

This document contains the Plans and Specifications for
WEST CENTRAL STREET IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA
ER24-00-139

The Plans and Specifications are contained in pages 3 - 310 and are set up to print two-sided (duplex) on 8½" x 11" paper.

The Plans are contained in pages 311 - 405 and are set up to print single-sided on 11" x 17" paper.

If your printer has the option to choose the paper source by PDF page size, you may select it and the complete document will print single-sided to the correct sizes all at once. The page scaling option should be set to "none".

Up to date planholders lists can be found at www.questcdn.com and the Quest project number for this project is 9574364.

SUBMITTED BID MUST CONTAIN THE FOLLOWING INFORMATION:

All bids will be submitted via QuestCDN On-Line Bidding only. Mailed or hand delivered bids will NOT be opened or considered:

- a) The work covered by the bid as described in Advertisement for Bid
- b) The name of the person, firm or corporation submitting the bid
- c) The date and hour of the bid opening
- d) Acknowledgement of each Addendum

This form is being provided for contractor convenience and is not meant to supersede the plans and specifications. Bidding requirements listed in the project specifications

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**PROJECT MANUAL
WEST CENTRAL STREET
IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA
APRIL 2025
ER24-00-139**

**PREPARED FOR:
WAHPETON, NORTH DAKOTA
BY:**



I, **Damon K. DeVillers**, hereby certify that these Plans and Specifications were prepared by me or under my direct supervision. I further certify that I am a Registered Professional Engineer under the Laws of the State of North Dakota.



Damon K. DeVillers, P.E.

Date 5/6/2025



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IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA
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CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA
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ADVERTISEMENT AND INVITATION

Notice is hereby given that sealed bids will be received for West Central Street Improvement City Project No. ST24-287 for the City of Wahpeton, located in the town of Wahpeton, North Dakota. Bids will be received On-Line ONLY through QuestCDN vBid. Bids will be received by 10:00 AM (CDT) on May 20, 2025. Mailed or hand delivered bids will NOT be opened or considered. Please submit your bid for this project by the following:

1. Submitted through QuestCDN Online Bidding.

All bids submitted will be opened and read aloud via video conference at 10:05 AM (CDT) on May 20, 2025. A link to attend the live video conference bid opening will be sent to all QuestCDN Plan Holders for this project https://teams.microsoft.com/l/meetup-join/19%3ameeting_ZWZhNzcxNzktNDFhMS00NDI2LWFiOTMtNGU5OGJhOTRiZili%40thead.v2/0?context=%7B%22Tid%22%3A%229d23d2a4-f51c-40f3-b5a0-a71abe26c14a%22%2C%22Oid%22%3A%225e564de5-1ce5-4861-8f14-b336681ea08d%22%2C%22IsBroadcastMeeting%22%3Atrue%2C%22role%22%3A%22a%22%7D&btype=a&role=a

Digital copies of the Bidding Documents are available at www.interstateeng.com or www.questcdn.com for a download fee of \$37.00. the On-Line Bidding Fee is \$42.00. These documents may be downloaded by selecting this project from the "Bid Documents" tab and by entering Quest Project Number 9574364 on the "Search Projects" page. For assistance and free membership registration, contact QuestCDN at (952) 233-1632 or info@questcdn.com. Paper copies of the Bidding Documents may be obtained from Interstate Engineering, Inc. located at 1999 4th Street North, Wahpeton, ND 58075, phone (701) 642-5521, for a fee of \$150.00 per set. The bidding and contract documents may also be examined at the Interstate Engineering office located at 1999 4th St. North, Wahpeton, North Dakota, 58075.

This project consists of the following approximate quantities:

18,050 SY	Asphalt Milling
3,100 TON	Superpave FAA 43
900 GAL	Tack Coat
355 SY	6" Reinforced Concrete Driveway
1,075 LF	Mudjacking Curb & Gutter
1,440 SF	Mudjacking Concrete Driveway
2,950 LF	Curb and Gutter
3,040 SY	Mine and Blend
200 TON	PG58-28 Asphalt Cement

Traffic Control and all miscellaneous work necessary therefor and incidental thereto.

Each bid will be submitted on the basis of a cash payment for work. It will either be enclosed in a sealed envelope addressed to the above-mentioned addressed to the above-mentioned City of Auditor/Finance Director or shall be submitted via QuestCDN Online Bidding and shall be designated that the bid is for "**West Central Street Improvement Project, City Project No. ST24-287, Wahpeton, North Dakota.**" The bid shall be accompanied by a Bidder's Bond in a separate envelope in the amount of 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 North Dakota. If the Principal's bid is accepted by the City of Wahpeton and the contract

awarded, the principal, within ten (10) days after the Notice of Award, will be required to execute and effect a contract in accordance with the terms of the principal's bid and any requirements and conditions of the Owner.

A Contractor's Bond, as required by Section 48-01.2-10 of the North Dakota Century Code, shall be included with the executed Contract Documents. The Bid Security shall be as required in Section 48-01.2-05 of the North Dakota Century Code.

All bidders must be licensed for the highest amount of their bids, as required by Section 43-07-07 of the North Dakota Century Code and a copy of the license or certificate of renewal thereof issued shall be enclosed in the required bid bond envelope.

No bid will be read or considered which does not fully comply with the above provisions as to Bond and Licenses, and any deficient bid submitted will be resealed and returned to the Bidder immediately.

The OWNER retains the right to reject any or all of the bids submitted and to waive any informality in any bid and to hold all bids for a period not to exceed thirty (30) days from said date of opening and to hold the three low bids and bid securities for a period not to exceed sixty (60) days from said date of bid opening.

The work is to commence upon a date to be specified by the OWNER, notice of which will be given to the successful bidder ten (10) days in advance of the start of construction. **The Contractor will be required to commence construction and substantially complete all of the work for the project by October 17, 2025. Final completion for this project is October 31, 2025.**

By order of the OWNER
CITY OF WAHPETON, ND

Darcie Huwe
City Auditor/Finance Director

Dated this 21st day of April 2025

Published April 30, May 3, 10, 2025.

PART 1 GENERAL

00.1.01 BIDS

- A. ELECTRONIC BIDS ONLY submitted through QuestCDN will be received by the OWNER as specified in the Advertisement for performing work as set forth in the Drawings and Project Manual. Mailed or hand delivered bids will not be opened or considered.
- B. At the time and place indicated, the bids will be publicly opened and read.

00.1.02 FORM

- A. Each proposal shall be made on a form prepared by the ENGINEER and included as one of the Contract Documents and shall be submitted via QuestCDN Online Bidding.
- B. Proposals must be filled in, in ink or typewritten.
- C. No alterations or interlineations will be permitted, unless made before submission and initialed and dated.
- D. Each electronic proposal shall be on the form prepared by the ENGINEER in QuestCDN and shall be included in the submittal on QuestCDN.
- E. SECTION 00 41 05 QuestCDN On-Line Bid Form shall be completed by the Bidder, signed by the Bidder, and submitted as one of the documents required for QuestCDN On-Line Bidding.

00.1.03 DISCREPANCIES

In case of a difference between the extended price and the unit price of the proposal, the unit price shall govern.

00.1.04 PROPOSAL GUARANTEE

- A. All bids are to be submitted on the basis of cash payment for the work and are to be enclosed in a sealed envelope addressed to the undersigned Authorized Representative accompanied by a bidder's bond in a separate outside envelope for a sum equal to five (5) percent 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 be accepted and the contract awarded to them, they will, within ten days after Notice of Award, execute and effect a contract in accordance with the terms of their bid and a contractor's bond.
- B. Bid security shall be as required in Section 48 01.2-05 of the North Dakota Century Code as amended.
- C. All bidders must be licensed for the highest amount of their bids, as required by Section 43-07-07 of the North Dakota Century Code.
- D. No bid will be read or considered which does not fully comply with the above provisions as to bonds and licenses, and any deficient bid submitted will be resealed and returned to the bidder immediately.
- E. As soon as the bid prices have been compared, the OWNER will return the bid securities of all except the three (3) lowest responsible bidders.
- F. When the Contract is executed by the successful bidder and OWNER, the bid securities of the two remaining unsuccessful bidders will be returned.
- G. The bond of the successful bidder will be retained until the Agreement and Surety Bond have been executed and approved, after which it will be returned.

00.1.05 CONTRACT AND BOND

- A. The party to whom the Contract is awarded will be required to execute the Agreement and a Performance Payment Bond within ten (10) calendar days from the date when the written "Notice of Award" is mailed to the Bidder at the address given by them.
- B. If any Bidder to whom a contract is awarded fails or refuses to enter into such Agreement when requested to do so, the bond accompanying their bid shall be retained by the OWNER as liquidated damages for such failure.
- C. The bond shall be delivered to the OWNER and shall be credited by the OWNER to the fund from which the consideration for such work is payable.
- D. The sufficiency of any bond filed by a bidder shall be determined by the governing body at the time it considers the bids.

**WEST CENTRAL STREET IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA**

**DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
SECTION 00 21 00 – INSTRUCTION TO BIDDERS
PROJECT No. ER24-00-139**

00.1.06 PERFORMANCE AND PAYMENT BOND

- A. A Performance and Payment Bond in the amount of one hundred percent (100%) of the Contract price with a Corporate Surety approved by the OWNER and the ENGINEER will be required for the faithful performance of the Contract, and the bidder shall state in the proposal the name and address of the Surety or Sureties who will sign this bond in case the Contract is awarded to them.
- B. The Contract Bond shall be as required by Section 48-01.2-10 of the North Dakota Century Code as amended.
- C. A maintenance guarantee for the repair of all damages due to improper materials or workmanship for a period of one year after the acceptance of the work by the OWNER will also be required.

00.1.07 AWARD OR REJECTION

- A. The Contract will be awarded to the lowest and/or best qualified responsible Bidder complying with these instructions and with the Advertisement.
- B. The OWNER reserves the right to reject any or all Proposals or to waive any formality or technicality in any Proposal.
- C. The OWNER reserves the right to hold all bids and bid securities for a period not to exceed thirty (30) days and to hold the three low bids and bid securities for a period not to exceed sixty (60) days, from the date of the bid opening.

00.1.08 CONTRACTOR QUALIFICATIONS

- A. Before the award of the Contract, any bidder may be required to furnish evidence, satisfactory to the OWNER and to the ENGINEER, of the necessary facilities, ability and pecuniary resources to fulfill the conditions of the said Contract.
- B. Before contracts are executed by the OWNER, the Contractor will furnish the OWNER'S ENGINEER with a list of Subcontractors for his review, so as to conform to **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual.

00.1.09 MODIFICATIONS

- A. Alternate proposals will not be considered unless called for.
- B. Oral proposals or modifications will not be considered.

00.1.10 EXAMINATION OF DOCUMENTS AND SITE VISIT

- A. Before submitting a Proposal, Bidders shall carefully examine the Drawings, read the Project Manual, and the other Contract Documents, shall visit the site of work, and shall fully inform themselves as to all existing conditions and limitations.
- B. The Contractor shall accept such conditions and limitations as the same are eventually found to exist, and to waive all claims for extra compensation arising from unforeseen difficulties, except as may be expressly provided for in the Project Manual.
- C. Professions of ignorance regarding the work may in no way serve to nullify the provisions of the contract or Project Manual.

00.1.11 DOCUMENT TRACKING

- A. Bid Documents can be obtained by downloading an electronic file or purchasing a hard copy paper set of the documents as noted in the Advertisement and Invitation.
- B. The name of each purchase of downloads and hard copies will be recorded by the respective service provider who shall furnish a listing to the Engineer.
- C. Bids will be accepted only from the original purchasers or from another qualified Bidder to whom such a set has been transferred by the original purchaser, provided that in the event of such transfer the ENGINEER shall receive from the original purchasers, at least five (5) days prior to the scheduled bid opening, written notice of such transfer, together with the name of the party to whom the transfer has been made.

00.1.12 OWNER INFORMATION OBLIGATION

- A. The Construction Agreement and the detailed Project Manual contain the provisions required for the construction of the project.
- B. No information obtained from any officer, agent, or employee of the OWNER on any such matters shall in any way affect the risk or obligations assumed by the Contractor or relieve them from fulfilling any of the conditions of the Contract, except to the extent provided in Subpart 00.1.13 of this section of this Project Manual.

00.1.13 INTERPRETATIONS OF DOCUMENTS

- A. If any person contemplating submitting a Proposal is in doubt as to the true meaning of any part of the Drawings, Project Manual, or other Contract Documents, or finds discrepancies in or omissions from the Drawings or Project Manual, they may submit to the ENGINEER a written request for an interpretation or correction thereof.
- B. The person submitting the request will be responsible for its prompt delivery.
- C. Any interpretation or correction of the documents will be made only by Addendum duly issued.
 - 1. Notice of the Addendum will be e-mailed to the address provided by plan holders that obtained digital copies of the documents.
 - a. Said plan holders are required to download the Addendum.
 - 2. Hard copies of the Addendum will be sent to plan holders that purchased a paper copy of the documents.
- D. Neither the OWNER nor the ENGINEER will be responsible for any other explanations or interpretations of the Contract Documents.

00.1.14 UNACCEPTABLE BIDS

- A. Bids which are incomplete, unbalanced, conditioned or obscure or which contain additions not called for, erasures, alterations or irregularities of any kind, or which do not comply with the Instructions for Bidders may be rejected at the option of the OWNER.
- B. If the OWNER so elects, proposals may be issued for projects in combination and/or separately, so that bids may be submitted either on the combinations or on separate units of the combinations.
- C. The OWNER reserves the right to make awards on combination bids or separate bids to the best advantage of the OWNER.
- D. Proposals will not be considered if the Bidder adds any provisions reserving the right to accept or reject an award or enter into a Contract pursuant to an award.

00.1.15 BID SUBMITTAL CONDITIONS

- A. All bids must be completed in the QuestCDN vBid and disclosed the following information:
 - 1. The work covered by the bid.
 - 2. The name of the person, firm or corporation submitting the bid.
 - 3. A copy of the license or certificate of renewal thereof issued shall be uploaded in QuestCDN.
 - 4. Acknowledgement of each Addendum.
 - 5. A Bid Bond for the project meeting the contract specifications shall be uploaded in QuestCDN.
 - 6. A signed copy of Section 00 41 05 QuestCDN On-Line Bid form shall be uploaded in QuestCDN.
- B. No contract will be awarded to any contractor unless they are the holder of a license in the class within which the value of the project shall fall.
 - 1. A contractor must be the holder of a license at least ten (10) days prior to the date set for receiving bids to be a qualified bidder.
- C. Proposals shall be delivered by the time and to the place stipulated in the Advertisement for Bids.
 - 1. It is the sole responsibility of the Bidder to see that their proposal is received in proper time.
 - 2. Any proposal received after the scheduled closing time for receipt of proposals shall be returned to the Bidder unopened.

00.1.16 WITHDRAWAL

- A. A bidder may withdraw any proposal they have submitted at any time prior to the hour set for the opening of the bids, provided the request for withdrawal is signed in a manner identical to the proposal being withdrawn.
- B. No withdrawal or modification will be permitted after the hour designated for the opening of the bids.

00.1.17 ADDENDA

- A. Any addenda issued during the time of bidding, or forming a part of the Contract Documents loaned to the bidder for the preparation of their proposal, shall be covered in the proposal and shall be made a part of the Contract.
- B. Receipt of each Addendum shall be acknowledged in the proposal and upon the outside of the Bid Envelope.

00.1.18 MORE THAN ONE PROPOSAL

- A. No person, firm or corporation shall be allowed to make, file or to be interested in more than one proposal for the same work, unless alternate proposals are called for.
- B. A person, firm, or corporation who has submitted a sub proposal to a bidder, or who has quoted prices on materials to a bidder, is not hereby disqualified from submitting a sub proposal or quoting prices to other bidders.

00.1.19 NORTH DAKOTA STATE TAX CLEARANCE

The successful Contractor shall file with the OWNER prior to award of the Contracts a current statement of income tax clearance from the North Dakota Tax Department in accordance with Section 43-07-11.1 North Dakota Century Code as amended.

00.1.20 GENERAL CONDITIONS

SECTION 00 72 00 GENERAL CONDITIONS as bound herewith, are hereby made a part of the Contract Documents.

00.1.21 ESTIMATE QUANTITIES

Approval of quantities that will be the basis for payment estimates, both monthly and final, will be made by the ENGINEER.

00.1.22 CONFERENCES

- A. The Contractor will be notified by the ENGINEER of any conferences that require their attendance.
- B. A date and time for said conferences will be set by the ENGINEER.

00.1.23 GOVERNMENT REQUIREMENTS

- A. The Contractor shall comply with all "Government Requirements" as found in **SECTION 00 73 73 STATUTORY REQUIREMENTS** of this Project Manual, if applicable, contained herein.

Dated this 14th day of April, 2025

CITY OF WAHPETON, NORTH DAKOTA
OWNER

BY

TITLE

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS (NOT USED)

END OF SECTION

PART 1 GENERAL

00.1.01 PROPOSAL

A. In compliance with your Advertisement and subject to all the conditions thereof, the undersigned

hereby proposes to furnish and do everything required by the Contracts to which this refers for the construction of all structures listed at the unit prices shown for each bid item on the following Bid Schedule.

1. The Bid Schedule attached lists the various divisions of construction contemplated in the Drawings and Project Manual, together with an estimate of each unit.

B. With these units as the basis, the bidder will extend such item, using the cost they insert in the unit column.

1. Any total cost found inconsistent with the unit cost when the bids are examined will be deemed in error and corrected to agree with the unit cost, which shall be considered correct.

00.1.02 PROJECT

A. This project consists of the West Central Street Improvement Project No.: ST24-287 for the City of Wahpeton, North Dakota as shown in the Advertisement. This project includes the milling; mine & blend; curb & gutter mud jacking; curb & gutter replacement; concrete driveways; adjustment of gate valves, manhole covers, and inlet covers; asphalt paving; reshape roadway and seeding. The project also consists of the reconstruction of 5th Avenue North from 11th Street North to Richland Street including common excavation, subgrade prep, geotextile fabric, salvaged base course, concrete curb & gutter, concrete sidewalk, concrete driveways, hot bituminous pavement, storm sewer, sanitary main extension, water main loop, seeding and signage.

00.1.03 EXAMINATION OF DOCUMENTS AND SITE VISIT

The undersigned has examined the location of the proposed work, the Drawings, Project Manual and other Contract Documents and is familiar with the local conditions and limitations at the place where the work is to be performed.

00.1.04 ADDENDA

The Receipt of Addenda's _____ through _____ is hereby acknowledged.

00.1.05 BASIS OF PROPOSAL

All various phases of work enumerated in the Detailed Project Manual with their individual jobs and overhead, whether specifically mentioned, included by implication or appurtenant thereto, are to be performed by the Contractor under one of the items listed in the bid schedule, irrespective of whether it is named in said list, and that the OWNER may specify any number or combination of units that the Engineer may deem necessary for the construction of the Project.

00.1.06 TAXES

A. Along with subpart 01.1.05 of this section of the Project Manual the undersigned agrees that the prices in this Contractor's Proposal include provisions for the payment of all monies which will be payable by the Bidder or the OWNER in connection with the construction of Project on account of taxes imposed by any taxing authority upon the sale, purchase or use of materials, supplies or equipment to be incorporated in the Project.

B. The Bidder agrees to pay all such taxes and to furnish the appropriate taxing authorities with all required information and reports pertaining thereto.

00.1.07 COLLUSION

The undersigned bidder does hereby declare and stipulate that this proposal is made in good faith, without collusion or connection with any other person or persons bidding for the same work, and that it is made in pursuance of and subject to all the terms and conditions of the Information for Bidders, the Construction Agreement, the Detailed Project Manual, and the Drawings pertaining to the work to be done, all of which have been examined by the undersigned.

00.1.08 PROPOSAL GUARANTEE

Accompanying this Proposal is a Bidder's Bond payable to the OWNER in the amount of five percent (5%) of this bid, in accordance with the provisions of subpart 00.1.04 of **SECTION 00 21 00 INSTRUCTIONS TO BIDDERS** of this Project Manual.

00.1.09 PERFORMANCE AND PAYMENT BOND

- A. As shown in Subpart 00.1.06 of **SECTION 00 21 00 INSTRUCTIONS TO BIDDERS** of this Project Manual, the undersigned bidder agrees to execute the Agreement and a Performance and Payment Bond for the amount of the total of this bid within ten (10) calendar days from the date when the written notice of the award of the Contract is delivered to them at the address given on this proposal.
- B. The name and address of the corporate surety with which the Bidder proposes to furnish the specified Performance and Payment Bond is as follows:

00.1.10 CONTRACTOR'S LICENSE

The undersigned hereby warrants it possesses Contractor's License Class _____ No. _____ for the State of _____, in which the project is located and said license expires on _____, 20____.

00.1.11 CONTRACT TIME

- A. Bidder hereby agrees to commence work under this contract on or before a date to be specified in the Notice to Proceed.
- B. Bidder hereby agrees that the Work will be Substantially Complete and will be completed and ready for Final Payment on or before the dates indicated in Article 4 of **SECTION 00 52 00 AGREEMENT FORMS**.
- C. Bidder accepts the provisions of the Agreement as to liquidated damages.
 1. This is as provided in subpart 00.1.15 of **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual.

00.1.12 OWNER'S RIGHTS RESERVED

The undersigned understands that the OWNER reserves the right to reject any or all Proposals or to waive any formality or technicality in any Proposal in the interest of the OWNER.

00.1.13 PAYMENT

- A. This bid is submitted on the basis of cash payment for work.
- B. Payment for work performed will be in accordance with the Bid Schedule, subject to changes as provided for in the Construction Contract.

00.1.14 GOVERNMENTAL REQUIREMENTS

The Contractor agrees to conform to the Governmental Requirements in **SECTION 00 73 73 STATUTORY REQUIREMENTS** of this Project Manual.

00.1.15 BIDDER'S PROPOSAL

- A. Schedule of Rates

WEST CENTRAL STREET IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
SECTION 00 41 00 – BID FORMS
PROJECT No. ER24-00-139

SECTION 1 BID

L & M – Labor and Materials LS = Lump Sum

ITEM No.	DESCRIPTION	UNITS	EST. QUAN.	UNIT PRICE L&M	EXTENDED PRICE L&M
1	Contract Bond	LS	1		
2	Section 1 Mobilization	LS	1		
3	Section 1 Traffic Control	LS	1		
4	Remove Curb and Gutter	LF	1,233		
5	Curb and Gutter – Type 1	LF	669		
6	Mudjack Curb and Gutter	LF	455		
7	Mudjack Concrete Driveway	SF	442		
8	Remove Concrete Driveway	SY	115		
9	6" Reinforced Concrete Driveway	SY	115		
10	5" Reinforced Concrete Sidewalk	SY	8		
11	Asphalt Milling	SY	14,252		
12	Superpave FAA 43	TON	2,493		
13	Topsoil	CY	37		
14	Seeding and Hydromulch	SY	223		
15	Adjust Gate Valve	EA	3		
16	Adjust Manhole	EA	14		
17	Inlet Protection – Type B	EA	13		
18	Mine and Blend	SY	3,044		
19	Waste Excavation	CY	1,015		
20	Reshape Roadway	SY	2,540		
21	4" PVC Perforated Pipe	LF	1,245		
22	Modify Existing Inlet	EA	6		
23	Geotextile Fabric – Type R1	SY	2,646		
24	Crushed Concrete (Salvage Base Course)	CY	995		
25	Type II Inlet	EA	3		
26	Type II Inlet Casting & Cover	EA	3		
27	12" RCP Storm Sewer	LF	104		
28	Connect to Existing Storm Sewer Manhole	EA	1		
29	Removal of Inlet	EA	3		
30	Removal of Pipe – All Types & Sizes	LF	86		
31	Removal of Concrete	SY	42		
32	Insulate Watermain	EA	2		
33	Subcut	CY	263		
34	Sanitary Manhole Casting	EA	2		

TOTAL SECTION 1 BID AMOUNT \$ _____

WEST CENTRAL STREET IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WHA PETON, NORTH DAKOTA

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
SECTION 00 41 00 – BID FORMS
PROJECT No. ER24-00-139

SECTION 2 BID

L & M – Labor and Materials LS = Lump Sum

ITEM No.	DESCRIPTION	UNITS	EST. QUAN.	UNIT PRICE L&M	EXTENDED PRICE L&M
35	Section 2 Mobilization	LS	1		
36	Section 2 Traffic Control	LS	1		
37	Asphalt Milling	SY	2,584		
38	Superpave FAA 43	TON	625		

TOTAL SECTION 2 BID AMOUNT \$

SECTION 3 BID

L & M – Labor and Materials LS = Lump Sum

ITEM No.	DESCRIPTION	UNITS	EST. QUAN.	UNIT PRICE L&M	EXTENDED PRICE L&M
39	Section 3 Mobilization	LS	1		
40	Section 3 Traffic Control	LS	1		
41	Superpave FAA 43	TON	395		
42	Adjust Manhole	EA	1		
43	Inlet Protection – Type B	EA	1		
44	Mine and Blend	SY	3,872		
45	Waste Excavation	CY	181		
46	Reshape Roadway	SY	3,872		
47	Liquid Base Stabilizer	GAL	232		
48	Dust Suppressant	GAL	1,027		

TOTAL SECTION 3 BID AMOUNT \$

SECTION 4 BID

L & M – Labor and Materials LS = Lump Sum

ITEM No.	DESCRIPTION	UNITS	EST. QUAN.	UNIT PRICE L&M	EXTENDED PRICE L&M
49	Section 4 Mobilization	LS	1		
50	Section 4 Traffic Control	LS	1		
51	Superpave FAA 43	TON	1,178		
52	Mine and Blend	SY	3,895		
53	Reshape Roadway	SY	3,895		
54	Liquid Base Stabilizer	GAL	78		
55	Dust Suppressant	GAL	1,558		

TOTAL SECTION 4 BID AMOUNT \$

WEST CENTRAL STREET IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
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DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
SECTION 00 41 00 – BID FORMS
PROJECT No. ER24-00-139

SECTION 5 BID

L & M – Labor and Materials LS = Lump Sum

ITEM No.	DESCRIPTION	UNITS	EST. QUAN.	UNIT PRICE L&M	EXTENDED PRICE L&M
56	Section 5 Mobilization	LS	1		
57	Section 5 Traffic Control	LS	1		
58	Remove Curb and Gutter	LF	180		
59	Curb and Gutter – Type 1	LF	3,036		
60	6" Reinforced Concrete Driveway	SY	234		
61	5" Reinforced Concrete Sidewalk	SY	1,261		
62	Asphalt Milling	SY	4,516		
63	Superpave FAA 43	TON	1,601		
64	Topsoil	CY	1,356		
65	Seeding and Hydromulch	SY	4,307		
66	Inlet Protection – Type B	EA	2		
67	Waste Excavation	CY	5,005		
68	4" PVC Perforated Pipe	LF	5,492		
69	Geotextile Fabric – Type R1	SY	7,193		
70	Crushed Concrete (Salvage Base Course)	CY	6,547		
71	Removal of Inlet	EA	2		
72	Removal of Pipe – All Types & Sizes	LF	421		
73	Removal of Concrete	SY	41		
74	Unclassified Excavation	CY	1,091		
75	Subgrade Preparation	STA	15		
76	6" PVC Water Main	LF	425		
77	8" PVC Sanitary Sewer	LF	35		
78	Connect to Existing Water Main	EA	2		
79	Modify Existing Sanitary Manhole	EA	1		
80	Ductile Iron Fittings	LBS	238		
81	6" Gate Valve & Box	EA	3		
82	Detectable Warning Panels	SF	54		
83	Permanent Signage	LS	1		
84	72" Valley Gutter	LF	102		
85	Concrete Headwall	EA	1		
86	Type I Inlet	EA	1		
87	Type II Inlet - Double	EA	2		
88	22" x 13.5" RCP – Arch Storm Sewer	LF	400		
89	22" x 13.5" RCP – Arch End Section	EA	2		
90	78" Storm Sewer Manhole Base	EA	2		
91	60" Storm Sewer Manhole	EA	2		
92	Sanitary Manhole Casting & Cover	EA	2		
93	Connect to Existing Storm Sewer	EA	2		

TOTAL SECTION 5 BID AMOUNT \$

B. One contract can be awarded based on the low responsive, responsible bids as accepted by the Owner.

00.1.16 MODIFICATIONS OF BASE BID

A.

If the Contractor is allowed to use _____
(Name Alternate Material)
for _____ deduct \$ _____
(System Component)

Add \$ _____ from base bid _____

B.

If the Contractor is allowed to use _____
(Name Alternate Material)
for _____ deduct \$ _____
(System Component)

Add \$ _____ from base bid _____

Contractor shall fill in amount for all bid item numbers for base bid, allowances and every alternate shown on the bid form.

One contract can be awarded based on the lowest cost combination of bids on the Base Bid and the Add alternates selected by the Owner.

THE OWNER RESERVES THE RIGHT TO REJECT ANY AND ALL BIDS OR TO WAIVE ANY FORMALITY OR TECHNICALITY IN ANY BID.

00.1.17 THE ABOVE PROPOSAL IS HEREBY RESPECTFULLY SUBMITTED BY:

(Contractor)

(By)

(Title)

(Business Address)

(City)

(State)

(Date)

(Telephone Number)

ATTEST:

(SEAL)

Corporate Secretary

- A. The Proposal must be signed with the full name of the Bidder.
1.

In the case of a partnership, the Proposal must be signed in the firm name of each partner.
2.

In the case of a corporation, the Proposal must be signed in the corporate name by a duly authorized officer and the corporate seal affixed and attested by the Secretary of the corporation.

00.1.18 ACKNOWLEDGEMENT OF LIQUIDATED DAMAGES

DEFINITIONS:

When used in the Acknowledgement of Liquidated Damages, the following definitions shall apply:

WEST CENTRAL STREET IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
SECTION 00 41 00 – BID FORMS
PROJECT No. ER24-00-139

Contractor: _____

Owner: _____

This Acknowledgement dated this ____ day of _____ day of _____ 20__ by CONTRACTOR wherein CONTRACTOR acknowledges and agrees that the public improvement contract, which is the subject of this submitted bid contains a liquidated damages clause.

CONTRACTOR acknowledges and agrees that because the project involves the construction of public improvements, said liquidated damages clause is necessary.

Applicable contract completion dates and liquidated damage amounts shall be as provided in Article 4 of **SECTION 00 52 00 AGREEMENT FORMS**.

CONTRACTOR acknowledges and agrees that the OWNER is damaged for each calendar day past the contract's substantial completion date that this project is not substantially completed.

CONTRACTOR further acknowledges and agrees that the OWNER is damaged for each calendar day past the contract's final completion date that this project is not finally completed.

Substantial completion shall be considered to be attained once the OWNER has beneficial use of the facility unencumbered by construction work other than punch list items AND the work is completed to where a certificate of occupancy can be attained.

Final completion shall be considered to be attained upon completion of all punch list items being addressed to the satisfaction of the OWNER AND all close-out documents, complete and correct, have been received by the OWNER.

Should the CONTRACTOR fail to attain substantial completion by the date specified for final completion the liquidated damages will remain at the amount specified for substantial completion until substantial completion is attained. Once substantial completion is attained the liquidated damages will be reduced to the amount specified for final completion after the substantial completion date until final completion is attained.

(CONTRACTOR) acknowledges and agrees that because this is a public improvement project, it is extremely difficult to calculate the OWNER's actual damages for delay in completing the project, but that these mutually agreed upon figure(s) for liquidated damages for substantial and final completion, are the best approximation possible, are reasonable, and are not a penalty. These mutually agreed upon liquidated damages amounts have been specifically taken into account in arriving at the dollar amount of CONTRACTOR's submitted bid. These liquidated damages amounts shall be included in the public improvement project contract and CONTRACTOR acknowledges and agrees to be bound by these amounts should CONTRACTOR be awarded the public improvement contract.

These mutually agreed upon amounts may be deducted from money due or to become due CONTRACTOR should CONTRACTOR be awarded the public improvement contract and should CONTRACTOR fail to complete the work substantially and finally within the times specified in this contract.

By: _____
(CONTRACTOR)

Its: _____

END OF SECTION

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PART 1 GENERAL

00.1.01 PROPOSAL

A. In compliance with your Advertisement and subject to all the conditions thereof, the undersigned

hereby proposes to furnish and do everything required by the Contracts to which this refers for the construction of all structures listed at the unit prices shown for each bid item on the QuestCDN On-Line Bidding.

1. The On-Line Bid Form lists the various divisions of construction contemplated in the Drawings and Project Manual, together with an estimate of the units of each.
2. **SECTION 00 41 05 QUESTCDN ON-LINE BID FORM** shall be filled out and signed by the Contractor and shall be submitted with the Electronic Bid.

B. With these units as the basis, the bidder will enter the unit cost and the extension will be calculated automatically based upon number of units on the On-Line Bid Form.

00.1.02 PROJECT

A. This project consists of the West Central Street Improvement Project No.: ST24-287 for the City of Wahpeton, North Dakota as shown in the Advertisement. This project includes the milling; mine & blend; curb & gutter mud jacking; curb & gutter replacement; concrete driveways; adjustment of gate valves, manhole covers, and inlet covers; asphalt paving; reshape roadway and seeding. The project also consists of the reconstruction of 5th Avenue North from 11th Street North to Richland Street including common excavation, subgrade prep, geotextile fabric, salvaged base course, concrete curb & gutter, concrete sidewalk, concrete driveways, hot bituminous pavement, storm sewer, sanitary main extension, water main loop, seeding and signage.

00.1.03 EXAMINATION OF DOCUMENTS AND SITE VISIT

The undersigned has examined the location of the proposed work, the Drawings, Project Manual and other Contract Documents and is familiar with the local conditions and limitations at the place where the work is to be performed.

00.1.04 ADDENDA

The Receipt of Addenda's _____ through _____ is hereby acknowledged.

00.1.05 BASIS OF PROPOSAL

All various phases of work enumerated in the Detailed Project Manual with their individual jobs and overhead, whether specifically mentioned, included by implication or appurtenant thereto, are to be performed by the Contractor under one of the items listed in the bid schedule, irrespective of whether it is named in said list, and that the OWNER may specify any number or combination of units that the Engineer may deem necessary for the construction of the Project.

00.1.06 TAXES

- A. Along with subpart 01.1.05 of this section of the Project Manual the undersigned agrees that the prices in this Contractor's Proposal include provisions for the payment of all monies which will be payable by the Bidder or the OWNER in connection with the construction of Project on account of taxes imposed by any taxing authority upon the sale, purchase or use of materials, supplies or equipment to be incorporated in the Project.
- B. The Bidder agrees to pay all such taxes and to furnish the appropriate taxing authorities all required information and reports pertaining thereto.

00.1.07 COLLUSION

The undersigned bidder does hereby declare and stipulate that this proposal is made in good faith, without collusion or connection with any other person or persons bidding for the same work, and that it is made in pursuance of and subject to all the terms and conditions of the Information for Bidders, the Construction Agreement, the Detailed Project Manual, and the Drawings pertaining to the work to be done, all of which have been examined by the undersigned.

00.1.08 PROPOSAL GUARANTEE

Accompanying this Proposal is a Bidder's Bond payable to the OWNER in the amount of five percent (5%) of this

**WEST CENTRAL STREET IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA**

**DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
SECTION 00 41 05 – QUESTCDN ON-LINE BID FORMS
PROJECT No. ER24-00-139**

bid, in accordance with the provisions of subpart 00.1.04 of **SECTION 00 21 00 INSTRUCTIONS TO BIDDERS** of this Project Manual.

00.1.09 PERFORMANCE AND PAYMENT BOND

- A. As shown in Subpart 00.1.06 of **SECTION 00 21 00 INSTRUCTIONS TO BIDDERS** of this Project Manual, the undersigned bidder agrees to execute the Agreement and a Performance and Payment Bond for the amount of the total of this bid within ten (10) calendar days from the date when the written notice of the award of the Contract is delivered to them at the address given on this proposal.
- B. The name and address of the corporate surety with which the Bidder proposes to furnish the specified Performance and Payment Bond is as follows:

00.1.10 CONTRACTOR'S LICENSE

The undersigned hereby warrants it possesses Contractor's License Class _____ No. _____ for the State of _____, in which the project is located and said license expires on _____, 20____.

00.1.11 CONTRACT TIME

- A. Bidder hereby agrees to commence work under this contract on or before a date to be specified in the Notice to Proceed.
- B. Bidder hereby agrees that the Work will be Substantially Complete and will be completed and ready for Final Payment on or before the dates indicated in Article 4 of **SECTION 00 52 00 AGREEMENT FORMS**.
- C. Bidder accepts the provisions of the Agreement as to liquidated damages.
1. This is as provided in subpart 00.1.15 of **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual.

00.1.12 OWNER'S RIGHTS RESERVED

The undersigned understands that the OWNER reserves the right to reject any or all Proposals or to waive any formality or technicality in any Proposal in the interest of the OWNER.

00.1.13 PAYMENT

- A. This bid is submitted on the basis of cash payment for work.
- B. Payment for work performed will be in accordance with the Bid Schedule, subject to changes as provided for in the Construction Contract.

00.1.14 GOVERNMENTAL REQUIREMENTS

The Contractor agrees to conform to the Governmental Requirements in **SECTION 00 73 73 STATUTORY REQUIREMENTS** of this Project Manual.

One contract can be awarded based on the low responsive, responsible bids as accepted by the Owner.

00.1.15 MODIFICATIONS OF BASE BID

A. If the Contractor is allowed to use _____
(Name Alternate Material)
for _____ deduct \$ _____
(System Component)

Add \$ _____ from base bid _____

B. If the Contractor is allowed to use _____
(Name Alternate Material)
for _____ deduct \$ _____
(System Component)

Add \$ _____ from base bid _____

Contractor shall fill in amount for all bid item numbers for base bid, allowances and every alternate shown on the bid form.

One contract can be awarded based on the lowest cost combination of bids on the Base Bid and the Add alternates selected by the Owner.

THE OWNER RESERVES THE RIGHT TO REJECT ANY AND ALL BIDS OR TO WAIVE ANY FORMALITY OR TECHNICAITY IN ANY BID.

00.1.16 THE ABOVE PROPOSAL IS HEREBY RESPECTFULLY SUBMITTED BY:

(Contractor)

(By)

(Title)

(Business Address)

(City)

(State)

(Date)

(Telephone Number)

ATTEST:

(SEAL)

Corporate Secretary

- A. The Proposal must be signed with the full name of the Bidder.
1. In the case of a partnership, the Proposal must be signed in the firm name of each partner.
 2. In the case of a corporation, the Proposal must be signed in the corporate name by a duly authorized officer and the corporate seal affixed and attested by the Secretary of the corporation.

00.1.17 ACKNOWLEDGEMENT OF LIQUIDATED DAMAGES

DEFINITIONS:

When used in the Acknowledgement of Liquidated Damages, the following definitions shall apply:

Contractor: _____
Owner: _____

This Acknowledgement dated this ____ day of _____ day of _____ 20__ by CONTRACTOR wherein CONTRACTOR acknowledges and agrees that the public improvement contract, which is the subject of this submitted bid contains a liquidated damages clause.

CONTRACTOR acknowledges and agrees that because the project involves the construction of public improvements, said liquidated damages clause is necessary.

Applicable contract completion dates and liquidated damage amounts shall be as provided in Article 4 of **SECTION 00 52 00 AGREEMENT FORMS**.

CONTRACTOR acknowledges and agrees that the OWNER is damaged for each calendar day past the contract's substantial completion date that this project is not substantially completed.

CONTRACTOR further acknowledges and agrees that the OWNER is damaged for each calendar day past the

**WEST CENTRAL STREET IMPROVEMENT PROJECT
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SECTION 00 41 05 – QUESTCDN ON-LINE BID FORMS
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contract's final completion date that this project is not finally completed.

Substantial completion shall be considered to be attained once the OWNER has beneficial use of the facility unencumbered by construction work other than punch list items AND the work is completed to where a certificate of occupancy can be attained.

Final completion shall be considered to be attained upon completion of all punch list items being addressed to the satisfaction of the OWNER AND all close-out documents, complete and correct, have been received by the OWNER.

Should the CONTRACTOR fail to attain substantial completion by the date specified for final completion the liquidated damages will remain at the amount specified for substantial completion until substantial completion is attained. Once substantial completion is attained the liquidated damages will be reduced to the amount specified for final completion after the substantial completion date until final completion is attained.

(CONTRACTOR) acknowledges and agrees that because this is a public improvement project, it is extremely difficult to calculate the OWNER's actual damages for delay in completing the project, but that these mutually agreed upon figure(s) for liquidated damages for substantial and final completion, are the best approximation possible, are reasonable, and are not a penalty. These mutually agreed upon liquidated damages amounts have been specifically taken into account in arriving at the dollar amount of CONTRACTOR's submitted bid. These liquidated damages amounts shall be included in the public improvement project contract and CONTRACTOR acknowledges and agrees to be bound by these amounts should CONTRACTOR be awarded the public improvement contract.

These mutually agreed upon amounts may be deducted from money due or to become due CONTRACTOR should CONTRACTOR be awarded the public improvement contract and should CONTRACTOR fail to complete the work substantially and finally within the times specified in this contract.

By: _____
(CONTRACTOR)

Its: _____

END OF SECTION

WEST CENTRAL STREET IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENT
SECTION 00 43 13 – BID SECURITY FORM
PROJECT No. ER24-00-139

PART 1 GENERAL

00.1.01 DESCRIPTION

The EJCDC C-430 Bid Bon (Penal Sum Form) (2 Pages) as included herein shall be used to provide the required bid security and shall be submitted with each bid in accordance with the provisions of **SECTION 00 21 00 INSTRUCTIONS TO BIDDERS**.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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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

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
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.

WEST CENTRAL STREET IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
SECTION 00 51 00 – NOTICE OF AWARD
PROJECT No. ER24-00-139

NOTICE OF AWARD

TO: _____

Description of Work: Construction of _____

_____ for the _____
_____. The OWNER represented by the undersigned has considered the Proposal submitted by you for the above described work in response to its "ADVERTISEMENT AND INVITATION" dated _____ and "INSTRUCTIONS TO BIDDERS". It appearing that it is to the best interest of said OWNER to accept your proposal in the amount of _____ DOLLARS (\$_____), you are hereby notified that YOUR Proposal has been accepted for _____. You are required by the "INSTRUCTIONS TO BIDDERS" to execute the agreement with the undersigned OWNER and to furnish the required Contractor's Performance and Payment Bond, and Certificates of Insurance within fifteen (15) days from the date of the mailing of this Notice to you.

If you fail to execute said agreement and to furnish said bonds and certificates of insurance within fifteen (15) days from the date of mailing of this Notice, you will forfeit your Bid Security, if any, and said OWNER will be entitled to consider all your rights arising out of the OWNER's acceptance of your proposal as abandoned and to award the work covered by your Proposal to another, or to readvertise the work or otherwise dispose thereof as the OWNER may see fit.

Dated this ____ day of _____, _____.

OWNER: _____

(SEAL)

BY: _____

ATTEST:

TITLE: _____

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is

hereby acknowledged this _____ day

of _____, 20____.

By: _____

Title: _____

END OF SECTION

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THIS AGREEMENT is dated as of the _____ day of _____ in the year 20__ by and between: _____, hereinafter called OWNER, and _____ hereinafter called CONTRACTOR, OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 WORK

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The work is generally described as follows: West Central Street Improvement Project, City Project No. ST24-287, Wahpeton, North Dakota.

ARTICLE 2 THE PROJECT

The project for which the Work under the Contract Documents may be the whole or on a part is generally described as follows: This project includes the milling; mine & blend; curb & gutter mud jacking; curb & gutter replacement; concrete driveways; adjustment of gate valves, manhole covers, and inlet covers; asphalt paving; reshape roadway and seeding. The project also consists of the reconstruction of 5th Avenue North from 11th Street North to Richland Street including common excavation, subgrade prep, geotextile fabric, salvaged base course, concrete curb & gutter, concrete sidewalk, concrete driveways, hot bituminous pavement, storm sewer, sanitary main extension, water main loop, seeding and signage.

ARTICLE 3 ENGINEER

3.01 The project has been designed by:

Interstate Engineering, Inc.
1999 4th Street North, Suite A
PO Box 667
Wahpeton, North Dakota 58075-0667

Who is hereinafter called ENGINEER and who is to act as OWNER's Representative, assume all duties and responsibilities and have rights and authority assigned to ENGINEER in the Contract Documents in connection with 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 Dates to Achieve Substantial Completion and Final Payment

- A. Work described in Article 1 shall be substantially complete as follows:
1. All construction schedules shall be substantially complete and ready for Owner use and final inspection by October 17, 2025. Final completion is October 31, 2025.
- B. Work shall begin when the Contract Time commences to run as provided in **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual.

4.03 Liquidated Damages

- A. CONTRACTOR and OWNER recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 4.02 above, plus any extensions thereof allowed in accordance with **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual. 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), CONTRACTOR shall pay OWNER \$1,600.00 for each day that expires after the time specified in paragraph 4.02 for Substantial Completion until the Work is substantially complete.

ARTICLE 5 CONTRACT PRICE

- 5.01 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents

an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the quantity of that item that is constructed and accepted. Unit prices are those listed in the Unit Price Schedule of the Bid Form attached as Exhibit A to this Agreement. Estimated quantities used for bidding purposes are not guaranteed. Payment will be for actual quantities as determined by Engineer in accordance with SECTION 00 72 00 GENERAL CONDITIONS of this Project Manual.

ARTICLE 6 PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

- A. CONTRACTOR shall submit Applications for Payment in accordance with **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual. Applications for Payment will be processed by ENGINEER as provided in **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual or other portions of the Contract Documents.

6.02 Progress Payments; Retainage

- A. OWNER shall make progress payments in accordance with **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment as recommended by the ENGINEER, once each month during construction as provided below. All progress payments will be on the basis of progress of Work Measured by the number of units of each bid item completed times the bid unit price in the Unit Price Schedule of the Bid Form for that item.
1. Prior to Substantial Completion, progress payments will be made equal to the sum of the unit price items less the percentage indicated below, but, in each case, less the aggregate of payments previously made and less such amounts as ENGINEER may determine or OWNER may withhold, in accordance with **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual:
 - a. The OWNER shall retain 10% of the amount of each payment until 50% of the work has been completed. At 50% completion, retainage shall be reduced to 5% of the amount of each payment until final completion and acceptance of all work covered by the Contract Documents.
 - b. Retainage will be 10% of materials and equipment not incorporated in the Work (but delivered, suitably stored and accompanied by documentation satisfactory to OWNER as provided in **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual).
 2. Upon Substantial Completion and at the OWNER's discretion, the amount of retainage may be further reduced if requested by the CONTRACTOR.

6.03 Final Payment

- A. Upon final completion and acceptance of the Work in accordance with **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual.

ARTICLE 7 INTEREST

7.01 All moneys not paid when due as provided in SECTION 00 72 00 GENERAL CONDITIONS of this Project Manual shall bear interest at the maximum rate allowed by law at the place of the Project.

ARTICLE 8 CONTRACTORS REPRESENTATIONS

- 8.01 In order to induce OWNER to enter into this Agreement, CONTRACTOR makes the following representations:
- A. CONTRACTOR has examined and carefully studied the Contract Documents (including all Addenda) listed in Article 9 and the other related data identified in the Bidding Documents.
 - B. CONTRACTOR 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 or furnishing of the Work.
 - C. CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, performance, and furnishing of the Work.
 - D. CONTRACTOR 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 in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities), if any, which have been identified in the Supplementary Conditions as provided in **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which has been identified in the Special Provisions as provided in **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual. CONTRACTOR acknowledges that such reports and drawings are not Contract Documents and may not be complete for CONTRACTOR's purposes. CONTRACTOR acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the site.

- E. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, performance, or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents to be employed by the CONTRACTOR, and safety precautions and programs incident thereto.
- F. CONTRACTOR does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- 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 correlated the information known to CONTRACTOR, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- I. 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.
- J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 CONTRACT DOCUMENTS

9.01 Contents

- A. The Contract Documents consist of the following:
 - 1. This Agreement;
 - 2. Performance Bond;
 - 3. Payment Bond;
 - 4. Other Bonds;
 - 5. General Conditions;
 - 6. Supplementary Conditions;
 - 7. Specifications as listed in the Table of Contents of the Project Manual;
 - 8. Drawings consisting of a cover sheet and sheets numbered 1 through 95, inclusive, with each sheet bearing the following general title: **WEST CENTRAL STREET IMPROVEMENT PROJECT, CITY PROJECT No. ST24-287, WAHPETON, NORTH DAKOTA** (Note: Drawings are not attached hereto);
 - 9. Addenda (numbers ____ to ____, inclusive);
 - 10. Exhibits to this Agreement (enumerated as follows):
 - a. Notice of Award;

- b. CONTRACTOR's Bid Form;
- c. Documentation submitted by CONTRACTOR prior to Notice of Award;

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

- a. Written Amendments;
- b. Work Change Directives;
- c. Change Orders

- B. The documents listed in **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual 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 **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual.

ARTICLE 10 MISCELLANEOUS

10.01 Terms

- A. Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.

10.02 Assignment of Contract

- A. No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically, but without limitation, moneys that may come due and moneys that are 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 partners, successors, assigns, and legal representatives to the other party hereto, its partners, 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 Errors and Omissions

- A. The Contract Documents listed in Article 9 of this Agreement are intended to complimentary and to describe and provide a complete work. The CONTRACTOR will not take advantage of an apparent error or omission in the Drawings and Project Manual. If the CONTRACTOR discovers such an error or omission, they will immediately notify the ENGINEER. The ENGINEER will then make such corrections and interpretation as may be deemed necessary for fulfilling the intent of the Contract Documents.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed **FIVE (5)** copies of this Agreement. **TWO (2)** counterpart(s) has been delivered to OWNER, **TWO (2)** to CONTRACTOR, and **ONE (1)** to ENGINEER. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or by ENGINEER on their behalf.

This Agreement will be effective on the date shown on _____, 20____. (Which is the effective Date of the Agreement).

WEST CENTRAL STREET IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
SECTION 00 52 00 – AGREEMENT FORMS
PROJECT No. ER24-00-139

OWNER:

CONTRACTOR:

By: _____
(Signature)

By: _____
(Signature)

Attest: _____
(Signature)

Attest: _____
(Signature)

Address for giving notices:

Address for giving notices:

Phone: _____

Phone: _____

Facsimile: _____

Facsimile: _____

[CORPORATE SEAL]

[CORPORATE SEAL]

North Dakota Contractors' Registration #

Agent for service of process:

(If OWNER is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of OWNER-CONTRACTOR Agreement.)

(If CONTRACTOR is a corporation or a partnership, attach evidence of authority to sign.)

Owner's Designated Representative:

Contractor's Designated Representative:

Name: _____

Name: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

Phone: _____

Phone: _____

Facsimile:

Facsimile:

END OF SECTION

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WEST CENTRAL STREET IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
SECTION 00 54 00 – AGREEMENT FORM SUPPLEMENTS
PROJECT No. ER24-00-139

PART 1 GENERAL

00.1.01 ADDITIONAL DOCUMENTS OF THE CONTRACT

- A. The documents listed below shall be furnished to the Owner upon award of the Contract.
- B. These documents shall become a part of the Contract Agreement between the Owner and Contractor.
 - 1. Acknowledgment of Principal
 - 2. Power of Attorney
 - 3. Liability Insurance
 - 4. Current Workmen's Compensation Certificate of Premium Paid
 - 5. Contractor's Certificate of North Dakota Income and Sales Tax Clearance

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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WEST CENTRAL IMPROVEMENT PROEJCT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
SECTION 00 55 00 – NOTICE TO PROCEED
PROJECT No. ER24-00-139

NOTICE TO PROCEED

TO: _____ DATE: _____

PROJECT: _____

You are hereby notified to commence WORK in accordance with the Agreement dated _____, 20____, on or before _____, 20____, and you are to complete the WORK within XXX consecutive calendar days thereafter. The date of completion of all WORK is therefore _____.

OWNER

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO

PROCEED is hereby acknowledged

this the . day of _____, 20____

By _____

Title _____

END OF SECTION

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WEST CENTRAL STREET IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
SECTION 00 61 13 – PERFORMANCE AND PAYMENT BOND FORMS
PROJECT No. ER24-00-139

PART 1 GENERAL

- A. Performance Bond shall be provided on EJCDC C-610 Performance Bond Form as included herein (3 Pages).
- B. Payment Bond shall be provided on EJCDC C-615 Payment Bond Form as included herein (3 Pages).

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS (NOT USED)

END OF SECTION

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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

SURETY

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

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

By: _____
Signature

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

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond 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.

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

SURETY

(seal)

Contractor's Name and Corporate Seal

By: _____

Signature

Print Name

Title

Attest: _____

Signature

Title

(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.

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.

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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WEST CENTRAL STREET IMPROVEMENT PROJECT
CITY No. ST24-287
WAHPETON, NORTH DAKOTA

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
SECTION 00 72 00- GENERAL CONDITIONS
PROJECT No. ER24-00-139

PART 1 GENERAL

00.1.01 DESCRIPTION

- A. The General Condition of this Contract shall be the **EJCDC C-700 STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT** as included in and are a part of this section of the Project Manual.
- B. References to “STANDARD GENERAL CONDITIONS” OR “GENERAL CONDITIONS” made in other sections of this Project Manual shall mean the **EJCDC C-700 STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT** as included herein.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

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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



Issued and Published Jointly by



Endorsed by



These General Conditions have been prepared for use with the Agreement Between Owner and Contractor for Construction Contract (EJCDC® C-520, Stipulated Sum, or C-525, Cost-Plus, 2013 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other.

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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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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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 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. §§5101 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.
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.
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.

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 “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.

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.

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.
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.

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.
 - 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.

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 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
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 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 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, 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 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.I 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 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 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.
 - 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 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."
 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 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, 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.
- 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:
 - 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.
 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 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.

- 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 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 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 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.
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 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:
 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.

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 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 for whom the Owner is responsible 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 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.

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 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 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 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
 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 11.04.C.2.a and 11.04.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 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.
- 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 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 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 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, expeditors, 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.

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.

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

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.
 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.
- 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.
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.

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.

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 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.

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.

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.

PART 1 GENERAL

00.1.01 DESCRIPTION

- A. These Supplementary Conditions amend or supplement the provisions of **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual.
1. All provisions of the general conditions that are not amended or supplemented by the provisions of this or other sections of the Project Manual shall remain in full force and effect.
- B. **SECTION 00 72 00 GENERAL CONDITIONS** includes the EJCDC General Conditions, C-700, 2013 and references herein to Articles, Paragraphs or other subdivisions of text shall be construed to indicate Articles, Paragraphs or other Subdivisions of said EJCDC General Conditions.
- C. The terms used in these Supplementary Conditions have the meanings stated in **SECTION 00 72 00 GENERAL CONDITIONS**.
1. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.
- D. The address system used in these Supplementary Conditions is the same as the address system used in **SECTION 00 72 00 GENERAL CONDITIONS**, with the prefix "SC" added thereto.
- E. This document is a MODIFIED version of EJCDC® C-800, Copyright © 2013 by the National Society of Professional Engineers, American Society of Civil Engineers, and American Council of Engineering Companies, or is based in part on excerpts from EJCDC documents.
1. Those portions of the text that originated in published EJCDC documents remain subject to the copyright.

00.1.02 RELATED WORK SPECIFIED ELSEWHERE

The following items of related work are specified and included in other sections of this Project Manual:

SECTION 00 72 00	GENERAL CONDITIONS
SECTION 00 73 16	INSURANCE REQUIREMENTS
SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 33 00	SUBMITTAL PROCEDURES

00.1.03 ARTICLE 2 – PRELIMINARY MATTERS

SC-2.02 Copies of Documents

1. SC-2.02.A Delete the first sentence of Paragraph 2.02.A in its entirety and insert the following in its place:
 - A. Owner shall furnish to Contractor 1 printed copies of the Contract Documents (including one fully executed counterpart of the Agreement). Unless requested by Contractor and authorized by the Owner in writing, the documents will not be conforming documents reflecting all changes by Addenda nor amendments negotiated prior to the effective date of the Contract.

00.1.04 ARTICLE 4 COMMENCEMENT AND PROGRSS OF THE WORK

SC-4.01 Commencement of Contract Times; Notice to Proceed

1. Delete Paragraph 4.01A of the General Conditions and insert the following in its place:
 - A. Following the execution of the Contract by the Owner and the Contractor, written Notice to Proceed with the Work shall be given by the Owner to the Contractor. The Contract Time will commence to run on the day indicated in the Notice to Proceed.

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

SC-5.01 Availability of Lands

1. Add the following new paragraph immediately after Paragraph 5.01C:
 - D. If it is necessary or desirable that the Contractor use land outside of the Owner's easement or right-

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PROJECT No. ER24-00-139**

of-way, the Contractor shall obtain consent from the property Owner and any tenant of the land. The Contractor shall not enter for materials delivery or occupy for any other purpose with workers, tools, equipment, construction materials, or with materials excavated from the site, any private property outside the designated construction easement boundaries or right-of-way without written permission from the property Owner and tenant. Copies of any written agreements shall be provided to the Owner before Contractor enters or otherwise occupies any off-site property.

A. SC 5.03 Subsurface and Physical Conditions

1. Delete Paragraphs 5.03A and 5.03B in their entirety and insert the following:

A. Pavement cores were obtained. See Division 02 for Reports.

B. SC-5.04 Differing Subsurface or Physical Conditions

1. Add the following at the end of Paragraph 5.04 A of the General Conditions:

Contractor to notify Owner and Engineer in writing about differing subsurface or physical conditions within 15 days of discovery and before disturbing the subsurface as stated above. No claim for an adjustment in the contract price or contract times (or Milestones) will be valid for differing subsurface or physical conditions if procedures in this paragraph 5.04 are not followed.

1) None of the contents of such drawings is Technical Data on whose accuracy Contractor may rely.

2. 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.

00.1.06 ARTICLE 6 – BONDS AND INSURANCE

A. SC-6.03 Contractor's Insurance

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

K. Contractor shall provide insurance as specified in **SECTION 00 73 16 INSURANCE REQUIREMENTS** of this Project Manual. Conflicts between the provisions of **SECTION 00 72 00 GENERAL REQUIREMENTS** and **SECTION 00 73 16 INSURANCE REQUIREMENTS** shall be resolved in favor of **SECTION 00 73 16 INSURANCE REQUIREMENTS**

00.1.07 ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

A. SC-7.02 Labor; Working Hours

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

1. Regular working hours will be 7 am – 7 pm.

2. Owner's legal holidays are per NDDOT Specification.

2. Amend the first and second sentences of Paragraph 7.02B 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 or any legal holiday."

B. SC-7.12 Safety and Protection

1. Insert the following after Paragraph 7.12G:

H. It is expressly understood by the parties to this Agreement that the CONTRACTOR is solely responsible for initiating, maintaining, and supervising safety precautions and programs in connection with the Work. The right of the OWNER and ENGINEER to observe or otherwise review the Work and operations shall not relieve the CONTRACTOR from any of his covenants and obligations hereunder. CONTRACTOR shall incorporate all safety requirements into his construction progress and work schedules including preconstruction and scheduled monthly safety meetings, posted safety rules,

tailgate meetings, and site inspections by safety and other inspectors employed by the CONTRACTOR.

- I. The CONTRACTOR shall be responsible for and shall take necessary precautions and provide all material and equipment to protect, shore, brace, support and maintain all underground pipes, conduits, drains, sewers, water mains, gas mains, cables, etc., and other underground construction uncovered in the proximity, or otherwise affected by the construction work performed by him. All pavement, surfacing, driveways, curbs, walks, buildings, grass areas, trees, utility poles, or guy wires damaged by the CONTRACTOR'S operations in the performance of this work shall be repaired and/or replaced to the satisfaction of the OWNER, ENGINEER, and effected property OWNER at the CONTRACTOR'S expense.
- J. The CONTRACTOR shall also be responsible for all damage to streets, roads, highways, shoulders, ditches, embankments, culverts, bridges, or other public or private property or facility, regardless of location or character, which may be caused by moving, hauling, or otherwise transporting equipment, materials, or men to and from the work or any part of site thereof, whether by him or his Subcontractors.
- K. The CONTRACTOR shall make satisfactory and acceptable arrangements with OWNER of, or the agency or authority having jurisdiction over, the damaged property or facility concerning its repair or replacement or payment of costs incurred in connection with said damage.
- L. The CONTRACTOR shall conduct his work so as to interfere as little as possible with public travel, whether vehicular or pedestrian. Whenever it is necessary to cross, obstruct, or close roads, driveways, and walks, whether public or private, the CONTRACTOR shall obtain approval from the governing party and shall, at his own expense, provide and maintain suitable and safe bridges, detours, and other temporary expedients for the accommodation of public and private drives before interfering with them. The provisions for temporary expedients will not be required when the CONTRACTOR has obtained permission from the OWNER and tenant of the private property, or from the authority having jurisdiction over public property involved, to obstruct traffic at the designated point.
- M. Safety provisions must be entirely adequate and meet with City or State and Federal regulations to protect the public on these streets and roads.

C. *SC-7.18 Indemnification*

1. Add a new paragraph after Paragraph 7.18A

1. While Owner and Engineer may have the right under this Contract to observe or otherwise review the work, progress, and operations of the Contractor, it is expressly understood and agreed that such observation shall not relieve the Contractor from any of its covenants and obligations hereunder.

00.1.08 ARTICLE 9 – OWNER'S RESPONSIBILITIES

A. *SC-9.13 Owner's Representative*

1. Add the following new paragraph immediately after Paragraph 9.12 of the General Conditions:

9.13 Owner's Site Representative

Owner will furnish an "Owner's Site Representative" to represent Owner at the Site and assist Owner in observing the progress and quality of the Work. The Owner's Site Representative is not Engineer's consultant, agent, or employee. Owner's Site Representative will be *Kyle Rogahn*. The authority and responsibilities of Owner's Site Representative follow: *Liaison between Engineer and City*.

00.1.09 ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

A. *SC-10.03 Project Representative*

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

- 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.

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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 Project Manual 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 log book, 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.

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

A. SC-11.07 Execution of Change Orders

1. Delete Paragraph 11.07B in its entirety and add the following in its place:
 - B. Change orders shall be processed and executed in accordance with the provisions of **SECTION 01 26 00 CONTRACT MODIFICATION PROCEDURES** of the Project Manual.

00.1.11 ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

A. SC-13.01 Cost of the Work

1. Delete Paragraph 13.01B5c in its entirety and insert the following in its place:
 - c. Construction Equipment and Machinery:
 - 1) 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.
 - 2) Costs for equipment and machinery owned by Contractor will be paid at a rate shown for such equipment in the Rental Rate Blue Book for Construction Equipment. 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 will be considered small tools.

B. SC- 13.03 Unit Price Work

1. Delete Paragraph 13.03E in its entirety and insert the following in its place:
 - E. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:
 1. if the extended price of a particular item of Unit Price Work amounts to 10 percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and
 2. if there is no corresponding adjustment with respect to any other item of Work; and
 3. if Contractor believes that Contractor has incurred additional expense as a result thereof, Contractor may submit a Change Proposal, or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, Owner may make a Claim, seeking an adjustment in the Contract Price.

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

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PROJECT No. ER24-00-139**

A. SC-15.03 Substantial Completion

1. Add the following new subparagraph to Paragraph 15.03B:

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.

00.1.13 ARTICLE 18 – MISCELLANEOUS

A. SC-18.01 Giving Notice

1. Delete Paragraph 18.01 A.2 in its entirety and insert the following in its place:
2. Delivered at or sent by registered or certified mail, postage prepaid, to the place designated in the Agreement. Either party may change his address at any time by an instrument in writing delivered to Engineer and to other party.

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS (NOT USED)

END OF SECTION

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PART 1 GENERAL

00.1.01 DESCRIPTION

- A. This section of the Project Manual includes the requirements for insurance to be purchased and maintained by the Contractor and Subcontractors working on the Project.
- B. The provisions of this **SECTION 00 73 16 INSURANCE REQUIREMENTS** shall govern over the provisions of **SECTION 00 72 00 GENERAL REQUIREMENTS** where conflicts between the two sections occur.

00.1.02 RELATED WORK SPECIFIED ELSEWHERE

The following items of related work are specified and included in other sections of this Project Manual:

SECTION 00 72 00 GENERAL CONDITIONS
SECTION 01 33 00 SUBMITTAL PROCEDURES

00.1.03 MAINTENANCE OF INSURANCE

- A. Contractor and subcontractors shall purchase and maintain insurance in accordance with **SECTION 00 72 00 GENERAL CONDITIONS** and the provisions of this section of the Project Manual
- B. All required insurance shall remain in effect until expiration of the Contractor's warranty period unless noted otherwise in this section
- C. The limits of liability for the insurance required by **SECTION 00 72 00 GENERAL CONDITIONS** shall provide coverage for not less than the amounts specified in this section or greater where required by Laws and Regulations.

00.1.04 WORKERS' COMPENSATION

- A. Workers' Compensation, and related coverages for claims under Workers' Compensation, disability benefits and other similar benefits in accordance with the provisions **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual shall be provided with coverage limits no less than:

1. State:	<u>Statutory</u>
2. Employer's Liability:	
a. Bodily injury, each accident	\$ <u>1,000,000.00</u>
b. Bodily injury by disease, each employee	\$ <u>1,000,000.00</u>
c. Bodily injury/disease aggregate	\$ <u>1,000,000.00</u>

00.1.05 COMMERCIAL GENERAL LIABILITY

- A. Contractor's Commercial General Liability coverage in accordance with the provisions of **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual shall be provided with limits no less than:
 - 1. General Aggregate \$ 2,000,000.00
 - 2. Products - Completed Operations Aggregate \$ 2,000,000.00
 - a. Contractor shall continue to purchase and maintain the products-completed operations liability insurance coverage for a minimum of (120) months after the date of final completion.
 - b. All terms and conditions of coverage shall be maintained during this completed operations period, including the required coverage limits and the requirement to provide Owner and Engineer with coverage as an additional insured for completed operations.
 - 3. Personal and Advertising Injury \$ 2,000,000.00
 - 4. Each Occurrence (Bodily Injury and Property Damage) \$ 2,000,000.00

00.1.06 AUTOMOBILE LIABILITY

- A. Automobile Liability coverage in accordance with the provisions of **SECTION 00 72 00 GENERAL CONDITIONS** of this Project Manual shall be provided with limits no less than.

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- | | |
|-----------------------------|-----------------|
| 1. Bodily Injury: | |
| a. Each person | \$ 1,000,000.00 |
| b. Each accident | \$ 1,000,000.00 |
| 2. Combined Single Limit of | \$ 1,000,000.00 |

00.1.07 EXCESS OR UMBRELLA LIABILITY

A. Excess or Umbrella Liability coverage in accordance with the provisions of **SECTION 00 72 00 GENERAL REQUIREMENTS** of this Project Manual with limits no less than.

- | | |
|----------------------|-----------------|
| 1. Per Occurrence | \$ 3,000,000.00 |
| 2. General Aggregate | \$ 3,000,000.00 |

B. This coverage shall include an endorsement stating that an additional insured on the underlying policy does not constitute a change in underlying coverage for purposes of the change in underlying coverage provision of the umbrella or Excess coverage policy.

C. Excess or Umbrella liability policies that include an “insured versus - insured” or similar endorsement shall have the wording to read “named insured - versus - named insured”

00.1.08 CONTRACTOR'S POLLUTION LIABILITY

The Contractor shall, at its sole expense, purchase and maintain insurance as outlined below.

A. Contractors Pollution Liability (CPL) or an equivalent coverage extension within the General Liability policy. This policy shall provide coverage for:

1. The CPL insurance shall insure all of the services the contractor and subcontractors provide in the normal course of operations as required for this project.
 - a. Partial operations coverage is unacceptable.
2. Bodily injury, sickness, disease, sustained by any person, including death;
3. Property damage includes physical injury to or destruction of tangible property including the resulting loss of use thereof; clean-up costs, and the loss of use of tangible property that has not been physically injured or destroyed including diminution of value and Natural Resources damages.
4. Defense costs including costs, charges and expenses incurred in the investigation, adjustment or defense of claims;
5. Contractual liability coverage, e.g. coverage for liability assumed by the named insured under a written contract or agreement.
6. The full scope of the named insureds and their subcontractors' operations as described within the scope of work for this contract.
7. The policy shall provide coverage for claims arising from owned and non-owned disposal sites utilized in the performance of this contract.
8. This coverage can be provided on either claims made or occurrence-based policy form.
9. The policy must insure contractual liability, be Primary and Non-Contributory and name disposal site owner(s) as an Additional Insured.
10. The policy must waive subrogation for the additional insured.
11. The insured pollutants shall specifically include fungus, mold, bacteria and viruses.

B. The policy may not contain separate restrictions for:

1. Insured versus insured actions.
2. Completed operations in any coverage part of the policy for either the insured or the additional insured certificate holder.
3. Damage to property that cannot be used or is less useful because of the operations of the insured.

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4. Work performed by subcontractors.
 5. Chinese or other contaminated drywall.
 6. Habitational construction
 7. Property damage to the work
 8. Impaired property
 9. Lead, asbestos or silica related losses.
 - a. Limitations for lead and asbestos abatement should be separately disclosed and the endorsement attached to the certificate of insurance.
- C. Completed Operations coverage shall be maintained through the purchase of renewal policies to protect the insured and additional insured for at least 10 years after the property owner accepts the project or this contract is terminated.
1. The purchase of an extended discovery period or an extended reporting period on the Claims Made policy or the purchase of occurrence-based Contractors Environmental Insurance will not be sufficient to meet the terms of this provision.
 2. The purchase of a completed operations coverage endorsement under a claims made or occurrence based policy form will be acceptable if insurance is not continuously renewed.
- D. Minimum Limits of Insurance for the Contractor
1. Each Occurrence \$ 1,000,000.00
 2. General Aggregate \$ 2,000,000.00
- ☒ If box is checked, Contractor is not required to provide Contractor's Pollution Liability insurance under this Contract

00.1.09 CONTRACTOR'S PROFESSIONAL LIABILITY

For Bid Package A which requires that the CONTRACTOR retain the services of a professional engineer for the design of the metal building system and design of the building foundation the CONTRACTOR shall purchase and maintain Professional Liability insurance with the following minimum limits of coverage:

1. Each Claim \$ 3,000,000.00
2. Annual Aggregate \$ 3,000,000.00

00.1.10 BUILDER'S RISK INSURANCE

A. CONTRACTOR shall purchase and maintain ALL Risk type Builder's Risk Insurance as required by **SECTION 00 72 00 GENERAL REQUIREMENTS** of this Project Manual.

B. CONTRACTOR shall be responsible for payment of all deductibles for each loss.

1. Maintain deductible amount shall be \$25,000.00 unless approved otherwise by the OWNER.

00.1.11 ADDITIONAL INSURED

The following table defines those policies which must have the named parties shown as additional insured.

Coverage	ADDITIONAL INSURED		
	Owner	Engineer	Subcontractor
Worker's Compensation and Employer's Liability	N/A	N/A	N/A
Commercial General Liability	Yes	Yes	No
Automobile Liability	Yes	Yes	No
Excess or Umbrella Liability	Yes	Yes	No
Contractor's Pollution Liability	Disposal Site Owner	No	No
Builder's Risk Insurance	N/A	N/A	N/A
Railroad Protective Insurance	N/A	N/A	N/A

N/A = Not Applicable

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00.1.12 SUBROGATION

CONTRACTOR and subcontractors shall waive subrogation to the OWNER and ENGINEER and their insurers.

00.1.13 ADDITIONAL INSURANCE REQUIREMENTS

- A. Any and all deductibles or other forms of retention are the responsibility of the CONTRACTOR.
- B. All deductibles or other forms of retention are subject to the approval of OWNER.
- C. CONTRACTOR will disclose to the OWNER in writing the amounts of any deductibles or self-insured retentions on the insurance required under this contract.

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS (NOT USED)

END OF SECTION

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PART 1 GENERAL

00.1.01 EMPLOYMENT PREFERENCE IN CONTRACT

- A. The Contractor must give preference to the employment of bona fide North Dakota residents, with preference given first to honorably discharged disabled veterans and veterans of the armed forces of United States, who are deemed to be qualified in the performance of said work.
- B. Such preference shall not apply to engineering, superintendence, management, office or clerical work.
- C. No contract shall be let to any person, firm, association, cooperative, corporation or limited liability company refusing to execute an agreement containing the aforementioned provisions.
- D. This preference in employment is mandated by Section 43-07-20 of the NDCC.

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS (NOT USED)

END OF SECTION

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PART 1 GENERAL

00.1.01 GOVERNMENT AGENCY GENERAL TERMS AND CONDITIONS

- A. The following provisions supplement of the provisions of **SECTION 00 72 00 GENERAL CONDITIONS**.
- B. The provisions of this section shall govern over the provisions of other sections this Project Manual.
1. Affirmative Action. Contractor will take affirmative action in complying with all Federal and State requirements concerning fair employment and employment of the handicapped and concerning the treatment of all employees without regard to race, color, religion, sex, national origin or physical handicap.
 2. Applicable Law and Venue. This solicitation is governed by and construed in accordance with the laws of the State of North Dakota. Any action to enforce this contract must be brought in the District Court of Burleigh County, North Dakota.
 3. Award. Award will be made to the responsible bidder with the lowest priced bid that is responsive to the Project Manual and all other requirements stated in the bidding documents.
 4. Assignments and Subcontracts. Contractor may not assign or otherwise transfer or delegate any right or duty without the State's express written consent. However, Contractor may enter into subcontracts provided that any such subcontract acknowledges the binding nature of this contract and incorporates this contract, including any attachments. Contractor is solely responsible for the performance of any subcontractor. Contractor shall not have the authority to contract for or incur obligations on behalf of the State.
 5. Binding Contract. The acceptance of a bid response in writing by the State constitutes a contract between the bidder and the State. Written acceptance from the State will be in the form of a purchase order, notification of award, or contract. Any oral agreement or arrangement by a bidder with a State employee or Purchasing Agency or Entity will have no force or effect unless reduced to writing.
 6. Compliance with Laws. Contractor must, in performance of work under this contract, fully comply with all applicable federal, state, or local laws, rules and regulations, including Title VI of the Civil Rights Act of 1964. Any subletting or subcontracting by Contractor subjects' subcontractors to the same provision.
 7. Compliance with Public Records Law. Contractor understands that, except for disclosures prohibited under North Dakota open records laws related to confidentiality, N.D.C.C. § 44-04-18, State must disclose to the public upon request any records it receives from Contractor. Contractor further understands that any records, which are obtained or generated by the contractor under this solicitation, except for records that are confidential under N.D.C.C. § 44-04-18, may, under certain circumstances, be open to the public upon request under the North Dakota open records law. Contractor agrees to contact State immediately upon receiving a request for information under the open records law and to comply with State's instructions on how to respond to the request. Bid responses are exempt records until the time and date of the bid opening.
 8. Confidentiality. Contractor agrees not to use or disclose any information that is confidential or exempt from mandatory public disclosure which it receives from State under this agreement except as necessary to carry out the purposes of this agreement or as authorized in advance by State. State agrees not to disclose any information it receives from Contractor, which Contractor has previously identified as confidential, and which State determines, in its sole discretion, is protected from mandatory public disclosure under a specific exception to the North Dakota open records law, N.D.C.C. chapter 44-04. The duty of State and Contractor to maintain confidentiality of information under this section continues beyond the term of this agreement, or any extensions or renewals of it.
 9. Contract Amendment. After a binding contract has been entered into, no changes (i.e. substitution of product or a price adjustment) may be made, unless prior written approval has been obtained from State.
 10. Independent Entity. Contractor shall perform as an independent entity under this agreement. Contractor, its employees, agents or representatives are not employees of State for all purposes, including the application of the Social Security Act, the Fair Labor Standards Act, the Federal Insurance Contribution Act, the Federal Unemployment Act, the North Dakota Unemployment Compensation Law and the North Dakota Workers' Compensation Act. No part of this agreement may be construed to

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represent the creation of an employer/employee relationship between State and Contractor. Contractor will retain sole and absolute discretion in the judgment of the manner and means of carrying out the Contractor's activities and responsibilities under this agreement.

11. Contractor Assurances. In connection with furnishing supplies or performing work under this agreement, persons who contract with or receive funds to provide services to State are obligated and agree to comply with all local, state, and federal laws, regulations, and executive orders related to the performance of this agreement including the following: Fair Labor Standards Act, Equal Pay Act of 1963, Titles VI and VII of the Civil Rights Act of 1964, the Age Discrimination in Employment Act of 1967, the North Dakota Human Rights Act, the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970, the Drug Abuse Prevention Treatment and Rehabilitation Act of 1970, Section 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, the Drug-Free Workplace Act of 1988, the Americans with Disability Act of 1990, Alcohol, Drug Abuse and Mental Health Administration Reorganization Act of 1992 and the Pro-Children Act of 1994.
 - a. By signing an agreement Contractor certifies that neither Contractor, Subcontractor, nor their principals, are presently debarred, declared ineligible, or voluntarily excluded from participation in transactions with the State or Federal Government by any Department or Agency of the State or Federal Government.
 - b. Contractor must be an approved vendor with the Office of Management and Budget within the State of North Dakota as required by N.D.C.C. § 54-44.4-09.
12. Nonperformance. Failure by Contractor to perform the terms of this agreement constitutes a breach of contract and will result in the immediate termination of the agreement. If there is a termination for breach by Contractor, State may retain, as liquidated damages, any payment to be made under this agreement which remains unpaid at the time of the breach and may also recover from Contractor those amounts already paid for individual items of work which are incomplete at the time of the breach.
 - a. If a breach by Contractor renders the agreement impossible of performance by Contractor and is caused by circumstances beyond the control of Contractor, and through no fault of Contractor, the agreement will be terminated. In the event of a breach by Contractor in such circumstances, State may set off, against any liability or obligations owed to Contractor under this agreement or otherwise, any amounts paid for individual items of work which are incomplete at the time of the breach. If the agreement is terminated as a result of a breach by Contractor, which is beyond the control of Contractor, State is not entitled to liquidated damages.
 - b. State shall give written notice of the termination to Contractor specifying the effective date of the termination.
13. Collateral Contracts. If any inconsistency exists between this agreement and other provisions of collateral contractual agreements which are made a part of this agreement by reference or otherwise, the provisions of this agreement control.
14. Attorney Fees. If a lawsuit is filed by State to obtain performance due under this agreement, and State is the prevailing party, Contractor shall pay State's reasonable attorney fees and costs in connection with the lawsuit except when prohibited by N.D.C.C. § 28-26-04.
15. Alternative Dispute Resolution – Jury Trial. State does not agree to binding arbitration, mediation, or any other form of mandatory alternative dispute resolution. The parties may enforce their rights and remedies in judicial proceedings. State does not waive any right to a jury trial.
16. Access To Books And Records. State, the federal government, and their duly authorized representatives shall have access to the books, documents, papers, and records of Contractor which are pertinent to the services provided under this agreement for the purpose of making an audit, examination, or making excerpts and transcripts. This documentation must be available for a period of three (3) years from the date of submission of the final expenditures report
17. Conduct. Contractor shall at all times conduct their work so as to insure the least possible obstruction to traffic and inconvenience to the general public and the occupants of buildings, and to insure the protection of persons and property. No road or street shall be closed to the public except with the

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permission of the proper authorities. Fire hydrants on or adjacent to the work site shall be kept accessible for fire-fighting equipment at all times.

