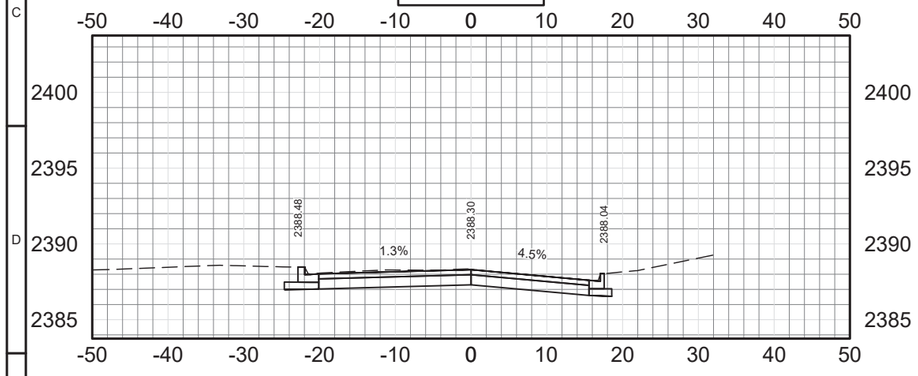


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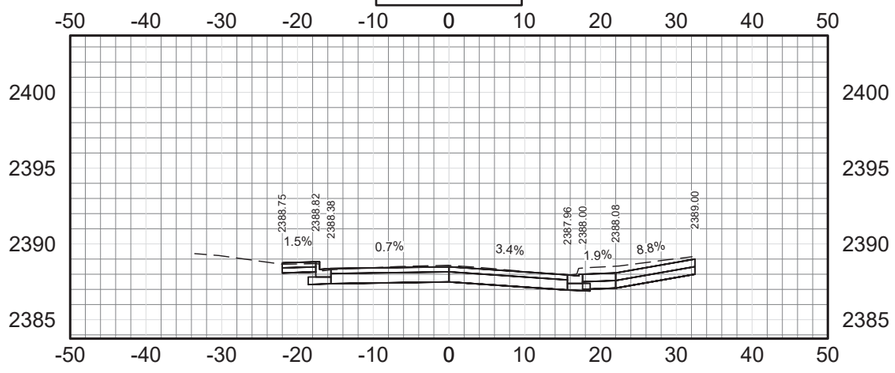
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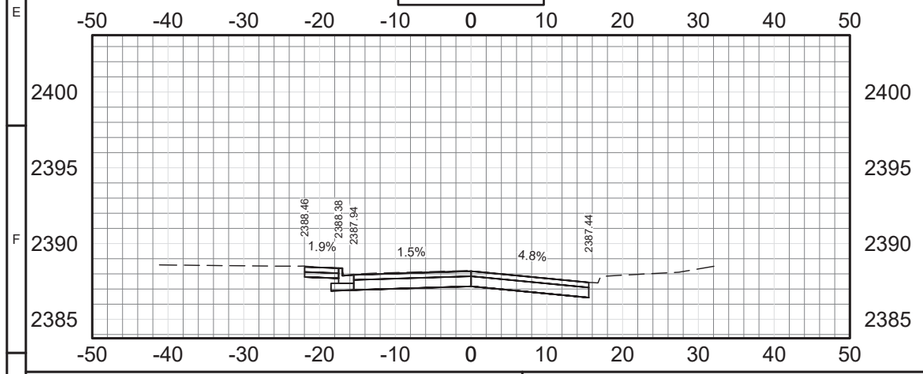
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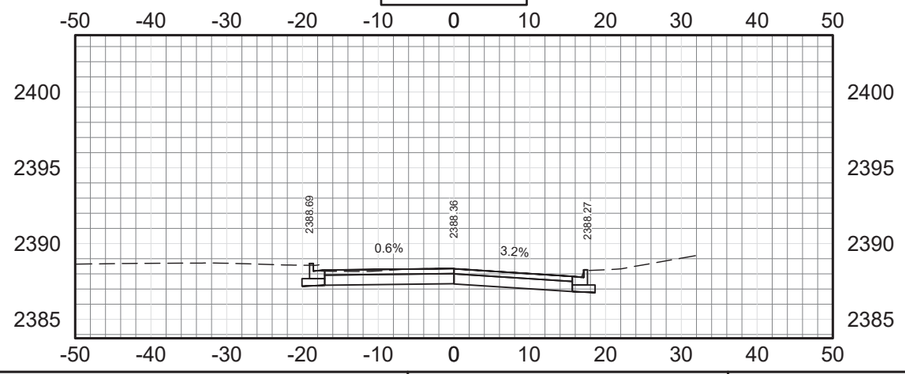
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30+75.00



31+50.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

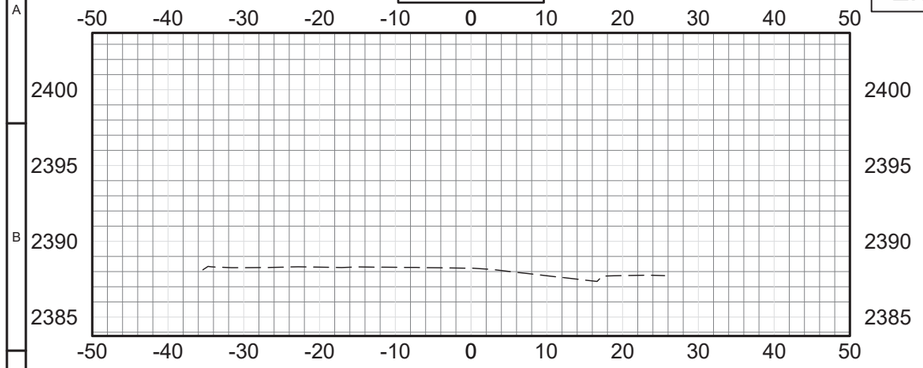
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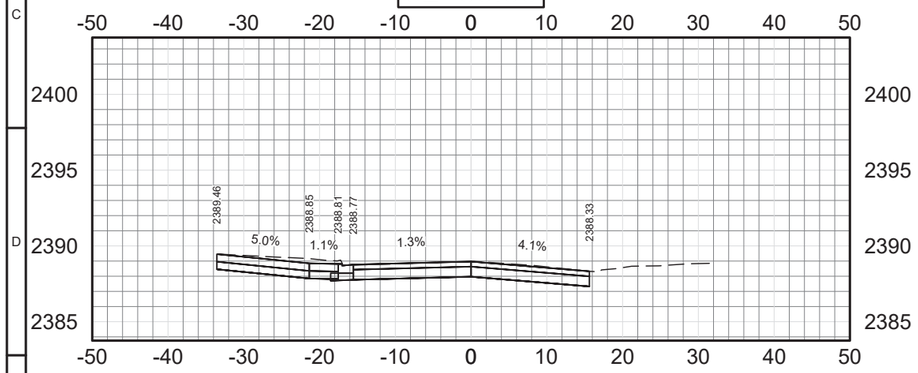
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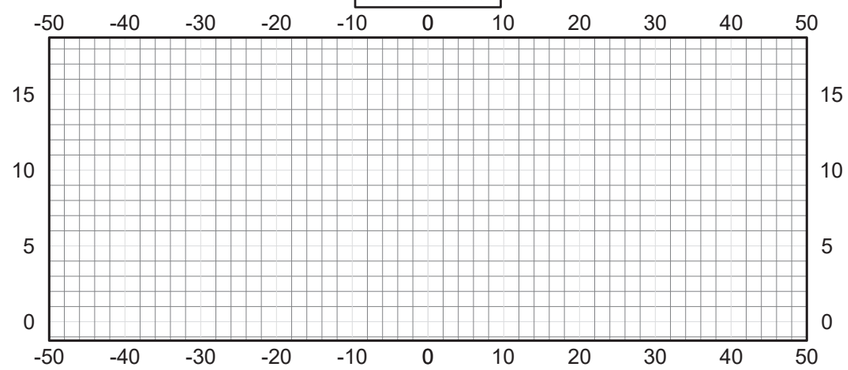
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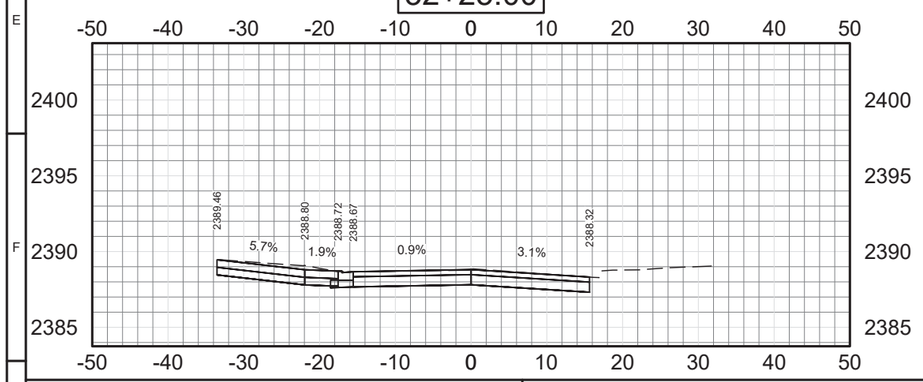
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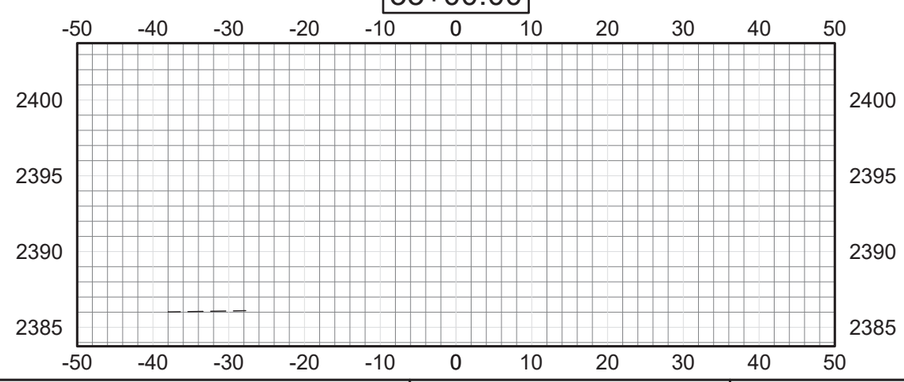
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32+25.00



33+00.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

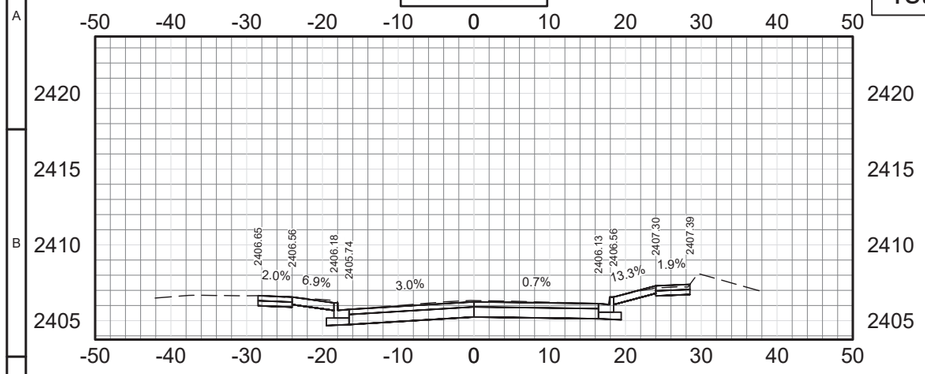
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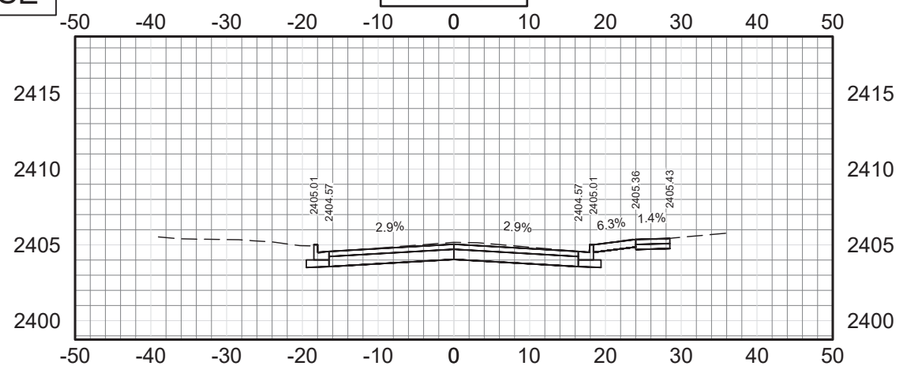
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1st Ave SE

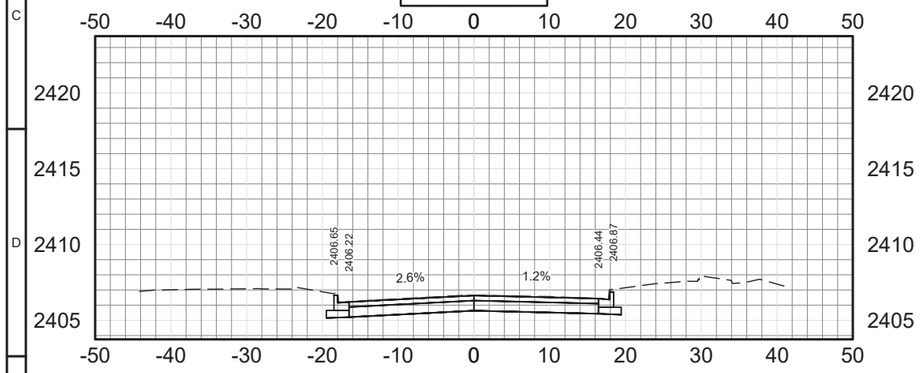
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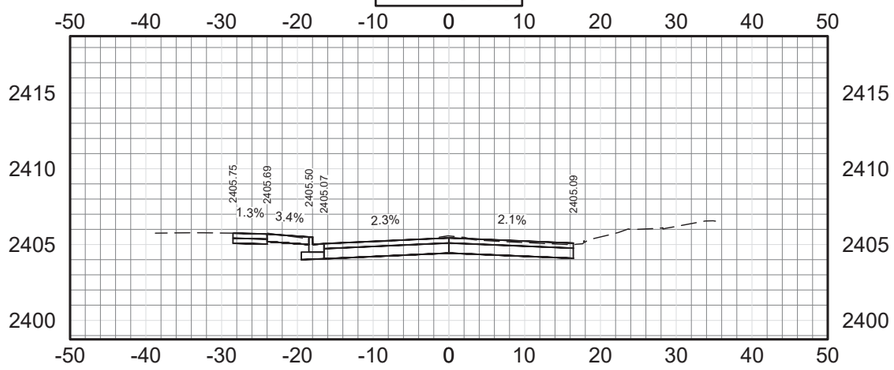
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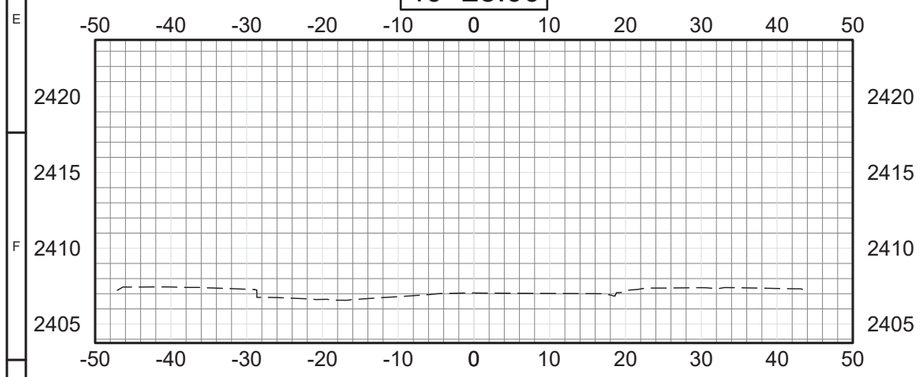
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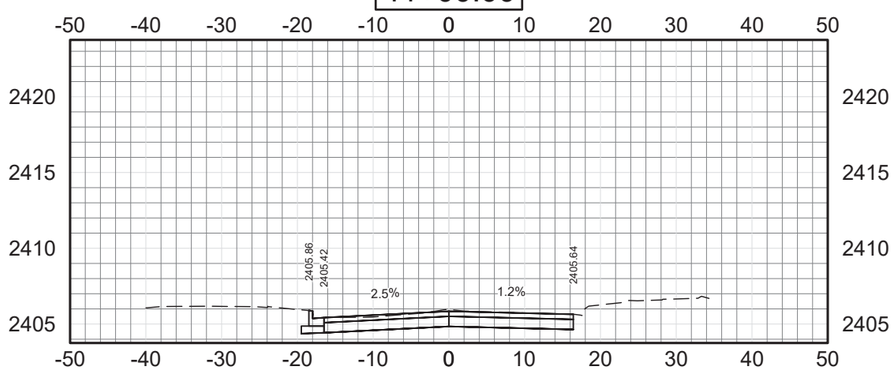
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40+25.00



41+00.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

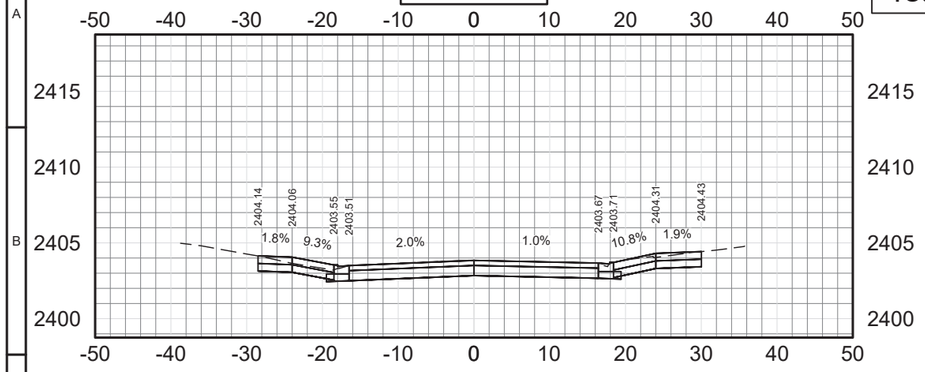
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Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

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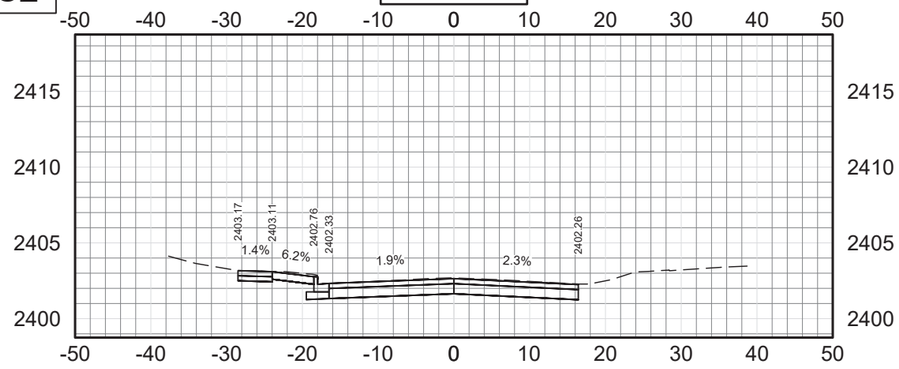
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1st Ave SE

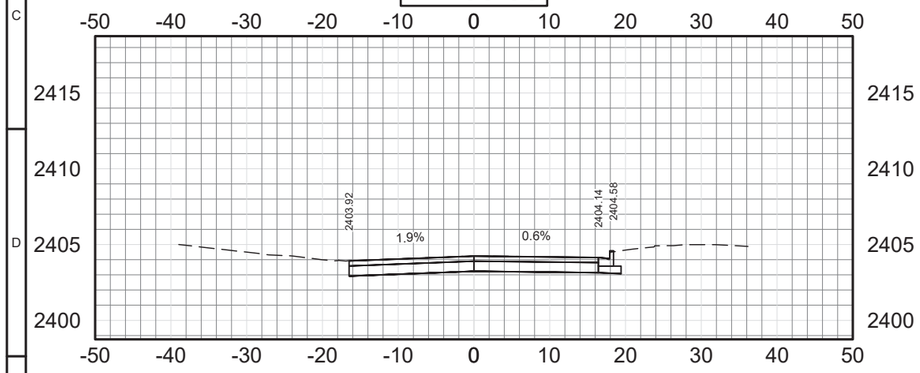
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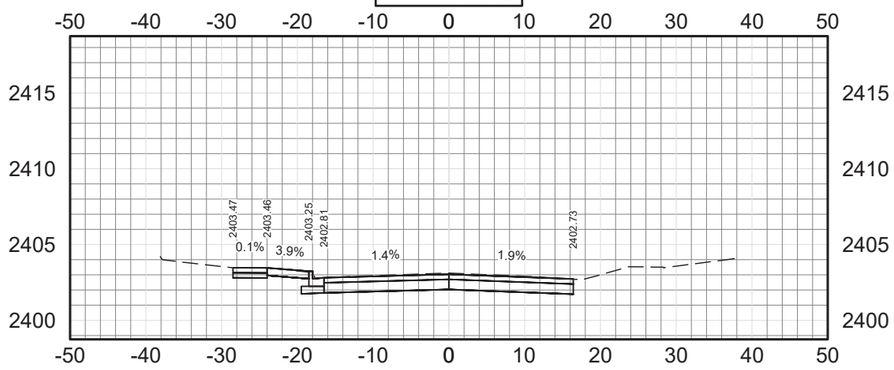
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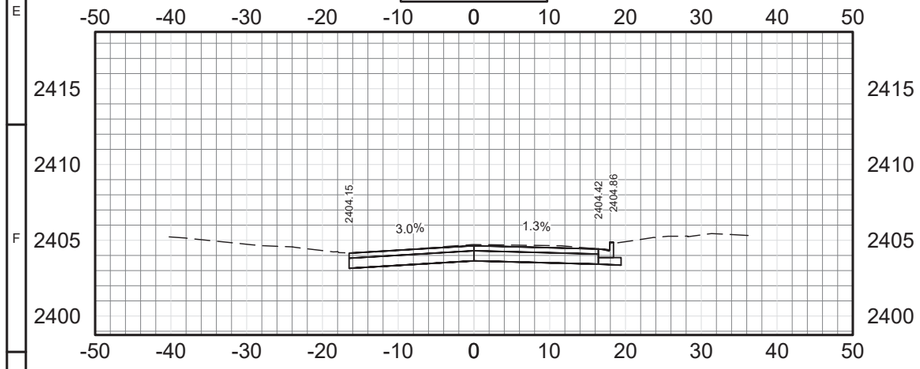
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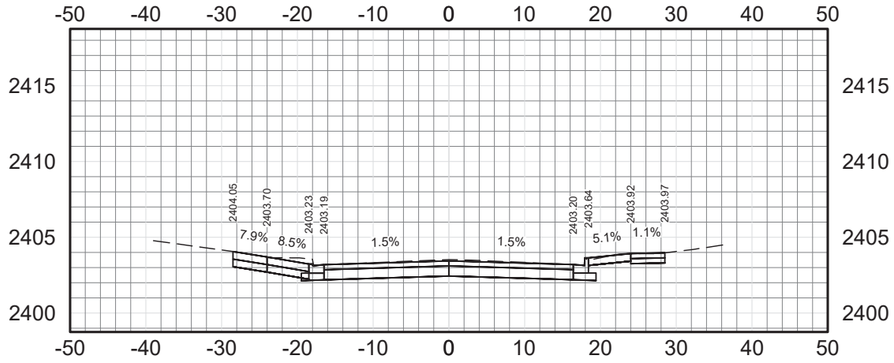
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42+50.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

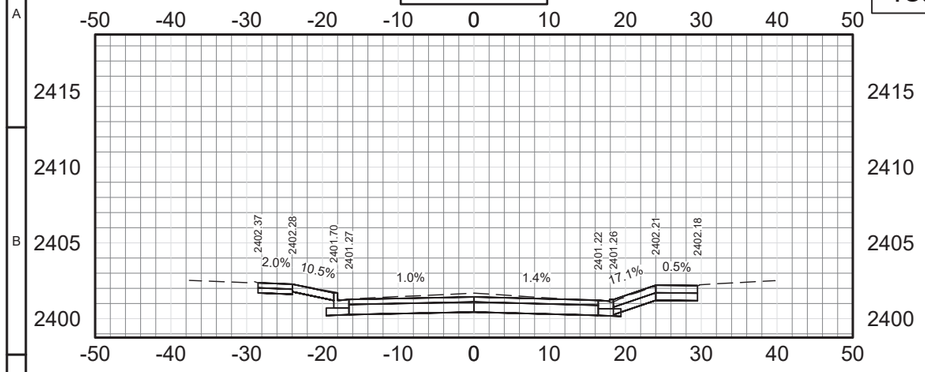
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Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-24

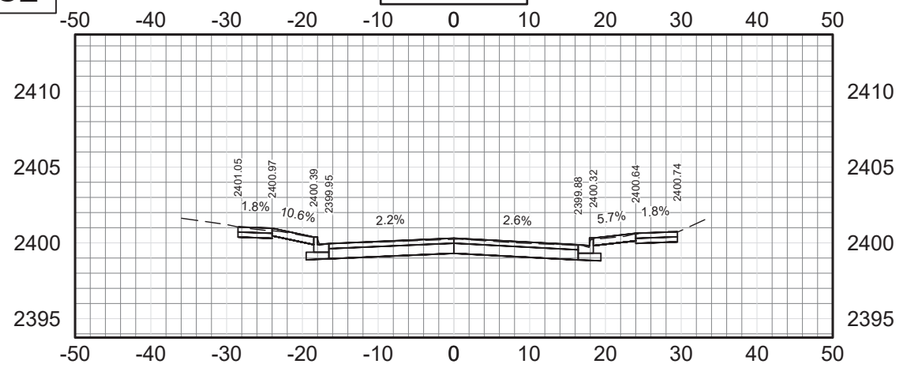
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1st Ave SE

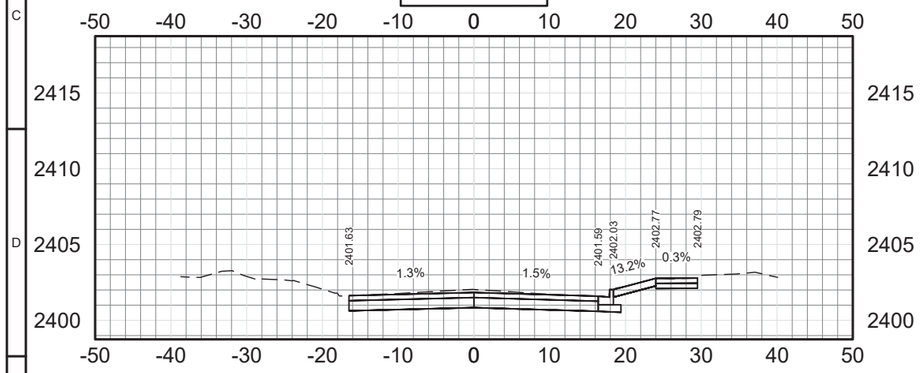
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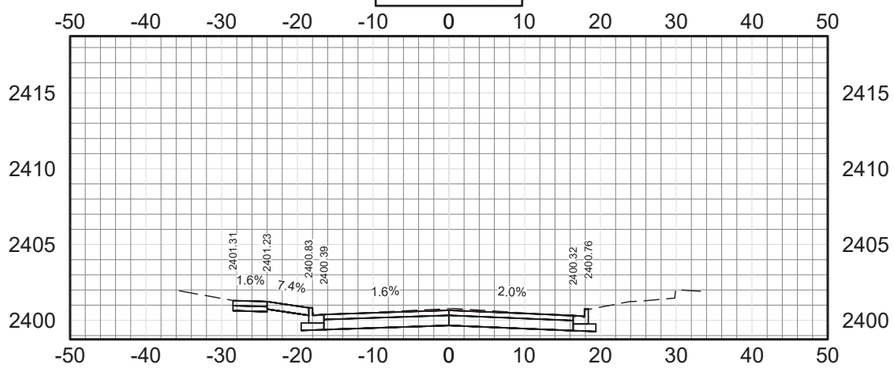
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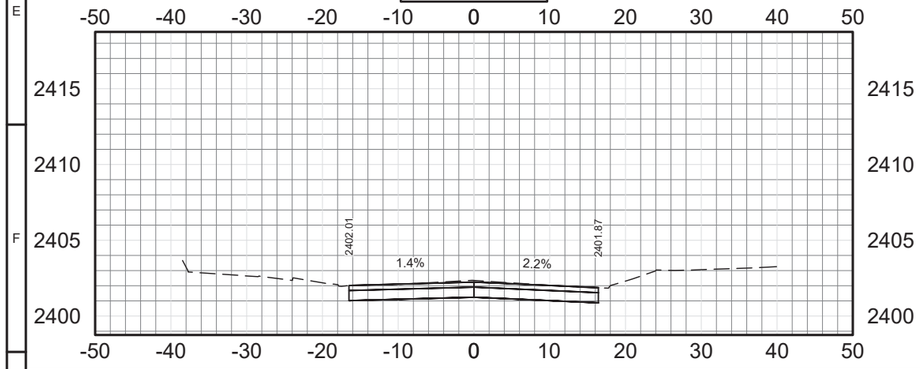
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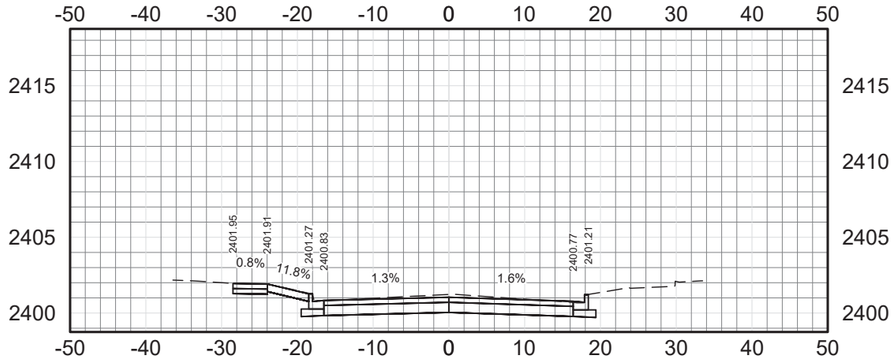
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43+25.00



44+00.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

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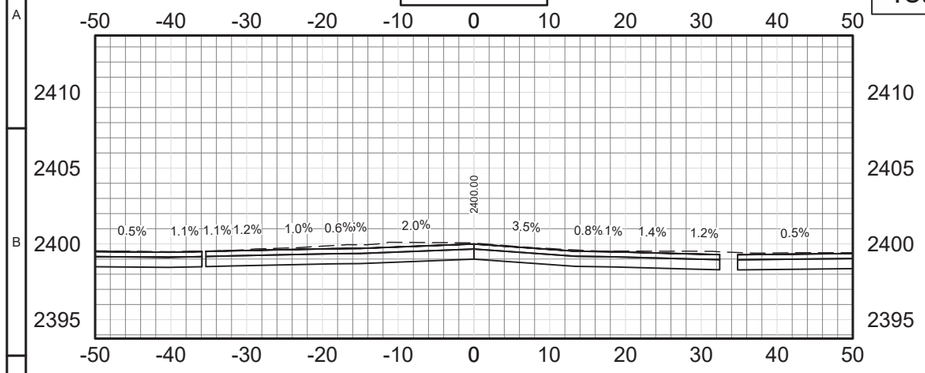
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Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

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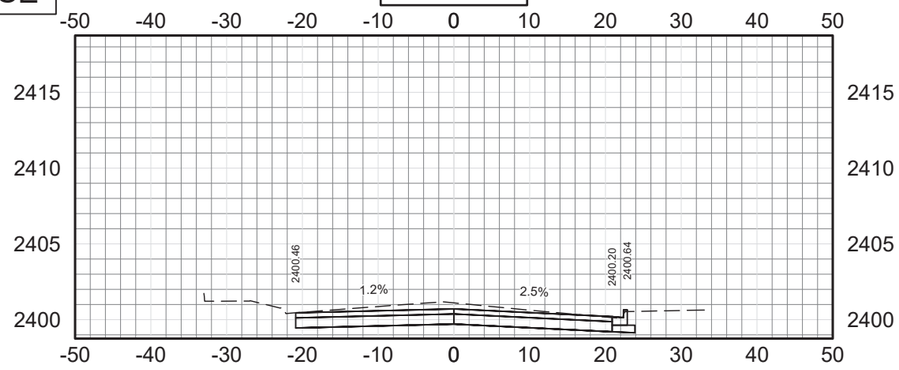
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1st Ave SE