18. Protection. Contractor shall take all necessary precautions to protect the work area to avoid unnecessary noise, confusion, dust or dirt, and protect the health and safety of occupants of buildings and surrounding work areas. Debris shall be removed from work areas on a daily basis. When equipment and other items must be removed during the performance of the work, it shall be the Contractor's responsibility to check with appropriate State personnel to obtain the required approval before moving any equipment and/or other items.
19. Damage. Contractor shall be responsible for any damage by his company during the course of completing his work to any building or structure and shall repair to match existing materials or surfaces to the satisfaction of the State's representative. Contractor shall at his own expense replace any materials damaged to an extent that they cannot be restored to their original condition. Contractor shall be responsible and liable for injury to any life or property during the course of their work.
20. Work Product, Equipment and Materials. All work product, equipment or materials created or purchased under this agreement belong to the State and must be delivered to State at State's request upon termination of this agreement. Contractor agrees that all materials prepared under this agreement are "works for hire" within the meaning of copyright laws of the United States and assigns to the State all rights and interests Contractor may have in the materials it prepares under this agreement, including any right to derivative use of the material. Contractor shall execute all necessary documents to enable the State to protect its right under this section. Use of work product or materials for purposes other than the scope of this agreement must be approved by the State
21. Notice. Any notice or other communication required or permitted to be given pursuant to this agreement may be personally served on either party by the party giving such notice, or may be served by certified mail, return receipt requested, addressed to the executive office of the party upon whom service is made.
22. Termination for Lack of Funding or Authority. This contract shall become null and void, in total or in part, should the Legislature of the State of North Dakota fail to appropriate funds for any or all agencies, which are committed to the terms of this contract. Any such contract termination shall be at no cost to the State.
23. Termination of Contract
 - a. Termination without Cause. This contract may be terminated by mutual consent of both parties, or by either party upon 30 days' written notice.
 - b. Termination for Lack of Funding or Authority. The State may terminate this contract effective upon delivery of written notice to the contractor, or on any later date stated in the notice, under any of the following conditions:
 - i. If funding from federal, state, or other sources is not obtained and continued at levels sufficient to allow for purchase of the services or supplies in the indicated quantities or term. The contract may be modified by agreement of the parties in writing to accommodate a reduction in funds.
 - ii. If federal or state laws or rules are modified or interpreted in a way that the services are no longer allowable or appropriate for purchase under this contract or are no longer eligible for the funding proposed for payments authorized by this contract.
 - iii. If any license, permit or certificate required by law or rule, or by the terms of this contract, is for any reason denied, revoked, suspended or not renewed.
Termination of this contract under this subsection is without prejudice to any obligations or liabilities of either party already accrued prior to termination.
 - c. Termination for Cause. The State by written notice of default to the contractor may terminate the whole or any part of this contract:
 - i. If the contractor fails to provide services required by this contract within the time specified or any extension agreed to by the State; or
 - ii. If the contractor fails to perform any of the other provisions of this contract, or so fails to pursue the work as to endanger performance of this contract in accordance with its terms.

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- iii. The rights and remedies of the State provided in the above clause related to defaults by the contractor are not exclusive and are in addition to any other rights and remedies provided by law or under this contract.
- iv. Termination, Deliveries. If the contract is terminated for any reason, the contractor is responsible for delivery of all commodities and services ordered prior to the termination, unless those orders had been canceled by the Purchasing Agency or Entity

24. Indemnification. Contractor agrees to defend, indemnify, and hold harmless the state of North Dakota, its agencies, officers and employees (State), from and against claims based on the vicarious liability of the State or its agents, but not against claims based on the State's contributory negligence, comparative and/or contributory negligence or fault, sole negligence, or intentional misconduct. This obligation to defend, indemnify, and hold harmless does not extend to professional liability claims arising from professional errors and omissions. The legal defense provided by Contractor to the State under this provision must be free of any conflicts of interest, even if retention of separate legal counsel for the State is necessary. Contractor also agrees to defend, indemnify, and hold the State harmless for all costs, expenses and attorneys' fees incurred if the State prevails in an action against Contractor in establishing and litigating the indemnification coverage provided herein. This obligation shall continue after the termination of this agreement.

25. Insurance

- a. Contractor shall secure and keep in force during the term of this agreement and Contractor shall require all subcontractors, prior to commencement of an agreement between Contractor and the subcontractor, to secure and keep in force during the term of this agreement, from insurance companies, government self-insurance pools or government self-retention funds, authorized to do business in North Dakota, the following insurance coverages:
 - i. Commercial general liability, including premises or operations, contractual, and products or completed operations coverages (if applicable), with minimum liability limits of \$250,000 per person and \$1,000,000 per occurrence.
 - ii. Automobile liability, including Owned (if any), Hired, and Non-Owned automobiles, with minimum liability limits of \$250,000 per person and \$1,000,000 per occurrence.
 - iii. Workers' compensation coverage meeting all statutory requirements. The policy shall provide coverage for all states of operation that apply to the performance of this contract.
- b. The insurance coverages listed above must meet the following additional requirements:
 - i. Any deductible or self-insured retention amount or other similar obligation under the policies shall be the sole responsibility of the Contractor.
 - ii. This insurance may be in policy or policies of insurance, primary and excess, including the so-called umbrella or catastrophe form and must be placed with insurers rated "A-" or better by A.M. Best Company, Inc., provided any excess policy follows form for coverage. Less than an "A-" rating must be approved by the State. The policies shall be in form and terms approved by the State.
 - iii. The duty to defend, indemnify, and hold harmless the State under this agreement shall not be limited by the insurance required in this agreement.
 - iv. The state of North Dakota and its agencies, officers, and employees (State) shall be endorsed on the commercial general liability policy, including any excess policies (to the extent applicable), as additional insured. The State shall have all the benefits, rights and coverages of an additional insured under these policies.
 - v. The insurance required in this agreement, through a policy or endorsement, shall include:
 - a) a "Waiver of Subrogation" waiving any right to recovery the insurance company may have against the State.
 - b) a provision that the policy and endorsements may not be canceled or modified without thirty days' prior written notice to the undersigned State representative.

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- c) a provision that any attorney who represents the State under this policy must first qualify as and be appointed by the North Dakota Attorney General as a Special Assistant Attorney General as required under North Dakota Century Code section 54-12-08.
- d) a provision that Contractor's insurance coverage shall be primary (i.e. pay first) as respects any insurance, self-insurance or self-retention maintained by the State and that any insurance, self-insurance or self-retention maintained by the State shall be in excess of the Contractor's insurance and shall not contribute with it.
- e) cross liability/severability of interest for all policies and endorsements.
- f) the legal defense provided to the State under the policy and any endorsements must be free of any conflicts of interest, even if retention of separate legal counsel for the State is necessary.
- g) the insolvency or bankruptcy of the insured Contractor shall not release the insurer from payment under the policy, even when such insolvency or bankruptcy prevents the insured Contractor from meeting the retention limit under the policy.
- vi. The Contractor shall furnish a certificate of insurance to the undersigned State representative prior to commencement of this agreement. All endorsements shall be provided as soon as practicable.
- vii. Failure to provide insurance as required in this agreement is a material breach of contract entitling the State to terminate this agreement immediately.

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS (NOT USED)

END OF SECTION

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PART 1 GENERAL

This section is reserved for insertion of pre-contract modifications. These would include addenda and attachments, and approved suppliers where prior approval was required, and any attachments that are provided with the addenda.

A list of items requiring prior approval is provided in **SECTION 00 26 00 PROCUREMENT SUBSTITUTION PROCEDURES**.

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS (NOT USED)

END OF SECTION

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PART 1 GENERAL

01.1.01 DESCRIPTION

- A. The work to be performed under this contract consists of the construction of: This project includes the milling; mine & blend; curb & gutter mud jacking; curb & gutter replacement; concrete driveways; adjustment of gate valves, manhole covers, and inlet covers; asphalt paving; reshape roadway and seeding. The project also consists of the reconstruction of 5th Avenue North from 11th Street North to Richland Street including common excavation, subgrade prep, geotextile fabric, salvaged base course, concrete curb & gutter, concrete sidewalk, concrete driveways, hot bituminous pavement, storm sewer, sanitary main extension, water main loop, seeding and signage

01.1.02 INTENT OF THE CONTRACT

- A. The intent of the Contract is to provide for construction and completion of the Project in every detail as described in the Drawings and Project Manual.
1. It is also intended and will be expected that the work be prosecuted diligently and pressed vigorously to early completion, with due regard being given to public interests, as well as to the obligations and rights of all other parties concerned.
 2. By the terms of the Contract, the Contractor assumes full responsibility for performance of the work and agrees to furnish all labor, materials, equipment, tools, supplies, transportation, operator training and other incidentals necessary or convenient for successful completion of the Project. All work shall be turned over to the Owner in a complete and undamaged state.
- B. Realizing that it would not be practical to fully describe every detail or to make specific allowances for all probable exceptions and contingencies, it is intended that the Owner's Representative have sufficient executive authority to administer the Contract with discretion, within its general scope, so as to rule out apparent discrepancies, fulfill intentions, and allow for the exigencies of construction, on the basis of engineering judgment, giving careful consideration to all matters encumbering successful performance and completion of the Project.
- C. The apparent silence of the Drawings and Project Manual as to any detail, or the apparent omission of a detailed description concerning any point, shall be regarded as meaning that only the best general practice is to prevail, and that materials and workmanship shall be first quality. Conversely, failure to itemize every allowable exception or condition does not mean that the governing provisions will be enforced equally under all conditions or on all parts of the work, as might be implied, it being understood that the Owner's Representative will decide all discretionary matters as they arise.
- D. It is the Contractor's responsibility to locate sources for all materials specified herein and as necessary to complete the work. The Contractor shall bear all costs associated with the acquisition, transportation, preparation, fabrication and installation or erection of all materials or items necessary to complete the work.

01.1.03 TYPE OF CONTRACT

The work under this Contract is to be unit price work in accordance with **SECTION 00 72 00 GENERAL CONDITIONS**.

01.1.04 RELATED SECTIONS

The following related sections are specified and included in other sections of this Project Manual:

SECTION 00 21 00	INSTRUCTIONS TO BIDDERS
SECTION 00 72 00	GENERAL CONDITIONS
SECTION 01 21 00	ALLOWANCES

01.1.05 WORK BY OTHERS

- A. Construction Observation and Surveying will be performed by Interstate Engineering, Inc.
- B. Testing Laboratory Services will be performed by Interstate Engineering, Inc.
1. The Contractor shall provide sufficient materials for testing purposes as required, the cost of which shall be included in the price bid for the work being tested.

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2. Compensation

- a. The costs for preparing mix designs and job mix formulas will not be eligible for reimbursement regardless of whether or not a pay item for Laboratory Testing Services is provided in the Bidder's Proposal.
 - b. Inspections and tests required by codes or ordinances, or by a plan approval authority, and made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the contract Documents.
3. Contractor's Quality Control Testing: Inspection or testing performed exclusively for the Contractor's convenience or quality control shall be the responsibility of the Contractor. Such testing shall not be eligible for reimbursement regardless of whether or not a pay item for Laboratory Testing Services is provided in the Bidder's Proposal.

01.1.06 WORK SEQUENCE

- A. The work shall be performed in a manner and sequence that allows property owner access at all times during construction.
- B. The work shall be performed in a manner and sequence that minimizes the length of time necessary for the performance of the work.
- C. All work shall be completed as stated in **SECTION 00 52 00 AGREEMENT FORMS.**

01.1.07 USE OF THE SITE

- A. The Contractor shall confine all operations to areas shown on the Drawings or specified herein.
 1. The Contractor shall not encumber any area of the site with materials or equipment.
 2. The Owner shall approve the use of temporary, on-site, storage areas.
- B. The Contractor shall be responsible for maintaining security at the site during the entire period of construction, including fencing the site perimeter at the end of each day, where appropriate.
- C. All driveways and alleys shall be opened to traffic as soon as practical.
 1. Where the work will block dead end streets, alley or driveways, the Contractor shall advise all property owners affected by the work prior to blocking access to or from the street or alley

01.1.08 CONSTRUCTION STAKES, LINES AND GRADES

- A. Layout Staking Services: The Owner shall provide construction layout staking services.
 1. The Contractor shall coordinate construction staking with their work.
 2. At least (2) working days' notice shall be given to the Owner before staking is required.
- B. Restaking: The Owner shall provide construction staking at no cost to the Contractor with the exception of restaking which becomes necessary due to the Contractor's negligence or carelessness.
 1. The cost of restaking shall be charged to the Contractor on an hourly basis plus materials.

01.1.09 MATERIALS

- A. Unless otherwise stated, the Contractor shall be allowed to furnish only those materials listed in the construction documents.
- B. All materials furnished for the work shall be new.

PART 2 MATERIALS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS (NOT USED)

END OF SECTION

PART 1 GENERAL

01.1.01 SUMMARY

This section describes the procedures for items of the work for which allowances are established in the Bidder's Proposal.

01.1.02 ALLOWANCE ITEMS

A lump sum amount is included in the Bidder's Proposal as an allowance for each of the following items:

N/A

01.1.03 PAYMENT OR ALLOWANCE ITEMS

- A. The Contractor shall pay for the allowance items and submit to the Owner invoices for these payments with the monthly payment requests.
- B. The Contractor will be reimbursed from the respective lump sum allowance in accordance with the legitimate invoices that are submitted.
- C. The final lump sum amount for each allowance item will vary from that shown in the Bidder's Proposal and will be dependent on the costs of the approved invoices.

01.1.04 INELIGIBLE COSTS FOR ALLOWANCE ITEMS

- A. Certain costs shall not be eligible for payment under allowance items.
- B. These costs shall be considered included in the price bid for related work to the work and no additional compensation will be made therefor.

01.1.05 TESTING LABORATORY SERVICES

The costs of the following aspects of Testing Laboratory Services shall not be paid for under the lump sum allowance in the Bidder's Proposal for Testing Laboratory Services:

- A. Mix Designs and Job Mix Formulas: Mix designs and job mix formulas shall be the responsibility of the Contractor.
- B. Retesting: When initial tests indicate non-compliance with the Contract Documents, all subsequent retesting occasioned by the non-compliance, shall be performed by the same testing laboratory and the costs thereof will not be reimbursed to the Contractor.
- C. Code Compliance Testing: Inspections and tests required by codes or ordinances, or by a plan approval authority, and made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the contract Documents.
- D. Contractor's Convenience Testing: Inspection or testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS (NOT USED)

END OF SECTION

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PART 1 GENERAL

01.1.01 DESCRIPTION

This section describes the method of measurement and the basis of payment for the items included in the **BIDDER'S PROPOSAL**.

01.1.02 GENERAL

- A. Realizing that it is not practical to list each item of work to be included in each of the pay items shown in the **BIDDER'S PROPOSAL**, Bidder's shall have the discretion of assigning the costs of the work to specific bid items provided in the **BIDDER'S PROPOSAL**.
- B. The descriptions of the work included for each of the pay items is provided for Bidder convenience.
- C. The total amount bid for the work being equal to the sum of the bid items including alternates selected by the OWNER but not including allowances shall be considered full compensation for providing all equipment, labor, materials and tools necessary to complete the project as shown on the Drawings and specified herein.

01.1.03 PLAN QUANTITY

- A. Plan Quantity, (P) in the Bid Form indicates items for which the estimated quantity shown is designated as a Plan Quantity, by inclusion of "(P)" after the estimated quantity.
 - 1. The estimated quantity shown is based on the dimensions shown on the Drawings.
 - 2. No measurement will be made for items designated as Plan Quantity unless substantial changes to the plan shown on details and dimensions shown on the Drawings are made by the OWNER or ENGINEER.
 - 3. Where substantial changes are made by the OWNER or ENGINEER the basis of payment will be the measured quantity of the completed work.
 - a. The units of measure shall be the units shown on the Bid Form.
 - b. The unit price bid shall be applied to measured quantities.

01.1.04 METHOD OF MEASUREMENT

- A. Lump Sum: The term "lump sum" when used as a unit of measurement shall mean complete payment for that item of work as shown on the Drawings and specified herein.
- B. Length: All items that are measured by the linear measurement will be measured parallel to the axis of item being measured.
- C. Individual Unit or Each: When a complete item or unit is specified as the unit of measurement the unit will be measured by physical count and will include all necessary accessories and appurtenances.
- D. Area: Dimensions for area will be made parallel to the plane of the work that is being measured.

01.1.05 BASIS OF PAYMENT

- A. Scope of Payment: The phrase "complete in place" when used in this Project Manual means completion of the bid item or units in accordance with the Drawings and as specified herein including the furnishing of all equipment, labor, materials and tools necessary to complete the work.
- B. The prices bid shall be considered full compensation for any work essential for the completion of the bid item, whether or not the specific material or operation is indicated on the Drawings or specified herein.
- C. Base Bid

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ITEM No. 1 CONTRACT BOND

UNITS	LUMP SUM
ITEM INCLUDES	1. Contract Bond 2. Furnishing all labor and incidentals to complete the work as specified.
REMARKS	Contract Bond shall be paid for at the lump sum price or the paid invoice amount, whichever is less. If the contract lump sum price is greater than the paid invoice amount, the difference will be paid on the final estimate.

ITEM No. 2, 35, 39, 49, 56 MOBILIZATION

UNITS	LUMP SUM
ITEM INCLUDES	1. All costs to prepare and move personnel, equipment, and materials to the project.
REMARKS	Mobilization will be paid for by the lump sum according to the North Dakota Standard Specifications for Road and Bridge Construction 2024 Edition.

ITEM No. 3, 36, 40, 50, 57 TRAFFIC CONTROL

UNITS	LUMP SUM
ITEM INCLUDES	1. All traffic control devices 2. Installation and relocation as required for project phasing. 3. Maintenance 4. Sweeping of adjacent roads as required by the Engineer 5. Traffic control supervisor as required 6. Removal at project finish 7. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	Construction traffic control shall be paid for at the lump sum contract price.

ITEM No. 4, 58 REMOVAL OF CURB AND GUTTER

UNITS	LINEAR FOOT
ITEM INCLUDES	1. Removing of curb and gutter 2. Hauling away and disposing of removed curb and gutter 3. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	Removal of curb and gutter shall be measured along the top of the curb and gutter prior to removal.

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ITEM No. 5, 59 CURB AND GUTTER – TYPE 1

UNITS	LINEAR FOOT
ITEM INCLUDES	1. Concrete 2. Site preparation 3. Rebar 4. Forming 5. Gravel 6. Hauling 7. Placing 8. Joint material 9. Finishing 10. Cure Material 11. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	Curb and Gutter – Type I shall be measured along the top of the in-place curb, complete in place and accepted by the Engineer.

ITEM No. 6 MUDJACKING CURB AND GUTTER

UNITS	LINEAR FOOT
ITEM INCLUDES	1. Portland Cement 2. Mudjacking mixture 3. Backfilling 4. Topsoiling 5. Seeding 6. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	Mudjacking concrete curb and gutter shall be measured on a linear foot (L.F.) basis and paid for at the price bid for "Mudjacking Concrete Curb and Gutter" complete in place and accepted by the Engineer. Only those areas designated by the Engineer shall be paid for under this bid item.

ITEM No. 7 MUDJACKING CONCRETE DRIVEWAY

UNITS	SQUARE FOOT
ITEM INCLUDES	1. Portland Cement 2. Mudjacking mixture 3. Backfilling 4. Topsoiling 5. Seeding 6. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	Mudjacking concrete driveway shall be measured on a square foot (SF) basis and paid for at the unit price bid for "Mudjacking Concrete Driveway" complete in place and accepted by the Engineer. Only those driveways identified and designated by the Engineer shall be paid for under this bid item.

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ITEM No. 8 REMOVE CONCRETE DRIVEWAY

UNITS	SQUARE YARD
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Removal of concrete 2. Hauling away and disposing of removed concrete 3. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	The area of concrete removed shall be measured by the Engineer in the field.

ITEM No. 9, 60 REINFORCED CONCRETE DRIVEWAY

UNITS	SQUARE YARD
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Area preparation 2. Forming 3. Reinforcing steel 4. Concrete 5. Placing 6. Joint material 7. Finishing 8. Cure Material 9. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	The area of reinforced concrete driveway shall be measured by the Engineer in the field, complete in place and accepted by the Engineer.

ITEM No. 10, 61 5" REINFORCED CONCRETE SIDEWALK

UNITS	SQUARE YARD
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Class AA Concrete 2. Rebar 3. Colored concrete for transition slope edges 4. Joint Materials 5. 4" Aggregate Base Course 6. Saw Cutting 7. Joint sealant 8. Curing Compound 9. Hauling 10. Placing 11. Cleanup 12. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	5" Reinforced Concrete Sidewalk shall be measured by the square yard, complete in place and accepted by the Engineer.

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ITEM No. 11, 37, 62 ASPHALT MILLING

UNITS	SQUARE YARD
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Milling 2. Milled tapers 3. Transition wedges where required 4. Hauling milled material 5. Stockpiling milled material at a location within City limits 6. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	Asphalt Milling shall be measured by the Engineer in the field, complete in place and accepted by the Engineer.

ITEM No. 12, 38, 41, 51, 63 SUPERPAVE FAA 43

UNITS	TON
ITEM INCLUDES	<ol style="list-style-type: none"> 1. FAA43 Bituminous Mix 2. Hauling 3. Placing 4. Scale 5. Compacting 6. Cleanup/Sweeping 7. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	Superpave FAA43 shall be measured by the tonnage of bituminous mix based on truck scale weights or batch weight tickets provided by the Contractor, complete in place and accepted by the Engineer.

ITEM No. 13, 64 TOPSOIL

UNITS	CUBIC YARD
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Placing 2. Grading 3. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	Topsoil shall be measured by the Engineer by taking an initial measurement of the existing ground before the topsoil has been placed and then a second measurement after placing the topsoil. All topsoil pile to be leveled unless directed by the Engineer to leave in place.

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ITEM No. 14, 65 SEEDING AND HYDRO MULCH

UNITS	SQUARE YARD
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Site preparation 2. Seed 3. Hydro Mulch 4. Placing 5. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	Seeding and hydro mulch shall be measured by the actual area seeded and hydro mulched in the field, complete in place and accepted by the Engineer. This item shall include the cost of both seeding and hydro mulching.

ITEM No. 15 ADJUST GATE VALVE

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Extension rings of required size 2. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	Adjust gate valve shall be measured by the each, complete in place and accepted by the Engineer.

ITEM No. 16, 42 ADJUST UTILITY MANHOLE

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Extension rings of required size 1. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	Adjust utility manhole shall be measured by the each, complete in place and accepted by the Engineer.

ITEM No. 17, 43, 66 INLET PROTECTION – TYPE B

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Inlet protection 2. Installation 3. Maintenance 4. Removal 5. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified
REMARKS	Inlet protection – Type B shall be measured per spot installed, complete in place and accepted by the Engineer.

ITEM No. 18, 44, 52 MINE AND BLEND

UNITS	SQUARE YARD
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Full Depth Mine & Blend 2. Water 3. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	Mine and Blend shall be measured by the square yard, complete in place and accepted by the Engineer.

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ITEM No. 19, 45, 67 WASTE EXCAVATION

UNITS	CUBIC YARD
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Hauling 2. Compacting 3. Spreading 4. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified
REMARKS	Waste excavation shall be measured by the cubic yard, complete in place and accepted by the Engineer

ITEM No. 20, 46, 53 RESHAPING ROADWAY

UNITS	SQUARE YARD
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Reshaping the traveled road top to the typical section shown on the plans using a motorgrader 2. Recompressing the reshaped roadtop with a rubber-tired roller meeting the NDDOT specification 3. Providing a heavy-duty disk capable of breaking up and evening out the plowed surface 4. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	Reshape roadway shall be measured by the square yard, complete in place and accepted by the Engineer.

ITEM No. 21, 68 PVC PERFORATED PIPE

UNITS	LINEAL FEET
ITEM INCLUDES	<ol style="list-style-type: none"> 1. PVC Perforated Pipe 2. Pipe sock 3. Excavation 4. Installation 5. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	PVC perforated pipe shall be measured along the top of the pipe installed, complete in place and accepted by the Engineer.

ITEM No. 22 MODIFY EXISTING INLET

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Cutting of new hole 2. Grout 3. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Modify existing inlet shall be measured per each inlet that has been modified per plans, complete in place and accepted by the Engineer.

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ITEM No. 23, 69 GEOTEXTILE FABRIC – TYPE R1

UNITS	SQUARE YARD
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Geotextile Fabric – Type R1 2. Placing 3. Staples 4. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	Geotextile Fabric – Type R1 shall be measured by the square yard, complete in place and accepted by the Engineer.

ITEM No. 24, 70 CRUSHED CONCRETE (SALVAGE BASE COURSE)

UNITS	CUBIC YARD
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Crushed Concrete 2. Hauling 3. Placing 4. Compacting 5. Water if necessary 6. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Crushed concrete (salvage base course) shall be measured by the cubic yard, complete in place and accepted by the Engineer.

ITEM No. 25 TYPE II INLET

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Type II inlet 2. Inlet frame and casting 3. Riser as needed 4. Concrete base 5. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Type II inlet shall be measured per inlet installed, complete in place and accepted by the Engineer.

ITEM No. 26 TYPE II INLET CASTING AND COVER

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Type II Inlet Casting and Cover 2. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Type II inlet casting and cover shall be measured per inlet casting and cover installed, complete in place and accepted by the Engineer.

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ITEM No. 27 RCP STORM SEWER PIPE-ALL SIZES

UNITS	LINEAL FOOT
ITEM INCLUDES	<ol style="list-style-type: none"> 1. RCP Storm Sewer Pipe 2. Excavation/Backfilling 3. Pipe bedding 4. Rubber gasket joint 5. Capping dead ends 6. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	RCP storm sewer pipe shall be measured along the top of the pipe and the measurement rounded to the nearest foot, complete in place and accepted by the Engineer.

ITEM No. 28 CONNECT TO EXISTING STORM SEWER MANHOLE

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Modifications to existing storm sewer manhole 2. Grout 3. Furnishing all materials, equipment, labor, and incidentals to complete the word as specified.
REMARKS	Connect to Existing Storm Sewer manhole shall be measured per connection made, complete in place and accepted by the Engineer.

ITEM No. 29, 71 REMOVAL OF INLET

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Removal 2. Disposal 3. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Removal of Inlet will be paid for by the each removed.

ITEM No. 30, 72 REMOVAL OF PIPE ALL TYPES AND SIZES

UNITS	LINEAL FOOT
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Removal and disposal of pipe, end sections, riprap, drainage rock, and inslope protection 2. Excavation / Backfilling 3. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Removal of pipe shall be measured along the top of the pipe, complete in place and accepted by the Engineer.

ITEM No. 31, 73 REMOVAL OF CONCRETE

UNITS	SQUARE YARD
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Removing of concrete 2. Hauling away and disposing of removed concrete 3. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	The area of concrete removed shall be measured by the Engineer in the field.

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ITEM No. 32 INSULATE WATERMAIN

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Insulation Board 2. Installation 3. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Insulate watermain shall be paid per location, complete and accepted by the Engineer.

ITEM No. 33 SUBCUT

UNITS	CUBIC YARD
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Excavation 2. Hauling 3. Disposal of Waste 4. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Subcut shall be measured by the cubic yard of material Subcut, complete and accepted by the Engineer.

ITEM No. 34 SANITARY MANHOLE CASTING

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Casting and Cover 2. Adjusting Rings 3. Installation 4. Chimney Seal 5. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Sanitary Manhole Casting shall be measured per installed, complete in place and accepted by the Engineer.

ITEM No. 47, 54 LIQUID BASE STABILIZER

UNITS	GALLON
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Liquid base stabilizer material 2. Hauling 3. Placing 4. Mixing 5. Water required for placement/compaction 6. Grading 7. Compacting 8. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	Liquid Base Stabilizer shall be measured by the gallon of material used, complete in place and accepted by the Engineer.

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ITEM No. 48, 55 DUST SUPPRESSANT

UNITS	GALLON
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Liquid dust control chemical 2. Hauling 3. Placing 4. Mixing 5. Water required for placement/compaction 6. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Dust suppressant shall be measured by the gallon, complete in place and accepted by the Engineer.

ITEM No. 38, 74 UNCLASSIFIED EXCAVATION

UNITS	CUBIC YARD
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Excavation 2. Topsoil Stripping 3. Stockpiling Excess Topsoil 4. Hauling 5. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Unclassified excavation shall be paid for at plan quantity. Should a dispute arise, unclassified excavation shall be measured by the Engineer by taking an initial measurement of the existing ground after the topsoil/pavement has been removed and then a second measurement after removing the material but before placing the topsoil/aggregate base.

ITEM No. 40, 75 SUBGRADE PREPARATION

UNITS	SQUARE YARD
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Grading 2. Disking 3. Compacting 4. Scarify and recompact (if necessary) 5. Drying 6. Proof Rolling 7. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified
REMARKS	Subgrade preparation shall be measured by the square yard by the Engineer in the field, complete in place and accepted by the Engineer.

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ITEM No. 41, 76 6" PVC WATER MAIN

UNITS	LINEAL FOOT
ITEM INCLUDES	<ol style="list-style-type: none"> 1. PVC Pipe 2. Excavation/Backfilling 3. Pipe bedding 4. Concrete Thrust blocking 5. End Caps at dead ends 6. Cleaning/Disinfection/Testing 7. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	PVC Water main shall be measured along the top of pipe and the measurement rounded to the nearest foot, complete in place and accepted by the Engineer.

ITEM No. 42, 77 8" PVC SANITARY SEWER PIPE

UNITS	LINEAL FOOT
ITEM INCLUDES	<ol style="list-style-type: none"> 1. PVC Pipe 2. Excavation/Backfilling 3. Pipe bedding 4. Concrete Thrust blocking 5. Cleaning 6. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Sanitary sewer pipe shall be measured along the top of the pipe and the measurement rounded to the nearest foot, complete in place and accepted by the Engineer.

ITEM No. 43, 78 CONNECT TO EXISTING WATER SERVICE

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Connection to water service shall be measured per connection from new watermain to existing watermain, complete in place and accepted by the Engineer.

ITEM No. 79 MODIFY EXISTING MANHOLE

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Cutting of new hole 2. Grout 3. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Modify existing manhole shall be measured per manhole that has been modified per plans, complete in place and accepted by the Engineer.

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ITEM No. 80 DUCTILE IRON FITTINGS

UNITS	POUNDS
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Ductile iron fittings 2. Polyethylene Encasements 3. Thrust blocking and joint restraining devices 4. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Ductile iron fittings shall be measured by the pound for the fittings, complete in place and accepted by the Engineer.

ITEM No. 81 GATE VALVE AND BOX

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Gate Valve and Box 2. Blocking 3. Polyethylene Encasement 4. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Gate valve and box shall be measured per gate valve and box installed, complete in place and accepted by the Engineer.

ITEM No. 82 DETECTABLE WARNING PANELS

UNITS	SQUARE FOOT
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Detectable warning panel 2. Installation 3. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	The area of detectable warning panels shall be measured to the closest ½ of a foot, complete in place and accepted by the Engineer.

ITEM No. 83 PERMANENT SIGNAGE

UNITS	LUMP SUM
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Furnishing new signs, posts, anchors, and hardware 2. Resetting salvaged signs 3. Installing signs, posts, anchors, and hardware 4. Furnishing all materials, equipment, labor, and incidentals to complete the work as specified.
REMARKS	Permanent Signage shall be paid for at the lump sum unit price.

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ITEM No. 84 VALLEY GUTTER

UNITS	LINEAL FOOT
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Area preparation 2. Forming 3. Reinforcing steel 4. Concrete Class AA 5. Placing 6. Joint material 7. Finishing 8. Cure Material 9. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified
REMARKS	The lineal feet of valley gutter installed shall be measured along the flow line by the Engineer in the field, complete in place and accepted by the Engineer.

ITEM No. 85 CONCRETE HEADWALL

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Concrete Headwall 2. Marker 3. Installation 4. Backfill 5. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Concrete Headwall shall be measured by the each installed, complete in place and accepted by the Engineer.

ITEM No. 86 TYPE I INLET

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Type I inlet 2. Inlet frame and casting 3. Riser as needed 4. Concrete base 5. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Type I inlet shall be measured per inlet installed, complete in place and accepted by the Engineer.

ITEM No. 87 TYPE II INLET (DOUBLE)

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Type II Inlet Double 2. Inlet Casting and Grate 3. Installation and backfill 4. Concrete base 5. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Type II inlet Double shall be measured per inlet installed, complete in place and accepted by the Engineer.

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ITEM No. 88 RCP – ARCH STORM SEWER

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. RCPA End Section 2. Excavation/Backfilling 3. Bedding 4. Rubber gasket joint 5. Tie Rods as Required 6. All connections to existing Storm Sewer 7. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	RCP arch storm sewer shall be measured per end section installed, complete in place and accepted by the Engineer.

ITEM No. 89 REINFORCED CONCRETE PIPE – ARCH END SECTIONS

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. RCPA End Section 2. Excavation/Backfilling 3. Bedding 4. Rubber gasket joint 5. Tie Rods as Required 6. All connections to existing Storm Sewer 7. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	RCP storm sewer end sections shall be measured per end section installed, complete in place and accepted by the Engineer.

ITEM No. 90 STORM SEWER MANHOLE BASE

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Concrete storm sewer manhole base 2. Bedding 3. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Storm sewer manhole base shall be measured per base installed, complete in place and accepted by the Engineer.

ITEM No. 91 CONCRETE STORM SEWER MANHOLE

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Precast reinforced concrete risers 2. Precast reinforced top sections 3. Manhole steps where required 4. Mortar 5. Installation 6. Excavation/Backfilling 7. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Concrete storm sewer manhole shall be measured per manhole installed, complete in place and accepted by the Engineer.

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ITEM No. 92 SANITARY MANHOLE CASTING & COVER

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Casting and Cover 2. Adjusting Rings 3. Installation 4. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Sanitary Manhole Casting shall be measured per installed, complete in place and accepted by the Engineer.

ITEM No. 93 CONNECTION TO EXISTING STORM SEWER

UNITS	EACH
ITEM INCLUDES	<ol style="list-style-type: none"> 1. Adaptor 2. Furnishing all Materials, Equipment, Labor, and Incidentals to Complete the Work as Specified.
REMARKS	Connection to existing storm sewer shall be measured per connection from new storm sewer pipe to existing storm sewer pipe, complete in place and accepted by the Engineer.

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS (NOT USED)

END OF SECTION

PART 1 GENERAL

01.1.01 GENERAL

This section of the Project Manual describes the procedures for making modifications to the contract.

01.1.02 PROJECT MODIFICATIONS

- A. Project Modifications: The Owner's Representative will issue a description of proposed changes in the Work that may or may not require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Project Manual.
- B. There are three categories of Project Modifications: Supplemental Instruction, Proposal Request or Construction Change Directive:
1. Supplemental Instruction: The Owner's Representative will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.
 2. Proposal Requests: Proposal Requests issued by the Owner's Representative are for information only. The Contractor shall not consider them to be instructions either to stop work in progress or to execute the proposed change.
 - a. Within the time frame noted in the request but in no case more than fourteen (14) calendar days after receipt of Proposal Request, the Contractor shall submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - b. The quotation shall include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - c. The quotation shall indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - d. Upon approval of the proposal request a Change Order will be prepared.
 3. Construction Change Directive: Construction Change Directives instruct the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - a. Construction Change Directives contain a complete description of changes in the Work.
 - b. Construction Change Directives designate the methods to be followed to determine changes in the Contract Sum or the Contract Time.

01.1.03 CHANGE ORDER PROCEDURES

- A. Upon the Owner's approval of a Proposal Request, or completion of documentation of a Construction Change Directive, the Owner's Representative will issue a Change Order for signatures of Owner and Contractor on the form attached hereto at the end of this section
- B. Documentation: The Contractor shall maintain detailed records on a time and material basis of work required by a Construction Change Directive.
1. After completion of change, the Contractor shall submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS (NOT USED)

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CHANGE ORDER

Change Order

Date:

NAME OF PROJECT:

OWNER:

CONTRACTOR:

The following changes are hereby made to the CONTRACT DOCUMENTS:

DESCRIPTION:

Change in CONTRACT PRICE:

Original CONTRACT PRICE: \$

The CONTRACT PRICE due to this CHANGE ORDER will be **DECREASED/INCREASED** by \$

CONTRACT PRICE including previous CHANGE ORDER is: \$

The new CONTRACT PRICE including this CHANGE ORDER will be: \$

Change to CONTRACT TIME:

The CONTRACT NUMBER OF WORKING DAYS is **DECREASED/INCREASED** by

WORKING DAYS

Requested by:

Date

Recommended by:

Date

Approved by:

Date

The following items are to be [ADDED/DELETED] [to/from] the CONTRACT

ITEM

DEDUCT/ADD

ITEM

ADD/DELETE

NET CHANGE:

END OF SECTION

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PART 1 GENERAL

01.1.01 GENERAL

This section of the Project Manual includes the procedures for preparing and submitting payment requests, also referred to as progressive estimates.

01.1.02 RELATED WORK SPECIFIED ELSEWHERE

The following items of related work are specified and included in other sections of this Project Manual:

SECTION 00 72 00	GENERAL CONDITIONS
SECTION 01 26 00	CONTRACT MODIFICATION PROCEDURES
SECTION 01 77 00	CLOSEOUT PROCEDURES

01.1.03 PAYMENT APPLICATION TIMES

- A. Progress payments will be submitted at a frequency of not less than 28 days.
 - 1. The application for payment must be submitted to the Owner's Representative at least ten (10) calendar days prior to the Owner's meeting at which the Contractor desires the application to be considered.
 - 2. The Owner has regularly scheduled meetings each month.
 - 3. The dates for submitting Progress Payment Application will be established during the Pre-construction Conference.
- B. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends on the day of the application.

01.1.04 PAYMENT APPLICATION FORMS

Payment applications shall be made on forms provided by the Contractor, the format of which shall be approved by the Owner's Representative.

01.1.05 INITIAL APPLICATION FOR PAYMENT

Submittals that must precede or coincide with submittal of first Application for Payment include the following:

- A. List of subcontractors.
- B. Contractor's Construction Schedule.
- C. List of Contractor's staff assignments.
- D. Copies of authorizations, permits and licenses from authorities having jurisdiction for performance of the Work.
- E. Certificates of insurance and insurance policies.
- F. Performance bond and payment bond.
- G. Data needed by Owner to acquire insurance.

The submittals noted above shall be submitted at the Preconstruction Conference.

01.1.06 APPLICATION PREPARATION

- A. Complete every entry on form. Execute by a person authorized to sign legal documents on behalf of Contractor.
 - 1. Applications for final payment shall be notarized.
- B. Owner's Representative will return incomplete applications without action.
- C. Each Application for Payment shall be consistent with previous applications and payments as certified by Owner's Representative and paid for by Owner.
- D. Applications for payment shall conform to and include the following:
 - 1. Entries shall match data on the Bidder's proposal, schedule of values and Contractor's Construction Schedule.

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- a. Use updated schedules if revisions were made.
 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Submit 3 signed original copies of each Application for Payment to Owner's Representative by a method ensuring receipt.

01.1.07 PROMPT PAYMENT OF SUBCONTRACTORS

- A. Contractor must pay any subcontractor within ten (10) days of receiving of payment from the OWNER.
1. The contractor shall pay interest in the amount of 1½ % per month or any part of the month to the subcontractor on any undisputed amount not paid on time.
 2. The minimum monthly interest penalty for an unpaid balance of \$100 or more is \$10, for a balance of less than \$100 the contractor shall pay the actual penalty due to the subcontractor.

01.1.08 FINAL PAYMENT APPLICATION

- A. Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Contractor's Affidavit of Payment of Debts and Claims.
 4. Consent of Surety to Final Payment.
 5. See **SECTION 00 65 00 CLOSEOUT FORMS** and **SECTION 01 77 00 CLOSEOUT PROCEDURES** for more information.

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS (NOT USED)

END OF SECTION

PART 1 GENERAL

01.1.01 DESCRIPTION

This section of the Project Manual includes the coordination of the work with subcontractor, Owner and affected property and utility owners.

01.1.02 PROTECTION AND RELOCATION OF UTILITIES

A. Notice to Utilities

1. The Contractor shall notify public and private utility companies and municipalities as to those of their properties (such as pole lines, conduits, gas pipes, water pipes, sewers and tile lines) located within the project site that must be removed or relocated to complete the Project.
2. The notice will specify the locations to which their properties are to be relocated.
3. No warranty is made or implied by the Owner that the utility owners will remove or relocate their properties prior to commencement of construction operations or in sufficient time or manner to prevent interference with the Contractor's operations.
4. Contractor shall give notice to the owners of all known utilities at least 48 hours (excluding Saturdays, Sundays and Holidays) before starting any operations affecting those properties.
5. If during the course of their operations, the Contractor discovers utility property whose existence was not known, Contractor shall immediately notify the utility company and the Owner's Representative.
6. **North Dakota One-Call: 1-800-795-0555.**

01.1.03 WORKING NEAR UTILITIES

- A. When the Contractor works near electrical power lines, the Contractor may make arrangements with the power company, at no expense to the Owner, to:
1. Temporarily shut off the power or utility.
 2. Temporarily insulate the line(s).
 3. By-pass the power or utility from the work area, or
 4. Make other arrangements necessary for a safe workplace.
- B. No warranty is made as to whether the utility will temporarily shut off power or insulate its line(s), or as to the fee charged for preparing a safe work area for the Contractor.
- C. Construction operations adjacent to utility property shall not be commenced until arrangements satisfactory to the utility owner have been made by the Contractor for the protection of the utility's property and continuation of service.
1. Should any of the Contractor's equipment come in contact with or damage utility property in any way, even though there may be no apparent evidence of breakage or harm, the Contractor shall promptly notify the proper authorities.
 2. The Contractor shall also cooperate with them in determining damage and restoring interrupted services as may be needed.
 3. Where contact is made with a utility, operations should be suspended immediately.
 4. The Contractor shall vacate the site until the utility owner determines that it is safe to resume operations.
- D. The Contractor shall employ special equipment or construction methods and hand labor if necessary to accomplish the work as planned adjacent to utility properties without damage thereto.
- E. At no time shall the Contractor interfere with any persons engaged in protecting or moving utility property or in the operation of the utility.

01.1.04 LOCATIONS OF UTILITIES

- A. The approximate locations of underground telephone cables, power cables, gas lines, cable television, water mains and sewer mains as maintained and marked by public utilities are shown on the Drawings.

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- B. No attempt has been made to include information regarding service lines or private underground utilities beyond the responsibility of public utilities.
- C. The Contractor shall locate and protect all underground utilities in or near the work whether they are private or public and regardless of whether or not they are shown on the Drawings.
- D. It is understood and agreed that the Contractor has considered in their bid all of the permanent and temporary utility appurtenances including public and private utilities which are not shown on the Drawings.
- E. No additional compensation will be allowed for any delays, inconveniences, or damages sustained by the Contractor due to any interference from those utility appurtenances or the operations of moving them.
- F. Contractor shall assume full responsibility for reimbursing the utility owners for any damages caused by their operations to utility properties whose existence and approximate locations were made known to them before the damage was done.
- G. The Contractor shall be responsible for providing buried utility locations for areas on the site which are beyond the responsibility of utility owners.
- H. The utility lines beyond the area of responsibility of the utility owners may include but are not necessarily limited to the following:
 - 1. Site specific electrical distribution lines
 - 2. Site specific control wiring
 - 3. Site specific water, sewer and process lines
 - 4. Site specific natural gas lines
- I. Nothing in this Project Manual shall make the Contractor liable for damage to utility property located below the ground surface, in the absence of negligence, if the owner of the property, after reasonable notice from the Contractor, fails to advise the Contractor of its location and approximate depth below the ground surface.

01.1.05 CONTRACTOR COORDINATION

- A. The Contractor shall furnish to the Owner's Representative a list of the field superintendent, foreman and those responsible for the 24-hour maintenance of traffic control devices and emergency contact person(s).
- B. This list shall include the following data:
 - 1. Name of the individual.
 - 2. Title
 - 3. Phone numbers.
 - a. In case of the persons responsible for emergencies and the maintenance of the traffic control devices these numbers must include one at which said persons can be reached 24 hours a day, 7 days a week, including Saturdays, Sundays and Holidays.

01.1.06 CONTRACTOR ADMINISTRATION

- A. The Contractor shall inspect all materials delivered to the site to determine their suitability to be incorporated into the work and conformance with the Drawings and Project Manual.
- B. The Contractor shall inspect the installation of all materials to determine conformance with the Drawings and Project Manual.
- C. The Contractor shall have the job superintendent on-site at all times work is being performed by work forces of the Contractor or subcontractors.

01.1.07 MEETINGS

- A. Meetings will be scheduled by the Owner's Representative during project construction as deemed necessary.
 - 1. The Contractor or a responsible representative who can bind the Contractor to a decision shall attend the meetings.

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- B. The following meetings shall be attended by a representative of the Contractor, Owner's Representative, and Owner
 - 1. Pre-construction meeting
 - 2. Weekly Progress meetings
 - a. Progress meetings are to be held on-site unless noted
 - 3. Final walk-through meeting for substantial completion and final completion.
- C. Notice of meetings to be attended by the Contractor, Owner and Owner's Representative shall be sent to those required to attend and copies to interested parties such as governmental and funding agencies.
 - 1. The Owner's Representative shall be responsible for the sending of proper notice of meetings and the preparation and distribution of meeting minutes.
 - 2. Attendees of the meeting shall be responsible for the review of meeting minutes for completeness and correctness.
 - 3. Comments shall be forwarded to the person that prepared the minutes.
- D. Sections of the Project Manual require coordination meetings between the Contractor and the trades people performing the specified work.
 - 1. The Contractor shall be responsible for sending notification of said meetings to the Owner's Representative and subcontractors involved with the particular work item.
 - 2. Owner's Representative is not required to attend these meetings unless specifically requested by the Contractor.
 - 3. Contractor shall be responsible for preparation and distribution of meeting minutes.

PART 2 MATERIALS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS (NOT USED)

END OF SECTION

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PART 1 GENERAL

01.1.01 SUMMARY

This Section includes administrative and procedural requirements for submittals required for performance of the work, including the following:

- A. Contractor's construction schedule.
- B. Submittal schedule.
- C. Shop drawings.
- D. Product data.
- E. Samples.
- F. Quality assurance submittals.
- G. Quality control testing data to verify compliance with requirements for materials for trench back fill
- H. Administrative Submittals
 - 1. Refer to **SECTION 00 72 00 GENERAL CONDITIONS**, other **DIVISION 00** and **DIVISION 01** Sections, and other Contract Documents for requirements for administrative submittals.
 - 2. Such submittals include, but are not limited to, the following:
 - a. List of subcontractors.
 - b. Monthly cash flow requirements.
 - c. Schedule of values.
 - d. Application and Certificate for Payment.
 - e. Record drawings.
 - f. Responses to Proposal Requests.
 - g. Warranties.
- I. Failure to meet Submittal requirements to the satisfaction of the Owner's Representative will constitute unsatisfactory performance of the work in accordance with the Contract Documents.
 - 1. The Owner's Representative may recommend to the Owner that all or a portion of payments requested during the corresponding pay period be withheld until these requirements are met.

01.1.02 RELATED WORK SPECIFIED ELSEWHERE

The following items of related work are specified and included in other sections of this Project Manual:

SECTION 00 26 00	PROCUREMENT SUBSTITUTION PROCEDURES
SECTION 00 72 00	GENERAL CONDITIONS

01.1.03 DEFINITIONS

- A. Shop drawings are drawings, diagrams, schedules and other data specially prepared for the work by the contractor or subcontractor, sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the work.
- B. Product data are illustrations standard schedules, performance charts, instructions, brochures diagrams and other information furnished by the contractor to illustrate materials or equipment for some portion of the work.
- C. Samples are physical examples that illustrate materials, colors, equipment or workmanship and establish standards by which the work will be judged.
- D. Coordination drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or to function as intended.
- E. Manufacturer's Instructions include delivery, storage, handling, assembly, installation, adjustment, start-up, operation, maintenance, and finishing as applicable.

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- F. Field samples are full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials. Field samples are used to establish the standard by which the work will be judged.
- G. Mockups are full-size assemblies for review of construction, coordination, testing, or operation; they are not samples.

01.1.04 SUBMITTAL PROCEDURES

- A. The Contractor shall coordinate preparation and processing of submittals with performance of construction activities.
- B. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related elements of the work so processing will not be delayed by the need to review submittals concurrently for coordination.
 - a. The Owner's Representative reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.
 - 3. To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for re-submittals.
- C. The Contractor shall place a permanent label or title block on each submittal for identification. Including the name of the entity that prepared each submittal on the label or title block.
 - 1. Assign a reference number to each submittal and re-submittal.
 - 2. Provide a space approximately 4 by 5 inches on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken by the Contractor.
 - 3. Include the following information on the label for processing and recording action taken.
 - a. Project name
 - b. Date
 - c. Name and address of the Owner's Representative
 - d. Name and address of the Contractor
 - e. Name and address of the subcontractor
 - f. Name and address of the supplier
 - g. Name of the manufacturer
 - h. Number and title of appropriate Specification Section
 - i. Drawing number and detail references, as appropriate
 - 4. Each submittal must be stamped by the Contractor indicating that the submittal was reviewed for conformance with the Contract Documents.
 - 5. The Owner's Representative will not accept nor review submittals that have not been signed and stamped by the Contractor.
- D. Package each submittal appropriately for transmittal and handling.
 - 1. Transmit each submittal from the Contractor to the Owner's Representative.
 - 2. The Owner's Representative will not accept submittals received from sources other than the Contractor and will return same to the sender.
 - 3. On the transmittal, record relevant information and requests for Owner's Representative action.
 - 4. On the form, or separate sheet, record deviations from Contract Document requirements, including variations, limitations and justification.
 - 5. Include Contractor's certification that information complies with Contract Document requirement.

01.1.05 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. The Contractor shall prepare and submit to the Owner's Representative prior to submission of the first Application and Certificate for Payment, a construction schedule of the work activities from the Notice to Proceed until Substantial Completion.
 1. The work activities comprising the schedule shall be of sufficient detail to assure adequate planning and execution of the work and such that in the judgment of the Owner's Representative, it provides an appropriate basis for monitoring and evaluation of the progress of the work.
 2. A work activity is defined as an activity that requires substantial time and resources (manpower, equipment and/or material) to complete and must be performed before the contract is considered complete.
 3. The schedule shall indicate the sequence of work activities.
 4. Each activity shall be identified with a description, start date, completion date and duration. It shall include, but not be limited to the following items, as appropriate to this contract:
 - a. Shop drawing review by the Owner's Representative
 - b. Material and Equipment
 - i. Order
 - ii. Manufacture
 - iii. Delivery
 - iv. Installation
 - v. Check out
 - c. Performance tests and supervisory service activities
 - d. Excavation and grading
 - e. Concrete placement sequence
 - f. Construction of various facilities
 - g. Construction of various segments of utilities
 - h. Subcontractor's items of work
 - i. Allowance for inclement weather
 - j. Contract interfaces, date of Substantial Completion
 - k. Interfacing and sequencing with existing facilities and utilities
 - l. Sequencing of major construction activities
 - m. Milestones and completion dates
- B. Following response to the initial submittal, the Contractor shall print and distribute copies of the revised construction schedule to the Owner's Representative, Owner, Subcontractors, and other parties required to comply with scheduled dates.
 1. Post copies in the field office.
 2. When revisions are made, distribute to the same parties and post in the same locations.
 3. Delete parties from distribution when they have completed their assigned portion of the work and are no longer involved in construction activities.
- C. Revise the schedule after each meeting, event, or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.
- D. Prepare and submit to the Owner's Representative within 10 days after substantial completion a detailed construction schedule for outstanding work and punch list items.

01.1.06 SUBMITTAL SCHEDULE

- A. The Contractor shall submit initial submittal schedule in accordance with the **SECTION 00 72 00 GENERAL CONDITIONS** of the Contract and as follows:
1. Coordinate submittal schedule with the subcontractors, Schedule of Values, and the list of products as well as the Contractor's Construction Schedule.
 2. Prepare the schedule in chronological order and provide the following information:
 - a. Scheduled date for the first submittal
 - b. Related Section number
 - c. Submittal category (Shop Drawings, Product Data, of Samples)
 - d. Name of the subcontractor
 - e. Description of the part of the work covered
 - f. Scheduled date for the Owner's Representative's final release
- B. Following response to the initial submittal schedule, the Contractor shall print and distribute copies of the revised submittal schedule to the Owner's Representative, Owner, subcontractors, and other parties required to comply with submittal dates indicated.
1. Copies shall be posted in the field office.
 2. When revisions are made, the Contractor shall distribute to the same parties and post in the same locations.
 3. Delete parties from distribution when they have completed their assigned portion of the work and are no longer involved in construction activities.
- C. Revise the schedule after each meeting or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

01.1.07 SHOP DRAWINGS

Shop drawings shall be submitted in accordance with the General Conditions and the following:

- A. The Contractor shall submit six (6) copies of shop drawings and/or manufacturer's literature as specified herein prior to commencing the fabrication manufacturer or installation of items to be incorporated in the work.
1. Shop drawings shall present all diagrams, illustrations, performance data, manufacturer's literature, setting diagrams, patterns, templates, schedules and similar drawings and any other data necessary to demonstrate conformance with this Project Manual.
 2. Certifications where required by this Project Manual shall be included with shop drawing submittals.
- B. The Contractor shall review each shop drawing before submitting it to the Owner's Representative to determine that it is acceptable in terms of means, methods, techniques, sequences, and operation of construction, safety precautions and programs incidental thereto, all of which are the Contractor's responsibility.
1. The Contractor shall call to the Owner's Representative's attention any shop drawing or detail thereon which varies from what the Project Manual has called for.
 2. Shop drawings that are submitted by the Contractor, but not required by the Project Manual, shall be returned to the Contractor and shall not be reviewed.
- C. Shop drawings which are reviewed by the Owner's Representative shall be stamped with the Owner's Representative's review action stamp prior to being returned to the Contractor.
1. The Owner's Representative's review shall consist of checking only for conformance with the design concept of the project and compliance with the information given in the Contract Documents.
 2. The Contractor is responsible for dimensions to be confirmed and correlated at the job site for information that pertains solely to the fabrication processes of the techniques of construction and for coordination of the work of all trades.
- D. Do not use shop drawings without an appropriate final stamp indicating action taken.

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E. Items requiring shop drawing submittal are listed in **SCHEDULE 01 33 00 – A** at the end of this Section.

01.1.08 PRODUCT DATA

- A. The Contractor shall collect product data into a single submittal for each element of construction or system.
- B. Product data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.
- C. Mark each copy to show actual product to be provided.
 - 1. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information.
 - 2. Include the following information:
 - a. Manufacturer's printed recommendations.
 - b. Compliance with trade association standards.
 - c. Compliance with recognized testing agency standards.
 - d. Application of testing agency labels and seals.
 - e. Notation of dimensions verified by field measurement.
 - f. Notation of coordination requirements.
- D. The Contractor shall not submit Product Data until they have confirmed compliance with requirements of the Contract Documents.
- E. Submit four copies of each required submittal.
 - 1. The Owner's Representative will retain two copies, will forward one to the Owner, and will return one to the Contractor marked with action taken and corrections or modifications required.
 - 2. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the reviewed submittal.
- F. Furnish copies of reviewed submittal to installers, subcontractors, suppliers, manufactures, fabricators, and other required for performance of construction activities.
 - 1. Show distribution on transmittal forms. Maintain one copy at the project site for reference.
 - 2. Do not proceed with installation until a copy of Product Data is in the Installer's possession.
 - 3. Do not permit use of unmarked copies of Product Data in connection with construction.
- G. Items requiring product data submittal are listed in **SCHEDULE 01 33 00 – A** at the end of this Section.

01.1.09 SAMPLES

- A. Submit full-size, fully fabricated samples cured and finished as specified and physically identical with the material or product proposed.
- B. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
- C. Mount or display samples in the manner to facilitate review of qualities indicated.
 - 1. Include the following:
 - a. Specification section number and reference.
 - b. Generic description of the sample.
 - c. Sample source.
 - d. Product name or name of the manufacturer.
 - e. Compliance with recognized standards.
 - f. Availability and deliver time.
 - 2. Submit samples for review of size, kind, color, pattern, and texture.

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- a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least three multiple units that show approximate limits of the variations.
 - b. Refer to other specification sections for requirements for samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
 - c. Refer to other sections for samples to be returned to the Contractor for incorporation in the special requests regarding disposition of sample submittals.
 - d. Samples not incorporated into the work, or otherwise designated as the Owner's property, are the property of the Contractor and shall be removed from the site prior to Substantial Completion.
- D. Except for samples illustrating assembly details, workmanship, fabrication techniques, connections, operation, and similar characteristics, submit three samples for review.
1. The Owner's Representative will return one sample marked with the action taken.
- E. Prepare and distribute additional samples to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the work.
1. Show distribution on transmittal forms.
 2. Maintain reviewed samples at the project site for quality comparisons throughout the course of construction.
- F. Comply with submittal requirements to the fullest extent possible and Process transmittal forms to provide a record of activity.
- G. Items requiring sample submittal are listed in **SCHEDULE 01 33 00 – A** at the end of this Section.

01.1.10 QUALITY ASSURANCE SUBMITTALS

- A. The Contractor shall submit quality-control data, including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other sections of this Project Manual.
- B. Certifications: Where other sections of this Project Manual require certification that a product, material, or installation complies with specified requirements, submit a notarized certification from the manufacturer certifying compliance with specified requirements.
1. Signature: Certification shall be signed by an officer of the manufacturer or other individual authorized to sign documents on behalf of the company.
- C. Inspection and Test Reports: Submit as required by other sections of this Project Manual.
- D. Items requiring quality assurance submittals are listed in **SCHEDULE 01 33 00 – A** at the end of this Section.

01.1.11 OWNER'S REPRESENTATIVE'S ACTION

- A. Except for submittals for the record or information, where action and return is required, the Owner's Representative will review each submittal, mark to indicate action taken, and return promptly.
- B. The Owner's Representative will stamp each submittal with a uniform action stamp.
- C. The Owner's Representative will mark the stamp appropriately to indicate the action taken, as follows:
1. "No Exceptions Taken" The work covered by the submittal may proceed provided it complies with requirements of the Contract Documents.
 2. "Make Corrections Noted" The work covered by the submittal may proceed provided it complies with notations and corrections on the submittal and requirements of the Contract Documents.
 3. "Revise and Resubmit" Do not proceed with work covered by the submittal. Revise and resubmit without delay. Do not use, or allow others to use, submittals marked "Revise and Resubmit" at the Project Site or elsewhere where work is in progress.
 4. "Not Acc.(eatable)" Do not proceed with work covered by the submittal. Resubmit without delay. Do not use, or allow others to use, submittals marked "Not Acc." at the Project Site or elsewhere the work is in progress.

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D. The Owner's Representative will return unsolicited submittals to the sender without action.

01.1.12 OPERATION AND MAINTENANCE DATA

- A. The Contractor shall submit six (6) Operation and Maintenance Manuals to the Owner's Representative prior to start-up of any equipment for which said manual are to be provided.
- B. These manuals shall be received by the Owner's Representative seven (7) days before the first scheduled day of operator training, if required.
- C. The Contractor shall review each O & M Manual before submitting it to the Owner's Representative to ascertain that it is acceptable in terms of providing sufficient information and data to the Owner to instruct the Owner as to how to properly and safely operate and maintain the equipment to minimize operation and maintenance costs and down time.
- D. The manuals shall include:
 - 1. Factory catalog cuts on all mechanical equipment installed indicating specific model number and detailed parts lists.
 - 2. Shop drawings on all installed equipment bearing the Owner's Representative's stamp of acceptance.
 - 3. Specific handwritten instructions on start-up, operation, maintenance, adjustment, trouble shooting and shut-down.
 - 4. Maintenance schedules which describe daily, weekly, monthly, semi-annual, and annual maintenance work required for each component of the equipment.
- E. The Contractor shall submit the bound copies of the Operation and Maintenance Manual (O & M) Manuals to the Owner's Representative for review and acceptance.
- F. Upon acceptance, the manuals will be given to the Owner by the Owner's Representative.
- G. Items for which O & M Manuals are to be submitted are listed in **SCHEDULE 01 33 00 - B** at the end of this section.

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS (NOT USED)

**SCHEDULE 01 33 00 – A
ITEMS REQUIRING SHOP DRAWING, PRODUCT DATA,
SAMPLE OR QUALITY ASSURANCE SUBMITTALS**

DESCRIPTION
Concrete Mix Design
Bituminous Mix Design
Adjusting Rings
Fog Seal
Seed and Hydromulch
Geotextile Fabric
Watermain
Ductile Iron Fittings
Sanitary Pipe
Storm Sewer Pipe
Storm Sewer Structures

This schedule is provided for convenience. The Shop Drawings and O&M Manuals are required per individual sections of this Project Manual.

END OF SECTION

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PART 1 GENERAL

01.1.01 DESCRIPTION OF THE WORK

- A. This section of the Project Manual includes reference to regulatory requirements that affect the project.
- B. All federal, state, and local regulatory requirements shall be complied with by the Contractor.

01.1.02 REQUIRED PERMITS, APPROVALS AND LICENSES

- A. The Contractor shall obtain all necessary local and/or state permits for the work including but not necessarily limited to the NDPDES.
- B. The Contractor shall be responsible for the payment of all permit and application fees the cost of which shall be included in the price bid for which the permit or application is required.
- C. An application packet with all related and subsequent requirements may be required from the North Dakota Department of Health website www.deq.nd.gov/WQ.
- D. The contractor shall complete a NOI & SWPP Plan for the project and provide the completed packet to the Engineer for review. The Engineer shall secure the Owners signature and submit the NOI.
- E. The Contractor shall be responsible for maintaining the SWPP and comply with all conditions of the permit. All costs associated with the permit and SWPP shall be included in the erosion control bid items of the project.
- F. NDDOT SP 3(14) shall be incorporated as part of these specifications and the Contractor shall comply with all provisions of the SP. All references to “NDDOT” or “Department” shall mean “OWNER” as described in this project manual.

01.1.03 PROTECTION OF AIR QUALITY

- A. Do not burn trash on construction site.
- B. If temporary heating devices are necessary for protection of work, they shall not cause air pollution.

01.1.04 DUST CONTROL

- A. Provide and maintain temporary site roadways, Owner's existing roads, and public roads used during construction operations in clean, dust free condition.
- B. Comply with local environmental regulations for dust control and directions of Owner. If Contractor's dust control measures are considered inadequate by Owner, Owner will require Contractor to take additional dust control measures.

01.1.05 ON-SITE HEALTH AND SAFETY REQUIREMENTS

- A. General
 - 1. Contractor is responsible for implementation and enforcement of safe Work practices including, but no limited to trenching; materials handling; operation of equipment; and safety of public during progress of Work.
 - 2. Payment
 - a. Included in Bid: cost for Work performed in OSHA Level of protection deemed necessary by the Contractor and any protection required due to means, methods and materials utilized by the Contractor.
 - b. Work specified in this section shall be included as part of the cost for the work for which protection is required.
- B. Quality Assurance
 - 1. Regulatory Requirements
 - a. Contractor shall plan for and ensure personnel comply with basic provisions of OSHA Safety and Health Standards (29 CFR 1910) and General Construction Standards (29 CFR 1926) as appropriate.

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- b. Contractor shall comply with applicable laws and regulations of any public body having jurisdiction for safety of persons or property.
- C. Operations and Equipment Safety
 - 1. Contractor is responsible for initiating, maintaining, and supervision of safety precautions and programs in connection with Work.
 - a. Contractor shall take necessary precautions for safety of employees on Project site and other persons and organizations who may be affected by Project.
 - 2. Contractor's duties and responsibilities for safety in connection with Work shall continue until such time as Work is complete and Owner has issued notice to Contractor that Work is complete.
- D. Health & Safety
 - 1. Contractor is responsible for implementation and enforcement of health and safety requirements and shall take necessary precautions and provide protection for following.
 - a. Personnel working on or visiting Project site, irrespective of employer.
 - b. Work and materials or equipment to be incorporated in Work area on or offsite.
 - c. Other property at or adjacent to Project site.
 - d. Public exposed to job related operations or potential release of toxic or hazardous materials.

01.1.06 UNDERGROUND UTILITIES

Contractors, subcontractors, and any firm or individual intending to do work on this contract shall contact all utility firms in the affected area of construction a minimum (2) days prior to beginning construction so that affected utilities will be located and marked.

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS (NOT USED)

END OF SECTION

PART 1 GENERAL

01.1.01 SUMMARY

- A. The Contractor is responsible for quality control and quality assurance of their work and the work of their subcontractors.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated.
 - 1. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-control services required by the Owner's Representative or authorities having jurisdiction are not limited by provisions of this Section.

01.1.02 SUBMITTALS

- A. Prepare and submit certified written reports that include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Ambient conditions at time of sample taking and testing and inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on re-testing and re-inspecting.
- B. For Owner's records, submit copies of
 - 1. Permits
 - 2. Licenses
 - 3. Certifications
 - 4. Inspection reports
 - 5. Releases
 - 6. Jurisdictional settlements
 - 7. Notices
 - 8. Receipts for fee payments
 - 9. Judgments
 - 10. Correspondence

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11. Records

12. Similar documents, established for compliance with standards and regulations bearing on performance of the Work to the Owner's Representative.

01.1.03 QUALITY CONTROL

- A. The Contractor shall provide the quality-control services specified and required within specific Specification Sections.
1. Engage a qualified testing agency to perform these quality-control services.
 2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 3. Submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- B. Owner will engage a testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner.
1. Testing agency will notify Owner's Representative and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 2. Testing agency will submit a certified written report of each test, inspection, and similar quality-control service to Owner's Representative with copy to Contractor and to authorities having jurisdiction.
 3. Testing agency will submit a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 4. Testing agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 5. Testing agency will retest and reinspect corrected work the cost of which shall be borne by the Contractor.
- C. Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.
- D. Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested.
1. Notify agency sufficiently in advance of operations to permit assignment of personnel.
 2. Provide the following:
 - a. Access to the Work.
 - b. Incidental labor and facilities necessary to facilitate tests and inspections.
 - c. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - d. Facilities for storage and field-curing of test samples.
 - e. Delivery of samples to testing agencies.
 - f. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - g. Security and protection for samples and for testing and inspecting equipment at Project site.
- E. Coordinate sequence of activities to accommodate required quality assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS

01.3.01 REPAIR AND PROTECTION

- A. On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 1. Provide materials and comply with installation requirements specified in other Sections of this Project Manual.
 2. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

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PART 1 GENERAL

This section of the Project Manual describes the temporary facilities to be provided by the Contractor as necessary to complete the work as specified herein and shown on the Drawings.

01.1.01 USE CHARGES

- A. The cost or use charges for temporary facilities shall be considered indicated in the cost for other items of the work and no additional compensation will be made therefor.
- B. Other entities shall be allowed to use temporary services and facilities without cost, including, but not limited to, testing and inspecting agencies and personnel of authorities having jurisdiction over the work.

01.1.02 PROJECT CONDITIONS

- A. The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
 - 1. Temporary services and facilities shall be kept clean and neat.
 - 2. Temporary services and facilities shall be relocated as required by progress of the Work.
- B. Facilities shall be located where they will serve Project adequately and result in minimum interference with performance of the Work.
 - 1. Coordinate location(s) with the Owner's Representative.
 - 2. Relocate and modify facilities as required.

01.1.03 SUPPORT FACILITIES INSTALLATION

Field offices (where required), storage sheds, sanitary facilities, and other temporary construction and support facilities shall be located for easy access and security.

01.1.04 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: The Contractor shall provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- B. Security Enclosure and Lockup: The Contractor shall install substantial temporary enclosure around partially completed areas of construction.
 - 1. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
- C. Temporary security measures such as fences shall be provided by the Contractor where the construction requires removal or relocation of existing security improvements.

01.1.05 TRAFFIC CONTROL

- A. The Contractor shall be responsible for traffic control on the Project, and shall furnish, erect and maintain all necessary traffic control devices required to provide safe movement of vehicular traffic through the Project, in accordance with Drawings and the following.
 - 1. The Contractor shall also be responsible for protection of pedestrian traffic during construction.
- B. Prior to the start of any construction operations that necessitate traffic control signing that is the Contractor's or Subcontractor's responsibility, the Contractor shall make available for inspection (24 hours prior to installation) all traffic control devices to be furnished and used by the Contractor in order to insure conformance with the Manual on Uniform Traffic Control Devices for Streets and Highways.
- C. The Contractor shall modify his proposed traffic control devices as deemed necessary by the Owner's Representative.
- D. Traffic control devices include, but are not limited to barricades, warning signs, lane marking, trailers, flashers, cones and drums as required, and sufficient barricade weights to maintain barricade stability.
- E. No hand-lettered signs will be approved for installation.

**WEST CENTRAL STREET IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WHAPEYON, NORTH DAKOTA**

**DIVISION 01 – GENERAL REQUIREMENTS
SECTION 01 52 00 – CONSTRUCTION FACILITIES
PROJECT No. ER24-00-139**

01.1.06 WORK INCLUDED

The Contractor shall provide temporary services addressed in this section and maintain same until final completion of project.

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS

01.3.01 TRAFFIC CONTROL

A. Daily Inspections

1. The Contractor shall provide surveillance at least once every 24 hours of the traffic control devices to insure that they are properly placed and in good condition.
2. The Contractor shall immediately repair or replace any traffic control device that is damaged, moved, stolen, or destroyed.
3. Traffic control devices shall be maintained in such a manner that the cleanliness, reflectorization and position is acceptable to the Owner's Representative.
4. The Contractor shall submit to the Owner's Representative a checklist certifying that the daily inspection of the traffic control devices has been taken.
5. The checklist shall be in a form approved by the Owner's Representative.

B. Contact Persons: The names, addresses and telephone numbers (not long distance) of at least two local individuals who will be available during non-working hours to maintain or replace traffic control devices shall be furnished to the Owner's Representative. These individuals shall have some knowledge of the maintenance and the proper placement of traffic control signs and devices.

C. Failure to Maintain: If at any time, the Contractor fails to adequately maintain any of the traffic control devices, the Owner may proceed to perform the maintenance and deduct the cost thereof from any monies due or coming due the Contractor.

D. Flag Persons

1. The Contractor shall provide flaggers when, in the opinion of the Owner's Representative, their operations may constitute a hazard to traffic.
2. The use of flaggers shall be as directed by the Owner's Representative and the cost of which shall be included in the price bid for the work that requires traffic control and no direct compensation will be made therefor.
3. Qualified flag persons shall be provided by the Contractor in conformance with provisions set forth in Chapter 6E of the Manual on Uniform Traffic Control Devices and as modified herein:
 - a. Flag persons, while on duty shall wear a fluorescent orange hard hat and vest.
 - b. The vest shall be reflectorized if worn at night.
 - c. Flag persons shall be fully clothed when on duty (shirt or blouse, slacks or trousers and sturdy shoes).
4. Flag persons shall use an approved "stop-slow" paddle or standard when directing traffic.

E. Access Maintenance: The Contractor shall maintain access to all abutting properties, especially for emergency vehicles, and minimize inconvenience to abutting property owners.

1. Providing access maintenance shall be included in the price bid for work affecting access and no additional compensation will be made therefor.

F. Dust Control: The Contractor shall be responsible for all necessary dust control on streets under construction and any boulevards.

1. Dust control, in the form of street cleaning and other measures, shall also be provided on adjacent streets or highways where tracking has deposited soil and mud on the road surface.

**WEST CENTRAL STREET IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA**

**DIVISION 01 – GENERAL REQUIREMENTS
SECTION 01 52 00 – CONSTRUCTION FACILITIES
PROJECT No. ER24-00-139**

2. Providing Dust Control shall be included in the price bid for the work that requires dust control and no additional compensation will be made therefor.
- G. Protection of Pedestrians: The Contractor shall be responsible for the protection of pedestrian and bicycle traffic on sidewalks and bike paths and at intersections by providing a temporary gravel surface after the sidewalk designated for removal has been removed.
1. Providing protection for pedestrians as specified herein shall be included in the price bid for the work that requires the protection of pedestrians and no additional compensation will be made therefor.
 2. The contractor shall install and maintain flashing lamps on all advance warning signs.

END OF SECTION

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PART 1 GENERAL

31.1.01 DESCRIPTION

This section of the Project Manual includes mobilization of equipment, materials and personnel to the work site.

31.1.02 RELATED WORK SPECIFIED ELSEWHERE

The following items of related work are specified and included in other sections of these Specifications:

SECTION 01 11 00 SUMMARY OF WORK
SECTION 01 33 00 SUBMITTAL PROCEDURES

31.1.03 REFERENCE SPECIFICATIONS

- A. The work under this section shall be performed in accordance with the provisions of the North Dakota Department of Transportation's *Standard Specifications for Road and Bridge Construction*, 2024 Edition **SECTION 702** unless otherwise noted.
- B. The referenced section and appurtenant sections thereto of the North Dakota Department of Transportation's *Standard Specifications for Road and Bridge Construction* shall be considered as a part of this Project Manual.
- C. Provisions of the North Dakota Department of Transportation's *Standard Specifications for Road and Bridge Construction* are subject to modification by the provisions of this Project Manual.

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS (NOT USED)

END OF SECTION

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PART 1 GENERAL

01.1.01 DESCRIPTION OF THE WORK

This section of the Project Manual includes the submittals and procedures which must be completed before Final Payment can be considered by the Owner.

01.1.02 RELATED WORK

See **SECTION 01 29 00 PAYMENT PROCEDURES** for requirements for Applications for Payment for Substantial and Final Completion.

01.1.03 SUBSTANTIAL COMPLETION

- A. Before requesting a review for determining date of Substantial Completion, the Contractor shall complete the following:
1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 2. Complete final clean up requirements.
 3. Touch up and otherwise repair and restore damaged portions of the work to eliminate visual defects.
- B. The Contractor shall submit a written request for review for Substantial Completion.
1. Upon receipt of request, the Owner's Representative, the Owner and the Contractor's Representative will proceed with the review.
 2. The Owner's Representative will prepare a deficiency list of items found to be incomplete or incorrect and will prepare the Certificate of Substantial Completion.
 3. The Contractor shall request a subsequent review when the Work identified in previous reviews as incomplete is completed or corrected.
 4. Results of completed reviews will form the basis of requirements for Final Completion.

01.1.04 FINAL COMPLETION

- A. Before requesting final review for determining date of Final Completion, the Contractor shall complete the following:
1. Submit a final application for payment according to **SECTION 01 29 00 PAYMENT PROCEDURES**.
 2. Submit a certified copy of the Owner's Representative's Substantial Completion review list of items to be completed or corrected (punch list), endorsed and dated by Owner's Representative.
 - a. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Submit a written request for final review for acceptance.
 - a. Upon receipt of request, the Owner's Representative, the Owner, agents of the respective funding agencies and the Contractor will either proceed with the review or the Owner's Representative will notify the Contractor of unfulfilled requirements.
 4. The Owner's Representative will prepare a final Certificate for Payment after the review or will notify Contractor of any remaining deficiencies.

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS

01.3.01 FINAL CLEAN UP

- A. Provide final clean up.
1. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and anti-pollution regulations.
- B. Employ experienced workers or professional cleaners for final clean up.
1. The Contractor shall complete the following clean-up operations before requesting review for certification

**WEST CENTRAL STREET IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA**

**DIVISION 01 – GENERAL REQUIREMENTS
SECTION 01 77 00 – CLOSEOUT PROCEDURES
PROJECT No. ER24-00-139**

of Final Completion:

- a. Clean Project site, and all areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Remove all construction debris and surplus materials from the site.
 - c. Restore turf areas in staging areas and all areas disturbed by the construction.
 - d. Remove all traffic control devices.
 - e. Sweep paved areas broom clean.
 - f. Remove petrochemical spills, stains, and other foreign deposits.
 - g. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - h. Remove tools, construction equipment, machinery, and surplus material from the site.
 - i. Remove debris from limited access spaces, including equipment vaults, manholes, and similar spaces.
- C. Comply with safety standards for cleaning.
1. Do not burn waste materials.
 2. Do not bury debris or excess materials on Owner's property.
 3. Do not discharge volatile, harmful, or dangerous materials into drainage systems.
 4. Remove waste materials from Project site and dispose of lawfully.

01.3.02 PROJECT RECORD DOCUMENTS

Record drawings shall be maintained by the Contractor and comply with the following:

- A. The Contractor shall submit one set of marked-up Record Prints to the Owner's Representative at the conclusion of construction.
- B. The Contractor shall maintain one set of prints of the Contract Drawings and Shop Drawings.
1. The Contractor shall mark record prints to show the actual installation where installation varies from that shown on the Drawings.
 - a. The mark ups should be made by the individual or entity that obtained the record data, whether the individual or entity is the installer, subcontractor, or similar entity.
 - b. Give particular attention to information on concealed elements that will be difficult to identify or measure and record after completion of the work.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - d. Record locations of underground pipes, fittings, corporation stops, and valves.
 2. The Contractor shall mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately.
 - a. If Shop Drawings are marked, the cross-reference on the Contract Drawings shall be shown.
 3. The Contractor shall mark record sets with erasable, red-colored pencil.
 - a. The use other colors to distinguish between changes for different categories of the Work at same location is permissible.
 4. The Contractor shall note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- C. The Contractor shall maintain one copy of each submittal during the construction period for Project Record Document purposes.
1. The Contractor shall post changes and modifications to Project Record Documents as they occur.

END OF SECTION

**WEST CENTRAL STREET
IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA
DIVISION 02 EXISTING CONDITIONS
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DIVISION 02 – EXISTING CONDITIONS

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			Braun Intertec Pavement Cores Addendum #1 Report – February 3, 2025	16

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PART 1 GENERAL

02.1.01 DESCRIPTION

- A. This Section of the Project Manual includes all site demolition work necessary for the construction as shown on the Drawings and as specified herein.
1. Site Demolition may include but is not necessarily limited to salvage or removal of the following:
 - a. Side walks
 - b. Curb and gutter
 - c. Bituminous pavements and driveways
 - d. Concrete pavements and driveways
 - e. Light poles and their foundations
 - f. Pipe and fittings
 - g. Valves and valve boxes
 - h. Drainage structures
 - i. Fence
 - j. Trees, shrubs and other plantings
 - k. Retaining walls
 - l. Railings and guard rails
 - m. Flag poles
- B. The Contractor shall furnish all equipment, labor, materials and tools necessary to remove and salvage or dispose of the structures, utilities above and below ground and exterior improvements or portions thereof as shown on the Drawings and as specified herein.

02.1.02 QUALITY ASSURANCE

- A. All site demolition and disposal work shall be performed in compliance with applicable requirements of governing agencies having jurisdiction, and according to the Drawings and as specified herein.
- B. Ensure safe passage of persons and vehicles around areas of demolition.
1. Operations shall be conducted so as to prevent damage to adjacent buildings, structures, utilities, and other exterior improvements and injury to persons.

02.1.03 SUBMITTALS

- A. Shall be in accordance with **SECTION 01 33 00 SUBMITTAL PROCEDURES**.
- B. The Contractor shall submit a proposed schedule of operation coordination for shutoff, capping and continuation of utility services as required.
- C. A detailed sequence of site demolition and removal work to ensure an uninterrupted progress of Owner's on-site operations shall also be submitted.
- D. The Contractor shall submit photographs of areas and buildings and exterior improvements adjacent to areas of site demolition work.
- E. The Contractor shall submit proposed methods of security where demolition work will breach existing security measures.

02.1.04 JOB CONDITIONS

- A. The Owner assumes no responsibility for the actual condition of structures and existing improvements exterior which are to be removed or salvaged.

**WEST CENTRAL STREET IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA**

**DIVISION 02 – EXISTING CONDITIONS
SECTION 02 41 13– SELECTIVE SITE DEMOLITION
PROJECT No. ER24-00-139**

B. Protection

1. Prior to the removal of any wall, beam, column, or cutting of any openings, the Contractor shall examine the existing structure and, when required, shall protect the structure by shoring, bracing or underpinning.
2. All new and existing equipment, buildings, tanks and other exterior improvements and materials for the construction shall be protected by the Contractor from dust, dirt, debris, and damage by covering with planking and tarpaulins during demolition.
3. The Contractor shall have barricades and traffic control in place prior to commencement of demolition on public right-of-ways or other areas open to the public.
4. Barricades and other protection measures shall be in place prior to the commencement of demolition to protect entry into the work area by anyone other than the necessary workers.

C. Contractor shall be responsible for disconnecting existing utilities such as electrical power or gas from items that are to be removed or salvaged.

1. Contractor shall utilize lockout/tag-out procedures to prevent utilities from becoming re-activated during and after removal or salvage operations.

D. The use of explosives shall not be permitted.

02.1.05 RELATED WORK SPECIFIED ELSEWHERE

The following items of related work are specified and included in other Sections of this Project Manual:

**SECTION 01 11 00 SUMMARY OF THE WORK
SECTION 01 33 00 SUBMITTAL PROCEDURES**

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS

02.3.01 CUTTING AND PATCHING OF BUILDINGS

A. General

1. Shall be undertaken so as not to diminish the load carrying capacity or load/deflection ratio of structural elements
2. Cutting and patching of operating elements or safety related components shall not be undertaken in a manner that will:
 - a. Result in reducing their capacity to perform as intended.
 - b. Result in increased maintenance.
 - c. Result in decreased operational life or safety.
3. Construction that is exposed on the exterior or in occupied spaces or in corrosive environments shall be cut and patched only in a manner that will not reduce
 - a. The visual qualities.
 - b. The vapor and water tightness of the element
4. All patching that is deemed unsatisfactory by the Owner's Representative shall be removed and replaced by the Contractor at no additional expense to the Owner.
5. The cost of all cutting and patching shall be included in the price bid for other elements of the work and no additional compensation will be made therefor.
6. The Contractor shall be responsible for determining and meeting the needs for temporary and permanent shoring and support as required for cutting and patching.
7. The Contractor shall be responsible for determining implementing and maintaining protective measures to prevent entry into the work area by unauthorized personnel or workers.

**WEST CENTRAL STREET IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA**

**DIVISION 02 – EXISTING CONDITIONS
SECTION 02 41 13– SELECTIVE SITE DEMOLITION
PROJECT No. ER24-00-139**

B. Scheduling

1. All cutting and patching shall require the approval of the Owner's Representative.
2. The Contractor shall submit to the Owner's Representative:
 - a. A schedule of the work
 - b. The trades involved
 - c. Anticipated facility downtime
 - d. Equipment tools
 - e. Materials required for the work.
 - i. Unless noted otherwise, materials for patching should be identical to the material being patched.
3. The Contractor shall verify the suitability of scheduling for demolition, cutting and patching that will affect the Owner's operations prior to the work.

02.3.02 SALVAGE

- A. All material, improvements and equipment designated to be salvaged shall be removed with care, cleaned, and stored at the site in an area designated by the Owner.
 1. All salvaged materials and equipment shall remain the property of the Owner.
- B. Any pipe, fitting, or valve may be reused, at the Contractor's option, subject to the approval of the Owner's Representative.
 1. Any item reused shall be cleaned of all foreign material, be of sound condition, be in good working order, and be of the same size, material and type as shown.
 2. Reused items shall be repainted to match the adjacent work.

02.3.03 REMOVAL

- A. All materials designated for removal shall become the property of the Contractor and shall be disposed of off-site in a manner satisfactory to the owner(s) of the property on which the material is being disposed and all governing agencies.
- B. Copies of all agreements with property owners and permits from governing agencies shall be furnished to the Owner's Representative.

02.3.04 OPENINGS

- A. New openings shall be neatly cut or drilled to prevent face chipping or spalling.
- B. All damaged areas shall be repaired to the satisfaction of the Owner's Representative.

02.3.05 PATCHING CONCRETE

- A. All concrete that has been marred, damaged, cracked or defaced as a result of site demolition shall be repaired by the Contractor at no expense to the Owner.
- B. Repair concrete surfaces as follows:
 1. Saw cut and remove concrete to a depth of not less than 1 inch.
 2. Remove exposed reinforcing only where noted or directed by the Owner's Representative.
 3. Apply a latex bonding agent to the cut surface.
 4. Patch with a non-shrink, nonmetallic grout finished to match the existing surface unless noted otherwise.

02.3.06 ANCHORS

All embedded anchors of removed items shall be cut flush with existing surfaces to remain.

WEST CENTRAL STREET IMPROVEMENT PROJECT
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WAHPETON, NORTH DAKOTA

DIVISION 02 – EXISTING CONDITIONS
SECTION 02 41 13– SELECTIVE SITE DEMOLITION
PROJECT No. ER24-00-139

02.3.07 **PIPE**

All abandoned pipes shall be plugged at each end with concrete or as directed by the Owner's Representative.

02.3.08 **CLEANUP**

All debris, rubble, unusable materials, and items not salvaged shall become the property of the Contractor and shall be removed from the site.

END OF SECTION



Braun Intertec Corporation
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P.O. Box 485
West Fargo, ND 58078

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Fax: 701.232.7817
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January 13, 2025

Project B2411656

Zach Hatting
Interstate Engineering, Inc.
1999 4th Street North, Suite A
Wahpeton, North Dakota 58075

Re: Pavement Coring and Aggregate Base Exploration
Wahpeton Pavement Cores
Residential streets between Highway 210 and 11th Street North, north of Highway 13,
the Red River Human Services parking lot, and Wahpeton Highschool parking lot
Wahpeton, North Dakota

Dear Mr. Hatting:

This letter addresses the pavement exploration performed at the locations described above. This letter provides the thickness measurements of the bituminous and "aggregate base" sections at our exploration locations.

Purpose

The purpose of our work is to measure the existing pavement section at the exploration locations.

Field Exploration

On January 2, 2025, we extracted 23 cores in the referenced roads and parking lots. The exploration consisted of measuring the existing bituminous section and determining the underlying "aggregate base" section. The measurements of the bituminous pavement core thickness and "aggregate base" thickness for all cores are displayed below in Table 1. At locations with no asphalt pavement, we only performed hand augers to measure "aggregate base" thickness. The locations of the cores were selected by Interstate Engineering and paint marked by your field crew.

Our two-person field crew utilized a portable rotary drill and 4-inch diameter core barrel to core through the existing bituminous section to the top of the "aggregate base". Once the core barrel penetrated the bituminous pavement section, the core barrel was pulled from the core hole and the bituminous core was extracted. The bituminous core was measured with a tape measure to the nearest 1/4-inch. After completion of the bituminous core extraction and documentation, our field crew utilized a 3-inch diameter, hand operated bucket-type auger and hammer drill to perform the hand auger borings through the "aggregate base" and measure the in-place thickness. The "aggregate base" directly below the existing bituminous section was visually classified only and no laboratory tests were performed on the material to determine the material properties or to verify that the materials meet the requirements of North Dakota Department of Transportation (NDDOT) specifications for Class 5 Aggregate Base Course. We visually classified the apparent "subbase" as fat clay. We patched the locations with a bituminous cold patch material that was placed and compacted in lifts.

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Results

The results of our pavement section measurements are summarized below in Table 1. The locations of the cores are shown on our attached Site Layout figures.

Table 1: Bituminous Section and Aggregate Base Section Thicknesses

Pavement Cores (C-01 to C-23)	Measured Bituminous Pavement Core Thickness (nearest 1/4 of an inch)	Measured "Aggregate Base"¹ Thickness (nearest 1/4 of an inch)
C-01	Intact asphalt section of 5 ¾ inches	10 ½ inches
C-02	Intact asphalt section of 6 inches	11 inches
C-03	Intact asphalt section of 5 ½ inches	9 ½ inches
C-04	Intact asphalt section of 7 ¾ inches	5 inches
C-05	Intact asphalt section of 7 inches	4 ¾ inches
C-06	Intact asphalt section of 7 ½ inches	5 ½ inches
C-07	Intact asphalt section of 6 inches	7 inches
C-08	Intact asphalt section of 6 ¾ inches	6 ¾ inches
C-09	Intact asphalt section of 7 inches	6 inches
C-10	Intact asphalt section of 6 ¾ inches	5 ¾ inches
C-11	Intact asphalt section of 6 ¾ inches	5 ¾ inches
C-12	Intact asphalt section of 7 ¼ inches	5 ¾ inches
C-13	Intact asphalt section of 7 ¼ inches	5 ¾ inches
C-14	Intact asphalt section of 4 ½ inches	8 inches
C-15	Intact asphalt section of 7 inches	11 inches
C-16	Intact asphalt section of 5 ½ inches	12 ½ inches
C-17	Intact asphalt section of 5 ¾ inches	12 ¾ inches
C-18	Intact asphalt section of 4 inches	4 inches
C-19	Intact asphalt section of 4 ½ inches	7 ½ inches
C-20	No asphalt	17 inches
C-21	No asphalt	16 inches
C-22	Intact asphalt section of 8 ½ inches	4 inches
C-23	Intact asphalt section of 6 ½ inches	6 ½ inches
Range of Bituminous and Aggregate Base Thicknesses	Total asphalt section where encountered ranged from 4 to 8 ½ inches	4 to 17 inches

¹The "Aggregate Base" layer is the granular soils identified immediately beneath the bituminous in our cores, where it was encountered. Additional testing would be required to confirm that these soils meet the requirements of an NDDOT Class 5 Aggregate Base Course. These soils should not be considered for reuse as Class 5 if additional testing is not performed prior to construction.

Interstate Engineering, Inc.
Project B2411656
January 13, 2025
Page 3

General Remarks

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

It has been a pleasure to be of service to you on this project. If we can be of further assistance in answering any questions or in providing any additional services, please contact Kathleen Dragos at 701.446.6403 or kdragos@braunintertec.com.

Sincerely,

BRAUN INTERTEC CORPORATION



Kathleen Dragos
Staff Engineer



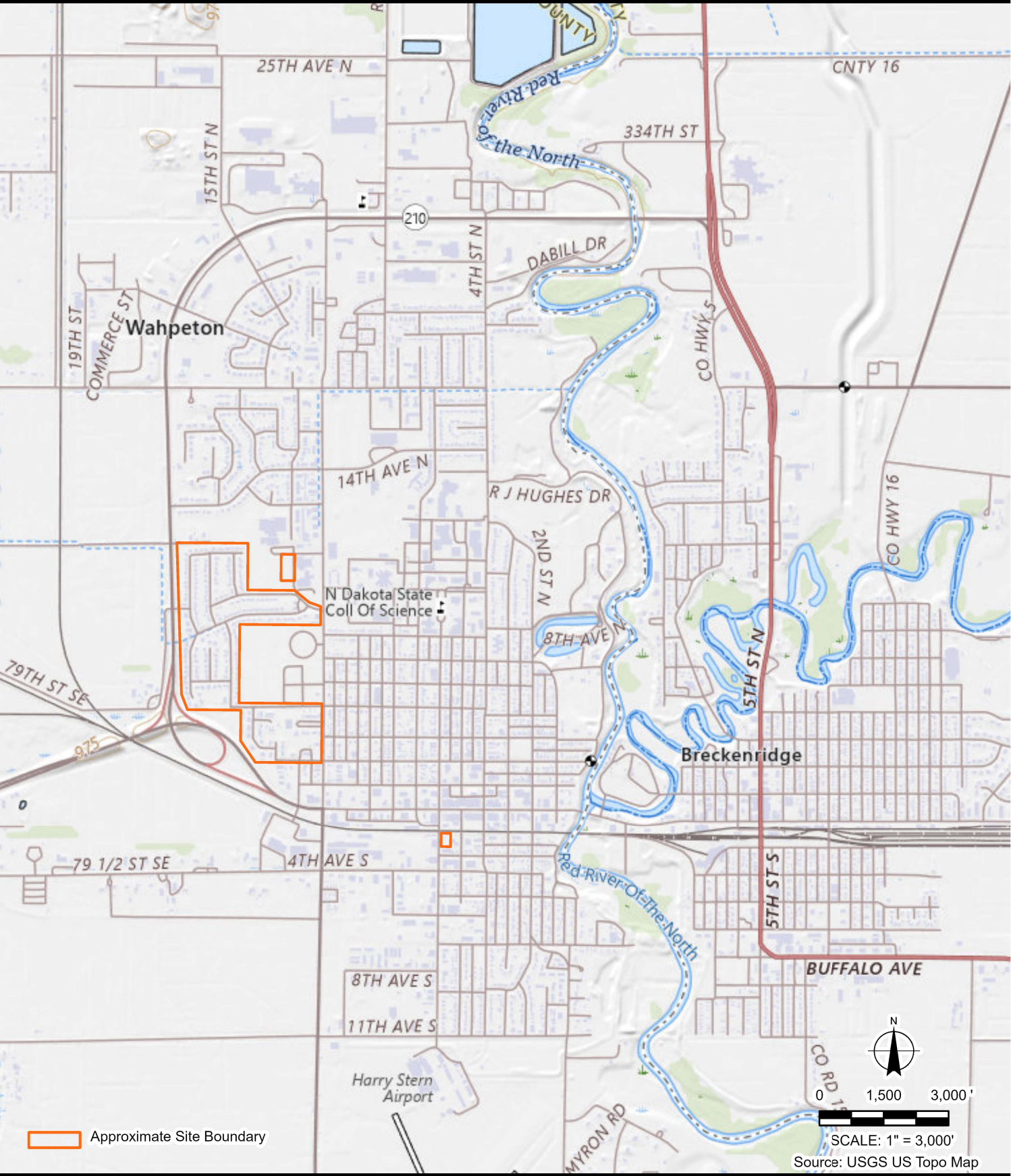
Ezra Ballinger, PE
Director, Principal Engineer

Attachments:

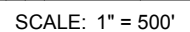
Figure 1: Site Location

Figure 2: Site Layout – Road and Highschool Parking Lot

Figure 3: Site Layout – Red River Human Services Parking Lot



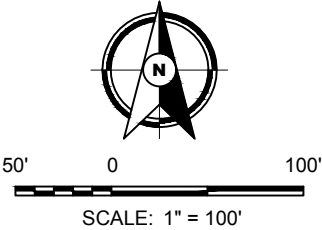
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● DENOTES APPROXIMATE LOCATION OF PAVEMENT CORE



**BRAUN
INTERTEC**
The Science You Build On.
526 10th Street NE, Suite 300
West Fargo, ND 58078
701.492.5875
braunintertec.com

Project No:
B2411656

Drawing No:
B2411656

Drawn By: BJB
Date Drawn: 1/9/25
Checked By: KD
Last Modified: 1/9/25

Wahpeton Pavement Cores

Red River Human Services Parking Lot

West Fargo, North Dakota

Site Layout - Red
River Human
Services Parking
Lot

Figure 3

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February 3, 2025

Project B2411656

Zach Hatting
Interstate Engineering, Inc.
1999 4th Street North, Suite A
Wahpeton, North Dakota 58075

Re: Addendum #1 to Pavement Coring and Aggregate Base Exploration
Wahpeton Pavement Cores
Residential streets between Highway 210 and 11th Street North, north of Highway 13,
the Red River Human Services parking lot, Wahpeton Highschool parking lot, and 9th Avenue
South
Wahpeton, North Dakota

Dear Mr. Hatting:

This letter serves as Addendum #1 to our Pavement Coring and Aggregate Base Factual Letter for this project, dated January 13, 2025. This Addendum addresses two additional pavement explorations performed on 9th Avenue South between 4th Street South and 3rd Street South.

Background

Our factual letter with the bituminous and aggregate base thicknesses summarized:

- Total Bituminous Pavement Core Thickness (nearest $\frac{1}{4}$ of an inch where encountered) is 4 to 8 inches
- Total "Aggregate Base" Thickness (nearest $\frac{1}{4}$ of an inch) is 4 to 17 inches

New Information

The results of our pavement section measurements are summarized below in Table 1. The cores were performed on January 29, 2025, and the locations are shown on the attached Site Layout figure. Due to frozen conditions, we were unable to determine the thickness of the aggregate base.

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Interstate Engineering, Inc.
Project B2411656
February 3, 2025
Page 2

Table 1: Additional Pavement Core Thicknesses

Pavement Cores (C-24 to C-25)	Measured Bituminous Pavement Core Thickness (nearest 1/4 of an inch)
C-24	Intact asphalt section of 5 ¾ inches
C-25	Intact asphalt section of 6 inches

Remarks

This Addendum should be attached to and considered a part of our original Pavement Coring and Aggregate Base Exploration factual letter. With the exception of any results changed by this Addendum, the information contained in our factual letter remains unchanged.

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

If you have any questions about this Addendum, please contact Kathleen Dragos at 701-446-6403 (kdragos@braunintertec.com).

Sincerely,

BRAUN INTERTEC CORPORATION



Kathleen Dragos
Staff Engineer

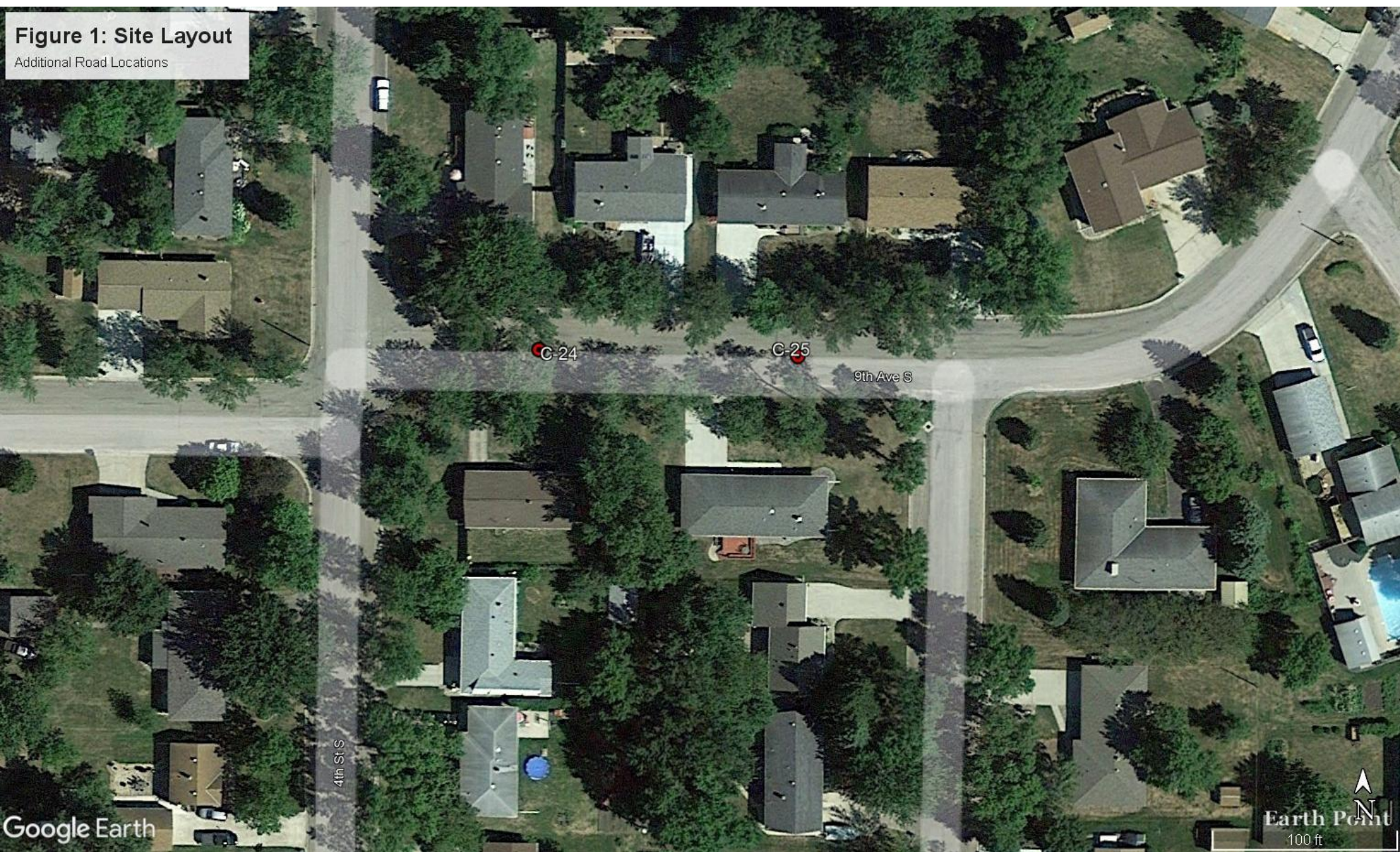
Jessica Anderson for

Ezra Ballinger, PE
Director, Principal Engineer

Attachments:

Figure 1: Site Layout – Additional Road Locations

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**WEST CENTRAL STREET
IMPROVEMENT PROJECT
CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA
DIVISION 31 EARTHWORK
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31 25 00	Erosion and Sedimentation Controls	3

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PART 1 GENERAL

31.1.01 DESCRIPTION

This section of the Project Manual includes work common to earthwork, grading, excavation and fill and all appurtenances thereto as shown on the Drawings and specified herein.

31.1.02 RELATED WORK SPECIFIED ELSEWHERE

The following items of related work are specified and included in other sections of this Project Manual:

SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 21 00	ALLOWANCES
SECTION 01 33 00	SUBMITTAL PROCEDURES
SECTION 31 23 13	SUBGRADE PREPARATION
SECTION 31 25 00	EROSION AND SEDIMENT CONTROLS

31.1.03 LIMITS OF CONSTRUCTION

- A. The Contractor shall limit the operation of their equipment to those areas shown on the Drawings or as directed by the Owner's Representative to be construction areas.
- B. The indiscriminate operation of equipment outside of designated construction areas will not be permitted.

31.1.04 GUARANTEE

- A. The Contractor shall repair or replace as necessary any damage to the work caused by settlement that occurs within one year from the date of Final Acceptance.
- B. Said repairs shall be made at no cost to the Owner.

31.1.05 REFERENCE SPECIFICATIONS

- A. References made in **DIVISION 31 EARTHWORK** to the NDDOT Specifications shall be taken to mean the North Dakota Department of Transportation's Standard Specifications for Road and Bridge Construction, 2024 Edition, unless otherwise specified.
- B. The referenced sections and appurtenant sections thereto of the NDDOT Specifications shall be considered as a part of this Specification.
- C. Provisions of the NDDOT Specifications are subject to modification by these Specifications.
- D. All testing noted by the NDDOT Specifications to be performed by the Department shall instead be performed by Interstate Engineering.
- E. The Contractor will be reimbursed for the costs of independent testing services if provisions for such reimbursement are included in **SECTION 01 21 00 ALLOWANCES** and the Bid Form.

PART 2 PRODUCTS

31.2.01 GRANULAR FILL

- A. Granular fill shall consist of a well graded material free of organic matter, bituminous material and salvaged concrete which meets the following gradation requirements:

Sieve Size	Percent Passing (by weight)
1"	100
3/4"	90 – 100
No. 4	45 – 80
No. 40	15 – 35
No. 200	0 – 15

31.2.02 SELECT GRANULAR FILL

Select granular fill shall meet the requirements specified for Granular Fill with the exception that the percent passing the No. 200 sieve (by weight) shall not exceed 5 percent for Select Granular Fill.

31.2.03 GRANULAR BEDDING

- A. Granular bedding shall consist of pitrun sand, gravel or granular soil, not more than 35 percent of which passes the No. 200 sieve, screened as may be necessary to remove all stones which would be retained on a 1 inch sieve.

31.2.04 GEOTEXTILE FABRIC

- A. Geotextile Fabric shall conform to the requirements for Geotextile Reinforcing Fabric Type R1, Section 709.04 of the NDDOT Specifications.

PART 3 CONSTRUCTION REQUIREMENTS

31.3.01 GENERAL

- A. These general construction requirements apply to all site grading, structure excavation, utility excavation and earthwork.
- B. The limits of construction are shown on the Drawings or shall be established by the Owner's Representative.
1. The Contractor shall confine construction operations within these limits.
 2. All surface objects, trees, stumps, roots and other obstructions that are not designated to remain shall be cleared and disposed of as specified.
- C. The removal of surface improvements (pavement, curb and gutter, walks) shall be held to a minimum. All materials to be removed and means of replacement shall be subject to the approval of the Owner's Representative where said removals are not detailed on the Drawings.
1. All materials that are removed shall be disposed of off-site at a location provided by the Contractor.
 2. All pavements, walks or curb and gutter that are to be removed shall be sawn to provide a neat and true edge.
- D. The Owner's Representative shall be notified of any need for blasting to remove materials which cannot be broken up mechanically, and there shall be no blasting operations conducted until the Owner's Representative has been properly notified.
1. Blasting will be allowed only when proper precautions are taken to protect life and property, and then shall be restricted as the Owner's Representative directs.
 2. The Contractor shall assume full responsibility for any damages caused by blasting, regardless of the requirements for notification and approval.
 3. The Contractor shall secure any required permits for blasting and shall conduct blasting operations in conformance with all applicable federal, state and local laws, regulations and ordinances.

31.3.02 TESTING

- A. Testing shall be performed by Interstate Engineering.

31.3.03 SURPLUS MATERIAL AND BORROW

- A. The Contractor shall inform and satisfy themselves as to the character quantity and distribution of material to be excavated.
- B. Material in excess of that required for permanent work and/or materials deemed by the Owner's Representative to be unsuitable for use, with the exception of topsoil, shall be disposed of off-site at a location provided by the Contractor unless a disposal site is noted on the Drawings.
- C. Borrow material, if required, shall be provided by the Contractor at no additional expense to the Owner.
1. The Contractor shall notify the Owner's Representative sufficiently in advance of opening any borrow areas so that the borrow material can be tested before being used.
 2. Sufficient time for testing the borrow shall be allowed.
- D. Borrow sites shall be obtained by the Contractor unless a borrow site is shown on the Drawings.

- E. Borrow sites and excess soil disposal sites, where shown on the Drawings, shall be graded to drain, shall not impede an existing drainage and shall be re-seeded.
- F. Private or off site borrow and excess soil disposal sites shall be restored to the satisfaction of the landowner.

31.3.04 UNDERCUTTING

- A. Undercutting shall be performed where rock or soft, spongy, unstable or other similarly unsuitable material is encountered in the excavation.
- B. Where such materials are encountered, they shall be removed to a depth as directed by the Owner's Representative.
- C. Rock shall be removed to a depth of no less than 6 inches below the plan shown grade established for the excavation.
- D. Undercut areas shall be backfilled with granular fill or Class B concrete as directed by the Owner's Representative.

31.3.05 COMPACTION

- A. Compaction of backfill and embankments shall be obtained by means of tamping rollers, sheepfoot rollers, pneumatic tire rollers, vibrating rollers, or other mechanical tampers.
- B. All such equipment shall be of a size and type approved by the Owner's Representative.
 - 1. Flooding shall not be considered an acceptable means of obtaining compaction nor shall the use of a backhoe bucket.
- C. Permission on the part of the Owner or Owner's Representative to use specific compaction equipment shall not be construed as guaranteeing or implying that the use of such equipment will not result in damage to adjacent ground, existing improvements, or improvements installed under the contract.
- D. The Contractor shall be responsible for making the determination and for any damage caused by compaction equipment.
- E. Material for mechanically compacted backfill and embankments shall be placed in lifts which, prior to compaction, shall not exceed the thickness specified below for the various types of equipment:
 - 1. Vibratory equipment, including vibratory plates, vibratory smooth-wheel rollers, and vibratory pneumatic-tired roller - maximum lift thickness six (6) inches.
 - 2. Rolling equipment including sheepfoot (both vibratory and non-vibratory), grid, smooth-wheel (non-vibratory), pneumatic-tired (non-vibratory), and segmented wheels - maximum lift thickness of six (6) inches.
 - 3. Hand-directed mechanical tampers - maximum lift thickness of four (4) inches.
- F. A minimum of one (1) foot of backfill material shall be placed over the top of a pipe before operating vibratory or sheepfoot type compaction equipment.
 - 1. This material shall be compacted using hand-directed mechanical tampers.
- G. Mechanically compacted backfill shall be placed in horizontal layers of thickness not exceeding those specified above compatible to the material being placed and the type of equipment being used.
- H. Each layer shall be evenly spread, moistened or dried, if necessary, and then tamped or rolled until the specified relative compaction has been attained.
- I. Compaction adjacent to all foundations, footings, manholes, catch basins, valve boxes, curb boxes, end of sewer services and similar structures shall be performed by the use of hand-directed mechanical tampers with lifts not exceeding that specified above.
- J. Each layer of backfill or embankment shall be compacted to the density specified below.
 - 1. The material shall be compacted at a moisture content of no less than 3 percentage points below the optimum moisture of the Standard Proctor as defined by ASTM D698.

The location below shall refer to future as well as present uses.

MINIMUM DENSITY EXPRESSED AS A PERCENTAGE OF STANDARD	
LOCATION	PROCTOR (ASTM D698)
Unimproved areas (eg. Lawns, etc.)	90%
Surface Improved Areas (parking lots, streets, walks)	95%
Structures (buildings, manholes, floors, basins, etc.)	100%
Lagoon and earthen basin floors (lined and unlined)	98%

31.3.06 CLEANUP

- A. Cleanup of the site shall be completed before final acceptance of the work can be made.
- B. Cleanup shall include the removal and disposal of all unsuitable materials.
- C. All equipment shall be removed from the site.
- D. The site shall be left in a manner so as to present a clean and neat appearance.

31.3.07 MISCELLANEOUS

- A. All surplus waste materials remaining after completion of the backfilling operations shall be disposed of in an acceptable manner within 24 hours after completing the backfill work on each particular pipeline section.
 - 1. Disposal at any location within the project limits shall be as specified, or as approved by the Owner's Representative; otherwise, disposal shall be accomplished outside the project limits at a location provided by the Contractor.
 - 2. The backfilling and surplus or waste disposal operations shall be a part of the work required under the utility installation items, not as work that may be delayed until final cleanup.
- B. Utility lines shall be tested in accordance with the provisions of **DIVISION 33 UTILITIES**.
 - 1. The Contractor may conduct these tests before or after completing all backfilling operations.
 - 2. Re-excavation and backfilling required to repair defective utilities shall be conducted in accordance with the provision of this section.
 - 3. Any soils density testing on said re-excavation and backfill shall be conducted at the Contractor's expense.
- C. Until expiration of the guarantee period, the Contractor shall assume full responsibility and expense for all backfill settlement and shall refill and restore the work as directed to maintain an acceptable surface condition, regardless of location.
- D. All additional materials required and repairs to surface improvements shall be furnished without additional cost to the Owner.

END OF SECTION

PART 1 GENERAL

31.1.01 DESCRIPTION

This Section of the Project Manual includes subgrade modification to repair soft areas of the subgrade in areas to receive aggregate base or surface course and all work included thereto, as shown on the Drawings and as specified herein.

31.1.02 REFERENCED SPECIFICATIONS

- A. Sections 230 and 709 and sections referenced therein of the North Dakota Department of Transportation *Standard Specifications for Road and Bridge Construction*, 2024 Edition (NDDOT Standard Specifications) are hereby included by reference to be a part of this Project Manual.
- B. The provisions of said Sections 230 and 709 shall apply to the work except as modified by the provisions of this Project Manual.
- C. References in said Sections 230 and 709 to the Chief Engineer, Department, Director, Engineer, Inspector or Project Manager shall be construed to mean the Owner's Representative as defined in this Project Manual.
- D. Measurement and Payment for the work in this **SECTION 31 11 13** of the Project Manual shall be in accordance with the provisions of **SECTION 01 22 19 MEASUREMENT AND PAYMENT** of this Project Manual.
- E. All testing noted by the NDDOT Standard Specifications to be performed by the Department shall instead be performed by Interstate Engineering.
- F. The Contractor will be reimbursed for the costs of independent testing services if provisions for such reimbursement are included in **SECTION 01 21 00 ALLOWANCES** and the Bid Form.

31.1.03 RELATED WORK SPECIFIED ELSEWHERE

The following items of related work are specified and included in other Sections of this Project Manual:

SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 33 00	SUBMITTAL PROCEDURES
SECTION 31 05 00	COMMON WORK RESULTS FOR EARTHWORK

PART 2 PRODUCTS (NOT USED)

PART 3 CONSTRUCTION REQUIREMENTS

31.3.01 GENERAL

- A. Unstable sections of the subgrade shall be repaired by the Contractor after existing base or surface courses have been removed.
- B. Subgrade modification as described herein shall be performed at locations of unstable subgrade and as directed by the Owner's Representative.
 - 1. The Contractor shall excavate the subgrade for its full width as may be necessary to remove any saturated or unstable materials.
 - a. This shall include the excavation of saturated/unsuitable material to a minimum depth of six (6) inches determined by the ENGINEER.
 - 2. The excavated saturated/unsuitable material shall be replaced with NDDOT Class 5 Crushed Base course approved by the engineer.
 - 3. The grade and cross section shall consist of a smooth subgrade surface conforming to the prescribed elevations for the particular subgrade being prepared, prior to constructing an additional course thereon.
- C. The Contractor shall scarify, dry the backfill material or apply water as may be necessary to obtain the required density and stability.
 - 1. The "required stability" shall be tested through proof rolling. Proof roll all pavement subgrades prior to

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aggregate placement, along all travel lanes to verify the uniformity of the underlying subgrade throughout the roadway section and to check for the presence of localized soft or weak zones. Perform proof roll under the observation of the Engineer with a fully loaded, tandem axle dump truck with a weight of approximately 25 tons, or an approved equal. Proof roll at a vehicle speed between 1 ½ and 3 miles per hour along the pavement subgrades such that unrolled areas between wheel paths are not wider than 1 foot. Typical yielding should be limited to less than 1 ½ inches for pavement subgrades, provided the underlying subgrade does not display permanent deformation. Correct areas that display excessive yielding, pumping or rutting during the proof roll. Repeat proof roll procedures until accepted by the Engineer.

- D. The prescribed elevation for any point on the subgrade surface where measurement is made shall be as determined from the grades shown on the Drawings or as directed by the Owner's Representative within the following tolerances:
1. When the subgrade is being prepared for placement of an Aggregate Wearing Course or is being finished for acceptance of the grading construction, the elevation of the finished surface shall not vary by more than 0.10 foot from the prescribed elevation at any point where measurement is made.
 2. When the subgrade is being prepared for placement of an Aggregate Base Course, the elevation of the finished surface at the time the next layer is placed, shall not vary by more than 0.05 foot above or 0.10 foot below the prescribed elevation at any point where measurement is made.
 3. When the subgrade is being prepared for placement of a bituminous or concrete base, stabilized base, or surface course, the elevation of the finished surface at the time the next layer is placed, shall not vary by more than 0.05 foot from the prescribed elevation at any point where measurement is made.

31.3.02 TESTING

- A. Interstate Engineering shall test the subgrade modifications as specified below.
- B. The test frequency noted herein is for quality assurance purposes and specify the minimum testing frequency.
1. The Contractor shall test more often as necessary for quality control purposes at no additional cost to the Owner.
- C. All areas that fail any of the required tests shall be corrected at the Contractor's expense.
1. The Contractor shall have the areas retested to demonstrate that adequate compaction has been obtained.
 2. The Contractor shall bear the cost of retesting and no reimbursement shall be made therefor.
- D. The tests shall be conducted at random locations determined by the Engineering.
- E. Proctor tests shall be conducted by Interstate Engineering.
- F. Density and Moisture:
1. The density and moisture content of each lift of the subgrade backfill material shall be tested a minimum of once every 200 SY or increment thereof.
 2. Unless otherwise noted on the Drawings or in **SECTION 02 32 00 – GEOTECHNICAL INVESTIGATION**, the base course shall be compacted to 98% of the maximum dry density with a moisture content of $\pm 3\%$ in accordance with ASTM D698.
 - a. Conflicts between the requirements for compaction and moisture content shall be resolved in favor of the recommendations of the report included in **SECTION 02 32 00 – GEOTECHNICAL INVESTIGATION**.
 - b. In the absence of **SECTION 02 32 00 – GEOTECHNICAL INVESTIGATION** or recommendations for minimum compaction and moisture contents for subgrade modifications therein conflicts between the Drawings and this section of this Project Manual shall be resolved in favor of this Section.

END OF SECTION

PART 1 GENERAL

31.1.01 DESCRIPTION

This Section of the Project Manual includes subgrade preparation for areas to receive aggregate base or turf and grasses and all work included thereto, as shown on the Drawings and as specified herein.

31.1.02 REFERENCED SPECIFICATIONS

- A. Sections 230 and 709 and sections referenced therein of the North Dakota Department of Transportation *Standard Specifications for Road and Bridge Construction*, 2024 Edition (NDDOT Standard Specifications) is hereby included by reference to be a part of this Project Manual.
- B. The provisions of said Sections 230 and 709 shall apply to the work except as modified by the provisions of this Project Manual.
- C. References in said Sections 230 and 709 to the Chief Engineer, Department, Director, Engineer, Inspector or Project Manager shall be construed to mean the Owner's Representative as defined in this Project Manual.
- D. Measurement and Payment for the work in this **SECTION 31 23 13** of the Project Manual shall be in accordance with the provisions of **SECTION 01 22 19 MEASUREMENT AND PAYMENT** of this Project Manual.
- E. All testing noted by the NDDOT Specifications to be performed by the Department shall instead be performed by Interstate Engineering.
- F. The Contractor will be reimbursed for the costs of independent testing services if provisions for such reimbursement are included in **SECTION 01 21 00 ALLOWANCES** and the Bid Form.

31.1.03 RELATED WORK SPECIFIED ELSEWHERE

The following items of related work are specified and included in other Sections of this Project Manual:

SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 33 00	SUBMITTAL PROCEDURES
SECTION 31 05 00	COMMON WORK RESULTS FOR EARTHWORK

PART 2 PRODUCTS

31.2.01 GEOTEXTILE FABRIC

Geotextile Reinforcing Fabric to be placed per NDDOT Specification 709.04.

PART 3 CONSTRUCTION REQUIREMENTS

31.3.01 GENERAL

After any unstable sections of the subgrade have been repaired, and after any existing base or surface courses required to be removed have been removed, subgrade preparation as described below shall be performed.

- A. The Contractor shall compact and shape the subgrade for its full width as may be necessary to produce, at the time the base or surface course or topsoil is placed, the required density and stability in the top twelve (12) inches of the subgrade and the required grade and cross section.
 - 1. This upper twelve (12) inches of the subgrade shall be re-compacted to 97% of the Maximum Density as determined by the Standard Proctor (ASTM D698).
 - 2. The "required grade and cross section" shall consist of a smooth subgrade surface conforming to the prescribed elevations for the particular subgrade being prepared, prior to constructing an additional course thereon.
- B. The Contractor shall scarify, dry the material or apply water as may be necessary to obtain the required density and stability.
 - 1. The "required stability" shall be determined through proof rolling. Proof roll all pavement subgrades prior to aggregate placement, along all travel lanes to verify the uniformity of the underlying subgrade

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throughout the roadway section and to check for the presence of localized soft or weak zones. Perform proof roll under the observation of the Engineer with a fully loaded, tandem axle dump truck with a weight of approximately 25 tons, or an approved equal. Proof roll at a vehicle speed between 1 ½ and 3 miles per hour along the pavement subgrades such that unrolled areas between wheel paths are not wider than 1 foot. Typical yielding should be limited to less than 1 ½ inches for pavement subgrades, provided the underlying subgrade does not display permanent deformation. Correct areas that display excessive yielding, pumping or rutting during the proof roll. Repeat proof roll procedures until accepted by the Engineer.

- C. The prescribed elevation for any point on the subgrade surface where measurement is made shall be as determined from the grades shown on the Drawings or as directed by the Owner's Representative within the following tolerances:
1. When the subgrade is being prepared for placement of an Aggregate Wearing Course or is being finished for acceptance of the grading construction, the elevation of the finished surface shall not vary by more than 0.10 foot from the prescribed elevation at any point where measurement is made.
 2. When the subgrade is being prepared for placement of an Aggregate Base course, the elevation of the finished surface at the time the next layer is placed, shall not vary by more than 0.05 foot above or 0.10 foot below the prescribed elevation at any point where measurement is made.
 3. When the subgrade is being prepared for placement of a bituminous or concrete base, stabilized base, or surface course, the elevation of the finished surface at the time the next layer is placed, shall not vary by more than 0.05 foot from the prescribed elevation at any point where measurement is made.

31.3.02 SUBGRADE FINISH CONTROL

Contractor shall finish the subgrade in accordance with the requirements for Subgrade Preparation Type – A of Section 230 of the NDDOT Standard Specifications.

END OF SECTION

PART 1 GENERAL

31.1.01 DESCRIPTION OF THE WORK

- A. The work under this section of the Project Manual shall include all temporary erosion control measures including, but not necessarily limited to, silt fence, bale checks, erosion control blankets and interim mulch as may be necessary to control soil erosion and sedimentation.
- B. The work shall include furnishing all materials, labor and equipment required for the construction and maintenance of erosion and sediment control devices as shown on the Drawings or as directed by the Engineer.
- C. The work shall also include all inspections and reports as required by the storm water discharge permit for construction activities.

31.1.02 RELATED WORK SPECIFIED ELSEWHERE

The following items of related work are specified and included in other sections of this Project Manual:

SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 33 00	SUBMITTAL PROCEDURES
SECTION 01 45 00	QUALITY CONTROL
SECTION 31 23 13	SUBGRADE PREPARATION
SECTION 32 92 00	TURF AND GRASSES

PART 2 PRODUCTS

31.2.01 BALE CHECKS

Bales shall consist of material conforming to the requirements of **SECTION 32 92 00 TURF AND GRASSES** for mulch material. Bales shall measure, more or less, 3 feet by 2 feet by 2 feet.

31.2.02 SILT FENCE

- A. Silt fence shall be machine sliced
- B. Posts
 1. Posts shall be a Steel T-Post with welded plate
 2. Posts shall be no less than 5 feet long.
 3. Metal posts shall be a minimum weight of 1.26 lbs. /ft.
- C. The geotextile fabric shall be free of flaws such as tears or other defects. Any geotextile fabric which becomes damaged shall be replaced. The geotextile fabric shall meet or exceed the following requirements:
 1. Type Woven Monofilament
 2. Grab Strength (ASTM D 4632) 130 lbs.
 3. Apparent Opening Size (ASTM D 4751) #30 - 40 sieve range
 4. Width 36 inches
 5. U.V. Stability (ASTM D 4355, 500 hrs) 70% min
 6. Permittivity (minimum, ASTM D 4491) 1.0/sec

31.2.03 EROSION CONTROL BLANKETS

- A. Erosion control blankets shall be in compliance with NDDOT Specification 708.3. The blankets shall be anchored to the ground surface according to the manufacturer's recommendations.

PART 3 CONSTRUCTION REQUIREMENTS

31.3.01 GENERAL

- A. Temporary erosion control measures such as bale checks and silt fences shall be coordinated with the site work and turf establishment.
- B. No site work will be permitted until ALL necessary temporary erosion control measures are completed and in

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place in order to prevent excessive soil erosion and subsequent siltation from entering wetlands, streams or storm sewers.

- C. The construction of erosion control measures shall not relieve the Contractor of the responsibility for preventing or minimizing the potential for erosion or siltation.
- D. The Contractor shall be responsible for all damages and clean up and the costs therefore, resulting from erosion of the soils and any siltation which may occur, regardless of the temporary erosion control measures taken.
- E. The alignment and location of erosion control measures shall be as show on the Drawings or as directed by the Engineer. Minimum measures are shown on the Drawings.
- F. The Contractor shall incorporate further measures into the work as the Contractor's progress may dictate.
- G. Inspections of the temporary erosion control measures and reports thereof, shall be made in accordance with the storm water discharge permit for construction activities.

31.3.02 STORM WATER RUNOFF PERMIT

A Storm Water Runoff Permit will be required from the ND Department of Health. Any additional temporary erosion controls required due to this permit, directed by the engineer, or needed due to site conditions shall be installed and paid for under the conditions of section 107 of the NDDOT Specifications for Road and Bridge Construction.

After a storm event and according to the SWPPP, the Contractor shall correct all areas of noncompliance within 24 hours after notification of noncompliance. If corrective actions are not taken within 24 hours, the Engineer may:

- 1. Apply a contract price reduction of \$500 per day per instance.
- 2. Have deficiencies corrected by another Contractor and deduct the cost of the work from the monies due or to become due to the Contractor.
- 3. Suspend all work.
- 4. Withhold payment on other contract items/pay estimates.

These actions will be applied until deficiencies have been corrected.

31.3.03 REMOVAL OF TEMPORARY EROSION CONTROL

- A. Temporary erosion control devices shall remain in place until the permanent measures (turf establishment) have become established as determined by the Engineer.
- B. All areas disturbed by the removal of temporary erosion control measures shall receive the same turf establishment as the areas adjacent thereto.

31.3.04 INTERIM MULCH

- A. During the periods when seeding and sodding are not permitted, the Contractor shall shape the areas to their final configuration, loosen the soil as necessary, apply interim mulch and anchor the mulch as directed by the Engineer.
- B. Where the Bidder's Proposal includes separate pay items for mulch and disk anchoring, the furnishing and anchoring of interim mulch shall be paid for at the unit price bid for the respective items.
- C. In absence of separate pay items for mulch or disk anchoring, the furnishing and anchoring of interim mulch shall be included in the price bid for the work for which erosion control is required and no additional compensation shall be made therefor.
- D. Once seeding can proceed, the Contractor shall prepare the topsoil as specified for **SECTION 32 92 00 TURF AND GRASSES**.

31.3.05 INSTALLATION REQUIREMENTS

- A. Bale checks shall be countersunk or entrenched into the soil to a depth of 4 inches below the surrounding soil.
- B. Each bale shall be anchored to the ground with two 2 inch by 2 inch wood stakes or reinforcing bars.

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- C. The stakes or bars shall be embedded into soil at least 10 inches.
- D. The bales shall be placed on edge and butted tight against each other.
- E. The length of a bale check dam which crosses a ditch, swale or drainway shall be such that the crest of the bale check dam at its lowest point is lower than the ground level at the ends of the check dam so as to prevent runoff from flowing around the ends of the bale check dam.
- F. Silt fence shall be constructed on fence posts which are spaced no more than 6 feet and embedded no less than 2 feet.
- G. The geotextile fabric shall be secured to the upstream face of the posts.
- H. The geotextile fabric shall be embedded in an anchor trench along the upstream side of the silt fence.
- I. The anchor trench shall be 6 inches deep by 6 inches wide and shall extend the full length of the silt fence.
- J. The geotextile fabric shall line both sides and the bottom of the anchor trench.
- K. The anchor trench shall be backfilled with the excavated material which shall be firmly compacted into place.
- L. Erosion Control Blankets
 - 1. Erosion control blankets shall be installed on all slopes steeper than 3:1(H:V) at culvert ends, upstream and downstream, without rip rap protection and at locations shown on the Drawings.
 - 2. Erosion control blankets shall be installed within 24 hours after seeding, fertilizing and mulching has been completed.
 - 3. The blanket shall be rolled out in the direction perpendicular to the slope.
 - 4. The blankets shall be spread out without stretching.
 - 5. The blanket installation shall begin at the base of the slope.
 - 6. The subsequent courses of blanket shall overlap the lower blanket by no less than 10 inches. Strip ends shall also overlap by 10 inches.
 - 7. The aggregate end of the blanket strip along the top of the slope shall be buried in a vertical slot in the soil.
 - 8. No less than 12 inches of blanket shall be buried in this slot.
 - 9. Along channels anchor slots measuring one foot deep by one foot wide shall be excavated across the width of the channel.
 - 10. The erosion control blanket shall be laid into the bottom of this slot.
 - 11. A cover flap of blanket will be placed against the upstream face of the slot.
 - 12. The slot shall be backfilled, seeded, mulched and the cover flap folded over the trench.
 - 13. Anchor slots shall be spaced at intervals not to exceed 50 feet.
 - 14. All joints and edges of the blankets shall be stapled at 3 foot intervals or less.
 - 15. Staples placed at joint ends shall not exceed 18 inches.

31.3.06 MAINTENANCE

- A. It shall be the Contractor's responsibility to maintain all erosion control measures and to inspect same after each rainfall event.
- B. All displaced bale checks shall be replaced and silt fences shall be repaired where sagging or otherwise damaged.
- C. The Contractor shall review the temporary erosion control measures and make revisions as necessary in order to minimize damage due to future rainfalls.
- D. Temporary erosion control measures shall be fully maintained until they are removed. The cost of maintenance of temporary erosion control shall be included in the price bid for the work for which erosion control is required and no additional compensation will be made therefor.

END OF SECTION

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PART 1 GENERAL

32.1.01 DESCRIPTION

This section of the Project Manual includes work common to exterior site improvements including pavements, curb and gutter, sidewalks and all work included thereto as shown on the Drawings and specified herein.

32.1.02 RELATED WORK SPECIFIED ELSEWHERE

The following items of related work are specified and included in other sections of this Project Manual:

SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 21 00	ALLOWANCES
SECTION 01 33 00	SUBMITTAL PROCEDURES
SECTION 31 23 13	SUBGRADE PREPARATION
SECTION 31 25 00	EROSION AND SEDIMENTATION CONTROLS
SECTION 32 11 23	AGGREGATE BASE COURSES
SECTION 32 12 16	ASPHALT PAVING
SECTION 32 13 13	CONCRETE PAVING
SECTION 32 13 14	SIDEWALKS
SECTION 32 16 13	CONCRETE CURBS AND GUTTERS
SECTION 32 31 13	CHAIN LINK FENCES AND GATES
SECTION 32 92 00	TURF AND GRASSES

32.1.03 REFERENCE SPECIFICATIONS

- A. References made in **DIVISION 32 EXTERIOR IMPROVEMENTS** to the NDDOT Specifications shall be taken to mean the North Dakota Department of Transportation's Standard Specifications for Road and Bridge Construction, 2024 Edition unless otherwise specified.
- B. The referenced sections and appurtenant sections thereto of the NDDOT Specifications shall be considered as a part of this Specification.
- C. Provisions of the NDDOT Specifications are subject to modification by these Specifications.
- D. All testing noted by the NDDOT Specifications to be performed by the Construction Representative shall be performed by the independent testing laboratory retained by the Contractor.
 - 1. The costs of said testing shall be borne by the Contractor unless provision for reimbursement is made in **SECTION 01 21 00 ALLOWANCES**.
- E. Conform to applicable codes for marking handicapped parking and include signs and pavement markings.

PART 2 PRODUCTS

32.2.01 CONCRETE

All concrete for pavements, curb and gutter, driveways and walks shall be Class AA as specified in **SECTION 32 13 13 CONCRETE PAVING** of this Project Manual.

PART 3 CONSTRUCTION REQUIREMENTS

32.3.01 GENERAL

- A. These general construction requirements apply to all exterior site improvement work.
- B. The limits of construction are shown on the Drawings or shall be established by the Owner's Representative.
 - 1. The Contractor shall confine construction operations within these limits.
 - 2. All surface objects, trees, stumps, roots and other obstructions that are not designated to remain shall be cleared and disposed of as specified.
- C. The removal of surface improvements (pavement, curb and gutter, walks) shall be held to a minimum.
 - 1. All materials to be removed and means of replacement shall be subject to the approval of the Owner's Representative where said removals are not detailed on the Drawings.

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2. All materials that are removed shall be disposed of off-site at a location provided by the Contractor.
3. All pavements, walks or curb and gutter that are to be removed shall be sawn full depth to provide a neat and true edge.

32.3.02 TESTING

- A. The Contractor shall be responsible for obtaining test results showing the moisture-density relationships (Standard Proctor) of representative samples of the materials to be used in all embankment and backfill construction including excavated material, engineered fill and borrow material.
- B. The Contractor shall be responsible for obtaining Job Mix Formulas for bituminous pavement mixtures of each type.
- C. Testing shall be performed by an independent testing laboratory in accordance with the requirements of ASTM D698.

32.3.03 CLEANUP

- A. Cleanup of the site shall be completed before final acceptance of the work can be made.
- B. Cleanup shall include the removal and disposal of all unsuitable materials.
- C. All equipment shall be removed from the site. The site shall be left in a manner so as to present a clean and neat appearance.

32.3.04 MISCELLANEOUS

- A. All surplus waste materials remaining after completion of the exterior site improvements shall be disposed of in an acceptable manner within 24 hours after completing the work on each area of the site.
 1. Disposal at any location within the project limits shall be as specified, or as approved by the Owner's Representative; otherwise, disposal shall be accomplished outside the project limits at a location provided by the Contractor.
 2. The waste disposal operations shall be a part of the work required under the exterior site improvement work, not as work that may be delayed until final cleanup.

END OF SECTION

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SECTION 32 11 23 – AGGREGATE BASE COURSES
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PART 1 GENERAL

32.1.01 DESCRIPTION

The work covered under this Section of the Project Manual shall include all base course aggregate in parking and roadway areas and all work included thereto, as shown on the Drawings and as specified herein.

32.1.02 RELATED WORK SPECIFIED ELSEWHERE

The following items of related work are specified and included in other sections of this Project Manual:

SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 33 00	SUBMITTAL PROCEDURES
SECTION 31 23 13	SUBGRADE PREPARATION
SECTION 32 12 16	ASPHALT PAVING
SECTION 32 13 14	SIDEWALKS
SECTION 32 16 13	CONCRETE CURBS AND GUTTERS

PART 2 PRODUCTS

32.2.01 AGGREGATE FOR BASE CONSTRUCTION

The aggregate for subgrade repair, curb and gutter, sidewalk, and concrete driveways shall be Salvaged Base Course in conformance with Section 816 of the NDDOT Specifications.

PART 3 CONSTRUCTION REQUIREMENTS

32.3.01 BASE COURSE CONSTRUCTION

Aggregate base construction shall be in accordance with Section 302 of the NDDOT Specifications.

END OF SECTION

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PART 1 GENERAL

32.1.01 DESCRIPTION

The work covered under this Section of the Project Manual includes all plant mixed bituminous paving in parking and roadway areas and all work included thereto, as shown on the Drawings and as specified herein.

32.1.02 RELATED WORK SPECIFIED ELSEWHERE

The following items of related work are specified and included in other sections of this Project Manual:

SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 33 00	SUBMITTAL PROCEDURES
SECTION 31 23 13	SUBGRADE PREPARATION
SECTION 32 05 00	COMMON WORK RESULTS FOR EXTERIOR IMPROVEMENTS
SECTION 32 11 23	AGGREGATE BASE COURSES

PART 2 PRODUCTS

32.2.01 BITUMINOUS MATERIALS

- A. The bituminous material for Hot Bituminous Pavement shall be PG 58-28 asphalt cement.
- B. The bituminous material shall be accepted by certification.
 - 1. The asphalt supplier shall certify that the product furnished to the project complies with the Strategic Highway Research Program binder specification for PG 58-28 binder.
 - 2. The Contractor shall submit a letter from the asphalt supplier stating that asphalt supplier has established and implemented a quality control plan to the Owner's Representative.
 - 3. The asphalt supplier's quality control plan shall be in accordance with the "Combined State Binder Group." Results of the required tests shall be submitted to the Owner's Representative.
- C. Bituminous material for tack coat shall be SS-1 or SS-h1.

32.2.02 AGGREGATES FOR BITUMINOUS MIXTURE

- A. Aggregate for Hot Bituminous Pavement conform to the requirements of NDDOT Specification Section 430.

PART 3 CONSTRUCTION REQUIREMENTS

32.3.01 HOT MIXED BITUMINOUS PAVEMENT

- A. Hot Bituminous Pavement shall be constructed in conformance with the provisions of NDDOT Section 430.
- B. The Contractor will not be required to provide the Engineer's Laboratory.
- C. References to sections or approvals requested of the Department or Engineer shall be taken to mean the Owner's Representative.
- D. The ordinary compaction method shall be used.
 - 1. The Owner's Representative may require the Contractor to furnish a nuclear testing device to verify that the maximum density is being obtained.
 - 2. The cost of providing this testing shall be considered incidental to the work.
- E. Mix designs shall be developed by the Contractor for acceptance by the Owner's Representative in accordance with the provisions of requirements of NDDOT Specification Section 430.
- F. If the Contractor retains an independent testing laboratory to establish the job mix formula for each type of pavement course the cost of preparing the job mix formula shall be borne by the Contractor and are not eligible for reimbursement, a Testing Allowance is provided in the Bidder's Proposal.
- G. Each job mix formula shall be prepared at the Contractor's expense. This includes the original and any subsequent mix designs that may be needed to keep the material within the provisions and standards of this Project Manual.

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32.3.02 TACK COAT

- A. This work shall consist of treating existing bituminous or concrete surfaces with bituminous material preparatory to placing a bituminous course or seal coat thereon.
- B. Bituminous tack coat shall be constructed in conformance with the requirements of NDDOT Specifications Sections 401.
- C. Bituminous material applied at a rate not to exceed 0.05 gallons per square yard.

32.3.03 BITUMINOUS FOG SEAL

- A. This work shall consist of treating a bituminous pavement to seal the surface.
- B. Bituminous fog seal shall be constructed in conformance with the requirements of NDDOT Specifications Sections 401.
- C. Fog seal is only required where shown on the Drawings or included in the Bidder's Proposal.

END OF SECTION

PART 1 GENERAL

32.1.01 SECTION INCLUDES

- A. Concrete Sidewalks
- B. Concrete Curb & Gutter
- C. Concrete Mix for Thrust Blocking
- D. Misc. Accessories, joint filler, sealants, etc.

32.1.02 SUBMITTALS

- A. Product Data: Provide data on joint filler, admixtures, and curing compound
- B. Concrete Mix Design
 - 1. Employ independent testing laboratory to test proposed aggregate and design concrete mixes for each type of concrete required.
 - 2. Submit aggregate test reports and mix designs for approval 14 days prior to placing concrete.
 - 3. Test each type of fine and coarse aggregate for conformance to ASTM C 33.
- C. Fly Ash Certificate of Compliance, if applicable.

32.1.03 QUALITY ASSURANCE

- A. Perform work in accordance with ACI 301.
- B. Obtain cementitious materials from same source throughout.
- C. Follow recommendations of ACI 305R when concreting during hot weather.
- D. follow recommendations of ACI 306R when concreting during cold weather.

32.1.04 ENVIRONMENTAL REQUIREMENTS

- A. Do not place concrete when base surface temperatures is less that 40 degrees F, or surface is wet or frozen.

PART 2 PRODUCTS

32.2.01 FORM MATERIALS

- A. Form Materials: Conform to ACI 301.
- B. Joint Filler: Preformed; non-extruding bituminous type (ASTM D1751).
- C. Thickness: ½ inch.

32.2.02 REINFORCEMENT

- A. Reinforcing Steel: ASTM A 615 Grade 60 (420); deformed billet steel bars, unfinished finish.
- B. Dowels: ASTM A 615 Grade 60 (420); plain (smooth) billet steel bars; unfinished finish

32.2.03 CONCRETE MATERIALS

- A. Cement: ASTM C150/C150M Normal – Type I portland type, grey color.
- B. Fine and Coarse Mix Aggregates: As per ASTM C 33 except as modified below.
 - 1. The following percentages shall not be exceeded for the Course Aggregate:
 - a. Shale
 - 1) Sidewalks
 - (a) Maximum 0.5% by weight of the plus No. 4 fraction.
 - 2) All other

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- (a) Maximum 3% by weight of the plus No. 4 fraction.
- b. Iron Oxide Particles
 - 1) Maximum 4.0% by weight of the plus No. 4 fraction.
- C. Fly Ash: ASTM C618, Class C or F.
- D. Water: Clean, and not detrimental to concrete.
- E. Air-Entraining Admixtures: ASTM C260/C260M.
- F. Chemical Admixtures: ASTM C494, Type A – Water Reducing.
 - 1. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
 - a. Admixtures containing calcium chloride is prohibited.

32.2.04 ACCESSORIES

- A. Clip Dowel System for Isolation Joints
 - 1. Shall consist of a polypropylene plastic sleeve and base.
 - 2. Shall accept size and length of reinforcing bar or dowel bar shown in the plan details.
 - 3. Shall be the Speed Dowel system for isolation joints as manufactured by Greenstreak, or equal
- B. Curing Compound: ASTM C 309, Type 2, Class B
- C. Joint Sealer: Shall be one of the following:
 - 1. Urethane Based: Tremco/Vulkem's 445SSL (semi -self leveling).
 - 2. Urethane Based: Tremco's Dymeric 240FC (toolable).
 - 3. Provide backer rod at joints over 3/8" wide

32.2.05 CONCRETE MIX DESIGN

- A. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.
- B. Concrete Properties:
 - 1. Compressive Strength, when tested in accordance with ASTM C39 at 28 days: 4000 psi.
 - 2. Fly Ash Content: Maximum 30 percent of cementitious materials by weight.
 - 3. Cement Content: Minimum 564 lb. per cubic yard.
 - 4. Water-Cement Ratio: Maximum 45 percent by weight.
 - 5. Total Air Content: 6 to 8 percent, determined in accordance with ASTM C173.
 - 6. Maximum Aggregate Size: 1 inch

32.2.06 MIXING

- A. Concrete shall be Ready-Mixed concrete, mixed and delivered in accordance with ASTM C94.
- B. Transit Mixers: Comply with ASTM C94.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify compacted aggregate base is acceptable and ready to support paving and imposed loads.
- B. Verify gradients and elevations of base are correct.

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3.02 SUBBASE

- A. See Section 32 1123 for construction of base course for work of this Section.

3.03 PREPARATION

- A. Moisten base to minimize absorption of water from fresh concrete.

3.04 FORMING

- A. Place and secure forms to correct location, dimension, profile, and gradient.
- B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.
- C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.05 REINFORCEMENT

- A. Place steel reinforcement at midheight of slabs-on-grade.

3.06 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304R.
- B. Ensure reinforcement, inserts, embedded parts, formed joints are not disturbed during concrete placement.
- C. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

3.07 JOINTS

- A. Place Isolation and Contraction Joints at locations shown in the Plans and as per the Plan details.
- B. Install Slip Dowel System at isolation joints as per manufacturer's recommendations and the following.
 - 1. Pour concrete a minimum of 18 inches from the slip dowel system and work concrete around the dowel system. Do not pour directly over the dowel system.
- C. Construction Joints shall be placed as per the Plan details.

3.08 FINISHING

- A. Sidewalk Paving-Broomed: Light broom, texture perpendicular to direction of travel with troweled and radiused edge ¼ inch radius.
- B. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.
 - 1. Contractor shall ensure spraying equipment supplies an even and full coverage of curing compound to the concrete surface.

3.09 JOINT SEALING

- A. Apply in accordance with manufacturer's instructions.

3.10 TOLERANCES

- A. Maximum Variation of Surface Flatness: ¼ inch in 10 ft.
- B. Maximum Variation From True Position: ¼ inch.

3.11 PROTECTION

- A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.
- B. Do not permit vehicular traffic over pavement for 7 days minimum after finishing.

END OF SECTION

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PART 1 GENERAL

1.01 DESCRIPTION

The work covered under this Section of the Project Manual shall include all concrete sidewalks, and all work included thereto, as shown on the Drawings, and as specified herein.

1.02 RELATED WORK SPECIFIED ELSEWHERE

The following items of related work are specified and included in other sections of this Project Manual:

SECTION 31 23 13	SUBGRADE PREPARATION
SECTION 32 05 00	COMMON WORK RESULTS FOR EXTERIOR SITE IMPROVEMENTS
SECTION 32 11 23	AGGREGATE BASE COURSES

PART 2 PRODUCTS

2.01 CONCRETE

All concrete for pavements, curb and gutter, driveways and walks shall be Class AA as specified in **SECTION 03 30 00 CAST-IN-PLACE CONCRETE**.

2.02 EXPANSION JOINT MATERIALS

Expansion joint materials shall conform to the requirements of **SECTION 03 15 00 CONCRETE ACCESSORIES** of this Project Manual.

2.03 CURING COMPOUNDS

Curing compound materials shall conform to the requirements of **SECTION 03 39 00 CONCRETE CURING** of this Project Manual.

PART 3 CONSTRUCTION REQUIREMENTS

3.01 CONCRETE SIDEWALKS

- A. Concrete sidewalk shall conform to the requirements of the Drawings.
- B. The foundation shall be excavated, shaped, and compacted to a firm, uniform bearing surface, conforming to the planned section and established grade.
 1. Unsuitable subgrade soils shall be removed and replaced as specified herein.
 2. A minimum of 4" granular material shall be furnished, placed, and compacted thoroughly depth.
- C. The concrete shall be placed in forms and consolidated without causing segregation.
 1. The finished surface shall not vary more than 3/16 inch from a 10-foot straight edge and the formed edges shall not vary more than 1 inch from the required location.
- D. Joints in walks shall divide the surface into panels of uniform size.
 1. The panels shall be square where practical.
 2. Joints shall be perpendicular to the finished surface.
 3. Panels shall not have an area in excess of 36 square feet.
 4. Joints shall be installed from entrant corners. Joints shall be straight, vertical, and perpendicular to the walk.
 5. Joints shall all align with like joints in adjacent work unless the concrete is separated with no less than ½ inch of expansion joint filler material.
 6. All joints and edges shall be rounded with a ½ inch radius edging tool.
 7. Contraction joints shall extend to at least 1/3 the concrete thickness and shall be approximately 1/8 inch wide.

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- E. Expansion joints shall be ½ inch wide and shall extend the full depth and width of the concrete.
1. Expansion joints shall be filled with a ½ inch thickness of bituminous bound fiber.
 - a. The material shall extend the full width and depth of the concrete.
 2. Expansion joint filler material shall be securely fastened to the surface of existing concrete before subsequent concrete is cast against the joint.
 - a. Preformed joint filler material shall be placed against all fixed objects such as fire hydrants, building foundations, and other rigid structures so as to separate the object from abutting concrete edges.
 3. All exposed surfaces of concrete pavements, walks and driveways shall be cured with a liquid curing compound as specified in **SECTION 03 39 00 CONCRETE CURING** of this Project Manual.

3.02 BACKFILLING

- A. Backfill shall be placed along the edges of completed sidewalks in a manner that will not cause displacement of the section nor damage to the exposed edges.
- B. All damaged sidewalk shall be replaced at the direction of the Owner's Representative at the Contractor's expense.

END OF SECTION

PART 1 GENERAL

32.1.01 DESCRIPTION

The work covered under this Section of the Project Manual includes concrete curb and gutter, and all work incidental thereto, as shown on the Drawings and as specified herein.

32.1.02 RELATED WORK SPECIFIED ELSEWHERE

The following items of related work are specified and included in other sections of this Project Manual:

SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 33 00	SUBMITTAL PROCEDURES
SECTION 01 45 00	QUALITY CONTROL
SECTION 31 23 13	SUBGRADE PREPARATION
SECTION 32 05 00	COMMON WORK RESULTS FOR EXTERIOR SITE IMPROVEMENTS

PART 2 PRODUCTS

32.2.01 CONCRETE

All concrete for pavements, curb and gutter, driveways and walks shall be Class AA as specified in **SECTION 32 16 13 CONCRETE CURB AND GUTTER**.

32.2.02 EXPANSION JOINT MATERIALS

Expansion joint materials shall conform to the requirements of **SECTION 32 13 13 CONCRETE PAVING** of this Project Manual.

32.2.03 CURING COMPOUNDS

Curing compound materials shall conform to the requirements of **SECTION 32 13 13 CONCRETE PAVING** of this Project Manual.

PART 3 CONSTRUCTION REQUIREMENTS

32.3.01 CONCRETE CURB AND GUTTER

- A. All concrete curb and gutter shall be constructed to the alignment and grades shown on the Drawings.
 1. Curb and gutter shall match into existing curb and gutter.
 2. Preparation of the subgrade shall be included in the price bid for curb and gutter and no additional compensation will be made therefor.
 3. Foundation shall be excavated, shaped and compacted to a firm, uniform bearing surface, conforming to the planned section and established grade.
 4. Unsuitable subgrade soils shall be removed and replaced as specified herein.
- B. Transverse expansion joints, filled with ½ inch preformed joint filler material, shall be placed at the ends of all curved sections; and at the ends of the curved portions of entrance and street returns.
 1. Longitudinal expansion joints shall be placed as shown in the Drawings.
 2. Expansion joints with filler material shall also be placed at locations where the concrete surrounds or adjoins any existing fixed objects such as fire hydrants, building foundations, and other rigid structures.
- C. Contraction joints shall be provided at ten (10) foot intervals in curb or curb and gutter construction except as otherwise provided in the Drawings.
 1. The contraction joints shall generally be formed to the full depth of the concrete, using 1/8 inch thick removable inserts conforming to the cross sectional shape of the concrete.
 2. Where practicable, such as in driveway pavement or where a curb machine is used, the contraction joints may be formed or sawed as approved by the Owner's Representative to a depth of at least two (2) inches from all exposed surfaces.

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- D. Joints shall be constructed perpendicular to the subgrade and shall align with similar joints in adjoining work when practicable.
- E. Transverse joints shall be placed at right angles to the longitudinal axis of the work unless otherwise indicated on the Drawings.
- F. Placement of the curb and gutter may be performed with a slip form machine or by fixed forms.
 - 1. The finish of the surface shall be struck with a light broom perpendicular to the length of the curb and gutter.
- G. All concrete curb and gutter shall be cured with a liquid membrane curing compound as specified for slip formed curb and gutter.
 - 1. All surfaces including the back of the curb shall be coated with curing compound.
- H. Joints shall be sealed with hot poured concrete joint sealer.
 - 1. The joints shall be cleaned with compressed air or other means.
 - 2. The sealer shall be applied in a neat workmanlike manner.
 - 3. All excess sealer material shall be removed as directed by the Owner's Representative.

32.3.02 BACKFILLING

- A. Backfill shall be placed behind the curb and gutter in a manner that will not cause displacement of the section nor damage to the exposed edges.
- B. All damaged curb and gutter shall be replaced at the direction of the Owner's Representative at the Contractor's expense.

END OF SECTION

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**DIVISION 32 – EXTERIOR IMPROVEMENTS
SECTION 32 92 00 – TURF AND GRASSES
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PART 1 GENERAL

1.01 DESCRIPTION OF THE WORK

- A. The work covered under this section of the Project Manual includes all seeding, sodding, fertilizer, erosion control blankets and all work included thereto as shown on the Drawings and specified herein.
- B. With the exception of agricultural tilled areas, areas to receive paving or other such surface improvements, all areas disturbed as a result of construction shall receive turf establishment in the form of seeding or sodding as shown on the Drawings or as directed by the Owner's Representative.
- C. All areas not designated to be sodded shall be seeded.
- D. Turf establishment shall be commenced as soon as practicable after completion of grading and topsoil operations in order to minimize the exposure of the topsoil to erosion.

1.02 RELATED WORK SPECIFIED ELSEWHERE

The following items of related work are specified and included in other sections of this Project Manual:

SECTION 31 23 13	SUBGRADE PREPARATION
SECTION 31 25 00	EROSION AND SEDIMENT CONTROLS

PART 2 PRODUCTS

2.01 SEED MIXTURE

Seed mixture types and application rates shall be as shown in **SCHEDULE 32 92 00 - A**.

2.02 SEED

- A. Seed and seeding mixtures shall be free of all prohibited noxious weed seed and shall not contain more than five-tenths (0.5%) percent by weight of restricted noxious weed seeds.
- B. Prohibited and restricted noxious weeds shall be those classified by the North Dakota State Seed Department.
- C. All seed containers shall be sealed and labeled to comply with existing North Dakota State Seed Rules and Regulations or in accordance with U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act, if shipped in Interstate Commerce.
- D. Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be acceptable.

2.03 SOD

Sod shall be in compliance with NDDOT Specification 708.02 B 2

2.04 FERTILIZER

- A. Fertilizer types and application rates shall be as shown in **SCHEDULE 32 92 00 – B**
- B. When the fertilizer is furnished in closed containers, they shall be clearly marked with the weight, type of nutrients, and the manufacturer's guaranteed analysis, all in accordance with State and Federal regulations.
- C. When the fertilizer is furnished in bulk, each shipment shall be accompanied by a suitable bill-of-lading giving the weight, type of nutrients and a certificate of the manufacturer's guaranteed analysis.

2.05 MULCH MATERIAL

- A. Mulch material types and application rates shall be as shown in **SCHEDULE 32 92 00 – B**. All mulch types shall conform to Section 253 of the 2022 NDDOT Standard Specifications.
- B. Mulch containing Canada thistle or leafy spurge fragments or seeds shall be rejected.
- C. The material shall be in an air-dry condition at the time of delivery.

PART 3 CONSTRUCTION REQUIREMENTS

3.01 GENERAL

- A. The Contractor shall coordinate topsoiling and finishing work with turf establishment so that completed areas will be seeded, sodded and mulched as required without delay before undesirable weed growth or soil erosion occurs.

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3.02 SOIL PREPARATION

- A. Immediately prior to seeding or placing sod, the topsoil shall be loosened to a depth of no less than 4 inches.
- B. On slopes, the cultivating equipment shall be operated in the general direction of right angles to the slopes.
- C. The area to be seeded shall be free of all debris and stones larger than 2 inches.
- D. All washed or eroded areas shall be backfilled before soil preparation is begun.

3.03 SEEDING

- A. Seed shall be protected from moisture at all times.
- B. Seeding shall be done from April 15 to June 1 or July 20 to September 20 except as otherwise directed in writing by the Owner's Representative.
- C. The rate of application shall be adjusted as follows:

$$\text{Pounds Seed to be Sown} = \frac{\text{Pure Live Seed}}{\% \text{ Germination} \times \% \text{ Purity}}$$
- D. The seed may be sown by means of a drill and on slopes 3:1(H:V) or steeper by broadcast seeding. Hydro-seeding will not be allowed without the prior approval of the Owner's Representative.
- E. Where broadcast seeding is used, the area shall be raked to incorporate the seed into the soil.
 - 1. Seed shall not be sown when the wind velocity exceeds 15 mph.
 - 2. This requirement may be waived by the Owner's Representative when the Contractor can demonstrate that the seeding method used allows for acceptable placement and retention of the seed in the soil.
 - 3. Fertilizer shall be applied to all seeded areas at the rate specified no more than 48 hours after the seed has been sown.
 - 4. The seed bed shall be firmed by means of a drag or similar equipment immediately upon completion of the seeding and fertilizing.

3.04 MULCH AND DISK ANCHORING

- A. All areas which are seeded shall be mulched.
- B. Mulch material shall be spread by mechanical means to provide a uniform distribution of the material at a rate of approximately 2 tons per acre.
- C. The mulch application will be considered satisfactory when approximately 10 percent of the soil area is visible through the mulch material.
- D. Areas of poor mulch distribution shall be corrected by the Contractor as directed by the Owner's Representative.
- E. Mulch application and disk anchoring shall be undertaken as soon after seeding, fertilizing and seedbed firming have been completed as in practicable.
- F. Areas where seed or mulch are lost due to wind, because of delay of mulching and disk anchoring shall be reseeded and remulched at the Contractor's expense.
- G. All mulch shall be anchored by means of a disk or similar piece of equipment.
- H. The mulch shall be anchored to a depth of 2 to 3 inches by means of being punched into the soil.
- I. The spacing of disks or blades shall not exceed 8 inches.
- J. Disk anchoring shall take place immediately after the mulch is applied.

3.05 HYDRAULIC MULCH

- A. All areas which are seeded shall be hydro mulched.
- B. Hydro mulch material shall be spread by hand methods, blower, or other mechanical means provided a uniform covering is obtained.

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- C. The hydro mulch application will be considered satisfactory when approximately 90 percent of the soil area is visible through the mulch material.
- D. Areas of poor mulch distribution shall be corrected by the Contractor as directed by the Owner's Representative.
- E. Hydro mulch application shall be undertaken as soon after seeding, fertilizing, and seedbed firming have been completed as in practicable.
- F. Areas where seed is lost due to wind, because of delay of hydro mulching shall be reseeded and remulched at the Contractor's expense.

Rate of Hydro Mulch = 1 ton per acre.

3.06 SODDING

- A. Sod shall be placed at all locations as designated on the Drawings.
- B. Sod placement shall commence immediately upon delivery of the sod.
- C. The Contractor shall coordinate all preparations necessary for sodding well in advance of the arrival of the sod.
- D. Strips of sod shall be placed firmly against each other and against the surfaces of walks, pavements, or other such improvements.
- E. The sod strips shall be placed with staggered end joints.
- F. No stretching of the sod strips shall be permitted.
- G. Where slopes exceed 10 percent, the strips of sod shall be placed perpendicular to the slope in shingle style. Sodding shall begin at the base of all slopes.
- H. In areas where surface runoff is concentrated, the sod shall be staked into place as well as being placed shingle style.
- I. Immediately after the sod is placed, it shall be watered and rolled to provide firm contact and bond between the sod and underlying topsoil.

3.07 MAINTENANCE

- A. The Contractor shall be responsible for maintaining all areas that have been seeded or sodded until the time of final acceptance.
- B. This shall include watering initially as required to establish the turf and as necessary to maintain the growth once it's established.
- C. Maintenance shall also include providing protection against damage due to erosion or traffic.

3.08 WARRANTY

- A. The Contractor shall warrant turfs and grasses for the warranty / establishment period indicated, against defects including death and unsatisfactory growth, except for defects resulting from lack of adequate maintenance, neglect, or abuse by the Owner, or incidents that are beyond the Contractor's control.
- B. The Contractor shall reseed all areas that are not fully established up to One (1) year from the final completion date of the project. All costs to reseed due to unestablished turf shall be borne by the Contractor.
- C. The Owner's Representative will provide written notice to the Contractor of any area(s) that have been found to be defective or not adhering to the warranty terms. After receipt of such notice of defect, the Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions, correct the deficiencies.

3.09 REPAIR

- A. If at any time before final acceptance, the seeded or sodded areas are damaged by erosion, traffic or other cause, the Contractor shall repair the damage.
- B. The reseeding or resodding of damaged areas shall be done at the Contractor's expense.

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SCHEDULE 32 92 00 - A SEED MIXTURES

MIXTURE BREAKDOWN		
Common Name	Pure Live Seed (lb/ac)	% of Mix Component
Glade Kentucky Blue	132	30%
Park Kentucky Bluegrass	132	30%
Creeping Red Fescue	132	30%
Annual Rye	44	10%
TOTAL	440	100%

SCHEDULE 32 92 00 - B FERTILIZER AND MULCH REQUIREMENTS

COMMERCIAL FERTILIZER		MULCH MATERIAL	
TYPE	APPLICATION RATE (lb/ac)	TYPE	APPLICATION RATE (tons/ac)
5-10-5	50	Hydraulic Mulch	1*
		Straw Mulch	2

* Apply with a minimum of 90 percent coverage of seedbed.

END OF SECTION

LEGACY LAKES ADDITION PHASE 1
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CWSRF PROJECT NO. 380940-05
WAHPETON, NORTH DAKOTA
DIVISION 33 UTILITIES
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PART 1 GENERAL

33.1.01 DESCRIPTION

- A. This Specification includes the disinfection of all raw water and potable water utilities including fittings, valves, mains and service lines, appurtenant equipment, and all work included thereto as shown on the Drawings and specified herein.

33.1.02 REFERENCES

- A. The current publications listed below form a part of this Specification.

B. Standards

AWWA C651	Disinfecting Water Mains
ANSI/NSF 61	Municipal Drinking Water System Components

33.1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. The following items of related work are specified and included in other sections of these Specifications:

SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 22 19	MEASUREMENT AND PAYMENT
SECTION 01 33 00	SUBMITTAL PROCEDURES
SECTION 33 01 12	INSPECTION AND TESTING OF WATER UTILITIES
SECTION 33 05 00	COMMON WORK RESULTS FOR UTILITIES
SECTION 33 14 13	PUBLIC WATER UTILITY DISTRIBUTION PIPING
SECTION 33 14 19	VALVES AND HYDRANTS FOR WATER UTILITY SERVICE

PART 2 PRODUCTS

33.2.01 CHLORINE

- A. Any of the following forms of chlorine can be used, subject to the approval of the Owner's Representative.

1. Liquid Chlorine
2. Sodium Hypochlorite
3. Calcium Hypochlorite

PART 3 EXECUTION

33.3.01 ACCEPTANCE

- A. Each unit of completed potable water line shall be disinfected with chlorine before acceptance and being placed into service as determined by the Owner's Representative.

33.3.02 STANDARDS

- A. Disinfection shall be accomplished as described herein or by the system prescribed by the American Water Works Association Standard C651.
1. The Contractor shall provide a copy of the AWWA standard C651 to the Owner's Representative for the system of disinfection used.
 2. The copy of the Standard shall be returned to the Contractor upon completion of the disinfection testing.
- B. After the final flushing, the water shall be tested for bacteriological quality to verify conformance with the standards prescribed by the State Department of Health/Environmental Quality.