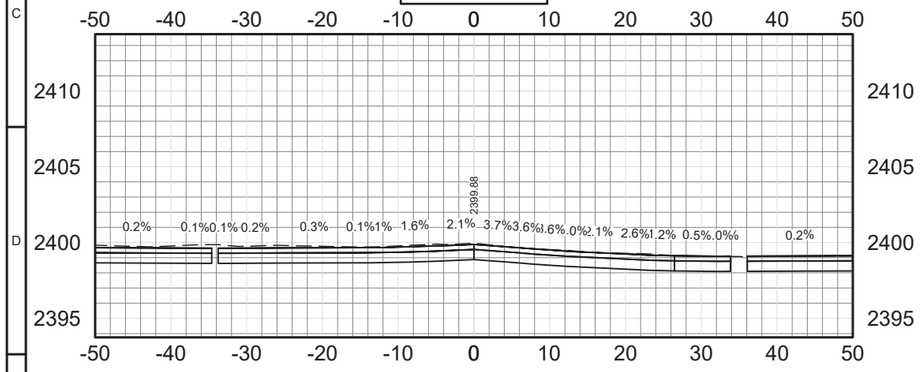
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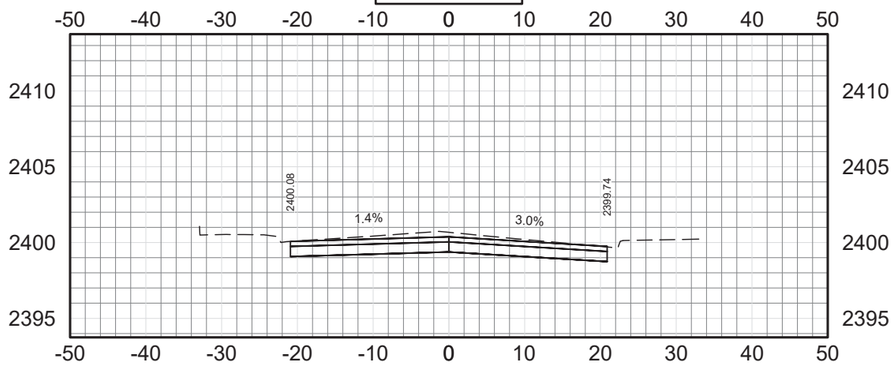
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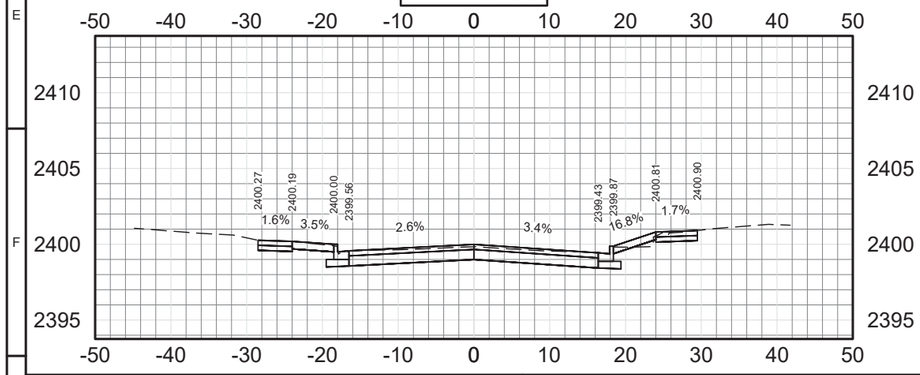
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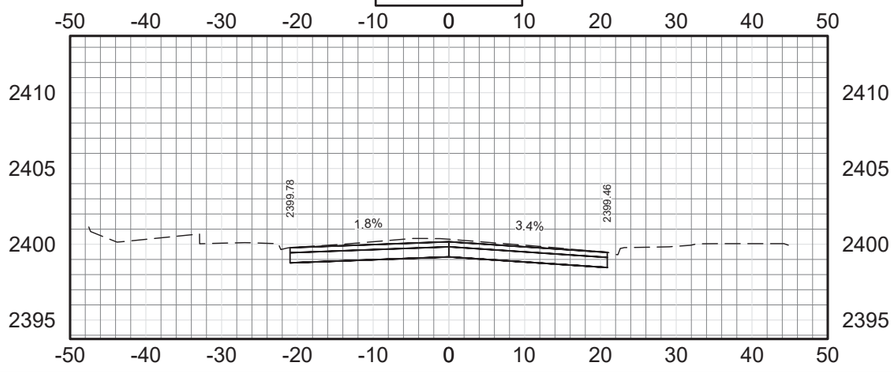
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44+75.00



45+50.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
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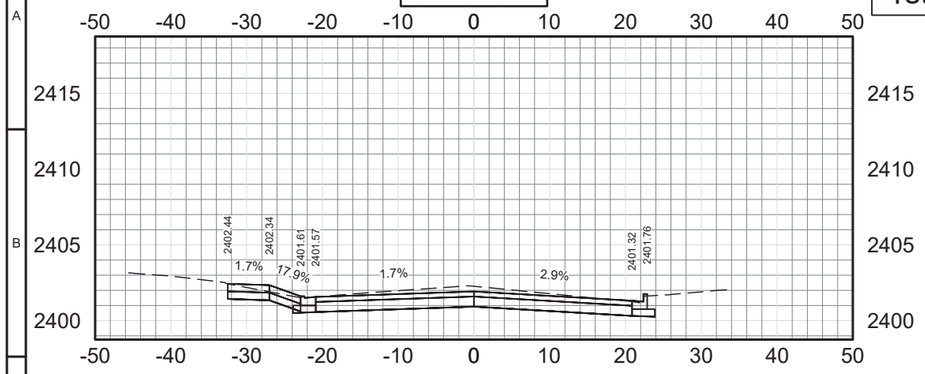
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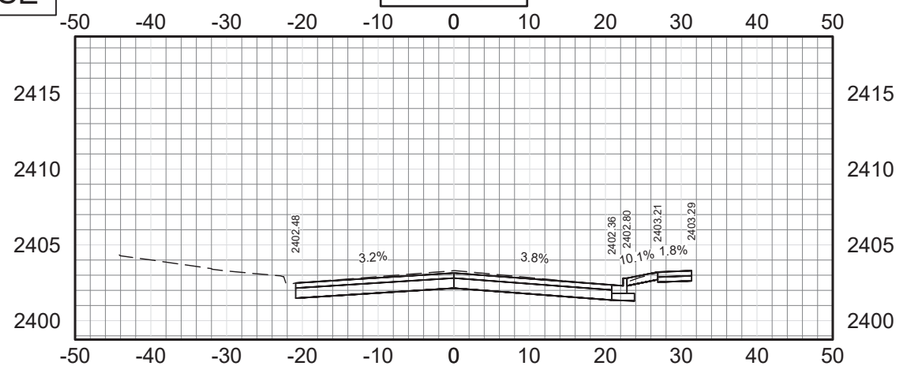
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1st Ave SE

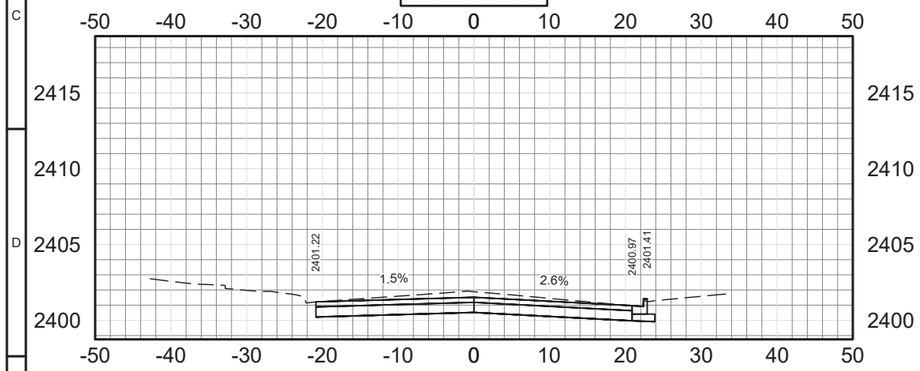
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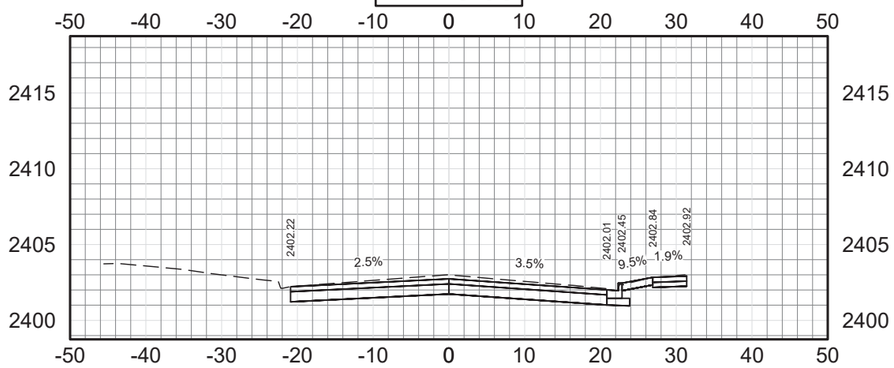
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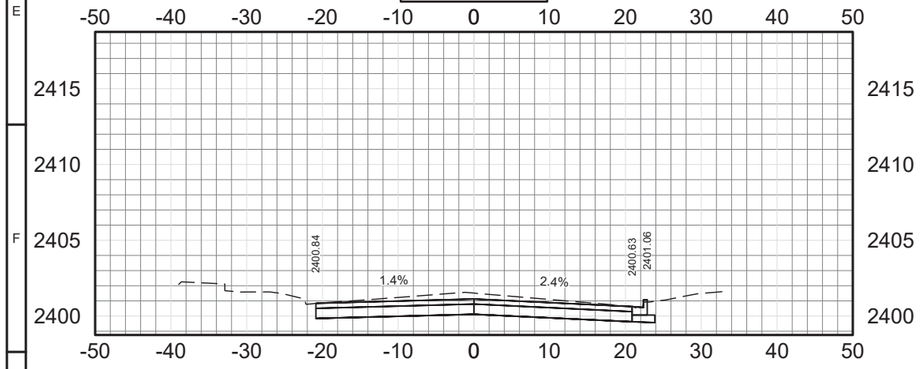
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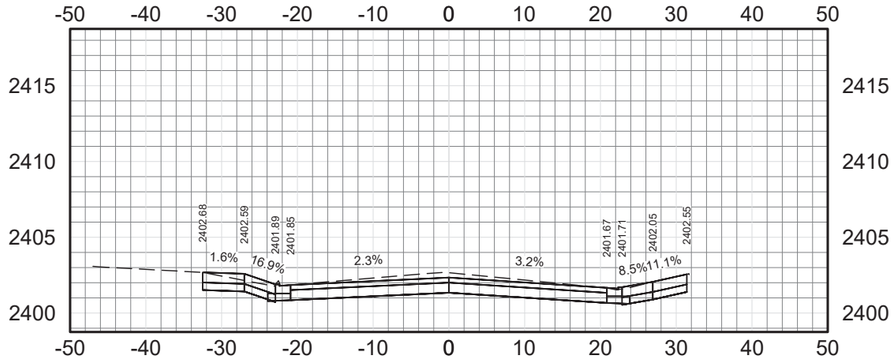
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46+25.00



47+00.00



REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

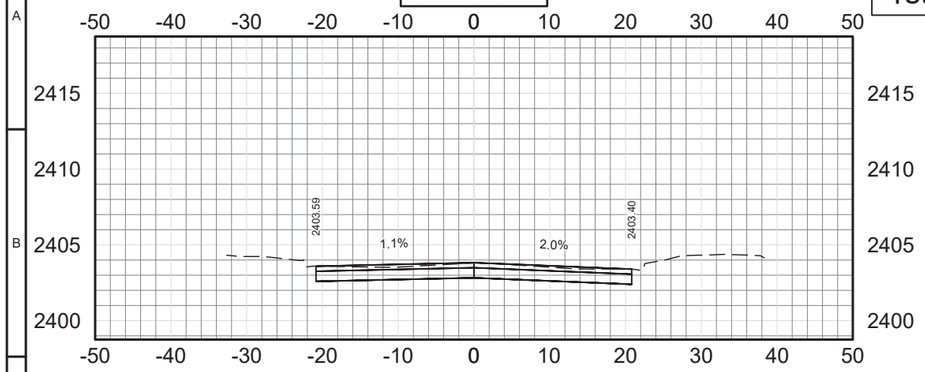
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-27

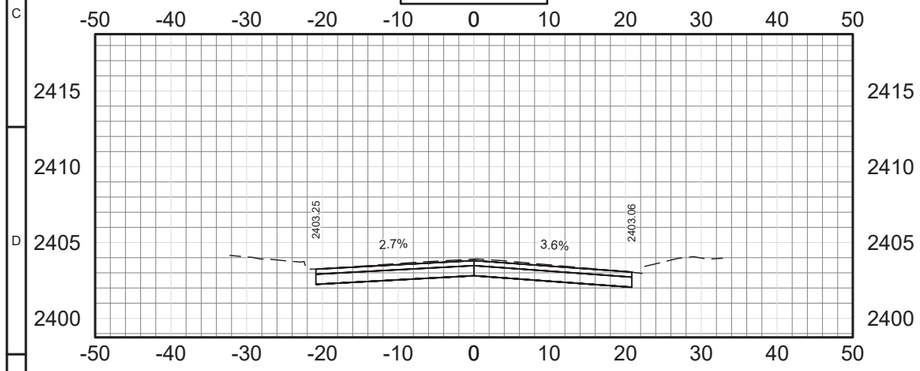
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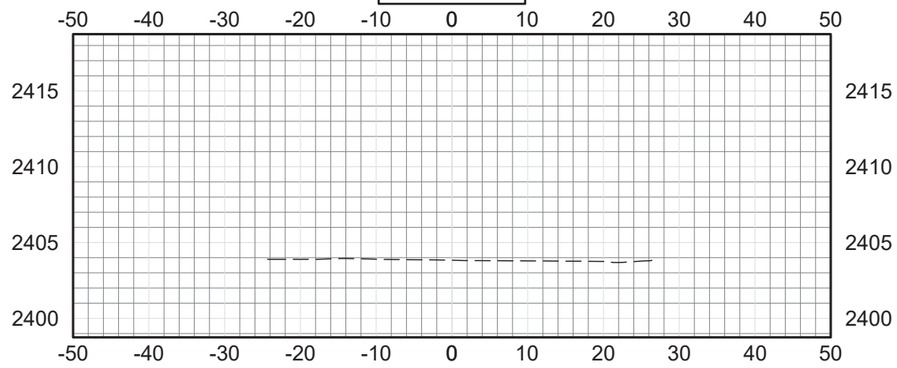
1st Ave SE



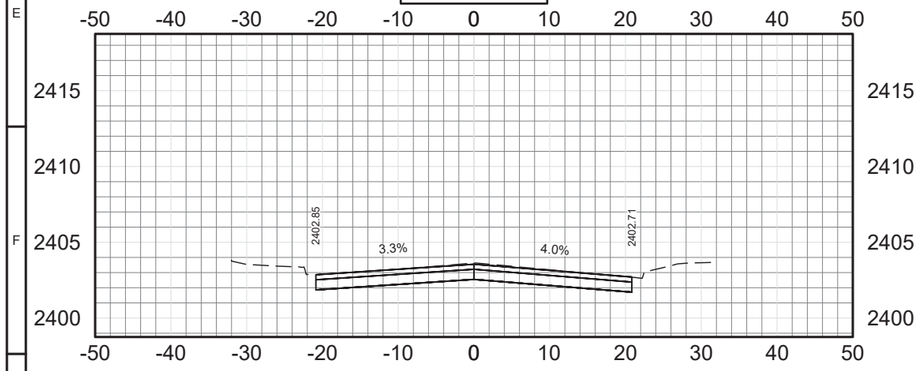
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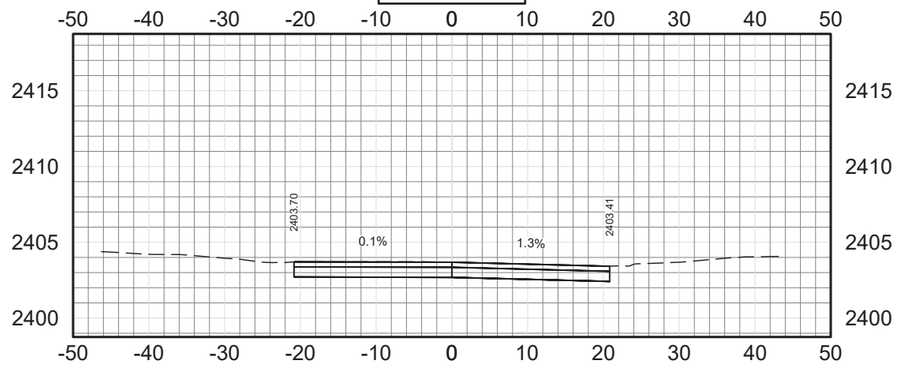
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47+75.00



48+50.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

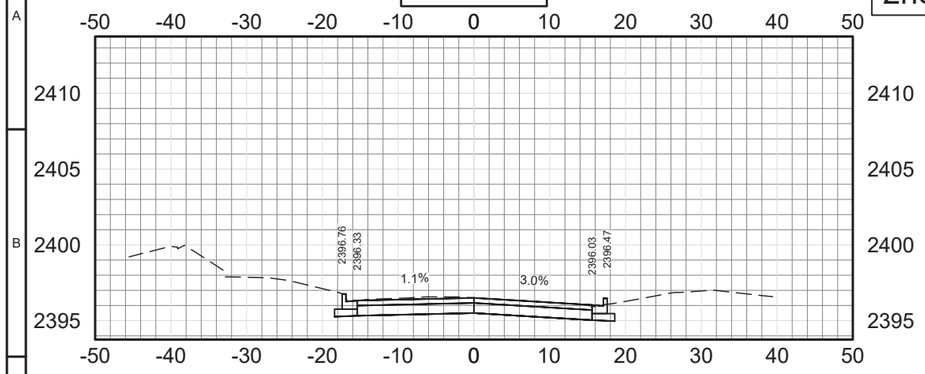
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-28

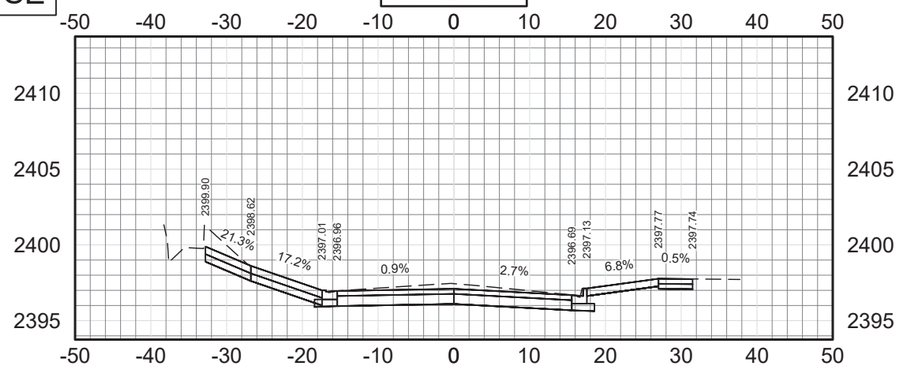
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2nd Ave SE

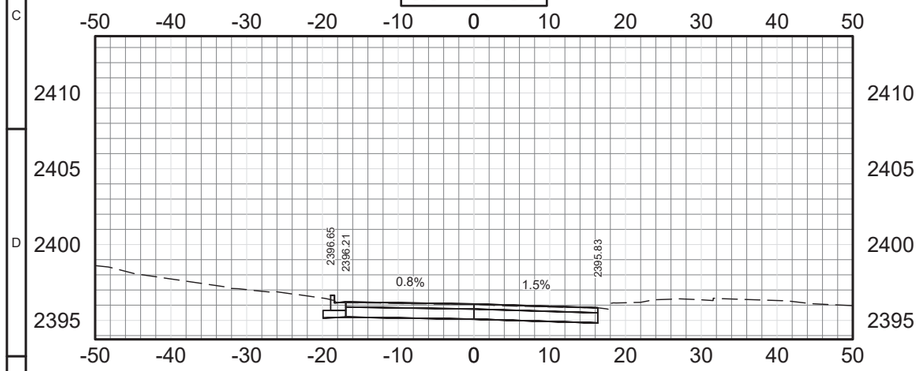
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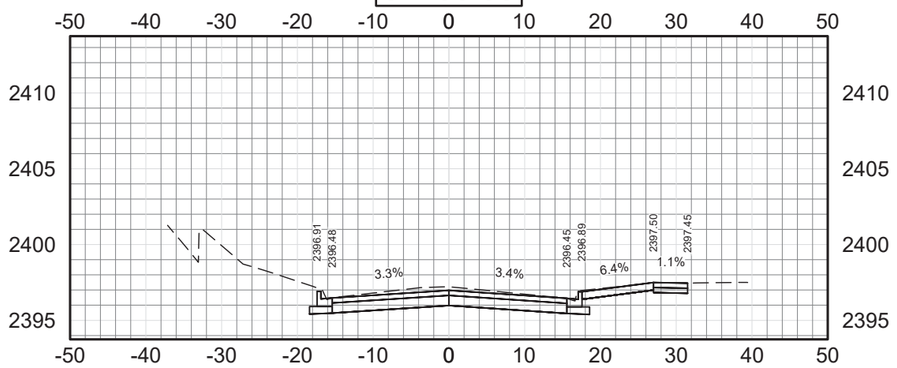
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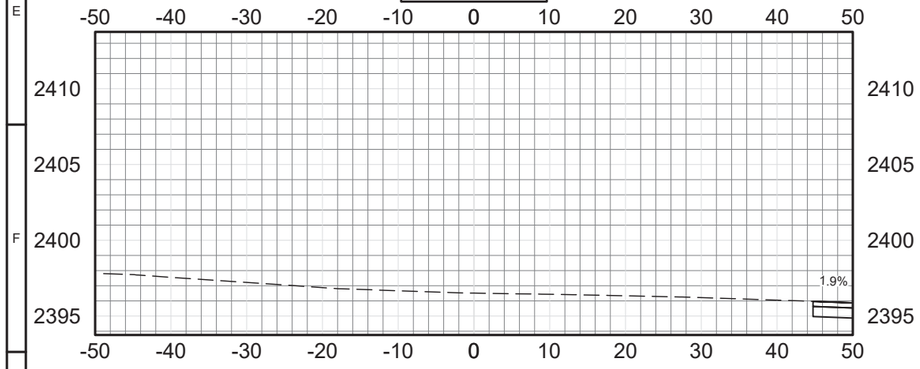
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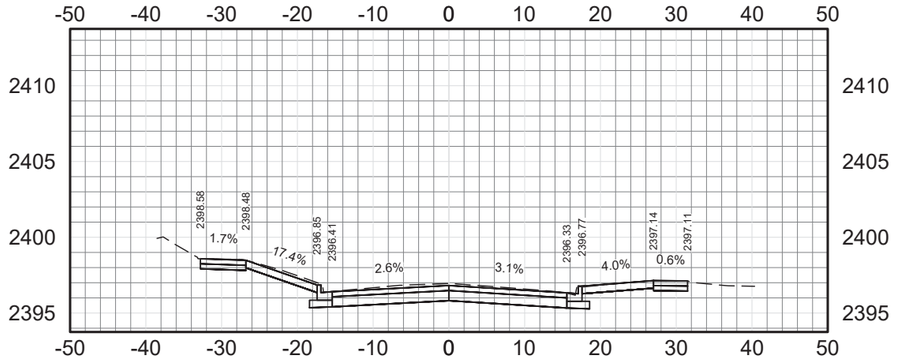
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50+00.00



50+75.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
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Office: 701-264-3939
www.apexenggroup.com

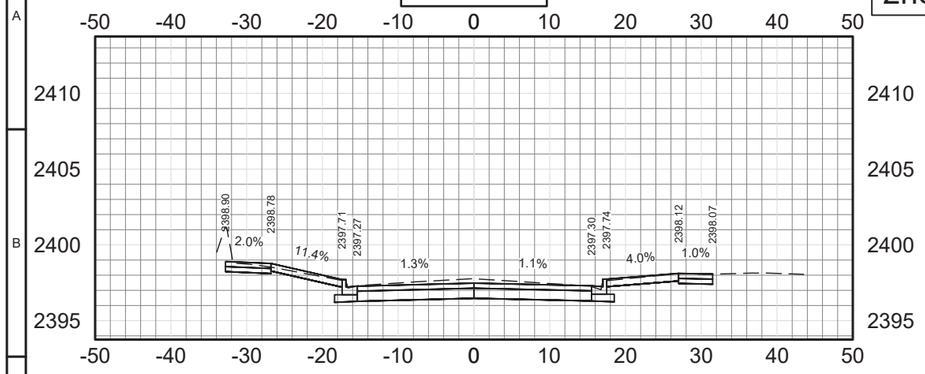
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-29

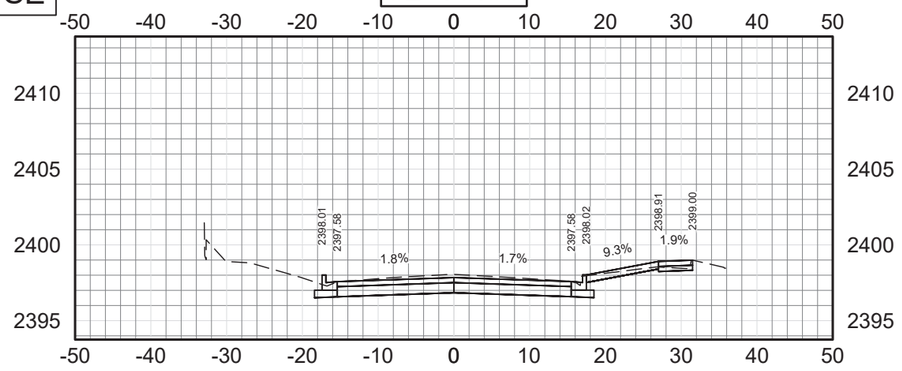
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2nd Ave SE

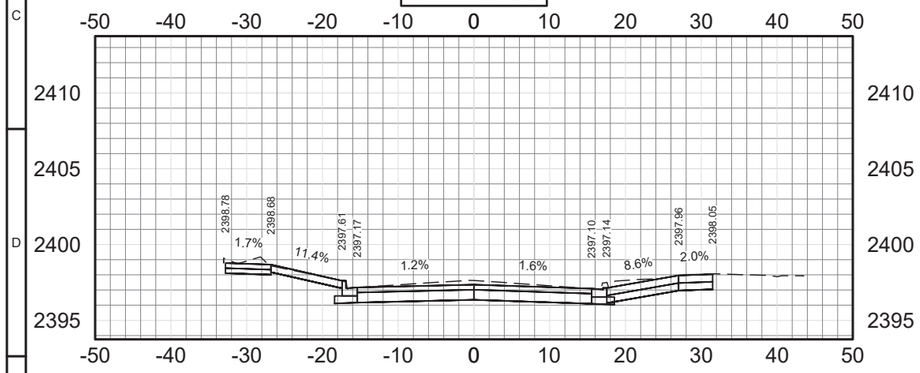
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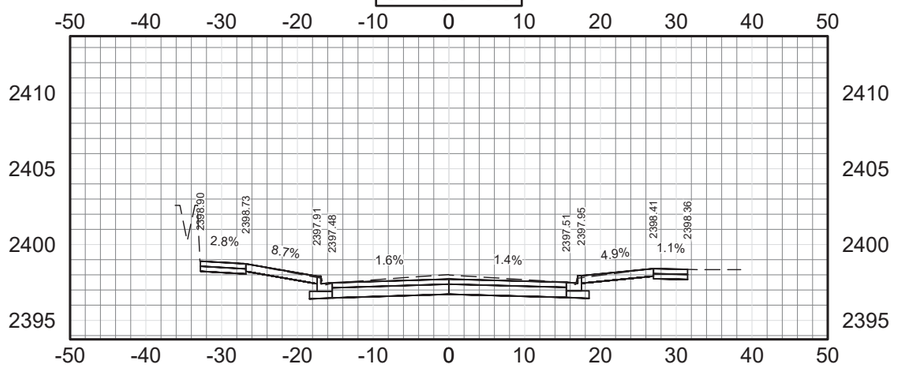
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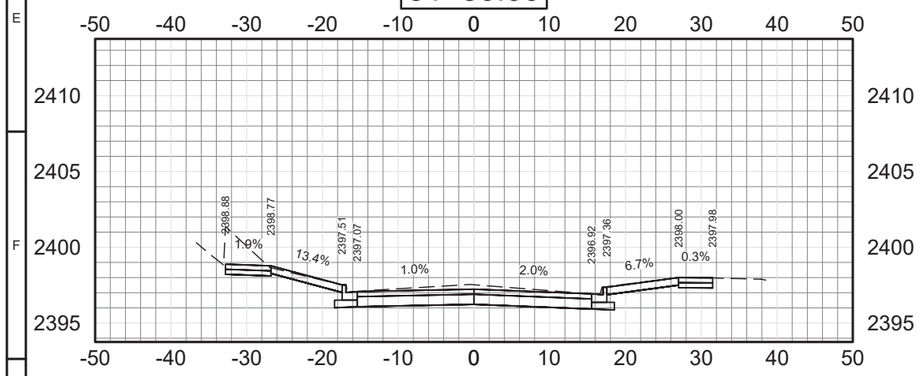
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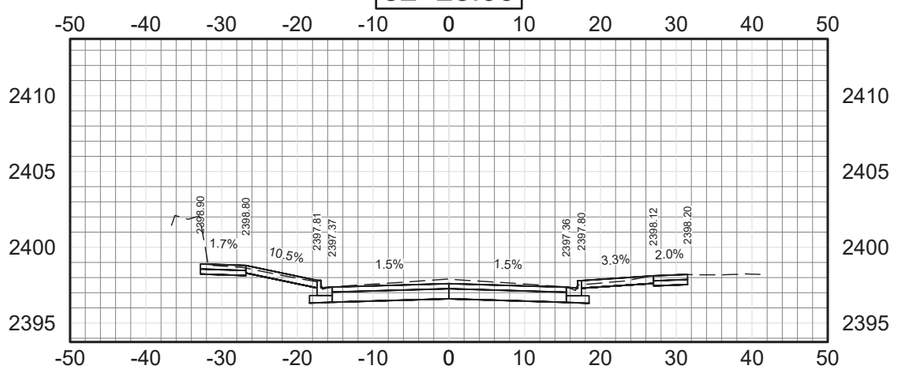
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51+50.00



52+25.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

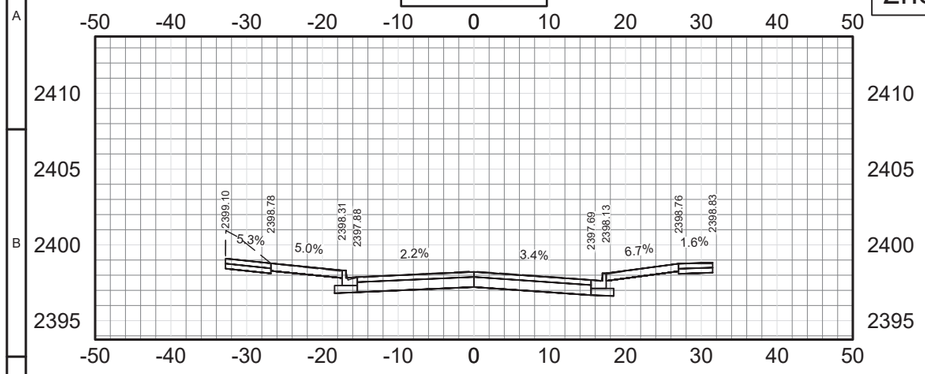
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