33.3.03 PRELIMINARY FLUSHING

- A. The main shall be flushed prior to disinfection except when dry chlorine compounds are placed in piping at the time of jointing.
- B. If no hydrant is installed at the end of the main, a tap shall be provided large enough to affect a velocity in the main of at least 3 fps.

- C. Flushing at the outlet shall be continued until the comparison of samples show no further improvements in color and turbidity.

33.3.04 CHLORINATION

- A. The chlorine compounds should be added to an amount that will produce a solution of 50 to 100 parts per million (ppm) of available chlorine.
- B. The following table indicates the amount of calcium hypochlorite that should be added for the respective length of pipe shown to furnish a resulting solution of 50 to 100 ppm of free chlorine.

Pipe Diameter Inches	Ounces of Granular Calcium Hypochlorite per 500 feet of pipe	No. of 5 gram Hypochlorite Tablets per 20 feet of pipe
4	0.5	1
6	1.0	1
8	2.0	2
10	3.0	3
12	4.0	4
16	8.0	7
20	8.0	10
24	8.0	14
30	8.0	22
36	8.0	32
42	8.0	43
48	8.0	56

33.3.05 CONTACT PERIOD

- A. The chlorinated material shall be introduced into the water lines in a manner approved by the Owner's Representative.
- B. After a contact period of not less than eight (8) and preferably twenty-four (24) hours, the system shall be flushed with clean water until the residual chlorine content is not greater than 1.0 ppm.
- C. All valves except the isolation valves in the lines being disinfected shall be opened and closed several times during the contact period.
- D. Minimum flushing flows shall be as follows

Pipe Diameter (Inches)	Minimum Flow Rate (GPM)
6	260
8	470
10	730
12	1060

- E. Should the test indicate fail to meet the prescribed standards, the Contractor shall disinfect, flush and retreat until satisfactory results are obtained.

33.3.06 COST

- A. The cost of disinfection and bacteriological testing shall be included in the price bid for the water line and no additional compensation will be made therefor.

33.3.07 BACTERIA TESTING

- A. Bacteriological testing of the water main shall be performed in accordance with AWWA Standard C651. Following disinfection and final flushing and before the new main is connected to the distribution system, two consecutive sets of acceptable samples, taken at least 24 hours apart, must be collected from the new water main. At least one set of samples shall be collected from every 1,200 feet of main, plus one set from the end of the line, and at least one set from each branch.
- B. The Contractor shall schedule and perform bacteriological sampling in the presence of the Engineer or Owner.
- C. *Bacteriological tests shall be performed by a NDDOH certified laboratory.*

33.3.08 DISINFECTION WATER DISCHARGE

- A. The discharge from the water utility disinfection work shall be treated to levels that meet the Federal and State non-degradation criteria. The Contractor is responsible for all permits, tests, and work related to meeting this requirement and this cost shall be incidental to the work. Prior to discharge, an approved reducing agent shall be applied to the water to reduce the chlorine levels to less than 0.2 ppm. The discharge shall be neutralized prior to discharging to the street or storm sewer system. The cost of neutralizing the disinfection water will be incidental to the cost of the project.

B. Technical Provisions

1. Reserved.
2. State permits may be required for de-chlorination and discharge of chlorinated disinfection water. The Contractor is advised to contact the North Dakota Department of Health at:

North Dakota Department of Health

Division of Water Quality

4201 Normandy Street

Bismarck, ND 58503-1324

Telephone: (701) 328-5210

END OF SECTION

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PART 1 GENERAL

33.1.01 DESCRIPTION

- A. This Specification includes the testing of all water utility piping, fittings, appurtenances, and all work included thereto as shown on the Drawings and specified herein.

33.1.02 REFERENCES

- A. The current publications listed below form a part of this Specification.
B. Standards

ANSI/NSF 61 Municipal Drinking Water System Components

33.1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. The following items of related work are specified and included in other sections of these Specifications:

SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 22 19	MEASUREMENT AND PAYMENT
SECTION 01 33 00	SUBMITTAL PROCEDURES
SECTION 33 01 10.58	DISINFECTION OF WATER UTILITY PIPING SYSTEMS
SECTION 33 05 00	COMMON WORK RESULTS FOR UTILITIES
SECTION 33 14 13	PUBLIC WATER UTILITY DISTRIBUTION PIPING
SECTION 33 14 19	VALVES AND HYDRANTS FOR WATER UTILITY SERVICE

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

33.3.01 GENERAL

- A. Refer to **SECTION 33 05 00 – COMMON WORK RESULTS FOR UTILITIES** of these Specifications for provisions common to utility construction including water lines
B. Disinfection of all water lines, fittings, and appurtenances shall be achieved in conformance with the provisions of **SECTION 33 01 10.58 – DISINFECTION OF WATER UTILITY PIPING SYSTEMS** of these Specifications.

33.3.02 FILLING AND FLUSHING

- A. Prior to testing water lines shall be filled and flushed in conformance with the provisions of **SECTION 33 14 13 – PUBLIC WATER UTILITY DISTRIBUTION PIPING** of these Specifications.

33.3.03 TESTING

- A. Each valved section shall be subjected to the pressure and leakage tests prescribed herein.
1. The Contractor shall furnish the pump, pipe connections, gauges, and measuring equipment, and shall perform the testing under the direct observation of the Owner's Representative.
 2. Where permanent air vents are not provided, the Contractor shall furnish and install corporation stops at the high points as needed for release of air as the line is filled with water, the cost of which is included in the price bid for the water line.
- B. Where concrete reaction blocking is placed, the water line shall not be subjected to hydrostatic pressure until at least 5 days have elapsed after the concrete casting.
1. This period may be reduced to 2 days where high early strength concrete is used.
- C. At the option of the Engineer, the pressure and leakage tests may be conducted simultaneously.
- D. Any defective joints, and any defective pipe, fittings, valves, or hydrants, revealed during the testing or before final acceptance of the work shall be satisfactorily corrected and the tests shall be repeated until the specified requirements have been met.
- E. General Requirements
1. The working pressure is the maximum sustained operating pressure in the line being tested.
 2. In no event shall the test pressure exceed the pressure rating of pipes, fittings, valves, thrust restraints or other appurtenances.

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CITY PROJECT No. ST24-287
WAHPETON, NORTH DAKOTA**

**DIVISION 33 – UTILITIES
SECTION 33 01 12 – INSPECTION AND TESTING OF WATER UTILITIES
PROJECT No. ER24-00-139**

F. Pressure Test

1. The section being tested shall be slowly filled with water and the specified test pressure shall be applied, after all air has been expelled from the pipe.
2. A hydrostatic pressure of not less than the greater of the value shown in **Schedule 33 01 12 - A** or 150% of the working pressure, measured at the point test, shall be applied by means of a pump connected to the pipe in a satisfactory manner.
3. The specified pressure shall be held for the minimum duration shown in **Schedule 33 01 12 - A**.
4. No drop-in pressure will be allowed.
5. Service pipe may be tested at the time of the foregoing test, if installed, at the Contractor's option.
 - a. Testing of service pipes may be completed as a separate operation from main testing, and if so, the test pressure for service lines shall be 100 psi. Service pipe testing, if done separately, shall be done with the corporation stop open.

G. Leakage Test

1. After satisfactory completion of the pressure test, a leakage test shall be performed on each valved section of water main to determine the quantity of water that must be supplied into the section to maintain a test pressure of equal to the greater of the test pressure shown in **Schedule 33 01 12 – A** or 150% of the working pressure, after the air in the pipeline has been expelled and the pipe has been filled with water.
2. After filling the pipe with water and expelling all air in the line, the specified pressure shall be applied in the same manner as prescribed for the pressure test, and sufficient water shall be measured and supplied into the pipe section to maintain the pressure for the test duration shown in **Schedule 33 01 12 - A**.
3. Each pipe section tested will be accepted if the leakage does not exceed the quantity determined by the formula given below:

$$L = \frac{S \times D \times \sqrt{P}}{148,000}$$

L = Maximum permissible leakage in gallons per hour

S = Length of pipe tested in feet

D = Nominal diameter of pipe in inches

P = Test pressure in psi

4. If the pipe section under test contains pipe of various diameters, the allowable leakage will be the sum of the computed leakage for each size of pipe.
 5. When requested, the Contractor shall furnish a written report of the results of leakage tests, which shall identify the specific test section, the average pressure, the duration of test, and the amount of leakage.
- H. The costs of furnishing all labor, water, materials, and equipment necessary for the testing of water lines shall be included in the price bid for the water line and no additional compensation shall be made therefor.

33.3.04 DISINFECTION

- A. Disinfection shall be as specified in **SECTION 33 01 10.58 – DISINFECTION OF WATER UTILITY PIPING SYSTEMS**.

**SCHEDULE 33 01 12 – A
WATER UTILITY DISTRIBUTION PIPE TESTING**

DESCRIPTION	TEST PRESSURE	TEST DURATION (HOURS)		
		PRESSURE	LEAKAGE	COMBINED
6" – 12" PVC	150	1	2	2
6" – 14" HDPE	150	1	2	2

END OF SECTION

PART 1 GENERAL

33.1.01 DESCRIPTION

- A. This Specification includes work common to water, sanitary sewer and storm water utilities and all work included thereto as shown on the Drawings and specified herein.

33.1.02 REFERENCES

- A. The current publications listed below form a part of this Specification.

B. Standards

ASTM A536	Standard Specification for Ductile Iron Castings
ASTM F1674	Standard Test Method for Joint Restraint Products for Use with PVC Pipe
AWWA C105/A21.5	Polyethylene Encasement for Ductile Iron Pipe Systems
AWWA C600	Installation of Ductile-Iron Mains and Their Appurtenances
AWWA C900	Polyvinyl Chloride (PVC) Pressure Pipe and Fabrication Fittings, 4 In. Through 60 In.

33.1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. The following items of related work are specified and included in other sections of these Specifications:

SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 33 00	SUBMITTAL PROCEDURES
SECTION 01 22 19	MEASUREMENT AND PAYMENT
SECTION 03 05 00	COMMON WORK RESULTS FOR CONCRETE
SECTION 31 05 00	COMMON WORK RESULTS FOR EARTHWORK
SECTION 31 01 10.58	DISINFECTION OF WATER UTILITY PIPING SYSTEMS
SECTION 31 01 12	INSPECTION AND TESTING OF WATER UTILITIES
SECTION 33 05 13	MANHOLES AND STRUCTURES
SECTION 33 05 97.26	UTILITY DETECTABLE MARKINGS
SECTION 33 14 13	PUBLIC WATER UTILITY DISTRIBUTION PIPING
SECTION 33 14 17	SITE WATER UTILITY SERVICE LATERALS
SECTION 33 14 19	VALVES AND HYDRANTS FOR WATER UTILITY SERVICE
SECTION 33 31 11	PUBLIC SANITARY SEWERAGE GRAVITY PIPING
SECTION 33 39 13	SANITARY UTILITY SEWERAGE MANHOLES, FRAMES AND COVERS
SECTION 33 41 00	STORM UTILITY DRAINAGE PIPING
SECTION 33 49 00	STORM DRAINAGE STRUCTURES

PART 2 PRODUCTS

- A. Concrete: Concrete for pipe cradles and saddles shall be Strength Class 3,000 psi conforming to the requirements of **SECTION 03 30 00 – CAST-IN-PLACE CONCRETE** of these Specifications.

PART 3 EXECUTION

33.3.01 GENERAL

- A. Underground utilities shall be installed to the lines and grades shown on the Drawings and as specified herein.
- B. Excavation and backfilling of utility trenches shall be in conformance with the provisions of **SECTION 31 23 33 – TRENCHING AND BACKFILLING** of these Specifications.

33.3.02 INSPECTION

- A. The Contractor is responsible for all Contractor furnished material. The Contractor shall inspect all pipe, fittings, and appurtenances for damage and defects when the materials are unloaded.
- B. The Contractor shall also inspect these materials when they are installed to detect any damage which may have occurred due to handling.
- C. Particular attention shall be given to jointing surfaces.
- D. All defective or damaged materials shall be promptly removed from the site by the Contractor. This includes material discovered to be damaged or defective before final acceptance of the work, or during the guarantee period.

33.3.03 EQUIPMENT

- A. All equipment necessary and required for the proper construction of utilities shall be on the project in first class working condition and approved by the Engineer before construction is permitted to start.
- B. The Contractor shall provide suitable lifting equipment to handle the unloading and placing of pipe used in this project into final position.
- C. The Contractor shall provide hand tampers and pneumatic tampers to obtain the compaction of the pipe bedding and backfill as specified.

33.3.04 PIPE LAYING

- A. Trench excavation and bedding preparation shall proceed ahead of pipe placement as will permit proper placement and joining of the pipe and fittings at the prescribed grade and alignment without unnecessary hindrance.
 - 1. All foreign matter or dirt shall be removed from the inside of the pipe and fittings before they are lowered into position in the trench, and they shall be kept clean by approved means during and after laying.
 - 2. The pipe materials shall be carefully lowered into laying position by the use of suitable restraining devices.
 - 3. Under no circumstances shall the pipe be dropped or dumped into the trench.
- B. At the time of pipe placement, the bedding conditions shall be such as to provide uniform and continuous-support for the pipe between bell holes.
 - 1. Bell holes shall be excavated as necessary to make the joint connections, but they shall be no larger than would be adequate to support the pipe throughout its length.
 - 2. No pipe material shall be laid in water nor when the trench or bedding conditions are otherwise unsuitable or improper.
 - 3. All pipes shall have a minimum of 4" of bedding material below the pipe.
- C. When placement or handling precautions prove inadequate, in the Engineer's opinion, the Contractor shall provide and install suitable plugs or caps effectively closing the open ends of each pipe section before it is lowered into laying position, and they shall remain so covered until removal is necessary for connection of an adjoining unit.
- D. As each length of bell and spigot pipe is placed in laying position, the spigot end shall be centered in the bell and the pipe forced home and brought to correct line and grade.
 - 1. The pipe shall be secured in place with granular bedding material, which shall be thoroughly compacted by tamping around the pipe to a height of at least six (6) inches above its top.
 - 2. Acceptable tamping techniques include hand tamping and use of hand operated mechanical tamping devices.
- E. At all times when pipe laying is not in progress, including lunch breaks and overnight periods, all open ends of the pipe line shall be closed by watertight plugs or other means approved by the Engineer.
 - 1. If water is present in the trench, the seals shall remain in place until the trench is pumped completely dry.
- F. When connecting to existing utilities, the Contractor shall take every precaution necessary to prevent dirt or debris from entering the existing lines.

33.3.05 ALIGNMENT AND LENGTHS

- A. The cutting of pipe for inserting valves, fittings or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe and so as to leave a smooth square-cut end.
 - 1. Pipe shall be cut with approved mechanical cutters.
 - 2. The electric-arc cutting method, using carbon or steel rod, will be approved for use on larger size ductile or gray pipe where mechanical cutters are not available.

3. Flame cutting will not be allowed under any conditions.
 4. All rough edges shall be removed from the cut ends of pipe and, where rubber gasket joints are used, the outer edge shall be rounded or beveled by grinding or filing to produce a smooth fit.
- B. Wherever it is necessary to deflect ductile or gray iron pipe from a straight line either in the vertical or horizontal plane, to avoid obstructions, plumb stems, or produce a long radius curve when permitted, the amount of deflection allowed at each joint shall not exceed the allowable limits for maintaining a satisfactory joint seal as given by AWWA C600 for mechanical joints and push-on joints.
1. The maximum angular deflection at any joint for other pipe materials and joints shall not exceed the manufacturer's recommendations.
 2. If the specified alignment requires angular deflections greater than recommended or allowed, the Contractor shall provide appropriate bends or shorter pipes such that the maximum angular deflection is not exceeded.
- C. Connection and assembly of joints shall be accomplished during the setting, aligning, and fitting operations.

33.3.06 THRUST BLOCKING

- A. All plugs, caps, tees, bends, valves, and other thrust points shall be provided with reaction backing, or movement shall be prevented by attachment of suitable restraining devices, in accordance with the requirements of the Drawings or specified herein.
- B. In the absence of other specified requirements for reaction backing or restraining devices, the following provisions shall apply:
1. All horizontal bends exceeding 20 degrees deflection, and all caps, plugs, and branch tees shall be provided with concrete buttress blocking.
 2. All vertical bends exceeding 20 degrees deflection shall be provided with concrete buttress blocking at the low points and with metal tie rod or strapping restraints at the high points.
 3. Offset bends made with standard offset fittings need not be strapped or buttressed.
- C. Hardwood blocking shall only be used as temporary reaction backing until acceptable permanent reaction blocking or restraining devices have been installed.
1. This temporary blocking shall be nominal 2-inch timber having an area equivalent to at least four times the area of the surface of the cap or plug it restrains.
- D. Concrete buttresses shall be poured against firm, undisturbed ground and shall be formed in such a way that the joints will be kept free of concrete and remain accessible for repairs.
1. Minimum buttress dimensions shall be as shown on the Drawings.
- E. Contractors are instructed to size concrete buttress blocking on fittings and dead ends where the blocking must withstand the pressure of larger main line fittings equipped with reducers for the larger sized main line thrust.
- F. The cost for all necessary fittings, bands, tie rods, nuts, and washers, concrete and all labor and excavation required for installation of reaction restraints shall be included in the price bid for the fitting or pipe being restrained and no direct compensation provided therefor.
- G. Mechanical restraint of fittings and hydrants is allowed in lieu of concrete thrust blocks. Mechanical restraint for PVC pipe joined with standardized mechanical joint fittings shall be incorporated in the design of the follower gland and shall provide full circle contact and support of the pipe wall. Restraint shall be accomplished by a series of ring segments mechanically retained inside the gland housing and designed to grip the pipe wall in an even and uniform manner. Restraining ring segments shall be actuated by bolts featuring "Auto-Tork" twist off heads to ensure proper installation torque is applied. A safety stop on the Auto-Tork bolt shall limit the force applied to the ring segment against the pipe. All components of the restrainer, including the gland, bolts, and restraint segments shall be of high strength ductile iron, ASTM A536, Grade 65-45-12. Restraining devices shall be UL Listed / FM Approved on AWWA C900 PVC pipe and shall be certified by a third party testing laboratory as meeting or exceeding ASTM F1674-96 Standard Test Method for Joint Restraint Devices for PVC Pipe. Restraining devices shall be manufactured by a facility independently certified to ISO 9001 quality standard and

shall be Ford / Uni-Flange® Series 1500 or approved equal. Calculations for required length of restraint shall be provided for all types of fittings and restraint devices used. Calculations provided using the manufacturer's software is acceptable for evidence of satisfactory joint restraint.

- H. Where mechanical restraining systems are used, joint restraints must be installed per the manufacturer's requirements.

33.3.07 POLYETHYLENE ENCASEMENT

- A. All ductile iron and gray iron pipe, valves, valve boxes, fittings and appurtenances, shall be fully encased in polyethylene film in accordance with AWWA C105/A21.5.
1. Linear low-density polyethylene (LLDPE) shall have a film thickness of 8 mils.
 2. High-density cross-laminated polyethylene (HDCLPE) shall have a minimum film thickness of 4 mils.
 3. The film shall be furnished in tube form for installation on pipe and all pipe-shaped appurtenances such as bends, reducers, off-sets, etc.
 4. Sheet film shall be provided and used for encasing all odd-shaped appurtenances such as valves, tees, crosses, etc.
 5. The polyethylene tubing shall be installed on the pipe prior to being lowered into the trench.
 6. Tubing length shall be sufficient to provide a minimum overlap at all joints of one foot or more. After completing the pipe jointing and positioning the overlap material, the overlap shall be secured in place with adhesive tape wrapped circumferentially around the pipe not less than three turns.
- B. After encasement, the circumferential slack in the tubing film shall be folded over at the top of the pipe to provide a snug fit along the barrel of the pipe.
1. The fold shall be held in place with adhesive tape applied at intervals of approximately three feet along the pipe length.
 2. Any rips, punctures, or other damage to the tubing shall be repaired as they are detected. These repairs shall be made with adhesive tape and overlapping patches cut from sheet or tubing material.
- C. At odd-shaped appurtenances such as gate valves, the tubing shall overlap the joint and be secured with tape, after which the appurtenant piece shall be wrapped with a flat film sheet or split length of tubing by passing the sheet under the appurtenance and bringing it up around the body.
1. Seams shall be made by bringing the edges together, folding over twice, and taping down. Wherever encasement is terminated, it shall extend for at least two feet beyond the joint area.
- D. Openings in the tubing for branches, service taps, air valves and similar appurtenances shall be made by cutting an X-shaped slit and temporarily folding back the film.
1. After installing the appurtenance, the cut tabs shall be secured with tape and the encasement shall be completed as necessary for an odd-shaped appurtenance.
- E. Polyethylene encasement shall not be installed below a point 6 inches above the drain outlet of hydrants.
1. The foundation material at the base of the hydrant shall be placed against the polyethylene to secure it in place.

33.3.08 JOINTS

- A. Pipe joints for PVC pipe and fittings shall be assembled in strict conformance to the manufacturer's recommendations.
1. Where connections are to be made to existing pipes, the Contractor shall verify the necessary dimensions required for all couplings and appurtenances.
 2. No utility line shall be removed from service as may be necessary for making a connection until the proper measurements have been taken and the Contractor has verified that all necessary and properly sized fittings, valves and appurtenances are on hand.

- B. All surfaces of the joints, including gaskets, shall be thoroughly cleaned to remove all oil, dirt, grit or other foreign matter before any joint lubricant is applied.
- C. On mechanical joint connections, the last eight inches of the outside spigot surface and the inside bell surface of each pipe and appurtenance joint shall be painted with a soap solution, after being thoroughly cleaned.
 - 1. The gland shall then be slipped on the spigot end with the lip extension toward the socket or bell end.
 - 2. The rubber gasket shall be kept in a warm, flexible condition at all times, and for purposes of placement shall be painted with soap solution and be placed on the spigot end with the thick edge toward the gland.
 - 3. An approved lubricant provided by the pipe manufacturer may be used in lieu of the soap solution. The lubricant shall be applied using the pipe manufacturer's recommendations.
 - 4. After the spigot end is inserted into the socket to full depth and centered, the gasket shall be pressed into place within the bell evenly around the entire joint.
 - 5. After the gland is positioned behind the gasket, all bolts shall be installed and the nuts-tightened alternately to the specified torque, such as to produce equal pressure on all parts of the gland.
 - 6. Unless otherwise specified, the bolt shall be tightened by means of a suitable torque-limiting wrench to within a foot-pound range of: 45 to 60 for 5/8 inch bolts; 75 to 90 for 3/4 inch bolts; 85 to 100 for 1 inch bolts; and 105 to 120 for 1-1/4 inch bolts.
 - 7. Anti-seize compound shall be applied to each bolt in accordance with the manufacturer's recommendations.

33.3.09 INSULATION

- A. Insulation shall be installed whenever the water main, sewer main, water or sewer service, or force main passes within 2 feet beneath a storm sewer.
- B. Insulation shall be on a firm compacted and smooth base. Sand may be used to provide the base. Insulation shall be covered with a minimum of 2 inches of sand or other suitable granular base prior to any compaction or additional backfill is placed.
- C. The insulation boards shall be extruded polystyrene, and shall be placed in a stepped pattern so that joints are not continuous. Each layer shall be placed to cover the joints of the proceeding layer. The upper joint shall be no closer than 6 inches from the lower joint. The insulation shall extend a minimum of 4 feet beyond the outer walls of the storm sewer.
- D. Underground structures that are identified on the Drawings to be insulated shall be insulated with a minimum 4" thick closed-cel spray polyurethane foam or extruded polystyrene boards a minimum of 6 feet down from finish ground elevation on the exterior walls, on the interior ceiling, and on the interior hatch/lid. Minimum thermal resistance per inch at 75° F mean shall be a minimum of 5.0. Compressive strength shall be a minimum of 30 psi. Flexural strength shall be a minimum of 50 psi. Insulation on the exterior shall be secured by backfill. Interior board attachment to the ceiling shall be by galvanized concrete nails and washers, or self-tapping concrete screws. Boards shall be fastened on not less than a 12" x 24" grid. Fasteners shall have heads or washers at least 1" in diameter. Boards may be glued or bolted to the underside of the hatch.

33.3.10 RECORDS

- A. The Contractor shall prepare and maintain an accurate record of underground utility locations and depths.
- B. This shall include utility lines which are installed and those that are exposed during the course of work.
- C. The Contractor shall use references such as lot corners, building corners, manholes and other similar surface improvements or monuments.
- D. Said records shall be submitted to the Owner's Representative upon completion of the work.

33.3.11 SEPARATIONS

- A. Sanitary sewers and storm sewers must be laid at least 10 feet horizontally from any existing or proposed water main. The distance must be measured edge to edge.
- B. Water mains must be laid at least 10 feet horizontally from any existing or proposed sanitary sewer main, sewer manhole, or storm sewer. The distance must be measured edge to edge.

- C. If the proper horizontal separation as described above cannot be obtained, the sewer must be constructed with the following minimum conditions:
 - 1. Sewers must be constructed of slip-on or mechanical joint pipe complying with public water supply design standards and be pressure tested to a minimum 150 psi for two hours to assure water tightness.
 - 2. Sewer services utilizing in-line fittings must be installed and tested in the area of the encroachment. Saddles are not acceptable.
- D. Sewer/water main crossings must be laid with a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer. This must be the case where the water main is either above or below the sewer.
- E. Sewer/water main crossings must be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints.
- F. Where a water main crosses under a sewer, adequate structural support must be provided for the sewer to maintain line and grade and to prevent damage to the water main.
- G. If proper vertical separation as described above cannot be obtained, the sewer main must be constructed with the following minimum conditions:
 - 1. Vertical separation at crossings between water and sewer mains must be at least 6 inches.
 - 2. Sewers must be constructed of slip-on or mechanical joint pipe complying with public water supply design standards and be pressure tested to a minimum 150 psi for two hours to assure water tightness.
 - 3. At crossings, one standard length of new pipe must be centered at approximately a 90-degree angle in respect to the existing pipe.
 - 4. Sewer services utilizing in-line fittings must be installed and tested within 10 feet of the crossing. Saddles are not acceptable.
 - 5. Either the water or sewer main must be encased in a watertight carrier pipe which extends 10 feet on both sides of the crossing or the mains must be encased in a minimum of 6 inches of flowable fill for a minimum of 10 feet each side of the crossing pipes.
 - 6. If the minimum 6-inch separation is not viable, the water line must be relocated and vertical separation at crossings between water and sewer mains must be at least 18 inches.

33.3.12 EXISTING UTILITIES

- A. The Contractor is fully responsible for liaison with utility companies and for repairing utilities damaged by him at no expense to the Owner. Utility mains in conflict shall be relocated by the Contractor or he shall make arrangements with the utility to perform the work.
- B. Temporary support, adequate protection, and maintenance of all underground and surface structures, drains, sewers, water mains, home service connection for both sewer and water and other obstructions encountered in the progress of the work shall be furnished by the Contractor all at his own expense under the direction of the Engineer.
- C. All utility lines that are cut or broken by the Contractor shall be repaired or replaced by the Contractor at his own expense.

33.3.13 CLEANUP

- A. The Contractor shall maintain the work in a clean and orderly condition at all times.
- B. All surplus materials, rubbish and debris shall be removed from the site.
- C. In no instance shall it be permitted to dispose of any waste materials, rubbish, pallet materials or other debris in the backfill of utility trenches.

END OF SECTION

PART 1 GENERAL

33.1.01 DESCRIPTION

- A. This Specification includes single conductor tracer wire, detectable buried warning tape, and marker posts. Tracer wire and buried warning tape shall be installed with all buried utility piping including mains and services. Marker posts shall be installed at the locations marked on the plans. To reduce maintenance and repair costs, the tracer wire, boxes, locator, and connectors shall come from a single manufacturer.

33.1.02 REFERENCES

- A. Reserved.

33.1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. The following items of related work are specified and included in other sections of these Specifications:

SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 22 19	MEASUREMENT AND PAYMENT
SECTION 01 33 00	SUBMITTAL PROCEDURES
SECTION 31 23 33	TRENCHING AND BACKFILLING
SECTION 33 05 00	COMMON WORK RESULTS FOR UTILITIES
SECTION 33 31 11	PUBLIC SANITARY SEWERAGE GRAVITY PIPING

33.1.04 SUBMITTALS

- A. Shop drawings and product data shall be submitted for detectable buried warning tape, tracer wire, marker posts, tracer boxes, and Appurtenances in accordance with **SECTION 01 33 00 – SUBMITTAL PROCEDURES** of these Specifications.

PART 2 PRODUCTS

33.2.01 TRACER WIRE

- A. The wire shall be designed in such a manner as to be able to properly trace all piping without loss or deterioration of signal and without the transmitted signal migrating off the tracer wire.
- B. The trace wire shall be a minimum twelve AWG copper clad steel or reinforced copper wire.
- C. The trace wire shall include a 30 mil HDPE insulation jacket recommended for direct burial.
- D. The trace wire shall meet the American Public Works Association (APWA) Color-Code Standard for Identification of Buried Utilities.
- E. The trace wire shall be rated for use at 30 volts.

F. Technical Provisions

1. Reserved.
2. The tracer wire for open-cut installations shall be:
 - a. Copperhead Industries, LLC SuperFlex Copper Clad Steel
 - b. Or Approved Equal
3. The tracer wire for directional drilled, augered, bored, or pipe bursting shall include a 45 mil HDPE insulation jacket and shall be:
 - a. Copperhead Industries, LLC SoloShot Reinforced Tracer Wire
 - b. Or Approved Equal

33.2.02 DETECTABLE MARKING TAPE

- A. Underground marking tape shall be a 6" width, detectable marking tape with a minimum 5.0 mil overall thickness.
- B. The tape shall be manufactured using a 0.8 mil clear virgin polypropylene film, reverse printed and laminated to a 0.35 mil solid aluminum foil core and then laminated to a 3.75 mil clear virgin polyethylene film.

- C. The tape shall be solid colored or printed using a diagonally striped design for maximum visibility and shall meet the APWA Color-Code Standard for Identification of Buried Utilities.
- D. Detectable marking tape shall be installed 18 inches to 24 inches below finished grade.

E. Technical Provisions

- 1. Reserved.
- 2. The detectable marking tape shall be manufactured by:
 - a. Pro-Line Safety products
 - b. Reef Industries
 - c. Or Approved Equal

33.2.03 MARKER POSTS

- A. Marker posts shall be installed at the locations shown on the plans.
- B. The marker posts shall be flexible to prevent damage from vehicles over a range of 40 degrees below zero Fahrenheit to 140 degrees Fahrenheit.
- C. The marker posts shall be a minimum of 66 inches tall.
- D. The marker posts shall meet the APWA Color-Code Standard for Identification of Buried Utilities.

E. Technical Provisions

- 1. Reserved.
- 2. The marker posts shall be:
 - a. Rhino Marking and Protection Systems Rhino 3-Rail
 - b. Or Approved Equal

33.2.04 TRACER BOXES

- A. Tracer boxes shall be installed where the distance between appurtenances exceeds 500 feet.
- B. The tracer boxes shall be magnetized for ease of locating.
- C. The tracer boxes shall include corrosion-resistant brass wire lugs to prevent corrosion.
- D. The tracer boxes shall allow connection without the removal of the cover.
- E. The tracer box covers shall meet the APWA Color-Code Standard for Identification of Buried Utilities.

F. Technical Provisions

- 1. Reserved.
- 2. The Tracer wire boxes shall be:
 - a. Copperhead Industries, LLC SnakePit Magnetized Tracer Boxes
 - b. Or Approved Equal

33.2.05 METALLIC UTILITY LOCATOR

- A. If the providing of a utility locator is required, the locator shall operate on a 60 Hz signal for passive power locating and frequencies of 512 Hz, 8 kHz, and 83 kHz for active locating.
- B. The locator shall be capable of locating ferrous metals.
- C. The locator shall come with a hard case with high density foam inserts.

D. Technical Provisions

- 1. Reserved.

2. The locator shall be:
 - a. Copperhead Industries, LLC ViperMag All-Purpose Locator
3. Or Approved Equal
4. A locator is not required for this project.

33.2.06 BURIED CONNECTIONS

- A. The trace wire shall be securely bonded together at all wire joints with an approved watertight connector to provide electrical continuity.
- B. All recommendations of the manufacturer for the trace wire connectors shall be followed.
- C. The buried connectors shall meet the APWA Color-Code Standard for Identification of Buried Utilities.

D. Technical Provisions

1. Reserved.
2. The buried connectors shall be:
 - a. Copperhead Industries, LLC SnakeBite Corrosion Proof Wire Connectors
 - b. Or Approved Equal

PART 3 EXECUTION

33.3.01 GENERAL

- A. The trace wire and detectable marking tape shall be installed in the same trench and inside bored holes and casing with pipe during pipe installation.
- B. The trace wire shall be laid flat and securely affixed to the pipe at a minimum of 10' intervals to insure that the wire remains adjacent to the pipe.
- C. The trace wire shall be protected from damage during the execution of the works. No breaks or cuts in the trace wire or insulation shall be permitted.
- D. At service saddles, the trace wire shall not be placed between the saddle and the main.
- E. At the point of connection between cast iron or ductile iron mains with any non-iron main, the tracer wire shall be properly connected to the iron pipe with an exothermic weld or approved equivalent bonding device to maintain electrical continuity. Tracer wire welds or bonding clamps shall be completely sealed with the use of an approved mastic type sealer specifically manufactured for underground use. Mastic shall be applied in a coat a minimum of 2 inches thick and shall be protected from contamination by the backfill material with the use of a plastic membrane.
- F. At all main end caps or plugs, a tracer box shall be installed a maximum of three feet beyond the end of the main.

33.3.02 TRACE WIRE ACCESS POINTS

- A. Trace wire access points shall be at every proposed appurtenance including valve boxes, curb boxes, fire hydrants, and manholes.
- B. Trace wire access points shall be, in general, no more than five-hundred feet apart. Where the distance between suitable appurtenances exceeds five-hundred feet, tracer box(es) shall be installed equidistant between the adjacent appurtenances.
- C. Concentrations of multiple proposed valves near pipe intersections, i.e. tees or crosses, may require more than one access point in each valve box.
- D. Trace wire access points shall be within public right-of-way or public utility easements.
- E. The trace wire shall be run on the outside of all appurtenances. Valve boxes and curb boxes shall be drilled to permit the tracer lead to be placed inside the valve box or curb box.

33.3.03 TRACER WIRE IN DIRECTIONAL BORES

- A. For directional drilling, auguring, boring, or pipe bursting installations, two #12 tracer wires shall be installed with the pipe and connected to the tracer wire at both ends or exothermic welded to the existing iron pipe at both ends.
- B. The tracer wire shall be installed with the carrier pipe during the directional drill, auger, bore, or pipe bursting. Installing the tracer wire after the pipe has been installed shall not be acceptable.

33.3.04 TESTING

- A. The Contractor shall perform a continuity test on all trace wire in the presence of the Engineer or the Engineer's representative.
- B. The continuity test shall be conducted after all backfilling activities have been completed for the section(s) to be tested.
- C. To minimize traffic disruptions and pavement damage, the continuity test shall be conducted prior to the final lift in all paved areas.
- D. If the trace wire is found to be not continuous after testing, the Contractor shall repair or replace the failed segment of wire.

END OF SECTION

PART 1 GENERAL

33.1.01 DESCRIPTION

- A. This Specification includes the installation of all water utilities, fittings, including mains, appurtenances, equipment, and all work included thereto as shown on the Drawings and specified herein.

33.1.02 REFERENCES

- A. The current publications listed below form a part of this Specification.

B. Standards

ASTM A193	Standard Specification for Alloy-Steel and Stainless-Steel Bolting for High Temperature or High-Pressure Service and Other Special Purpose Applications
ASTM A194	Standard Specification for Carbon Steel, Alloy Steel, and Stainless-Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both
ASTM A240	Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM D1784	Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (PVC) Compounds
ASTM D2000	Standard Classification System for Rubber Products in Automotive Applications
ASTM D2241	Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)
AWWA C105	Polyethylene Encasement for Ductile-Iron Pipe Systems
AWWA C110	Ductile-Iron and Gray-Iron Fittings
AWWA C111	Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
AWWA C153	Ductile-Iron Compact Fittings
AWWA C213	Fusion-Bonded Epoxy Coatings and Linings for Steel Water Pipe and Fittings
AWWA C219	Bolted Sleeve-Type Couplings for Plain-End Pipe
AWWA C900	Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 60 In.
AWWA C906	Polyethylene (PE) Pressure Pipe and Fittings, 4 In. through 65 In.
ANSI/NSF 61	Municipal Drinking Water System Components

33.1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. The following items of related work are specified and included in other sections of these Specifications:

SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 22 19	MEASUREMENT AND PAYMENT
SECTION 01 33 00	SUBMITTAL PROCEDURES
SECTION 03 30 00	CAST-IN-PLACE CONCRETE
SECTION 31 23 33	TRENCHING AND BACKFILLING
SECTION 33 01 10.58	DISINFECTION OF WATER UTILITY PIPING SYSTEMS
SECTION 33 01 12	INSPECTION AND TESTING OF WATER UTILITIES
SECTION 33 05 00	COMMON WORK RESULTS FOR UTILITIES
SECTION 33 05 97.26	UTILITY DETECTABLE MARKINGS
SECTION 33 14 19	VALVES AND HYDRANTS FOR WATER UTILITY SERVICE

33.1.04 SUBMITTALS

- A. Shop drawings and product data shall be submitted for Piping, Fittings, and Appurtenances in accordance with **SECTION 01 33 00 – SUBMITTAL PROCEDURES** of these Specifications.
1. A manufacturer's certification shall be included, certifying that all materials furnished meet applicable standards as specified herein.
- B. Submittals for prior approval shall be submitted in accordance with **SECTION 00 26 00 – PROCUREMENT SUBSTITUTION PROCEDURES**, and **SECTION 00 91 00 – PRECONTRACT REVISIONS** of these Specifications.

PART 2 PRODUCTS

33.2.01 GENERAL

- A. Materials shall be of the type called for on the plans or in the proposal and shall be in accordance with the

following appropriate requirements. All materials shall meet the applicable ANSI/NSF Standards 60 or 61 including Annex G and be so certified by NSF, UL or other organizations accredited by ANSI to test and certify such materials.

33.2.02 POLYVINYL CHLORIDE PIPE

- A. Polyvinyl Chloride pipe shall be of quality conforming to the requirements of ASTM D2241 in accordance with ASTM D1784 and the requirements of NSF Standards 14 and 61 including Annex G.
- B. Polyvinyl Chloride pressure pipe with diameters 4" through 60" shall meet the requirements of AWWA C900 DR 18, Pressure Class 235, made to ductile iron outside diameters for "Push-On" joints.
- C. Pipe joints shall be bell and spigot, having elastomeric gaskets.
- D. Fusible Polyvinyl Chloride pipe shall also conform to the provisions of **SECTION 33 05 31.19 – FUSIBLE POLYVINYL CHLORIDE PIPE**.
- E. Non-Metallic Restrained Joint Polyvinyl Chloride (PVC) Pressure Pipe shall conform to the following:
 1. Restrained Joint Polyvinyl Chloride pipe shall be used with elastomeric gaskets.
 2. Pipe shall be manufactured only from water distribution pipe and couplings conforming to AWWA C900 (4-inch through 60-inch). The restrained pipe joint system shall meet all short and long-term pressure test requirements of AWWA C900.
 3. The compound shall qualify for a Hydrostatic Design Basis (HDB) of 4000 psi for water at 73.4 degrees F., in accordance with the requirements of ASTM D2837.
 4. Nominal outside diameters and wall thicknesses of thrust-restrained pipe shall conform to the requirements of AWWA C900, having a maximum dimension ratio (DR) of 25. Pipe shall be furnished in standard lengths of 20 feet, except where space constraints won't allow this length, subject to approval by the Engineer.
 5. Blue pipe shall be supplied, unless otherwise approved by the Engineer.
 6. Pipe and couplings shall be made from unplasticized PVC compounds having minimum cell classification of 12454, as defined in ASTM D1784.
 7. Pipes shall be joined using non-metallic couplings which have been designed as an integral system for maximum reliability and interchangeability. High-strength flexible thermoplastic splines shall be inserted into mating precision-machined grooves in the pipe and coupling to provide full 360-degree restraint with evenly distributed loading. No external pipe-to-pipe restraining devices, which clamp onto or otherwise damage the pipe surface as a result of point-loading, shall be permitted.
 8. Couplings shall be designed for use at the rated pressures of the pipe with which they are utilized, and shall incorporate twin elastomeric sealing gaskets meeting the requirements of ASTM F477. Joints shall be designed to meet the leakage requirements of ASTM D3139.
 9. Every pipe and machined coupling shall pass AWWA C900 hydrostatic proof test requirements.
 10. Pipe shall be legibly and permanently marked in ink with the following information as a minimum:
 - a. Manufacturer and Trade Name
 - b. Nominal Size
 - c. DR Rating/Pressure Class
 - d. Hydrostatic Proof Pressure
 - e. Manufacturing Date Code

11. Technical Provisions

- a. Restrained Joint Polyvinyl Chloride pipe shall be Certa-Lok C900 RJ, or prior approved equal with elastomeric gaskets.

33.2.03 HIGH DENSITY POLYETHYLENE PIPE

- A. High density polyethylene pipe with diameters 4" through 63" shall be a minimum of SDR 11 ductile iron pipe size, shall meet the requirements of AWWA C906, and shall conform to the provisions of **SECTION 33 05 33 – POLYETHYLENE UTILITY PIPE**.
- B. If a specific size of C900 PVC is shown on the plans, and HDPE pipe is allowed as an alternative, the inside diameter of the HDPE must be equal to or greater than the PVC size shown.

33.2.04 MECHANICAL JOINT DUCTILE IRON COMPACT FITTINGS

- A. AWWA C110: Mechanical Joint water main fittings with accessories, 3" through 48" shall be manufactured from Ductile Iron in accordance with and meet all applicable terms and provisions of standards ANSI A21.10/AWWA C110 and ANSI A21.11/AWWA C111 (current revisions).
- B. AWWA C153: Mechanical Joint water main fittings with accessories, 3" through 48" shall be manufactured from Ductile Iron in accordance with and meet all applicable terms and provisions of standards ANSI A21.53/AWWA C153 and ANSI A21.11/AWWA C111 (current revisions).
- C. Ductile Iron Mechanical Joint Fittings 3" through 24" shall be rated for 350 PSI working pressure. Thirty inch through 48" shall be rated for 250 psi working pressure. Flanged ductile-iron fittings in 24-inch and smaller sizes may be rated for 350 psi with the use of special gaskets. All coated fittings shall meet requirements of NSF-61 including Annex G. Mechanical Joint Fittings with flanged branches shall be rated for water pressure of 250 PSI. All ductile iron fittings shall be wrapped w/ polyethylene encasement conforming to the requirements of AWWA C105.
- D. Unless otherwise specified, PVC fittings will not be accepted.

33.2.05 POLYETHYLENE FITTING

- A. HDPE fittings shall meet the requirements of **SECTION 33 05 33 – POLYETHYLENE UTILITY PIPE**.

33.2.06 SPECIAL FITTINGS

- A. Tapping Sleeves shall meet the following requirements:
 - 1. Tapping Valve: Resilient wedge gate valves conforming to **SECTION 33 14 19 – VALVES AND HYDRANTS FOR WATER UTILITY SERVICE** of these Specifications.
 - 2. Shell and Lugs: Stainless steel per ASTM A240, type 304 and type 304L.
 - 3. Bolts: 5/8" UNC rolled thread, stainless steel per ASTM A193, type 304. Four-inch nominal pipe size shall have 1/2" bolts.
 - 4. Nuts: Heavy hex, stainless steel per ASTM A194, type 304, coated to prevent galling.
 - 5. Washers: Stainless steel per ASTM A240, type 304 and plastic lubricating washer.
 - 6. Gaskets: SBR per ASTM D2000 MAA 610, compounded for water and sewer service.
 - 7. MJ Bolts & Nuts: 3/4" UNC T-Bolts, heavy hex nuts, stainless steel per ASTM A193, type 304.
 - 8. Outlet: Stainless Steel Flange per ASTM A240, type 304 and shall accommodate tapping flanges per MSS SP-60.
- B. Flexible Connectors
 - 1. Flexible connectors of the sizes shown on the Drawings shall be manufactured of ductile iron conforming to the material properties of ANSI/AWWA C153/A21.53.
 - 2. Each flexible expansion joint shall be factory tested against its own restraint to a minimum of 350 psi.
 - 3. The flexible expansion joints shall be of a double ball configuration and shall consist of an expansion joint designed and cast as an integral part of a ball and socket type flexible joint having a minimum of 15 degrees of deflection per ball joint and 4 inches of expansion.
 - 4. All pressure containing parts shall be lined with a minimum of 15 mils of fusion bonded epoxy conforming

to the applicable requirements of ANSI/AWWA C213 and shall be holiday tested with a 1500-volt spark test conforming to said specification.

5. Technical Provisions

- a. Flexible joints shall be Flex-Tend Joints as manufactured by EBAA Iron, Inc., or equal.

C. Pipe Couplings

1. Pipe couplings shall provide a restrained joint to the pipe with a configuration in accordance with the requirements of AWWA C219. Cast components (end rings, center ring, and bolt guides) shall be ductile iron, meeting or exceeding the requirements of ASTM A536, Grade 65-45-12. Grippers shall be ductile (nodular) iron, meeting or exceeding ASTM A536, Grade 65-45-12, machine sharpened and heat treated, and Xylan 1424 coated for corrosion resistance. Gaskets shall be SBR compounded for water service per ASTM D2000, NSF 61 certified or NBR compounded for water service per ASTM D2000, NSF 61 certified. Ramp runners shall be Nylon 66, black, 14% glass filled. Fasteners shall be provided with anti-galling protection. Center ring shall be fusion bonded epoxy coated and NSF 61 certified. Pipe coupling shall be certified for a working pressure equal to the rating of the installed pipe up to 350 psi.
2. Bolts and Nuts shall be trackhead bolts, heavy hex nuts, UNC 5/8" rolled thread, Type 304 Stainless Steel.
3. Pipe couplings shall be provided with a polyethylene pipe jacket conforming to the requirements of AWWA C105.

PART 3 EXECUTION

33.3.01 GENERAL

- A. Refer to **SECTION 33 05 00 – COMMON WORK RESULTS FOR UTILITIES** of these Specifications for provisions common to utility construction including water lines
- B. Excavation and backfilling of utility trenches shall be in conformance with the provisions of **SECTION 31 23 33 – TRENCHING AND BACKFILLING** of these Specifications.
- C. Installation by horizontal directional drilling shall be in conformance with the provisions of **SECTION 33 05 07.13 – UTILITY DIRECTIONAL DRILLING** of these Specifications.
- D. Flanged pipe and fittings shall not be used for buried lines unless noted otherwise on the Drawings.

33.3.02 FROST PROTECTION

- A. The cover over water lines shall be as shown on the Drawings, but in no event less than 7.5 feet without insulation protection.
- B. Where required, insulation shall be in conformance with the provisions of **SECTION 33 05 00 – COMMON WORK RESULTS FOR UTILITIES** of these Specifications.

33.3.03 VALVE OPERATION

- A. The Owner shall operate all existing valves as necessary. The Contractor shall notify the Engineer's on-site representative that valves need to be operated and which valves need to be on and off. The notification shall be made in writing a minimum of 48 hours before the valves need to be operated excluding Saturdays, Sundays, and Holidays.
- B. The Contractor shall not operate any existing valves except for emergency situations.
- C. The Contractor shall operate all new valves until the date of substantial completion.

33.3.04 CONNECTIONS TO EXISTING SYSTEM

- A. When the connection is made by using tapping sleeves and valves, the outside of the existing main and inside of the sleeve and valve shall be thoroughly cleaned with a solution of chlorinated lime and water. After installing tapping sleeve and valve and before tapping existing main, place calcium hypochlorite inside the sleeve and valve. When connection to existing fittings and the existing main has been opened, place calcium hypochlorite inside existing fitting.

- B. All connections to existing system shall be paid at the unit price as indicated on the bid form. Inserting and tapping valves will be paid for under the price bid for gate valves when required by the Engineer.

33.3.05 TEMPORARY WATER SERVICE

- A. The Contractor shall provide temporary water service to all residential properties which will be without water for more than (4) hours due to construction. Temporary water shall be provided as described in **SECTION 01 51 36 – TEMPORARY WATER** of these Specifications.

33.3.06 LAYING OF PIPE

- A. The Contractor shall inspect the pipe and pipe coating for damage or defects before installation. Pipe shall be laid without damaging the pipe coating. All pipe coating damage shall be repaired following the manufacturer's instructions before laying the pipe. When using belt slings to lower the pipe into the trench, the slings shall be removed without damaging the pipe coating.
- B. The Contractor shall lay pipe to the specified lines and grades with fittings and valves at the required locations. All valve stems shall be plumb.
- C. Trenching and excavation for piping shall be performed in accordance with the provisions of **SECTION 31 23 33 – TRENCHING AND BACKFILL** of these Specifications.
- D. Every precaution shall be taken to prevent foreign material from entering the pipe as it is placed in the line. During laying operations, debris, tools, clothing or other materials shall not be placed in the pipe. At times when pipe laying is not in progress, the open ends of the pipe shall be closed using a watertight plug or other approved method to prevent material entering the pipe.
- E. Long radius curves, either horizontal or vertical, may be laid with standard pipe with deflections at the joints where approved. If the pipe is shown curved on the plans and no special fittings are shown, it may be assumed that the curves can be made by deflection of the joints with standard lengths of pipe. If shorter lengths are required, the plan will indicate maximum lengths that can be used.
- F. The Engineer will determine the method of deflection or curving where required but not specified. No additional payment will be made for laying pipe on planned curves, nor for field changes involving standard pipe lengths deflected at the joints.
- G. The Contractor shall not exceed the applicable material and joint Specifications of AWWA or the pipe manufacturer's recommendations at pipe joints for various types of pipe. When rubber gasketed pipe is laid on a curve, the pipe shall be jointed in a straight alignment and then deflected to the curved alignment. Trench excavation shall accommodate deflections and curves.
- H. Thrust blocking for tees, plugs, valves, reducers, caps and bends deflecting 22 ½° or more shall be furnished and installed in accordance with the provisions of **SECTION 31 05 00 – COMMON WORK RESULTS FOR UTILITIES** of these Specifications.
- I. The Contractor shall cut pipe for inserting valves, fittings or closure pieces in a neat and workmanlike manner without damaging the pipe or coating and leaving a smooth end at right angles to the pipe axis. Do not cut pipe using an oxyacetylene torch.

33.3.07 FILLING AND FLUSHING

- A. Lines shall be filled slowly with potable water at a maximum velocity of 1 ft/sec while venting air.
- B. Precautions shall be taken to prevent entrapping air in the lines.
- C. After the lines have been filled, the Contractor shall flush at all blowoffs and dead ends at a minimum velocity of 3 ft/sec.
- D. A minimum of three changes of treated water shall be used in flushing operations.
- E. Valves shall be closed slowly to prevent excessive surges while maintaining positive pressure at all times throughout the new line.
- F. Flushing water shall be discharged without causing erosion damage, nuisance, or interruption of traffic

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G. The timing of the flushing shall be in accordance with the type of chlorination provided.

33.3.08 **TESTING**

A. Pressure and leakage tests shall be performed in accordance with the provisions of **SECTION 33 01 12 – INSPECTION AND TESTING OF WATER UTILITIES** of these Specifications

33.3.09 **DISINFECTION**

A. Disinfection shall be performed as specified in **SECTION 33 01 10.58 – DISINFECTION OF WATER UTILITY PIPING SYSTEMS**.

END OF SECTION

PART 1 GENERAL

33.1.01 DESCRIPTION

- A. This Specification includes the installation of all water utility distribution valves, hydrants, appurtenances, equipment, and all work included thereto as shown on the Plans and specified herein.

33.1.02 REFERENCES

- A. The current publications listed below form a part of this Specification.

B. Standards

ASTM A48	Standard Specification for Gray Iron Castings
ASTM A126	Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
ASTM A240	Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
ASTM A276	Standard Specification for Stainless Steel Bars and Shapes
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A743	Standard Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Application
ASTM B30	Standard Specification for Copper Alloys in Ingot Form
ASTM D429	Standard Test Methods for Rubber Property – Adhesion to Rigid Substrates
AWWA C105	Polyethylene Encasement for Ductile-Iron Pipe Systems
AWWA C111	Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
AWWA C502	Dry-Barrel Fire Hydrants
AWWA C504	Rubber-Seated Butterfly Valves
AWWA C507	Ball Valves, 6 In. Through 60 In.
AWWA C509	Resilient-Seated Gate Valve for Water Supply Service
AWWA C515	Reduced-Wall, Resilient-Seated Gate Valves for Water Supply
AWWA C550	Protective Interior Coatings for Valves and Hydrants
ANSI/NSF 61	Municipal Drinking Water System Components

33.1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. The following items of related work are specified and included in other sections of these Specifications:

SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 22 19	MEASUREMENT AND PAYMENT
SECTION 01 33 00	SUBMITTAL PROCEDURES
SECTION 31 05 00	COMMON WORK RESULTS FOR EARTHWORK
SECTION 33 05 00	COMMON WORK RESULTS FOR UTILITIES

33.1.04 SUBMITTALS

- A. Shop drawings and product data shall be submitted for valves and other appurtenances in accordance with **SECTION 01 33 00 – SUBMITTAL PROCEDURES** of these Specifications. As applicable for each valve type, the shop drawings shall include:

1. Specific detail regarding valve construction
2. Specific detail regarding pilot controls
3. Specific detail regarding solenoid valves
4. Specific detail regarding valve position indicators
5. Copies of the certified listings from the National Sanitation Foundation (NSF) stating that all materials in contact with potable water meet the latest version of the American National Standards Institute (ANSI) Additives Standard No. 61 for indirect additives including Annex G.
6. A manufacturer's certification shall be included, certifying that all materials furnished meet applicable standards as specified herein

- B. Submittals for prior approval shall be submitted in accordance with **SECTION 00 26 00 – PROCUREMENT**

SUBSTITUTION PROCEDURES, and **SECTION 00 91 00 – PRECONTRACT REVISIONS** of these Specifications.

PART 2 PRODUCTS

33.2.01 GATE VALVES

A. Gate Valves of the styles and sizes shown on the Drawings shall conform to the following:

1. Gate valves shall be designed for a minimum water working pressure of not less than 150 pounds per square inch.
2. Gate valves shall be resilient-seated conforming to AWWA Standard C509 or C515 and shall be approved by ULFM.
3. Gate valves shall be furnished with mechanical joints unless specified otherwise on the project drawings. Bonnet and mechanical joint bolts and nuts shall be stainless steel.
4. Gate valves shall have a non-rising stationary stem. Valve opening shall be achieved by turning the stem left (counterclockwise).
5. Gate valves shall have a clear waterway opening equal to the full nominal diameter of the valve.
6. Valves shall be provided with a 2-inch square operating nut. The operating nut or wheel shall have an arrow, cast in the metal, indicating the direction of opening.
7. Each valve shall be equipped with an operating nut extension when necessary, which extends the 2-inch operating nut to within 7 feet of finish grade.
8. The wedge shall be of cast iron completely encapsulated with rubber. The sealing rubber shall be permanently bonded to the cast iron wedge to meet ASTM tests for rubber-metal bond ASTM D429
9. Each valve shall have the maker's monogram or initials, pressure rating and year of manufacturer cast on the body.
10. Valves shall be supplied with O-ring seals at all joints. No flat gaskets allowed.
11. Stems for NRS assemblies shall be cast bronze with integral collars in full compliance with AWWA. The NRS stem stuffing box shall be the O-ring seal type with two O-rings located above thrust collar and one O-ring below. The two O-rings above the thrust collar shall be replaceable with valve fully open and subjected to full rated working pressure
12. Each valve shall be tested for zero leakage past the seat at 200 psi and hydro-statically shell tested at 40 psia.
13. There shall be two low torque thrust bearings located above and below the thrust collar. The stem nut shall be independent of the wedge and shall be made of solid bronze. There shall be a smooth, unobstructed waterway free of all pockets, cavities and depressions in the seat area.
14. The body and bonnet shall be coated with fusion bonded epoxy both interior and exterior, complying with AWWA C550 and be NSF 61 approved including Annex G.
15. All direct buried gate valves shall be wrapped with polyethylene encasement conforming to the requirements of AWWA C105.

B. Technical Provisions

1. Reserved.
2. Gate valves shall be as manufactured by:
 - a. Mueller
 - b. American Flow Control
 - c. DeZurik
 - d. Or prior approved equal

33.2.02 BUTTERFLY VALVES

A. Butterfly Valves of the styles and sizes shown on the Drawings shall conform to the following:

1. All butterfly valves shall be manufactured in accordance with AWWA C504 for Class 150B service.

2. Valve bodies shall be constructed of cast iron ASTM A126 Class B and conform to AWWA C504 in terms of laying lengths and minimum body shell thickness.
3. Direct bury valves shall have mechanical joint ends. Mechanical joint bolts and nuts shall be stainless steel.
4. Valve discs shall be made from cast iron ASTM A126 Class B or ASTM A48 Class 40 in sizes 24" and smaller.
 - a. Sizes 30" and larger shall be built from ductile iron in conformance to ASTM A536.
 - b. Disc shall be furnished with 316 stainless steel seating edge to mate with the rubber seat on the body.
5. Valve seat shall be Buna-N rubber located on the valve body.
 - a. In sizes 20" and smaller, valves shall have bonded seats that meet test procedures outlined in ASTM D429 Method B.
 - b. Sizes 24" and larger shall be retained in the valve body by mechanical means without use of metal retainers or other devices located in the flow stream.
6. Valve shafts shall be 18-8 type 304 stainless steel conforming to ASTM A276.
 - a. Shaft seals shall be standard self-adjusting split V packing.
 - b. Shaft seals shall be of a design allowing replacement without removing the valve shaft.
7. Valve bearings shall be sleeve type that are corrosion resistant and self-lubricating.
8. All direct bury butterfly valves shall be furnished with valve actuators.
 - a. Valve actuators shall be fully grease packed and have stops in the open/close position.
 - b. The actuator shall have a mechanical stop which will withstand an input torque of 450-ft. lbs. against stop.
 - c. The traveling nut shall engage alignment grooves in the housing.
 - d. The actuators shall have a built in packing leak bypass to eliminate possible packing leakage into the actuator housing.
 - e. The actuators shall be suitable for submerged or buried service.
9. Each valve shall be equipped with an operating nut extension when necessary, which extends the 2-inch operating nut to within 7 feet of finish grade.
10. The stem shall be constructed of 1 inch square stock or 7/8 inch round stock and shall include a centering disk near the top.
11. The valve interior and exterior surfaces, except for seating, shall be coated with fusion bonded epoxy both interior and exterior, complying with AWWA C550 and be NSF 61 approved including Annex G.

B. Technical Provisions

1. Reserved.
2. Butterfly valves shall be as manufactured by:
 - a. Henry Pratt Company
 - b. Mueller Company
 - c. Or prior approved equal

33.2.03 BALL VALVES

- A. Ball Valves of the styles and sizes shown on the Drawings shall conform to the following:
1. All ball valves shall be manufactured for 150 psi service.
 2. Valves shall be constructed of the following materials:
 - a. Body: Cast Bronze
 - b. Tailpiece: Cast Bronze

- c. Ball: 316 Stainless Steel
- d. Seat: RPTFE
- e. Stem: 316 Stainless Steel
- f. Thrust Washer: RPTFE
- g. Packing: PTFE
- h. Packing Nut: Brass
- i. Handle: Steel with Zinc Plating
- j. Handle Grip: Vinyl
- k. Handle Nut: Steel with Zinc Plating

B. Technical Provisions

- 1. Reserved.
- 2. Ball valves shall be as manufactured by:
 - a. Val-Matic
 - b. Milwaukee Valve
 - c. Or prior approved equal

33.2.04 CHECK VALVES

A. Check Valves of the styles and sizes shown on the Drawings shall conform to the following:

- 1. Check valves 2" through 12" shall be full body flanged type with domed access cover and only one moving part.
- 2. The valve body shall have full flow equal to nominal pipe diameter at any point through the valve.
- 3. Seating surface shall be on a 45-degree angle.
- 4. Top access port shall be full sized, allowing the removal of the disc without removing the valve from the pipeline.
- 5. The disc shall be one piece construction with an integral O-ring type sealing surface and contain steel and nylon reinforcement. The disc shall be precision molded Buna-N (NBR) ASTM D2000-BG.
- 6. Backflow capabilities shall be provided by means of a mechanical backflow actuator.
- 7. Valve body shall be ASTM A126 Class B cast iron.
- 8. Disc shall be Buna-N rubber.
- 9. The valve interior and exterior surfaces, except for seating, shall be coated with fusion bonded epoxy both interior and exterior, complying with AWWA C550 and be NSF 61 approved including Annex G.

B. Technical Provisions

- 1. Reserved.
- 2. Check valves shall be as manufactured by:
 - a. Val-Matic
 - b. DeZurik
 - c. Or prior approved equal

33.2.05 VALVE BOXES

A. The valve boxes furnished may be two or three pieces with sufficient length to provide eight (8) feet of cover or more if listed on the plans. Covers shall be marked "Water". Valve boxes shall include separate base.

- B. 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 on the plans.
- C. If any valve box extension pieces are required to make the above mentioned adjustment, they shall be considered incidental to the price bid for Gate Valve and Box.
- D. Valve boxes shall be installed to match final grades and adjusted to finished subgrade during utility installation. Final valve box elevations shall be adjusted during roadway grading and asphalt placement operations. No separate payment will be made for minor vertical adjustments to the valve boxes.

E. **Technical Provisions**

- 1. Reserved.
- 2. Valve boxes shall be as manufactured by:
 - a. Tyler Union 6860 Series (screw type
 - b. Or prior approved equal
- 3. Valve box base shall be as manufactured by:
 - a. Tyler Union #6 base for valves up to 12"
 - b. Or approved equal

33.2.06 FIRE HYDRANTS

- A. Fire Hydrants shall meet or exceed ANSI/AWWA C502, latest revision. Rated working pressure shall be 250 psig, test pressure shall be 500 psig, and hydrants shall include the following specific design criteria: the nozzle section, upper and lower stand pipes, and hydrant base shall be ductile iron. External surfaces above grade shall be factory coated and catalyzed two-part epoxy primer and polyurethane top coating. The main valve closure shall be of the compression type, opening against the pressure and closing with the pressure. Nozzle section to be designed for easy 360-degree rotation by the loosening of no more than four bolts. The valve-opening diameter shall be 5-inches for all 6-inch pipe connections, and 6-inches for 8-inch pipe connections. Hydrant shall be designed so that the removal of all working parts can be accomplished without excavating. The bronze seat shall be threaded into mating threads of bronze for easy field repair. Bolting below-grade shall be stainless steel.
- B. The draining system of the hydrant shall be bronze and be positively activated by the main operating rod. Hydrant to be furnished with a sliding bronze drain valve. Sliding drain valves made of rubber, plastic or leather will not be allowed. Hydrant must have an internal travel stop nut located in the top housing of the hydrant. Hydrant operating threads to be factory lubricated. O-rings shall be furnished to help keep operating threads lubricated and protected from line fluid and from the weather. Hydrant must have a traffic flange design allowing for quick and economical repair of damage resulting from a vehicles impact. The traffic flange bolts shall be located above the final grade per the manufacturer's recommendation and the bury line indicated on the stand pipe.
- C. Hydrants shall be Double Discharge & Pumper. The hydrants shall be equipped with breakaway type flanges and two (2) two and one-half (2 ½) inch inside diameter hose connections with seven and one-half (7 ½) threads per inch and one (1) four and one-half (4 ½) inch inside diameter pumper connection with four (4) threads per inch. Hydrants shall have mechanical joint connections with stainless steel nuts and bolts. Hydrants shall include nozzle chains. Hydrants shall be painted red.
- D. The depth of earth cover over the connecting pipe shall be not less than eight (8) feet. The hydrant nozzle shall be no less than two and one-half (2 ½) feet above the final grade. The Contractor shall supply necessary extensions, which will be incidental to hydrant unit price. Hydrant drain area shall be surrounded by 10 cubic feet of washed gravel meeting the following specification:

<u>Sieve Opening</u>	<u>% Passing</u>
3 Inch	100
No. 4	0-25
No. 8	0-10

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- E. Scoria will not be permitted for use as any aggregate material. Washed gravel shall be placed at least 6-inches below, 1 foot on all sides of the hydrant, and 6 inches above the drain hole so that the hydrant will readily take up all water from the drip valves. Hydrants shall be set on a concrete pad 6 inches thick and 18 inches square. Weep holes shall be located above the seasonal ground water table.
- F. One hydrant operating wrench and one hydrant disassembly wrench shall be provided per project, incidental to the price bid for hydrants.

G. Technical Provisions

- 1. Reserved.
- 2. Hydrants shall be:
 - a. Threaded the same as hydrants currently being used in the City, except new hydrants in new water systems shall have National Standard Threads
 - b. American Flow Control's Waterous Pacer
 - c. Or approved equal

PART 3 EXECUTION

33.3.01 GENERAL

- A. Construction requirements shall be in accordance with the provisions of **SECTION 33 05 00 – COMMON WORK RESULTS FOR UTILITIES** of these Specifications.
- B. All direct buried iron hydrants, valves, valve boxes, and other metal parts shall be wrapped in polyethylene encasement in accordance with the provisions of **SECTION 33 05 00 – COMMON WORK RESULTS FOR UTILITIES** of these Specifications.
- C. Flanged pipe and fittings shall not be used for buried lines unless noted otherwise on the Drawings.
- D. Anchor for Valves: Wherever a slip-on type joint water main is used, all gate valves shall be anchored and tied down with steel and concrete. The anchors and tie downs shall be placed in a manner and of a size according to the manufacturer's recommendations. The size, location and procedure shall be acceptable to the Engineer. The concrete mix shall contain a minimum of 6 sacks of cement per cubic yard of concrete, poured in place with sufficient time allowed for curing. Steel shall be #5 rebar, Grade 60. The concrete, steel, and labor for anchoring purposes shall be considered incidental to the Price Bid for water main valves.
- E. Marking Valve Box Locations: The Contractor will be required to furnish and install a steel fence post by each valve box subject to the Engineer's request. Steel fence posts to be used for valve locations shall be a "Tee" or "U" post having a minimum length of 5½ feet. The post shall be located 2 feet from the valve box in a direction toward the street.
 - 1. The cost of the steel fence post and the installations shall be considered incidental to other bid items.
- F. All hydrants shall be set plumb with the pumper nozzle facing the street. The hydrant shall be set relative to the ground line as shown on the Drawings or as indicated by the manufacturer.

33.3.02 TESTING

- A. Valves shall be pressure tested at the same time that the adjacent pipeline is tested. Joints shall be watertight at test pressures before acceptance. The Contractor will be responsible for any damage caused by testing.
- B. The valves shall be disinfected with the adjacent piping. They shall be installed and operable during the disinfection testing.

END OF SECTION

PART 1 GENERAL

33.1.01 DESCRIPTION OF THE WORK

- A. This Specification includes the installation of all public sanitary utility sewerage piping, appurtenant equipment, and all work incidental thereto as shown on the Drawings and specified herein.

33.1.02 REFERENCES

- A. The current publications listed below form a part of this Specification.
- B. Standards

ASTM D1784	Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (PVC) Compounds
ASTM D2412	Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading
ASTM D2837	Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products
ASTM D3034	Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings
ASTM D3212	Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
ASTM D3261	Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing
ASTM D3350	Standard Specification for Polyethylene Plastics Pipe and Fittings Materials
ASTM F477	Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F679	Standard Specification for Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings
ASTM F714	Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter
AWWA C900	Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 60 In.
AWWA C906	Polyethylene (PE) Pressure Pipe and Fittings, 4 In. Through 65 In.

33.1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. The following items of related work are specified and included in other sections of these Specifications:

SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 22 19	MEASUREMENT AND PAYMENT
SECTION 01 33 00	SUBMITTAL PROCEDURES
SECTION 31 05 00	COMMON WORK RESULTS FOR EARTHWORK
SECTION 33 05 00	COMMON WORK RESULTS FOR UTILITIES

33.1.04 SUBMITTALS

- A. Shop drawings and product data shall be submitted for Piping, Fittings, and Lubricants in accordance with **SECTION 01 33 00 – SUBMITTAL PROCEDURES** of these Specifications.
1. A manufacturer's certification shall be included, certifying that all materials furnished meet applicable standards as specified herein.

PART 2 PRODUCTS

33.2.01 GRAVITY SEWER PIPE

- A. Gravity sewer pipe and fittings for sanitary sewer applications shall be constructed of the materials as shown on the Drawings. The respective materials shall conform to the following:
- B. PVC Gravity Sewer Main
1. Polyvinyl chloride pipe for gravity sanitary sewers shall conform to the standards and specifications of ASTM D3034 for sizes 4 inch to 15 inch and ASTM F679 for sizes 18 inch to 27 inch.
 2. Material for PVC pipe from 4" to 15" shall conform to the requirements of ASTM D1784 for cell classifications 12454-B or 12454-C. Material for PVC pipe from 18" to 27" shall conform to the requirements of ASTM D1784 for cell classifications 12364-B or 12454-C. Maximum filler content shall be 10 percent.

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3. All pipe shall have an SDR of 35 and a minimum pipe stiffness of 46 psi when tested in accordance with ASTM D2412. Where pipe depth is greater than 15 ft., provide pipe in SDR 26 with minimum pipe stiffness of 115 psi.
4. The bell of each pipe shall consist of an integral bell and spigot with a factory installed elastomeric seal conforming to the requirements of ASTM D3212 and ASTM F477. Lubricant for gasketed joints shall be water soluble, non-toxic, non-supporting of bacteria growth, having no deteriorating effect on PVC or elastomer.
5. The gasket shall be securely locked into position to prevent its displacement when the pipes are assembled.
6. The pipe shall be of solid-wall construction and be available in laying lengths not exceeding 20 feet.
7. The pipe shall be colored green for identification as sewer pipe.

C. Non-Metallic Restrained Joint Polyvinyl Chloride (PVC) Gravity Sewer Main

1. Pipe shall be manufactured only from water distribution pipe and couplings conforming to AWWA C900 (4-inch through 60-inch). The restrained pipe joint system shall meet all short and long-term pressure test requirements of AWWA C900.
2. The compound shall qualify for a Hydrostatic Design Basis (HDB) of 4000 psi for water at 73.4 degrees F., in accordance with the requirements of ASTM D2837.
3. Nominal outside diameters and wall thicknesses of thrust-restrained pipe shall conform to the requirements of AWWA C900, having a maximum dimension ratio (DR) of 25. Pipe shall be furnished in standard lengths of 20 feet, except where space constraints won't allow this length, subject to approval by the Engineer.
4. Green or white pipe shall be supplied, unless otherwise approved by the Engineer.
5. Pipe and couplings shall be made from unplasticized PVC compounds having minimum cell classification of 12454, as defined in ASTM D1784.
6. Pipes shall be joined using non-metallic couplings which have been designed as an integral system for maximum reliability and interchangeability. High-strength flexible thermoplastic splines shall be inserted into mating precision-machined grooves in the pipe and coupling to provide full 360-degree restraint with evenly distributed loading. No external pipe-to-pipe restraining devices, which clamp onto or otherwise damage the pipe surface as a result of point-loading, shall be permitted.
7. Couplings shall be designed for use at the rated pressures of the pipe with which they are utilized, and shall incorporate twin elastomeric sealing gaskets meeting the requirements of ASTM F477. Joints shall be designed to meet the leakage requirements of ASTM D3139.
8. Every pipe and machined coupling shall pass AWWA C900 hydrostatic proof test requirements.
9. Pipe shall be legibly and permanently marked in ink with the following information as a minimum:
 - a. Manufacturer and Trade Name
 - b. Nominal Size
 - c. DR Rating/Pressure Class
 - d. Hydrostatic Proof Pressure
 - e. Manufacturing Date Code

D. Fusible Polyvinyl Chloride (FPVC) Gravity Sewer Main

1. Fusible PVC pipe shall be permitted for only 4" through 16" diameter gravity sewer pipe.
2. All piping shall be made from a PVC compound conforming to cell classification 12454 per ASTM D1784.
3. Fusible polyvinyl chloride pipe shall conform to ASTM D3034 or ASTM F679.

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4. Fusible polyvinyl chloride pipe may instead conform to AWWA C900, if applicable. Testing shall be in accordance with AWWA standards for any of these pipe types. If the AWWA standards are used, pipe diameters shall be in Ductile Iron Pipe Sizes (DIPS).
5. Rework material shall be allowed per ASTM D3034, ASTM F679, AWWA C900 standards.
6. All pipe shall have an SDR of 35 and a minimum pipe stiffness of 46 psi when tested in accordance with ASTM D2412. Where pipe depth is greater than 15 ft., provide pipe in SDR 26 with minimum pipe stiffness of 115 psi.
7. Fusible polyvinyl chloride 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.
8. Fusible polyvinyl chloride pipe shall be manufactured in a standard 20', 30', or 40' nominal length.
9. Fusible polyvinyl chloride pipe shall be green in color for wastewater use.
10. Pipe shall be legibly and permanently marked in ink with the following information as a minimum:
 - a. Manufacturer and Trade Name
 - b. Nominal Size
 - c. Dimension Ratio
 - d. Pressure Class
 - e. Hydrostatic Proof Pressure
 - f. Extrusion Production-Record Code
11. Pipe shall be homogeneous throughout and be free of visible cracks, holes, foreign material, blisters, or other visible deleterious faults.
12. Unless otherwise specified, fusible polyvinyl chloride pipe lengths shall be assembled in the field with butt-fused joints. The Contractor shall follow the pipe supplier's written guidelines for this procedure. All fusion joints shall be completed with the following minimum requirements:
 - a. 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 guidelines.
 - b. Fusible polyvinylchloride pipe will be fused by qualified fusion technicians, as documented by the pipe supplier.
 - c. Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) affixed to the fusion machine.
 - d. Only appropriately sized and outfitted fusion machines that have been approved by the pipe supplier shall be used for the fusion process.
13. Handling and storage shall be in accordance with the pipe manufacturer's recommendations.

E. High Density Polyethylene (HDPE) Gravity Sewer Main

1. HDPE pipe shall have a light interior color.
2. Pipe and Fittings: The pipe shall meet the requirements of AWWA C906, ASTM F714, and ASTM D3350. Pipe shall be in ductile iron pipe sizes (DIPS). The pressure rating shall be 125 psi with a maximum dimension ratio (DR) of 17. Laying lengths shall be 40-ft standard.
3. Allowable Pipe Sizes:

Pipe Diameter to be Replaced (Inches)	DR17 (DIPS)	Minimum I.D. (Inches)
8	8	7.92
12	14*	12
15	16*	15

* Size for size is not allowed for this diameter due to the reduced hydraulic capacity.

4. Pipe shall be legibly and permanently marked in ink with the following information as a minimum:
 - a. Manufacturer and Trade Name
 - b. Nominal Size
 - c. OD base (ie: 12-inch ductile iron pipe sizing, DIPS)
 - d. Dimension Ratio
 - e. Pressure Class
 - f. AWWA C906
 - g. Extrusion Production-Record Code
5. The pipe shall be homogeneous throughout and free from visible defects such as foreign inclusions, concentrated ridges, discoloration, pitting, varying wall thickness, cracks, holes, foreign material, blisters, and other deformities. Pipe with gashes, nicks, abrasions, or any such physical damage which may have occurred during storage and/or handling, which are larger/deeper than 10% of the wall thickness shall not be used and shall be removed from the construction site. Pipe shall be provided as uniform as commercially practical in color, opacity, density, and other physical properties.

F. PVC Gravity Sanitary Sewer Services

1. Polyvinyl chloride pipe for gravity sanitary sewer services shall conform to *A.S.T.M. D-1785 for Schedule 40 or heavier PVC pipe*.
2. Minimum pipe size shall be 4" diameter. When connecting a new PVC sewer service to an existing service, the inside diameter of the new PVC pipe shall be equal to or greater than the existing pipe.

G. HDPE Gravity Sanitary Sewer Services

1. High density polyethylene pipe for gravity sanitary sewer services shall conform to the requirements of subpart **33.2.01.D** of this Section.
2. Minimum pipe size shall be 4" diameter. When connecting a new HDPE sewer service to an existing service, the inside diameter of the new HDPE pipe shall be equal to or greater than the existing pipe.

H. Connections and Fittings for PVC Gravity Sanitary Sewers

1. Connections to existing sanitary sewer pipe of different material shall be via an appropriately sized rubber coupling with stainless steel worm gear drive clamps.
 - a. Technical Provisions
 - i. Couplings from *new to existing sanitary sewer services* shall be Fernco or approved equal.
 - ii. *Couplings from new to existing sanitary sewer mains shall be Strong Back Fernco or approved equal.*
2. Fittings for PVC gravity sanitary sewers shall be as manufactured by the pipe supplier or approved equal and shall have bell and spigot configurations compatible with that of the pipe.
3. Services on new sanitary sewer mains shall be via a wye fitting. Services tapped into existing mains shall be via a full perimeter service saddle or an insertable tee.
 - a. Technical Provisions
 - i. Full perimeter saddles shall be Romac CB series sewer saddles or approved equal.
 - ii. Insertable tees shall be InsertaTEE® or approved equal.
4. All fittings shall be for SDR 35 pipe and shall conform to the standards and specifications of ASTM D3034 or ASTM F679. The stiffness of the fittings shall not be less than the stiffness of the adjoining pipe.

I. Connections and Fittings for HDPE Gravity Sanitary Sewers

1. Connections to existing sanitary sewer pipe of different material shall be via an appropriately sized rubber coupling with stainless steel worm gear drive clamps.

- a. Technical Provisions
 - i. Couplings shall be Fernco or approved equal.
2. Fittings shall be molded polyethylene and shall be pressure rated for the same internal pressure rating as the mating pipe.
3. Fittings shall be designed for pipe bursting or pipe jacking applications.
4. Inside diameter of fittings shall match the inside diameter of adjoining pipe.
5. Molded fittings shall be manufactured and tested in accordance with ASTM D3261 and shall be so marked. Molded fittings shall be tested in accordance with AWWA C906.

PART 3 EXECUTION

33.3.01 GENERAL

- A. Refer to **SECTION 33 05 00 – COMMON WORK RESULTS FOR UTILITIES** of these Specifications for provisions common to utility construction
- B. Excavation and backfilling of utility trenches shall be in conformance with the provisions of **SECTION 31 23 33 – TRENCHING AND BACKFILLING** of these Specifications.

33.3.02 SEWER LINE CONSTRUCTION

- A. Alignment and Grade
 1. All sewer lines shall be installed at the grades shown on the Drawings.
 2. Installation shall begin at the lowest point in the line. Bell end of each pipe shall point upstream.
 3. Sewer services shall be sloped at a grade of no less than ¼ inch rise per foot of run.
 4. Sewer lines shall be installed with a cover of no less than 6 feet without requiring insulation for frost protection.
 5. The Contractor shall furnish and install pipe bends to bring sewer services to their proper alignment. Pipe bends shall not exceed 22½ degrees.
 6. Sewer mains shall be laid with straight alignment between manholes. Straight alignment must be checked by either using a laser beam or lamping.
- B. Connection to Existing Sewers
 1. Where new sewer lines are to be connected to existing sewer lines, a flexible coupling shall be used should the existing pipe material differ from the new.
 2. Where the two pipes are alike, a rigid gasketed coupling approved by the Owner's Representative shall be used to join the pipes.
 3. Connections to existing sewer mains shall be made with rigid gasketed transition couplings as approved by the Owner's Representative.
- C. Testing
 1. Sewer mains shall be subject to acceptance testing after backfilling has been completed, but prior to the placement of the finished surface material.
 2. Low Pressure Air Loss Procedure for Gravity Sewer Pipelines
 - a. All sewer mains shall pass the low-pressure air test before final acceptance. Contractor shall carefully observe safety precautions during air testing; no one shall be allowed in the manholes during testing.
 - b. Plug all pipe outlets with suitable test plugs. Brace each plug securely.
 - c. Pipe air supply to pipeline to be tested so that air supply may be shut off, pressure observed, and air pressure released from the pipe without entering the manhole.

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- d. Install a branched valve in the supply line past the shut-off valve terminating in a 1/4" female pipe thread for installation of the test gauge.
- e. Add air slowly to portion of pipe under test until test gauge reads at least 4 psig but less than 5 psig greater than the average back pressure of any groundwater above the pipe.
- f. Shut air supply valve and allow at least two minutes for internal pressure to stabilize.
- g. When the internal air pressure has stabilized and is at or above test pressure (4.0 psig minimum, plus groundwater back pressure), disconnect air hose from the control panel to the air supply. The test may commence with an initial pressure reading between 3.5 psig and 4.0 psig (greater than the average groundwater back pressure).
- h. If the pressure drops more than 1.0 psig during the test period, line is presumed to have failed. Test may be discontinued when the prescribed test time has been reached.
- i. The time required for the pressure to decrease 1.0 psig shall be not less than the time shown for the diameter given in the following table. Times shown are based on loss of air not to exceed 0.0015 cubic feet per minute per square foot of internal pipe surface. Compare observed time with minimum allowable times in the following chart for pass/fail determination. Service lateral lengths may be disregarded when calculating test time.

Pipe Diameter (in)	Minimum Time (min:sec)	Length for Minimum Time (ft)	Time for Longer Length (sec)
4	3:46	597	.380 L
6	5:40	398	.854 L
8	7:34	298	1.520 L
10	9:26	239	2.374 L
12	11:20	199	3.418 L
15	14:10	159	5.342 L
18	17:00	133	7.692 L
21	19:50	114	10.470 L
24	22:40	99	13.674 L

- j. Where groundwater level is above the invert of the pipe being tested, divide the average vertical height, in feet of groundwater above the invert of the pipe to be tested by 2.31. The result gives the air pressure correction in pounds per square inch to be added. In no case should the starting test pressure exceed 9.0 psig.
- k. Air Testing Safety Requirements: Securely brace plugs used to close the sewer pipe for the air test; this is to prevent the unintentional release of a plug which can become a high velocity projectile. For example: four pounds (gauge) air pressure develops a force against the plug in a 12" diameter pipe of approximately 450 pounds; this force can propel a 12-inch plug weighing 10 pounds to supersonic speeds.
- l. Locate gauges, air piping manifolds, and valves at the top of the ground. Entry by anyone into a manhole where a plugged pipe is under pressure is strictly prohibited.
- m. Do not use the air test on gravity sewer pipes larger than 24" in diameter because of the difficulty of adequately blocking the plugs.
- n. Sanitary sewers failing to meet the requirements of the low-pressure air test shall be tested again after the Contractor has located and remedied defects causing this failure. No sanitary sewer shall be accepted until the requirements of the test procedure are satisfied. No separate payment for work performed under this item. Include the cost in the contract unit price bid for the item of which this work is a component.

3. Deflection Test

- a. All sewer mains shall pass the short-term deflection test before final acceptance. The Contractor shall perform the deflection test per ASTM D-3034 standards. Deflection testing for acceptance will not be permitted until a minimum of 30 days after final backfilling to allow for soil and pipe stabilization.
- b. A 9-arm deflection mandrel shall be pulled through the sewer main by hand. *The mandrel shall have a diameter not less than 95% of the average inside diameter of the pipe.*

- c. Any part of the installation which shows deflection in excess of 5% of the nominal inside diameter of the HDPE or PVC pipe shall be corrected.
 - d. After acceptance but prior to the termination of the warranty period, the Owner may test the long-term deflection of the sewer. If the Owner determines that the deflection has exceeded 7.5% of the average inside diameter, that portion of the installation shall be corrected by the Contractor at no cost to the Owner.
 - e. A preliminary certificate of substantial completion may be issued prior to deflection testing, assuming the balance of the project is substantially complete per the Engineer. If a preliminary certificate of substantial completion is issued prior to deflection testing, time will not be counted against the contract during the required waiting period.
 - f. A final certificate of substantial completion may be issued upon the successful passing of all deflection tests.
4. T.V. Inspection
- a. All sewer mains shall be cleaned and inspected using a television camera before final acceptance. T.V. inspection for acceptance will not be permitted until a minimum of 30 days after final backfilling to allow for soil and pipe stabilization. A sewer line is deficient and unacceptable if (1) the alignment is outside the specified limits, (2) water ponds in any section, or (3) the pipe has visible defects such as open joints, pinched gaskets, cracked barrels or bell, or similar defects. The inspection shall be done in the presence of the Owner or his representative.
 - b. Costs for the TV Inspection shall be paid by the lineal foot of pipe televised. The Contractor shall be responsible for costs associated with finding and repairing all breaks, leaks or deficiencies revealed by the test or inspection.
 - c. The camera shall have the following attributes and capabilities: high-resolution color, adjustable iris focus, pan and tilt functions, integral lighting suitable to provide proper illumination, and ability to operate in 100% humidity conditions.
 - d. The Contractor shall clean and flush the line prior to television inspection. Water must be visibly running through the pipe during the inspection. The camera shall be pulled through the sewer at 30 feet per minute maximum. If the camera is pulled by attaching to the hose of a hydraulic sewer cleaner, assure the hose is not active during the pulling process.
 - e. All television inspections shall be recorded in DVD format or an alternate form acceptable to the Owner, and delivered to the Engineer.
 - f. A preliminary certificate of substantial completion may be issued prior to T.V. inspections, assuming the balance of the project is substantially complete per the Engineer. If a preliminary certificate of substantial completion is issued prior to T.V. inspections, time will not be counted against the contract during the required waiting period.
 - g. A final certificate of substantial completion may be issued upon the successful passing of all T.V. inspections.

33.3.03 TEMPORARY SEWAGE BYPASS

- A. At no time will raw sewage be allowed to be dumped on private property or in the street right-of-way. The Contractor shall bypass the sewage around the work area. The bypass shall be made by plugging an existing upstream manhole if necessary and pumping the sewage into a downstream manhole or adjacent system. The pump and bypass lines shall be of adequate capacity and size to handle the flow. Sewage shall be bypassed around construction activities with no interruptions. Individual service to existing homes and businesses shall be maintained during construction. The cost of all temporary sewage bypass required to complete the project as shown shall be included in the lump sum price bid for Bypass Pumping. If sewage backup occurs and enters buildings, the Contractor shall be responsible for cleanup, repair and damage claims.
- B. Contractor is required to furnish all materials, labor, equipment, power, maintenance, etc. to implement a temporary pumping system for the purpose of diverting the existing flow around the work area.

- C. The design, installation and operation of the temporary pumping system shall be the Contractor's responsibility.
- D. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.
- E. Contractor to submit bypass pumping plans at Pre-Construction meeting. Contractor to have personnel on call the entire time of the bypass pumping. Names and numbers of personnel shall be submitted with plan.
- F. The Contractor shall submit to the Engineer detailed plans and descriptions outlining all provisions and precautions to be taken by the Contractor regarding the handling of existing wastewater flows. This plan must be specific and complete, including such items as schedules, locations, elevations, capacities of equipment, materials and all other incidental items necessary and/or required to insure proper protection of the facilities, including protection of the access and bypass pumping locations from damage due to the discharge flows, and compliance with the requirements and permit conditions specified in these Contract Documents. No construction shall begin until all provisions and requirements have been reviewed by the Engineer.
- G. The plan shall include but not be limited to details of the following:
 - 1. Staging areas for pumps;
 - 2. Sewer plugging method and types of plugs;
 - 3. Number, size, material, location and method of installation of suction piping;
 - 4. Number, size, material, method of installation and location of installation of discharge piping;
 - 5. Bypass pump sizes, capacity, number of each size to be on site and power requirements;
 - 6. Calculations of static lift, friction losses, and flow velocity (pump curves showing pump operating range shall be submitted);
 - 7. Standby power generator size, location;
 - 8. Downstream discharge plan;
 - 9. Method of protecting discharge manholes or structures from erosion and damage;
 - 10. Thrust and restraint block sizes and locations;
 - 11. Sections showing suction and discharge pipe depth, embedment, select fill and special backfill;
 - 12. Method of noise control for each pump and/or generator;
 - 13. Any temporary pipe supports and anchoring required;
 - 14. Design plans and computation for access to bypass pumping locations indicated on the drawings;
 - 15. Schedule for installation of and maintenance of bypass pumping lines;
 - 16. Plan indicating selection location of bypass pumping line locations.
- H. All pumps used shall be fully automatic self-priming units that do not require the use of foot-valves or vacuum pumps in the priming system. The pumps may be electric or diesel powered. All pumps used must be constructed to allow dry running for long periods of time to accommodate the cyclical nature of effluent flows.
- I. The Contractor shall provide the necessary stop/start controls for each pump.
- J. The Contractor shall include one stand-by pump of each size to be maintained on site. Back-up pumps shall be on-line, isolated from the primary system by a valve.
- K. Discharge Piping - In order to prevent the accidental spillage of flows all discharge systems shall be temporarily constructed of rigid pipe with positive, restrained joints.
- L. Under no circumstances will aluminum "irrigation" type piping or glued PVC pipe be allowed. Discharge hose will only be allowed in short sections and by specific permission from the engineer.
- M. Design Requirements:
 - a. Bypass pumping systems shall have sufficient capacity to pump a current average daily flow of 250 gpm

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(90,000 gpd) to a peak flow of 500 gpm (180,000 gpd). The Contractor shall provide all pipeline plugs, pumps of adequate size to handle peak flow, and temporary discharge piping to ensure that the total flow of the main can be safely diverted around the section to be repaired.

- b. Bypass pumping system will be required to be operated 24 hours per day.
- c. The Contractor shall have adequate standby equipment available and ready for immediate operation and use in the event of an emergency or breakdown. One standby pump for each size pump utilized shall be installed at the mainline flow bypassing locations, ready for use in the event of primary pump failure.
- d. Bypass pumping system shall be capable of bypassing the flow around the work area and of releasing any amount of flow up to full available flow into the work area as necessary for satisfactory performances of work.
- e. The Contractor shall make all arrangements for bypass pumping during the time when the main is shut down for any reason. System must overcome any existing force main pressure on discharge

N. Performance Requirements:

1. It is essential to the operation of the existing sewerage system that there be no interruption in the flow of sewage throughout the duration of the project. To this end, the Contractor shall provide, maintain and operate all temporary facilities such as dams, plugs, pumping equipment (both primary and back-up units as required), conduits, all necessary power, and all other labor and equipment necessary to intercept the sewage flow before it reaches the point where it would interfere with his work, carry it past his work and return it to the existing sewer downstream of his work.
2. The design, installation and operation of the temporary pumping system shall be the Contractor's responsibility. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.
3. The Contractor shall provide all necessary means to safely convey the sewage past the work area. The Contractor will not be permitted to stop or impede the main flows under any circumstances.
4. The Contractor shall maintain sewer flow around the work area in a manner that will not cause surcharging of sewers, damage to sewers and that will protect public and private property from damage and flooding.
5. The Contractor shall protect water resources, wetlands and other natural resources.

O. Field Quality Control and Maintenance

1. Test: The Contractor shall perform leakage and pressure tests of the bypass pumping discharge piping using clean water prior to actual operation. The engineer will be given 24 hours' notice prior to testing.
2. Inspection: Contractor shall inspect bypass pumping system every two hours to ensure that the system is working correctly.
3. Maintenance Service: The Contractor shall insure that the temporary pumping system is properly maintained and a responsible operator shall be on hand at all times when pumps are operating.
4. Extra Materials: Spare parts for pumps and piping shall be kept on site as required. Adequate hoisting equipment for each pump and accessories shall be maintained on the site.

P. Preparation

1. Precautions
 - a. Contractor is responsible for locating any existing utilities in the area the Contractor selects to locate the bypass pipelines. The Contractor shall locate his bypass pipelines to minimize any disturbance to existing utilities and shall obtain approval of the pipeline locations from the City and the Engineer.
 - b. All costs associated with relocating utilities and obtaining all approvals shall be paid by the Contractor.
 - c. During all bypass pumping operation, the Contractor shall protect the Pumping Station and main and all local sewer lines from damage inflicted by any equipment. The Contractor shall be responsible for all physical damage to the Pumping Station and main and all local sewer lines caused by human or mechanical failure.

Q. Installation and Removal

1. The Contractor shall remove manhole sections or make connections to the existing sewer and construct temporary bypass pumping structures only at the access location indicated on the Drawings and as may be required to provide adequate suction conduit.
2. Plugging or blocking of sewage flows shall incorporate a primary and secondary plugging device. When plugging or blocking is no longer needed for performance and acceptance of work, it is to be removed in a manner that permits the sewage flow to slowly return to normal without surge, to prevent surcharging or causing other major disturbances downstream.
3. When working inside manhole or force main, the Contractor shall exercise caution and comply with OSHA requirements when working in the presence of sewer gases, combustible or oxygen-deficient atmospheres, and confined spaces.
4. The installation of the bypass pipelines is prohibited in all saltmarsh/wetland areas. The pipeline must be located off streets and sidewalks and on shoulders of the roads. When the bypass pipeline crosses local streets and private driveways, the contractor must place the bypass pipelines in trenches and cover with temporary pavement. Upon completion of the bypass pumping operations, and after the receipt of written permission from the Engineer, the Contractor shall remove all the piping, restore all property to preconstruction condition and restore all pavement.
5. The Contractor is responsible for obtaining any approvals for placement of the temporary pipeline within public ways from the City and or Highway Departments.

END OF SECTION

PART 1 GENERAL

33.1.01 DESCRIPTION

- A. This Specification includes the installation of all storm drains, inlets, service lines and other appurtenant structures as specified in the Contract Documents and this section.
- B. Documents or references made to ASTM, ANSI, AWWA, or AASHTO designations shall be the latest revision at the time of call for bids; all specified material included herein shall conform to these standards where such standards exist.

33.1.02 REFERENCES

- A. The current publications listed below form a part of this Specification.

B. Standards

AASHTO M36	Corrugated Galvanized Steel Pipe and Pipe Arches
AASHTO M196	Corrugated Aluminum Pipe and Pipe Arches
AASHTO M245	Pre-Coated Galvanized, Corrugated Steel Pipe and Pipe Arches
AASHTO M246	Steel Sheet, Metallic Coated and Polymer Precoated, for Corrugated Steel Pipe
AASHTO M274	Type II Aluminized Corrugated Steel Pipe and Pipe Arches
ASTM A760	Corrugated Steel Pipe, Metallic Coated for Sewers and Drains
ASTM A762	Corrugated Steel Pipe, Polymer Precoated for Sewers and Drains
ASTM A742	Steel Sheet, Metallic Coated and Polymer Precoated for Corrugated Steel Pipe
ASTM A929	Steel Sheet, Metallic Coated by the Hot-Dip Process for Corrugated Steel Pipe
ASTM C76	Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
ASTM C443	Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
ASTM C506	Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe
ASTM C507	Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe
ASTM C655	Reinforced Concrete D-Load Culvert, Storm Drain, and Sewer Pipe
ASTM C1433	Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers
ASTM D1784	Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl) (CPVC) Compounds
ASTM D3034	Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings
ASTM D3212	Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
ASTM F477	Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F679	Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings
ASTM F949	Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings
ASTM F1417	Installation Acceptance of Plastic Non-Pressure Sewer Lines Using Low-Pressure Air

33.1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. The following items of Related Work are specified and included in other sections of these Specifications.

SECTION 00 26 00	PROCUREMENT SUBSTITUTION PROCEDURES
SECTION 00 91 00	PRECONTRACT REVISIONS
SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 22 19	MEASUREMENT AND PAYMENT
SECTION 01 33 00	SUBMITTAL PROCEDURES
SECTION 01 45 00	QUALITY CONTROL
SECTION 03 00 00	CONCRETE
SECTION 03 05 00	COMMON WORK RESULTS FOR CONCRETE
SECTION 03 20 00	CONCRETE REINFORCING
SECTION 31 05 00	COMMON WORK RESULTS FOR EARTHWORK
SECTION 31 23 33	TRENCHING AND BACKFILLING
SECTION 32 05 00	COMMON WORK RESULTS FOR EXTERIOR IMPROVEMENTS
SECTION 33 05 00	COMMON WORK RESULTS FOR UTILITIES
SECTION 33 05 61	CONCRETE MANHOLES
SECTION 33 42 13	STORMWATER CULVERTS (NOT USED)

33.1.04 SUBMITTALS

- A. Furnish a manufacturer's certification covering all pipe, fittings, and appurtenances certifying that the materials meet applicable Specifications.
- B. Shop drawings and product data shall be submitted for Piping, Fittings, Structures, and Appurtenances in accordance with **SECTION 01 33 00 SUBMITTAL PROCEDURES** of these Specifications.
- C. Submittals for prior approval shall be submitted in accordance with **SECTION 00 26 00 PROCUREMENT SUBSTITUTION PROCEDURES** and **SECTION 00 91 00 PRECONTRACT REVISIONS** of these Specifications.
- D. **Technical Provisions**
 - 1. Reserved

33.1.05 TESTING

- A. **Light Test (Visual)**
 - 1. Once the trench is backfilled, perform a light test between manholes to check alignment and grade for pipe displacement. Except for specified curved alignments, the completed pipeline must permit a true circle of light to be seen from manhole to manhole.
 - 2. If alignment or grade does not meet specifications, correct alignment or grade at Contractor expense.
- B. **Leakage Test**
 - 1. Unless specified, a leakage test will not be required. Obvious and concentrated leaks, such as open joints, pinched gaskets, cracked barrels or bells, are not allowed.
- C. **Deflection (Mandrel) Test**
 - 1. The Engineer may require deflection testing of all flexible pipe installations to assure the construction quality.
 - 2. Conduct deflection tests meeting ASTM D3034 and satisfy either of the following deflection limitations:

Minimum Period Between Trench Backfilling and Testing	Minimum Mandrel Diameter as a Percent of Inside Pipe Diameter
7 Days	95.0
30 Days	92.5
 - 3. Mandrels must have at least nine arms. Perform the mandrel test without mechanical pulling devices.
- D. **Technical Provisions**
 - 1. Reserved
 - 2. All storm drain lines shall be inspected using a television camera by the Contractor prior to final acceptance. A storm drain line is deficient and unacceptable if (1) the alignment is outside of the specified limits, (2) water ponds in any section are equal to or greater than 2 times the grade tolerance specified in the Execution section included within this Specification, or (3) the pipe has visible defects such as open joints, pinched gaskets, cracked barrels or bell, or similar defects. **(PRSP-SID_MOD)**
 - 3. Record all television inspections in DVD format or an alternate format acceptable to the Owner, and provide Owner with two copies and Engineer with one copy. Pull the camera through the sewer at 30 feet per minute maximum. If the camera is pulled by attaching to the hose of a hydraulic sewer cleaner, assure the hose is not active during the pulling. **(PRSP-SID_MOD)**

PART 2 PRODUCTS

33.2.01 GENERAL

- A. Furnish all storm drain piping of the size and type shown on the Drawings, specified in the Contract Documents and meeting the materials and testing requirements of this Section.
- B. Furnish wye and tee branches of the same material and design as the specified storm drain pipe.

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- C. Furnish the pipe sizes and strength classifications shown in the Contract documents.
- D. Furnish the joint type, class, thickness designation, casting, lining, marking, testing, etc. as specified.
- E. Assure all pipe is clearly marked showing type, class and/or thickness. Lettering must be legible and permanent under normal handling storage conditions.
- F. Excavation and backfilling of utility trenches shall be in conformance with the provisions of **SECTION 31 23 33 TRENCHING AND BACKFILLING** of these Specifications.
- G. Stormwater concrete manholes shall be furnished and installed in accordance with the provisions of **SECTION 33 49 00 STORM DRAINAGE STRUCTURES** of these Specifications.
- H. **Technical Provisions**
 - 1. Reserved
 - 2. All public storm drain systems shall be constructed with reinforced concrete pipe, or with solid-wall or corrugated PVC pipe for pipe sizes up to 36 – inches. Material shall meet the requirements included herein. **(PRSP-SID_MOD)**
 - 3. An Owner may select other materials as appropriate for applications where an Engineer has reviewed the circumstances and provided specifications for installation. When specified by and Engineer, materials shall meet the following standards. **(MPW)**
 - a. ASTM C76, “Reinforced Concrete Pipe – Tongue & Grove Joint”.
 - b. ASTM C506, “Reinforced Concrete Pipe – Arch Pipe”.
 - c. ASTM C507, “Reinforced Concrete Pipe – Elliptical Pipe”.
 - d. ASTM C665, “Reinforced Concrete Pipe – D-Load Pipe”.
 - e. ASTM C1433, “Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers”.
 - f. AASHTO M36, “Corrugated Galvanized Steel Pipe and Pipe Arches”.
 - g. AASHTO M196, “Corrugated Aluminum Pipe and Pipe Arches”.
 - h. AASHTO M245, “Pre-Coated Galvanized, Corrugated Steel Pipe and Pipe Arches”.
 - i. AASHTO M274, “Type II Aluminized Corrugated Steel Pipe and Pipe Arches”.
 - 4. All public storm drain systems shall be constructed with reinforced concrete pipe or corrugated metal pipe for pipe sizes up to 24 – inches. Material shall meet the requirements included herein. **(PRSP-GLA₁₉)**

33.2.02 CONCRETE STORMWATER PIPE

- A. Furnish concrete storm drain pipe meeting ASTM C76 or C655.
- B. Use round reinforced pipe having O-ring rubber gasket joints meeting ASTM C443 with the O-ring gasket confined in the pipe tongue groove.
- C. **Technical Provisions**
 - 1. Reserved

33.2.03 POLYVINYL CHLORIDE (PVC) STORMWATER PIPE

- A. Furnish PVC pipe produced by a continuous extrusion process employing a prime grade of unplasticized polyvinyl chloride. Assure the grade used is highly resistant to hydrogen sulfide, sulfuric acid, gasoline, oil, detergents and other chemicals found in sewage and industrial wastes. Assure the material meets “Rigid Polyvinyl Chloride Compounds”, ASTM D1784 requirements.
- B. Assure pipe has self-extinguishing flammability characteristics.
- C. Assure PVC gravity stormwater pipe meets the standards for ASTM D3034, ASTM F679, and/or ASTM F949 as applicable.

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- D. The nominal laying length is a minimum 12.5 - feet, 13 - feet or 20 - feet except shorter lengths are permitted adjacent to manholes, lampholes or other appurtenances.
- E. Assure each pipe length is marked with size, SDR, "Sewer Pipe" and Code Number.
- F. Assure each pipe length has a bell providing a watertight joint when jointing the bell and spigot with a rubber ring. Make the rubber gasket joint using a rubber gasket compressed between the outer surface of the spigot and the inner surface of the bell. Assure the joint is completely sealed by the gasket providing a watertight joint under all service conditions, including expansion, contraction, settlement and pipe deformation. Assemble the rubber ring joint assembly following the manufacturer's recommendations.
- G. **Technical Provisions**
 - 1. Reserved
 - 2. PVC sewer pipe as specified in this subsection shall be Schedule 40, with joints meeting ASTM D1785.

33.2.04 HIGH DENSITY POLYETHYLENE (HDPE) STORMWATER PIPE - CORRUGATED

- A. Furnish pipe with a corrugated exterior and smooth interior waterway per ASTM F2648.
- B. Pipe shall be made from virgin polyethylene (PE) compounds with dimensions and markings to conform to ASTM D3350 and have the minimum cell classification as included below.
 - 1. 4 to 10 inch – cell classification: 424420C
 - 2. 12 to 60 inch – cell classification: 435420C
- C. Pipe shall be joined using a bell and spigot joint meeting ASTM F2648.
- D. Joints shall be watertight in accordance with the requirements of ASTM D3212.
- E. Gaskets shall be meet the requirements of ASTM F477.
- F. Pipe fittings, 12 to 60 inches, shall meet the requirements of ASTM F2306.
- G. **Technical Provisions**
 - 1. Reserved
 - 2. HDPE stormwater pipe as specified in this subsection, shall be manufactured by:
 - a. ADS N-12 WT IB, or approved equal. **(SID_OFF)**

33.2.05 STEEL STORMWATER PIPE

- A. An Owner may allow 'ULTRA FLO' or approved equivalent steel pipe.
- B. Connections must be made with minimum coupling band width of 10 1/2 - inch and appropriate gasketing material.
- C. Assure steel stormwater pipe meets one of the following standards as applicable and/or as specified; ASTM A760/AASHTO M36, ASTM A762/AASHTO M245, ASTM A742/AASHTO M246, or ASTM A929/AASHTO M274.
- D. **Technical Provisions**
 - 1. Reserved
 - 2. Steel stormwater pipe will not be required for this project. **(PRSP)**

33.2.06 INLETS AND CATCH BASINS

- A. Furnish standard cast iron inlet frames and grates as shown on the Drawings or as specified otherwise.
- B. Inlet structures may be precast or field poured. Concrete and reinforcing steel shall be in accordance with the provisions of **SECTION 03 00 00 CONCRETE** and **SECTION 03 20 00 CONCRETE REINFORCING** of these Specifications, respectively.
- C. **Technical Provisions**
 - 1. Reserved

2. Inlets, catch basins, and castings shall conform to plan details and notes.

PART 3 EXECUTION

33.3.01 GENERAL

- A. Install pipe following the manufacturer's Specifications and instructions. Provide all tools and equipment required to install each type of pipe used.
- B. The Contractor is responsible for all Contractor furnished material. Replace all defective material or material damaged by handling after delivery by the manufacturer. This includes the furnishing of all materials and labor required to replace installed material discovered damaged or defective before final acceptance of the work, or during the guarantee period.
- C. Be responsible for the safe storage of material for the work until it has been incorporated in the completed project.
- D. Deliver and distribute all Contractor furnished pipe at the site. Load and unload pipe, fittings, and accessories to prevent damage. Do not permit pipe handled on skidways to skid or roll against pipe already on the ground.
- E. When distributing material at the work site, lay each piece adjacent to its installation point. Repair or replace all damaged pipe at Contractor's expense on the jobsite.
- F. Keep the pipe interior and other accessories free from dirt and foreign matter at all times.
- G. Trenching and excavation of pipelines and appurtenances shall be performed in accordance with the provisions of **SECTION 31 23 33 TRENCHING AND BACKFILL** of these Specifications.
- H. Stormwater manholes shall be furnished and installed in accordance with the provisions of **SECTION 33 05 61 CONCRETE MANHOLES** of these Specifications.

I. Technical Provisions

- 1. Reserved
- 2. Asbestos containing pipe shall be handled and disposed of in accordance with the provisions of **SECTION 02 41 13 – SELECTIVE SITE DEMOLITION** of these Specifications.

33.3.02 LAYING OF PIPE

- A. Inspect the pipe and pipe coating for damage or defects before installation. Lay pipe without damaging the pipe coating. Repair all pipe coating damage following the manufacturer's instructions before laying the pipe. When using belt slings to lower the pipe into the trench, remove the slings without damaging the pipe coating.
- B. Lay and maintain all pipe to the specified lines and grades with fittings, tees and manholes at the specified locations.
- C. Install wye or tee fittings in the mainline stormwater line for service line connections. Furnish wye or tee fittings of the same material, design and specifications as the stormwater main pipe. Joint service pipe to tee branches or main line pipe other than PVC using special joint adapters manufactured specifically for jointing the two types of pipe.
- D. Use tools and equipment meeting Engineer approval for the safe and convenient prosecution of the work. Carefully lower all pipe and fittings into the trench preventing damage to pipe materials and protective coatings and linings. Do not dump or drop materials into the trench.
- E. Exercise care to prevent foreign material from entering the pipe as it is installed. When pipe laying is not in progress, close the open ends of pipe using a plug or other means approved by the Engineer. Remove and clean all sand, gravel, concrete and cement grout that has entered the lines during construction.
- F. Install pipe within 1/2 - inch of the specified alignment and within 1/4 - inch of the specified grade for pipe 15 - inch in diameter and smaller and 1/2 - inch of specified grade for pipe larger than 15 - inch diameter. These tolerances apply to any point along the entire pipe length.

G. Technical Provisions

- 1. Reserved

2. When specified, HDPE stormwater pipe shall be installed in accordance with ASTM D2321. **(SID_OFF)**

33.3.03 **INLETS AND CATCH BASINS**

- A. Construct inlet structures to the line, cross-section and dimensions specified.

B. Technical Provisions

1. Reserved

33.3.04 **STORMWATER SERVICE LINES**

- A. Construct service as shown on the Drawings and as included herein.

B. Technical Provisions

1. Reserved
2. Stormwater service lines shall be installed to the property line when specified and have the end of the line plugged with a stopper and gasket, using a gasket of the same type used for pipe jointing. Do not grout the plugs. **(PRSP-MPW)**.
3. Stormwater service lines ended at property lines as specified in this subsection shall be marked using a steel fence post 5 - feet long, buried at least 2 - feet. Place a 2" X 2" wood marker extending from the pipe invert to ground line. Wire the 2" X 2" marker to the steel fence post. Where applicable, mark the concrete curb to identify the service locations. Paint sewer service markers green. **(PRSP-SID_MOD)**.

END OF SECTION

PART 1 GENERAL

33.1.01 DESCRIPTION OF THE WORK

This Section of the Project Manual includes the installation of all storm sewer and culverts and all appurtenances thereto as shown on the Drawings and specified herein.

33.1.02 RELATED WORK SPECIFIED ELSEWHERE

The following items of related work are specified and included in other Sections of this Project Manual:

SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 33 00	SUBMITTAL PROCEDURES
SECTION 03 30 00	CAST-IN-PLACE CONCRETE
SECTION 31 23 00	EXCAVATION AND FILL
SECTION 31 23 33	TRENCHING AND BACKFILLING
SECTION 33 49 00	STORM DRAINAGE STRUCTURES

33.1.03 SUBMITTALS

Shop Drawings shall be submitted for Pipe, Fittings, and Appurtenances.

PART 2 PRODUCTS

33.2.01 DRAINAGE PIPE

Drainage pipe and fittings for storm sewers and culverts shall be constructed of the materials as shown on the Drawings. The respective materials shall conform to the following:

A. Precast Concrete Pipes:

1. Precast concrete pipe for storm sewer applications shall be manufactured to meet the standards and specifications of Section 714 and Section 830 of the North Dakota Department of Transportation's Standard Specifications for Road and Bridge Construction, 2024 Edition.

B. Joints for storm sewer and culvert extensions shall conform to the joint type of the existing pipe. The Contractor shall verify the type of existing pipe joints prior to the preparation of shop Drawings.

C. Concrete pipe shall be of the class required by the manufacturer for the cover loadings and bedding shown on the Drawings and specified herein.

D. Galvanized joint ties shall be furnished for each apron and the adjacent two sections of pipe so that the end three joints of a culvert or storm sewer shall be tied.

33.2.02 TRASH GUARDS

Galvanized trash guards shall be as shown on the Drawings.

PART 3 CONSTRUCTION REQUIREMENTS

33.3.01 GENERAL

A. Alignment

1. Underground utilities shall be installed to the lines and grades shown on the Drawings and as specified herein.
2. Excavation and backfilling of utility trenches shall be in conformance with the provisions of **SECTION 31 23 33 TRENCHING AND BACKFILLING** of this Project Manual.
3. All storm and sanitary sewer lines, culverts and aprons and water lines shall be bedded and encased in granular bedding as specified in **SECTION 31 23 33 TRENCHING AND BACKFILLING** of this Project Manual.

B. Inspection

1. The Contractor shall inspect all pipe fittings and appurtenances for damage and defects when the materials are unloaded.

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2. The Contractor shall also inspect these materials when they are installed to detect any damage which may have occurred due to handling.
3. Particular attention shall be given to jointing surfaces.
4. All defective or damaged materials shall be promptly removed from the site by the Contractor.

C. Pipe Laying

1. Trench excavation and bedding preparation shall proceed ahead of pipe placement as will permit proper placement and joining of the pipe and fittings at the prescribed grade and alignment without unnecessary hindrance.
 - a. All foreign matter or dirt shall be removed from the inside of the pipe and fittings before they are lowered into position in the trench, and they shall be kept clean by approved means during and after laying.
 - b. The pipe materials shall be carefully lowered into laying position by the use of suitable restraining devices.
 - c. Under no circumstances shall the pipe be dropped or dumped into the trench.
2. At the time of pipe placement, the bedding conditions shall be such as to provide uniform and continuous support for the pipe between bell holes.
 - a. Bell holes shall be excavated as necessary to make the joint connections, but they shall be no larger than would be adequate to support the pipe throughout its length.
 - b. No pipe material shall be laid in water nor when the trench or bedding conditions are otherwise unsuitable or improper.
3. When placement or handling precautions prove inadequate, in the Owner's Representative's opinion, the Contractor shall provide and install suitable plugs or caps effectively closing the open ends of each pipe section before it is lowered into laying position, and they shall remain so covered until removal is necessary for connection of an adjoining unit.
4. As each length of bell and spigot pipe is placed in laying position, the spigot end shall be centered in the bell and the pipe forced home and brought to correct line and grade.
 - a. The pipe shall be secured in place with granular bedding material, which shall be thoroughly compacted by tamping around the pipe to a height of at least 12 inches above its top.
 - b. Acceptable tamping techniques include hand tamping and use of hand operated mechanical tamping devices.
5. At all times when pipe laying is not in progress, including lunch breaks and overnight periods, all open ends of the pipe line shall be closed by watertight plugs or other means approved by the Owner's Representative.
 - a. If water is present in the trench, the seals shall remain in place until the trench is pumped completely dry.
6. When connecting to existing utilities, the Contractor shall take every precaution necessary to prevent dirt or debris from entering the existing lines.
 - a. All work necessary to make the connection shall be included in the price bid for the storm utility drainage piping and no additional compensation shall be made therefor.

D. Alignment and Lengths

1. The cutting of pipe for inserting valves, fittings or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe and so as to leave a smooth square-cut end.
2. Pipe shall be cut with approved mechanical cutters.
3. The maximum angular deflection at any joint for pipe materials and joints shall not exceed the manufacturer's recommendations.
4. If the specified alignment requires angular deflections greater than recommended or allowed, the Contractor shall provide appropriate bends or shorter pipes such that the maximum angular deflection is not exceeded.

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5. Connection and assembly of joints shall be accomplished during the setting, aligning, and fitting operations.

E. Records

1. The Contractor shall prepare and maintain an accurate record of underground utility locations and depths.
2. This shall include utility lines which are installed and those that are exposed during the course of work.
3. The Contractor shall use references such as lot corners, building corners, manholes and other similar surface improvements or monuments.
4. Said records shall be submitted to the Owner upon completion of the work.

F. Cleaning:

1. Prior to testing newly installed sewer pipe, the Contractor shall remove all accumulated construction debris, rock, gravel, sand, silt, and other foreign matter from the sewer with an appropriately sized cleaning ball.
2. The Contractor shall be responsible for all work necessary to make the sewer acceptable for usage including removal of all mud, silt, rocks, or blockages that make said sewer unacceptable for final acceptance and usage. Also included is all work necessary in the manholes and all cleanup work required prior to final acceptance.
3. The Contractor is responsible for cleaning lines prior to televising the sewer. In the event that the line is not acceptable for televising, the Contractor will re-clean the line and re-televiser the sewer at no additional cost to the OWNER.

G. Televising

1. All newly installed sewer main pipe shall receive a television inspection by the Contractor. The television inspection shall consist of viewing the inside of all sewer main pipe installed to determine proper alignment, joining, properly installed service connections, infiltration, etc. The Contractor shall correct, at his own expense, any defects discovered because of televising the pipe. Any areas of repair shall be re-televised at no additional cost to the OWNER.
2. If defective workmanship of material or construction is noted, the Contractor at no expense to the City, shall correct the deficiency. The Contractor will perform additional television inspections to review if the repairs were made properly and in accordance with the Specifications. The expense of any additional television will be borne entirely by the Contractor. The Contractor shall be responsible for all related costs, including concrete or asphalt resurfacing if the street has been surfaced. The Contractor shall be required to repair all areas of infiltration and other deficiencies. This televising shall be from the nearest upstream manhole, to the downstream manhole. Videos must be in color and the camera shall be able to rotate to look up services. The Contractor shall furnish two (2) televising reports and two (2) videotapes to the Engineer for each pipe televised, the cost of which shall be incidental to the price bid for Televising.

33.3.02 STORM SEWER AND CULVERT INSTALLATION

- A. Storm sewer pipe and culverts shall be installed to the line and grade shown on the Drawings.
- B. Apron sections and the last two pipe sections shall be tied together with galvanized tie rods.
- C. The tie rods shall be installed on the interior of the pipe with the nuts outside.

END OF SECTION

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PART 1 GENERAL

33.1.01 DESCRIPTION

This section of the Project Manual includes the installation of all sanitary manholes, frames, covers, appurtenant equipment and all work included thereto as shown on the Drawings and specified herein.

33.1.02 RELATED WORK SPECIFIED ELSEWHERE

The following items of related work are specified and included in other sections of this Project Manual:

SECTION 01 11 00	SUMMARY OF WORK
SECTION 01 33 00	SUBMITTAL PROCEDURES
SECTION 03 30 00	CAST-IN-PLACE CONCRETE
SECTION 03 40 00	PRECAST CONCRETE
SECTION 31 23 33	TRENCHING AND BACKFILLING
SECTION 33 05 00	COMMON WORK RESULTS FOR UTILITIES
SECTION 33 41 00	STORM UTILITY DRAINAGE PIPING

33.1.03 SUBMITTALS

Shop drawings shall be submitted in accordance with **SECTION 01 33 00 SUBMITTAL PROCEDURES** of this Project Manual for:

- A. Structures
- B. Castings
- C. Piping
- D. Fittings

PART 2 PRODUCTS

33.2.01 CONCRETE

Concrete shall be in accordance with **03 30 00 CAST-IN-PLACE CONCRETE** or **SECTION 03 40 00 PRECAST CONCRETE**.

33.2.02 CONES

Drainage structures for storm sewers shall have eccentric cones.

33.2.03 CASTINGS

Castings shall be of the type and design as indicated on the Drawings.

PART 3 CONSTRUCTION REQUIREMENTS

33.3.01 CONNECTIONS

A. The bottom precast section shall be set in a full mortar bed and the joints around pipes shall be filled with mortar.

1. Joints between sections shall be sealed with Kent Seal #2 or equal.

33.3.02 ADJUST RING FRAME AND CASTING

A. Adjusting Frames and Ring Castings in Paved Areas

1. After completion of the bituminous base course, the Contractor shall uncover and raise all castings as specified.
2. The castings shall be set within 1/4 to 1/2 inch below the proposed finished grade of the street.
3. Aggregate base shall be placed around the casting to match the adjacent section and shall be compacted to the required density.
4. Final street surface course material shall then be placed and compacted flush with the adjacent wearing course.

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5. The cost of the materials required for backfilling around the castings and/or water valve boxes shall be included in the bid price for the contract and no direct compensation will be made therefor.
- B. Adjusting Frame and Ring Castings in Areas with Aggregate Surfacing or Turf
 1. In areas with aggregate surfacing, the top of casting shall be approximately 0.2 feet below the top of the surface.
 2. In areas where there is turf around the casing, the casing shall be flush with the ground.
- C. Adjusting castings of new and existing drainage structures shall be considered part of the bid price and no measurement will be made and no additional compensation will be made therefor.

END OF SECTION

**WEST CENTRAL STREET
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WAHPETON, NORTH DAKOTA
SPECIAL CONDITIONS
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SPECIAL CONDITIONS

SPECIAL CONDITIIONS

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SPECIAL CONDITIONS

SC-1 MUDJACKING

This item shall consist of mudjacking existing curb and gutter segments and existing concrete slabs (sidewalk and/or driveways) in accordance with these specifications, at the locations and to the lines and grades identified by the engineer. Locations and grades shown on the plans are only for bidding purposes and significant changes at the time of construction can be anticipated.

SC-1.1 MATERIALS

SC-1.1.1 General: Only approved materials conforming to the requirements of these specifications shall be used in the work. They may be subjected to inspection and tests at any time during the progress of their preparation or use. The source of supply of each of the materials shall be approved by the Engineer before delivery or use is started. Representative preliminary samples of the materials shall be submitted by the Contractor when required for examination and tests. Materials shall be stored and handled to ensure preservation of the quality and fitness for use. All equipment for handling and transporting materials must be cleaned before any material is placed therein.

SC-1.1.2 Portland Cement: Cement used in this work shall be Type 1 meeting the requirements of ASTM C150.

SC-1.1.3 Mudjacking Mixture: The material used for mudjacking shall consist of a mixture of portland cement, water and expended lime product or sandy loam material. There shall be a minimum of at least 1 part of cement per 12 parts of expended lime product or sandy loam material. Only enough water to achieve the required consistency shall be added. When a 3" x 6" cylinder is left uncovered, it shall have less than 0.5% shrinkage at 5 days of age. The compressive strength in PSI of a 3" x 6" cylinder shall be 120 psi after 10 days when the sample is uncovered.

SC-1.2 CONSTRUCTION REQUIREMENTS

SC-1.2.1 General: The Contractor shall furnish all labor, utilities, materials, and services necessary for the completion of all work as shown on the drawings and specified herein. All work shall be subject to inspection and the approval of the Engineer.

SC-1.2.2 Mix Design: Prior to the start of work, a mix design prepared by an approved testing laboratory shall be submitted to the Engineer for his review. This mix design shall show that the material to be used will meet the requirements as specified in Subsection 1004-2.

SC-1.2.3 Proportioning of Materials: Proportion of materials shall be as shown on the mix design to determine in accordance with Subsection 1004-3.2. The amounts of proportions of expended lime material/sandy loam and cement to be used in each mix shall be such as to produce a plastic workable mix free from harshness which can be readily pumped under the concrete without undue accumulation of water on the surface.

SC-1.2.4 Injection Ports: Injection ports through the existing concrete to allow access for pumping in the mud to be used for jacking shall be completed using a rock drill. No chipping shall be allowed for making these holes. After the mudjacking is complete, the holes shall be filled with an approved portland cement grout conforming to the requirements of Section 601 of these specifications. There shall be a sufficient number of injection ports to allow movement of the concrete slab or curb and gutter as required to bring it to the grade designated by the engineer.

SC-1.2.5 Mudjacking: Only those areas designated by the Engineer shall be mudjacked by the contractor. After the completion of mudjacking, the concrete surface shall be $\pm \frac{1}{4}$ " from the required grade. Where jacking occurs across joins, no more than $\frac{1}{4}$ " of elevation difference shall exist after the jacking is complete.

All mudjacking shall be completed at least 10 days prior to any street excavation work taking place in the area. When street excavation is complete and the area adjacent to the curb and gutter exposed, any areas which have voids greater than $\frac{1}{2}$ " depth with a lateral dimension greater than 6" shall be filled with mudjacking material from the side.

SC-1.2.6 Backfill: After the curb and gutter or concrete slab has been mudjacked, the grassed area adjacent to the concrete shall be backfilled with topsoil and seeded in accordance with the requirements of Section 1801 of these specifications.

SC-1.3 MEASUREMENT AND PAYMENT

SC-1.3.1 Mudjacking Concrete Curb and Gutter: Mudjacking concrete curb and gutter shall be measured on a lineal foot (L.F.) basis and paid for at the price bid for "Mudjacking Concrete Curb and Gutter" complete in place and accepted by the Engineer. Only those areas designated by the Engineer shall be paid for under this bid item.

SC-1.3.2 Mudjacking Concrete Slabs: Mudjacking concrete slabs shall be measured on a square foot (S.F.) basis and paid for at the unit price bid for "Mudjacking Concrete Slabs" complete in place and accepted by the Engineer. Only those slabs identified and designated by the Engineer shall be paid for under this bid item.

SC-2 REMOVAL AND REPLACEMENT OF CONCRETE CURB AND GUTTER

There are multiple sections of curb and gutter to be removed and replaced throughout the project. The removal and replacement of the concrete curb and gutter shall be measured and bid under the respective bid items.

SC-3 RESTOCKING

The Contractor shall have on hand all items to complete the project. If the items are not used, the cost to restock the items shall be considered incidental to the project.

SC-4 BACKFILL SETTLEMENT

Where the Contractor has installed backfill in trenches or other excavations made by him, and where settlement has occurred prior to the Contractor's bond expiration date, the Contractor shall return the surface to the required grade. In paved areas, the Contractor shall add paving materials in a satisfactory method to the Engineer. If no satisfactory method of adding pavement exists, the Contractor shall remove the pavement, recompact the subgrade, and repave the area. In turfed areas, the area of settlement shall be filled with black dirt and the area seeded or sodded replaced. In aggregate areas, additional aggregate shall be added to the depressed area to return the depression to grade. All costs associated with correcting settlement shall be the expense of the Contractor.

SC-5 TRAFFIC CONTROL

Traffic Control layouts have been provided in the plans as a guide. The Contractor shall be responsible for ensuring the safety of the traveling public through means of barricades, signs, delineator drums, and other appropriate traffic control devices. Traffic control signs and devices will be required to be moved multiple times during the course of construction.

When a sidewalk or shared use path closure is required, pedestrian traffic control devices shall be installed and maintained until that sidewalk or shared use path is reopened to the traveling public.

All costs associated with supplying, installing, relocating, and maintaining all traffic control signs, devices, and message boards needed throughout the project shall be included in the lump sum bid for "Construction Traffic Control."

SC-6 MAINTAINING ACCESS

The Contractor shall be responsible for providing continuous access to all residential dwellings and business establishments along and adjacent to this project whenever possible.

The Contractor shall be responsible for coordinating and communicating with adjacent landowners and residents regarding access control at the site initially and whenever changes occur.

All costs associated with the coordination, labor, materials, installation, and maintenance of the proposed approved access control plan shall be included in the price bid for "Construction Traffic Control."

SC-7 WASTE MATERIAL

The Contractor shall haul all mine and blended material set for removal to a location within City Limits. This location shall be determined by City Officials prior to mine and blend operations beginning.

SC-8 RESHAPE ROADWAY

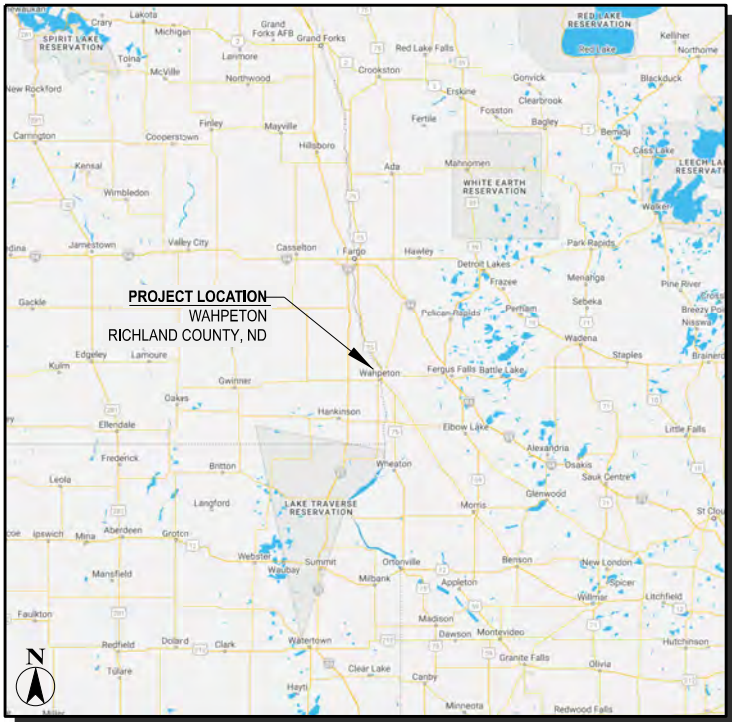
The parking lot shall be graded and compacted once the required mine & blended material has been removed. All costs associated with this work shall be included in the unit price bid for "Reshaping Roadway."

END OF SECTION

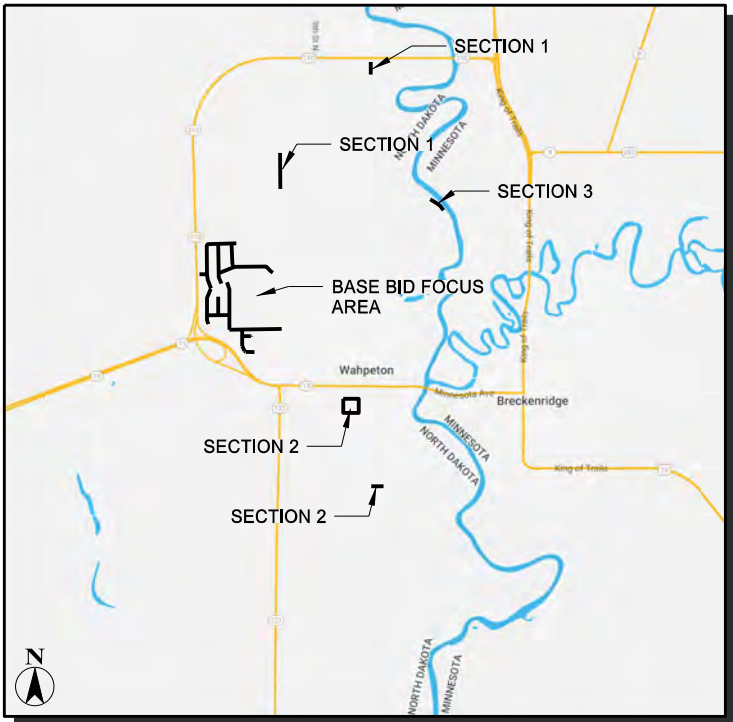
CONSTRUCTION PLANS
FOR
WEST CENTRAL STREET IMPROVEMENT
CITY PROJECT No. ST24-287

PREPARED FOR

CITY OF WAHPETON
WAHPETON, NORTH DAKOTA



LOCATION MAP
NOT TO SCALE



SITE MAP
NOT TO SCALE

ER24-00-139 2025		
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THIS PLAN SET CONTAINS 95 SHEETS		

CONSTRUCTABILITY REVIEW :
5/6/2025

BY: Zach Hatting

INTERSTATE ENGINEERING, INC.
ZACH HATTING

APPROVED :
5/6/2025

BY: Damon DeVillers

INTERSTATE ENGINEERING, INC.
PROJECT ENGINEER



APPROVED :
5/7/2025

BY: Dennis Miranowski

CITY OF WAHPETON
DIRECTOR OF PUBLIC WORKS



CITY OFFICIALS		
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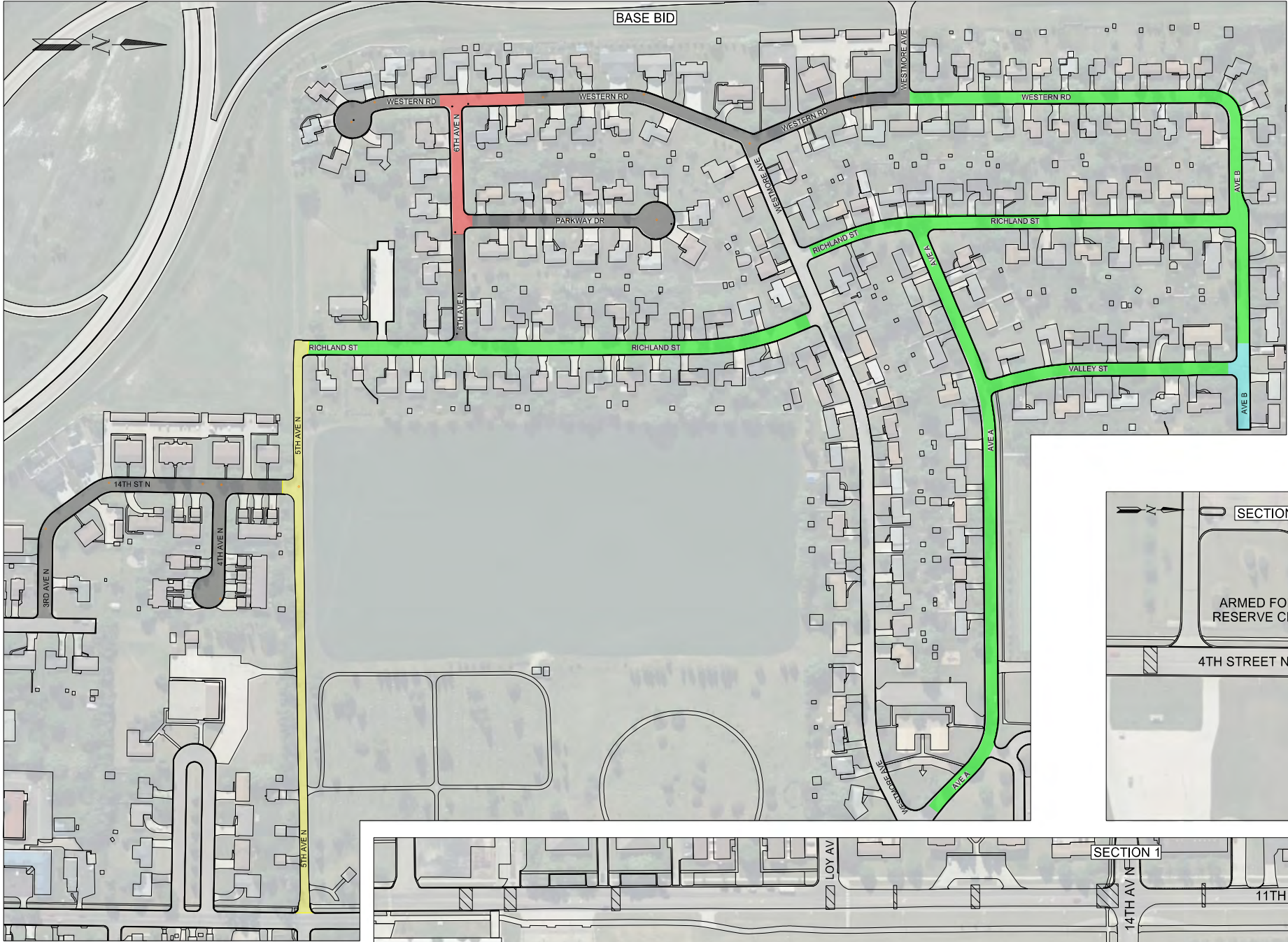
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SECTION

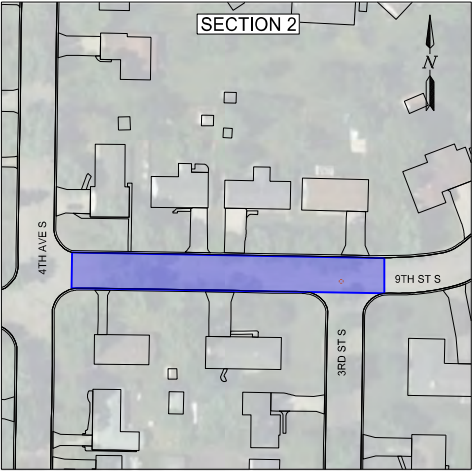
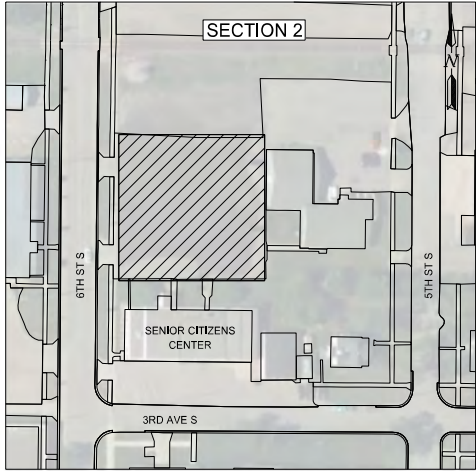
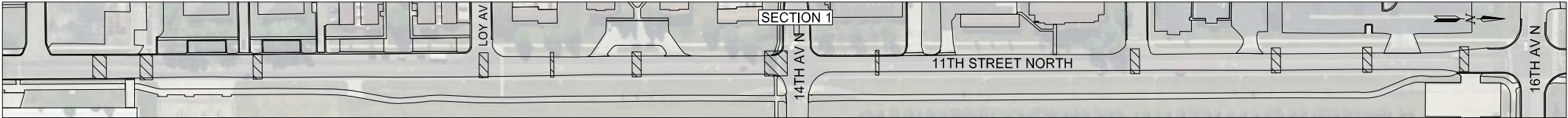
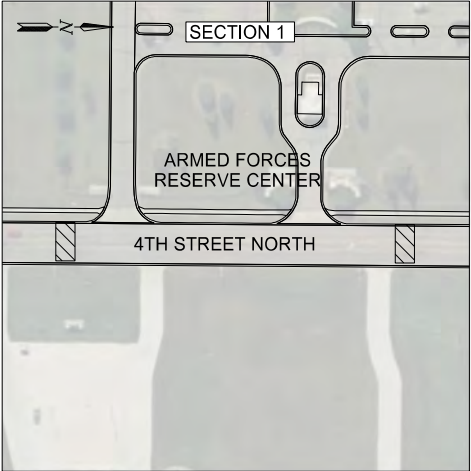
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SHEET NO.



- MILL AND OVERLAY, CURB & GUTTER REPAIRS
- RECLAIM PAVEMENT, SUBGRADE, CURB AND GUTTER
- RECLAIM PAVEMENT, REPLACE C&G, GRADING AND BASE, AND STORM SEWER IMPROVEMENTS
- RECONSTRUCTION : MILL PAVEMENT, SUBCUT, SUBGRADE PREP, AGGREGATE BASE, HBP, CG, SIDEWALK
- CURB & GUTTER REPAIR (MUDJACKING OR REMOVE AND REPLACE)
- RECLAIM PAVEMENT / HBP PAVE
- RECLAIM, BASE STABILIZER GRADING, AND DUST SUPPRESSANT
- TIE IN MILLING AND HBP PATCHING



REV	NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT				PROJECT NO. : ER2400139	
CITY PROJECT NO. 24-287				DATE: JANUARY, 2025	
WAHPETON, NORTH DAKOTA				PROJECT NO. : ER2400139	
SCOPE OF WORK				DATE: JANUARY, 2025	
DRAWN BY: AM		SURVEYED BY: IEI		PROJECT NO. : ER2400139	
CHECKED BY: ZHDD		DESIGNED BY: LH		DATE: JANUARY, 2025	

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SECTION
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SHEET NO.

ESTIMATED QUANTITIES

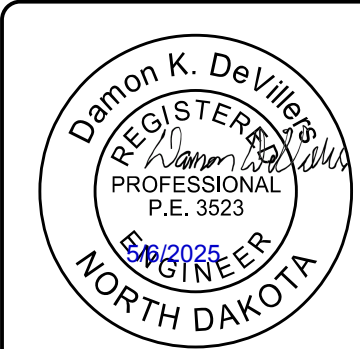
			Section 1 Total
1	Contract Bond	LS	1
2	Section 1 Mobilization	LS	1
3	Section 1 Traffic Control	LS	1
4	Remove Curb and Gutter	LF	1233
5	Curb and Gutter - Type 1	LF	669
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10	5" Reinforced Concrete Sidewalk	SY	8
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18	Mine and Blend	SY	3044
19	Waste Excavation	CY	1015
20	Reshape Roadway	SY	2540
21	4" PVC Perforated Pipe	LF	1245
22	Modify Existing Inlet	EA	6
23	Geotextile Fabric - Type R1	SY	2646
24	Crushed Concrete (Salvage Base Course)	CY	995
25	Type II Inlet	EA	3
26	Type II Inlet Casting & Cover	EA	3
27	12" RCP Storm Sewer	LF	104
28	Connect to Existing Storm Sewer Manhole	EA	1
29	Removal of Inlet	EA	3
30	Removal of Pipe - All Types & Sizes	LF	86
31	Removal of Concrete	SY	42
32	Insulate Watermain	EA	2
33	Subcut	CY	263
34	Sanitary Manhole Casting & Cover	EA	2

			Section 2 Total
35	Section 2 Mobilization	LS	1
36	Section 2 Traffic Control	LS	1
37	Asphalt Milling	SY	2584
38	Superpave FAA 43 - RAP	TON	625

			Section 3 Total
39	Section 3 Mobilization	LS	1
40	Section 3 Traffic Control	LS	1
41	Superpave FAA 43 - RAP	TON	395
42	Adjust Manhole	EA	1
43	Inlet Protection - Type B	EA	1
44	Mine and Blend	SY	3872
45	Waste Excavation	CY	181
46	Reshape Roadway	SY	3872
47	Liquid Base Stabilizer	GAL	232
48	Dust Suppressant	GAL	1027

			Section 4 Total
49	Section 4 Mobilization	LS	1
50	Section 4 Traffic Control	LS	1
51	Superpave FAA 43 - RAP	TON	1178
52	Mine and Blend	SY	3895
53	Reshape Roadway	SY	3895
54	Liquid Base Stabilizer	GAL	78
55	Dust Suppressant	GAL	1558

			Section 5 Total
56	Section 5 Mobilization	LS	1
57	Section 5 Traffic Control	LS	1
58	Remove Curb and Gutter	LF	180
59	Curb and Gutter - Type 1	LF	3036
60	6" Reinforced Concrete Driveway	SY	234
61	5" Reinforced Concrete Sidewalk	SY	1261
62	Asphalt Milling	SY	4516
63	Superpave FAA 43 - RAP	TON	1601
64	Topsoil	CY	1356
65	Seeding and Hydromulch	SY	4307
66	Inlet Protection - Type B	EA	2
67	Waste Excavation	CY	5005
68	4" PVC Perforated Pipe	LF	5492
69	Geotextile Fabric - Type R1	SY	7193
70	Crushed Concrete (Salvage Base Course)	CY	6547
71	Removal of Inlet	EA	2
72	Removal of Pipe - All Types & Sizes	LF	421
73	Removal of Concrete	SY	41
74	Unclassified Excavation	CY	1091
75	Subgrade Preparation	STA	15
76	6" PVC Water Main	LF	425
77	8" PVC Sanitary Sewer	LF	35
78	Connect to Existing Water Main	EA	2
79	Modify Existing Sanitary Manhole	EA	1
80	Ductile Iron Fittings	LBS	238
81	6" Gate Valve & Box	EA	3
82	Detectable Warning Panels	SF	54
83	Permanent Signage	LS	1
84	72" Valley Gutter	LF	102
85	Concrete Headwall	EA	1
86	Type I Inlet	EA	1
87	Type II Inlet - Double	EA	2
88	22" x 13.5" RCP - Arch Storm Sewer	LF	400
89	22" x 13.5" RCP - Arch End Section	EA	2
90	78" Storm Sewer Manhole Base	EA	2
91	60" Storm Sewer Manhole	EA	2
92	Storm Manhole Casting & Cover	EA	2
93	Connect to Existing Storm Sewer	EA	2



REV	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT
CITY PROJECT NO. 24-287
WAHPETON, NORTH DAKOTA

ESTIMATED QUANTITIES

DRAWN BY:

AM

 SURVEYED BY:

IEI

 PROJECT NO:

ER2400139

 CHECKED BY: DESIGNED BY:

LH

 DATE:

JANUARY, 2025

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SECTION
G

3
SHEET NO.

		Section 1											Section 2		Section 3		Section 4	Section 5
		Western Rd	Westmore Ave	Valley St	Parkway Dr	Richland St	Avenue A	Avenue B	3rd Ave N	4th Ave N	6th Ave N	14th St N	4th St N	11th St N	Parking Lot (Sr. Citizens Center)	9th Ave S	Hughes Dr	5th Ave N
Contract Bond	LS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Section 1 Mobilization	LS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Section 1 Traffic Control	LS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Section 2 Mobilization	LS	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Section 2 Traffic Control	LS	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Section 3 Mobilization	LS	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Section 3 Traffic Control	LS	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Section 4 Mobilization	LS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Section 4 Traffic Control	LS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Section 5 Mobilization	LS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Section 5 Traffic Control	LS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Remove Curb and Gutter	LF	669	22	0	85	0	0	85	0	53	184	134	0	0	0	0	0	180
Curb and Gutter - Type 1	LF	669	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3036
Mudjack Curb and Gutter	LF	455	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mudjack Concrete Driveway	SF	213	0	0	110	117	0	2	0	0	0	0	0	0	0	0	0	0
Remove Concrete Driveway	SY	0	0	0	0	0	0	112	0	0	3	0	0	0	0	0	0	0
6" Reinforced Concrete Driveway	SY	0	0	0	0	0	0	112	0	0	3	0	0	0	0	0	0	234
5" Reinforced Concrete Sidewalk	SY	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	1261
Asphalt Milling	SY	5206	596	0	2331	0	0	0	0	1460	991	3668	267	2317	0	0	0	4516
Superpave FAA 43 - RAP	TON	630	72	0	282	0	0	280	0	177	608	444	65	561	0	395	1178	1601
Topsail	CY	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1356
Seeding and Hydromulch	SY	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4307
Adjust Gate Valve	EA	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
Adjust Manhole	EA	6	0	0	2	0	0	0	0	1	1	4	0	0	0	1	0	0
Inlet Protection - Type B	EA	3	0	0	0	0	0	3	1	0	6	0	0	0	1	0	0	2
Mine and Blend	SY	504	0	0	0	0	0	927	0	0	1613	0	0	0	2567	1305	3895	0
Waste Excavation	CY	168	0	0	0	0	0	309	0	0	538	0	0	0	0	181	0	5005
Reshape Roadway	SY	0	0	0	0	0	0	927	0	0	1613	0	0	0	2567	1305	3895	0
Liquid Base Stabilizer	GAL	0	0	0	0	0	0	0	0	0	0	0	0	0	154	78	78	0
Dust Suppressant	GAL	0	0	0	0	0	0	0	0	0	0	0	0	0	1027	0	1558	0
4" PVC Perforated Pipe	LF	0	0	0	0	0	0	445	0	0	800	0	0	0	0	0	0	5492
Modify Existing Inlet	EA	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0
Geotextile Fabric - Type R1	SY	0	0	0	0	0	0	960	0	0	1686	0	0	0	0	0	0	7193
Crushed Concrete (Salvage Base Course)	CY	176	0	0	0	0	0	258	0	0	561	0	0	0	0	0	0	6547
Type II Inlet	EA	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
Type II Inlet Casting & Cover	EA	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
12" RCP Storm Sewer	LF	0	0	0	0	0	0	104	0	0	0	0	0	0	0	0	0	0
Connect to Existing Storm Sewer Manhole	EA	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Removal of Inlet	EA	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	2
Removal of Pipe - All Types & Sizes	LF	0	0	0	0	0	0	86	0	0	0	0	0	0	0	0	0	421
Removal of Concrete	SY	12	0	0	6	0	0	8	0	4	12	0	0	0	0	0	0	41
Insulate Watermain	EA	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
Subcut	CY	63	0	0	0	0	0	0	0	0	200	0	0	0	0	0	0	0
Unclassified Excavation	CY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1091
Subgrade Preparation	STA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
6" PVC Water Main	LF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	425
8" PVC Sanitary Sewer	LF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
Connect to Existing Water Main	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Modify Existing Sanitary Manhole	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Ductile Iron Fittings	LBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	238
6" Gate Valve & Box	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Detectable Warning Panels	SF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54
Permanent Signage	LS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
72" Valley Gutter	LF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	102
Concrete Headwall	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Type I Inlet	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Type II Inlet - Double	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
22" x 13.5" RCP - Arch Storm Sewer	LF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	400
22" x 13.5" RCP - Arch End Section	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
78" Storm Sewer Manhole Base	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
60" Storm Sewer Manhole	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Storm Manhole Casting & Cover	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Sanitary Manhole Casting & Cover	EA	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
Connect to Existing Storm Sewer	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2

NOTE : MUDJACKING QUANTITIES ARE TO BE USED AT THE DISCRETION OF THE ENGINEER IN THE FIELD.

BASIS OF ESTIMATE

1. TACK

0.05 GAL/SY
2. PG58-28

5.2% (RAP)
3. SUPERPAVE FAA 43

2 TON/CY
4. LIQUID BASE STABILIZER

0.005 GAL/SY.IN
5. DUST SUPPRESSANT

0.4 GAL/SY



REV	NO	DATE	BY	DESCRIPTION

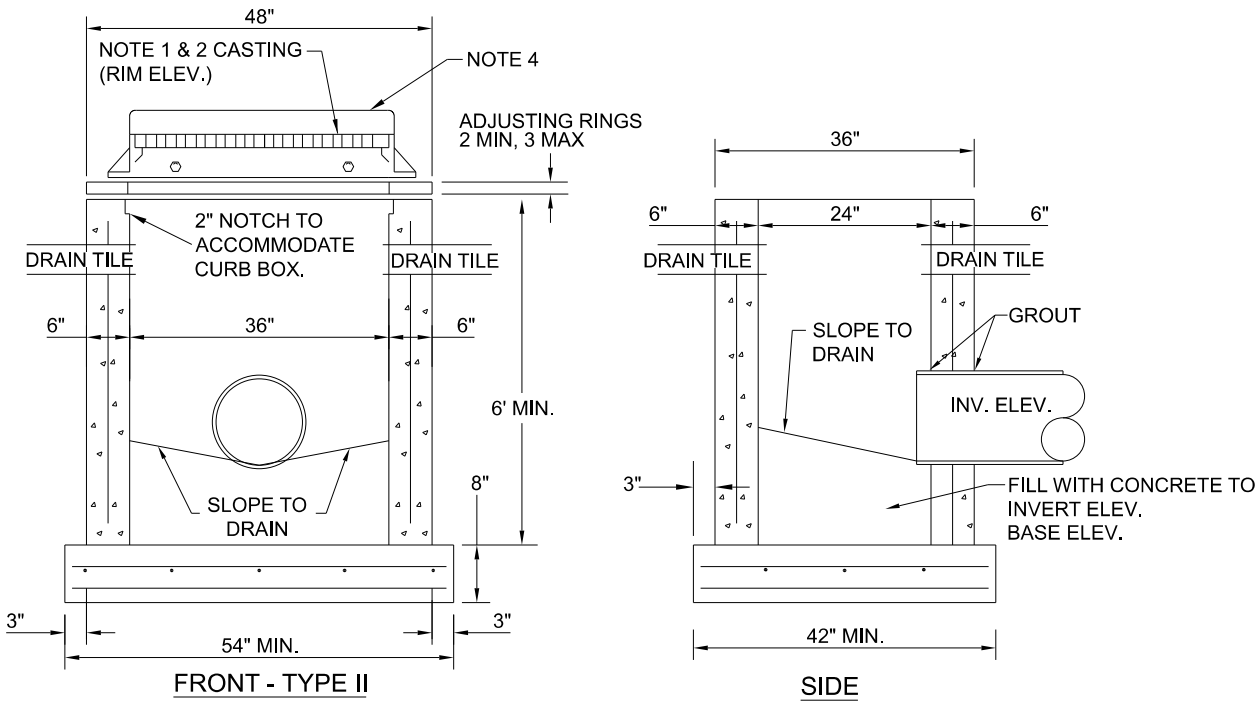
WEST CENTRAL STREET IMPROVEMENT		CITY PROJECT NO. 24-287	
WAHPETON, NORTH DAKOTA		ESTIMATED QUANTITIES	
DRAWN BY: <u>AM</u>	SURVEYED BY: <u>IE</u>	PROJECT NO: <u>ER2400139</u>	DATE: <u>JANUARY, 2025</u>
CHECKED BY: <u>ZHDD</u>	DESIGNED BY: <u>LH</u>		

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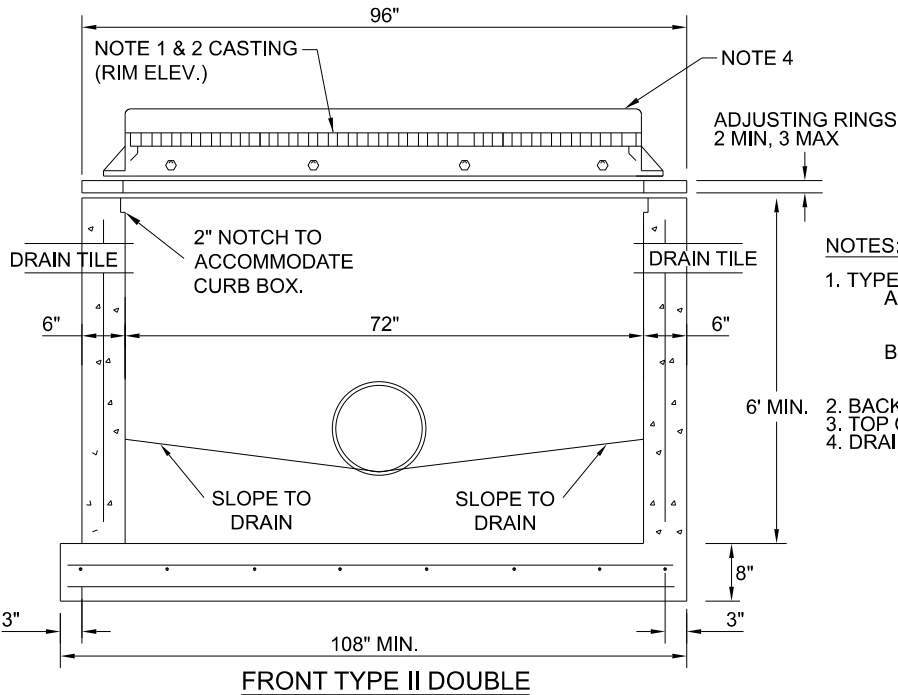
SECTION
G
SHEET NO.
4



NOTES:

1. TYPE II INLET GRATE AND CASTING
 - A. CURB AND GUTTER
 - EJIW 7030 WITH TYPE T5 BACK AND TYPE M2 OR TYPE M6 GRATE
 - APPROVED EQUAL
 - B. MOUNTABLE CURB AND GUTTER
 - EJIW 7030 WITH TYPE T3 BACK AND TYPE M2 OR TYPE M6 GRATE
 - APPROVED EQUAL
2. BACKFILL INLET TO INVERT OF LEAD PRIOR TO INSTALLATION.
3. TOP OF CASTING SHALL BE FLUSH WITH TOP OF CURB AND GUTTER.
4. DRAIN TILE PIPE PENETRATIONS SHALL HAVE RUBBER BOOTS (SEE D13)

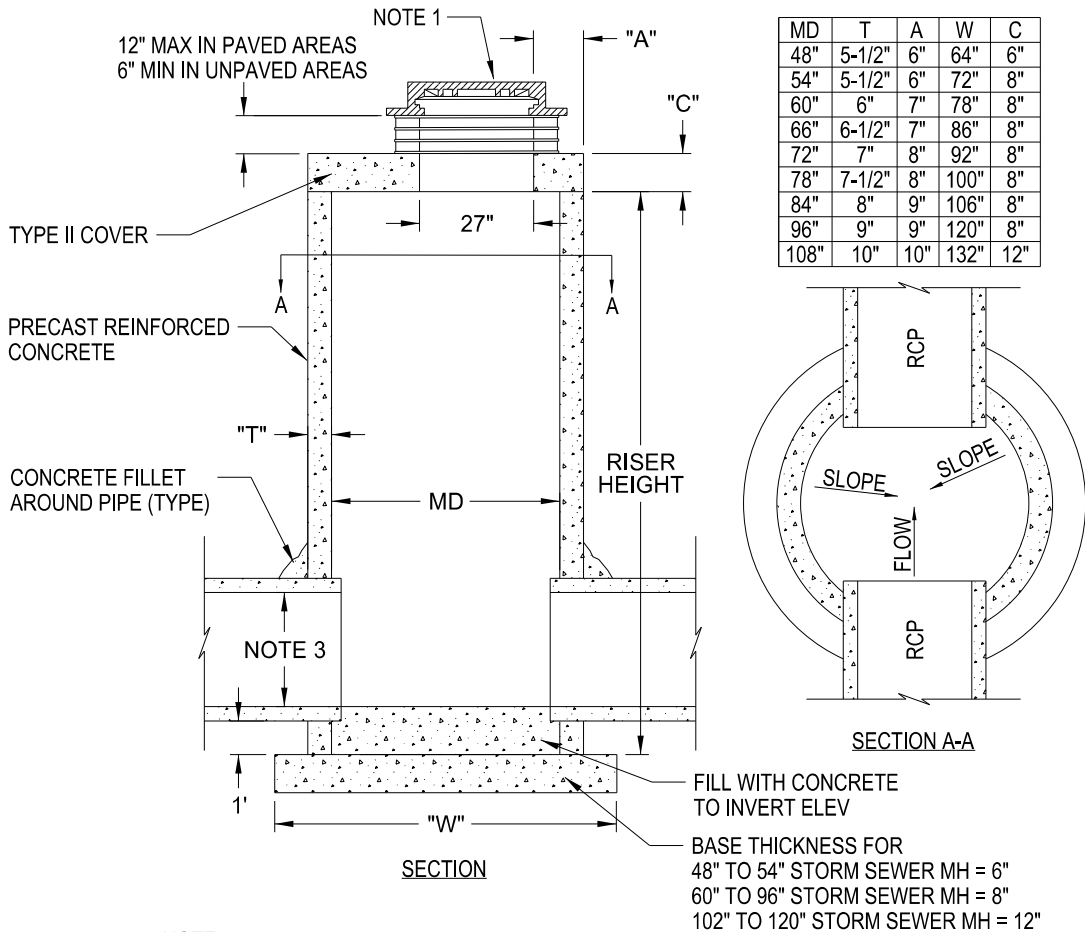
TYPE II INLET
NOT TO SCALE



NOTES:

1. TYPE II INLET DOUBLE GRATE AND CASTING
 - A. CURB AND GUTTER
 - EJIW 7031 WITH TYPE T5 BACK AND TYPE M2 OR TYPE M6 GRATE
 - APPROVED EQUAL
 - B. MOUNTABLE CURB AND GUTTER
 - EJIW 7031 WITH TYPE T3 BACK AND TYPE M2 OR TYPE M6 GRATE
 - APPROVED EQUAL
2. BACKFILL INLET TO INVERT OF LEAD PRIOR TO INSTALLATION.
3. TOP OF CASTING SHALL BE FLUSH WITH TOP OF CURB AND GUTTER.
4. DRAIN TILE PIPE PENETRATIONS SHALL HAVE RUBBER BOOTS (SEE D13)

TYPE II INLET DOUBLE
NOT TO SCALE

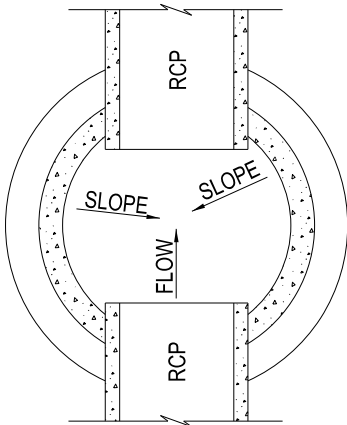


NOTE:

1. COVERS SHALL BE NEENAH R-2561 WITH A SOLID TYPE OR BEEHIVE C COVER WITH ONE TYPE A LIFT HOLE OR APPROVED EQUAL.
2. FLOOR SHALL BE GROUTED AND SLOPED, AS SHOWN.
3. SEE PLAN AND PROFILE SHEETS FOR PIPE SIZES.