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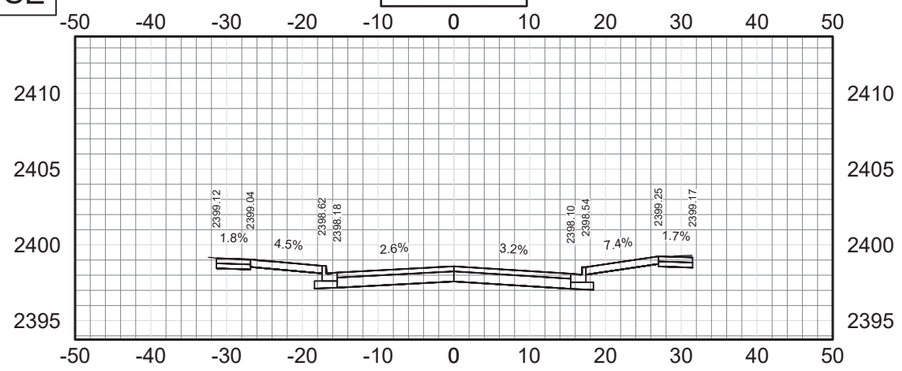
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2nd Ave SE

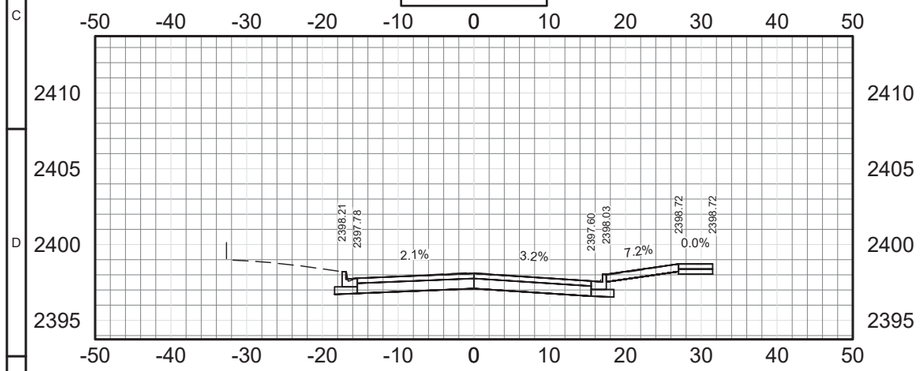
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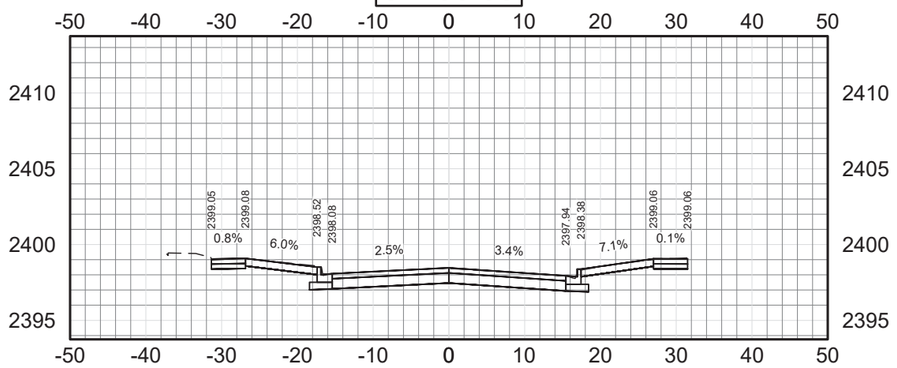
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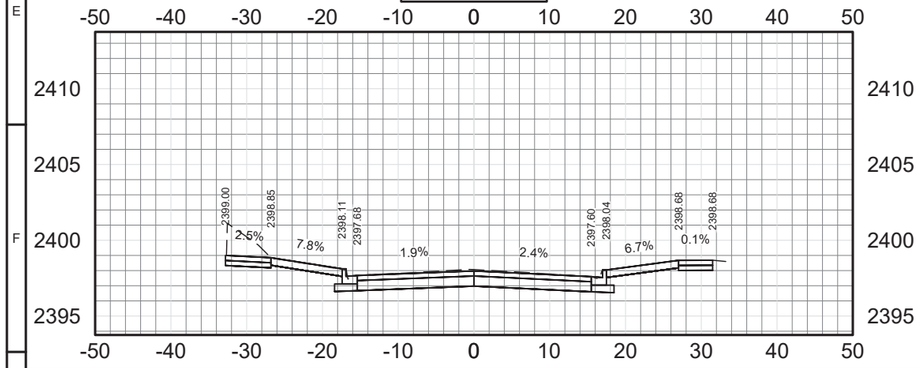
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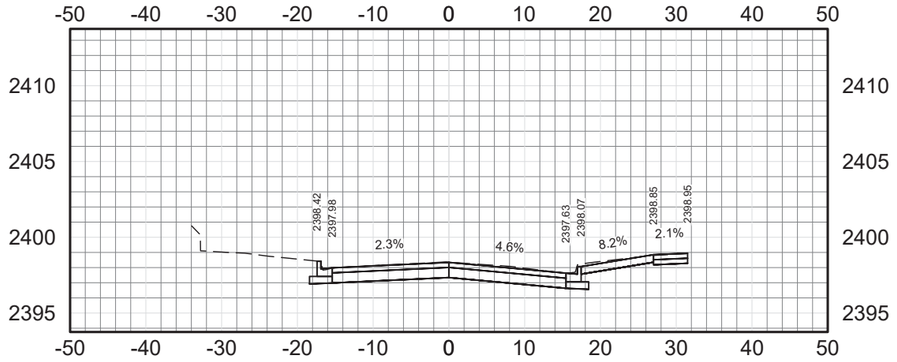
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53+00.00



53+75.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

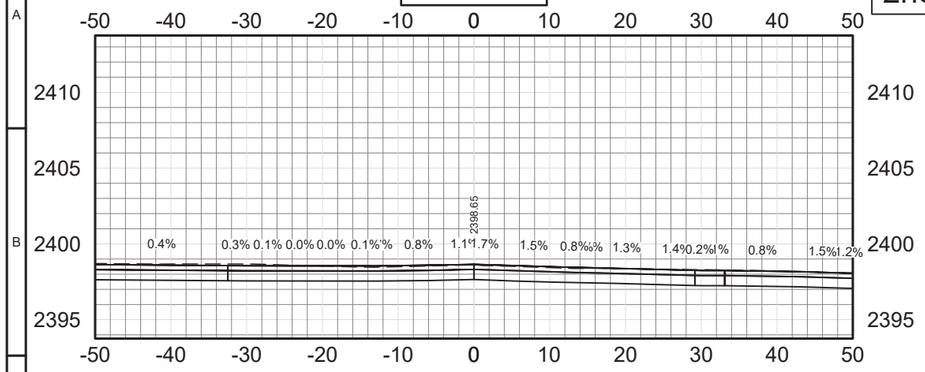
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-31

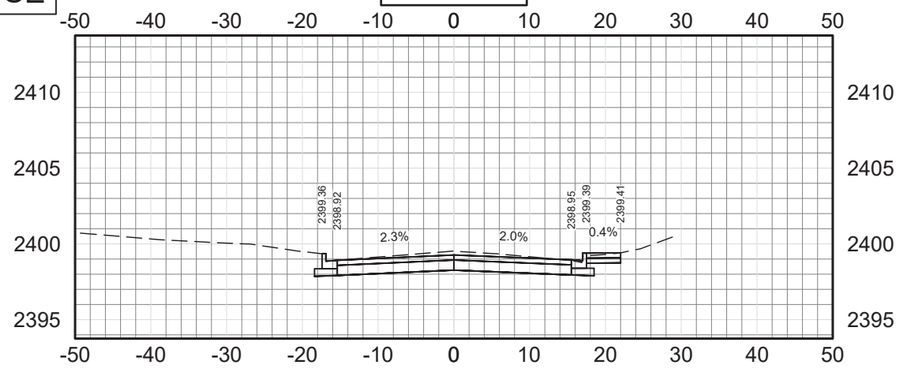
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2nd Ave SE

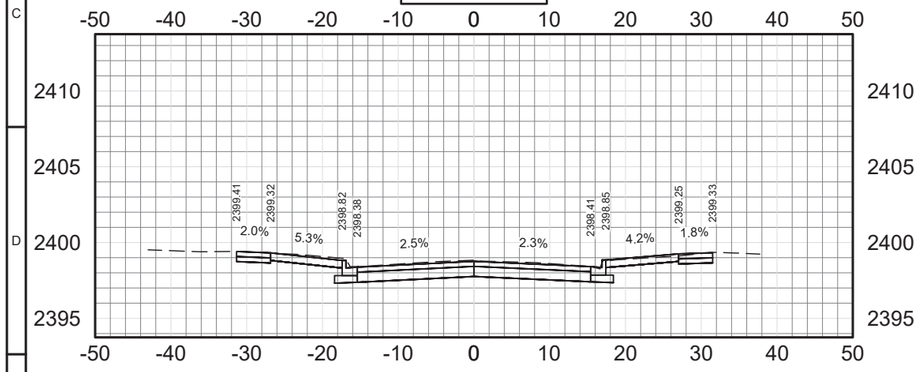
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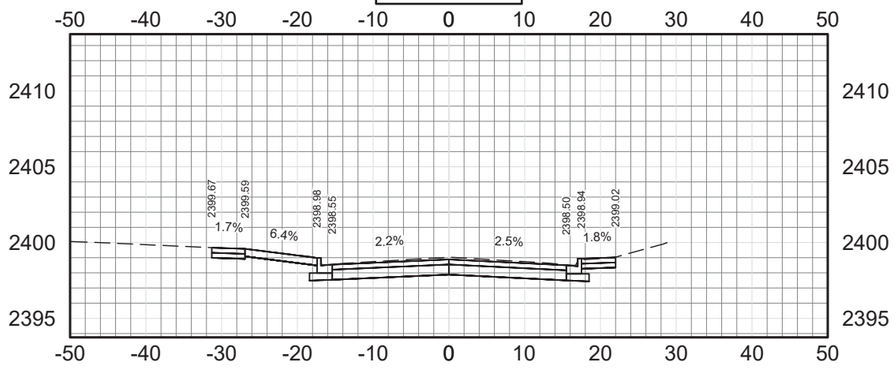
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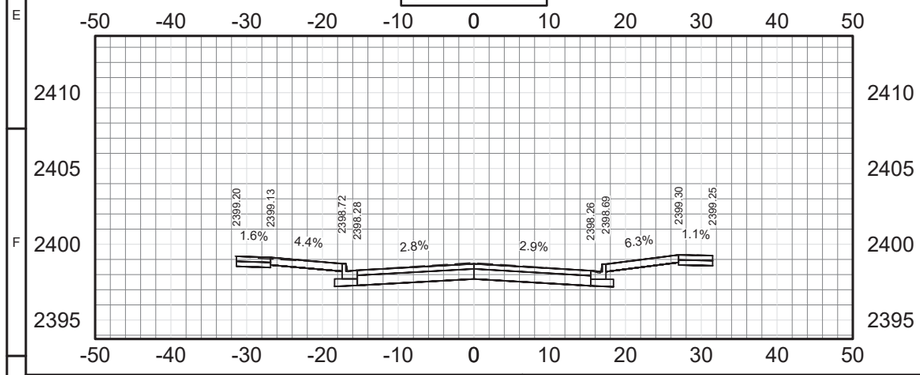
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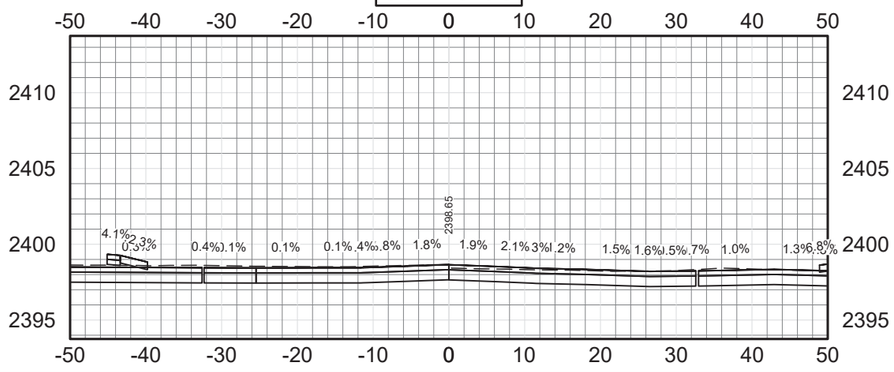
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54+50.00



55+25.00



REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

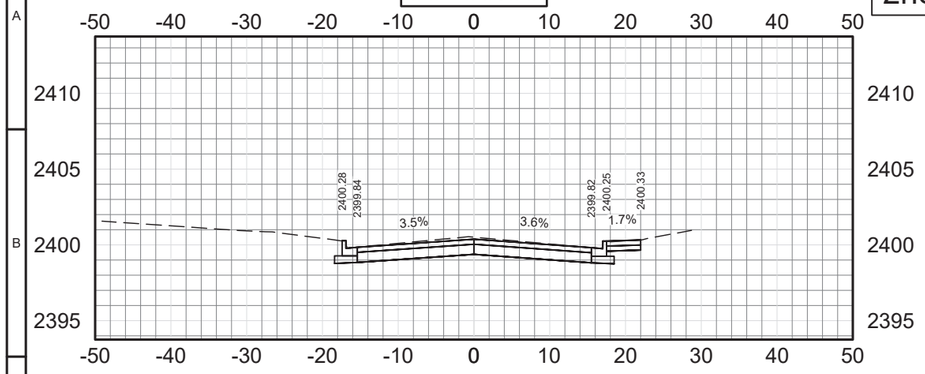
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Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-32

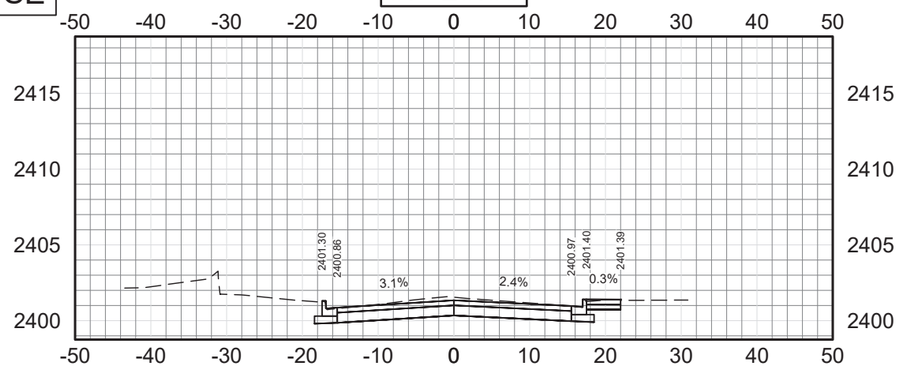
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2nd Ave SE

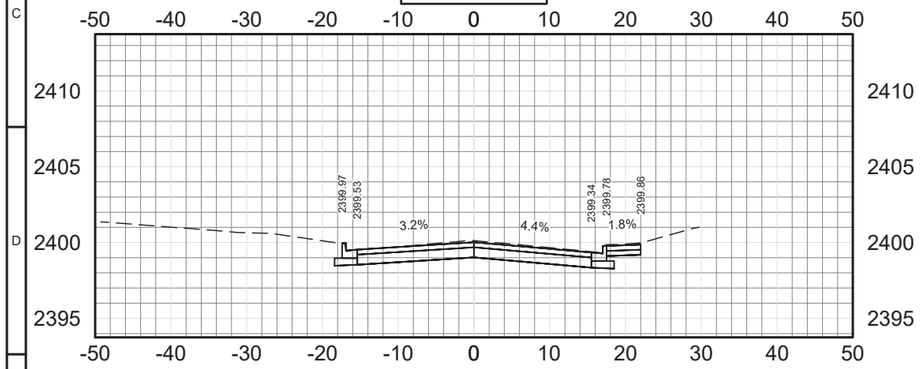
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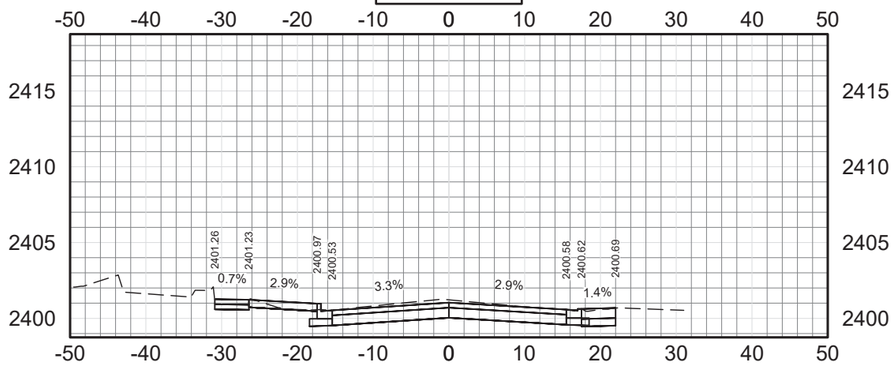
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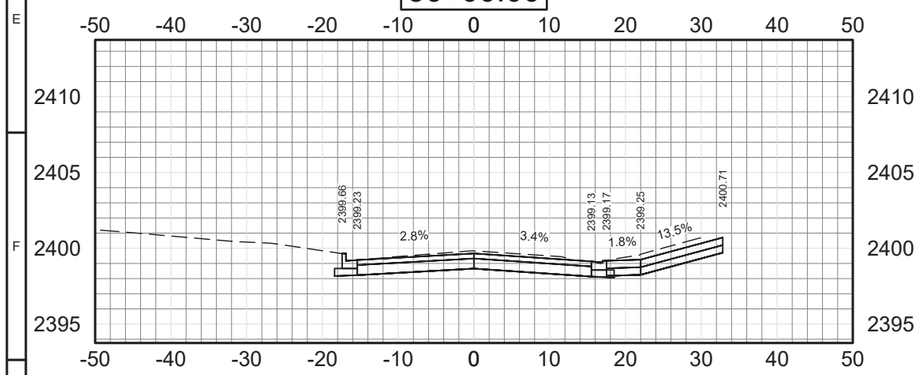
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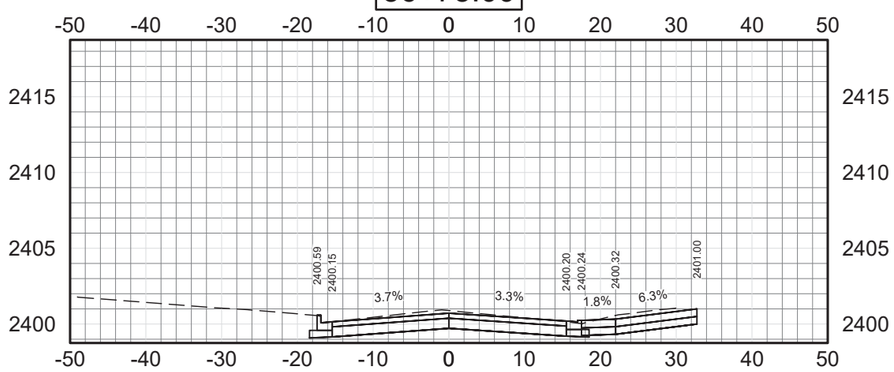
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56+00.00



56+75.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

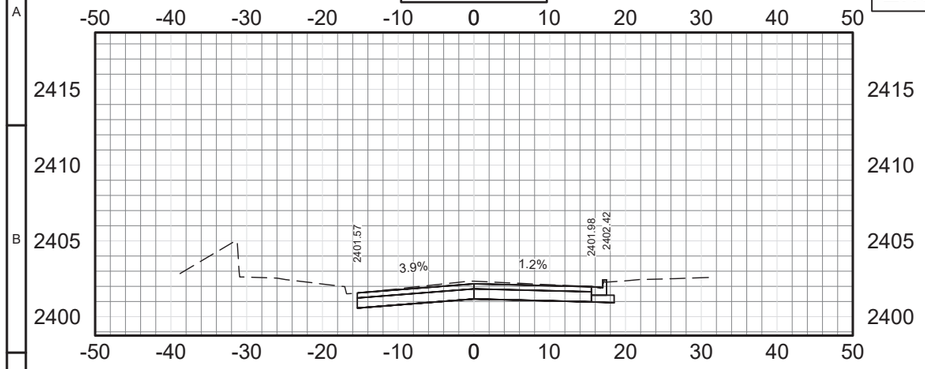
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-33

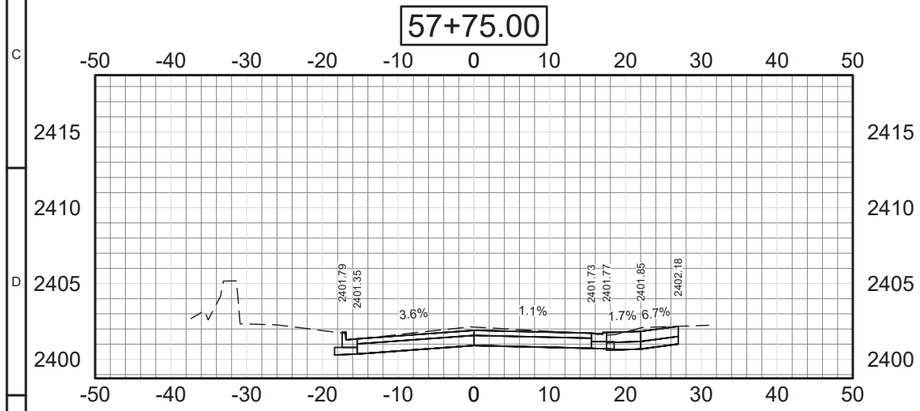
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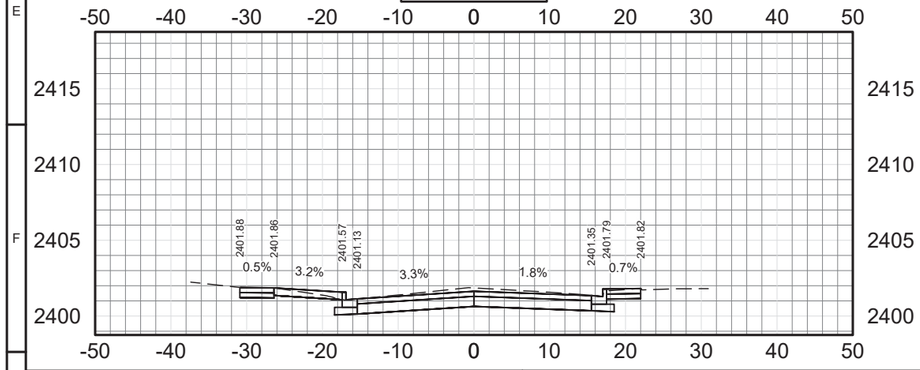


2nd Ave SE

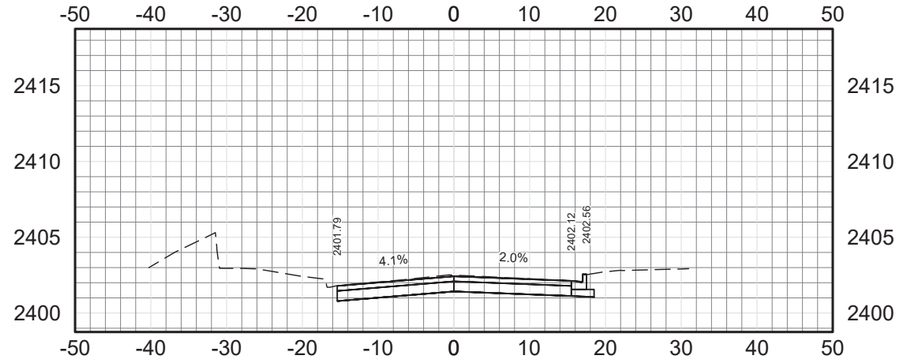
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57+50.00



58+25.00



REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

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Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
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Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

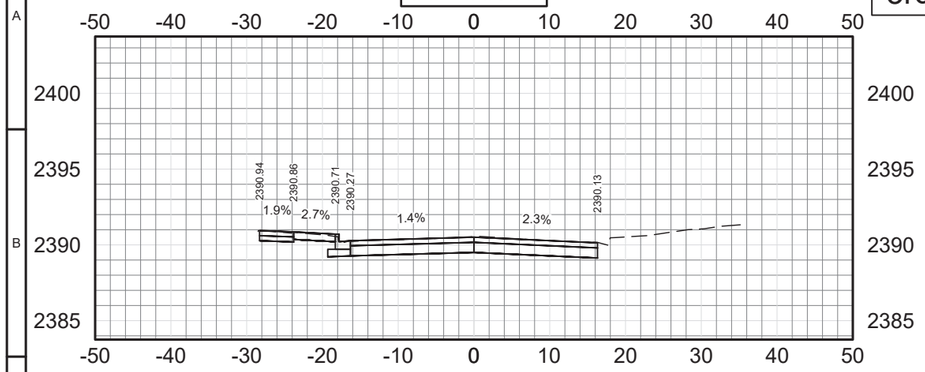
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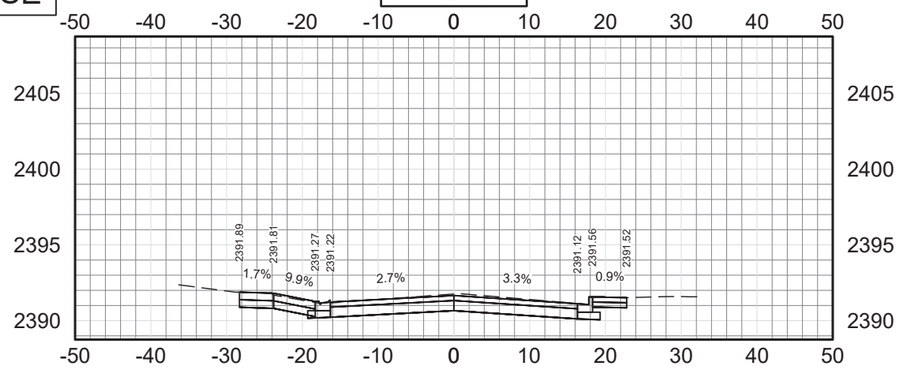
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3rd Ave SE

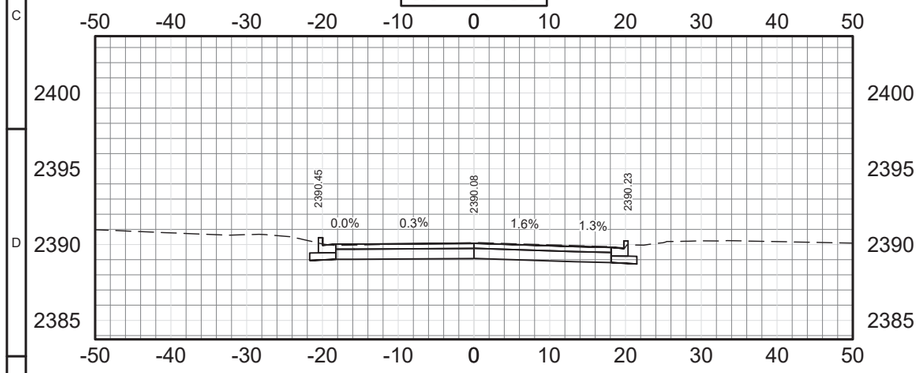
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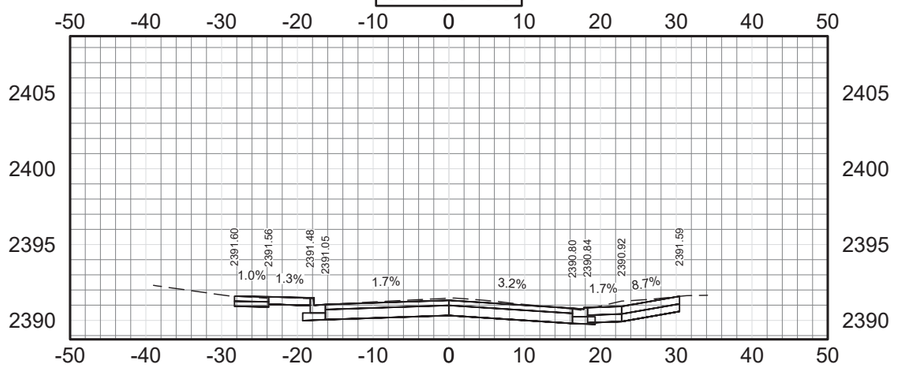
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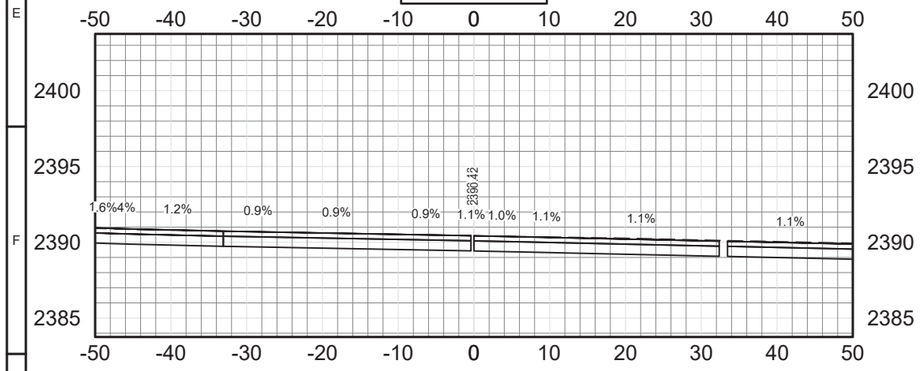
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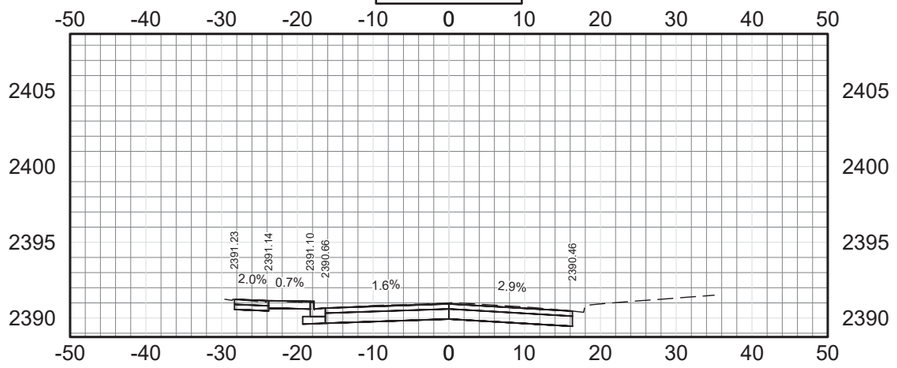
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60+00.00



60+75.00



REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

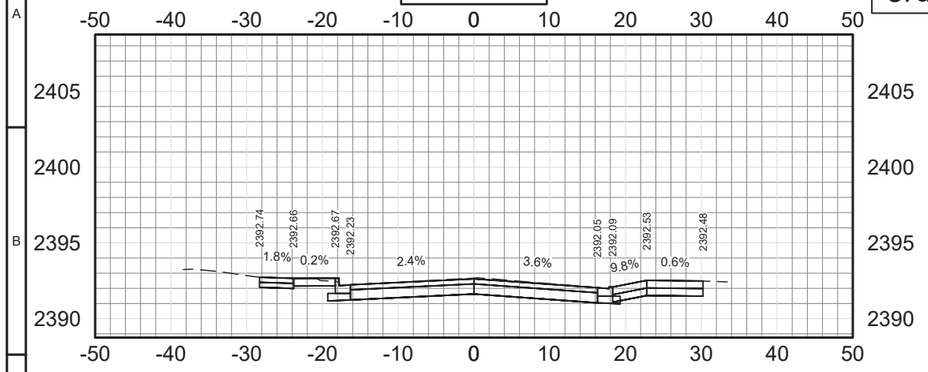
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-35