STORM SEWER MANHOLE DETAIL
NOT TO SCALE

MD	T	A	W	C
48"	5-1/2"	6"	64"	6"
54"	5-1/2"	6"	72"	8"
60"	6"	7"	78"	8"
66"	6-1/2"	7"	86"	8"
72"	7"	8"	92"	8"
78"	7-1/2"	8"	100"	8"
84"	8"	9"	106"	8"
96"	9"	9"	120"	8"
108"	10"	10"	132"	12"



SECTION A-A

FILL WITH CONCRETE TO INVERT ELEV

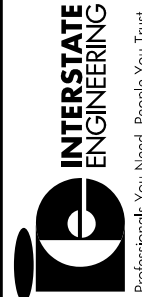
BASE THICKNESS FOR
48" TO 54" STORM SEWER MH = 6"
60" TO 96" STORM SEWER MH = 8"
102" TO 120" STORM SEWER MH = 12"



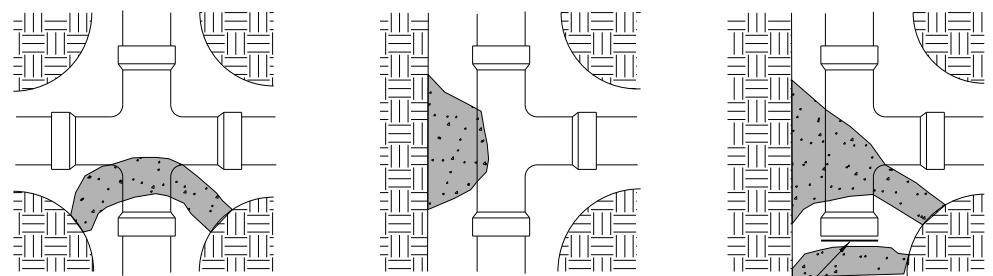
REV	NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT				PROJECT NO.: EP2400139	
CITY PROJECT NO. 24-287				DATE: MAY 2025	
WAHPETON, NORTH DAKOTA				DESIGNED BY: JH	
DETAILS				SURVEYED BY: IEI	
DRAWN BY: RO				CHECKED BY: ZHDD	

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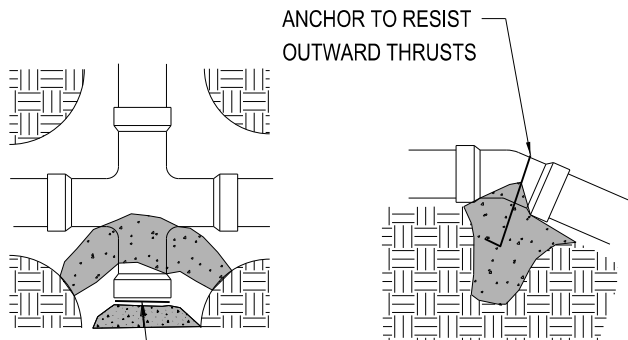
SECTION
D
1
SHEET NO.



CROSS

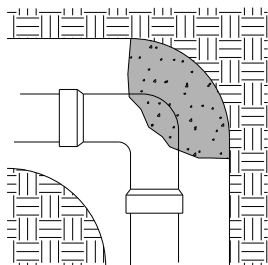
TEE

PLUGGED TEE



PLUGGED CROSS

VERTICAL BEND

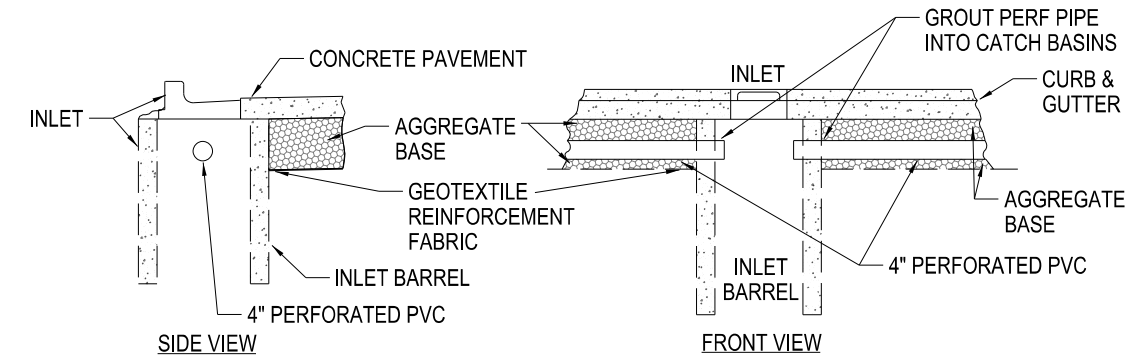


BEND

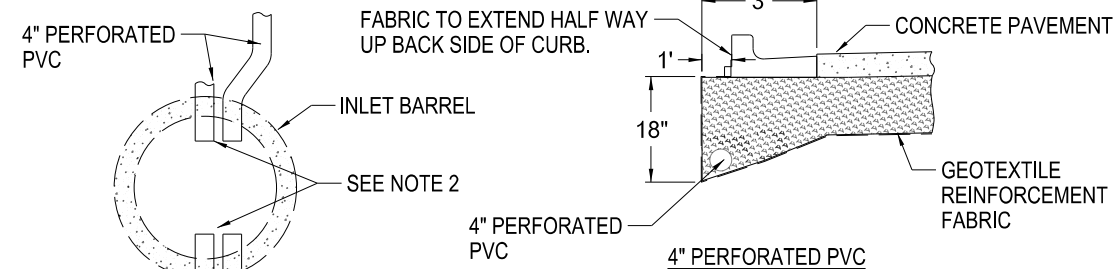
MINIMUM BEARING AREA OF THRUST BLOCK IN SQUARE FEET				
FITTING SIZE	TEE, DEAD END, CROSS, & 90° BEND	45° BEND	22½° BEND	11¼° BEND
4"	1.3	0.7	0.4	0.2
6"	3.0	1.6	0.8	0.4
8"	5.3	2.9	1.5	0.7
10"	8.3	4.5	2.3	1.2
12"	12.0	6.5	3.3	1.7
16"	21.3	11.5	5.9	3.0
18"	27.0	14.6	7.4	3.7

BASED ON 2000 LB/FT LATERAL SOIL BEARING PRESSURE ALL BLOCKS TO BARE AGAINST UNDISTURBED SOIL.

THRUST BLOCKING DETAIL
NOT TO SCALE



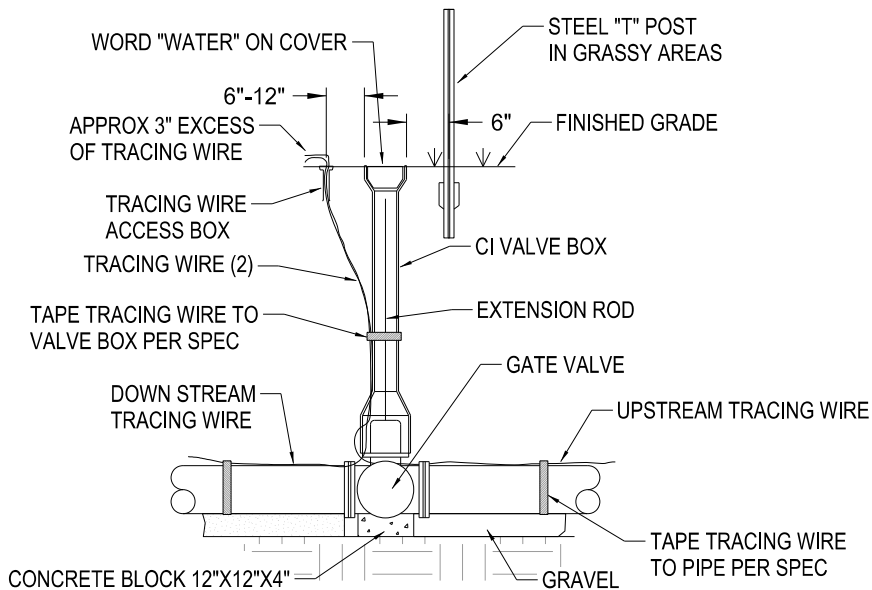
SIDE VIEW



FRONT VIEW

1. ALL PIPE PENETRATIONS SHALL HAVE RUBBER BOOTS.
2. REQUIRED BENDS INCIDENTAL. COST OF KNOWCKOUTS AND GROUTING OF PVC INTO INLETS TO BE INCLUDED IN THE PRICE BID FOR INLETS/
3. PERFORATED PVC DRAIN TILE SHALL BE ANCHORED IN TRENCH TO KEEP PIPE IN PLACE DURING AGGREGATE PLACEMENT.

PERFORATED PIPE - INLET CONNECTION DETAIL
NOT TO SCALE



NOTE:

1. WRAP GATE VALVE AND OTHER DUCTILE IRON WITH 10 MIL POLYWRAP.

WATER MAIN GATE VALVE DETAIL
NOT TO SCALE



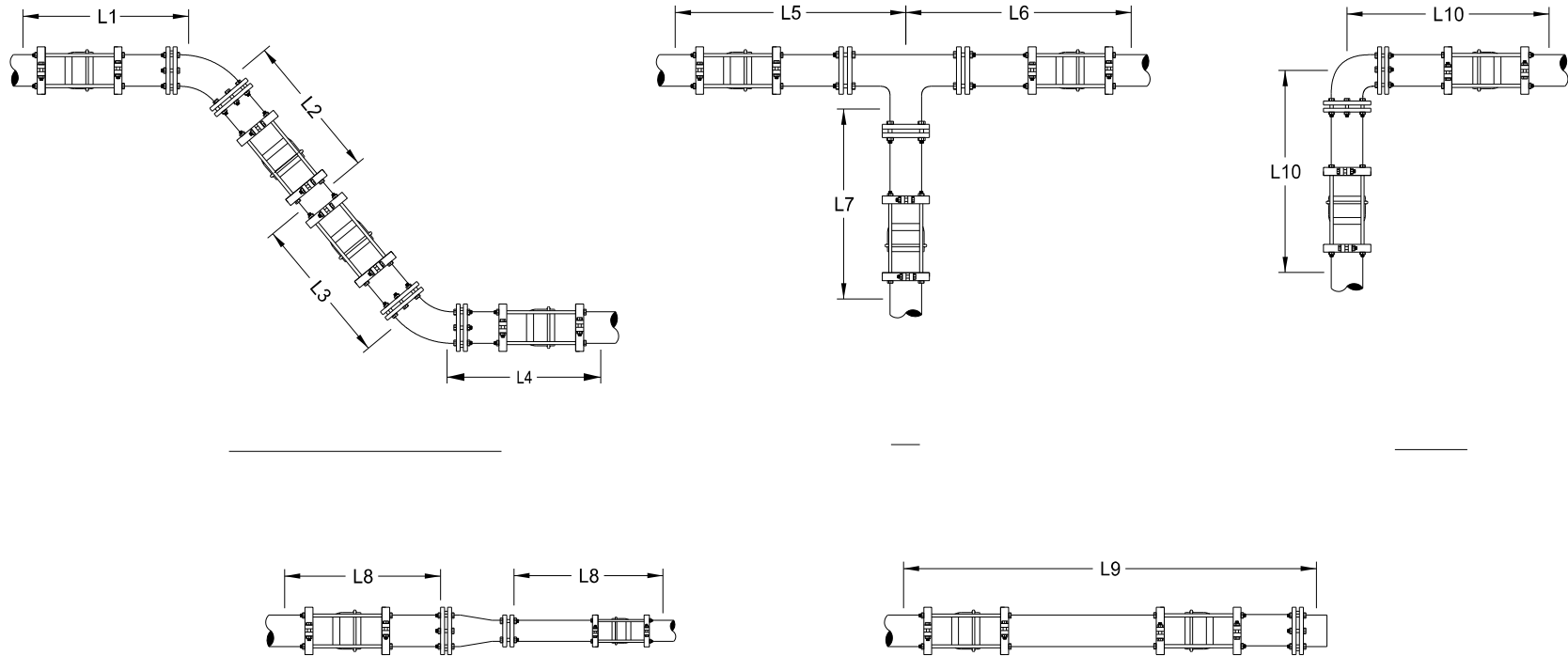
REV	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT CITY PROJECT NO. 24-287 WAHPETON, NORTH DAKOTA			
DETAILS			
DRAWN BY: _____	RO _____	SURVEYED BY: _____	PROJECT NO.: ER2400139
CHECKED BY: _____	ZHDD _____	DESIGNED BY: _____	DATE: MAY, 2025

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SECTION
D
2
SHEET NO.



DEAD END

MINIMUM LENGTHS OF RESTRAINTS FOR PVC PIPE									
PIPE SIZE	L1	L2	L3	L4	L5	L6	L7	L8	L9
4"	7'	7'	2'	2'	10'	10'	1'	7'	20'
6"	10'	10'	3'	3'	10'	10'	1'	16'	28'
8"	13'	13'	3'	3'	10'	10'	1'	16'	37'
10"	16'	16'	4'	4'	10'	10'	1'	28'	45'
12"	19'	19'	5'	5'	10'	10'	1'	39'	54'

MINIMUM LENGTHS OF RESTRAINTS FOR DUCTILE IRON PIPE									
PIPE SIZE	L1	L2	L3	L4	L5	L6	L7	L8	L9
4"	4'	4'	1'	1'	10'	10'	1'	4'	11'
6"	5'	5'	2'	2'	10'	10'	1'	8'	15'
8"	7'	7'	3'	3'	10'	10'	1'	14'	20'
10"	8'	8'	3'	3'	10'	10'	1'	19'	24'
12"	10'	10'	4'	4'	10'	10'	1'	25'	28'

CONTRACTOR TO FURNISH THE LENGTH OF RESTRAINTS (L) CALCULATIONS TO THE ENGINEER WITH THE SHOP DRAWINGS.

MINIMUM LENGTHS OF RESTRAINTS FOR WATER AND FORCE MAIN
NOT TO SCALE



REV	NO	DATE	BY	DESCRIPTION

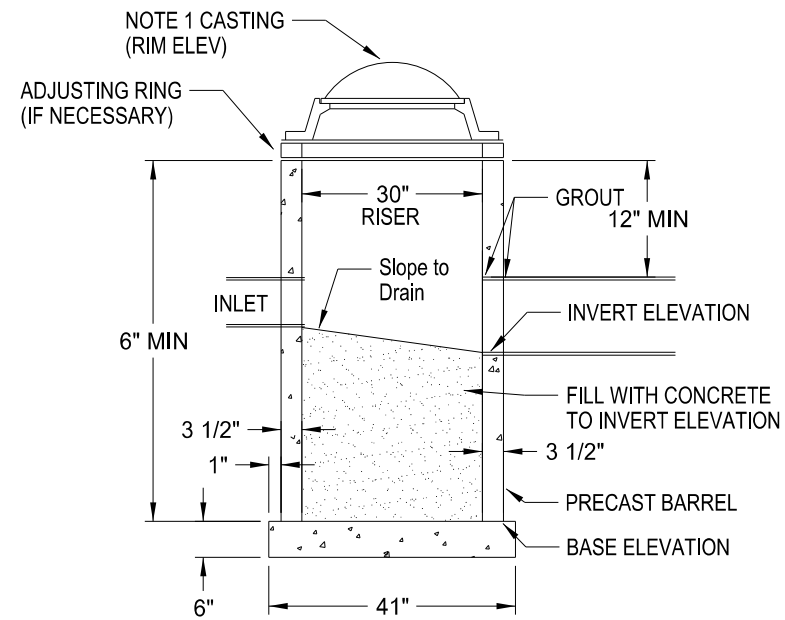
WEST CENTRAL STREET IMPROVEMENT			
CITY PROJECT NO. 24-287			
WAHPETON, NORTH DAKOTA			
DETAILS			
DRAWN BY: _____	RO	SURVEYED BY: _____	IEI
CHECKED BY: _____	ZHDD	DESIGNED BY: _____	JH
PROJECT NO.: ER2400139		DATE: MAY, 2025	

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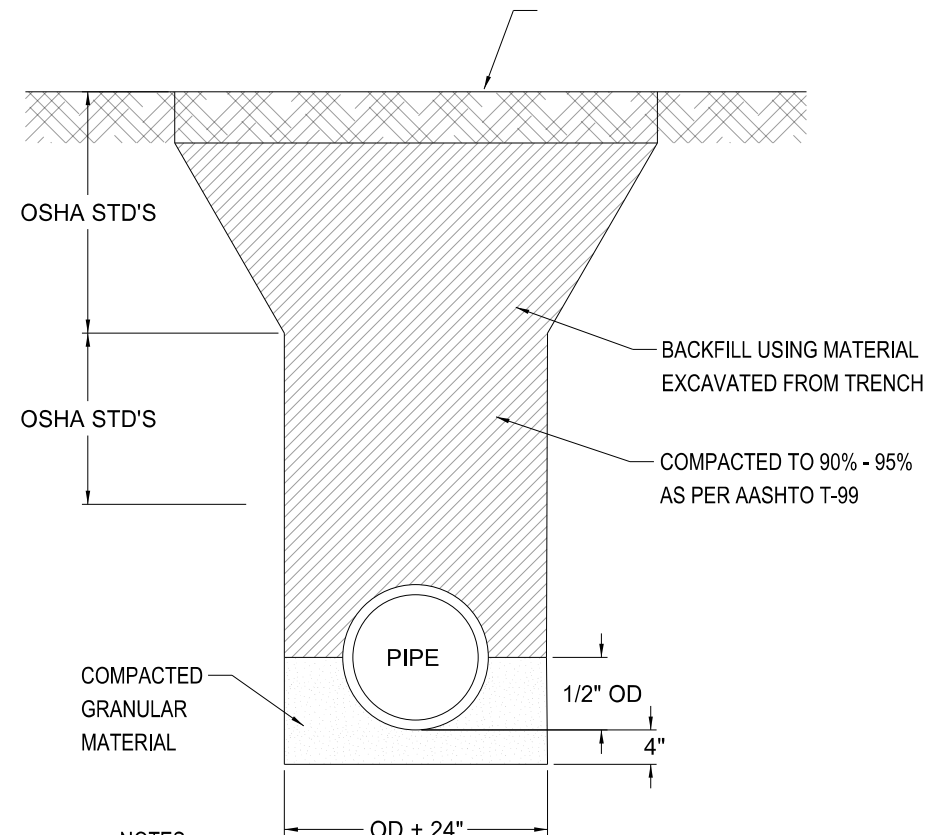
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SECTION
D
3
SHEET NO.



NOTES:
1. GRATE AND CASTING SHALL BE EJIW1205Z WITH TYPE O2 BEEHIVE GRATE OR APPROVED EQUAL.

CATCH BASIN
NOT TO SCALE



NOTES:

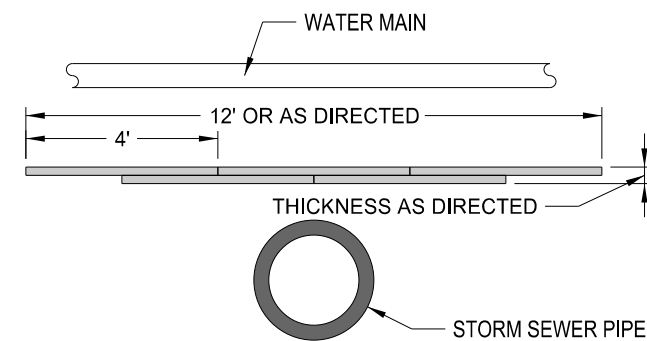
1. THE COST FOR ALL BACKFILL MATERIALS TO BE INCLUDED IN THE PRICE BID FOR THE PVC PIPE.

BEDDING AND BACKFILL FOR PIPE

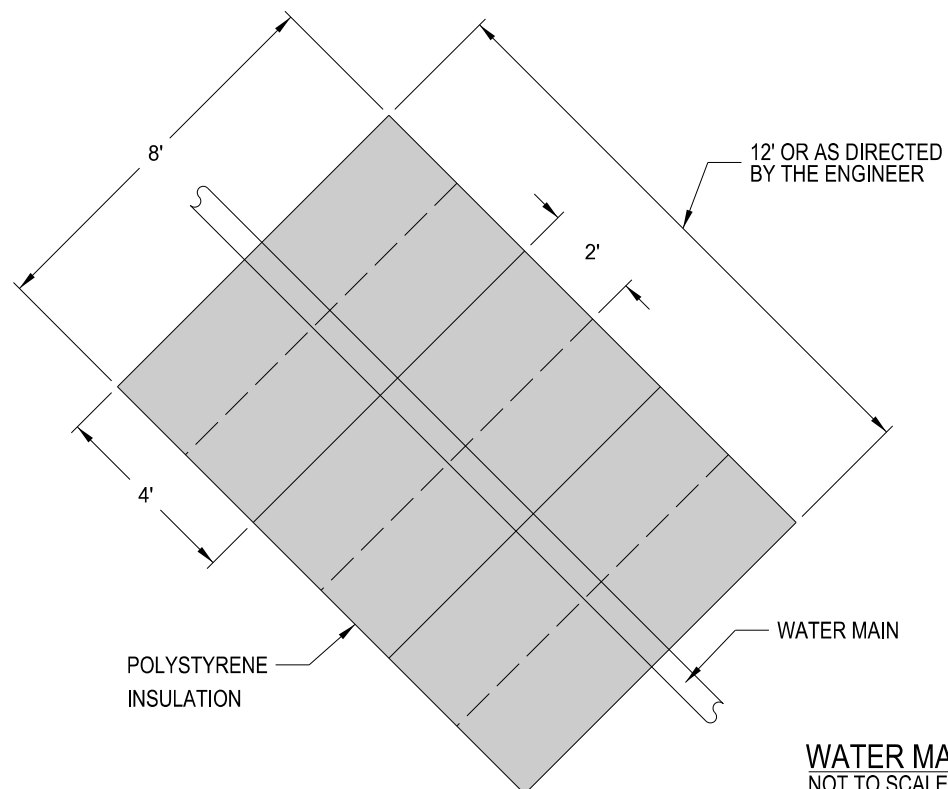
NOT TO SCALE

INSULATION BOARD CHART		
DEPTH "X"	WIDTH "W"	THICKNESS "T"
4' TO 4.99'	6'	4"
5' TO 5.99'	4'	3"
6' TO 6.99'	4'	2"

WHEN CROSSING A WATER MAIN OR SERVICE, THE INSULATION BOARD SHALL EXTEND A MINIMUM OF 3' BEYOND THE OUTSIDE EDGE ON EACH SIDE OF THE NEW PIPE.

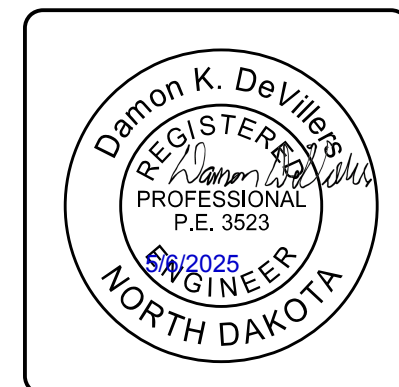
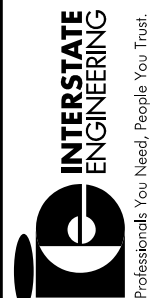


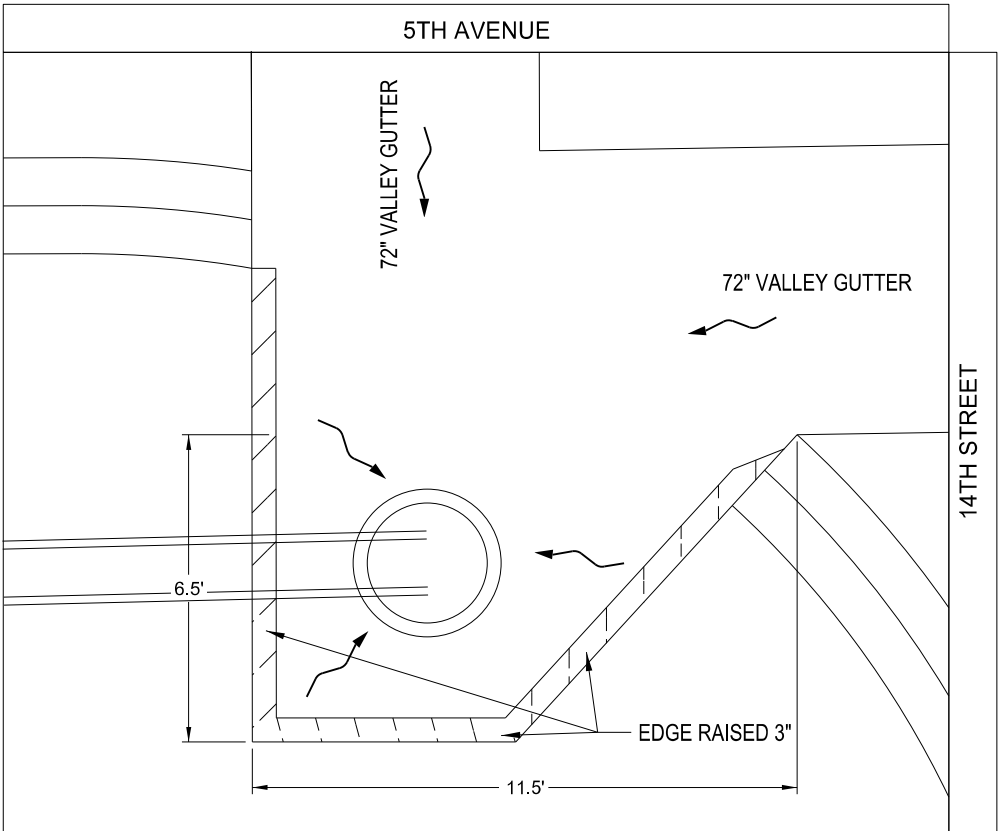
WATER MAIN INSULATION DETAIL
NOT TO SCALE

[illegible]

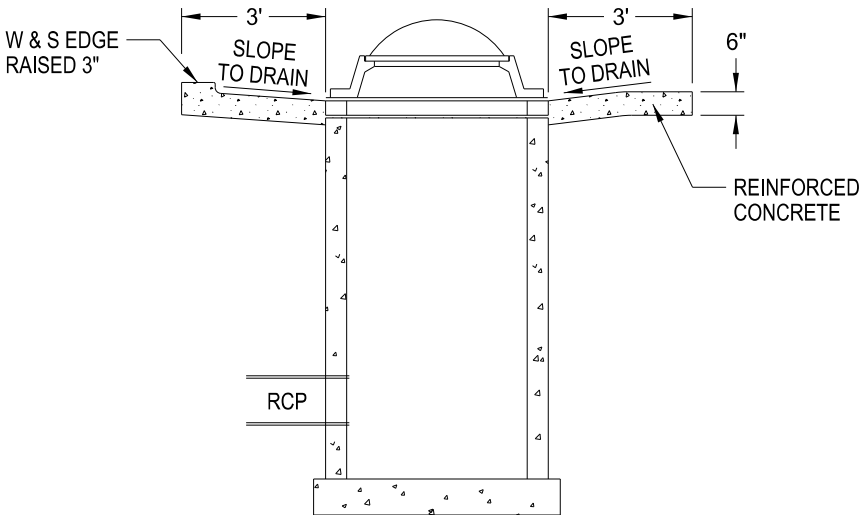
WEST CENTRAL STREET IMPROVEMENT			
CITY PROJECT NO. 24-287			
WAPETON, NORTH DAKOTA			
DETAILS			
DRAWN BY: _____	RO _____	SURVEYED BY: _____	PROJECT NO: ER24001139
CHECKED BY: _____	ZHIDD _____	DESIGNED BY: _____	DATE: _____ MAY, 2025 _____

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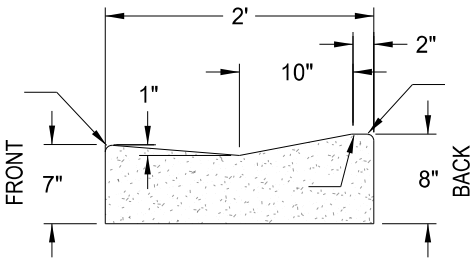


PLAN VIEW
NOT TO SCALE

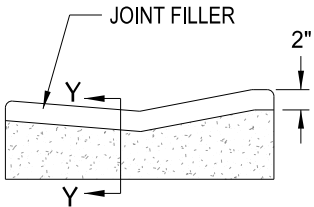


PROFILE VIEW
NOT TO SCALE

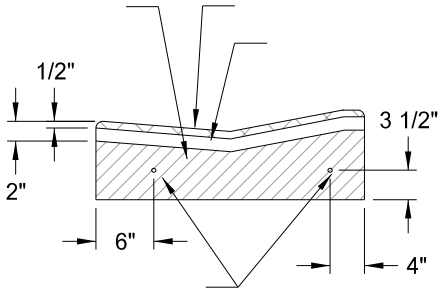
CATCH BASIN APRON
NOT TO SCALE



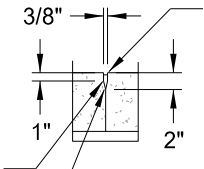
MOUNTABLE CURB AND GUTTER



SCORED CONTRACTION JOINT DETAIL



EXPANSION JOINT DETAIL



SECTION Y-Y

NOTES:

- CONTRACTION JOINTS: USE 1/8"-1/4" ASPHALTIC MASTIC BOARD EMBEDDED 1 1/2" INTO THE GUTTER AND THROUGH THE CURB, OR SCORE THE CURB AND GUTTER 2" AS SHOWN IN THE DETAIL.
- EXPANSION JOINTS: EXPANSION JOINT MATERIAL SHALL BE 3/4" PREMOLDED CONFORMING TO THE STANDARD SPECIFICATIONS. THE OPENING FOR THE BACKER ROD AND JOINT SEALANT SHALL BE FORMED BY A PRECUT PIECE OF WOOD OR OTHER MATERIAL APPROVED BY THE ENGINEER. DOWEL SUPPORTS ARE NOT REQUIRED ON THE SECOND POUR AT A COLD JOINT. THE METAL CAP AND GREASED DOWEL SHALL BE ON THE SECOND POUR.
- JOINT SPACING: FOR HOT BITUMINOUS PAVEMENTS THE JOINT SPACING OF THE CURB AND GUTTER JOINTS SHALL MATCH THE PAVEMENT JOINTS ON PCC PAVEMENTS.
- JOINT SEALING: ALL EXPANSION JOINTS SHALL BE SEALED AS SHOWN IN THE DETAILS. THE JOINT SEALANT SHALL BE LOW MODULUS SILICONE OR POLYURETHANE.
TENSILE STRENGTH AT BREAK (ASTM D412) 125 PSI
MOVEMENT CAPABILITY ±50% EXPANSION/CONTRACTION
TT-S-00230G. COLOR SHALL BE GRAY
THE SEALANT SHALL BE TOOLED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURES RECOMMENDATIONS.

MOUNTABLE CURB AND GUTTER DETAILS
NOT TO SCALE



REV	DATE	BY	DESCRIPTION

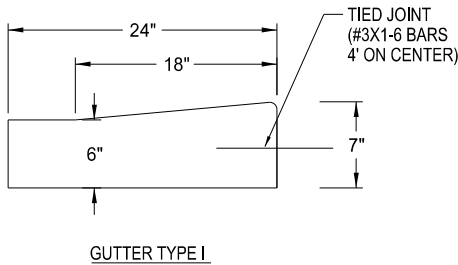
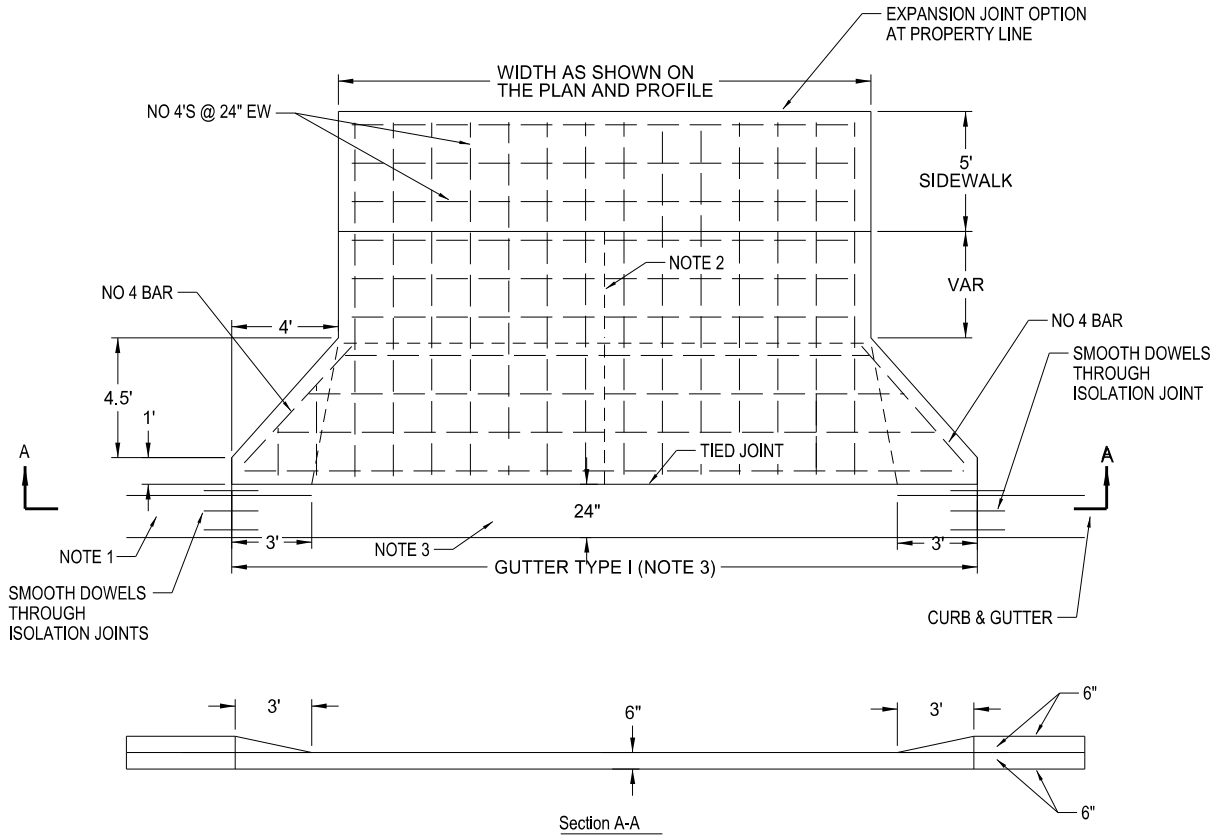
WEST CENTRAL STREET IMPROVEMENT			
CITY PROJECT NO. 24-287			
WAHPETON, NORTH DAKOTA			
DETAILS			
SURVEYED BY: IEL		PROJECT NO: ER2400139	
DESIGNED BY: LH		DATE: MAY. 2025	
DRAWN BY: RO		CHECKED BY: ZHDD	

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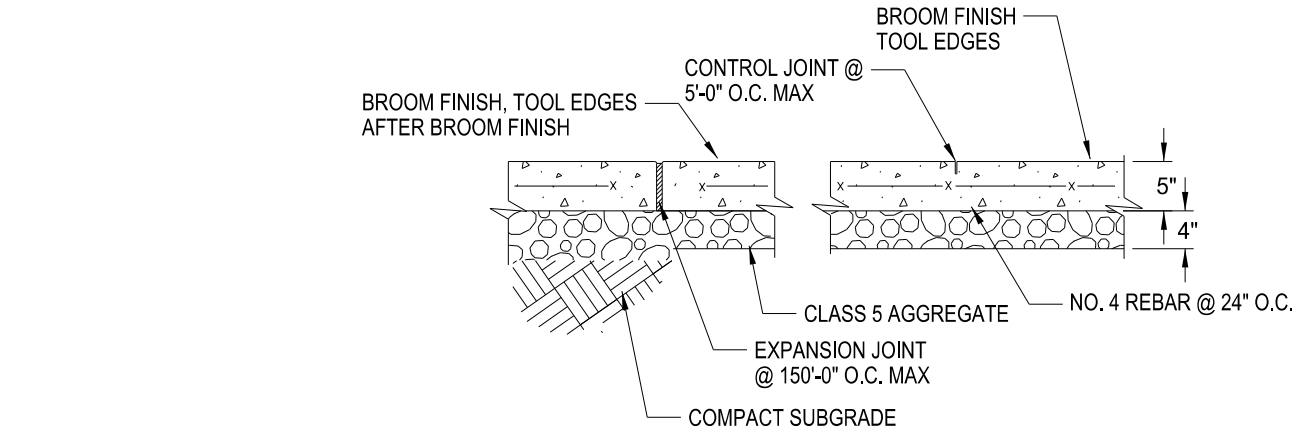
SECTION
D
SHEET NO.
5



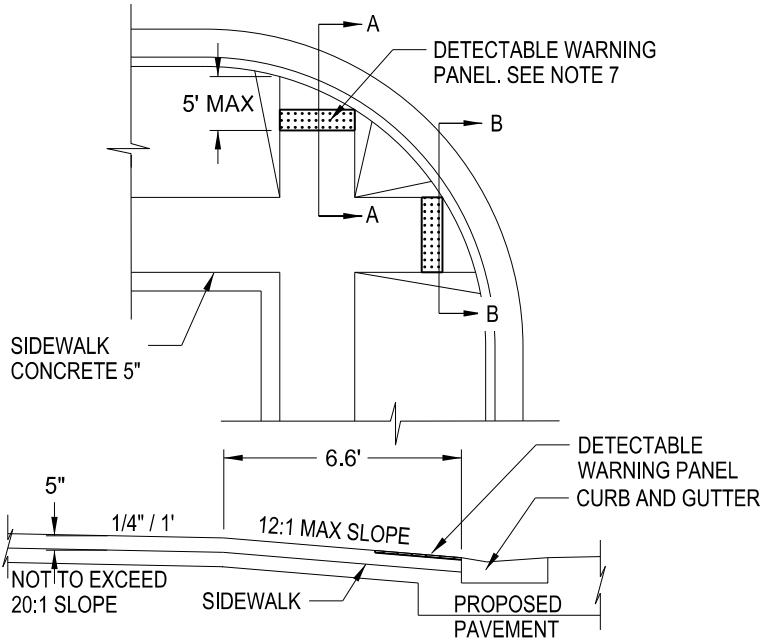
NOTE:

1. ON BITUMINOUS PAVEMENTS PLACE 3/4" INSULATION JOINT FULL DEPTH AND THE SAME AS THE CURB AND GUTTER. ON PCC PAVEMENTS THE CURB AND GUTTER JOINTS MATCH THOSE OF THE PAVEMENTS.
2. JOINT SPACING: THE DRIVEWAY JOINT SPACING SHALL MATCH THE CURB AND GUTTER JOINT SPACING. THE JOINT MAY BE A TOOLED CONSTRUCTION JOINT, OR A SAWED JOINT. THE JOINT DEPTH SHALL BE A MINIMUM OF 1/3 THE DEPTH OF THE CONCRETE.
3. GUTTER TYPE 1 SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "CURB AND GUTTER".
4. DRIVEWAY THICKNESS TO BE 6" UNLESS OTHERWISE SPECIFIED.
5. EXPANSION MATERIAL IS REQUIRED WHERE A NEW CONCRETE DRIVEWAY ABUTS EXISTING CONCRETE. LOCATION OF THE EXPANSION MATERIAL SHALL BE DETERMINED BY THE ENGINEER, BUT SHALL BE AT THE CURB LINE TIE IN JOINT, OR THE DRIVEWAY TIE IN JOINT. THE EXPANSION MATERIAL SHALL BE BRUSHED TO A REQUIRED DEPTH AND THE JOINT SEALED WITH LOW MODULUS SILICONE, INSTALLED AND TOOLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
6. ALL COSTS FOR LABOR, EQUIPMENT, AND MATERIAL NECESSARY TO CONSTRUCT AND SEAL JOINTS SHALL BE INCLUDED IN THE PRICE BID FOR 6" REINFORCED CONCRETE DRIVEWAY.
7. 4" BASE MATERIALS SHALL BE PLACED UNDER THE CONCRETE DRIVEWAY AND ALLEY RETURNS. ALL LABOR AND MATERIALS NECESSARY TO FURNISH AND PLACE THE BASE MATERIAL SHALL BE INCLUDED IN THE PRICE BID FOR AGGREGATE BASE COURSE.

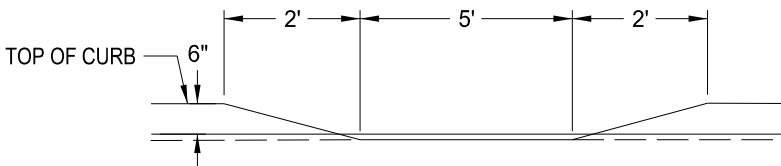
DRIVEWAY CONCRETE 6IN REINFORCED
NOT TO SCALE



TYPICAL SIDEWALKS
NOT TO SCALE



SECTION A - A

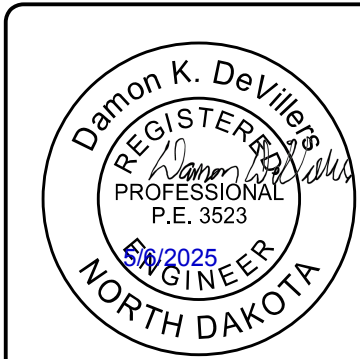


SECTION B - B

NOTES:

1. SEAL ALL EXPANSION JOINTS.
2. COORDINATE JOINT LOCATION WITH ENGINEER IN FIELD.
3. JOINT SEALING ALL EXPANSION JOINTS SHALL BE SEALED AS SHOWN IN THE DETAILS. THE JOINT SEALANT SHALL BE LOW MODULUS SILICONE OR POLYURETHANE.
4. TENSILE STRENGTH AT BREAK (ASTM D412) 125 PSI MOVEMENT CAPABILITY *50.
5. TT-S-00230G SEALANT COLOR TO BE GRAY. THE SEALANT SHALL BE TOOLED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS.
6. ALL MATERIAL AND LABOR REQUIRED FOR JOINT SEALANT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "5 IN REINFORCED CONCRETE SIDEWALK".
7. DETECTABLE WARNING PANELS SHALL BE YELLOW CAST IN PLACE ACCESS TILES BY ACCESS PRODUCTS, INC. OR APPROVED EQUAL.

ADA SIDEWALK AND DETECTABLE WARNING PANEL DETAIL
NOT TO SCALE



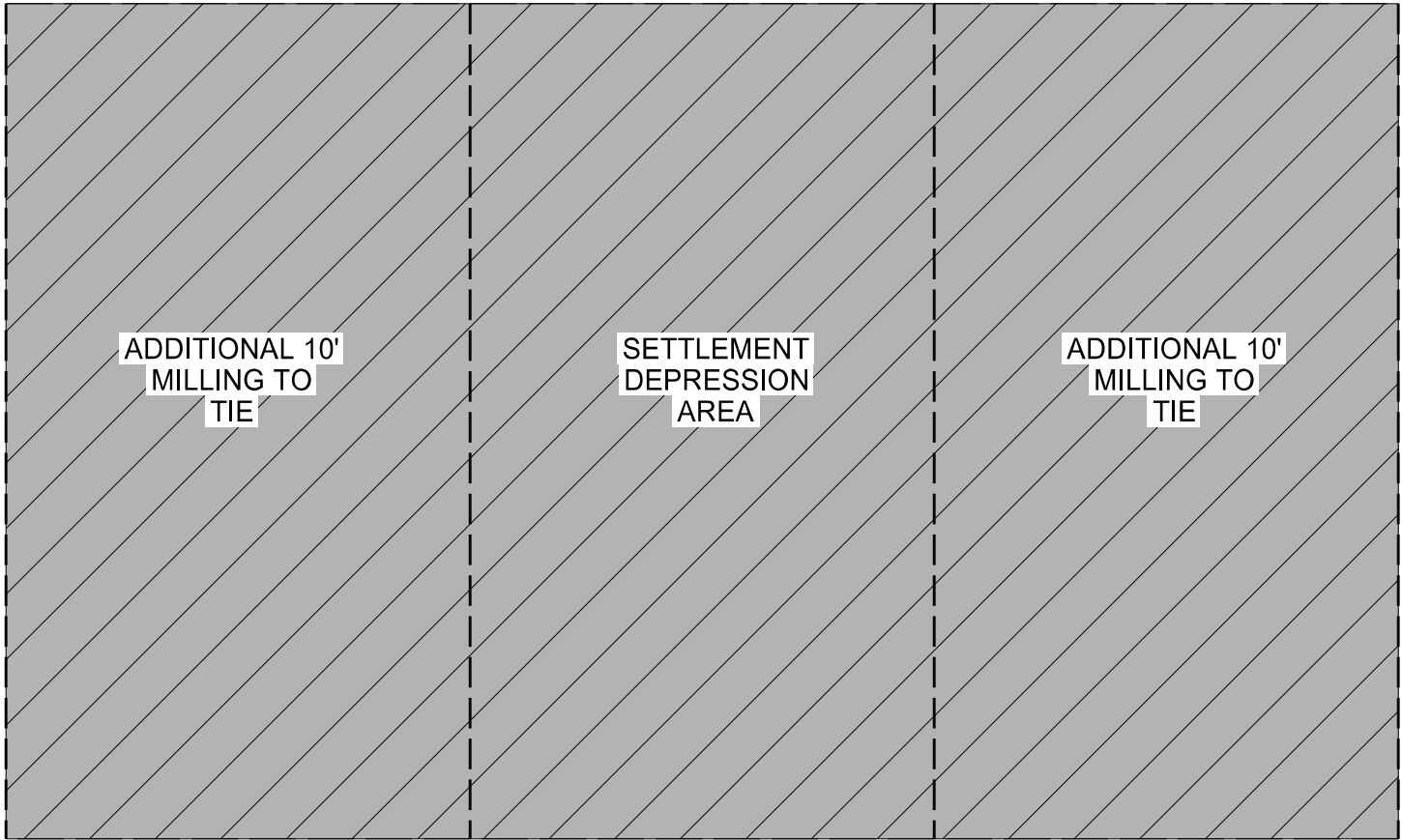
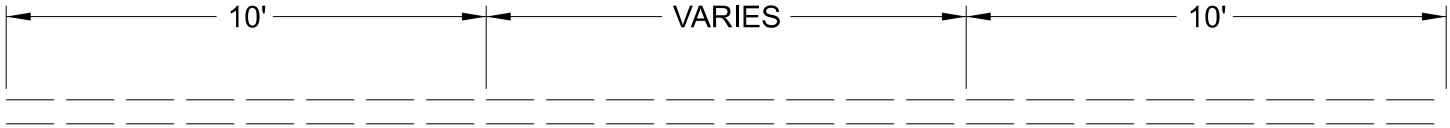
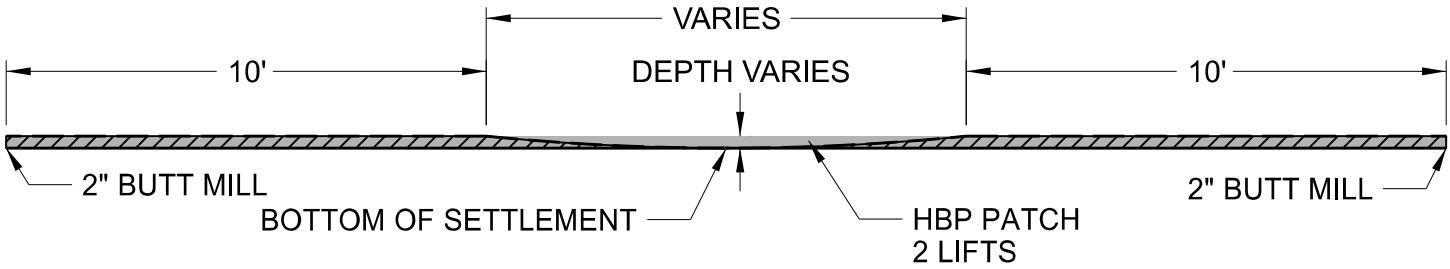
REV	NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT CITY PROJECT NO. 24-287 WHA PETON, NORTH DAKOTA				PROJECT NO.: ER2400139 DATE: MAY 2025	
DETAILS				DESIGNED BY: LH	
DRAWN BY: RO				CHECKED BY: ZHDD	

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NOTE : CONTRACTOR SHOULD MILL AWAY FROM THE DEPRESSION AT ITS DEEPEST POINT. IF THE DEPRESSION DEPTH IS LESS THAN 2", MILLING SHOULD BEGIN BY MILLING 1" AT THE DEEPEST POINT, THEN AWAY FROM THE DEPRESSION UNTIL A DEPTH OF 2" IF ACHIEVED. AFTER THAT POINT AN ADDITIONAL 10' MILL LENGTH WILL BE ADDED FOR A SMOOTH PAVING TRANSITION.

PATCHING DETAIL - SECTION 2
NOT TO SCALE



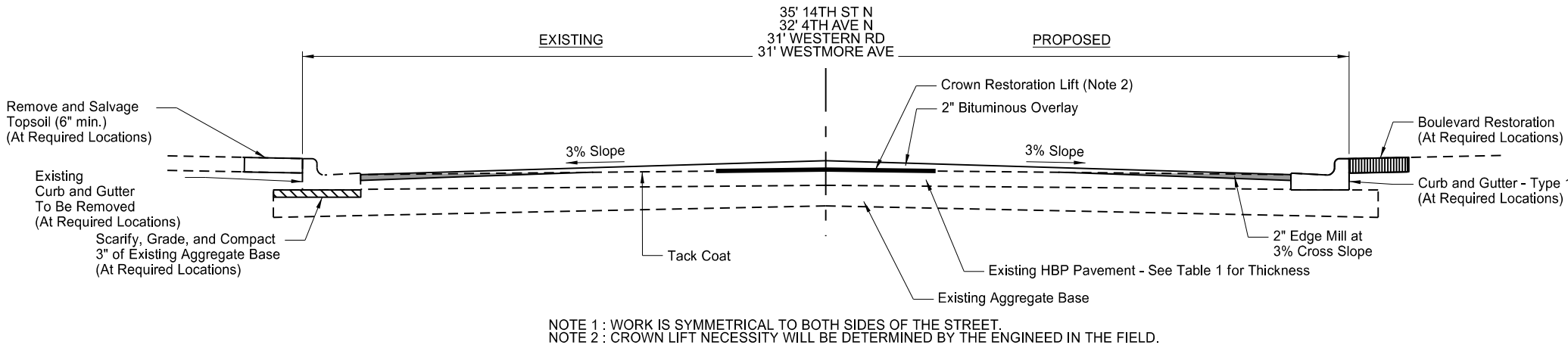
REV NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT CITY PROJECT NO. 24-287 WAPETON, NORTH DAKOTA			
PATCHING DETAIL - SECTION 2			
DRAWN BY: AI	SURVEYED BY: IEI	PROJECT NO: MAY 2025	DATE: 2025
CHECKED BY: ZHDD	DESIGNED BY: LH		

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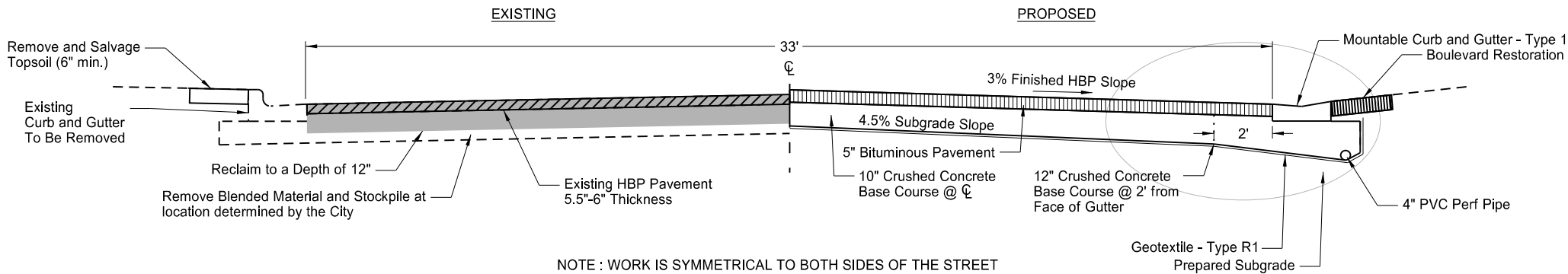
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D
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7



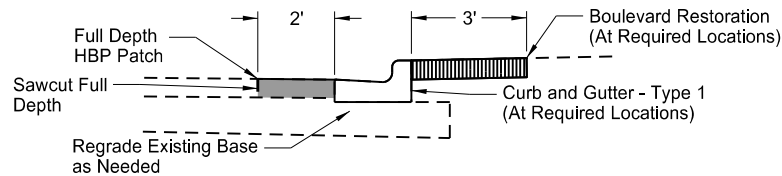
PROPOSED TYPICAL SECTION

14TH STREET NORTH
4TH AVENUE NORTH
WESTERN ROAD
WESTMORE AVENUE



PROPOSED TYPICAL SECTION

AVENUE B



PROPOSED TYPICAL SECTION

Curb and Gutter Replacement Areas

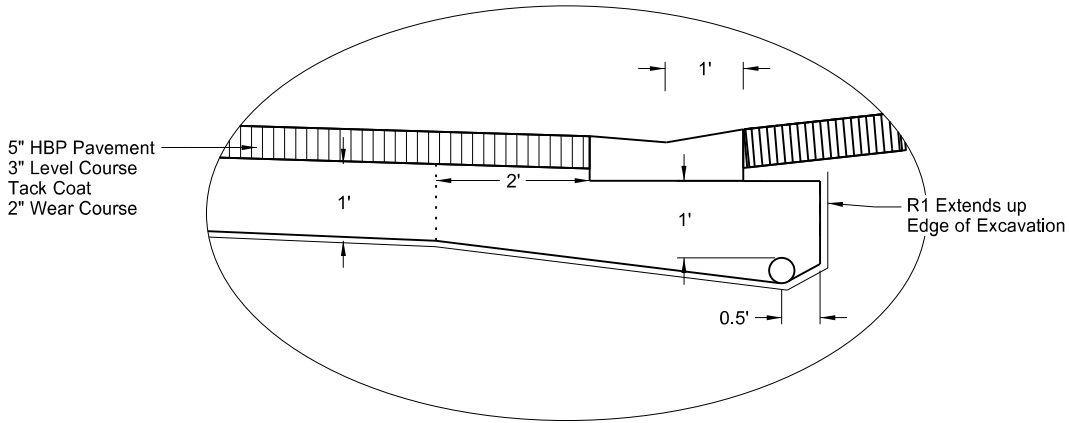


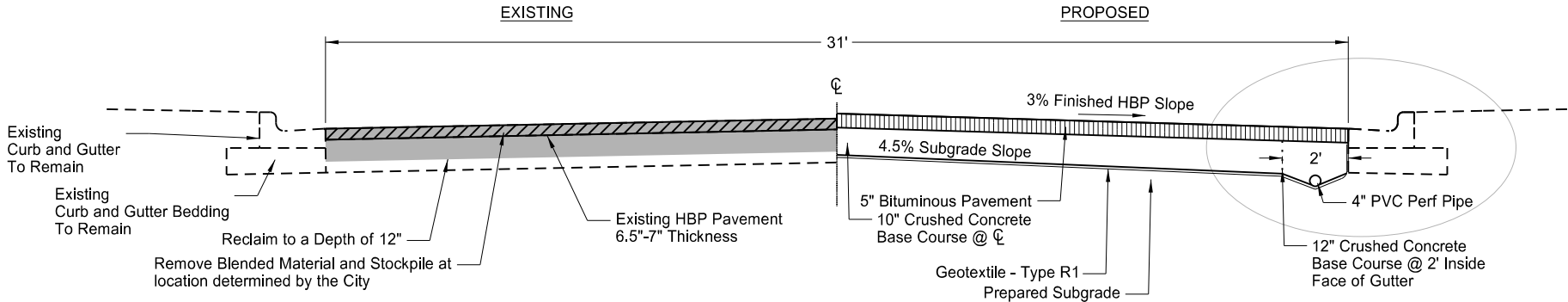
Table 1				
Sheet Reference	Roadway/ Street	Core Location	Pavement Depth (In.)	Aggregate Depth (In.)
PP1	6th Ave N	1+50	7.00	6.00
PP1	6th Ave N	2+75	6.75	5.25
PP2	Ave B	1+00	6.00	11.00
PP2	Ave B	1+80	5.75	10.50
PP3	SC Lot	NW	0.00	17.00
PP3	SC Lot	SE	0.00	16.00
LO1	Western Rd	1+00	6.75	6.25
LO1	Western Rd	6+50	6.00	7.00
LO1	Western Rd	10+00	7.50	5.50
LO1	Western Rd	11+30	7.00	4.25
LO2	Western Rd	13+75	7.75	5.00
LO3	Parkway Dr	1+50	6.75	5.25
LO3	Parkway DR	5+00	7.25	5.75
LO8	Westmore Ave	2+80	5.50	9.50
LO10	6th Ave N	5+25	7.25	5.25
LO10	5th Ave N	1+60	4.50	8.00
LO11	5th Ave N	8+30	4.00	4.00
LO11	5th Ave N	13+00	4.50	7.50
LO12	3rd Ave N	1+75	5.75	12.25
LO12	14th St N	6+00	5.50	12.50
LO13	4th Ave N	2+00	7.00	11.00

REV	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT		CITY PROJECT NO. 24-287	
WAHPETON, NORTH DAKOTA		PROJECT NO.: EP2400139	
TYPICAL SECTIONS		DATE: JANUARY, 2025	
DRAWN BY: AM	DATE: 5/6/2025	CHECKED BY: ZHOD	DATE: 5/6/2025

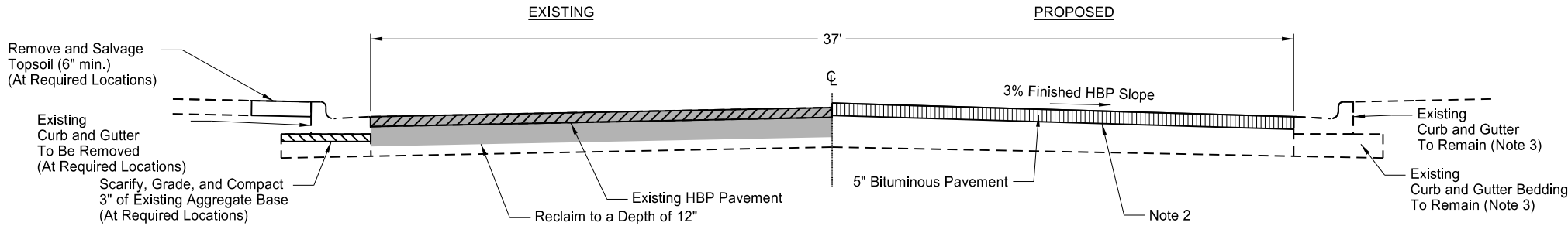
Interstate Engineering 1999 4th Street N, Suite A PO Box 667 Wahpeton, ND 58075 (701) 642.5521 www.interstateeng.com	INTERSTATE ENGINEERING Professionals You Need, People You Trust.
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SECTION
TP
1
SHEET NO.



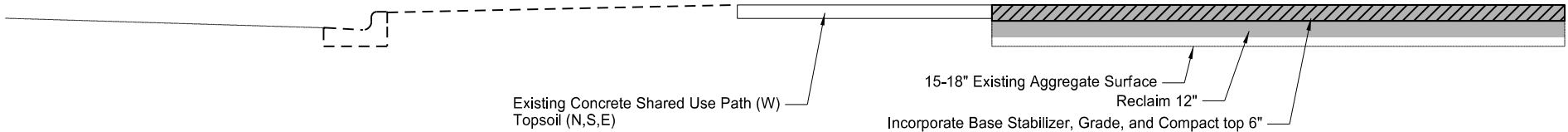
NOTE : WORK IS SYMMETRICAL TO BOTH SIDES OF THE STREET

PROPOSED TYPICAL SECTION
6TH AVENUE NORTH
NOT TO SCALE



- Note 1: Work is Symmetrical to Both Sides of the Street.
Note 2: Reshape Roadway to Allow for 5" HBP at Gutter Face Extending to C at a 3% Cross Slope.
Excess Reclaimed Material to be Removed and Stockpiled at a Location Determined by the City.
Note 3: Areas of Curb and Gutter Replacement will be Determined by the Engineer in the Field.

PROPOSED TYPICAL SECTION
9TH AVENUE SOUTH
NOT TO SCALE



PROPOSED TYPICAL SECTION
Senior Citizens Center Parking Lot
NOT TO SCALE



REV	DATE	BY	DESCRIPTION

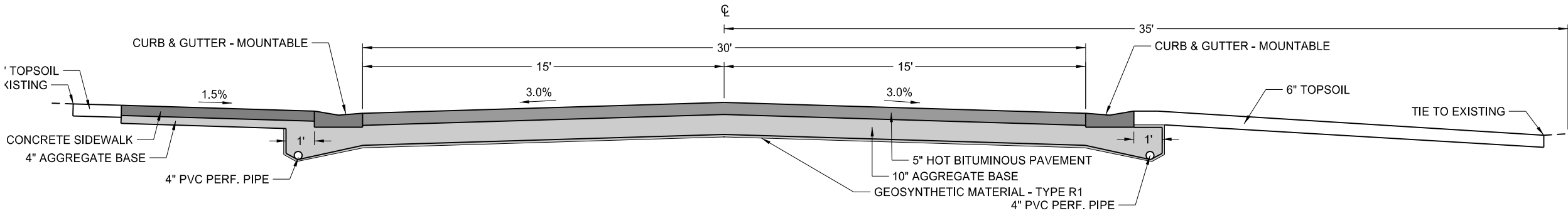
WEST CENTRAL STREET IMPROVEMENT CITY PROJECT NO. 24-287 WAPPETON, NORTH DAKOTA	PROJECT NO.: EP2400139 DATE: JANUARY, 2025
TYPICAL SECTIONS	
DRAWN BY: AM	SURVEYED BY: IEI
CHECKED BY: ZHOD	DESIGNED BY: LH

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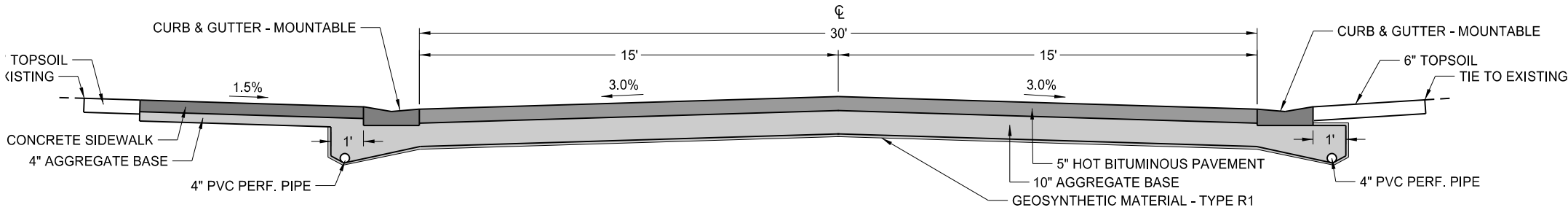
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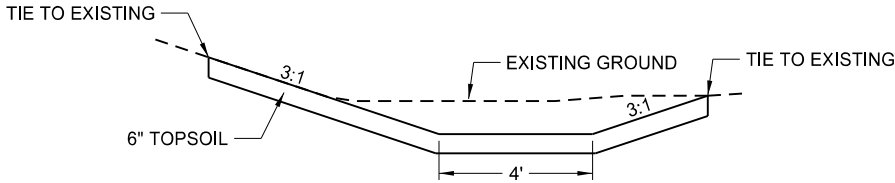
SECTION TP
2
SHEET NO.



PROPOSED TYPICAL SECTION
NOT TO SCALE
5TH AVENUE NORTH - STA 0+00 TO 2+50



PROPOSED TYPICAL SECTION
NOT TO SCALE
5TH AVENUE NORTH - STA 2+50 TO 15+33



PROPOSED TYPICAL SECTION
NOT TO SCALE
5TH AVENUE NORTH - ND210 R/W TO RICHLAND ST.



REV	NO	DATE	BY	DESCRIPTION

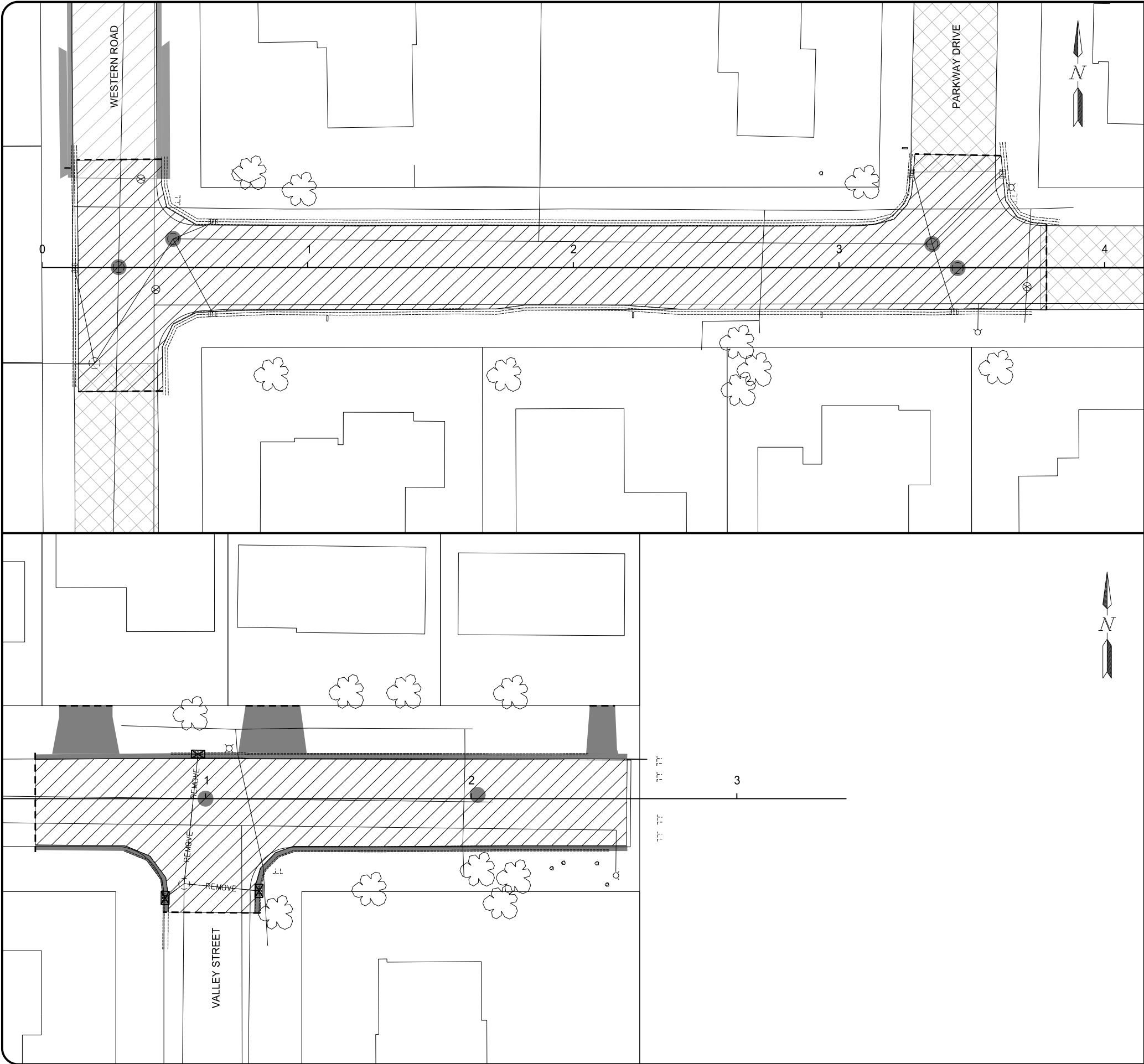
WEST CENTRAL STREET IMPROVEMENT CITY PROJECT NO. 24-287 WAHPETON, NORTH DAKOTA			
TYPICAL SECTIONS - 5TH AVENUE NORTH			
DRAWN BY: AM	SURVEYED BY: IEI	PROJECT NO.: EP2400139	DATE: JANUARY, 2025
CHECKED BY: ZHJDD	DESIGNED BY:		

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TP
3
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Sta 0+00 to 4+00		
Mine and Blend	1613	SY
Waste Material	538	CY
Removal of Concrete	12	SY

Sta 0+00 to 3+00		
Mine and Blend	927	SY
Waste Material	309	CY
Removal of Inlet	3	EA
Removal of Pipe - All Types & Sizes	86	LF
Remove Curb and Gutter	445	LF
Remove Concrete Driveway	112	SY
Removal of Concrete	8	SY

- REMOVE —

PIPE REMOVAL
- SAWCUT PAVEMENT
- CONCRETE REMOVAL
- PAVEMENT REMOVAL
- ⊠

INLET REMOVAL



REV NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT
CITY PROJECT ST24-287
WHAPETON, NORTH DAKOTA

REMOVALS

DRAWN BY: AM
CHECKED BY: ZHOD

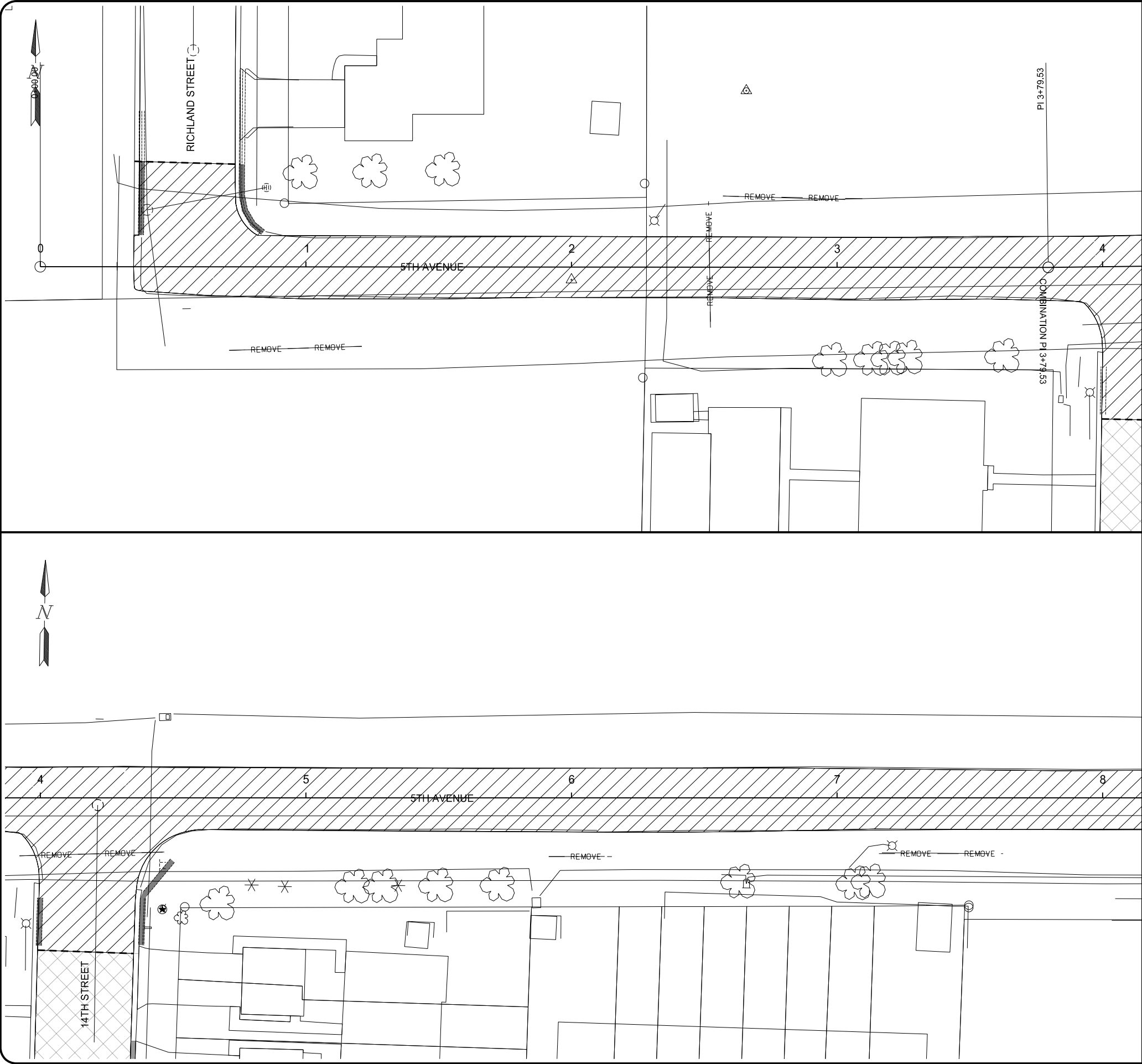
DESIGNED BY: LH
PROJECT NO: ER240139
DATE: JANUARY, 2025

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SECTION
RM
1
SHEET NO.