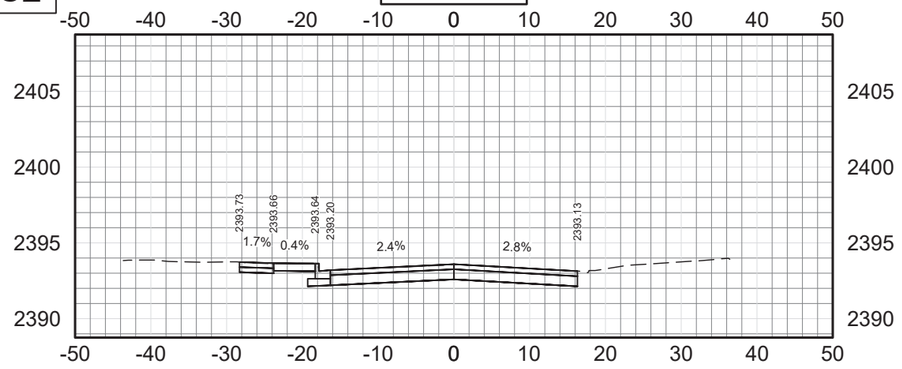
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3rd Ave SE

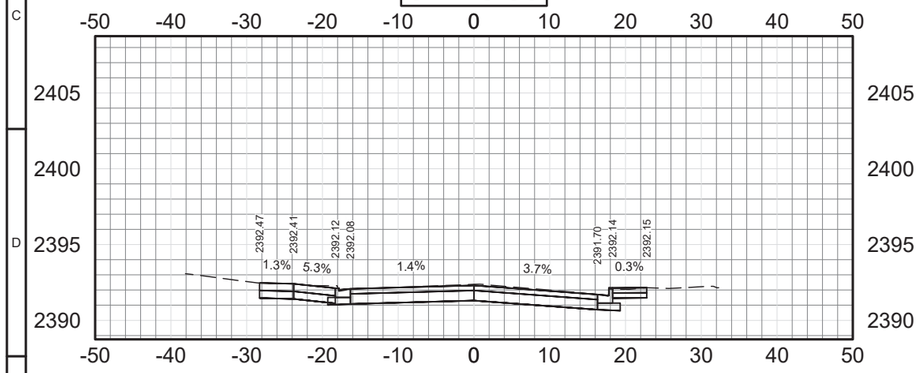
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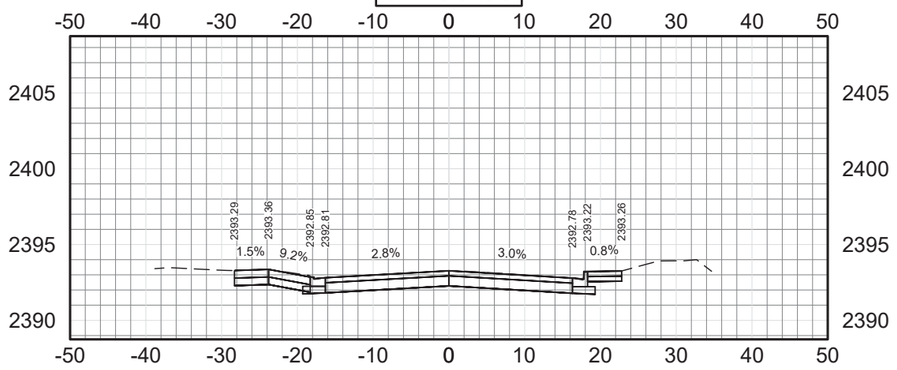
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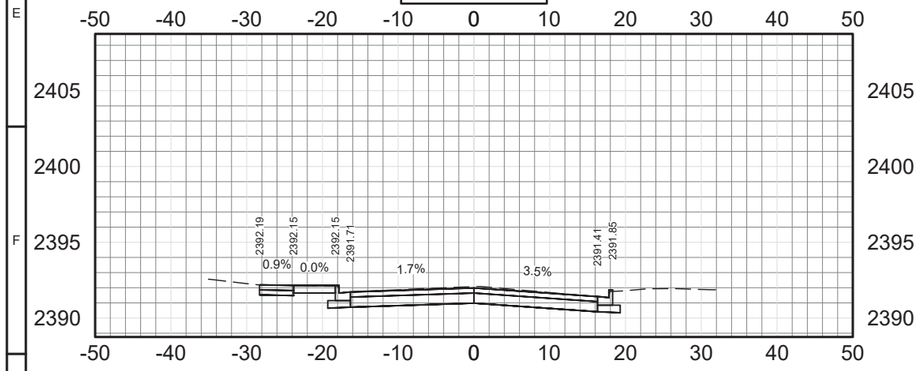
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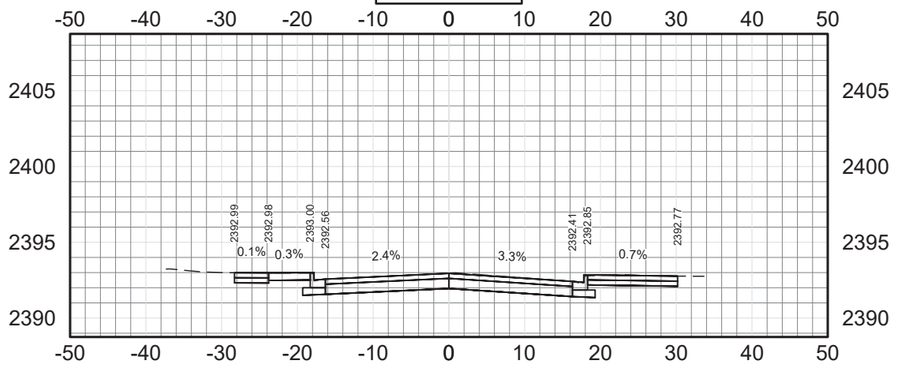
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61+50.00



62+25.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

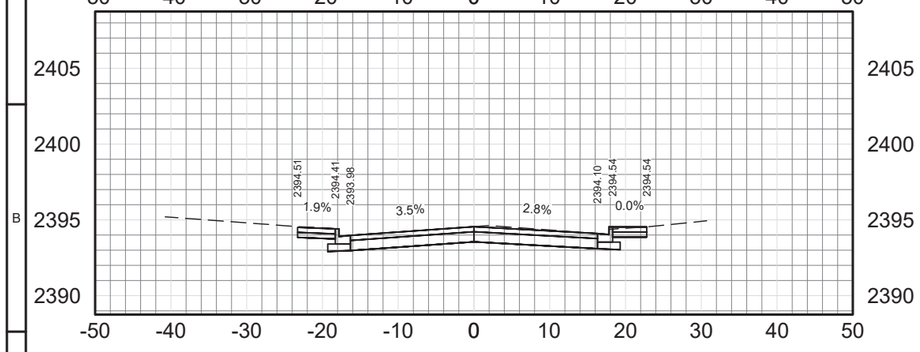
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-36

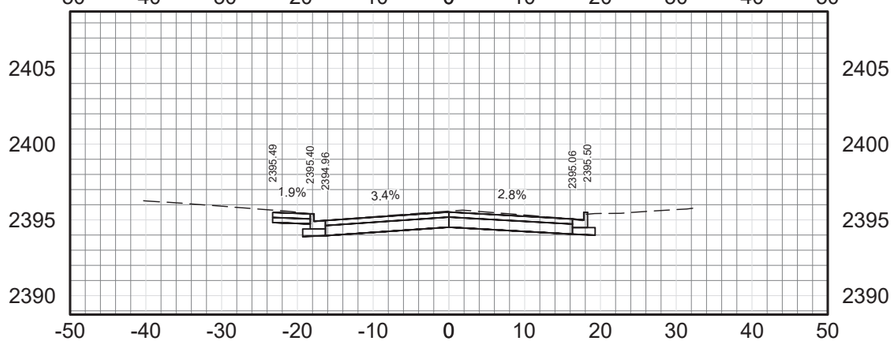
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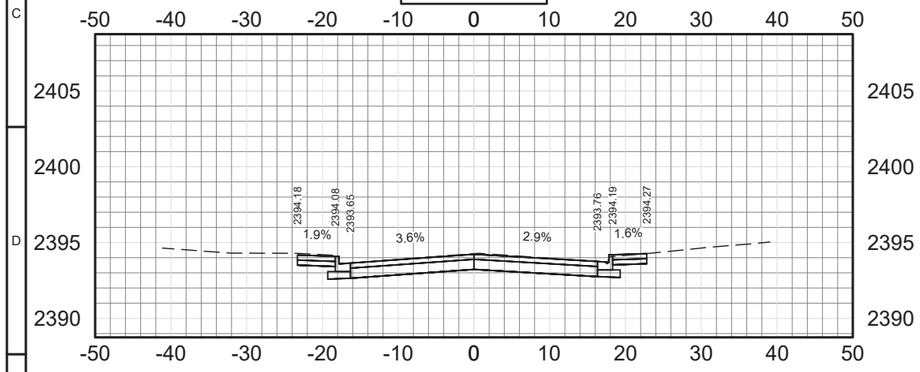


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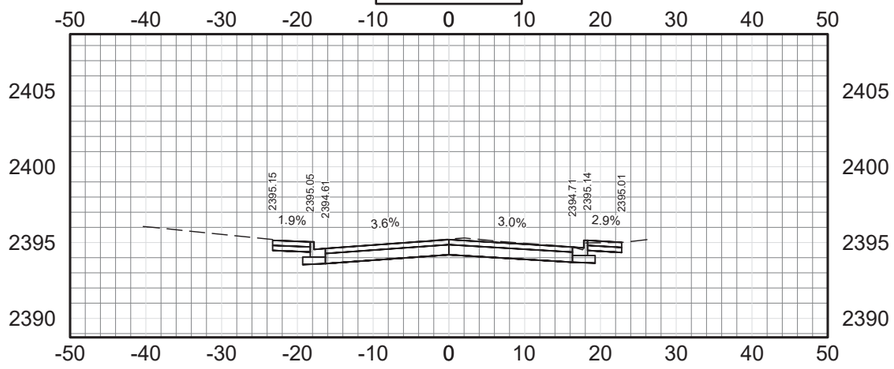
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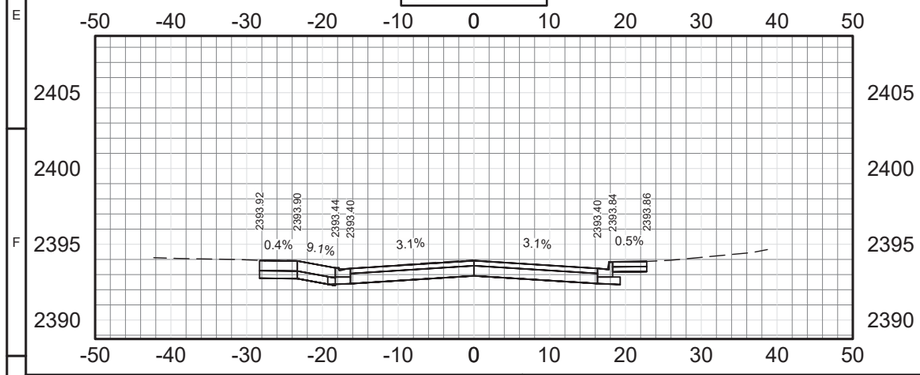
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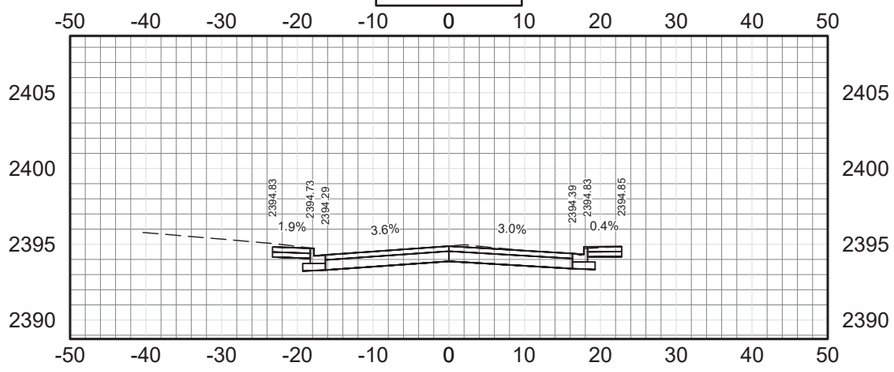
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63+00.00



63+75.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
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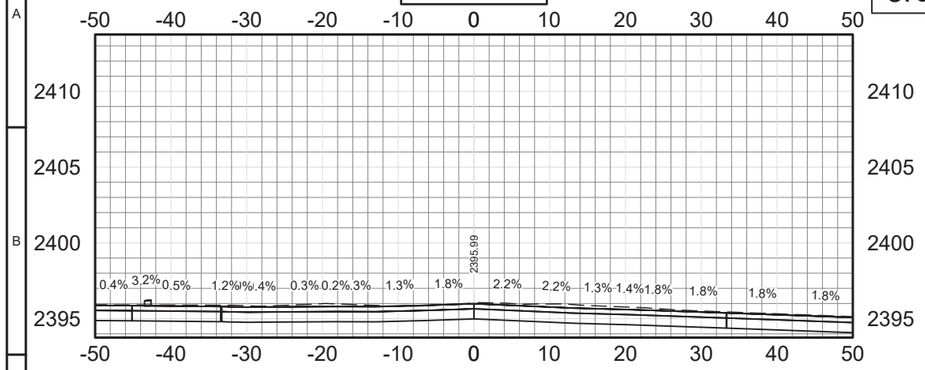
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-37

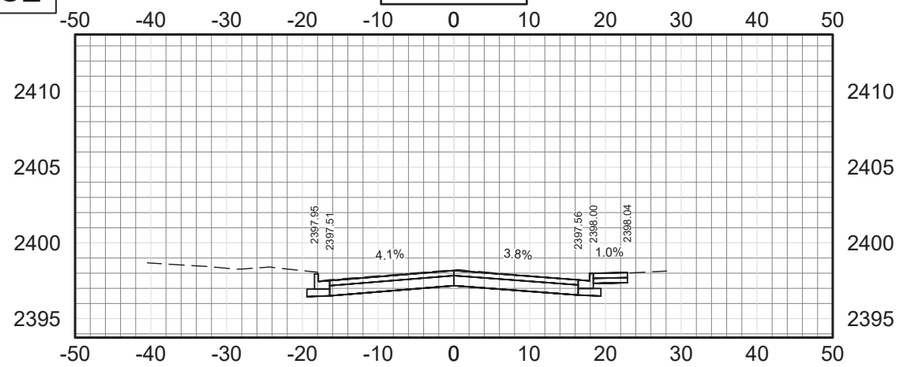
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3rd Ave SE

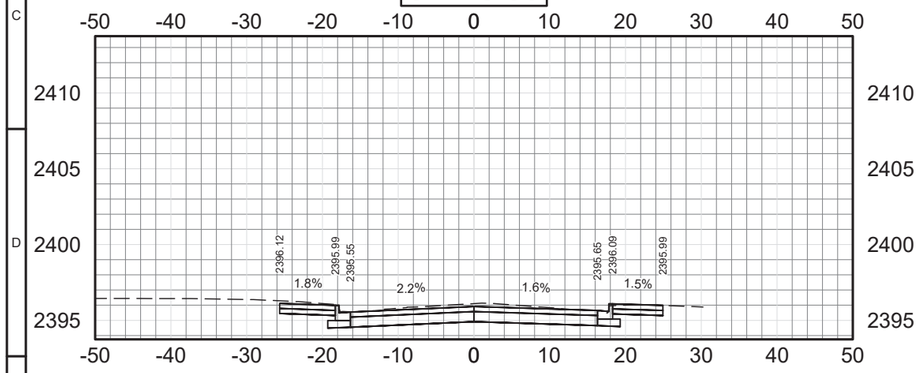
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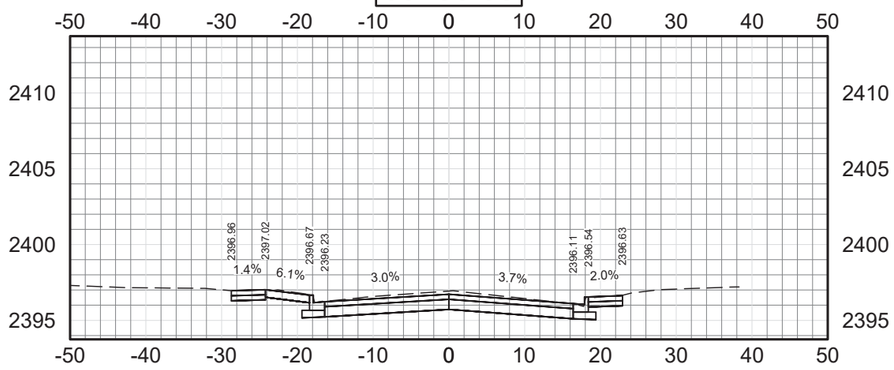
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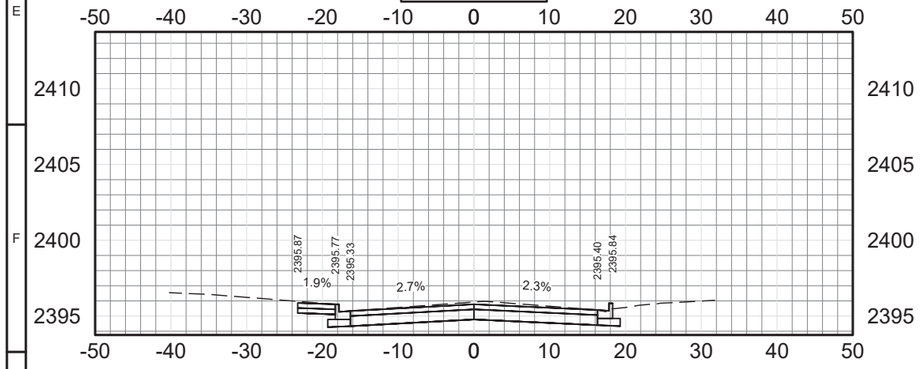
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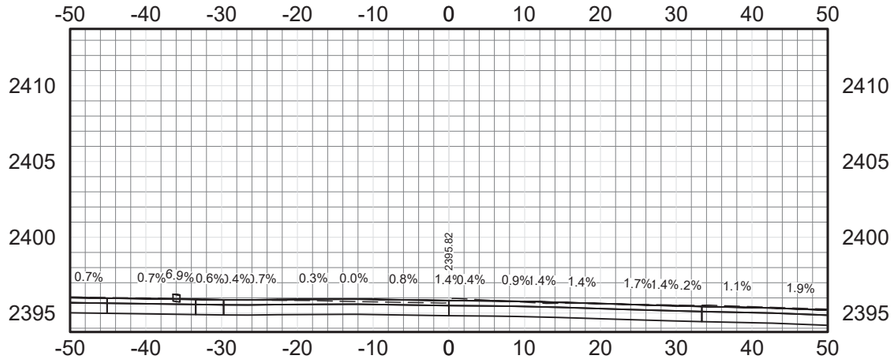
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65+25.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
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www.apexenggroup.com

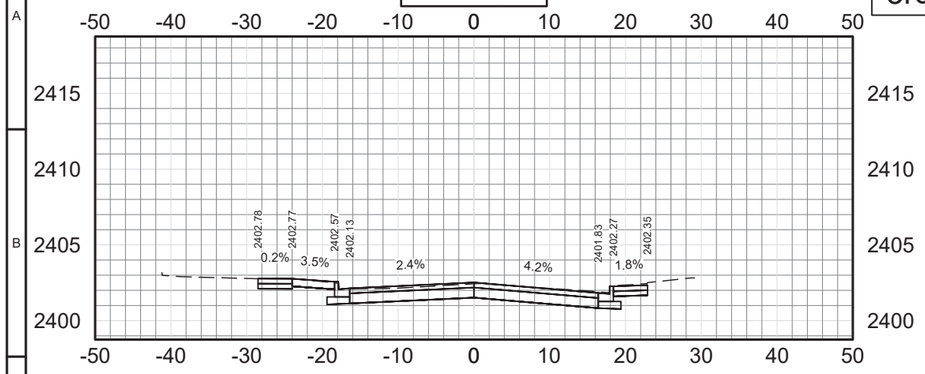
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

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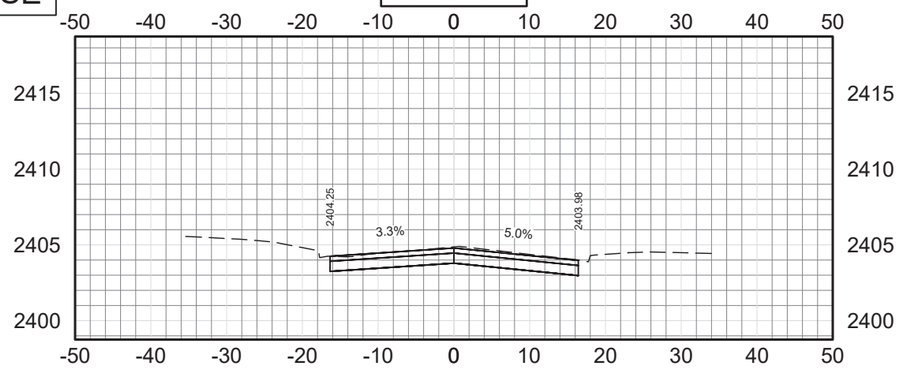
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3rd Ave SE

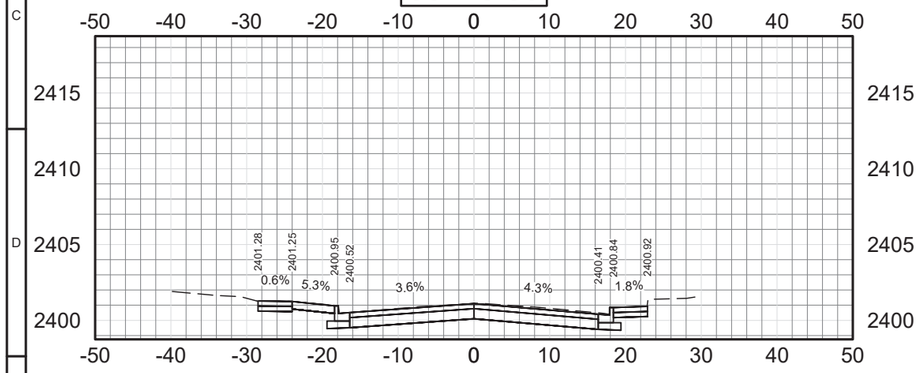
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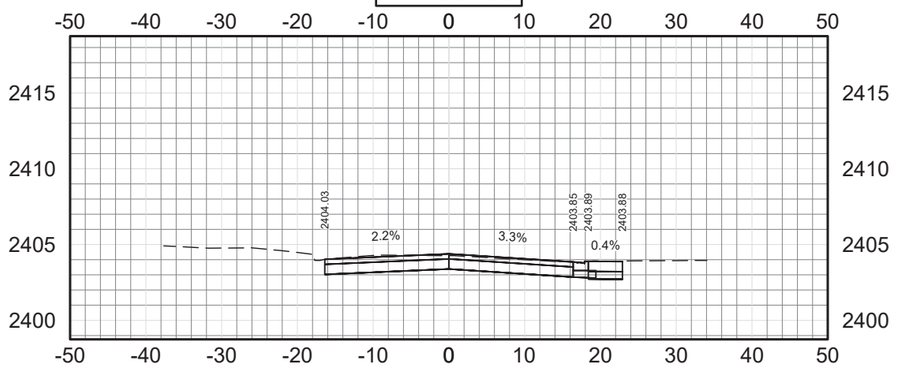
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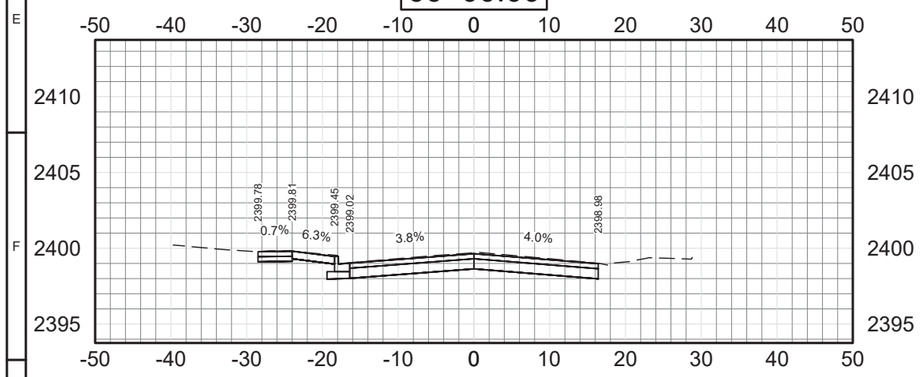
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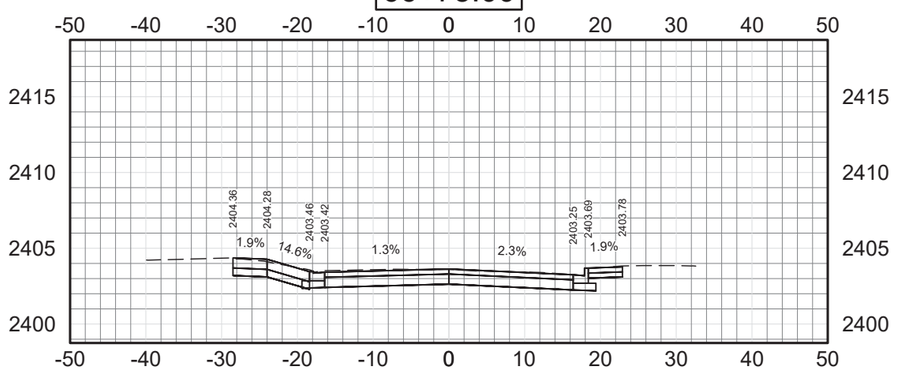
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66+00.00



66+75.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

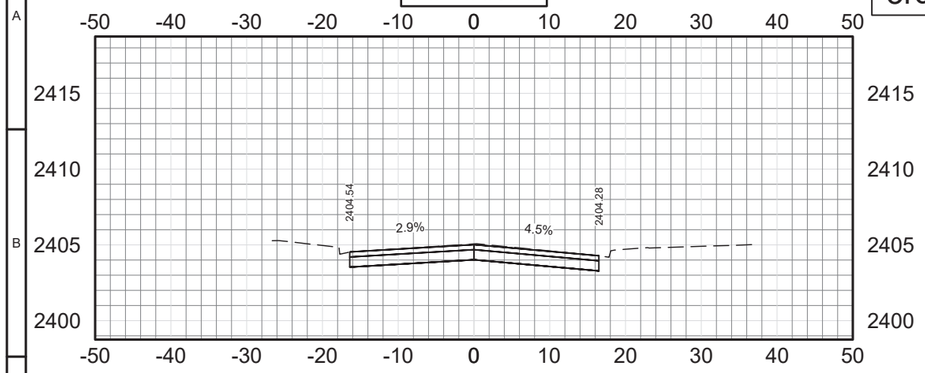
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Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

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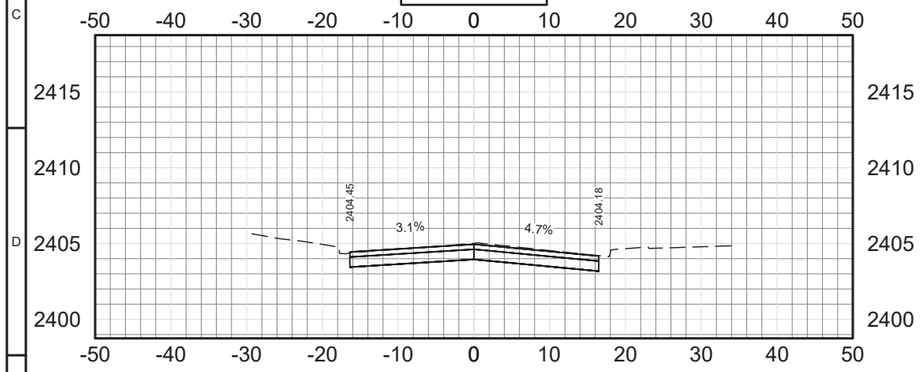
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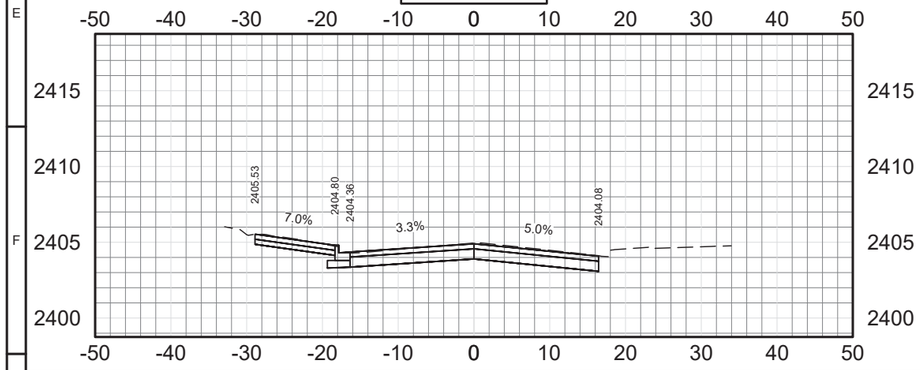
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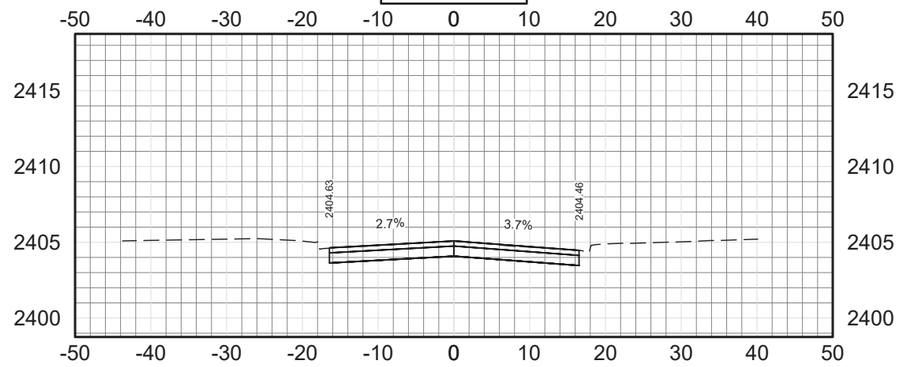
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67+50.00



68+25.00



REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

Apex Engineering Group

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Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

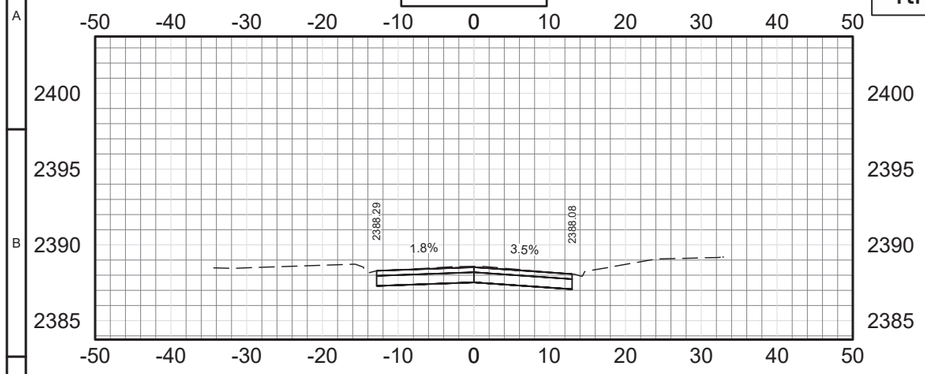
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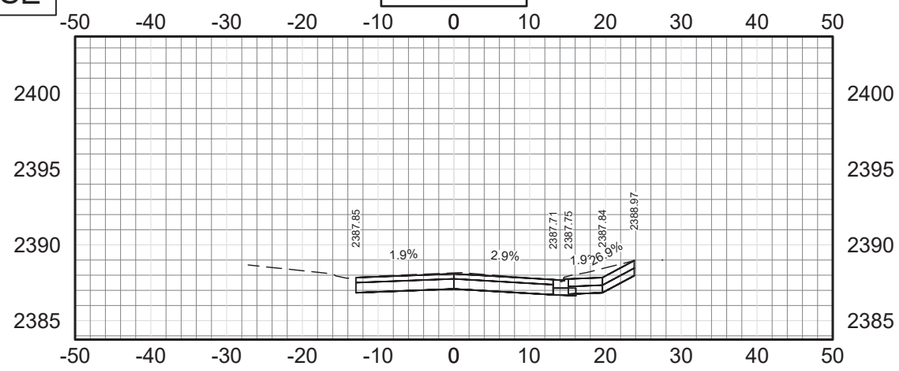
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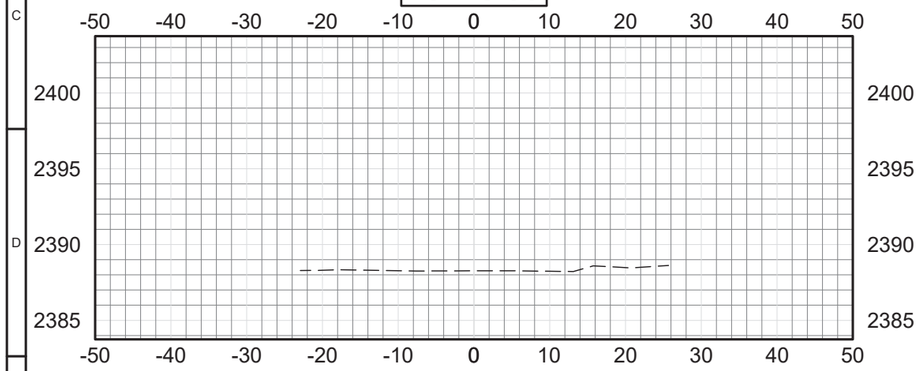
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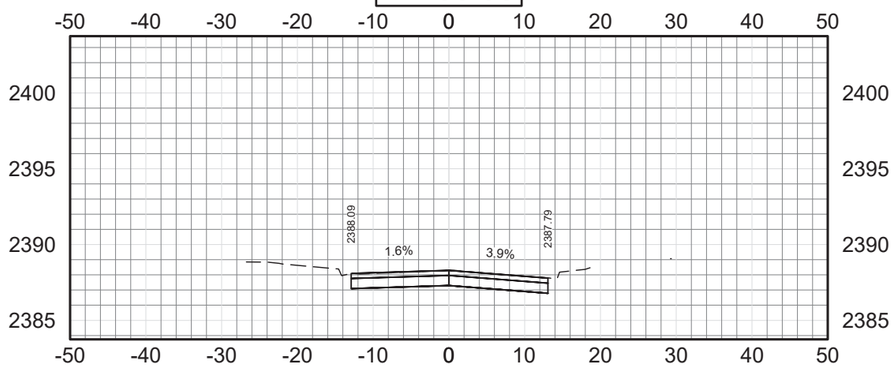
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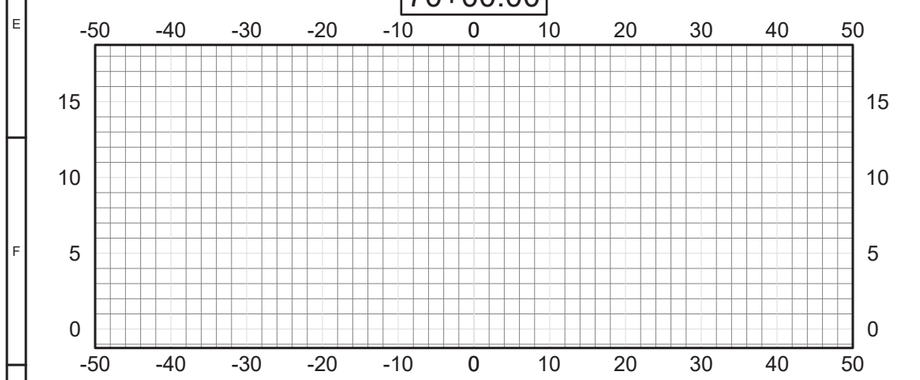
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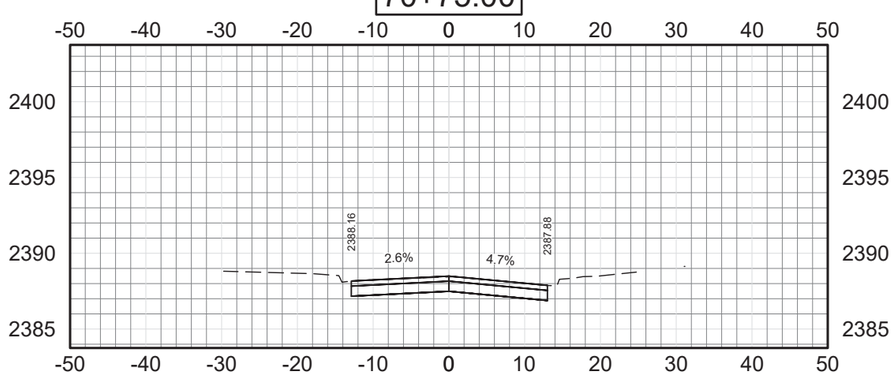
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REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

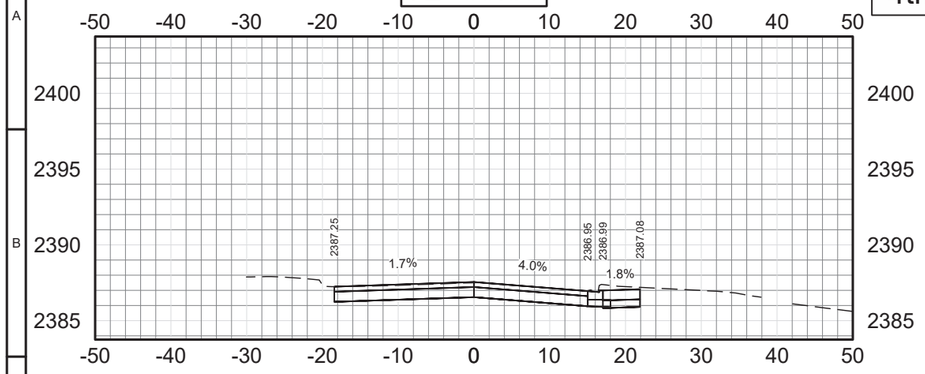
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-41

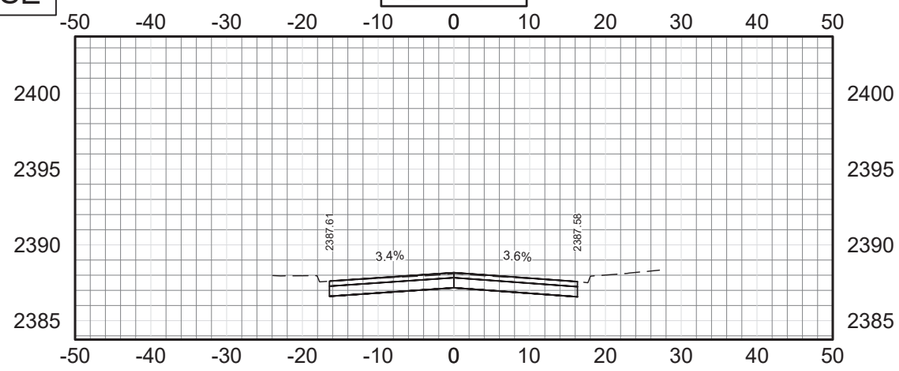
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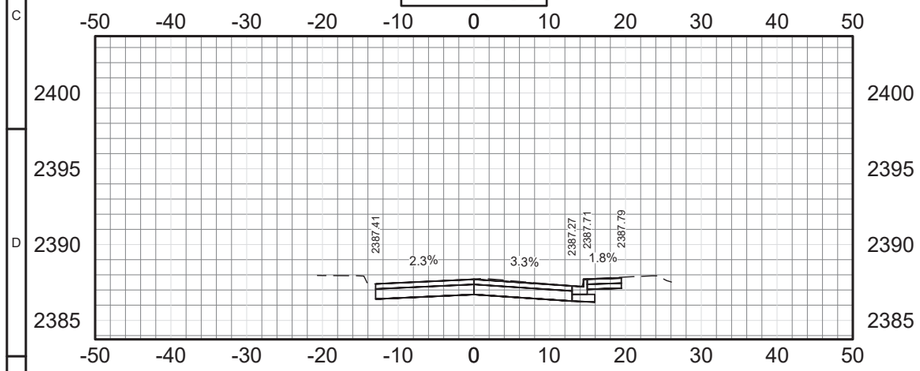


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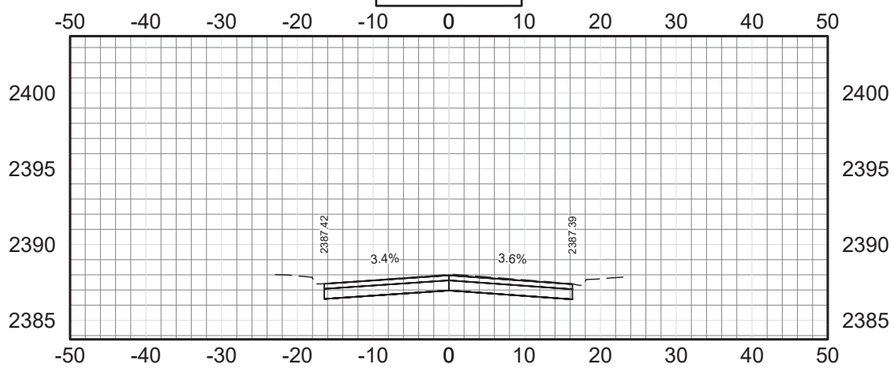
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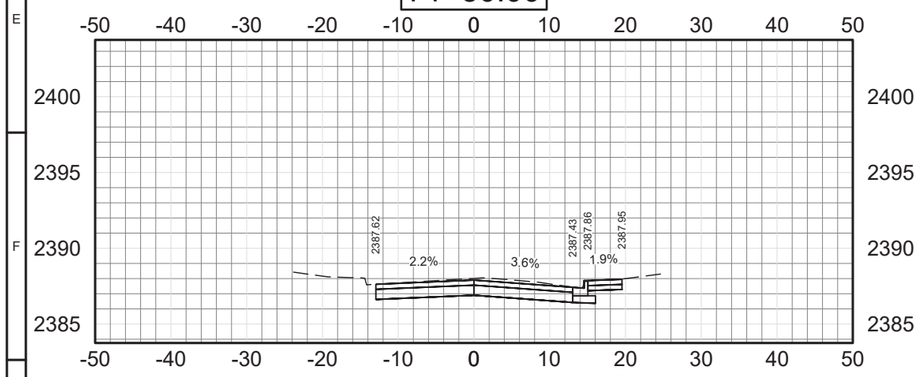
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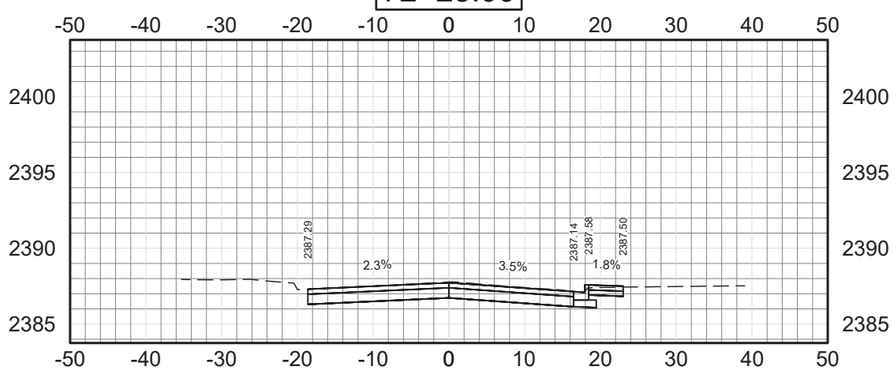
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71+50.00



72+25.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

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Office: 701-264-3939
www.apexenggroup.com

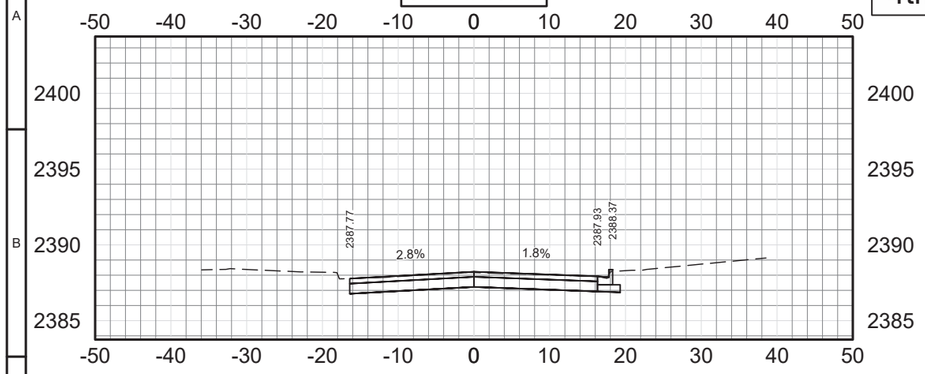
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-42

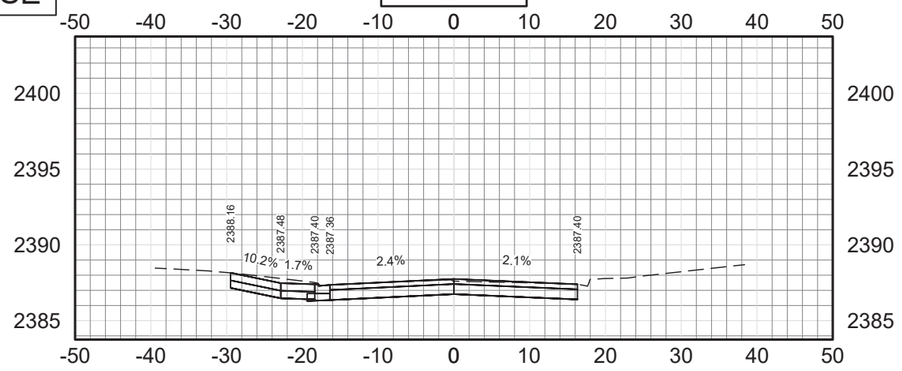
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4th Ave SE

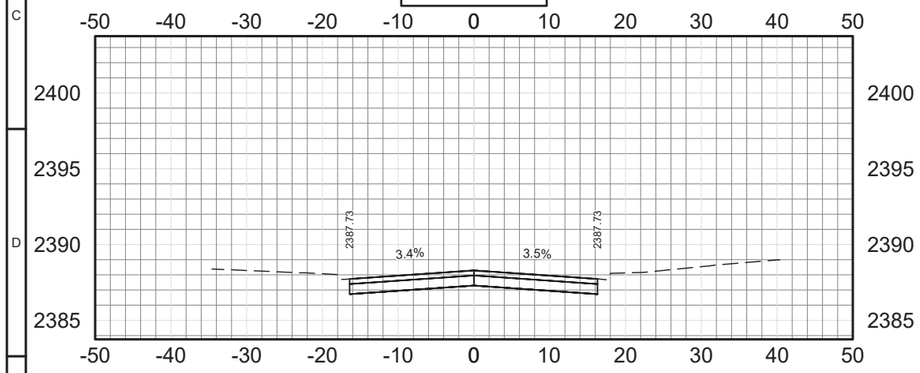
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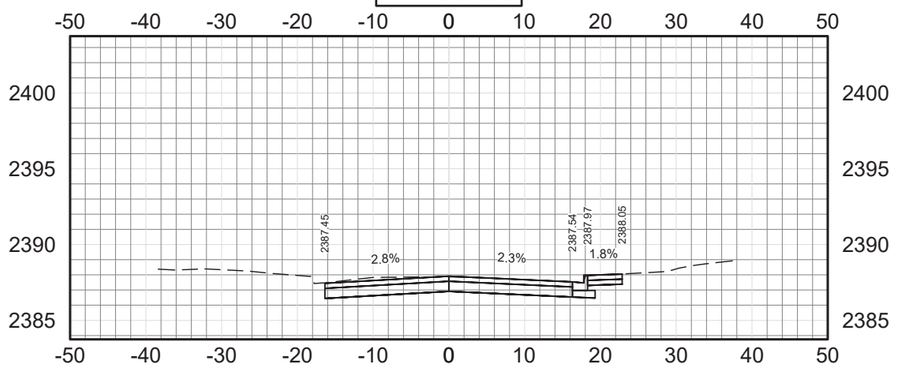
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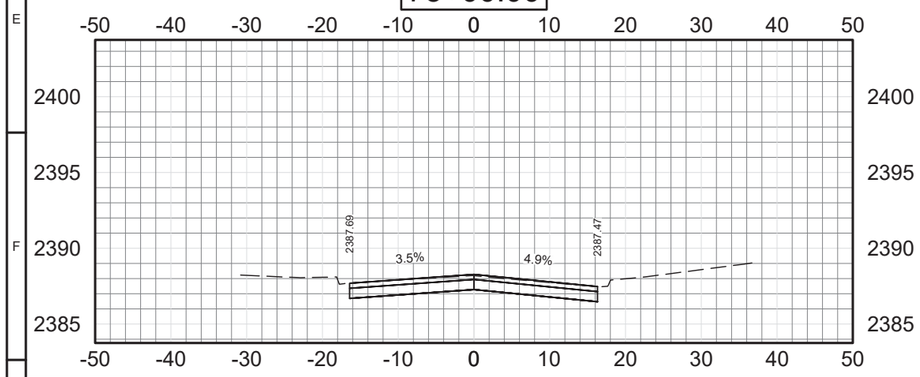
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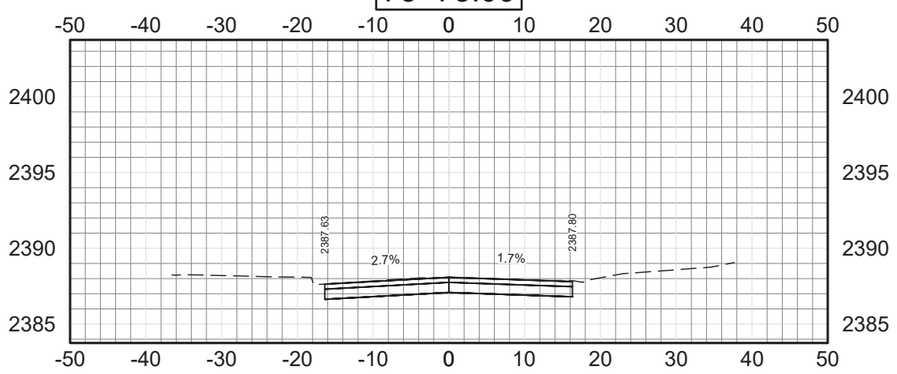
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73+00.00



73+75.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

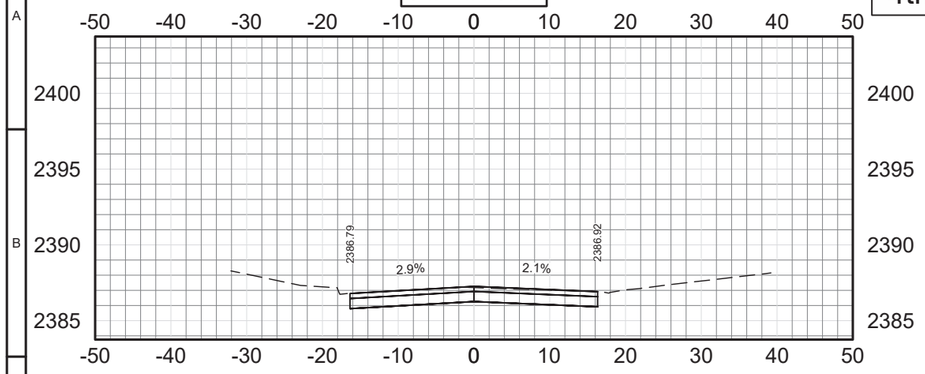
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
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Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-43

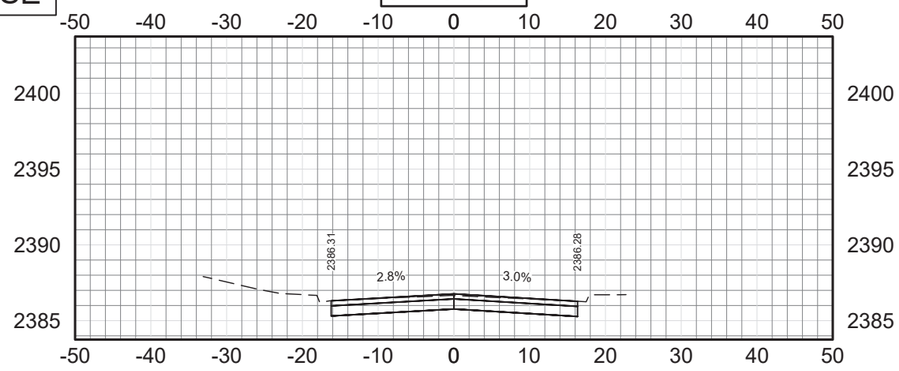
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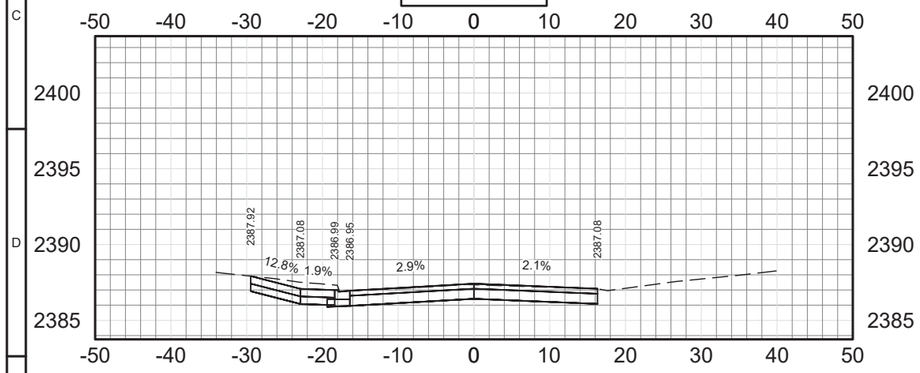


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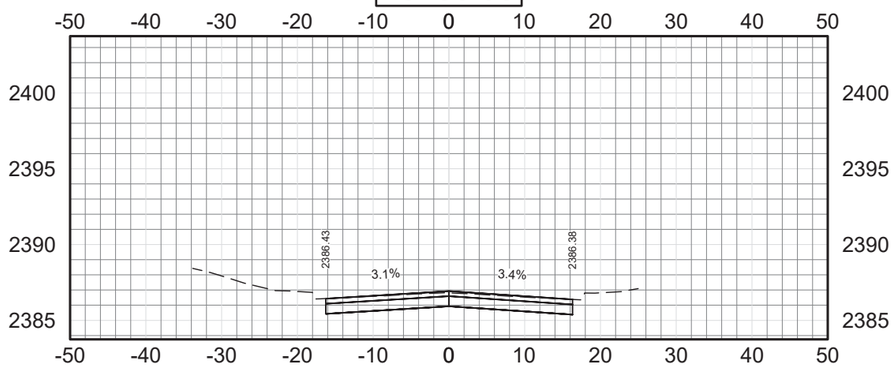
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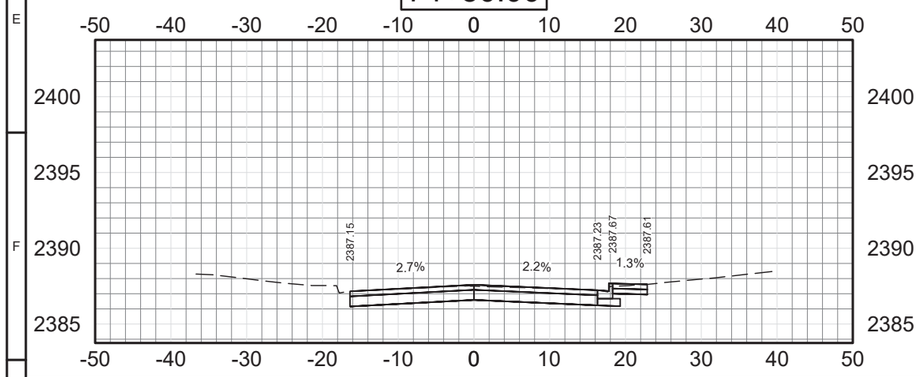
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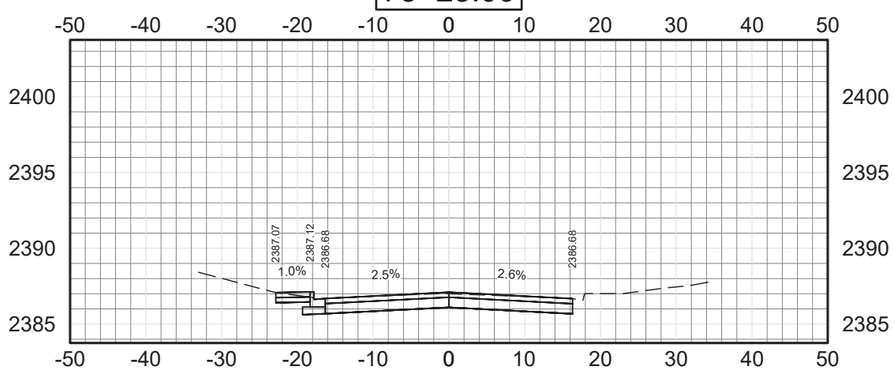
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74+50.00



75+25.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

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Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

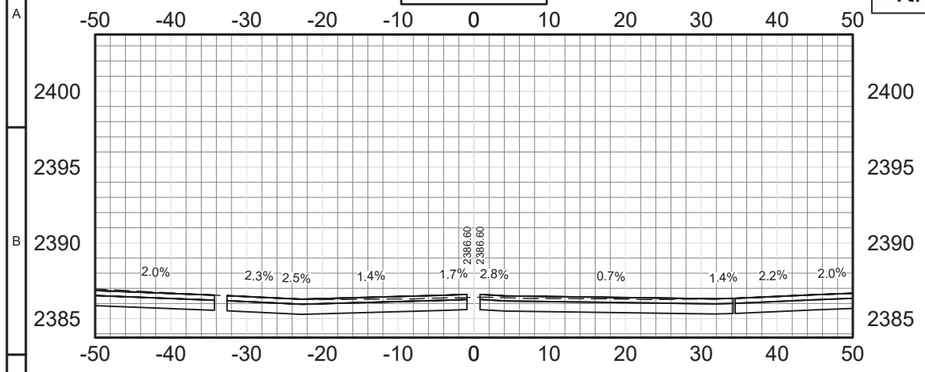
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-44

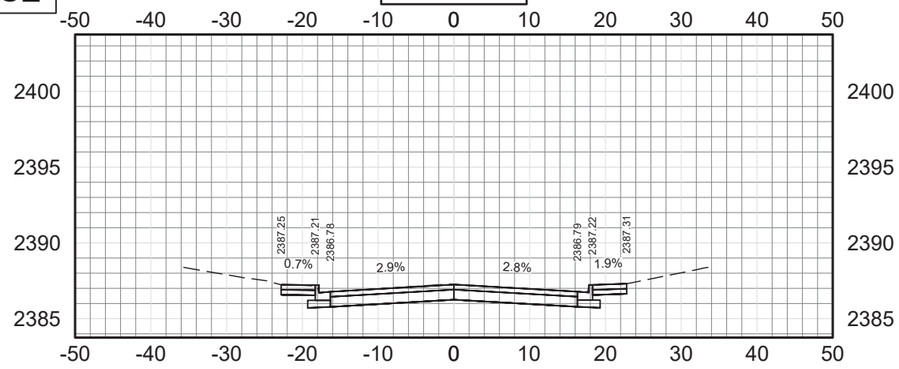
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4th Ave SE

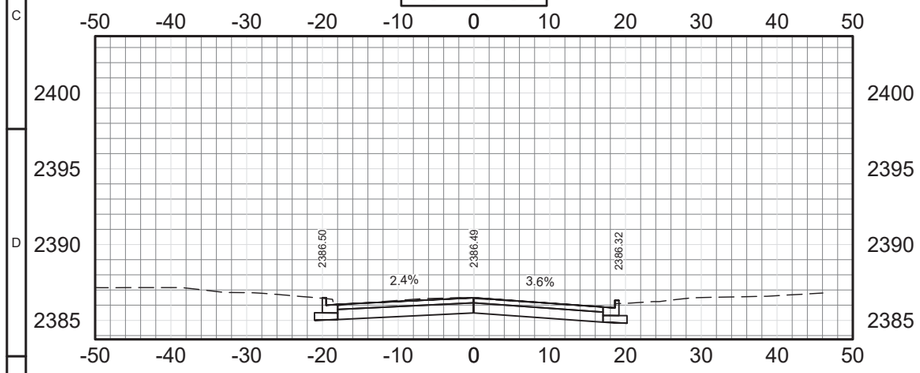
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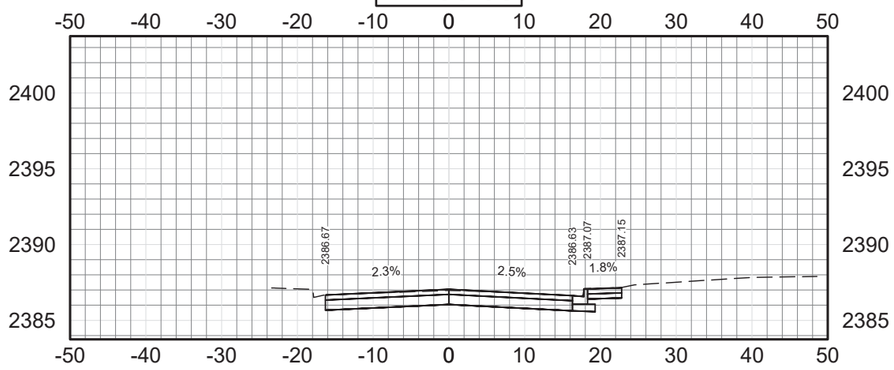
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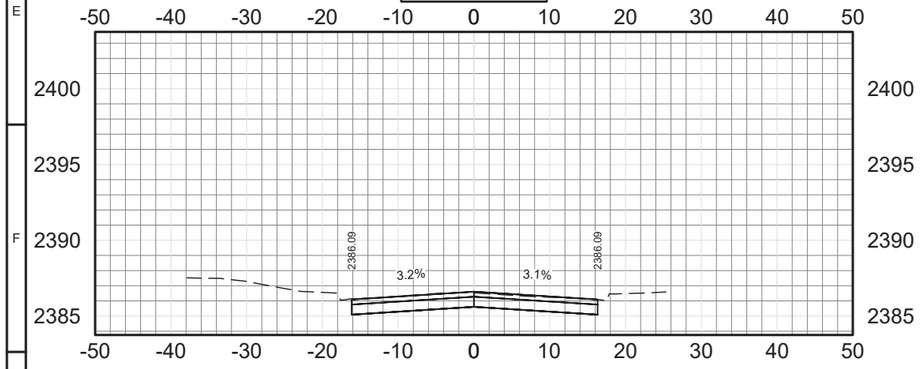
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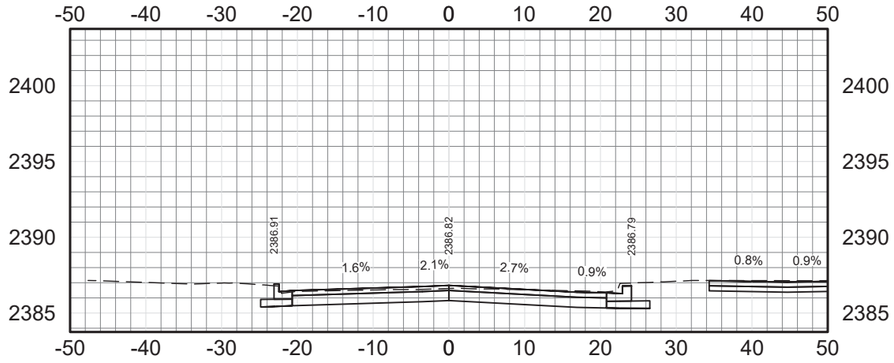
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76+00.00