- REMOVE — PIPE REMOVAL
- - - - - SAWCUT PAVEMENT
- CONCRETE REMOVAL
- PAVEMENT REMOVAL



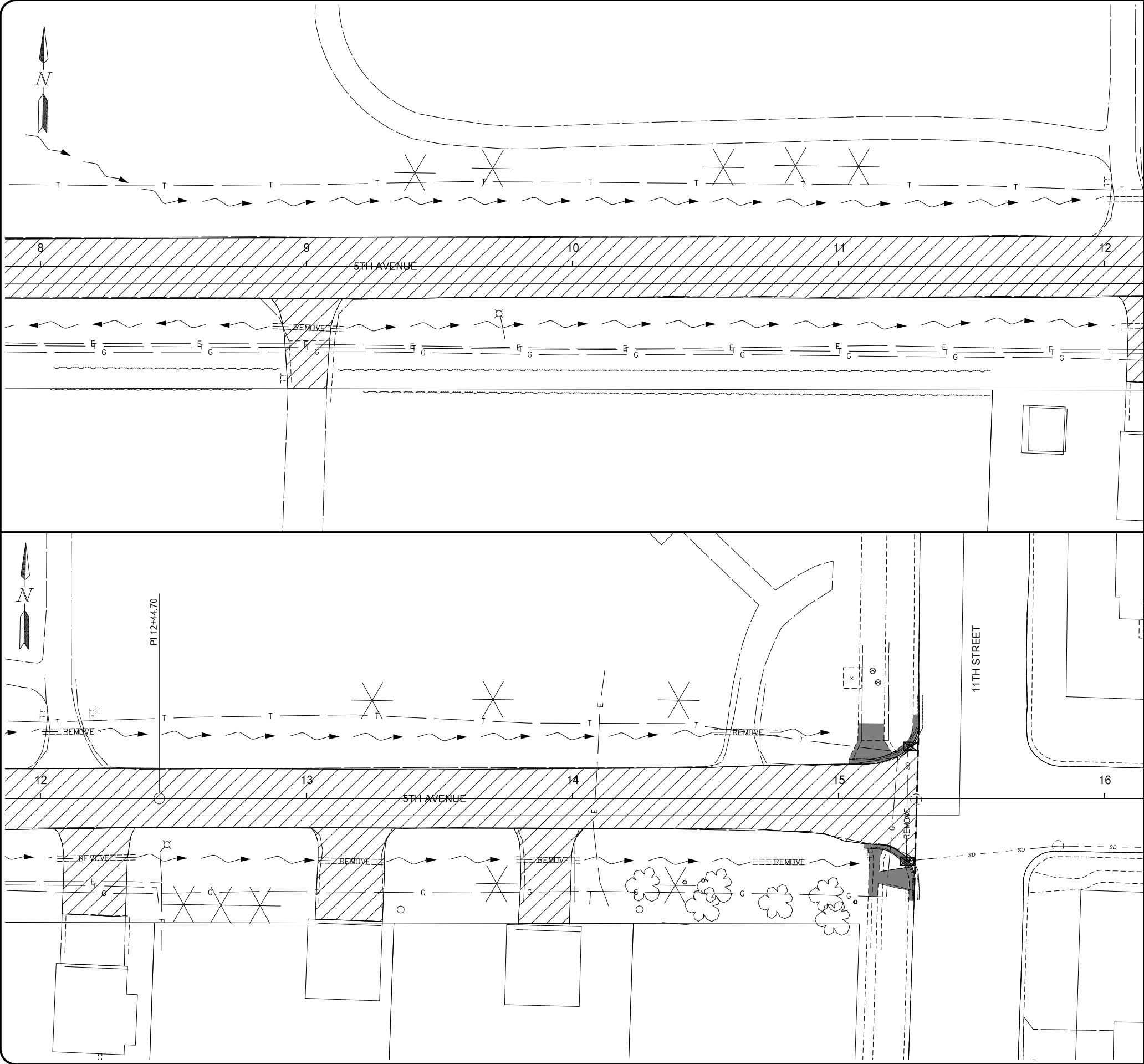
REV	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT			
CITY PROJECT NO. ST24-287			
WHAPETON, NORTH DAKOTA			
REMOVALS - 5TH AVENUE			
DRAWN BY:	AM	DESIGNED BY:	IEI
CHECKED BY:	ZHDD	PROJECT NO.:	ER2400139
		DATE:	2025

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- REMOVE — PIPE REMOVAL
- SAWCUT PAVEMENT
- CONCRETE REMOVAL
- PAVEMENT REMOVAL
- INLET REMOVAL



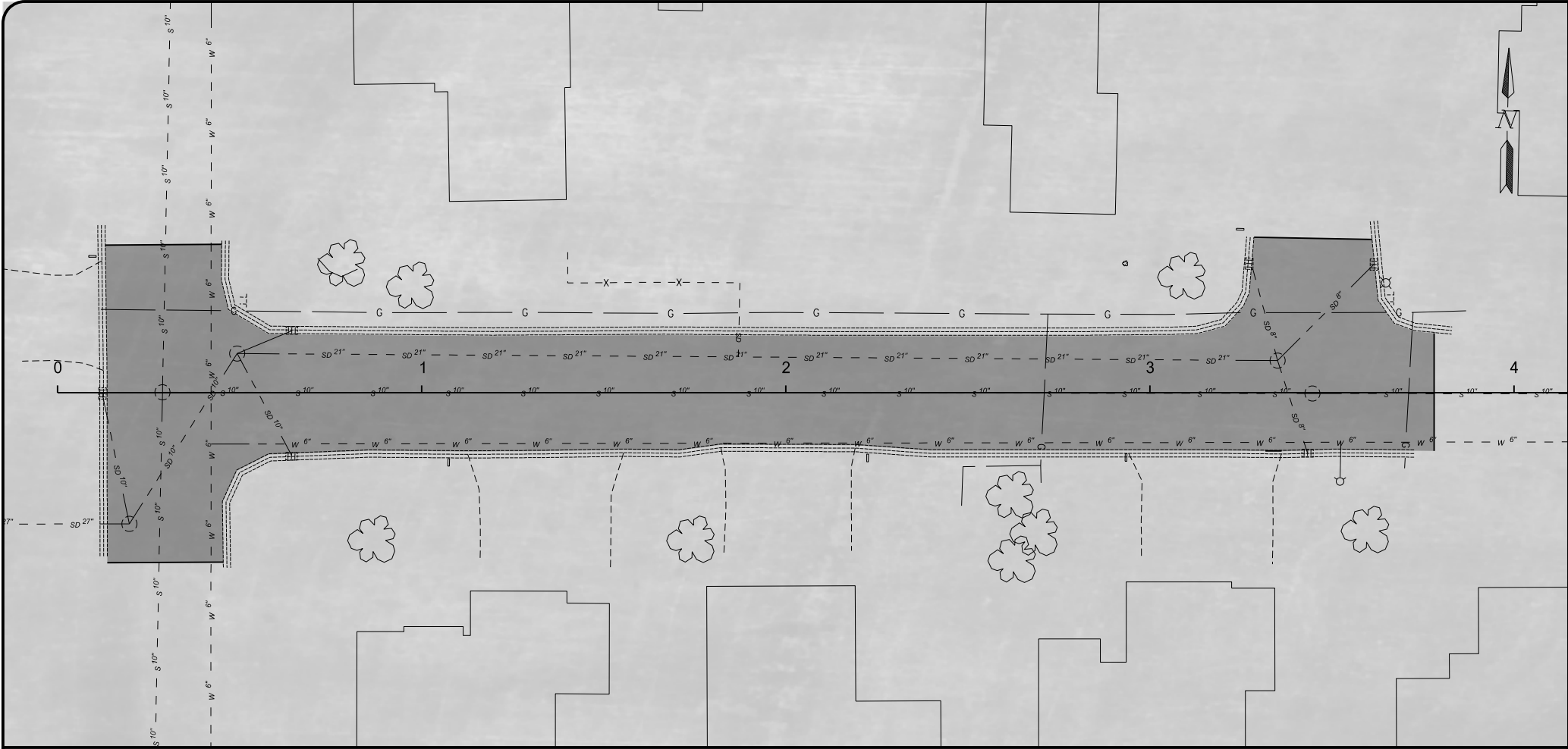
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WEST CENTRAL STREET IMPROVEMENT CITY PROJECT NO. ST24-287 WHA PETON, NORTH DAKOTA			
REMOVALS - 5TH AVENUE			
DRAWN BY: AM	DESIGNED BY: ZHDD	PROJECT NO. ER2400139	DATE: 2025

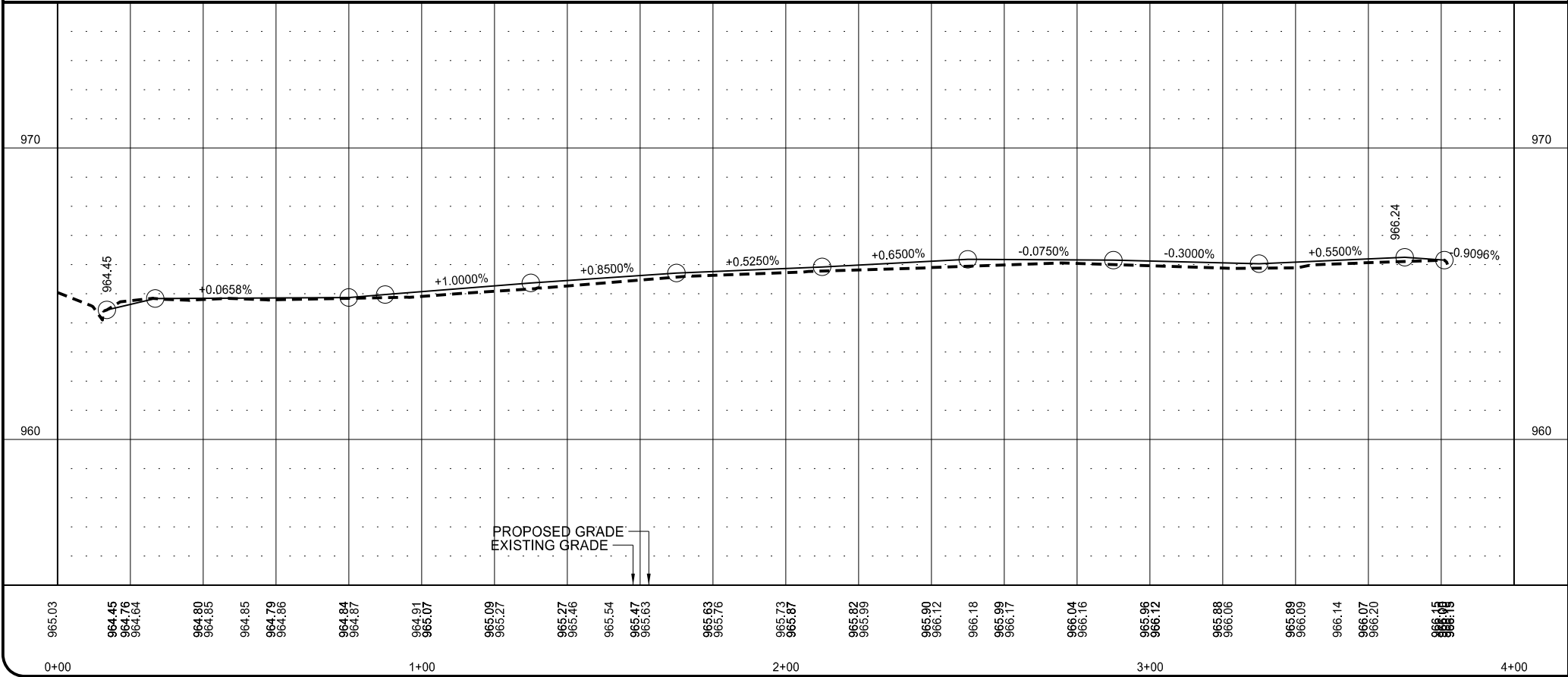
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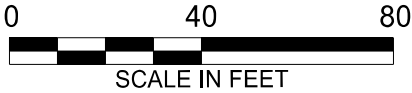


6TH AVENUE NORTH



Sta 0+00 to 4+00		
Borrow Excavation		#N/A
Reshape Roadway	1613	SY
Geotextile Fabric - Type R1	1686	SY
4" PVC Perforated Pipe	800	LF

MINE AND BLEND
SUBGRADE PREP, BASE,
GRADING, HBP PAVEMENT



REV	DATE	BY	DESCRIPTION

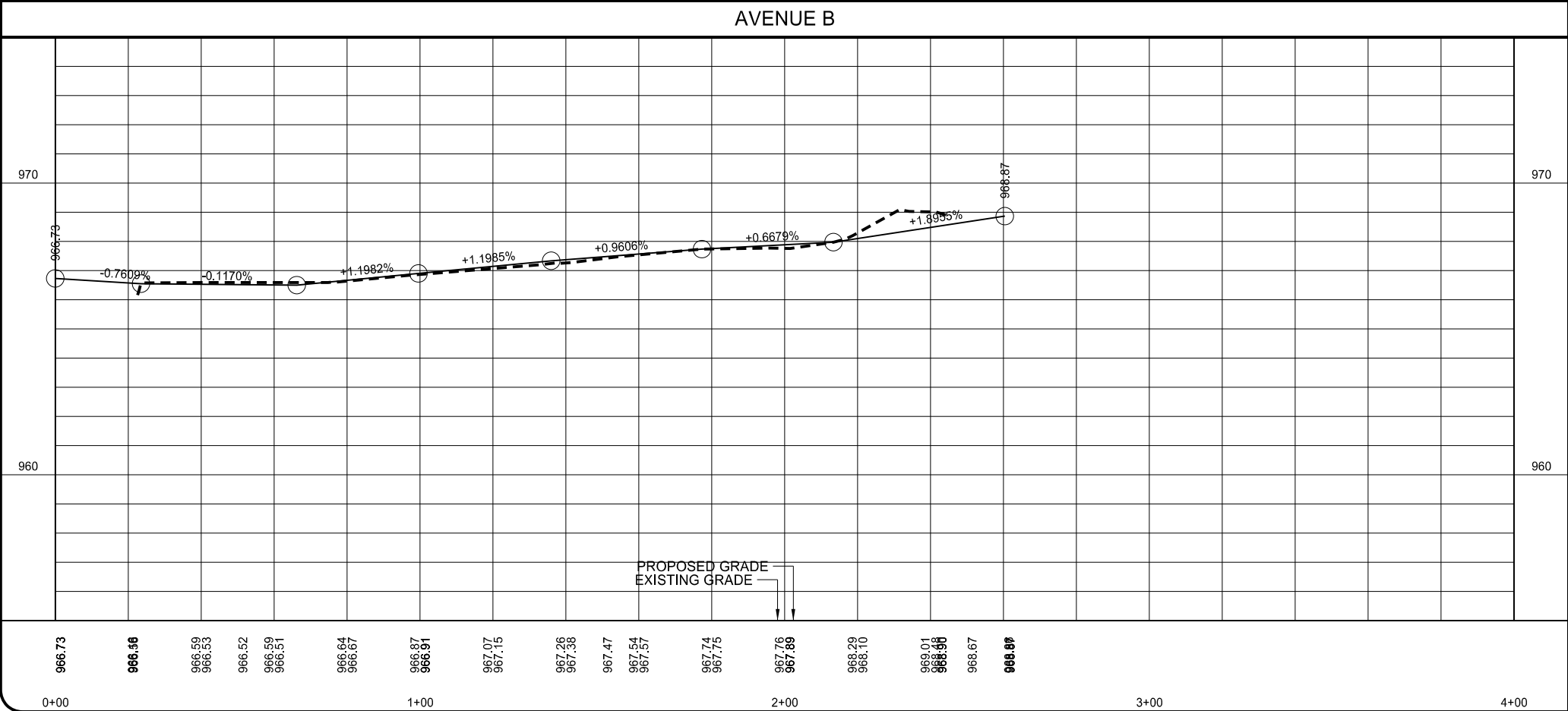
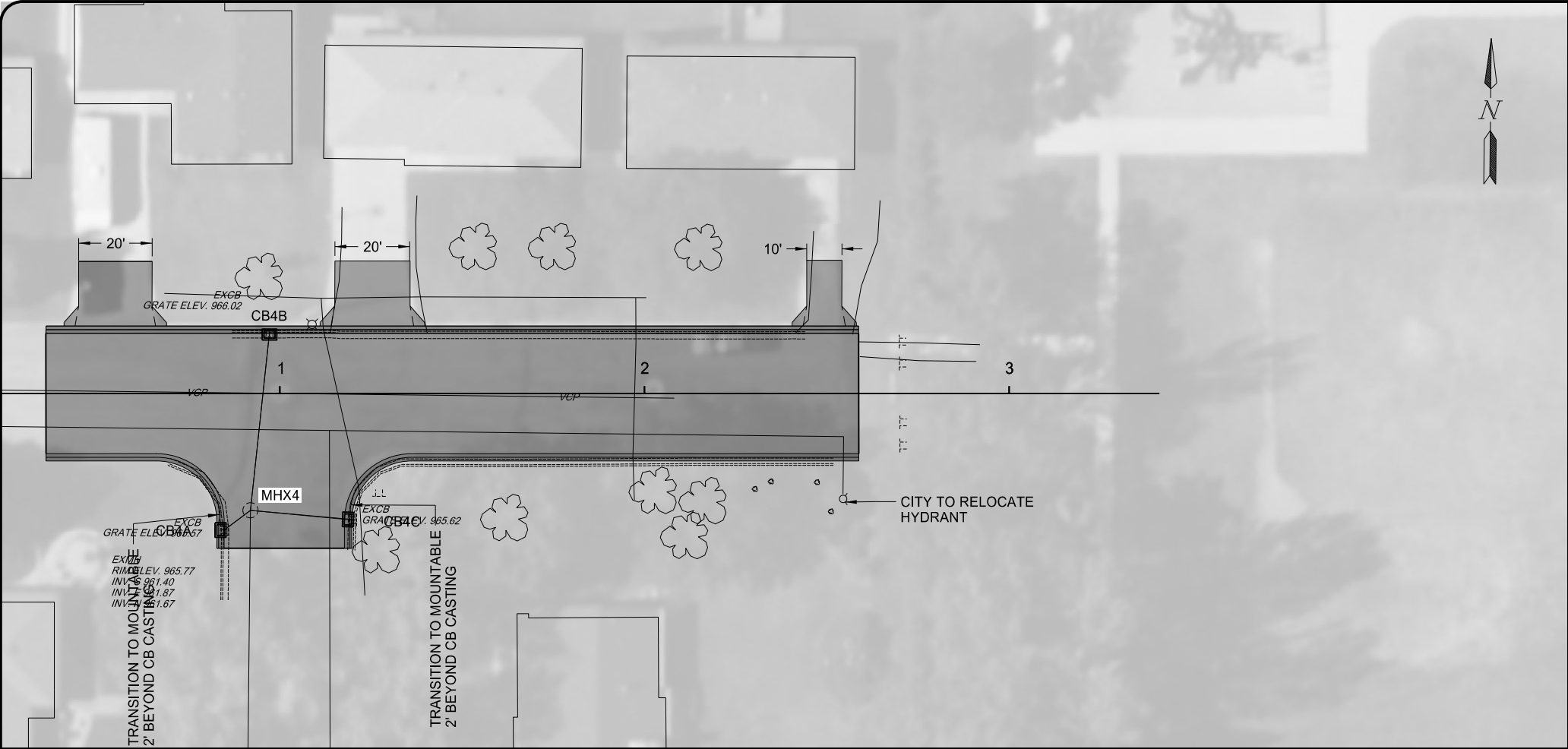
WEST CENTRAL STREET IMPROVEMENT			
CITY PROJECT ST24-287			
WHAPETON, NORTH DAKOTA			
PLAN AND PROFILE			
DRAWN BY:	AM	DESIGNED BY:	LEI
CHECKED BY:	ZHDD	PROJECT NO.:	ER2400139
		DATE:	JANUARY, 2025

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SECTION
PP
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Sta 0+00 to 3+00		
Curb and Gutter - Type 1	445	LF
6" Reinforced Concrete Driveway	112	SY
Type II Inlet	3	EA
Type II Inlet Casting & Cover	3	EA
12" RCP	104	LF
Reshape Roadway	927	SY
Insulate Watermain	2	EA
4" PVC Perforated Pipe	445	LF

12" RCP		
MH4 TO CB4A	13	LF
MH4 TO CB4B	40	LF
MH4 TO CB3C	31	LF

STS MHX4	
RIM	965.77
INV	961.40

STS CB4A	
STA	0+40 - 25' RT (BOC)
GRATE	965.57
INV (E)	962.00 (12" RCP)

STS CB4B	
STA	0+59 - 17' LT (BOC)
GRATE	966.02
INV (S)	962.00 (12" RCP)

STS CB4C	
STA	0+88 - 25' RT (BOC)
GRATE	965.62
INV (W)	962.00 (12" RCP)

 SUBGRADE PREP, BASE, GRADING, HBP PAVEMENT



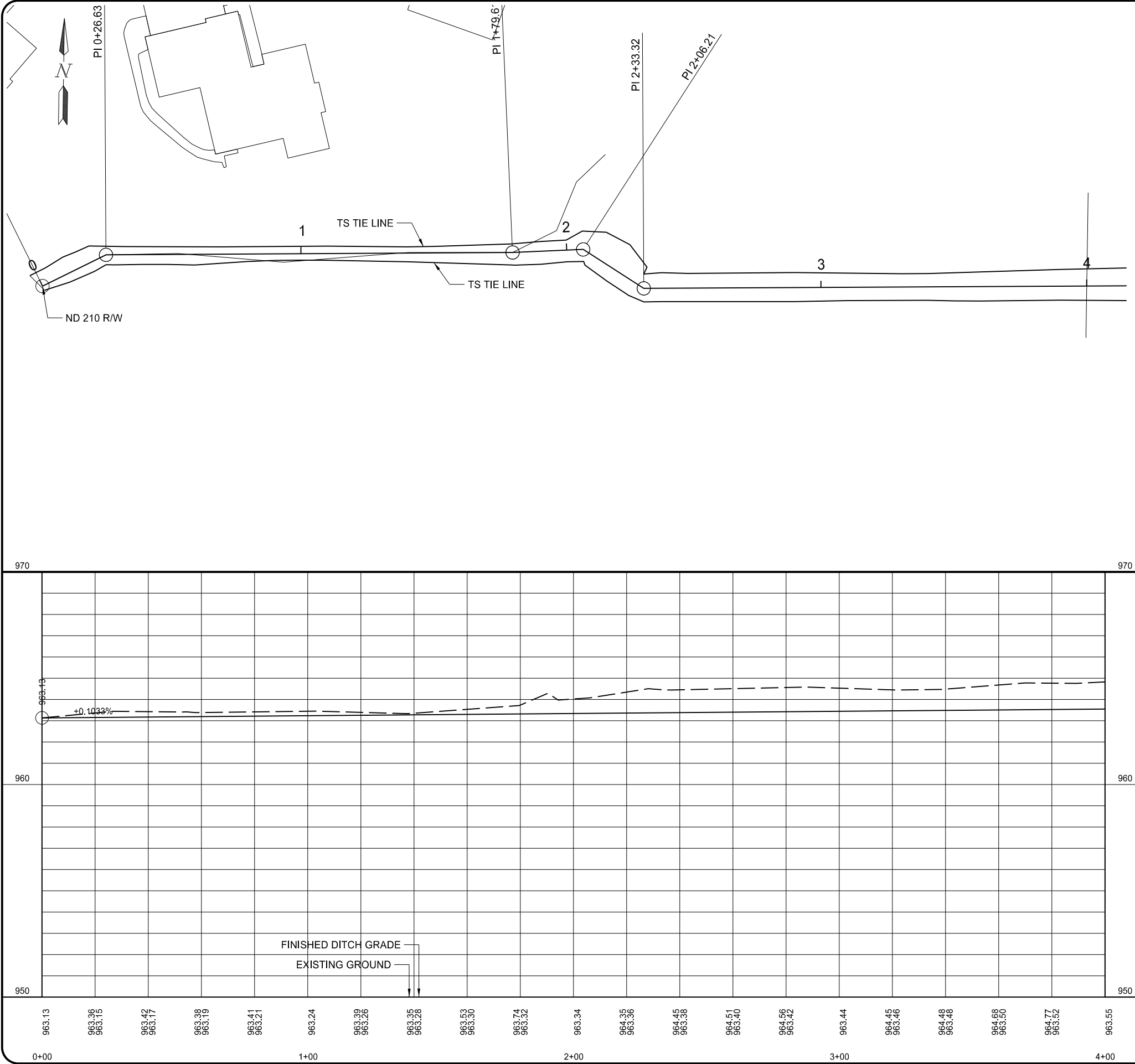
REV	NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT			
CITY PROJECT ST24-287			
WHA PETON, NORTH DAKOTA			
PLAN AND PROFILE			
DRAWN BY: AM	CHECKED BY: ZHDD	DESIGNED BY: LH	PROJECT NO. ER2400139
			DATE: JANUARY, 2025

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Sta 0+00 to 4+00		
Topsoil	67	CY



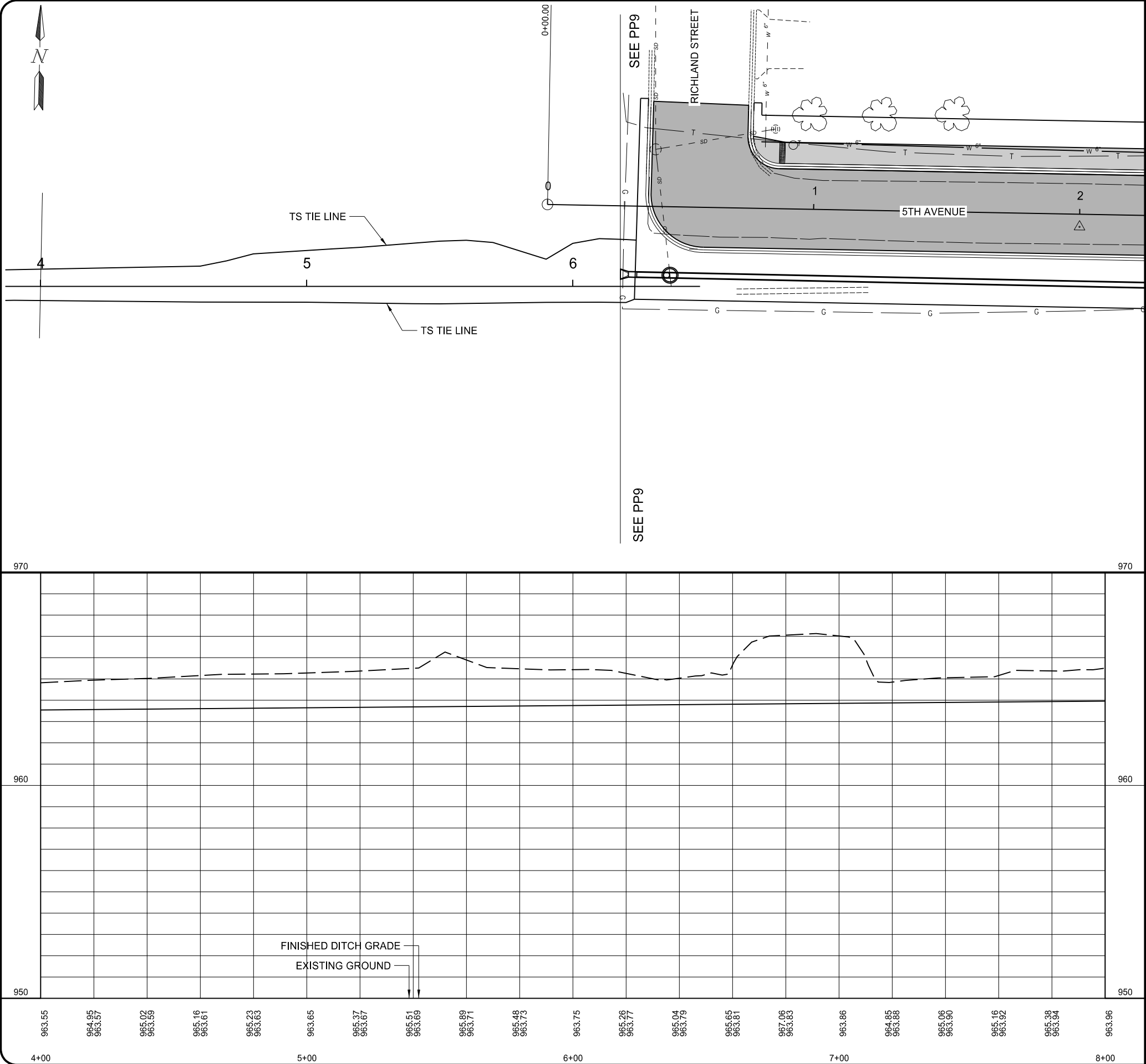
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WEST CENTRAL STREET IMPROVEMENT			
CITY PROJECT NO. ST24-287			
WAHPETON, NORTH DAKOTA			
DITCH PLAN AND PROFILE - 5TH AVENUE			
DRAWN BY: AM	DESIGNED BY: JH	PROJECT NO: ER240139	DATE: 2025
CHECKED BY: ZHDD			

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Sta 4+00 to 6+50		
Topsoil	76	CY



REV NO	DATE	BY	DESCRIPTION

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CITY PROJECT NO. ST24-287
WAHPETON, NORTH DAKOTA

DITCH PLAN AND PROFILE - 5TH AVENUE

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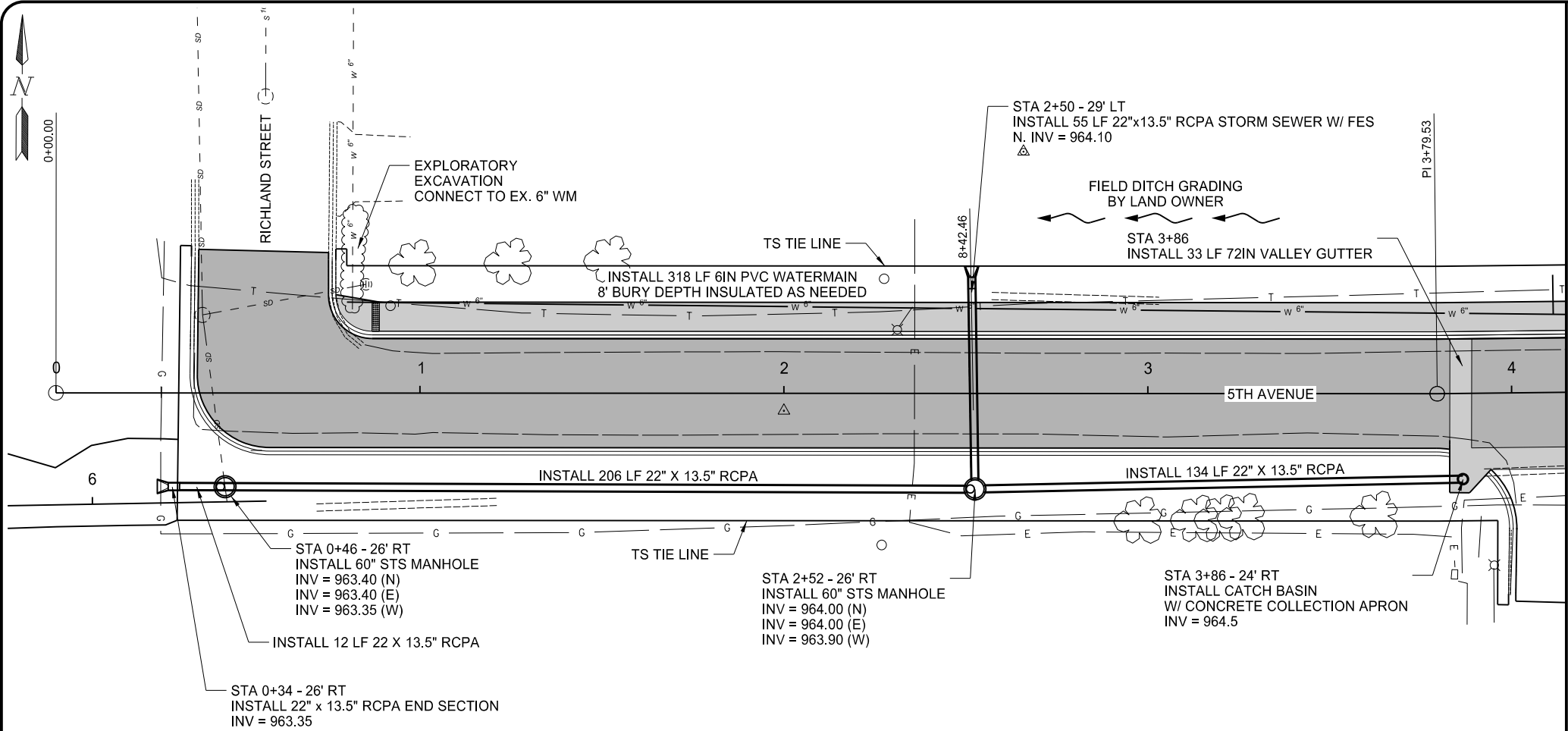
DESIGNED BY: LH
PROJECT NO: ER240139
DATE: 2025

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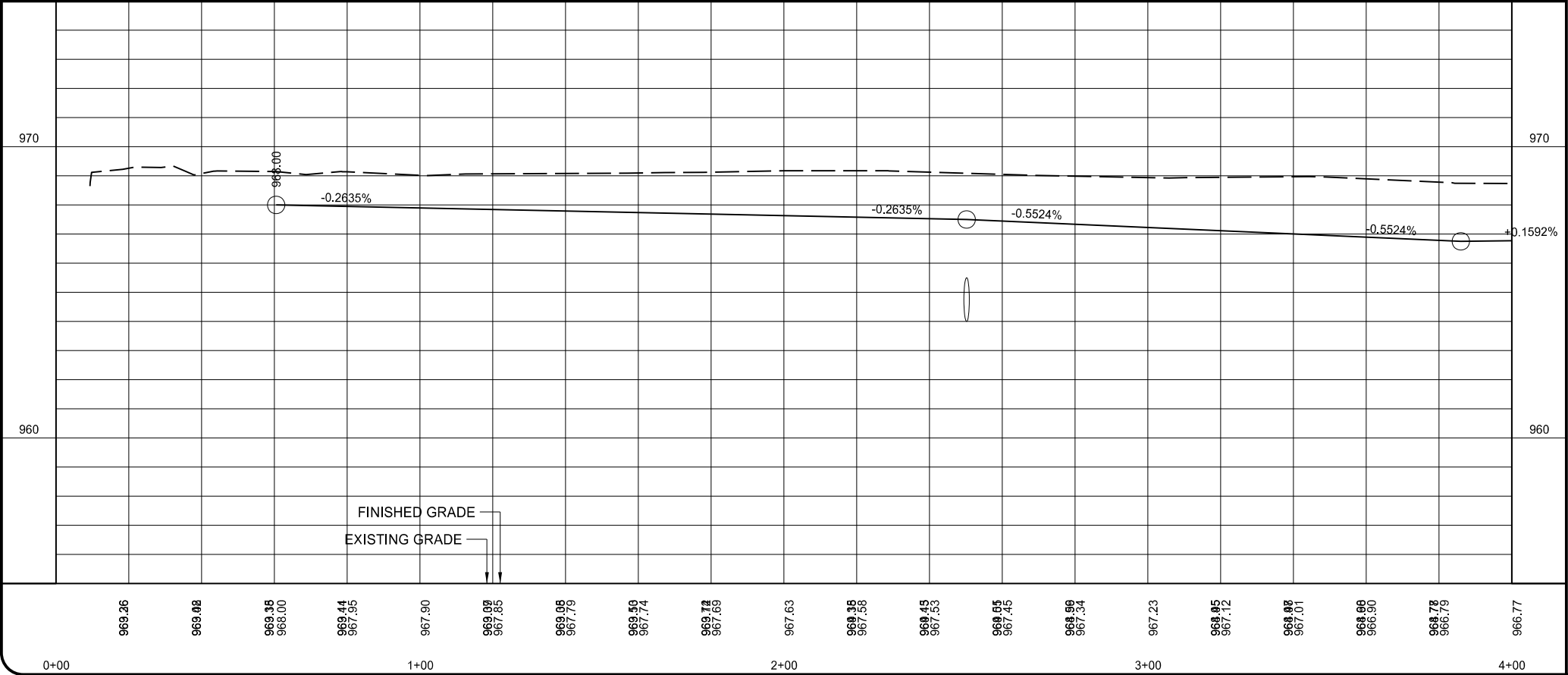
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4
SHEET NO.



Sta 0+00 to 4+00		
6" PVC Water Main	320	LF
Connect to Existing Water Main	1	EA
Ductile Iron Fittings	78	LBS
6" Gate Valve & Box	1	EA
Detectable Warning Panels	16	SF
Curb and Gutter - Type 1	761	LF



REV	NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT
CITY PROJECT NO. ST24-287
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PLAN AND PROFILE - 5TH AVENUE

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DESIGNED BY: LH
PROJECT NO: ER2400139
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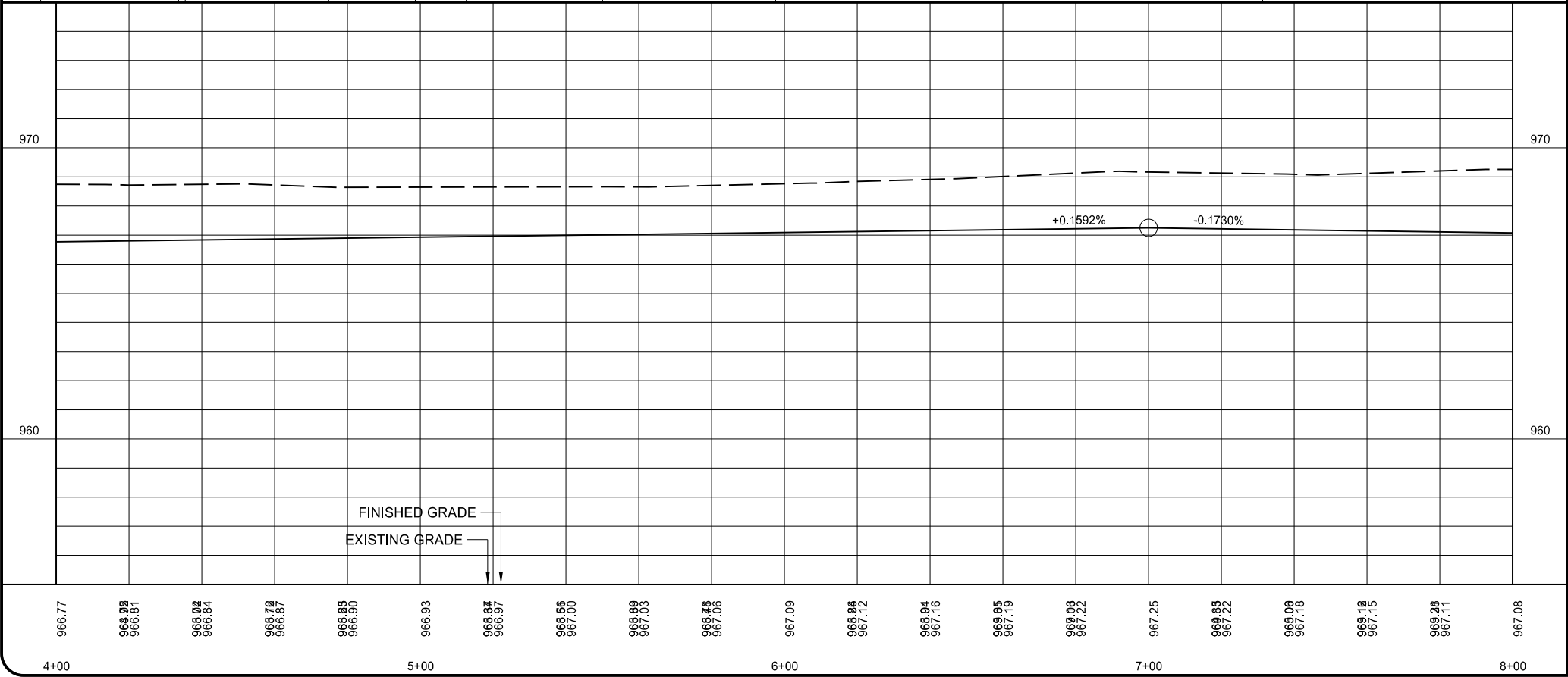
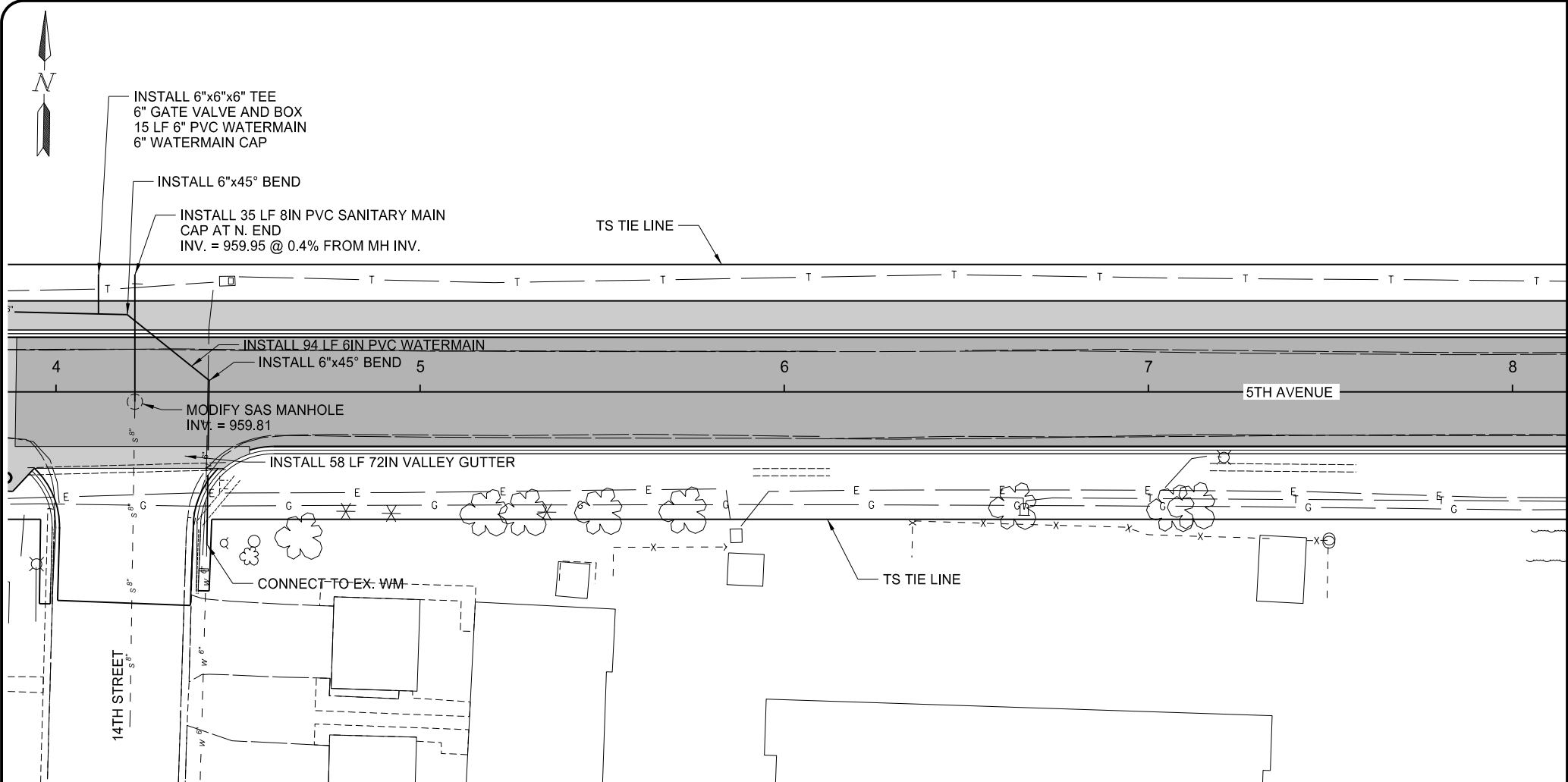
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5
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Sta 4+00 to 8+00		
6" PVC Water Main	94	LF
Connect to Existing Water Main	1	EA
Ductile Iron Fittings	78	LBS
6" Gate Valve & Box	1	EA
Curb and Gutter - Type 1	791	LF
8" PVC Sanitary Sewer	35	LF
Modify Existing Sanitary Manhole	1	EA

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WAHPETON, NORTH DAKOTA

PLAN AND PROFILE - 5TH AVENUE

DRAWN BY: AM
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PROJECT NO: ER2400139
DATE: 2025

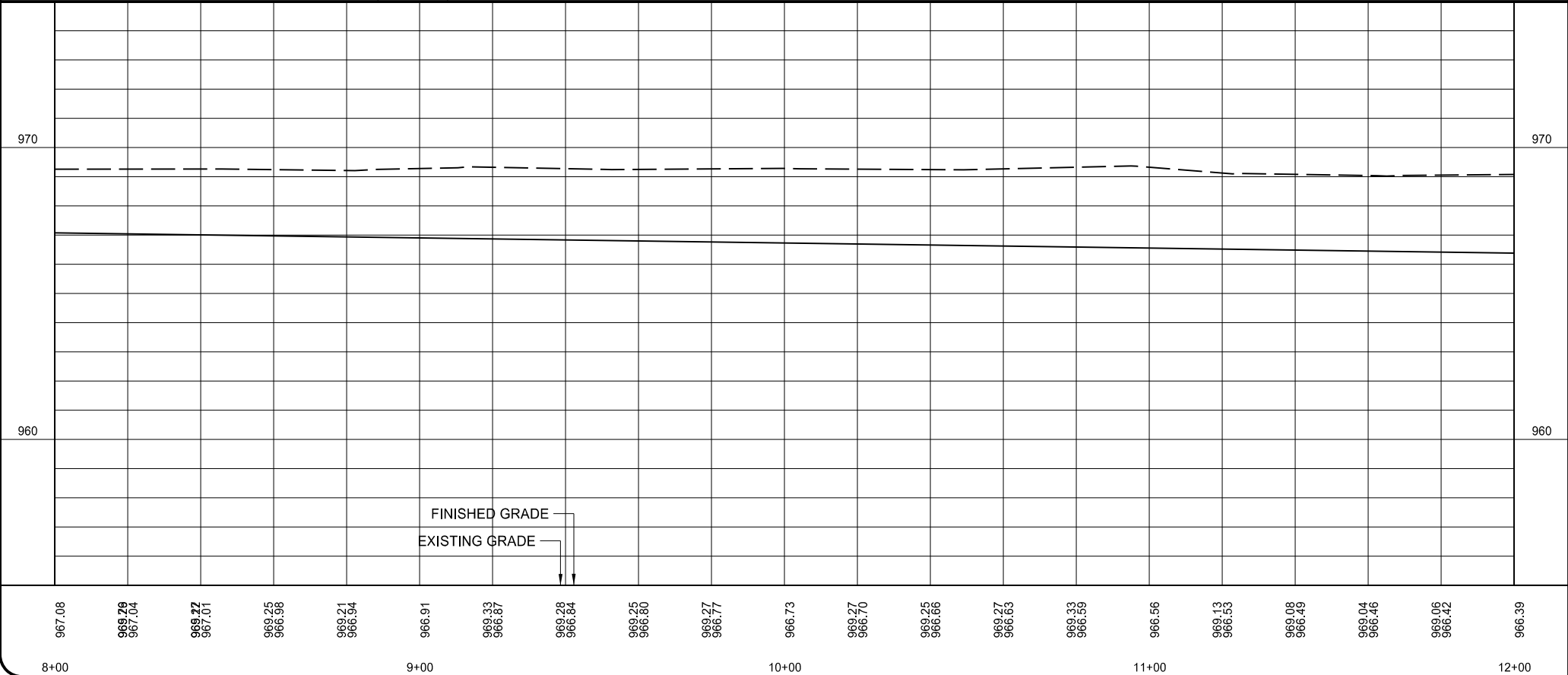
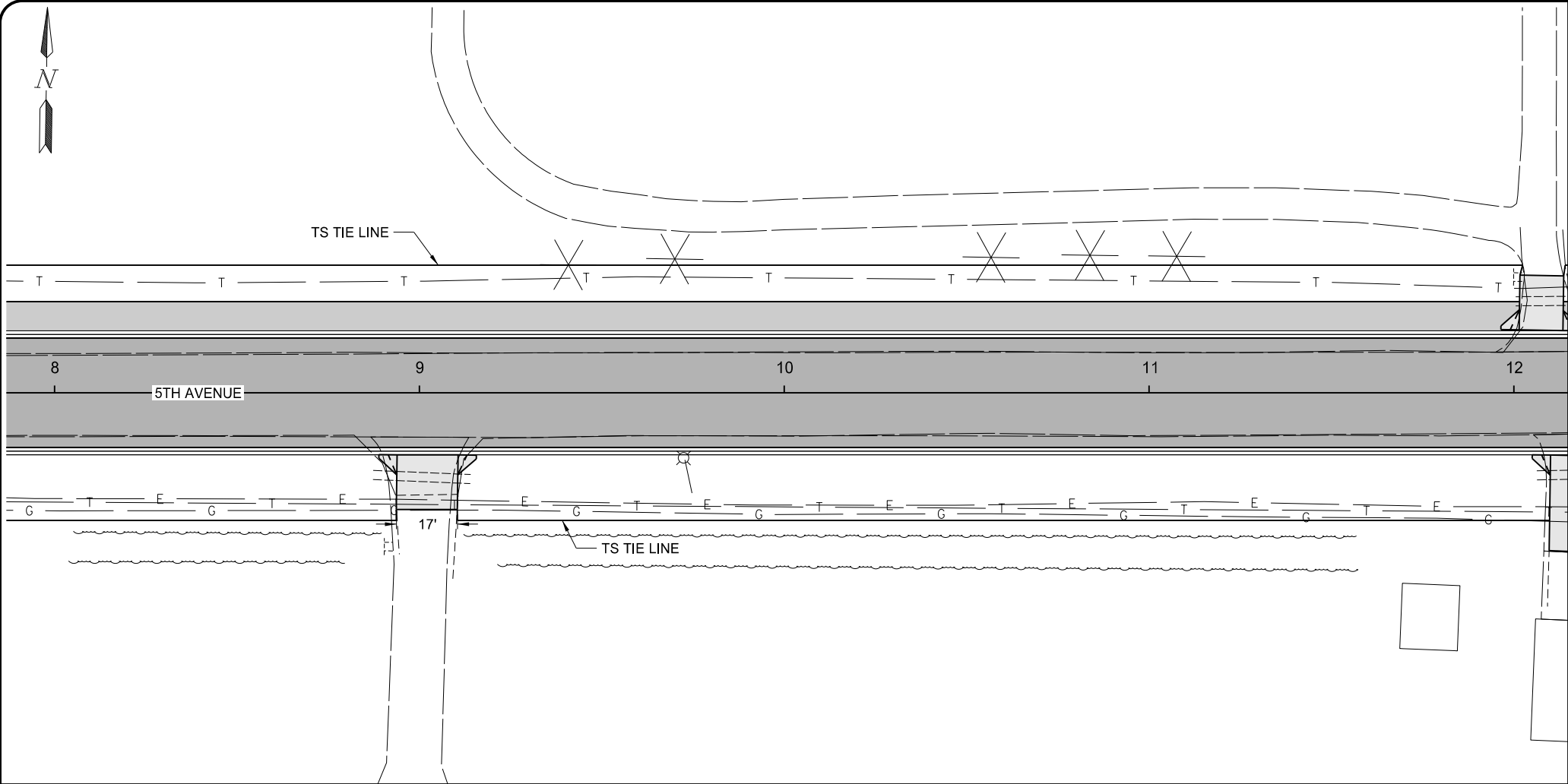
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6
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Sta 8+00 to 12+00		
Curb and Gutter - Type 1	800	LF
6" Reinforced Concrete Driveway	32	SY



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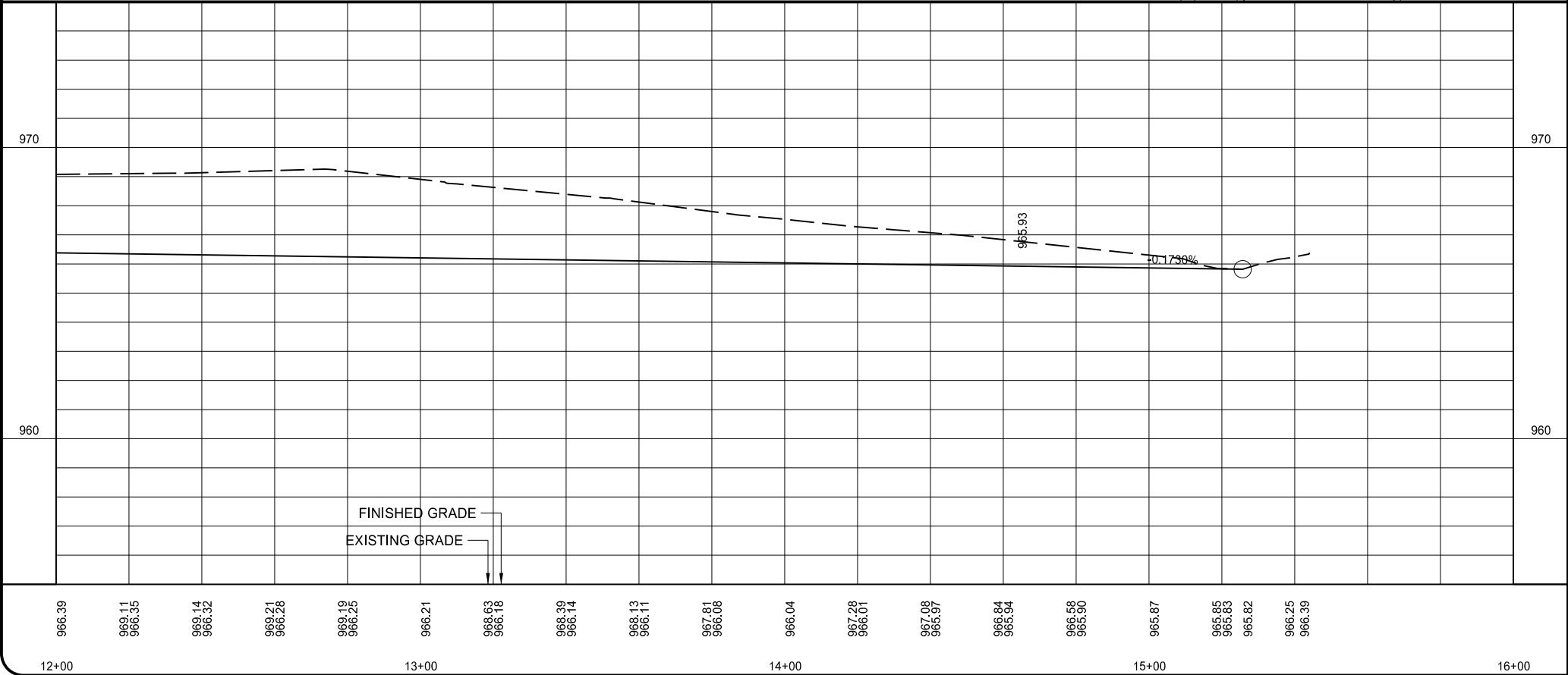
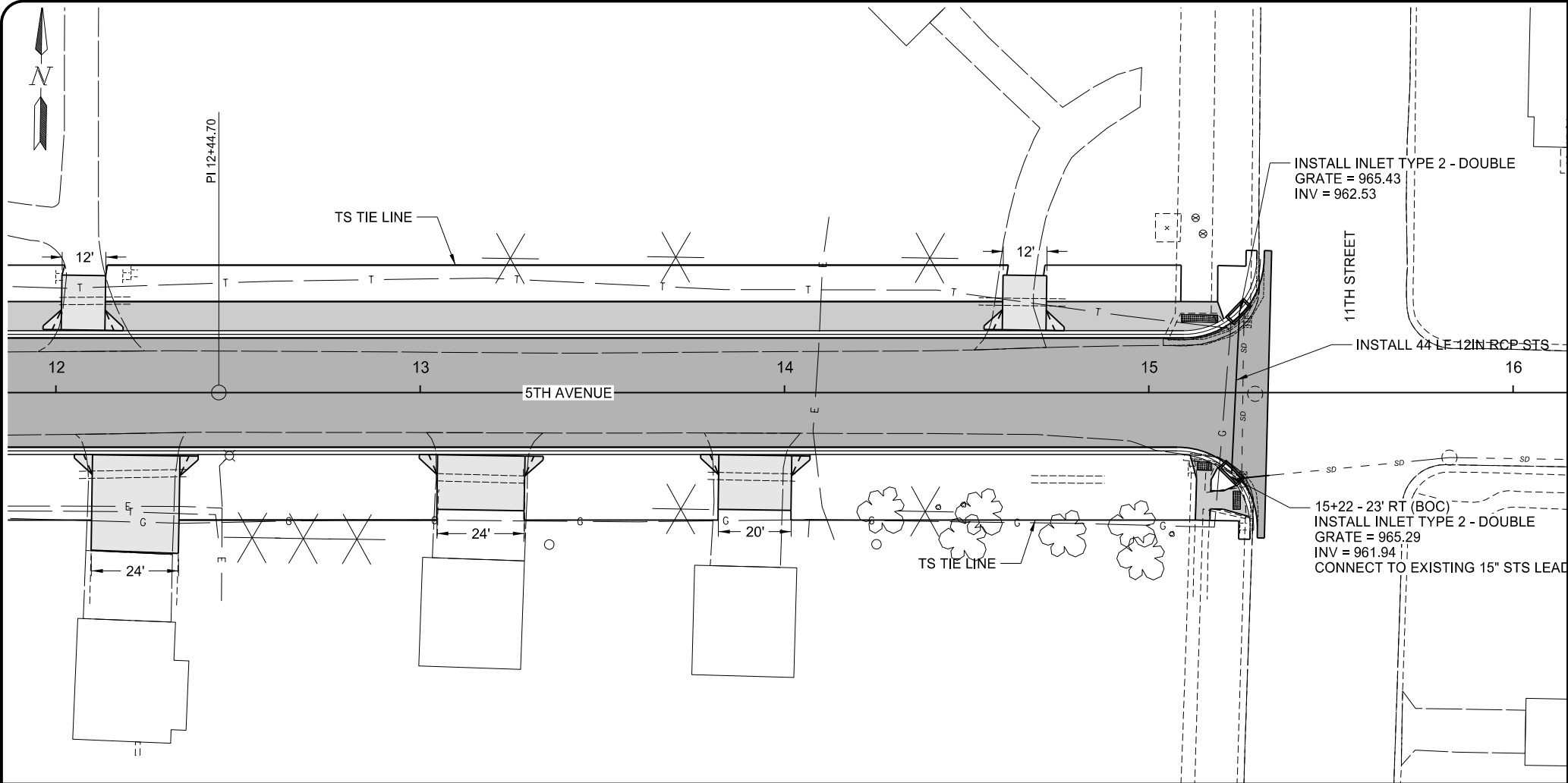
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CITY PROJECT NO. ST24-287			
WAHPETON, NORTH DAKOTA			
PLAN AND PROFILE - 5TH AVENUE			
DRAWN BY: AM	DESIGNED BY: ZHDD	PROJECT NO: ER2400139	DATE: 2025
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Sta 12+00 to 15+32		
Curb and Gutter - Type 1	684	LF
6" Reinforced Concrete Driveway	202	SY
Detectable Warning Panels	38	SF



REV	DATE	BY	DESCRIPTION

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PLAN AND PROFILE - 5TH AVENUE

DRAWN BY: AM ZHDD DESIGNED BY: LH
PROJECT NO: ER2400139 DATE: 2025

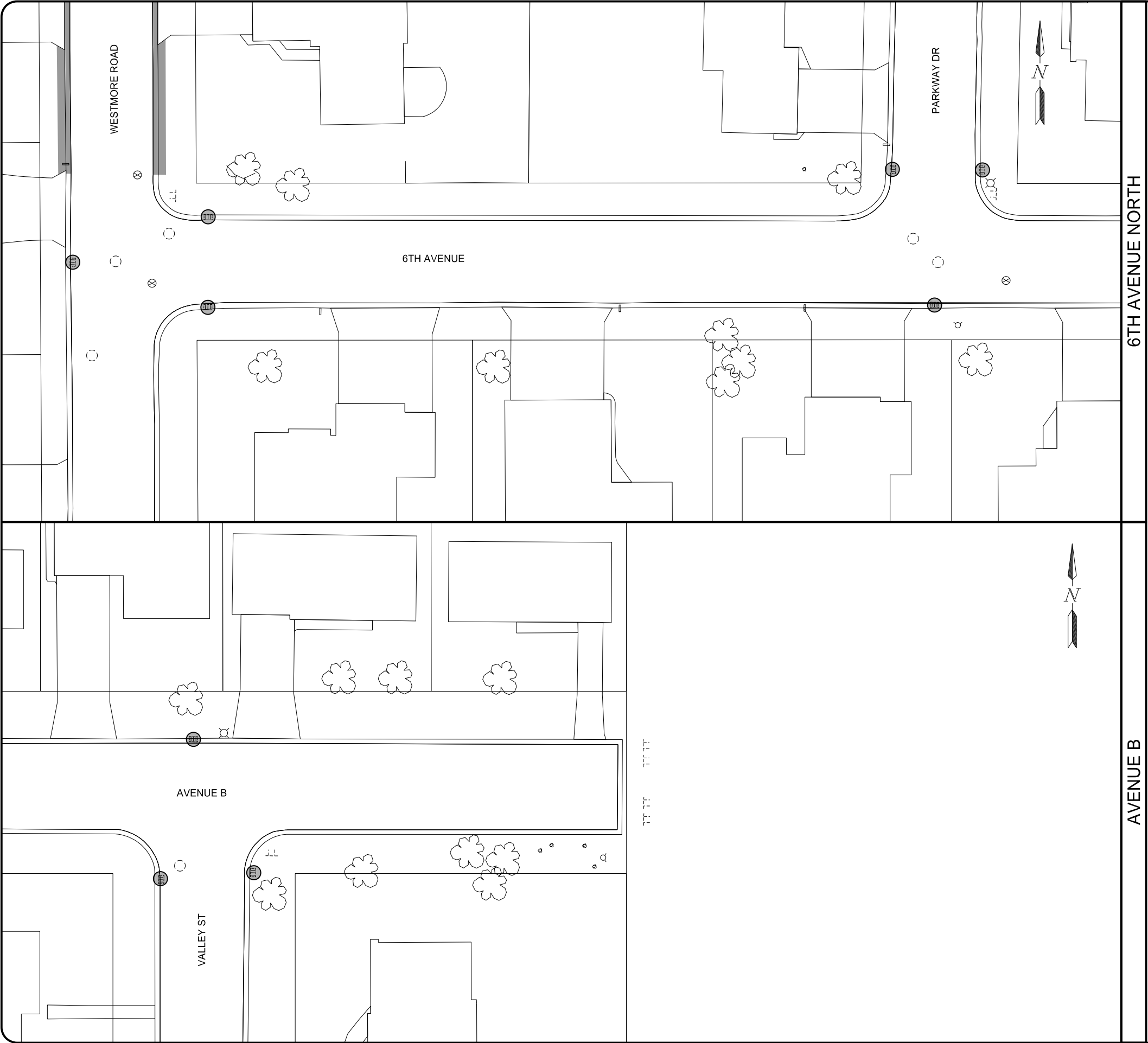
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6TH AVENUE NORTH

AVENUE B

● INLET PROTECTION



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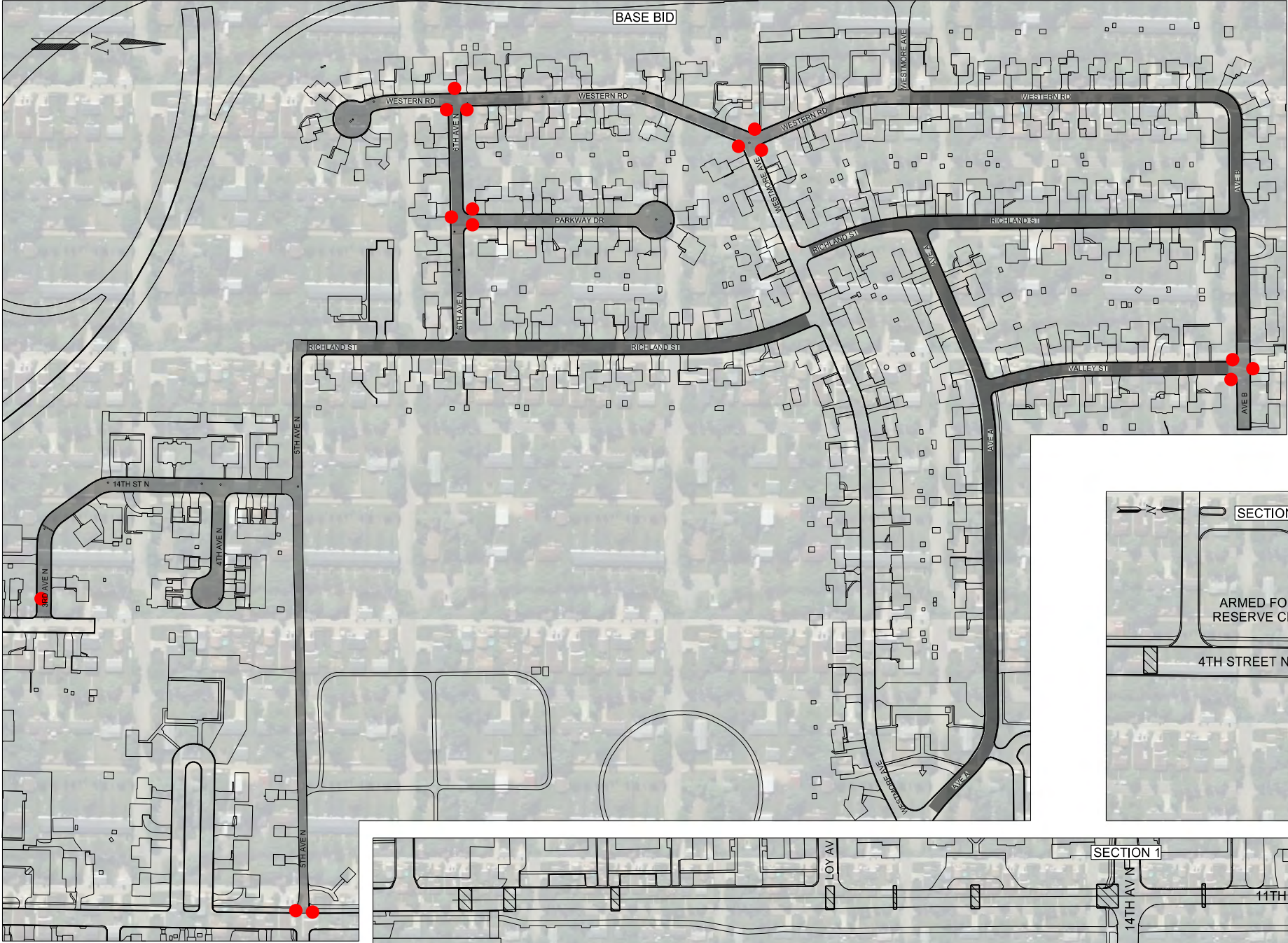
WEST CENTRAL STREET IMPROVEMENT CITY PROJECT NO. 24-287 WAHPETON, NORTH DAKOTA			
TEMPORARY EROSION CONTROL			
DRAWN BY: AM	DESIGNED BY: LH	PROJECT NO: ER2400139	DATE: JANUARY 2025
CHECKED BY: ZHDD			

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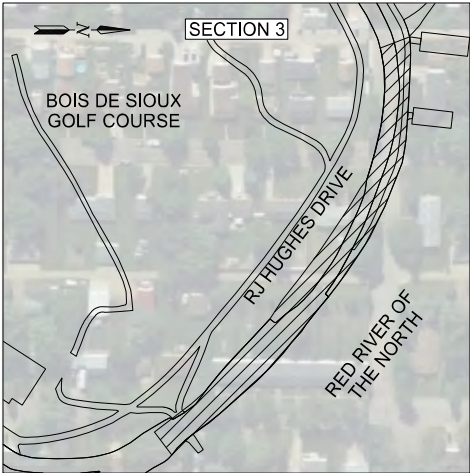
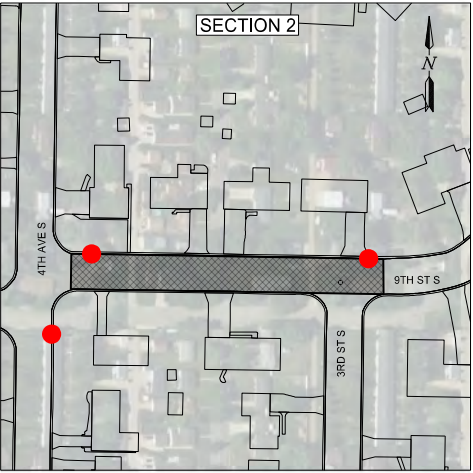
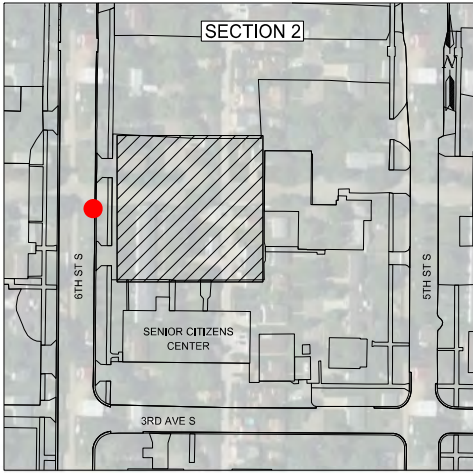
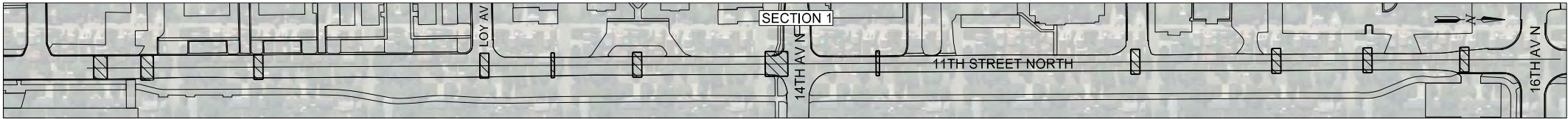
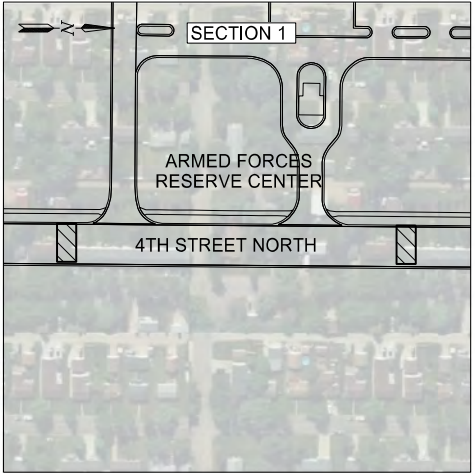
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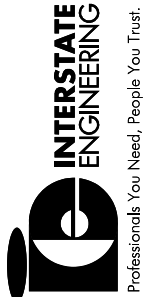
● INLET PROTECTION



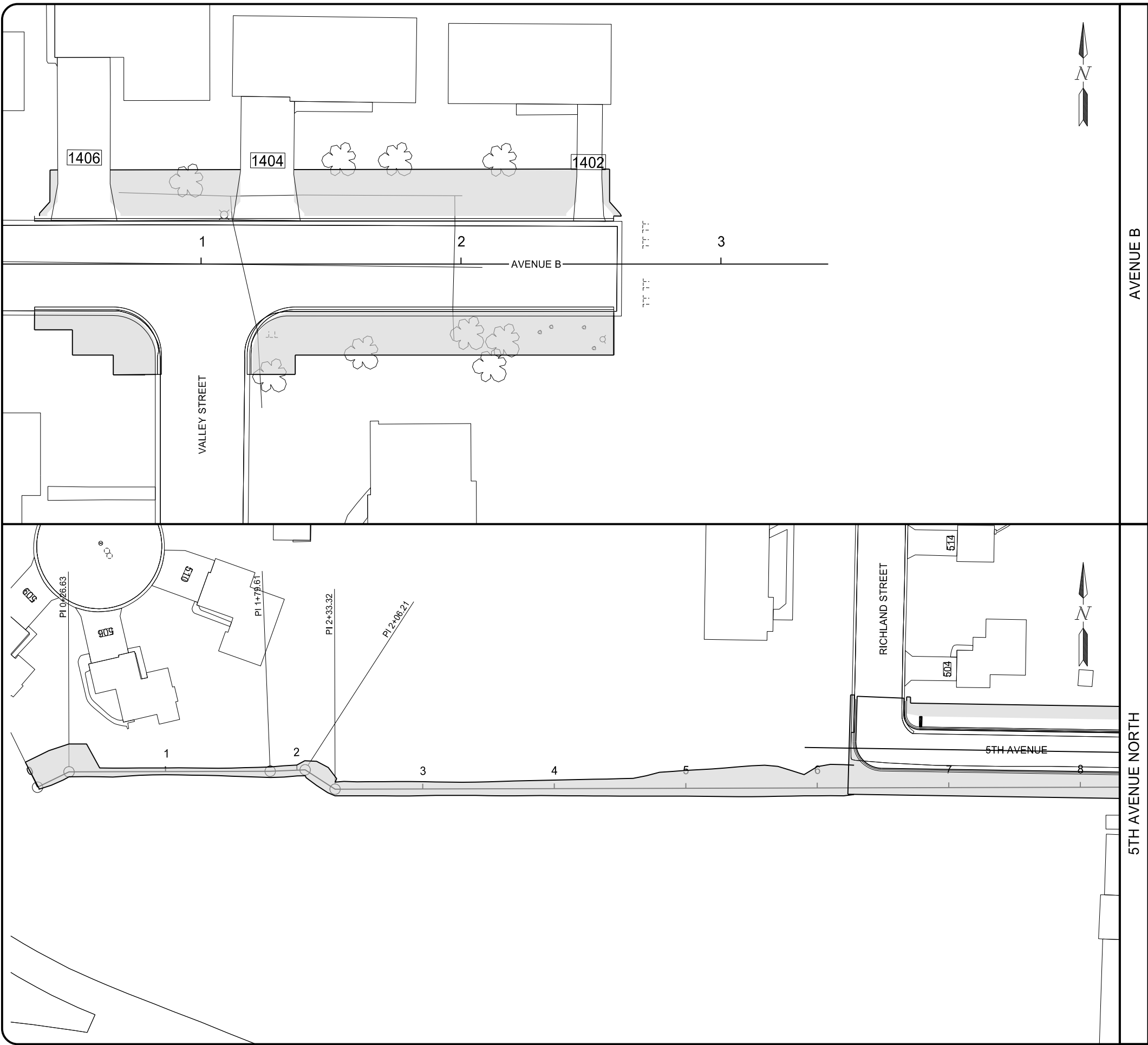
REV NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT CITY PROJECT ST24-287 WAHPETON, NORTH DAKOTA			
TEMPORARY EROSION CONTROL			
DRAWN BY: AM	SURVEYED BY: JEL	PROJECT NO: ER2400139	DATE: JANUARY, 2025
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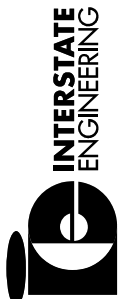


TOPSOIL, SEEDING, HYDROMULCHING

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WEST CENTRAL STREET IMPROVEMENT CITY PROJECT ST24-287 WAPPETON, NORTH DAKOTA		PROJECT NO: ER240139	
DRAWN BY: _____	AM _____	DESIGNED BY: _____	DATE: _____
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PERMANENT EROSION CONTROL			

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A white rectangular label with rounded corners and a black border. It is divided into two horizontal sections by a black line. The top section contains the text "SECTION" in small black capital letters above the large black text "PE". The bottom section contains the large black text "1" above the text "SHEET NO." in small black capital letters.



TOPSOIL, SEEDING, HYDROMULCHING





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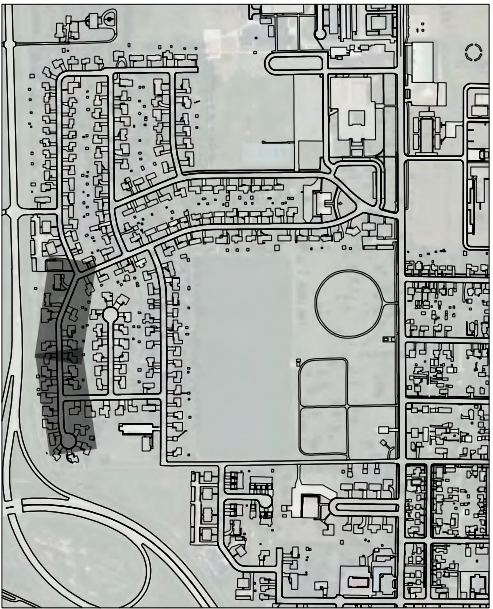
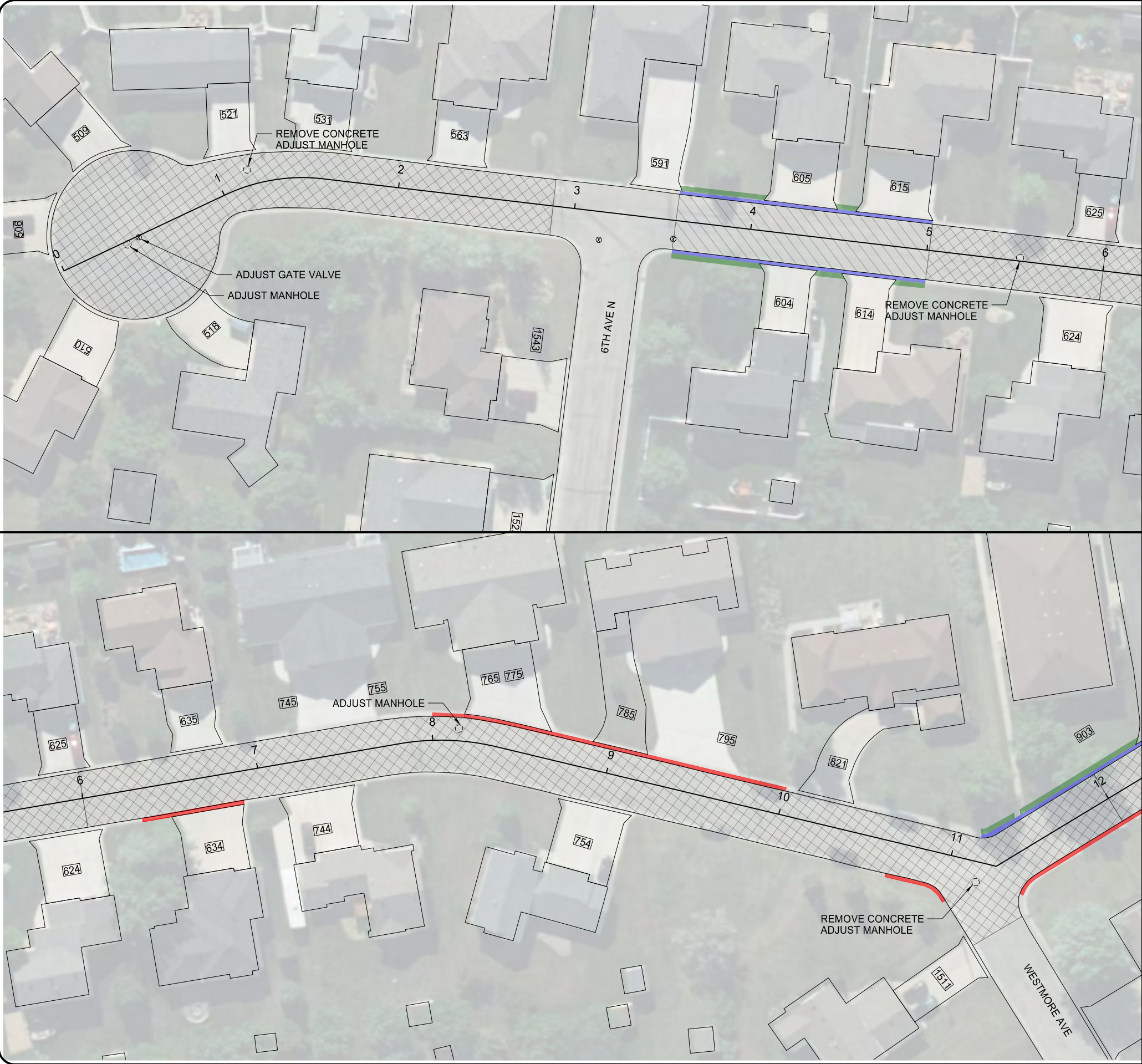
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CITY PROJECT ST24-287
WAHPETON, NORTH DAKOTA

PERMANENT EROSION CONTROL

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CHECKED BY: _____ ZHDD _____ DESIGNED BY: _____ LH _____ DATE: _____ JANUARY, 2025

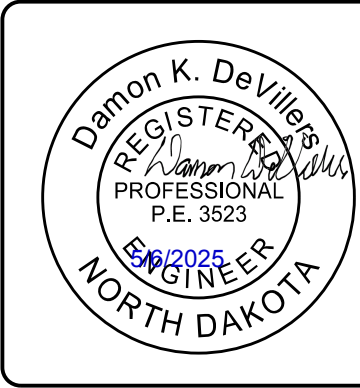
REV NO	DATE	BY	DESCRIPTION



Sta 0+00 to 2+90		
Remove Curb and Gutter	144	LF
Curb and Gutter - Type 1	144	LF
Asphalt Milling	1493	SY
Adjust Gate Valve	1	EA
Adjust Manhole	2	EA
Removal of Concrete	3	SY
Sta 3+64 to 6+00		
Asphalt Milling	345	SY
Adjust Manhole	1	EA
Mine and Blend	504	SY
Waste Material	168	CY
Sta 6+00 to 12+00		
Asphalt Milling	2122	SY
Adjust Manhole	2	EA
Remove Curb and Gutter	220	LF
Curb and Gutter - Type 1	220	LF
Mudjack Curb and Gutter	20	LF
Removal of Concrete	3	SY

- MILL AND OVERLAY
- SUBGRADE REPAIR AREA
- MUDJACK CURB AND GUTTER
- REMOVE/REPLACE CURB AND GUTTER
- BOULEVARD RESTORATION

NOTE: ALL LOCATIONS FOR MUDJACKING AND CURB & GUTTER REPLACEMENT ARE SUBJECT TO CHANGE AS DECIDED BY THE ENGINEER.



REV	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT
CITY PROJECT NO. 24-287
WAHPETON, NORTH DAKOTA

PAVING AND CURB REPAIR LAYOUT

PROJECT NO. ER2400139
DATE: JANUARY, 2025

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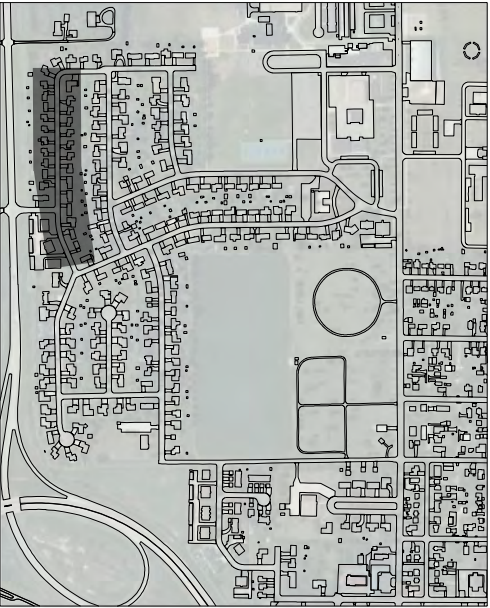
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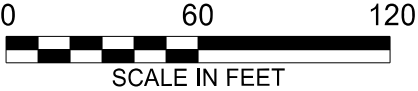


Sta 12+00 to 15+55		
Asphalt Milling	1246	SY
Adjust Manhole	1	EA
Mudjack Curb and Gutter	69	LF
Mudjack Concrete Driveway	1	SF
Remove Curb and Gutter	52	LF
Curb and Gutter - Type 1	52	LF
Removal of Concrete	3	SY

Sta 18+00 to 24+00		
Mudjack Curb and Gutter		LF
Mudjack Concrete Driveway		SF
Remove Curb and Gutter	51	LF
Curb and Gutter - Type 1	51	LF

- MILL AND OVERLAY
- MUDJACK CURB AND GUTTER
- REMOVE/REPLACE CURB AND GUTTER
- BOULEVARD RESTORATION

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REV	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT
CITY PROJECT NO. 24-287
WAHPETON, NORTH DAKOTA

PAVING AND CURB REPAIR LAYOUT

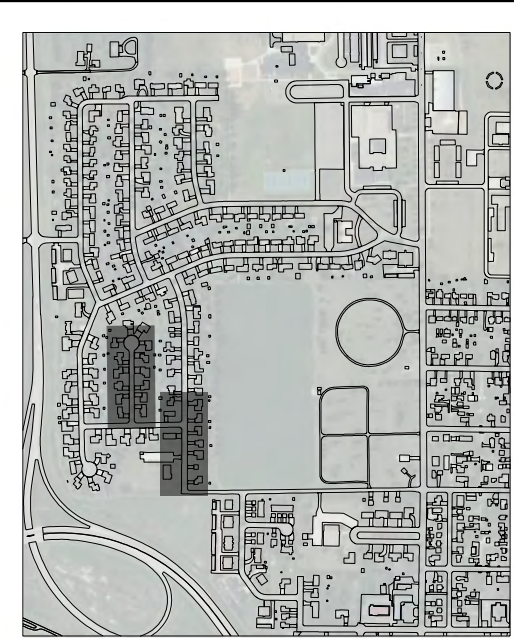
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2



Sta 0+36 to 5+64		
Asphalt Milling	2231	SY
Adjust Gate Valve	1	EA
Adjust Manhole	2	EA
MudJack Curb and Gutter		LF
MudJack Concrete Driveway		SF
Remove Curb and Gutter	25	LF
Curb and Gutter - Type 1	25	LF
Removal of Concrete	6	SY

Sta 0+00 to 6+00		
MudJack Curb and Gutter	27	LF
MudJack Concrete Driveway	1	SF
Remove Curb and Gutter	30	LF
Curb and Gutter - Type 1	30	LF

- MILL AND OVERLAY
- MUDJACK CURB AND GUTTER
- REMOVE/REPLACE CURB AND GUTTER
- BOULEVARD RESTORATION

NOTE: ALL LOCATIONS FOR MUDJACKING AND CURB & GUTTER REPLACEMENT ARE SUBJECT TO CHANGE AS DECIDED BY THE ENGINEER.