76+75.00



REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

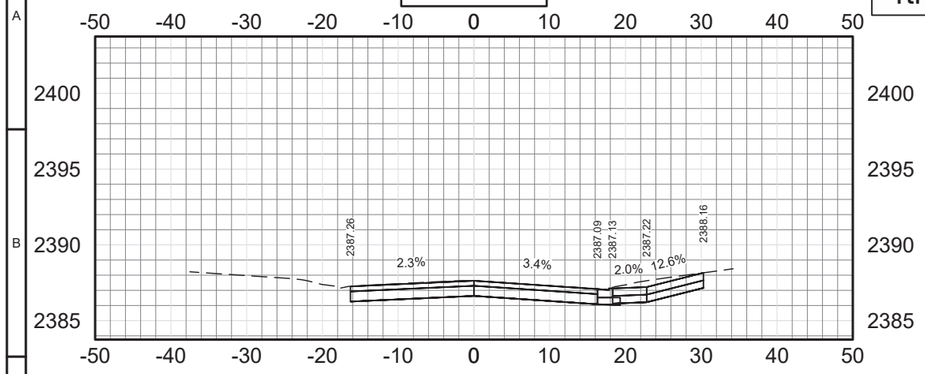
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
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Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-45

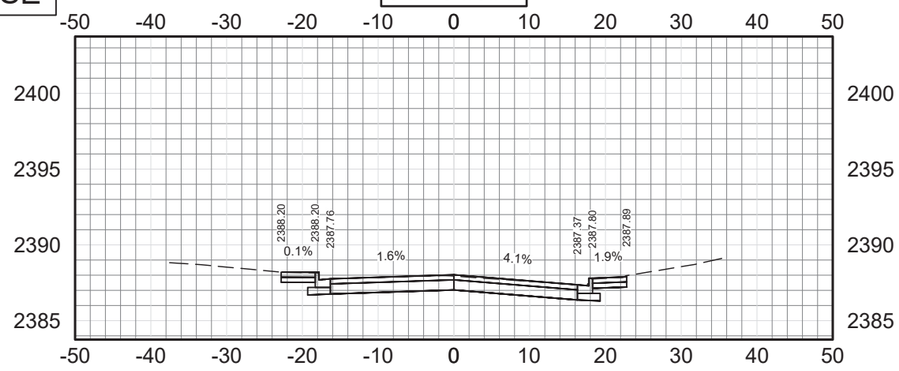
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78+00.00

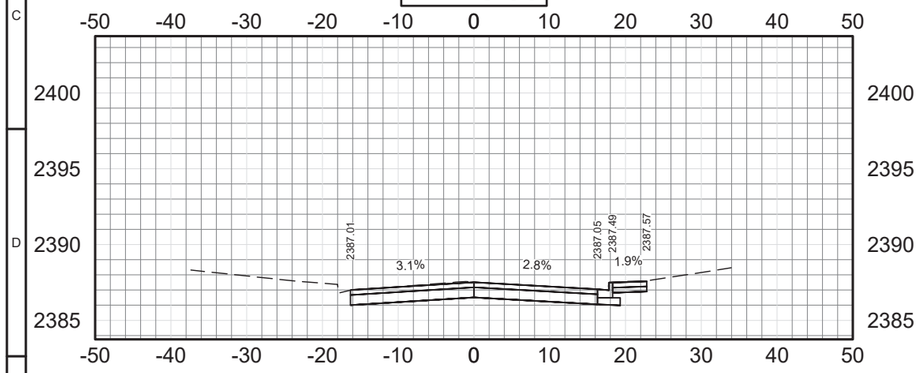


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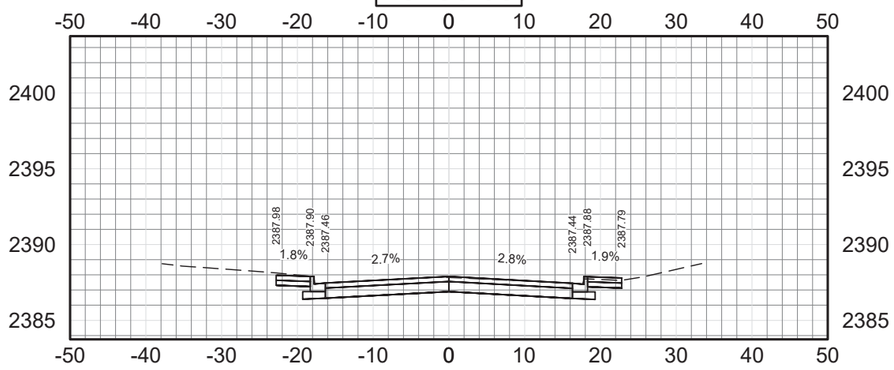
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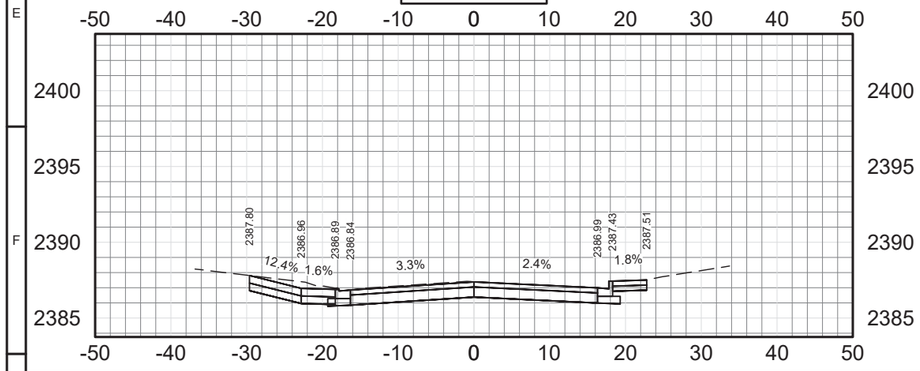
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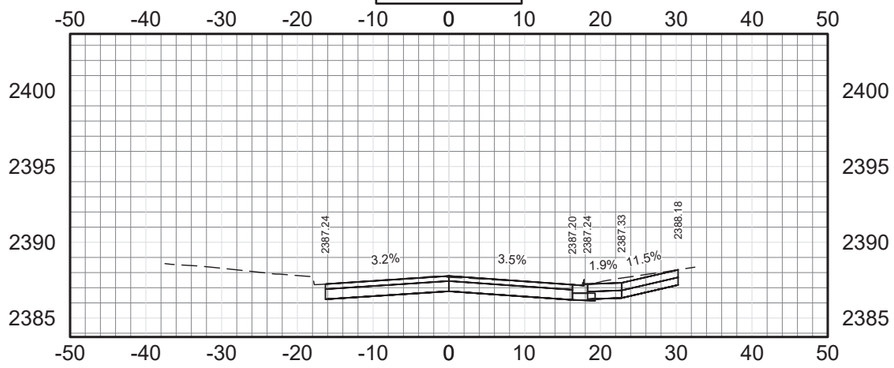
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77+50.00



78+25.00



REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

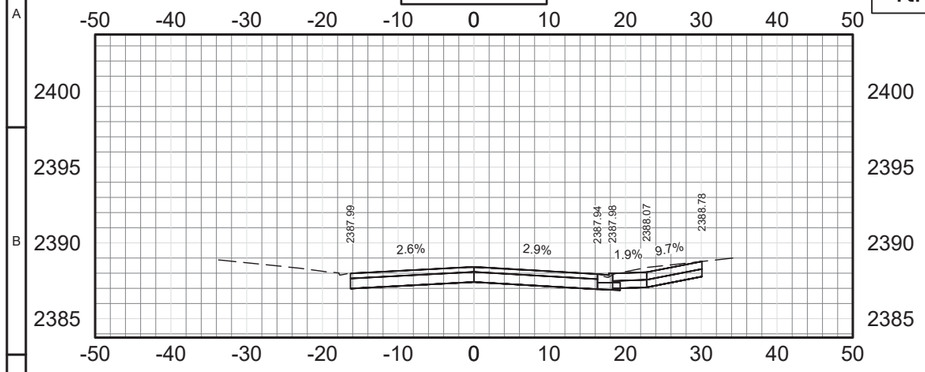
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

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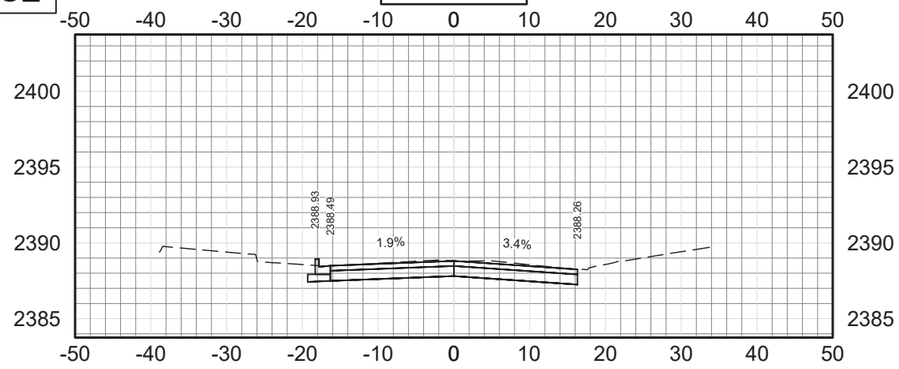
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4th Ave SE

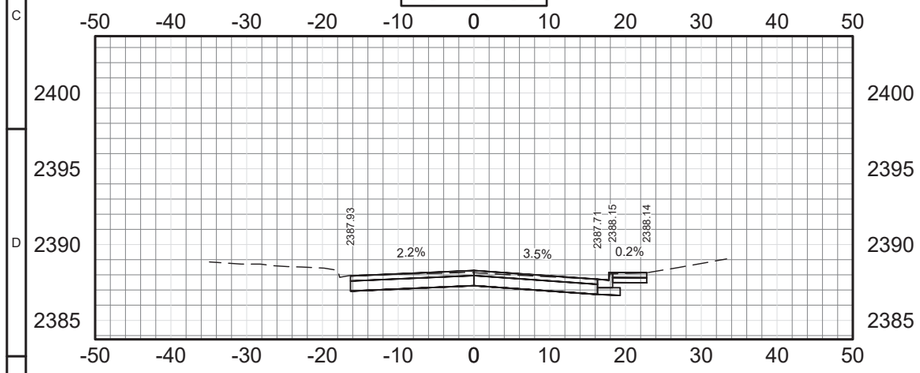
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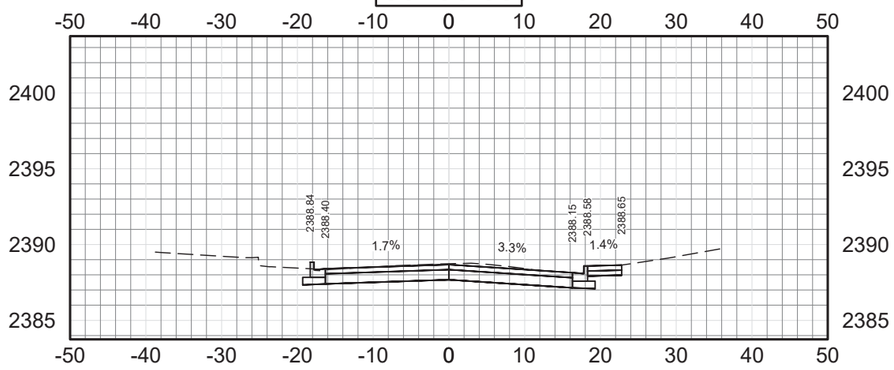
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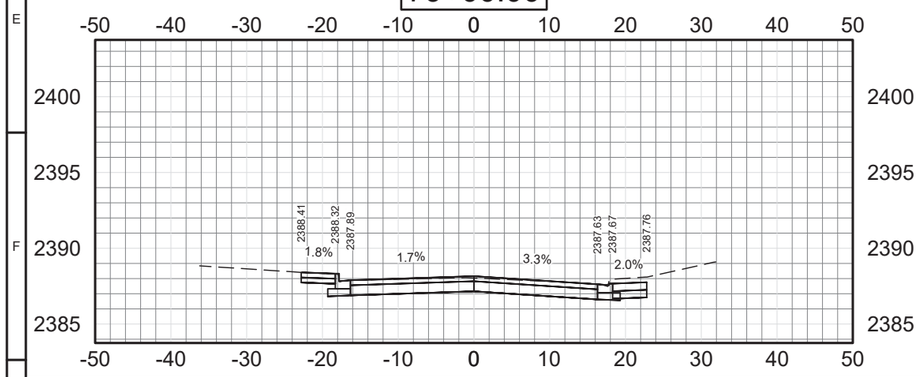
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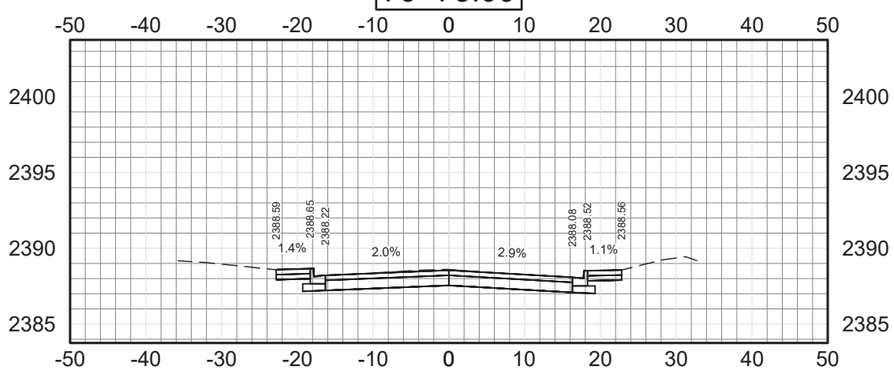
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79+75.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

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Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

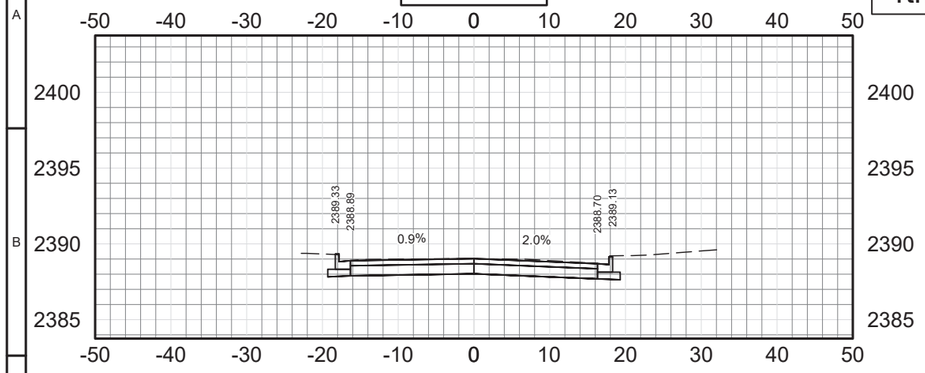
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

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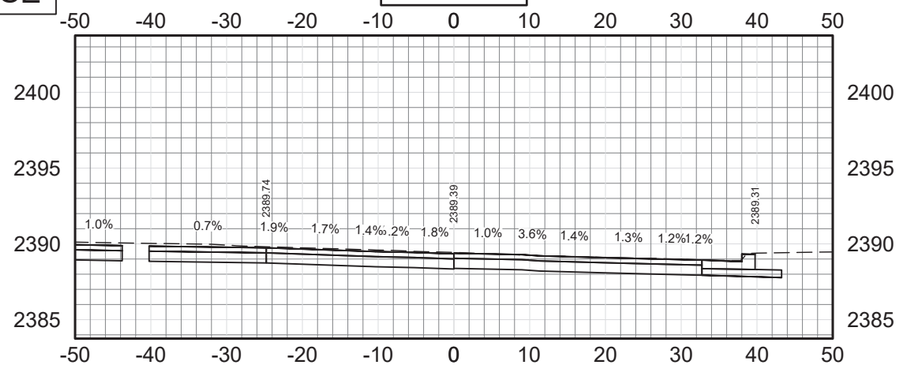
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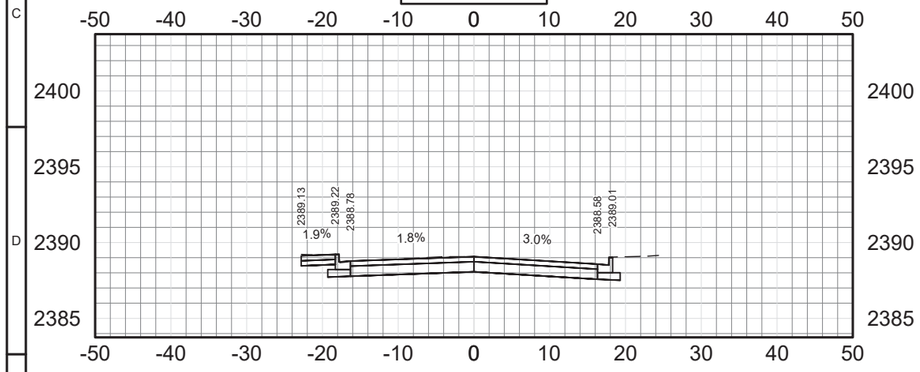
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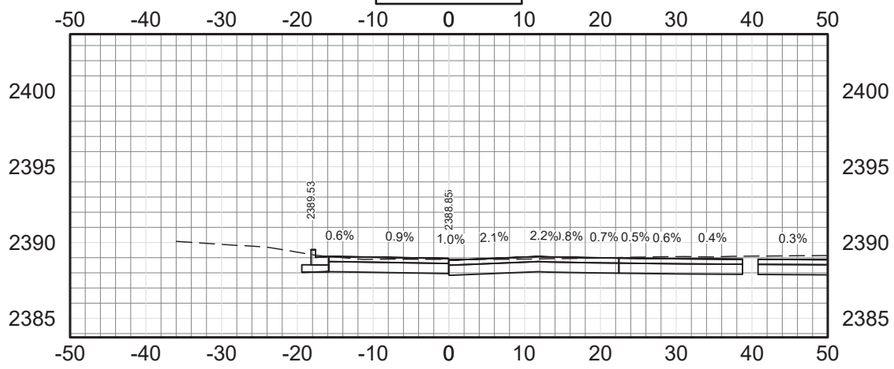
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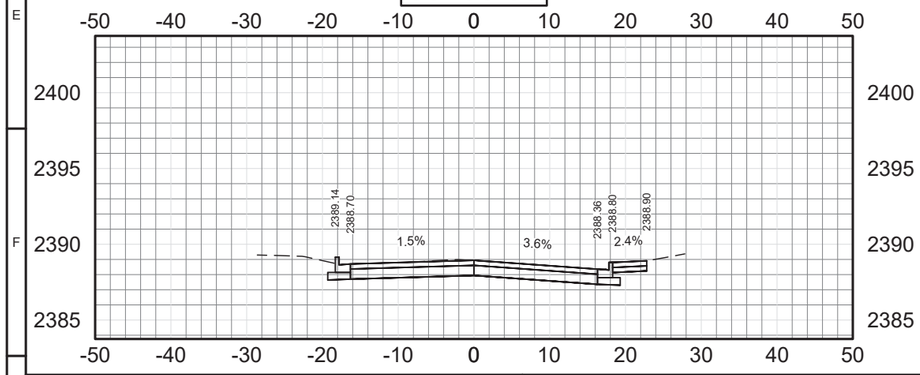
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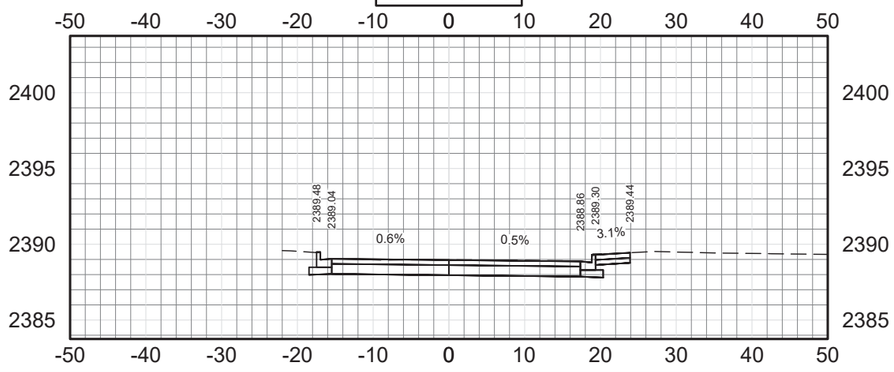
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80+50.00



81+25.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

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Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

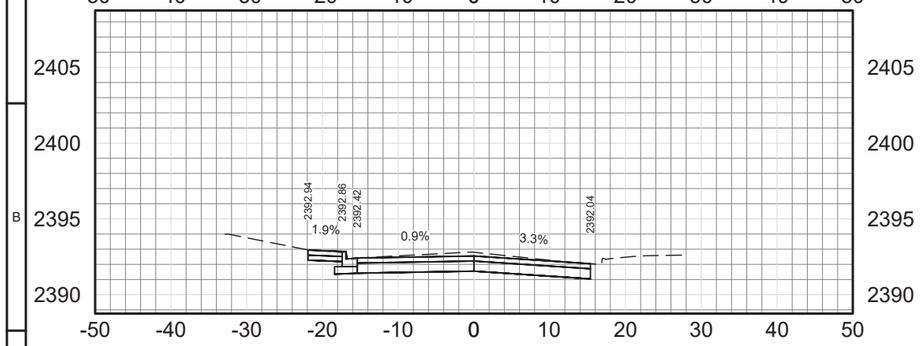
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Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

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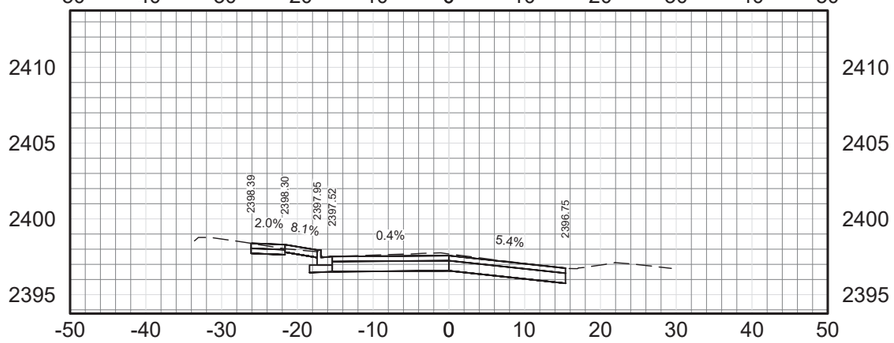
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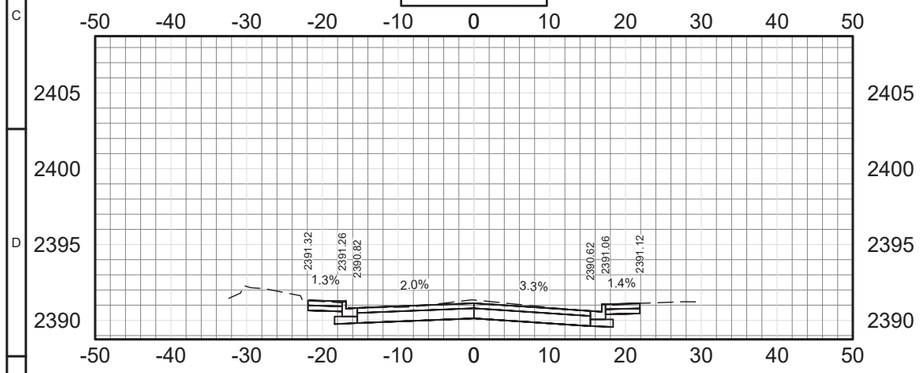


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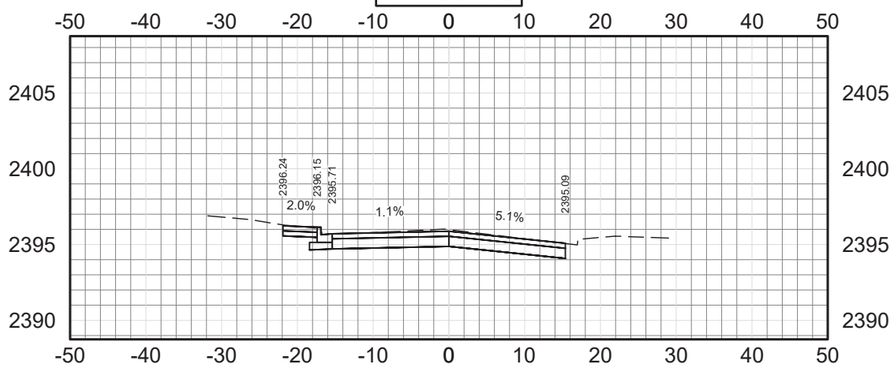
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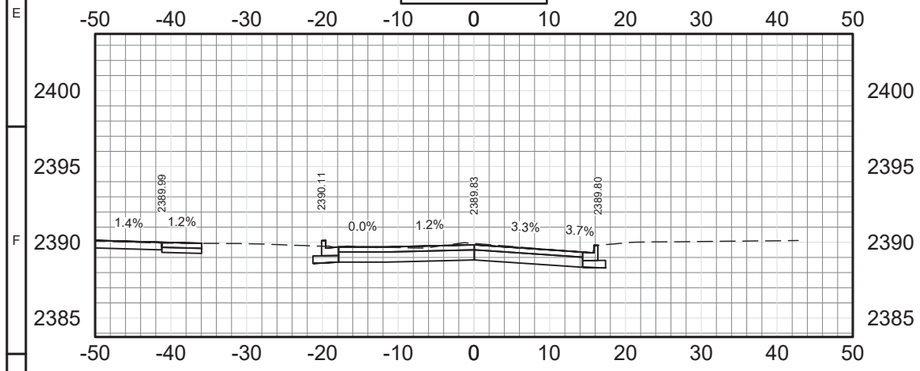
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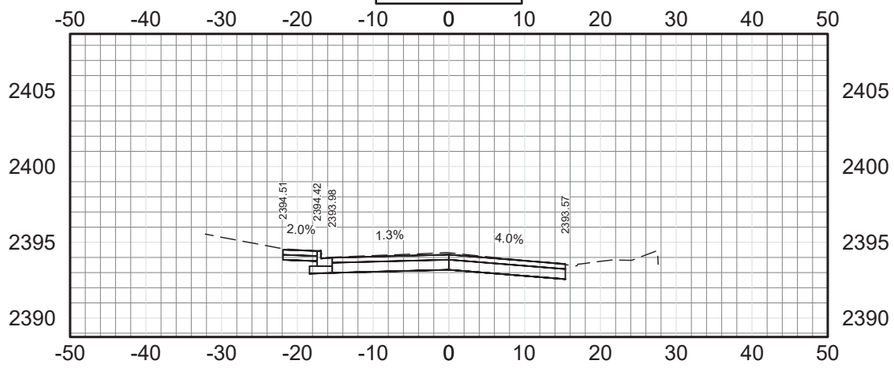
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82+00.00



82+75.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

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Dickinson, North Dakota 58601
Office: 701-264-3939
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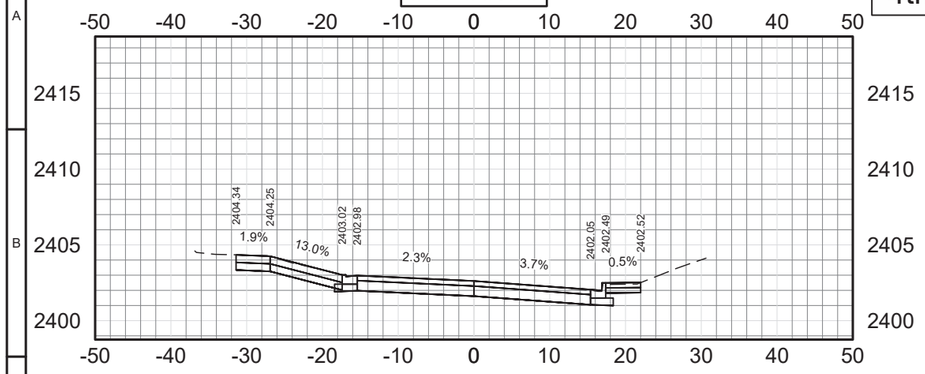
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-49

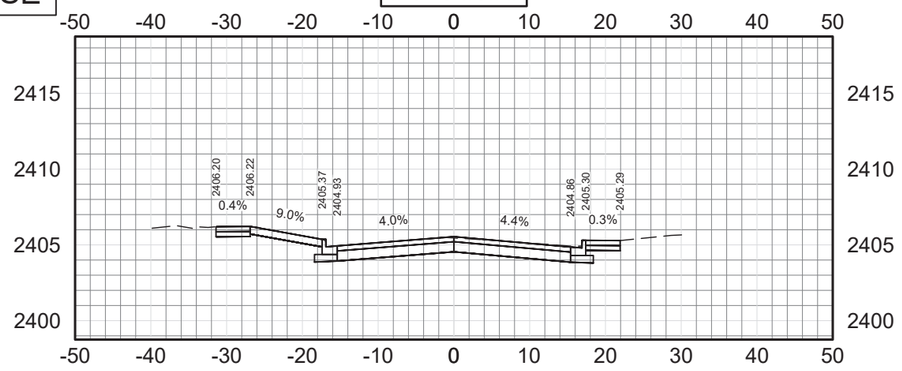
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4th Ave SE

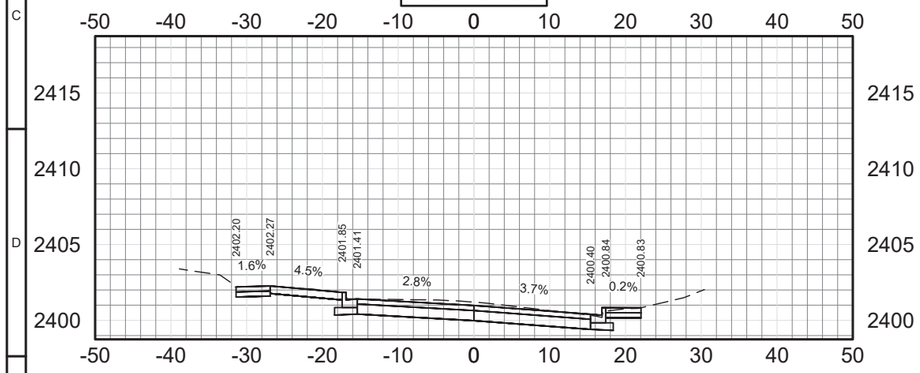
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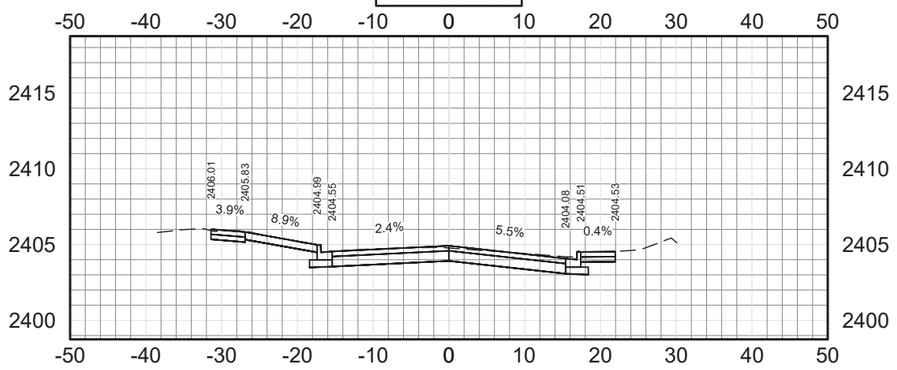
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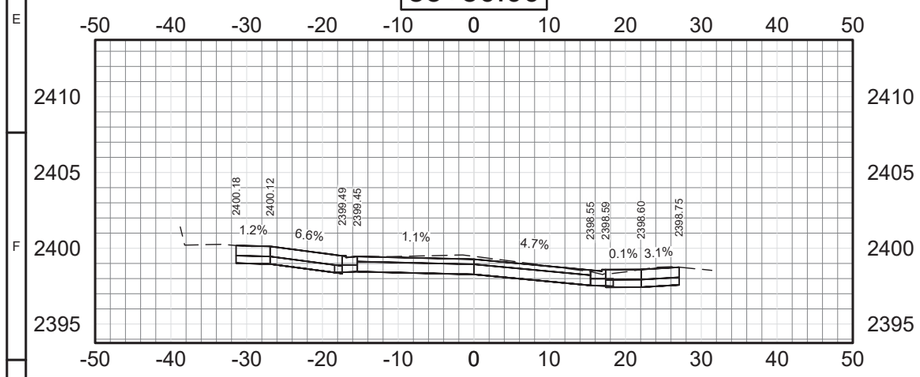
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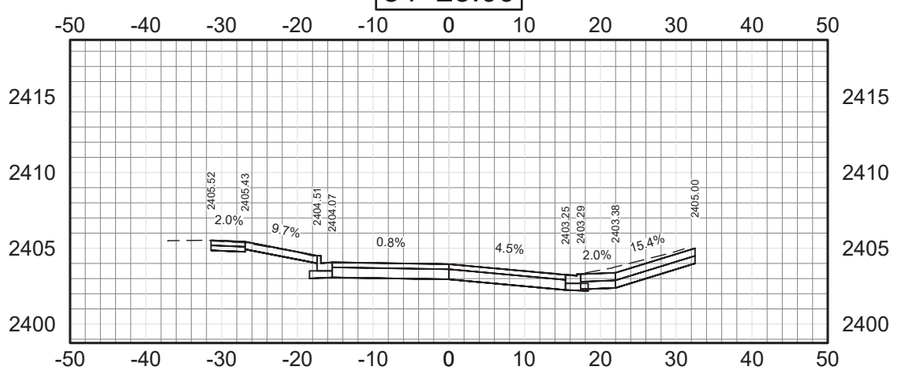
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83+50.00



84+25.00



REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

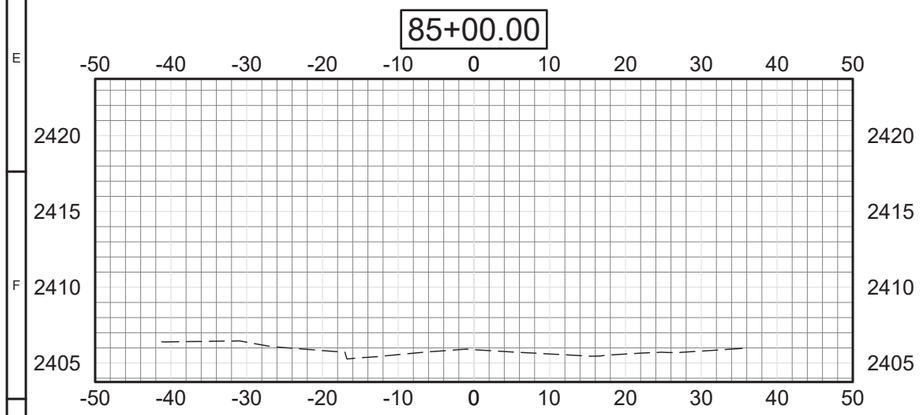
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-50

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4th Ave SE

85+00.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

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Project #: 22.107.0010
Date: February 2026
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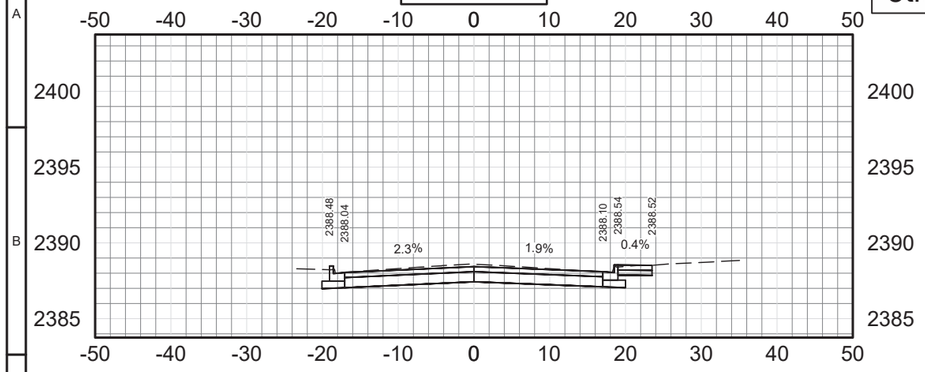
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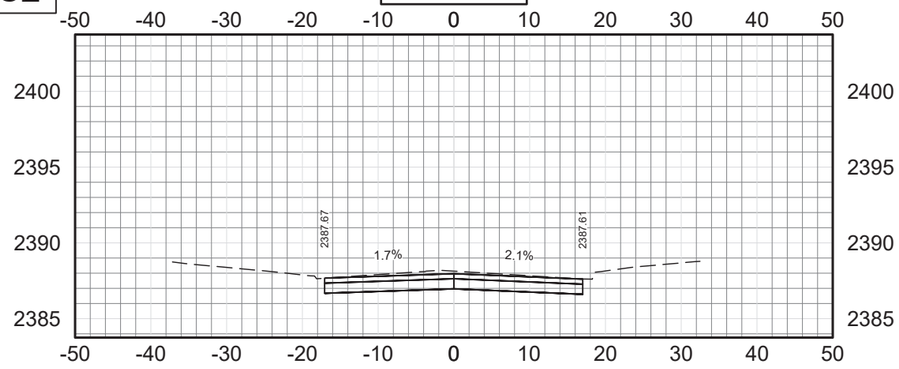
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5th Ave SE

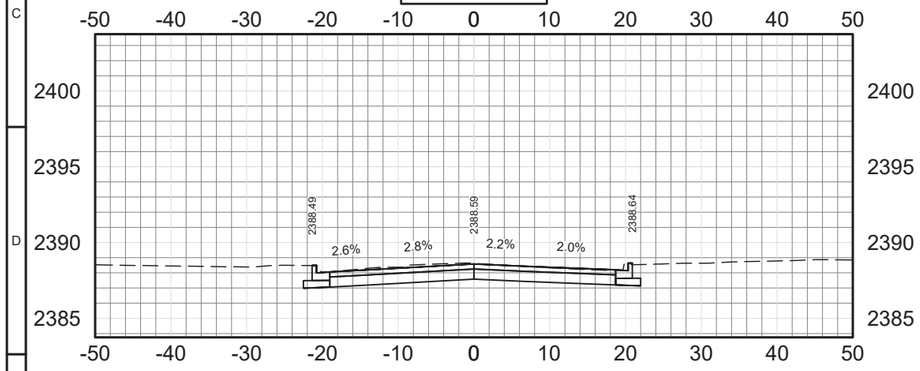
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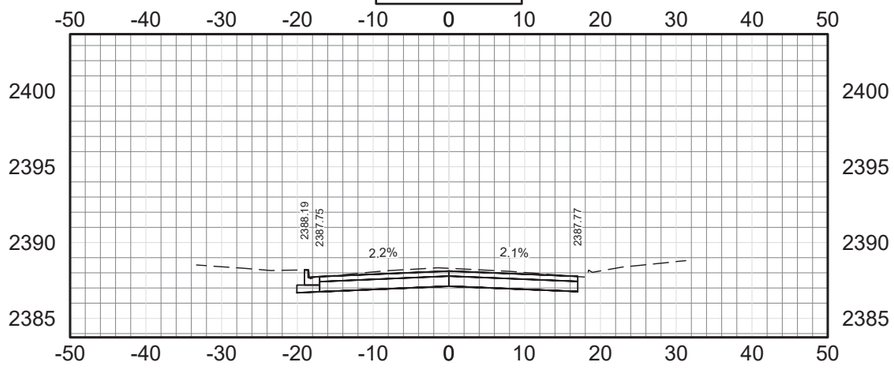
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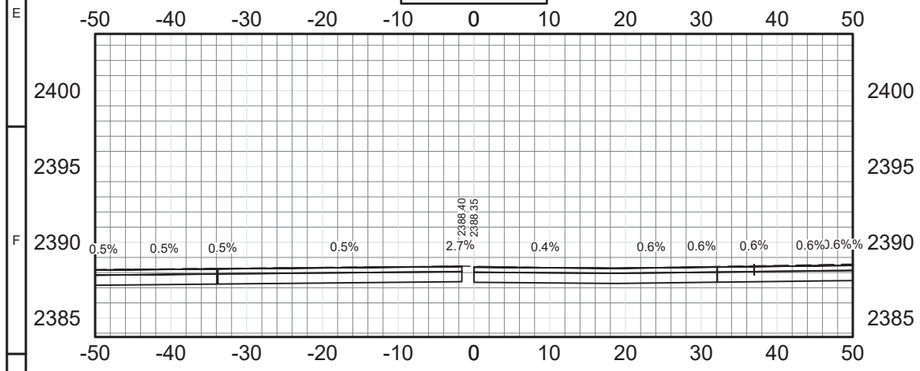
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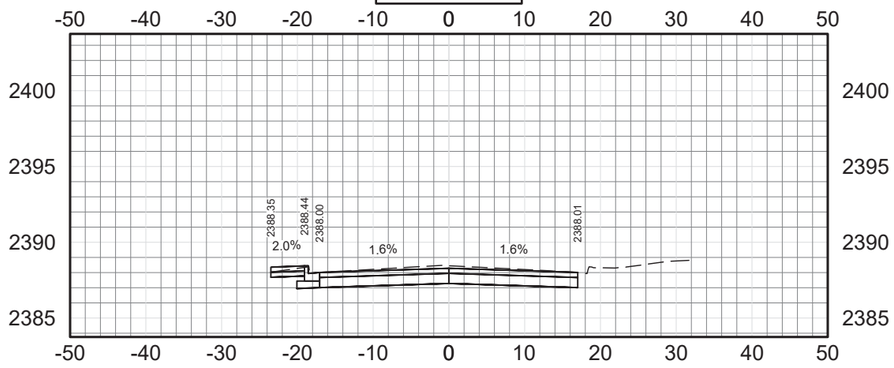
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90+00.00



90+75.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

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204 Sims Street, Suite # 201
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www.apexenggroup.com

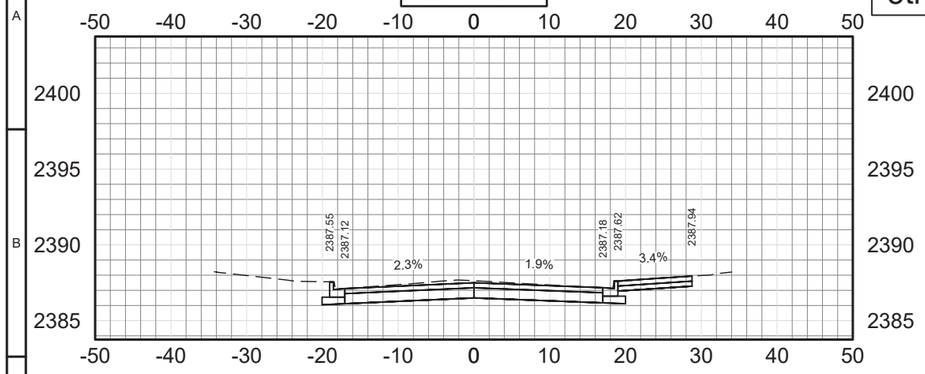
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-52

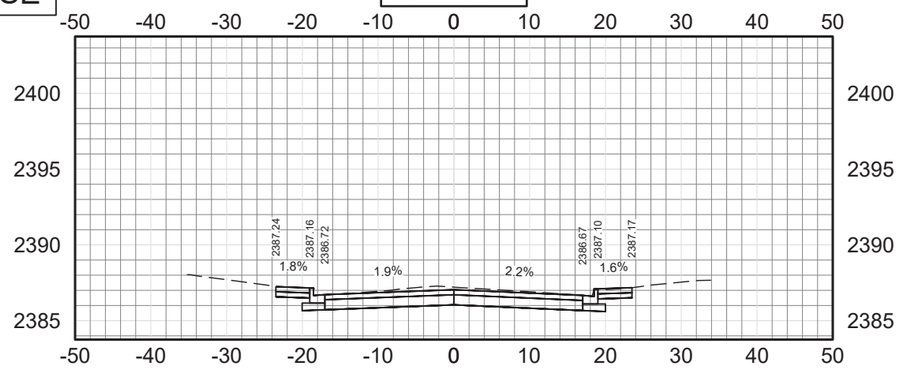
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5th Ave SE

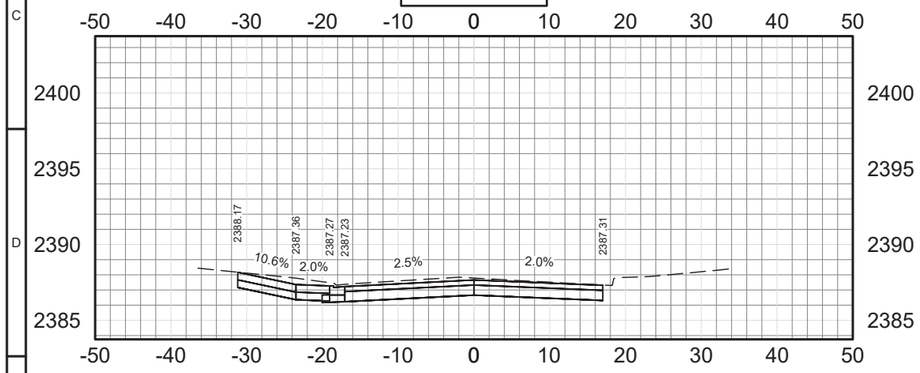
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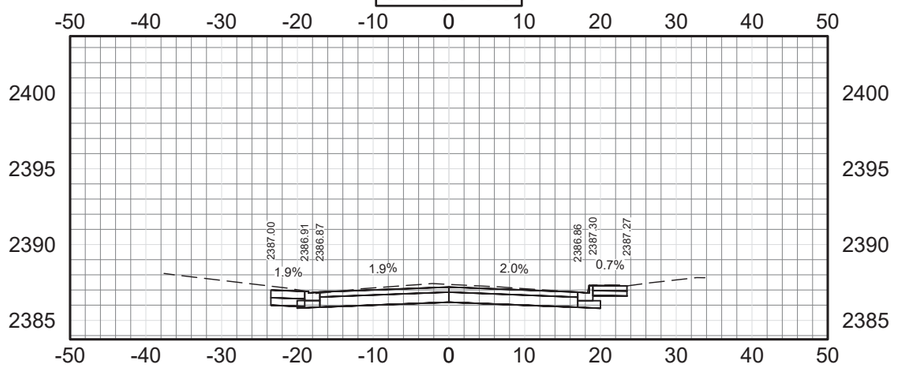
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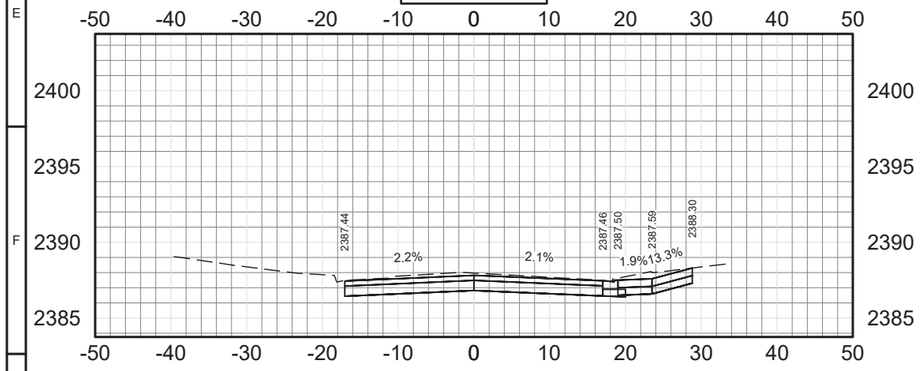
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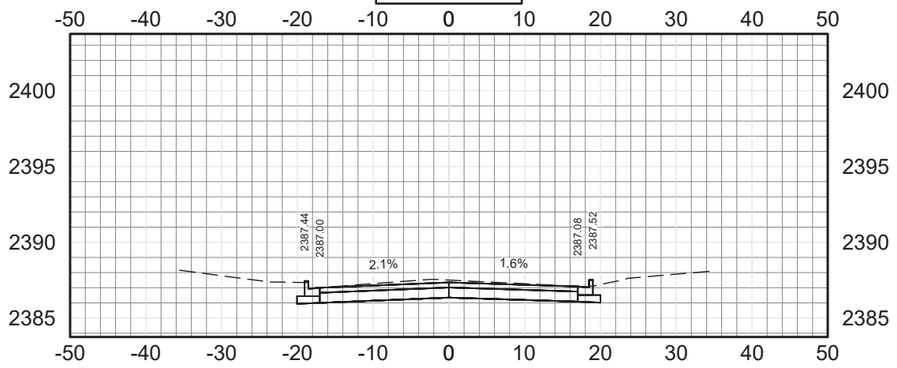
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91+50.00



92+25.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

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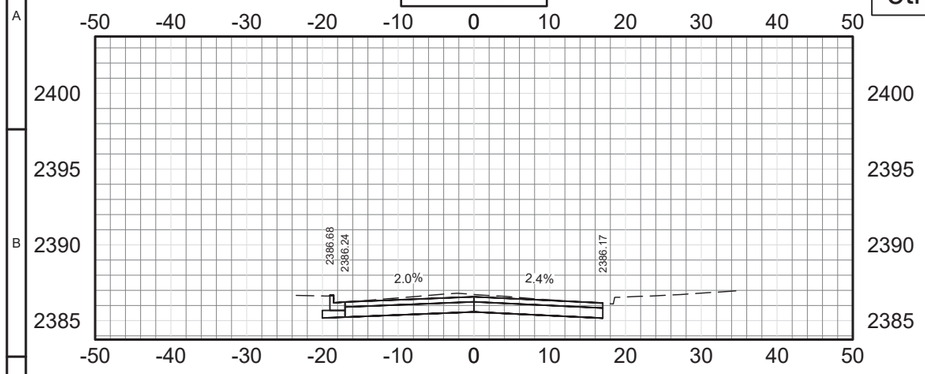
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

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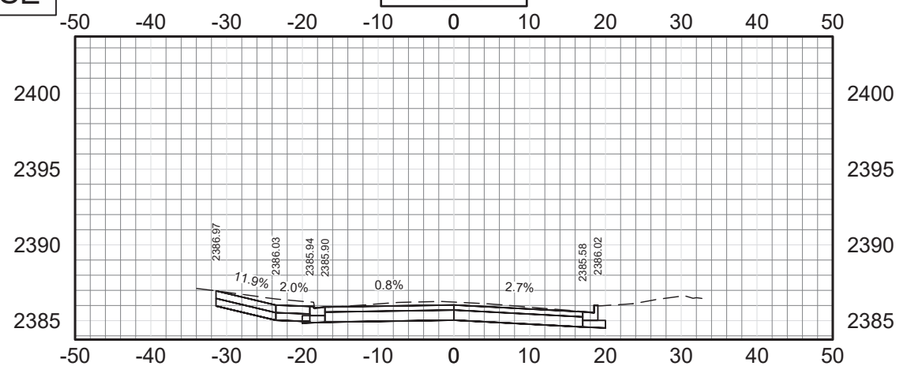
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5th Ave SE

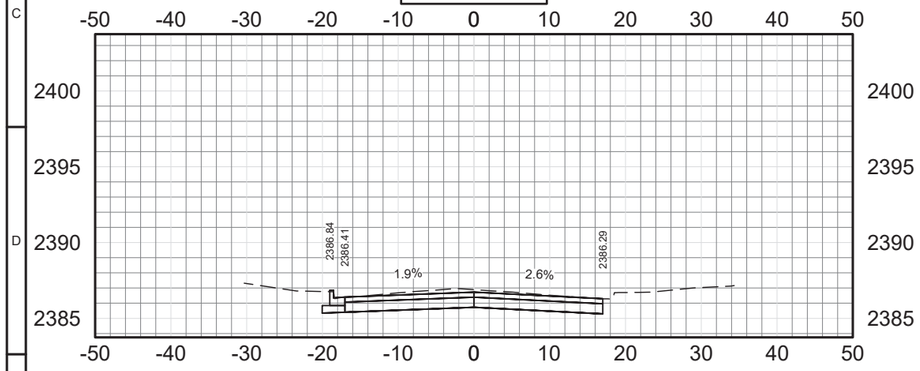
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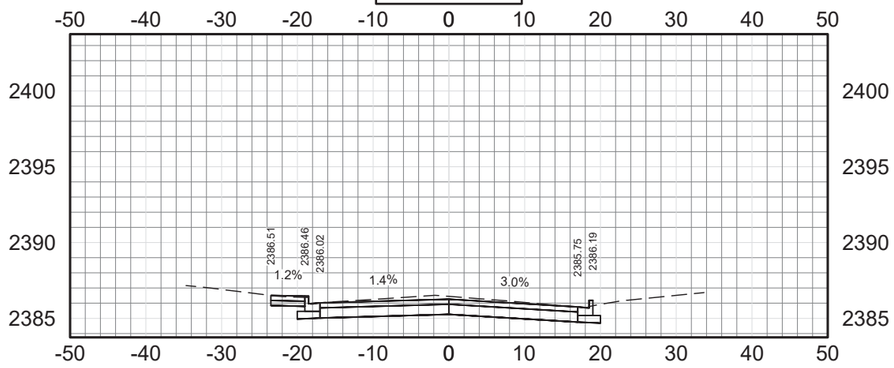
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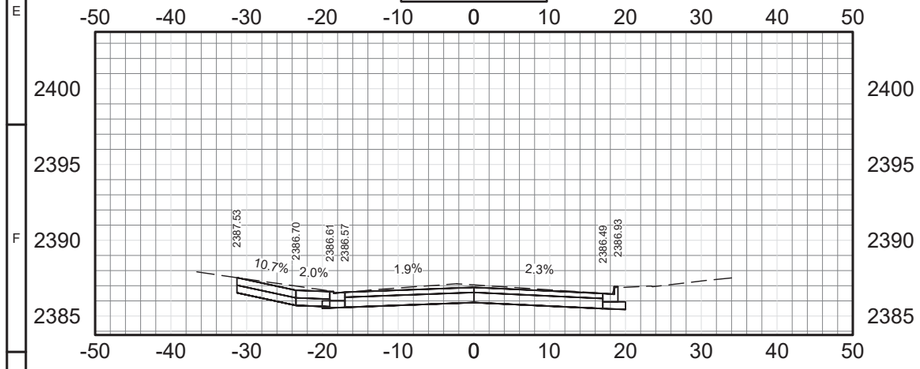
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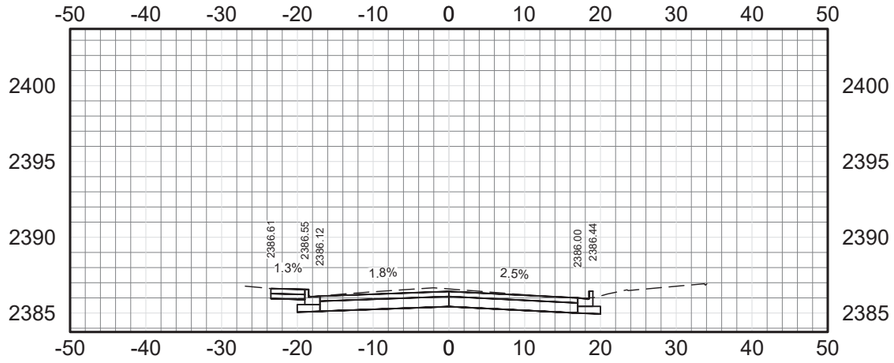
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93+00.00



93+75.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

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204 Sims Street, Suite # 201
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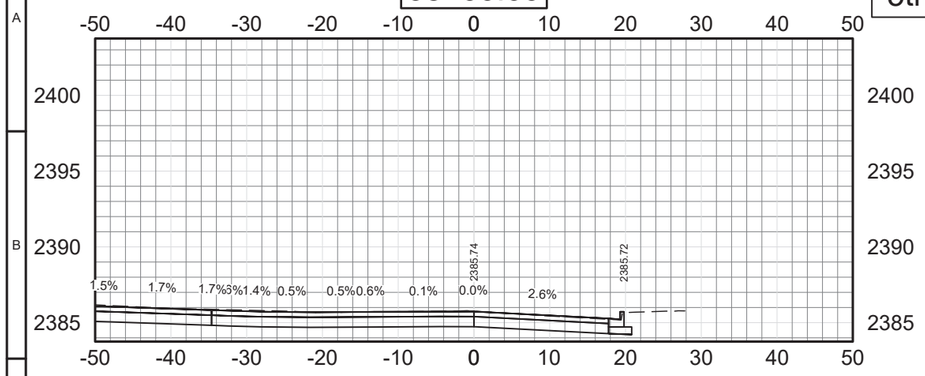
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

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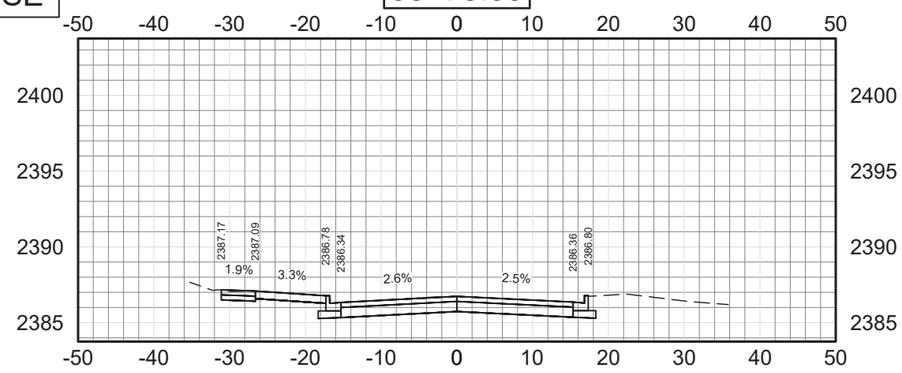
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5th Ave SE

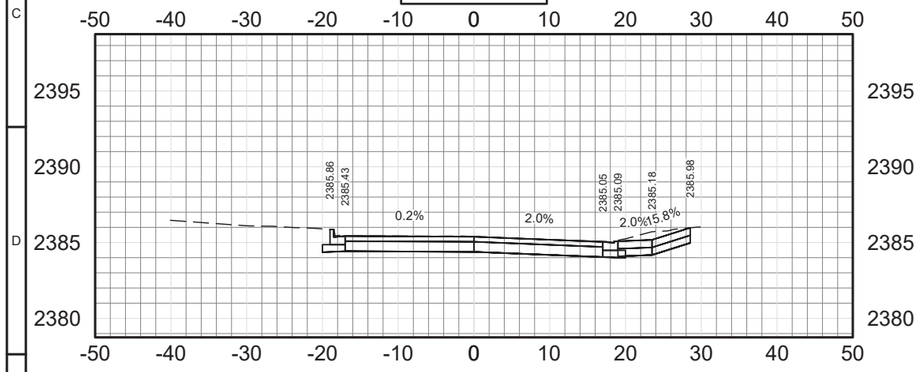
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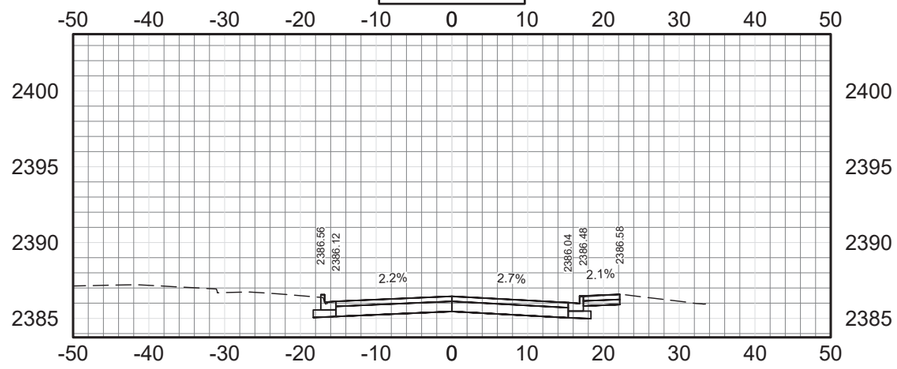
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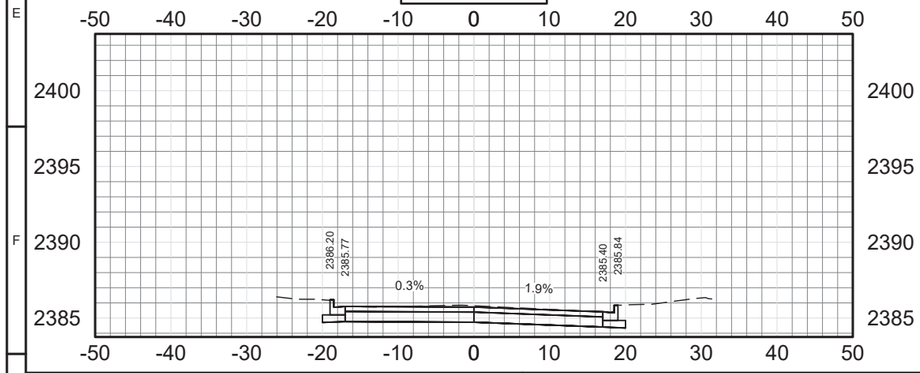
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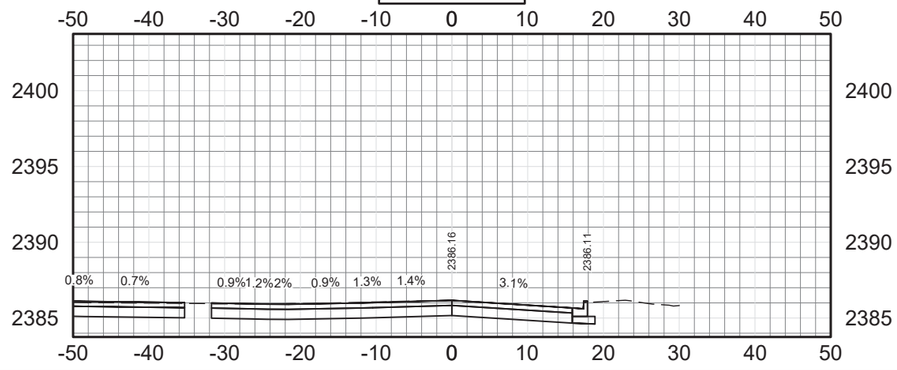
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94+50.00



95+25.00



REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

Apex Engineering Group

Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

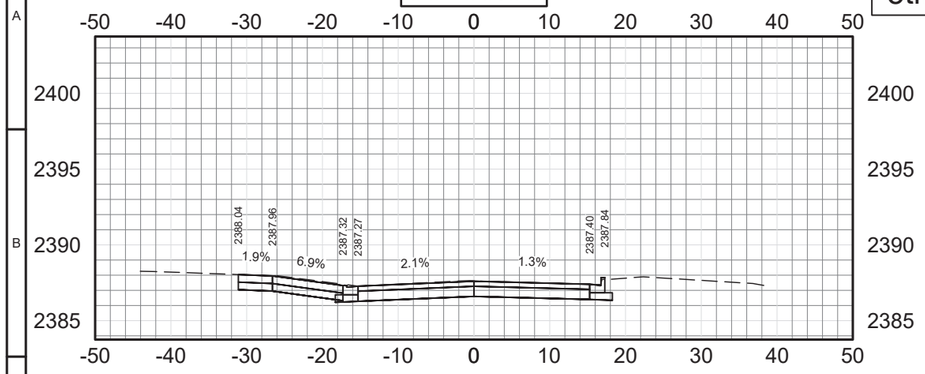
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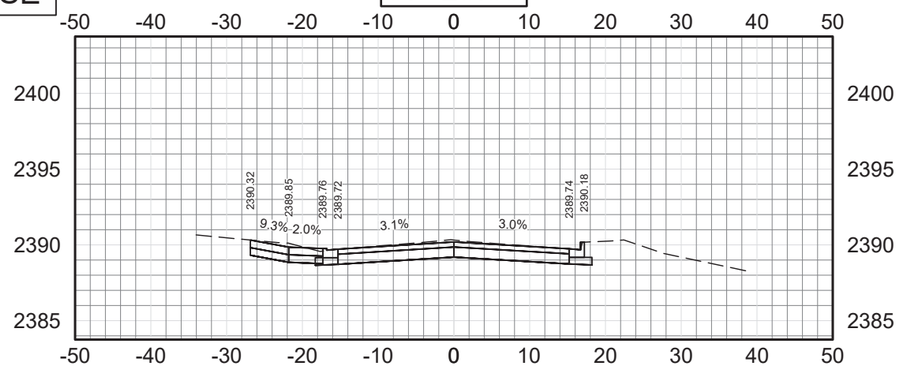
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5th Ave SE

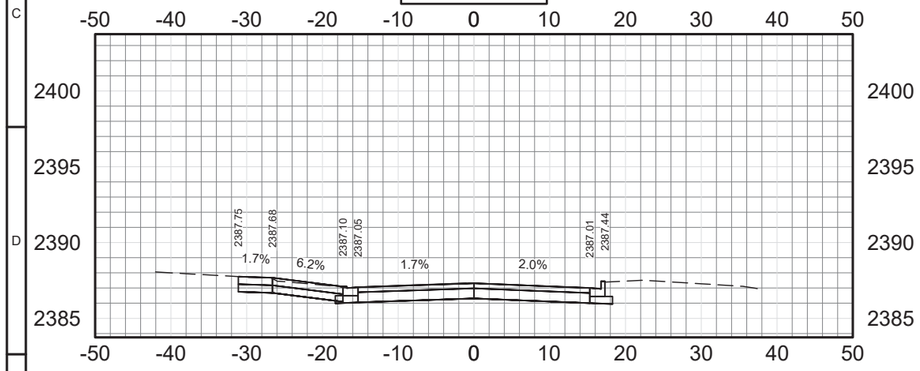
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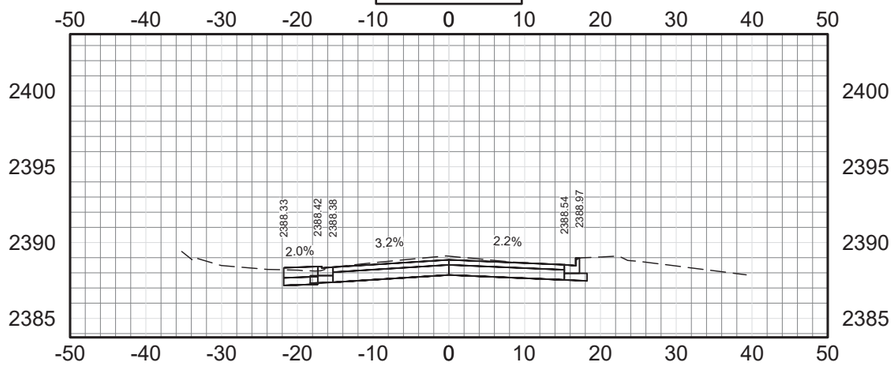
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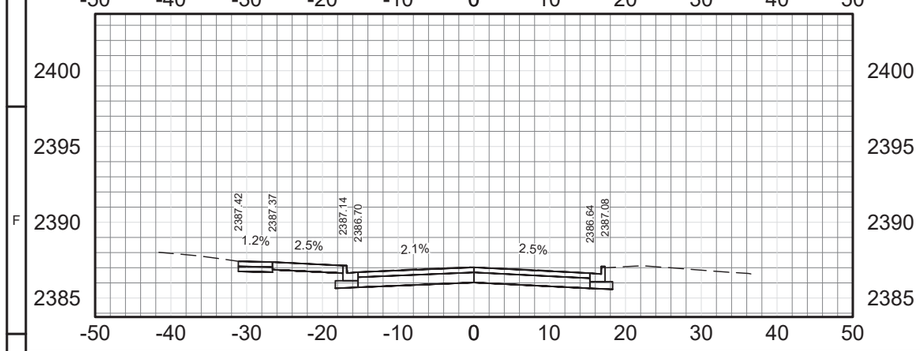
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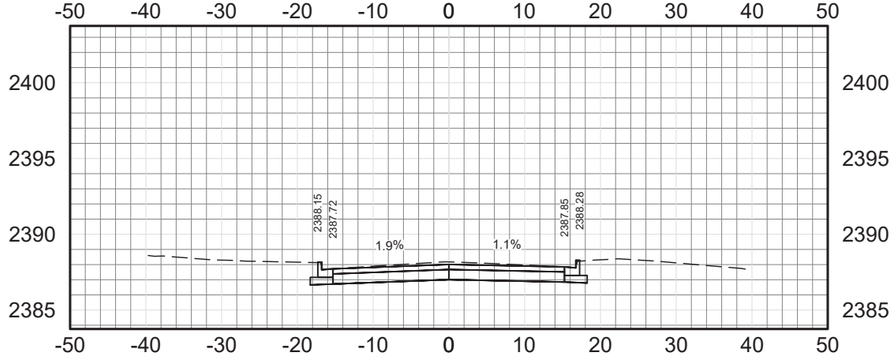
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REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

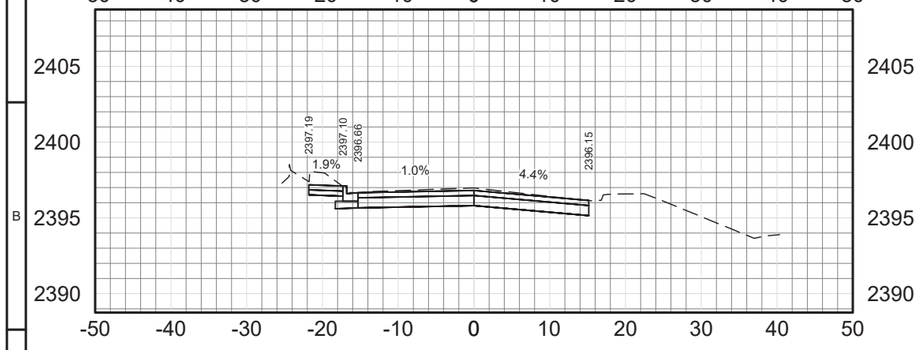
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
Dickinson, North Dakota 58601
Office: 701-264-3939
www.apexenggroup.com

Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-56

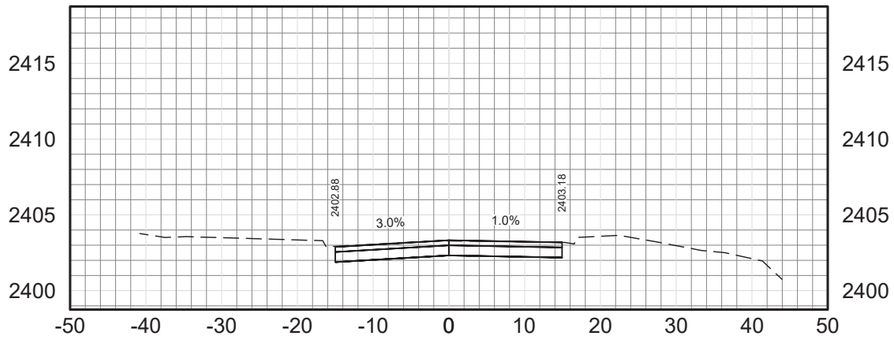
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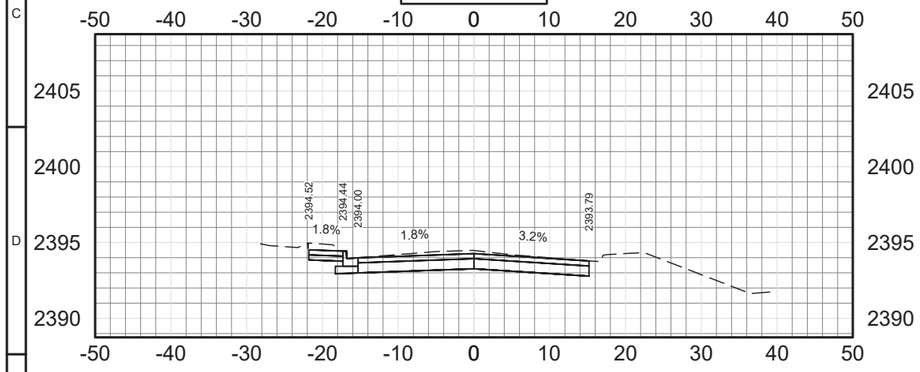


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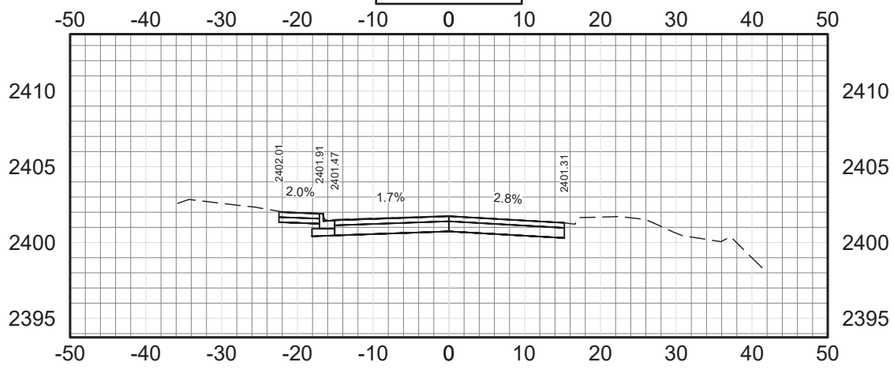
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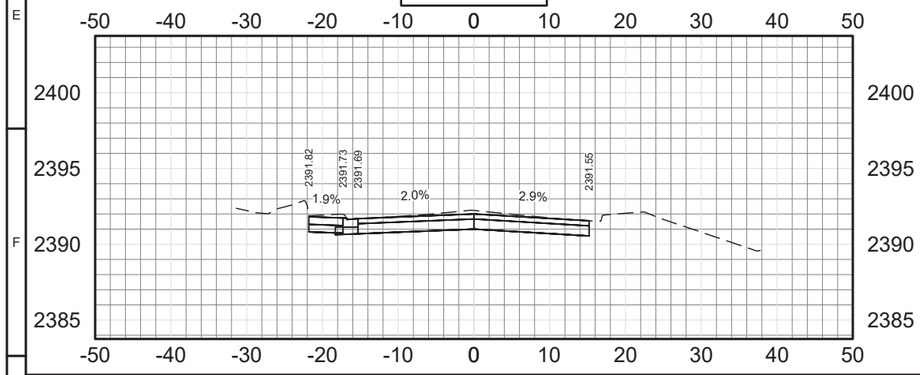
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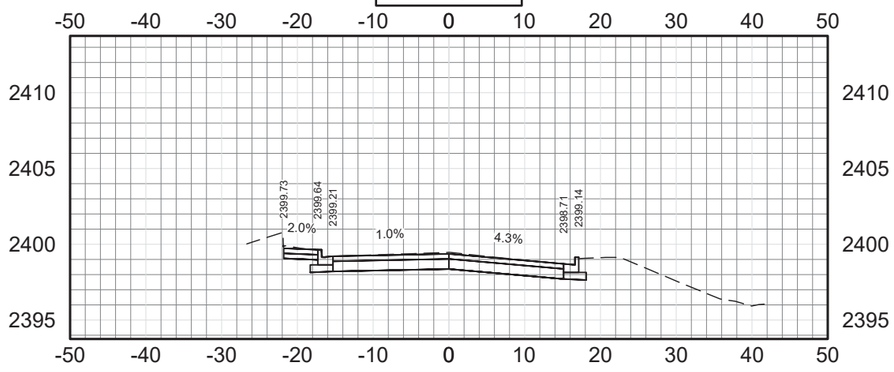
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97+50.00



98+25.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

Apex Engineering Group

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Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

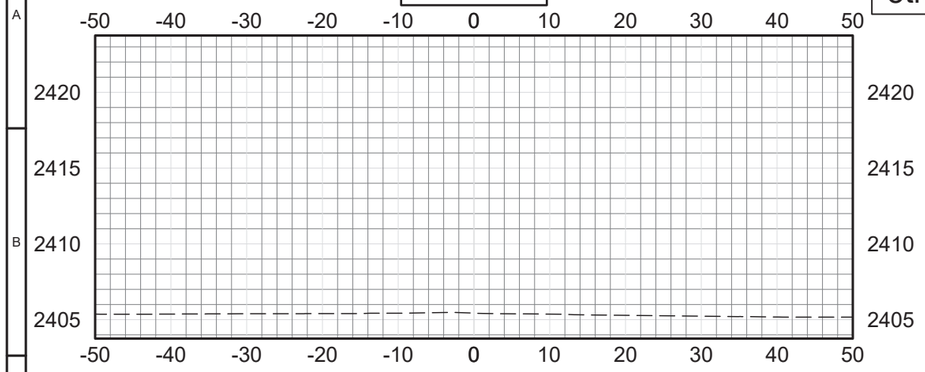
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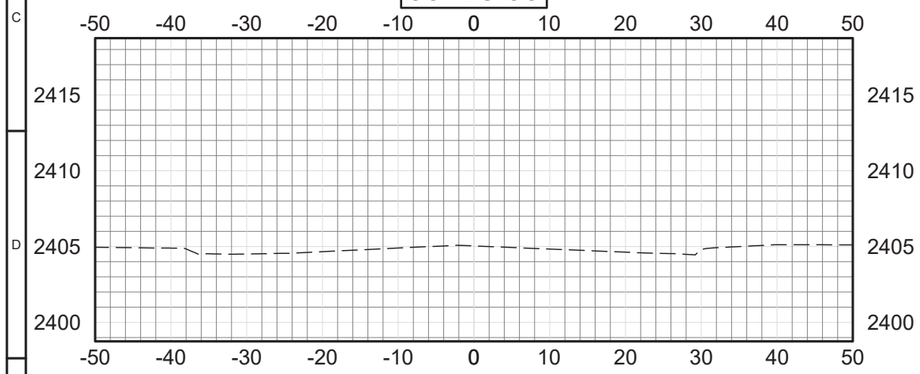
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5th Ave SE

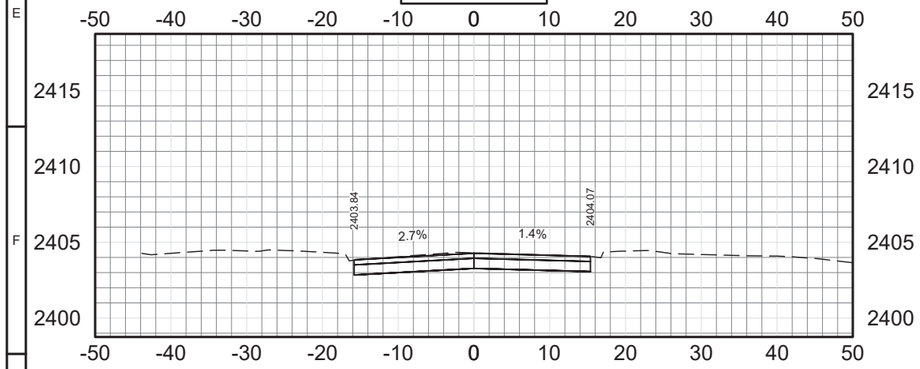
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99+25.00



99+00.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

Apex Engineering Group
Bismarck - Detroit Lakes - Dickinson - Fargo - St. Cloud
204 Sims Street, Suite # 201
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www.apexenggroup.com

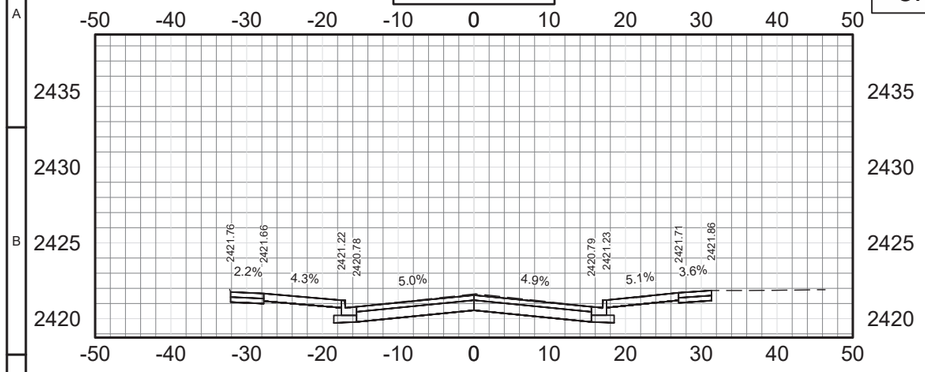
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-58

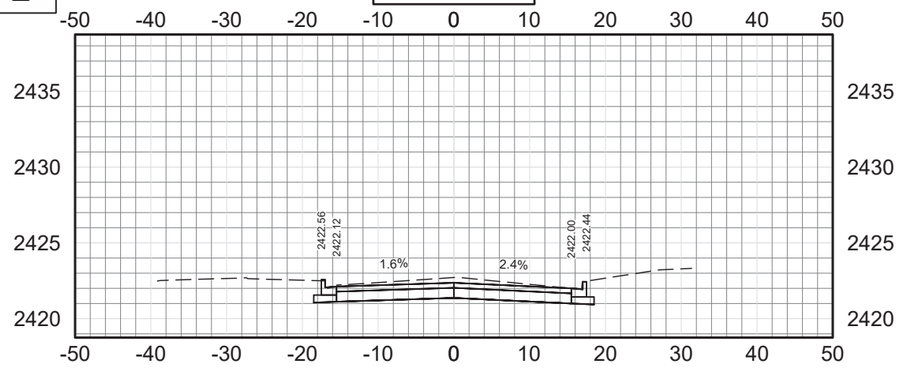
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3rd Ave E

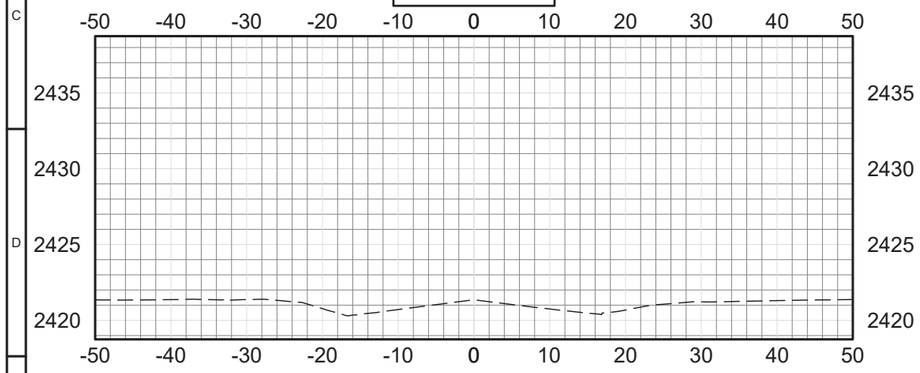
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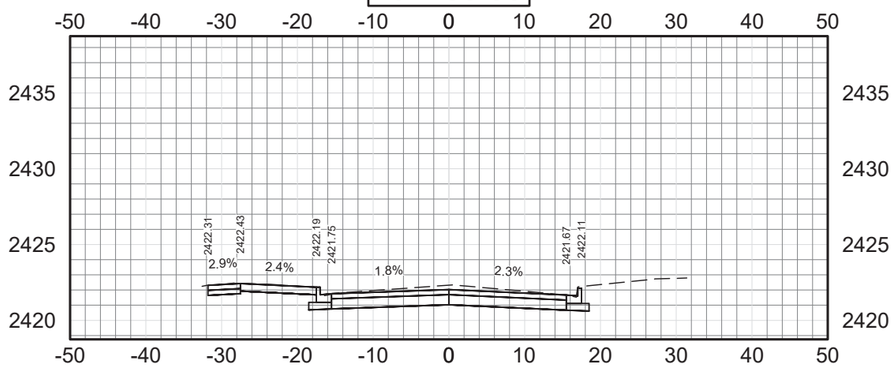
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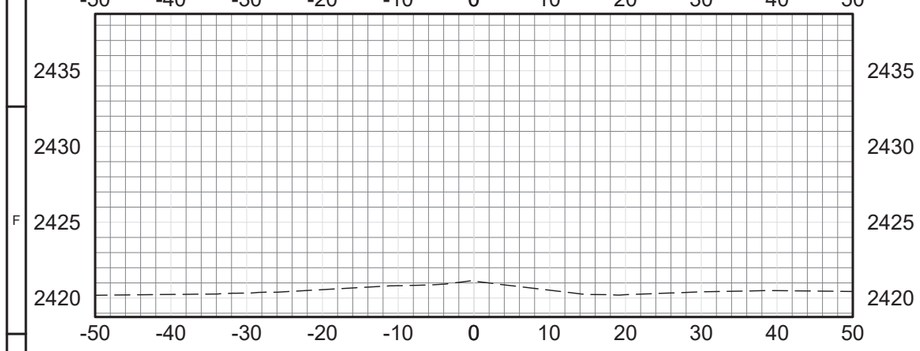
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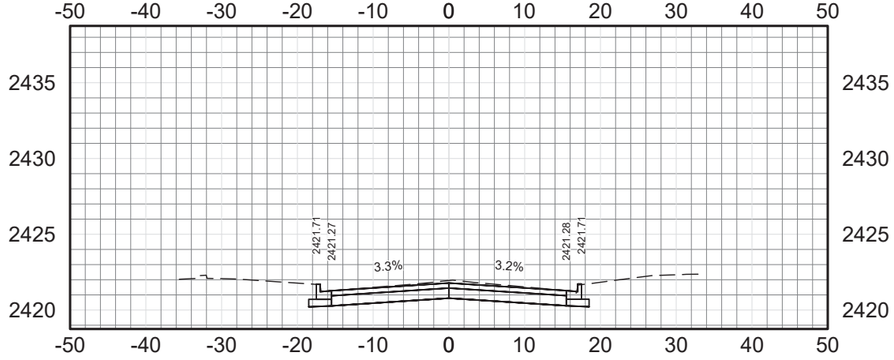
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REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
SEC. 200 CROSS SECTIONS

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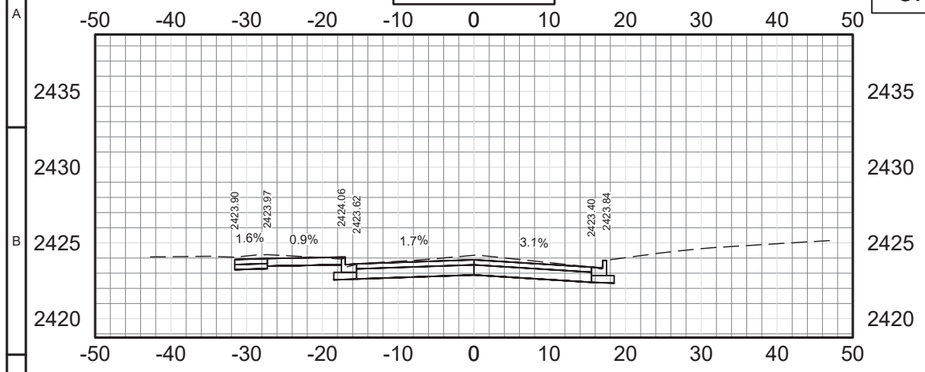
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-59

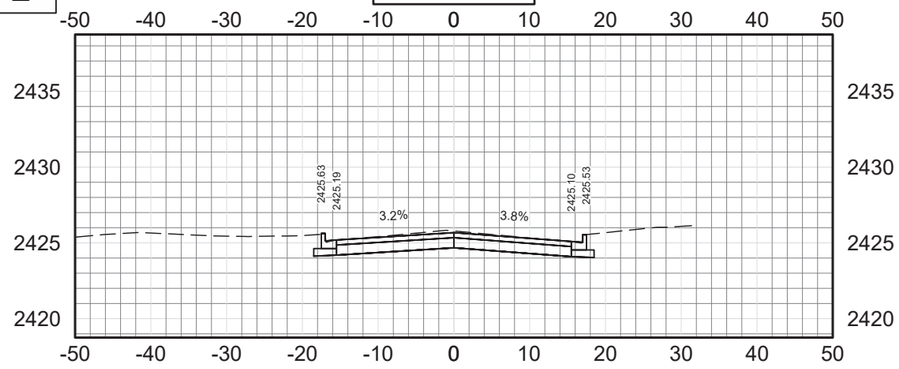
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3rd Ave E

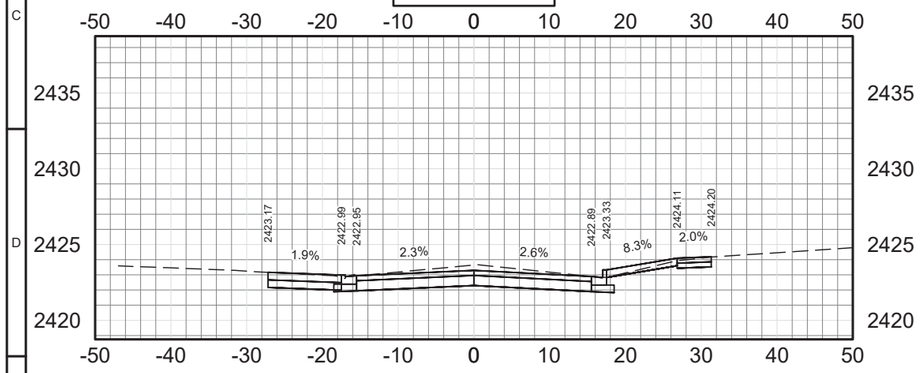
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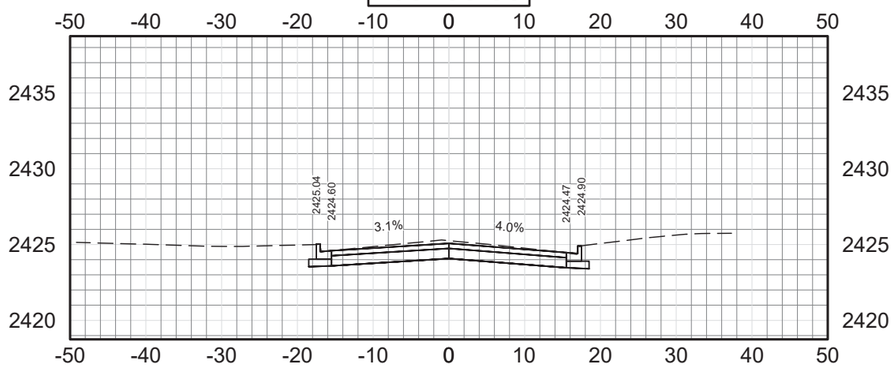
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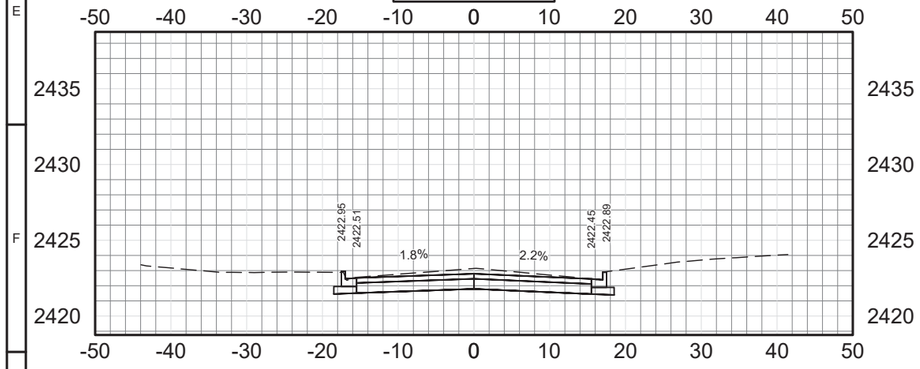
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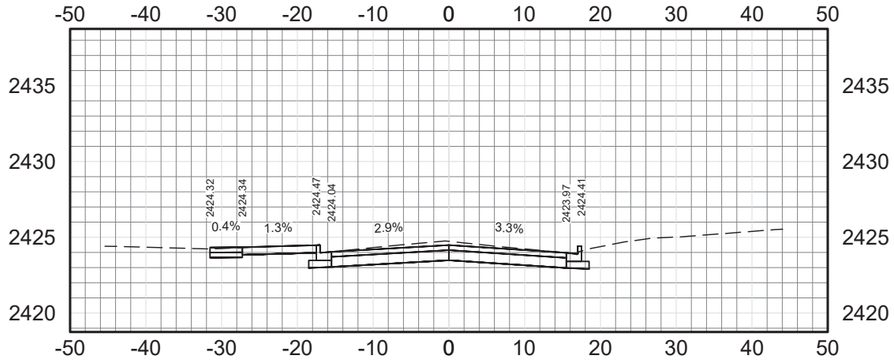
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102+00.00



102+75.00



REVISIONS

Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT SEC. 200 CROSS SECTIONS

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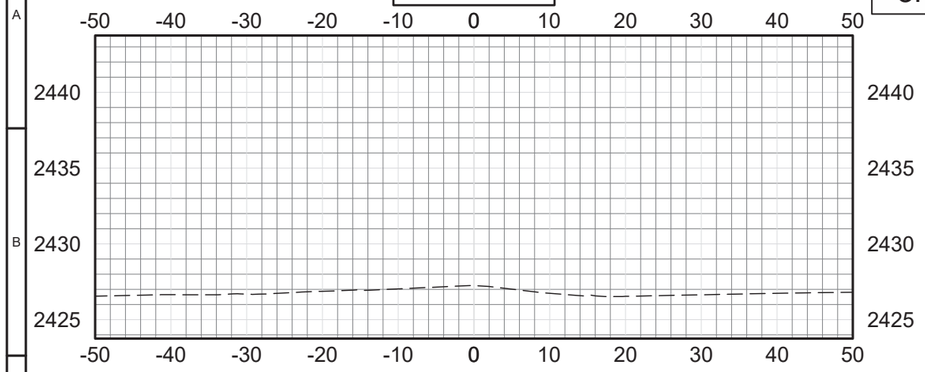
Project #: 22.107.0010
Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet: 200-60

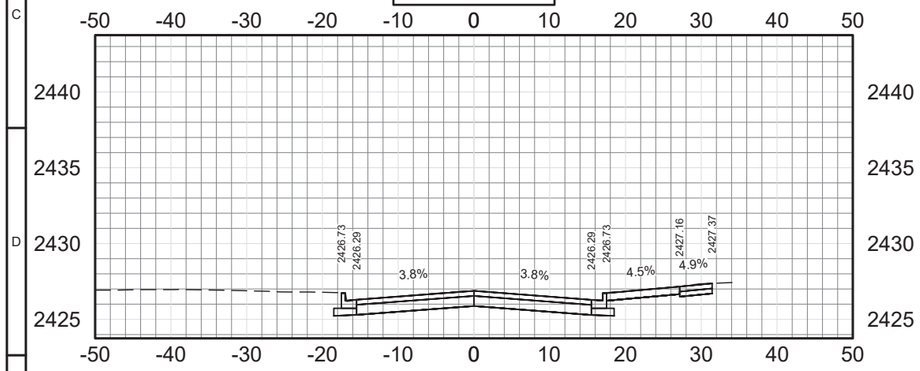
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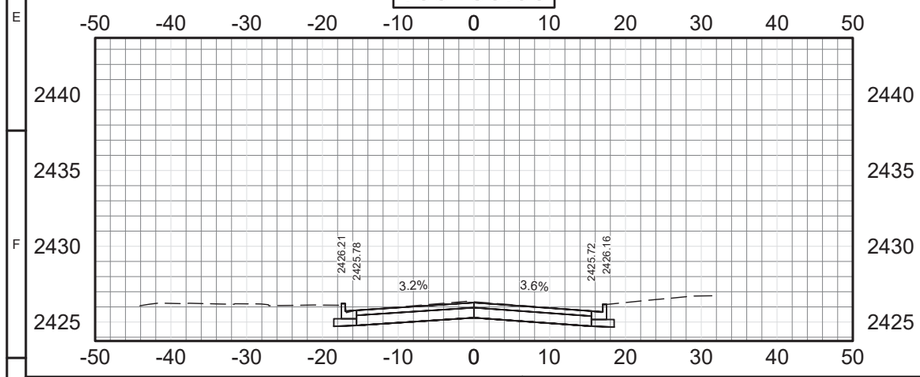
3rd Ave E



103+75.00



103+50.00



REVISIONS		
Issue #	Description	Date

CITY OF Dickinson North Dakota

2026 UTILITY & STREET IMPROVEMENTS PROJECT
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Date: February 2026
Drawn By: Amanda Vetter
Checked By: Caleb Weisgarber
Approved By: Amanda Vetter

Sheet:
200-61

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