REV	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT			
CITY PROJECT NO. 24-287			
WAHPETON, NORTH DAKOTA			
PAVING AND CURB REPAIR LAYOUT			
DRAWN BY: AM	DESIGNED BY: ZHDD	PROJECT NO.: EP2400139	DATE: JANUARY, 2025

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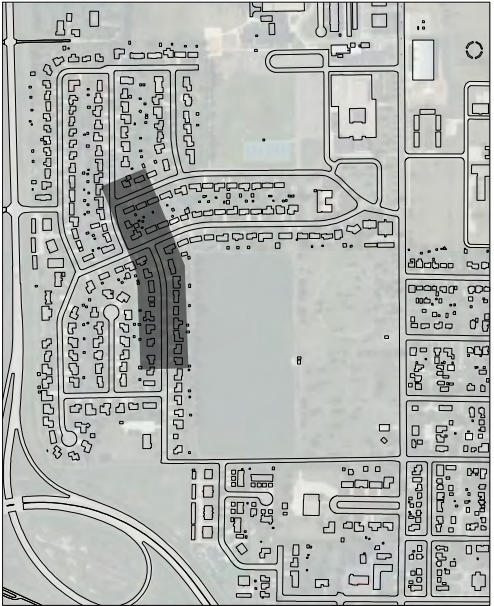
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RICHLAND STREET

RICHLAND STREET

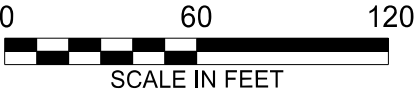


Sta 6+00 to 12+00		
Mudjack Curb and Gutter	60	LF
Mudjack Concrete Driveway		SF
Remove Curb and Gutter	42	LF
Curb and Gutter - Type 1	42	LF

Sta 12+00 to 13+38		
Mudjack Curb and Gutter		LF
Mudjack Concrete Driveway		SF
Remove Curb and Gutter		LF
Curb and Gutter - Type 1		LF

- MILL AND OVERLAY
- MUDJACK CURB AND GUTTER
- REMOVE/REPLACE CURB AND GUTTER
- BOULEVARD RESTORATION

NOTE: ALL LOCATIONS FOR MUDJACKING AND CURB & GUTTER REPLACEMENT ARE SUBJECT TO CHANGE AS DECIDED BY THE ENGINEER.



REV	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT
CITY PROJECT NO. 24-287
WHA PETON, NORTH DAKOTA

PAVING AND CURB REPAIR LAYOUT

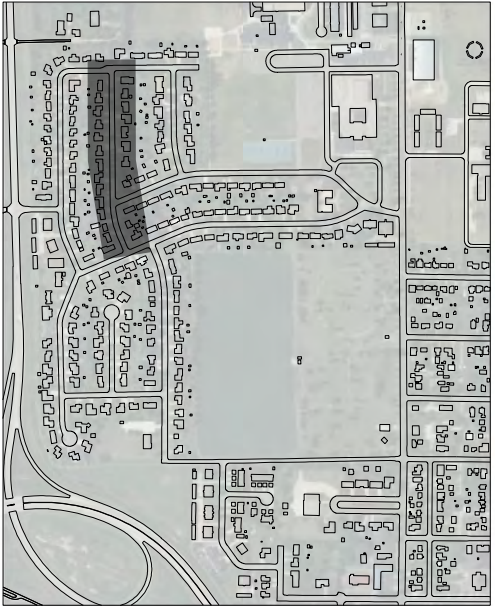
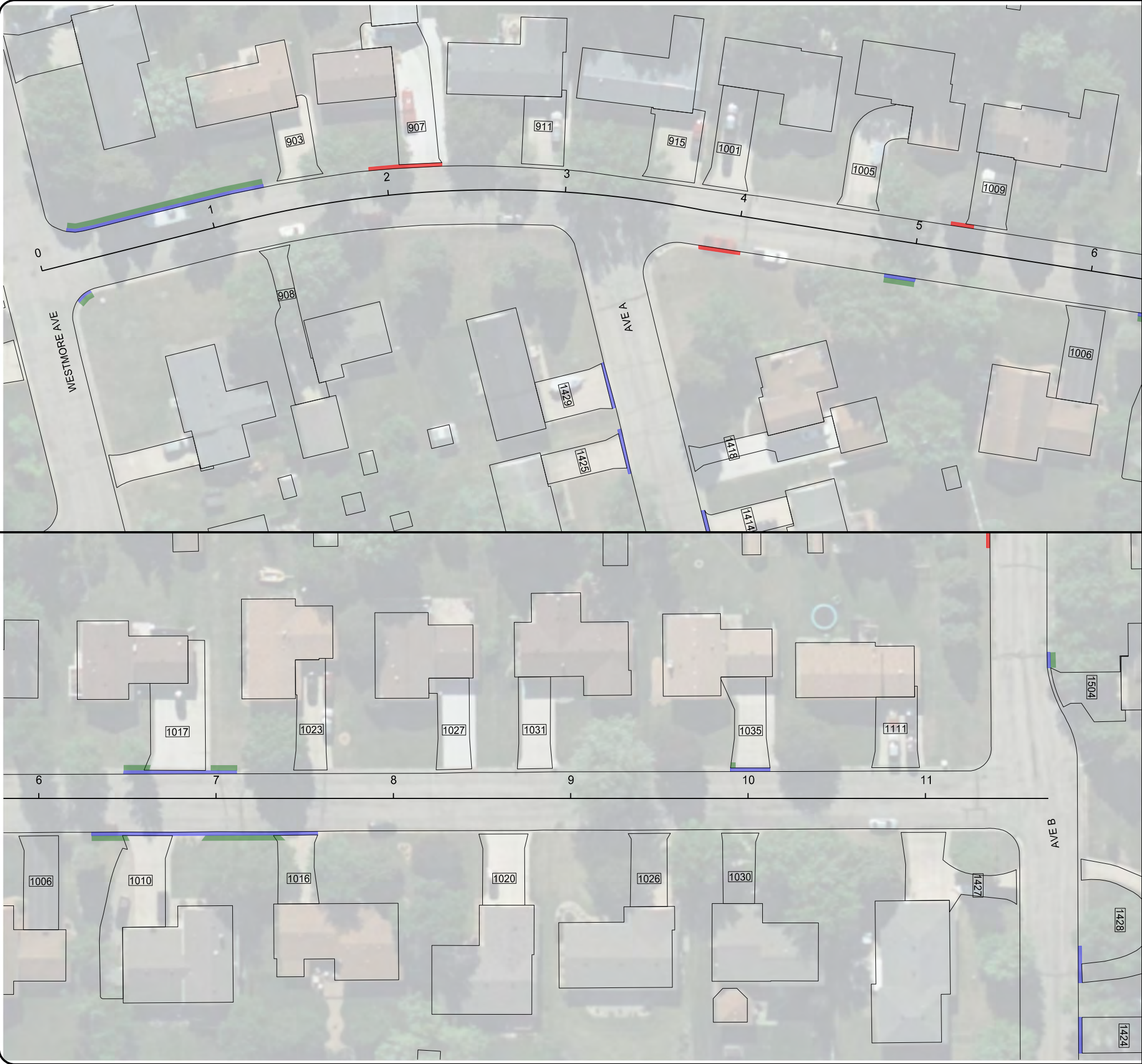
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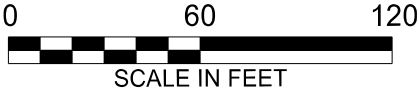


Sta 0+29 to 6+00		
Mudjack Curb and Gutter	65	LF
Mudjack Concrete Driveway	1	SF
Remove Curb and Gutter	140	LF
Curb and Gutter - Type 1	140	LF

Sta 6+00 to 11+20		
Mudjack Curb and Gutter		LF
Mudjack Concrete Driveway		SF
Remove Curb and Gutter	213	LF
Curb and Gutter - Type 1	213	LF

- MILL AND OVERLAY
- MUDJACK CURB AND GUTTER
- REMOVE/REPLACE CURB AND GUTTER
- BOULEVARD RESTORATION

NOTE: ALL LOCATIONS FOR MUDJACKING AND CURB & GUTTER REPLACEMENT ARE SUBJECT TO CHANGE AS DECIDED BY THE ENGINEER.



REV NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT
CITY PROJECT NO. 24-287
WHA PETON, NORTH DAKOTA

PAVING AND CURB REPAIR LAYOUT

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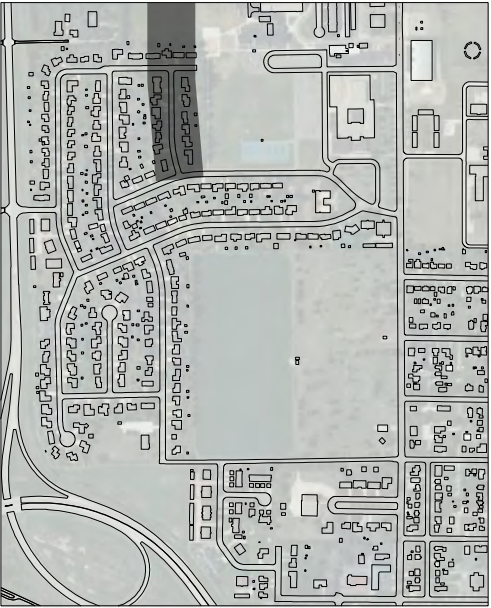
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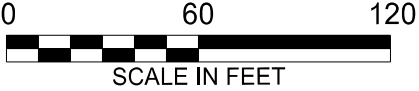


Sta 0+30 to 6+00		
Mudjack Curb and Gutter		LF
Mudjack Concrete Driveway		SF
Remove Curb and Gutter	206	LF
Curb and Gutter - Type 1	206	LF

Sta 6+00 to 6+40		
Mudjack Curb and Gutter		LF
Mudjack Concrete Driveway		SF
Remove Curb and Gutter		LF
Curb and Gutter - Type 1		LF

- MILL AND OVERLAY
- MUDJACK CURB AND GUTTER
- REMOVE/REPLACE CURB AND GUTTER
- BOULEVARD RESTORATION

NOTE: ALL LOCATIONS FOR MUDJACKING AND CURB & GUTTER REPLACEMENT ARE SUBJECT TO CHANGE AS DECIDED BY THE ENGINEER.



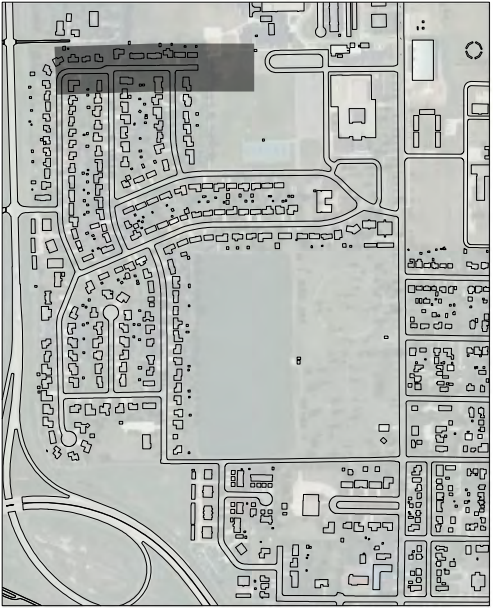
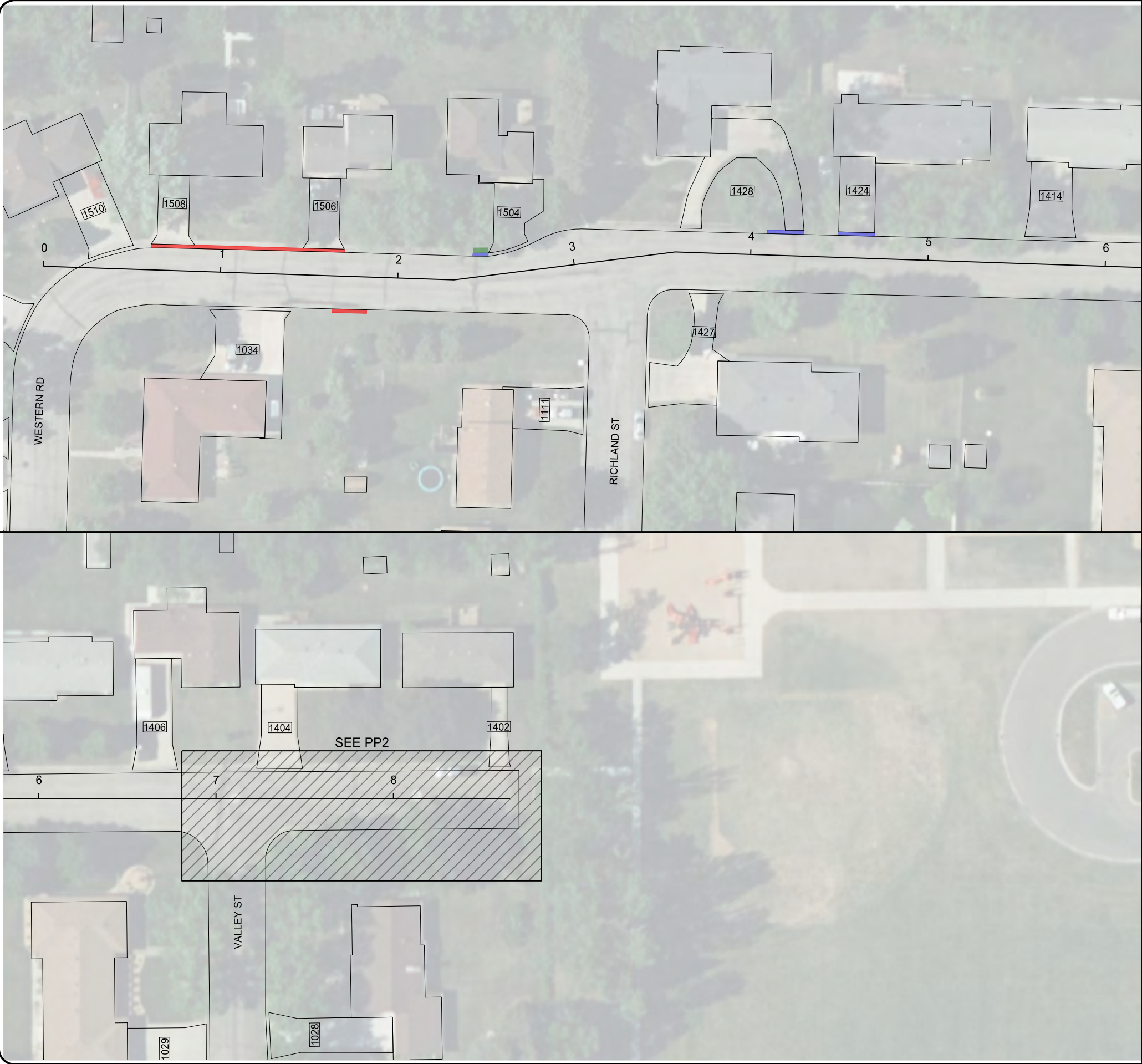
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WEST CENTRAL STREET IMPROVEMENT			
CITY PROJECT NO. 24-287			
WHA PETON, NORTH DAKOTA			
PAVING AND CURB REPAIR LAYOUT			
DRAWN BY: AM	DESIGNED BY: ZHOD	PROJECT NO.: ER2400139	DATE: JANUARY, 2025
CHECKED BY: LH			

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SECTION
LO
SHEET NO.
6



Sta 0+00 to 6+00		
Mudjack Curb and Gutter		LF
Mudjack Concrete Driveway		SF
Remove Curb and Gutter		LF
Curb and Gutter - Type 1		LF

Sta 6+00 to 6+81		
Mudjack Curb and Gutter		LF
Mudjack Concrete Driveway		SF
Remove Curb and Gutter		LF
Curb and Gutter - Type 1		LF

- MILL AND OVERLAY
- MUDJACK CURB AND GUTTER
- REMOVE/REPLACE CURB AND GUTTER
- BOULEVARD RESTORATION

NOTE: ALL LOCATIONS FOR MUDJACKING AND CURB & GUTTER REPLACEMENT ARE SUBJECT TO CHANGE AS DECIDED BY THE ENGINEER.



REV	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT
CITY PROJECT NO. 24-287
WAHPETON, NORTH DAKOTA

PAVING AND CURB REPAIR LAYOUT

DRAWN BY: _____ AM _____ ZHDD _____ PROJECT NO.: EP2400139
CHECKED BY: _____ LH _____ DATE: JANUARY, 2025

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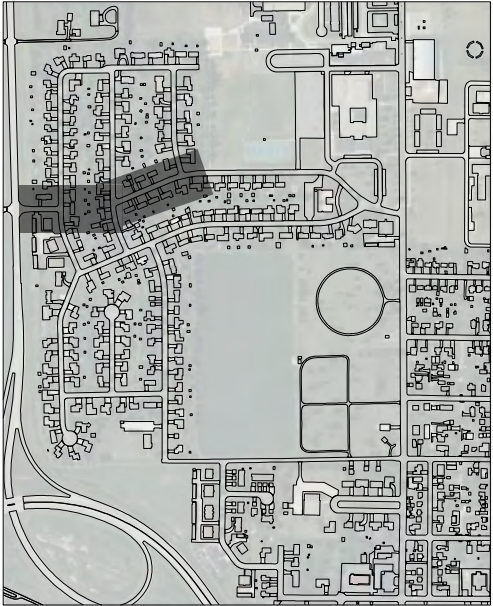
SECTION
LO

7
SHEET NO.



WESTMORE AVENUE

AVENUE A



Sta 0+56 to 2+15		
Asphalt Milling	548	SY
Mudjack Curb and Gutter		LF
Mudjack Concrete Driveway		SF

Sta 0+22 to 6+00		
Mudjack Curb and Gutter		LF
Mudjack Concrete Driveway		SF
Remove Curb and Gutter	265	LF
Curb and Gutter - Type 1	265	LF

- MILL AND OVERLAY
- MUDJACK CURB AND GUTTER
- REMOVE/REPLACE CURB AND GUTTER
- BOULEVARD RESTORATION

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REV NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT
CITY PROJECT NO. 24-287
WAHPETON, NORTH DAKOTA

PAVING AND CURB REPAIR LAYOUT

DRAWN BY: AM
CHECKED BY: ZHDD

DESIGNED BY: IEI
PROJECT NO.: ER2400139
DATE: JANUARY, 2025

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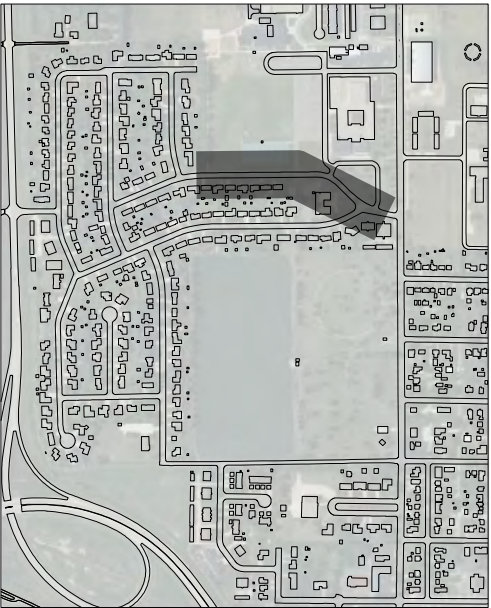
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SECTION
LO
SHEET NO.
8



AVENUE A

AVENUE A



Sta 6+00 to 12+00		
Mudjack Curb and Gutter		LF
Mudjack Concrete Driveway		SF
Remove Curb and Gutter	103	LF
Curb and Gutter - Type 1	103	LF

Sta 12+00 to 16+11		
Mudjack Curb and Gutter		LF
Mudjack Concrete Driveway		SF
Remove Curb and Gutter		LF
Curb and Gutter - Type 1		LF

- MILL AND OVERLAY
- MUDJACK CURB AND GUTTER
- REMOVE/REPLACE CURB AND GUTTER
- BOULEVARD RESTORATION

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CITY PROJECT NO. 24-287
WAHPETON, NORTH DAKOTA

PAVING AND CURB REPAIR LAYOUT

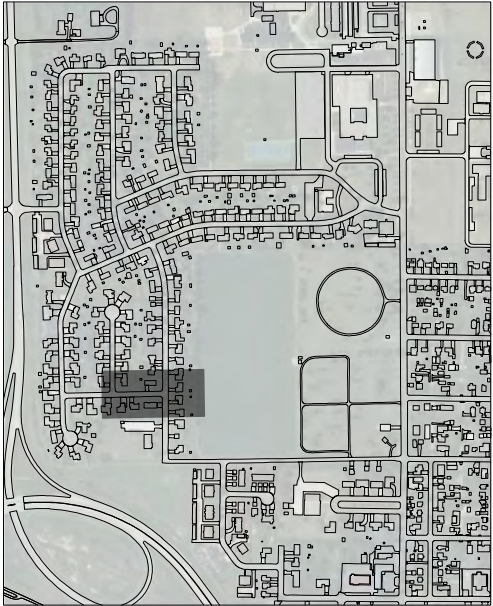
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CHECKED BY: ZHDD DESIGNED BY: LH DATE: JANUARY, 2025

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SECTION
LO

9
SHEET NO.



Sta 3+50 to 6+27		
Mudjack Curb and Gutter		LF
Mudjack Concrete Driveway		SF
Asphalt Milling	960	SY
Adjust Gate Valve	1	EA
Adjust Manhole	1	EA
Remove Curb and Gutter	11	LF
Curb and Gutter - Type 1	11	LF

- MILL AND OVERLAY
- MUDJACK CURB AND GUTTER
- REMOVE/REPLACE CURB AND GUTTER
- BOULEVARD RESTORATION

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REV	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT
CITY PROJECT NO. 24-287
WAHPETON, NORTH DAKOTA

PAVING AND CURB REPAIR LAYOUT

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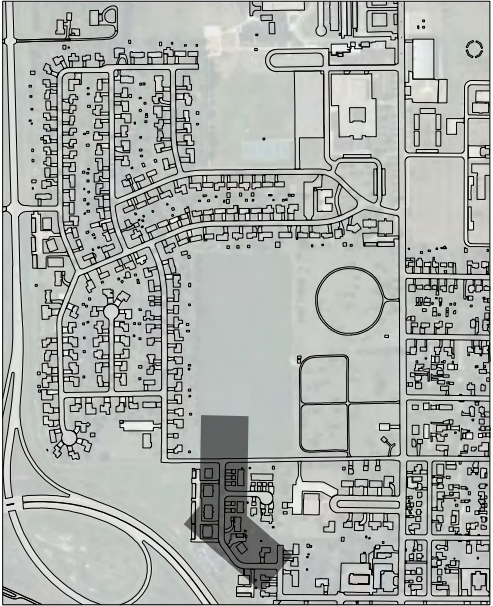
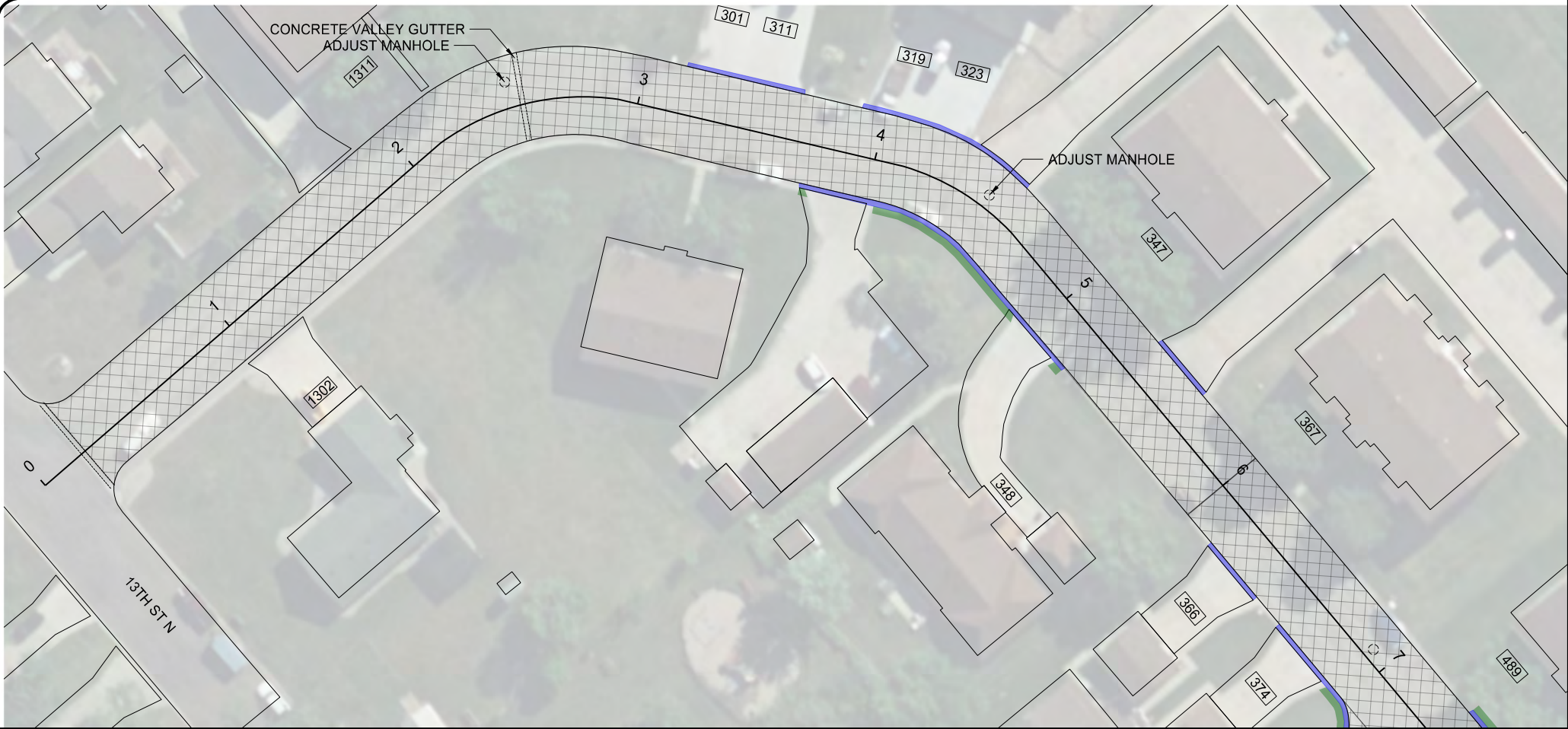
DESIGNED BY: LH
PROJECT NO. ER2400139
DATE: JANUARY, 2025

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SECTION
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SHEET NO.
10

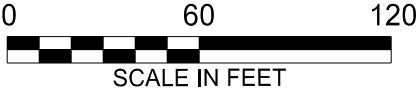


Sta 0+22 to 6+00		
Mudjack Curb and Gutter		LF
Mudjack Concrete Driveway		SF
Asphalt Milling	2245	SY
Adjust Manhole	2	EA
Remove Curb and Gutter	291	LF
Curb and Gutter - Type 1	291	LF

Sta 6+00 to 9+32		
Mudjack Curb and Gutter		LF
Mudjack Concrete Driveway		SF
Asphalt Milling	1314	SY
Adjust Manhole	2	EA
Remove Curb and Gutter	185	LF
Curb and Gutter - Type 1	185	LF

- MILL AND OVERLAY
- MUDJACK CURB AND GUTTER
- REMOVE/REPLACE CURB AND GUTTER
- BOULEVARD RESTORATION

NOTE: ALL LOCATIONS FOR MUDJACKING AND CURB & GUTTER REPLACEMENT ARE SUBJECT TO CHANGE AS DECIDED BY THE ENGINEER.



REV	NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT		CITY PROJECT NO. 24-287	
PAVING AND CURB REPAIR LAYOUT		WAHPETON, NORTH DAKOTA	
DRAWN BY: AM	DESIGNED BY: ZHDD	PROJECT NO. ER2400139	DATE: JANUARY, 2025

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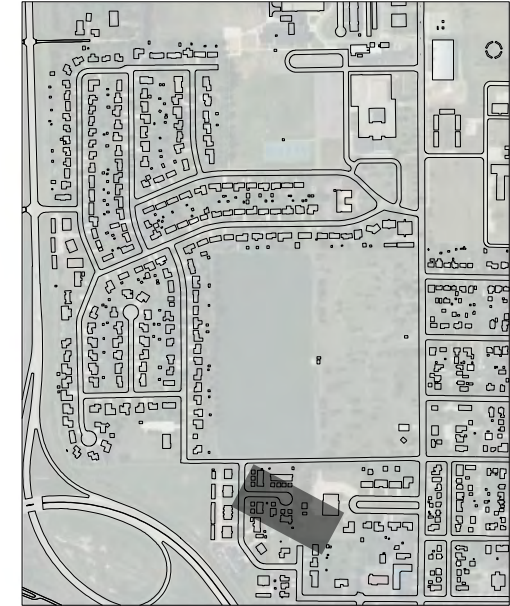
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SECTION
LO
SHEET NO.
11



4TH AVENUE NORTH



Sta 0+17 to 3+24		
Mudjack Curb and Gutter		LF
Mudjack Concrete Driveway		SF
Asphalt Milling	1436	SY
Adjust Manhole	1	EA
Remove Curb and Gutter	100	LF
Curb and Gutter - Type 1	100	LF
Removal of Concrete	4	SY

- MILL AND OVERLAY
- MUDJACK CURB AND GUTTER
- REMOVE/REPLACE CURB AND GUTTER
- BOULEVARD RESTORATION

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WEST CENTRAL STREET IMPROVEMENT
CITY PROJECT NO. 24-287
WAHPETON, NORTH DAKOTA

PAVING AND CURB REPAIR LAYOUT

DRAWN BY:

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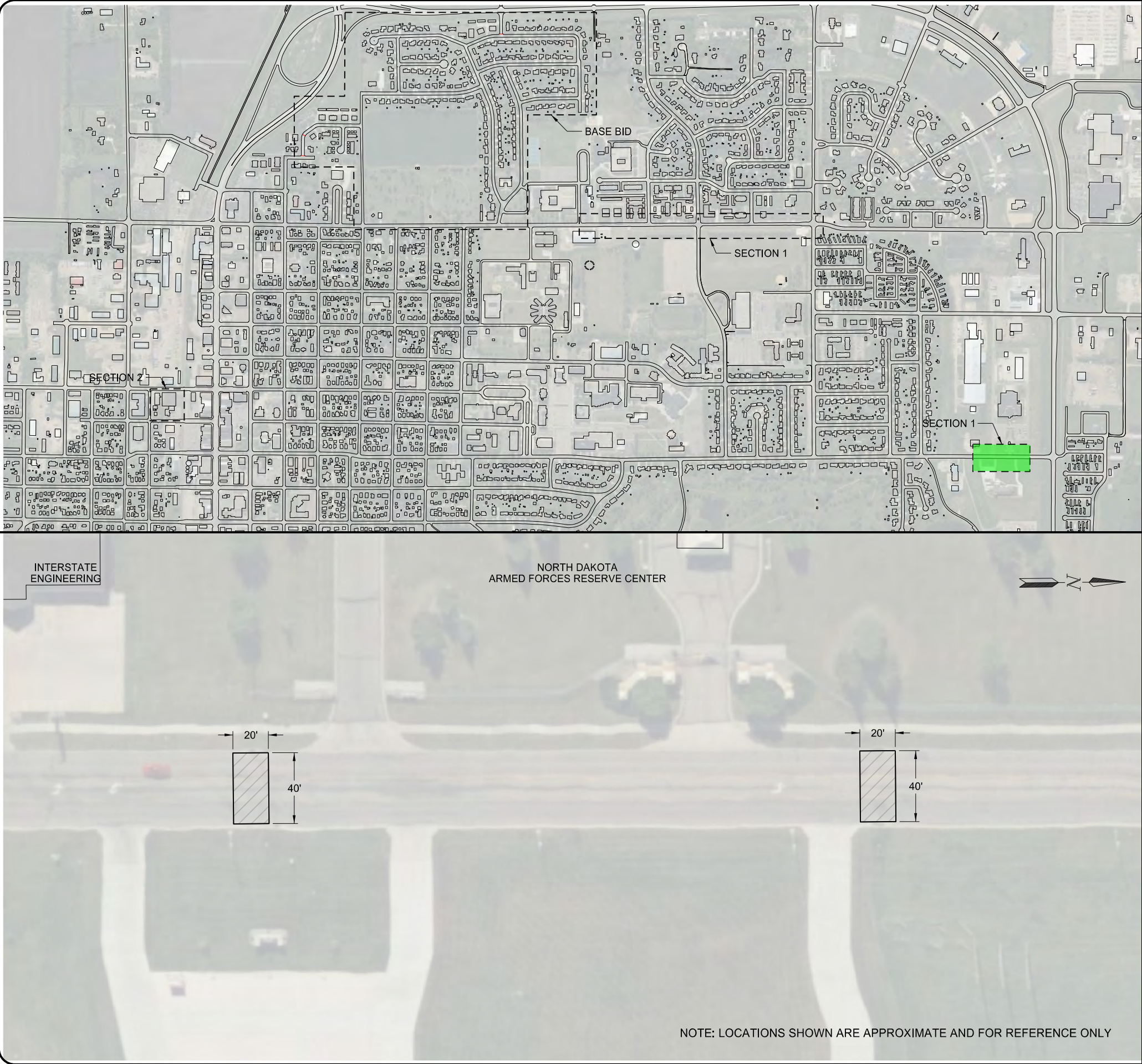
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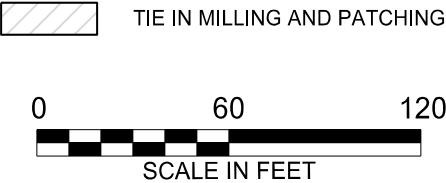
SHEET NO.
12



SECTION 1 LOCATION

4TH STREET NORTH

Sta 2+00 to 7+00		
Asphalt Milling	180	SY
Superpave FAA 43		TON



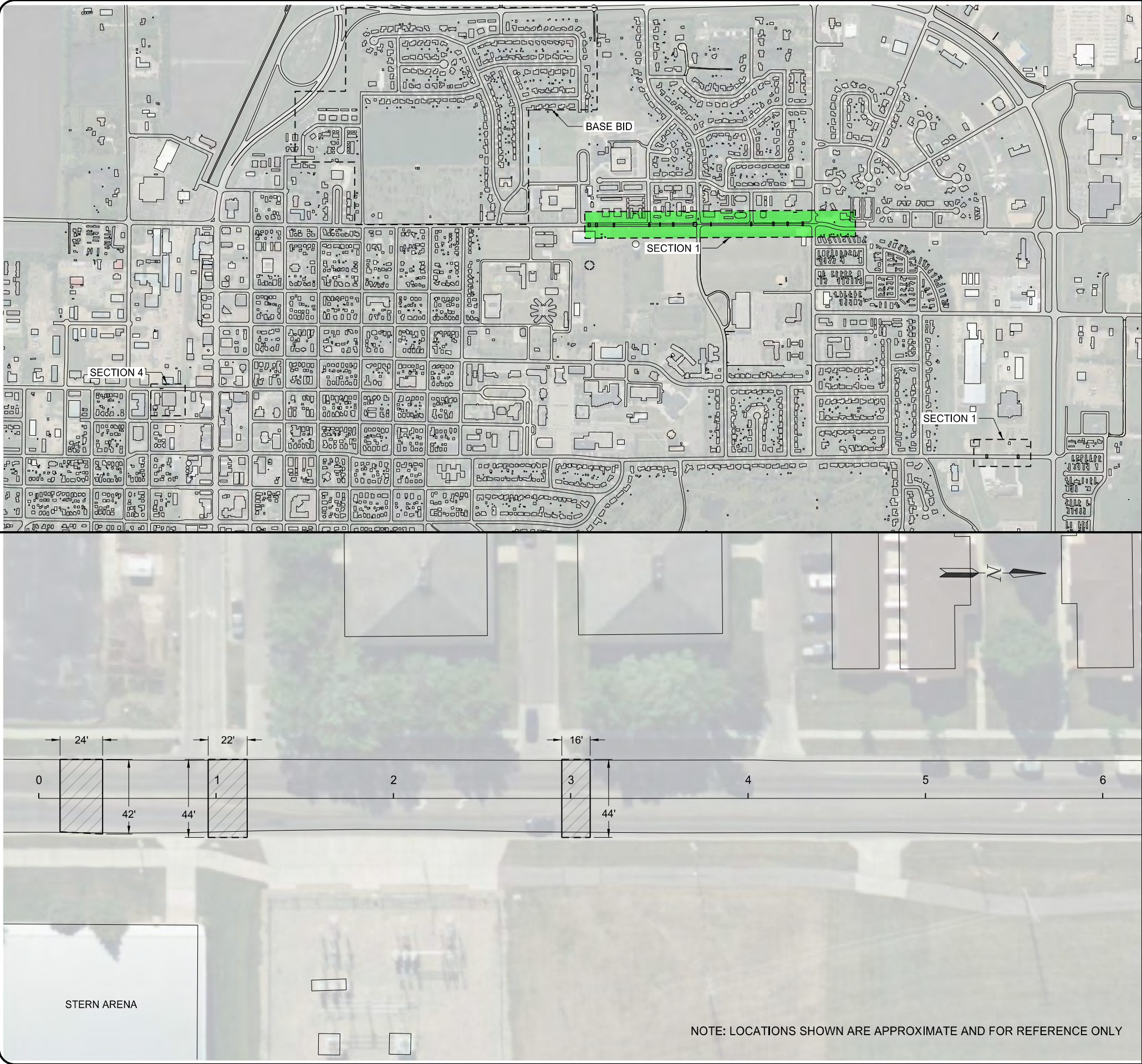
REV NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT CITY PROJECT NO. 24-287 WHA PETON, NORTH DAKOTA			
ASPHALT PATCHING - SECTION 1			
DRAWN BY: AM	DESIGNED BY: LH	PROJECT NO.: ER2400139	DATE: JANUARY, 2025
CHECKED BY: ZHDD			

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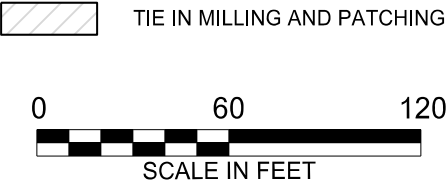
SECTION
LO
13
SHEET NO.



SECTION 5 LOCATION

11TH STREET NORTH

Sta 0+00 to 6+00		
Asphalt Milling	300	SY
Superpave FAA 43		TON



REV NO	DATE	BY	DESCRIPTION

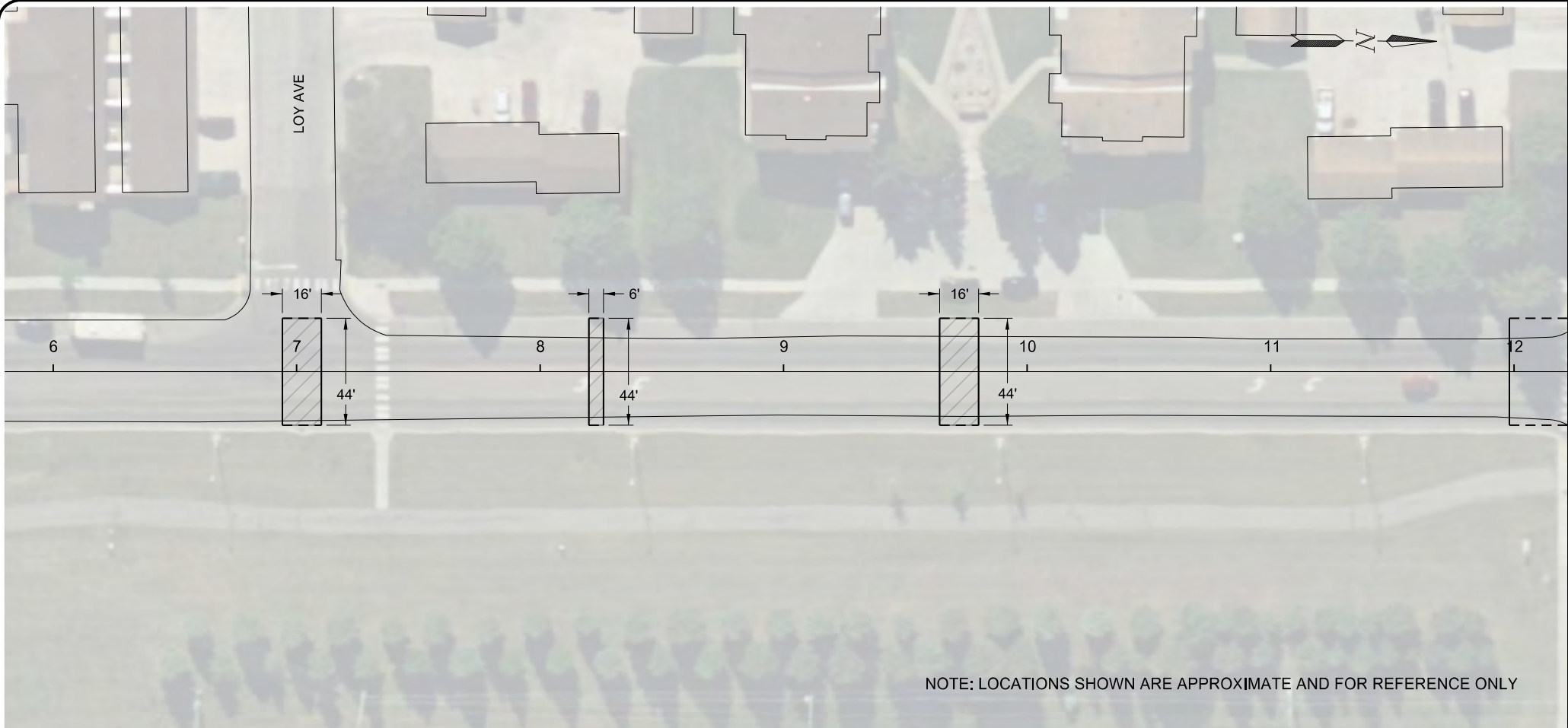
WEST CENTRAL STREET IMPROVEMENT CITY PROJECT NO. 24-287 WAPETON, NORTH DAKOTA			
ASPHALT PATCHING - SECTION 1			
DRAWN BY: AM	DESIGNED BY: LH	PROJECT NO.: ER2400139	DATE: JANUARY, 2025
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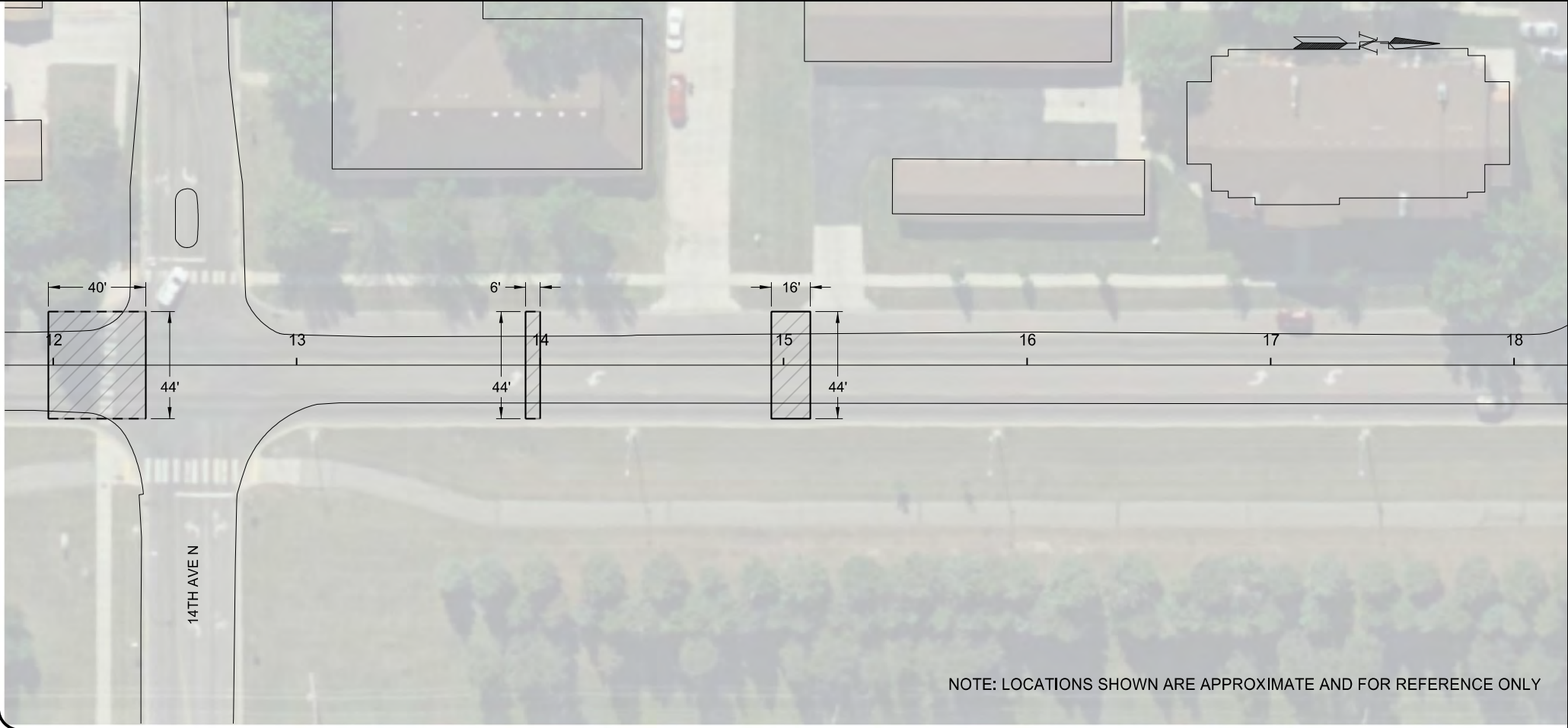
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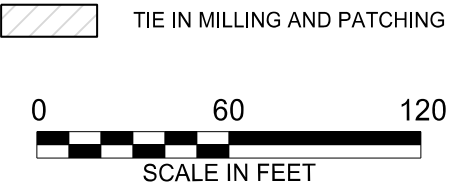
SECTION
LO
14
SHEET NO.



Sta 6+00 to 12+00		
Asphalt Milling	185	SY
Superpave FAA 43		TON



Sta 12+00 to 18+00		
Asphalt Milling	303	SY
Superpave FAA 43		TON



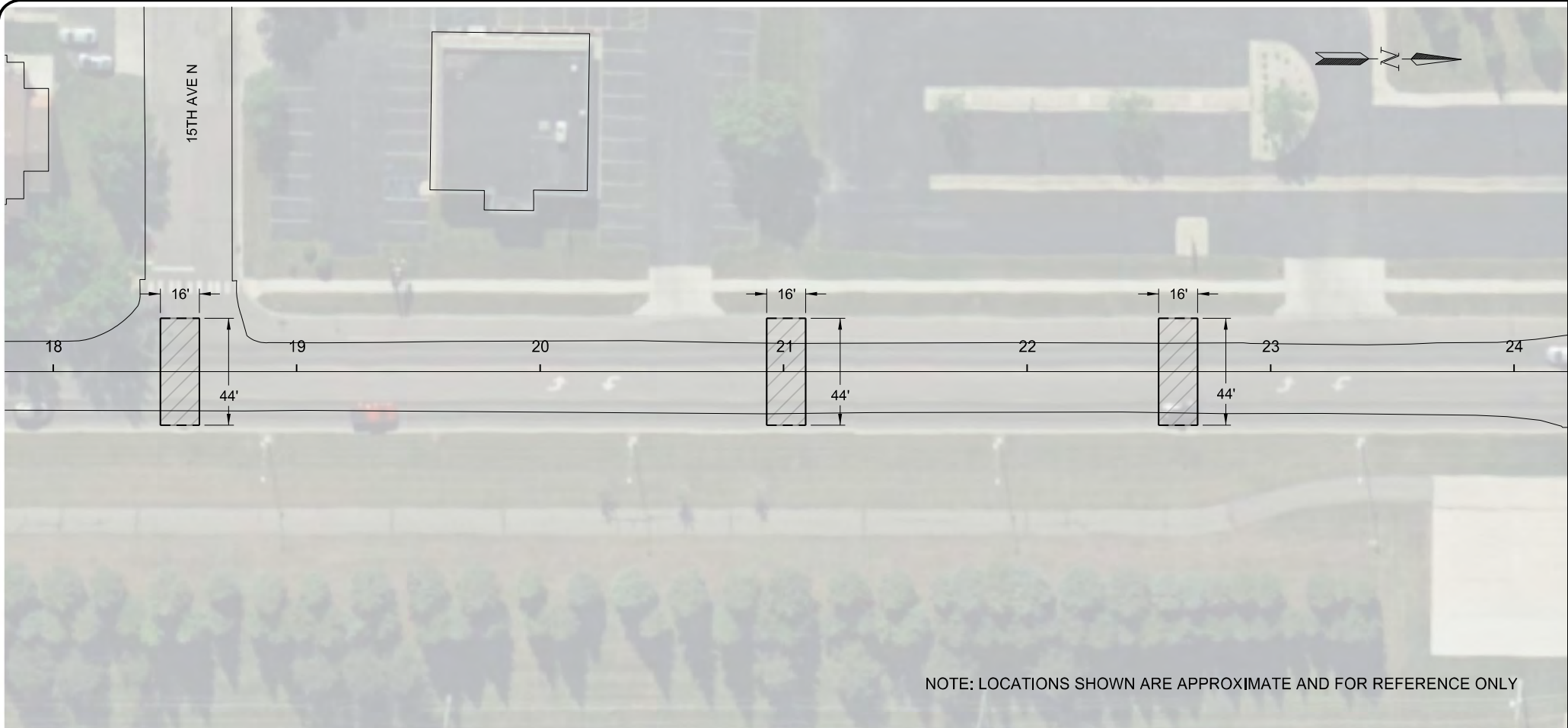
REV	NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT			
CITY PROJECT NO. 24-287			
WHAPETON, NORTH DAKOTA			
ASPHALT PATCHING - SECTION 1			
DRAWN BY: AM	DESIGNED BY: ZHOD	PROJECT NO.: ER2400139	DATE: JANUARY, 2025
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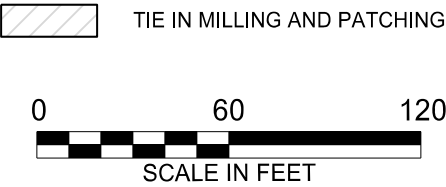
SECTION
LO
SHEET NO.
15



Sta 18+00 to 24+00		
Asphalt Milling	235	SY
Superpave FAA 43		TON



Sta 24+00 to 26+00		
Asphalt Milling	78	SY
Superpave FAA 43		TON



REV NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT

CITY PROJECT NO. 24-287

WHAPETON, NORTH DAKOTA

ASPHALT PATCHING - SECTION 1

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PROJECT NO. ER2400139

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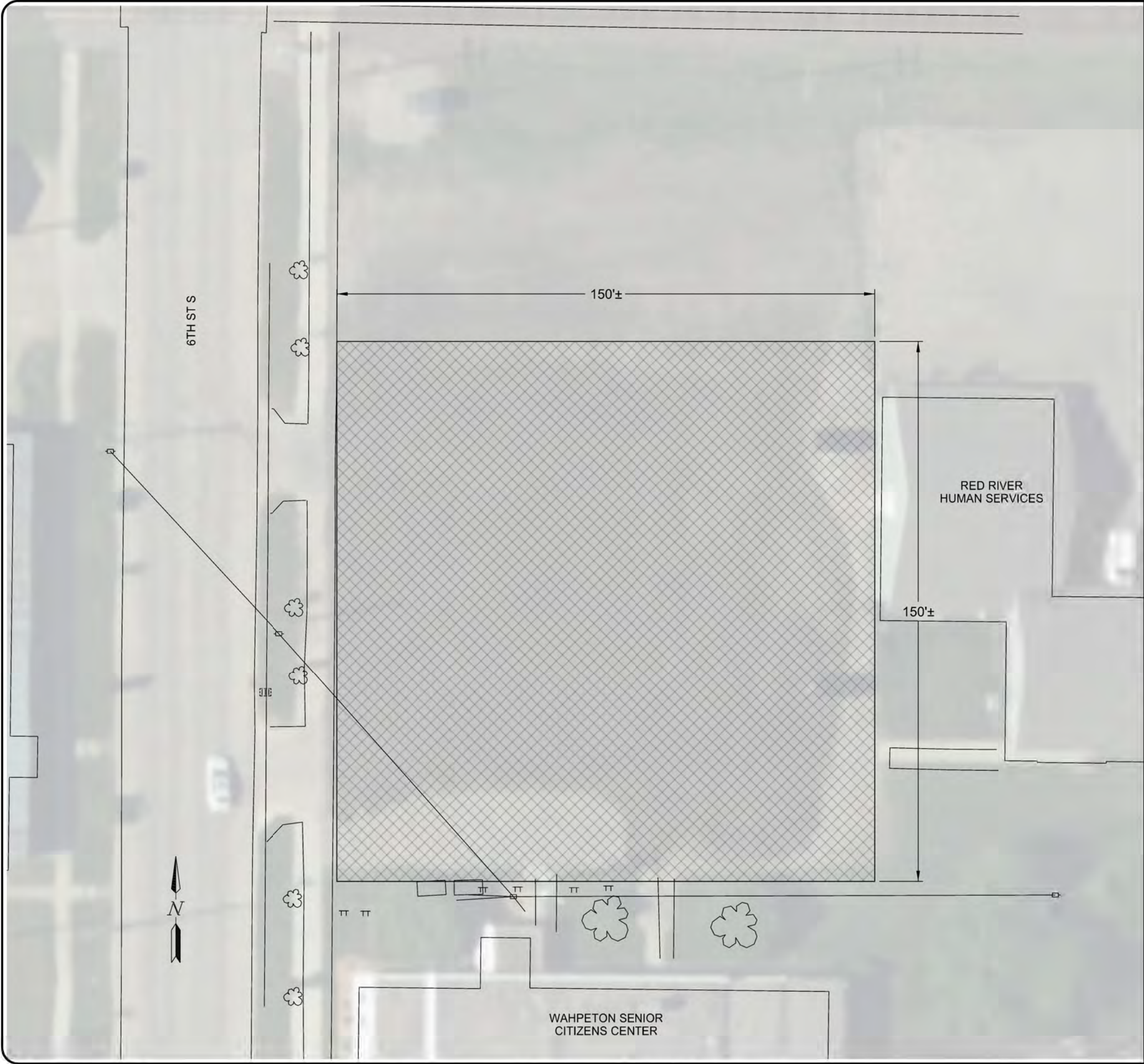
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SECTION

LO

SHEET NO.

16



SECTION 2 - WAHPETON SENIOR CITIZENS CENTER PARKING LOT



RECLAIM, INCORPORATE BASE STABILIZER, GRADE, COMPACT

NOT TO SCALE



Sta x+xx to x+xx		
Mine and Blend	2478	SY
Reshape Roadway	2478	SY
Liquid Base Stabilizer	148.68	GAL



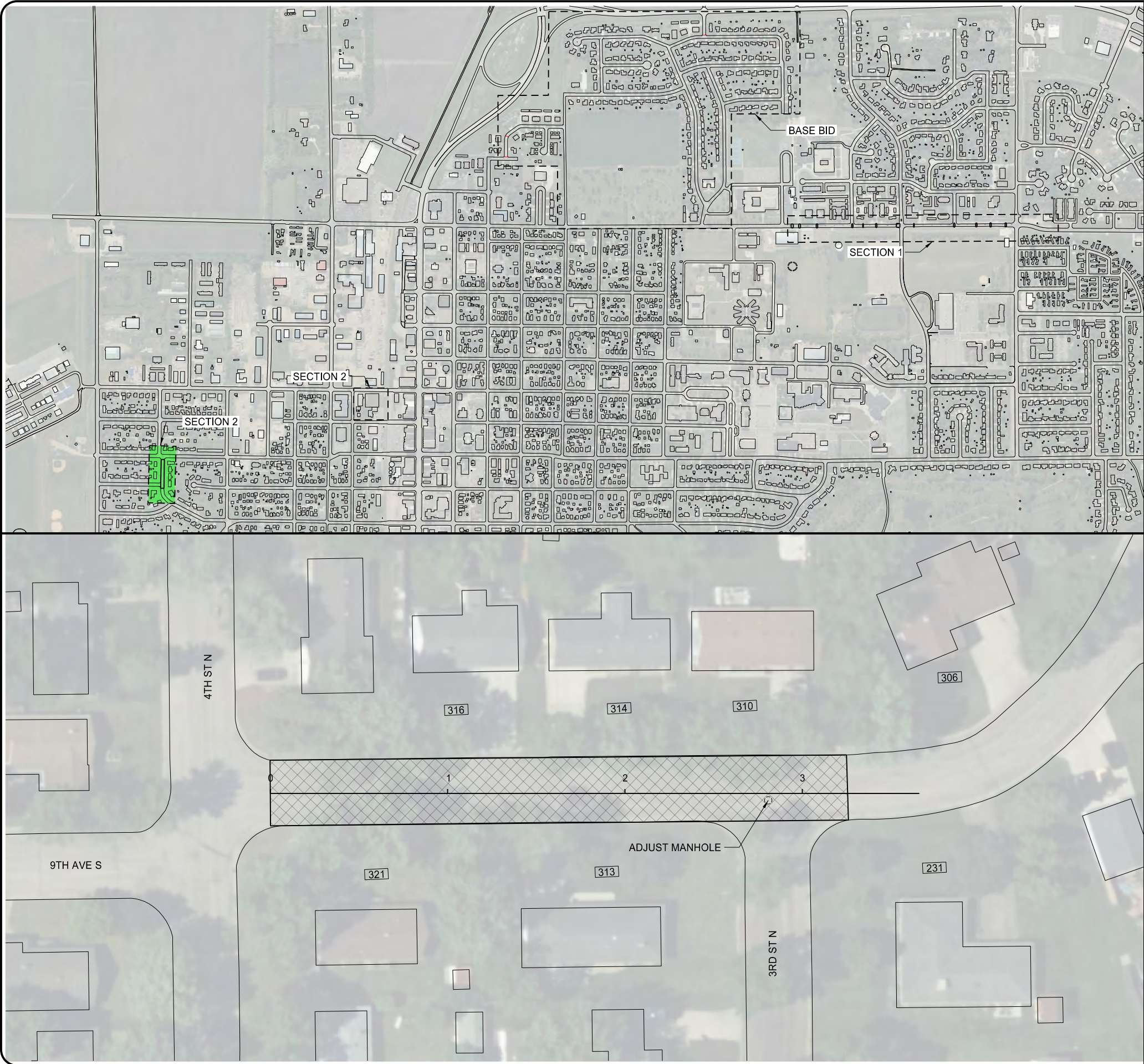
REV NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT			
CITY PROJECT NO. 24-287			
WAHPETON, NORTH DAKOTA			
MINE AND BLEND / BASE STABILIZATION - SECTION 2			
DRAWN BY: AM	PROJECT NO.: ER240139	DATE: JANUARY, 2025	
CHECKED BY: ZHDD	DESIGNED BY: LH		

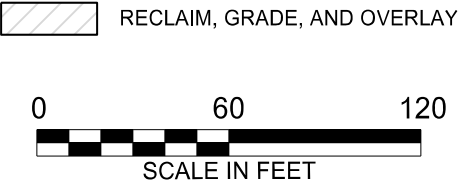
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SECTION
LO
17
SHEET NO.



Sta 0+00 to 3+26		
Mudjack Curb and Gutter		LF
Mudjack Concrete Driveway		SF
Remove Curb and Gutter		LF
Curb and Gutter - Type 1		LF
Mine and Blend	1305	SY
Reshape Roadway	1305	SY
Liquid Base Stabilizer	78.3	GAL
Waste Material		CY
Adjust Manhole	1	EA



REV NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT
CITY PROJECT NO. 24-287
WAPETON, NORTH DAKOTA

PAVING AND CURB REPAIR LAYOUT - SECTION 2

DRAWN BY: AM
CHECKED BY: ZHDD

DESIGNED BY: LH
PROJECT NO.: ER2400139
DATE: JANUARY, 2025

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SECTION
LO

18
SHEET NO.



SECTION 3 LOCATION

HUGHES DRIVE

Sta x+xx to x+xx		
Mine and Blend	2774	SY
Reshape Roadway	2774	SY
Liquid Base Stabilizer		GAL

RECLAIM, INCORPORATE BASE STABILIZER, GRADE, COMPACT, DUST SUPPRESSANT

NOT TO SCALE



REV NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT
CITY PROJECT NO. 24-287
WHAPETON, NORTH DAKOTA

MINE AND BLEND / BASE STABILIZATION - SECTION 3

DRAWN BY: AM IEI PROJECT NO. ER2400139
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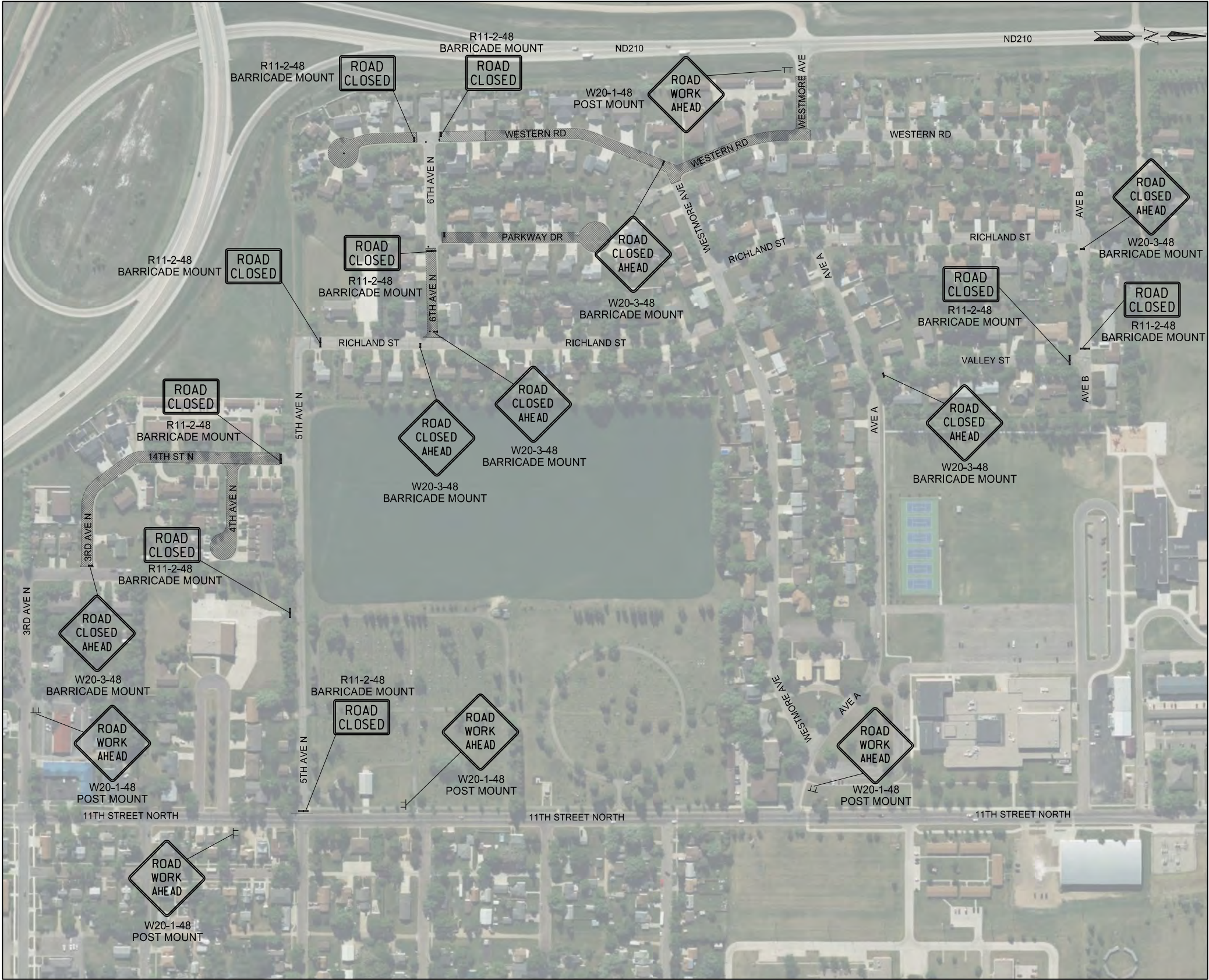
SECTION
LO

19
SHEET NO.

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SPEC & CODE			
704-1000	TRAFFIC CONTROL SIGNS	TOTAL UNITS	1228

WEST CENTRAL STREET IMPROVEMENT			
CITY PROJECT NO. 24-287			
WAPETON, NORTH DAKOTA			
WORK ZONE TRAFFIC CONTROL			
DRAWN BY: _____	AM _____	SURVEYED BY: _____	PROJECT NO.: ER2400139
CHECKED BY: _____	ZHDD _____	DESIGNED BY: _____	DATE: _____ JANUARY, 2025 _____



REV	NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT			
CITY PROJECT NO. 24-287			
WAHPETON, NORTH DAKOTA			
WORK ZONE TRAFFIC CONTROL			
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PROJECT NO.: ER2400139		DATE: JANUARY, 2025	

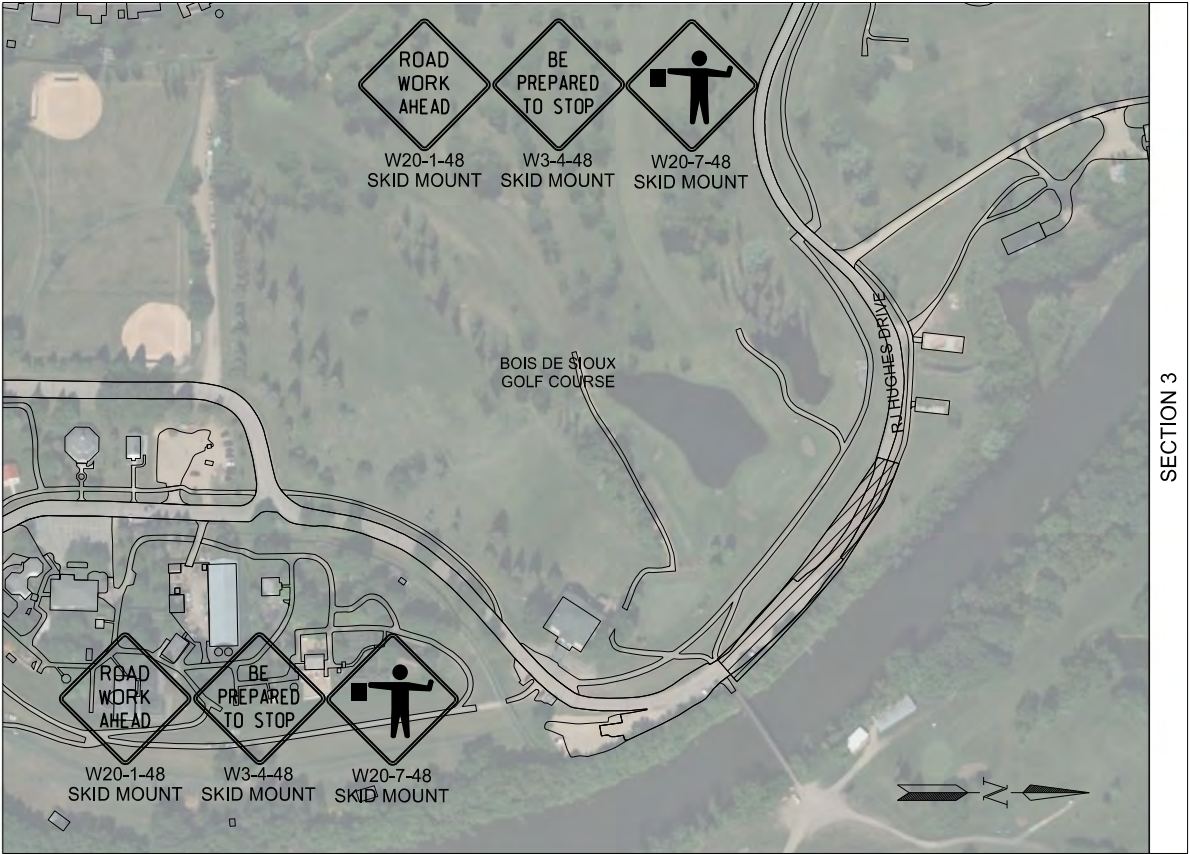
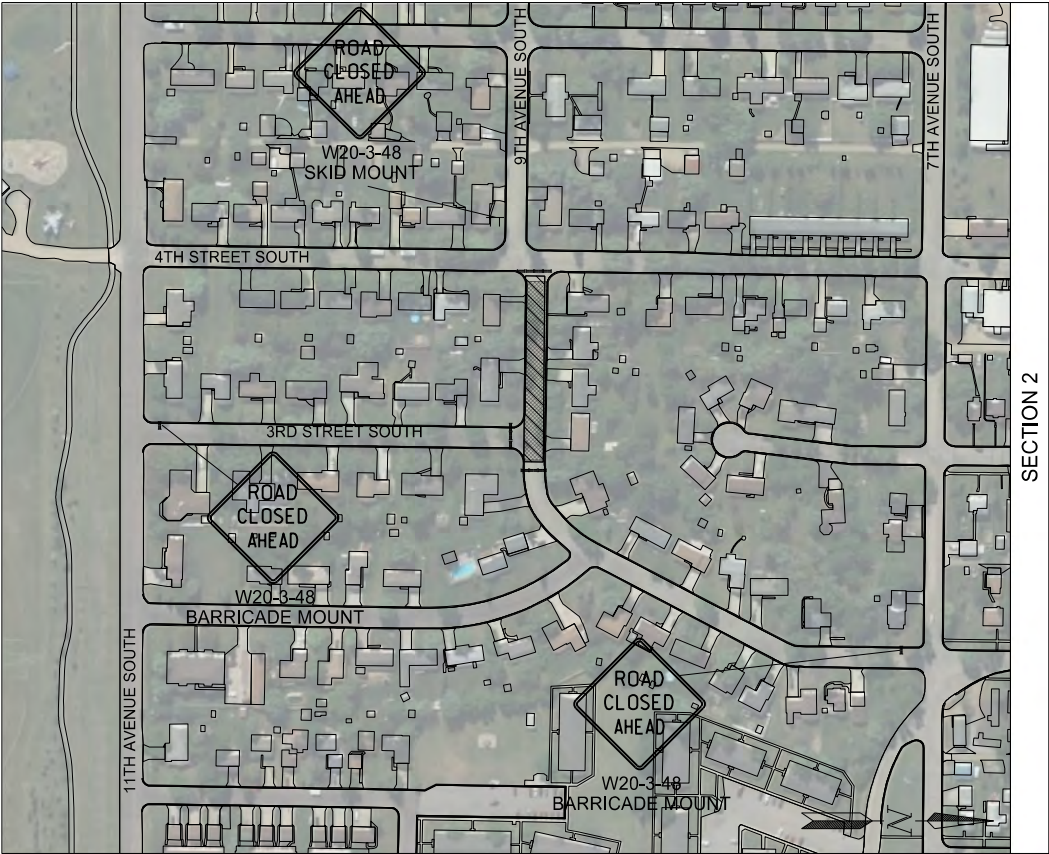
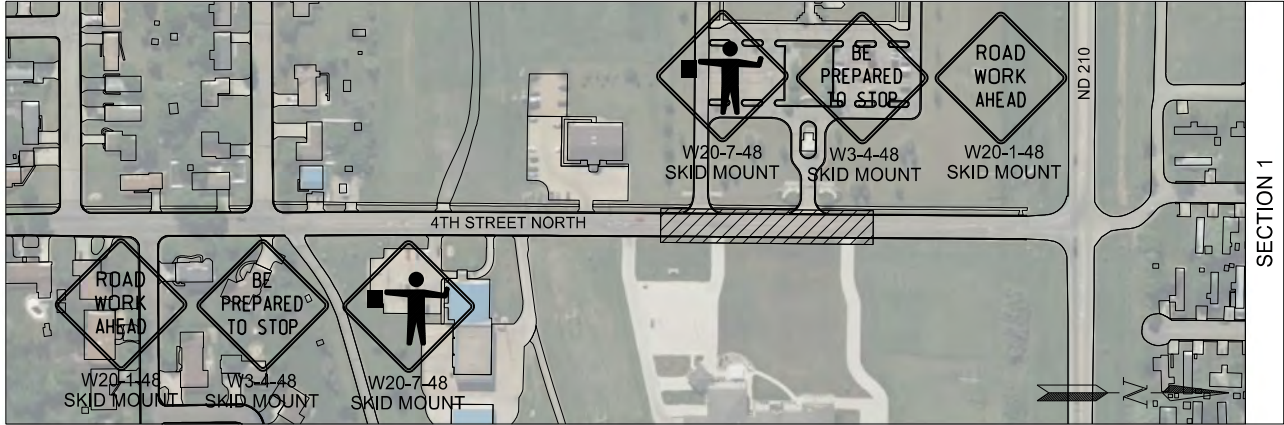
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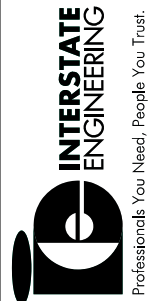
SECTION
WZ
2
SHEET NO.



REV	NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT			
CITY PROJECT NO. 24-287			
WAHPETON, NORTH DAKOTA			
WORK ZONE TRAFFIC CONTROL			
DRAWN BY:	AM	SURVEYED BY:	IEI
CHECKED BY:	ZHDD	DESIGNED BY:	LH
PROJECT NO.: ER2400139		DATE: JANUARY, 2025	

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SECTION
WZ
3
SHEET NO.

Station / RP	Sign No.	Assembly No.	Flat Sheet For Signs		Sign Support Length				Vert Clear- ance	Support Size	Max Post Len	Sleeve Length				Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments
0+28	W1-6R-36	31		4.5	8.2				7.0	2 x 2 12 ga	10.8						1	4	2.25 x 2.25 12 ga				
0+55 Rt	W1-6L-36	31		4.5	8.2				7.0	2 x 2 12 ga	10.8						1	4	2.25 x 2.25 12 ga				
1+25 Rt	NR7-13-18	8		3.0	9.2				7.0	2 x 2 12 ga	14.6						1	4	2.25 x 2.25 12 ga				
2+50 Rt	R2-1-24	9		5.0	9.7				7.0	2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
3+25 Lt	NR7-13-18	8		3.0	9.2				7.0	2 x 2 12 ga	14.6						1	4	2.25 x 2.25 12 ga				
4+22 Lt	W1-7-36	31		4.5	8.2				7.0	2 x 2 12 ga	10.8						1	4	2.25 x 2.25 12 ga				
4+45 Rt	R1-1-30/SN1/S N2		6.8	5.2	10.7				7.0	2.25 x 2.25 12 ga	15.1	1.3				2.5 x 2.5 12 ga	1	4	3 x 3 7 ga			1	
5+00 Rt	NR7-13-18	8		3.0	9.2				7.0	2 x 2 12 ga	14.6						1	4	2.25 x 2.25 12 ga				
9+00 Lt	NR7-13-18	8		3.0	9.2				7.0	2 x 2 12 ga	14.6						1	4	2.25 x 2.25 12 ga				
10+50 Rt	NR7-13-18	8		3.0	9.2				7.0	2 x 2 12 ga	14.6						1	4	2.25 x 2.25 12 ga				
14+00 Lt	R2-1-24	9		5.0	9.7				7.0	2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
14+60 Lt	NR7-13-18	8		3.0	9.2				7.0	2 x 2 12 ga	14.6						1	4	2.25 x 2.25 12 ga				
15+10 Rt	R1-1-30	1		5.2	9.7				7.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				
Sub Total			6.8	51.9	Total		119.6										Total	52.0		0	0	1	

Grand Total			6.8	51.9	Total		119.6										Total	52	0	0	0	1	
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REV	NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT

CITY PROJECT NO. 24-287
WAHPETON, NORTH DAKOTA

TRAFFIC SIGN LAYOUT

DRAWN BY: AM PROJECT NO. ER2400139

CHECKED BY: ZH/DD DESIGNED BY: LH DATE: 5/6/2025

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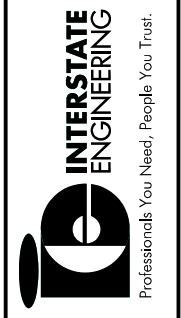
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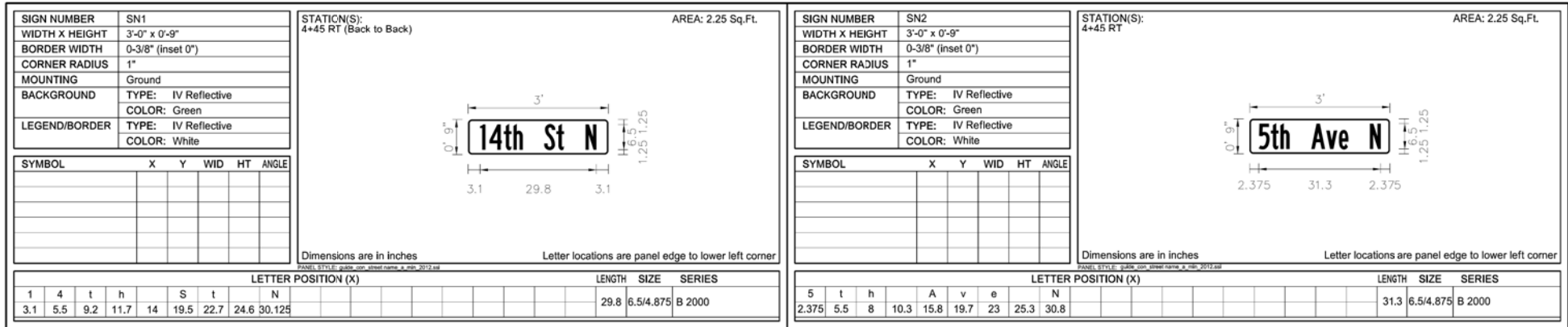
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SHEET NO.

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WEST CENTRAL STREET IMPROVEMENT	
CITY PROJECT NO. 24-287	
WHAPETON, NORTH DAKOTA	
TRAFFIC SIGN LAYOUT	
DRAWN BY: <u>AM</u>	PROJECT NO: <u>ER2400139</u>
CHECKED BY: <u>ZHUDD</u>	DESIGNED BY: <u>LI</u>
	DATE: <u>2025</u>

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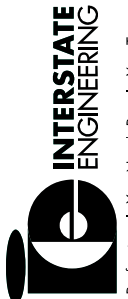
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CITY PROJECT NO. 24-287

CITY PROJECT NO. 24-287
WAHPETON, NORTH DAKOTA

TRAFFIC SIGN LAYOUT

DRAWN BY: _____ AM
 CHECKED BY: _____ ZH/DD
 DESIGNED BY: _____ LH
 IEI _____
 PROJECT NO: ER2400139
 DATE: _____ 2025

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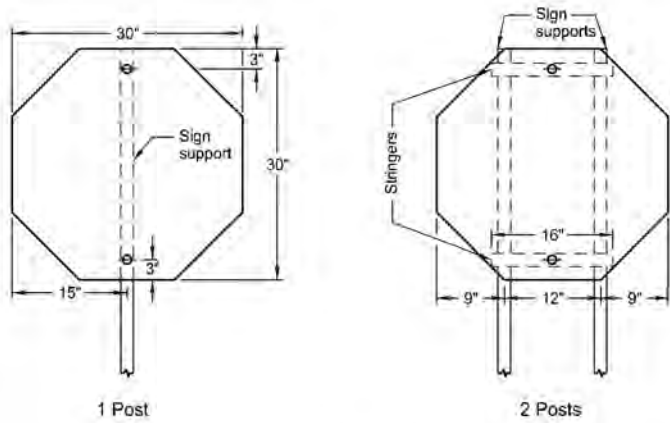
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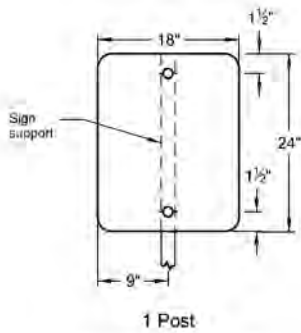
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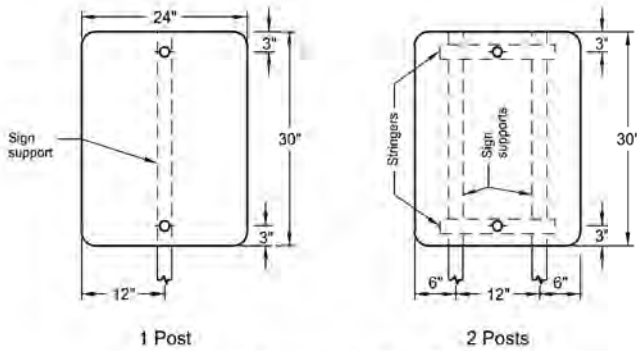
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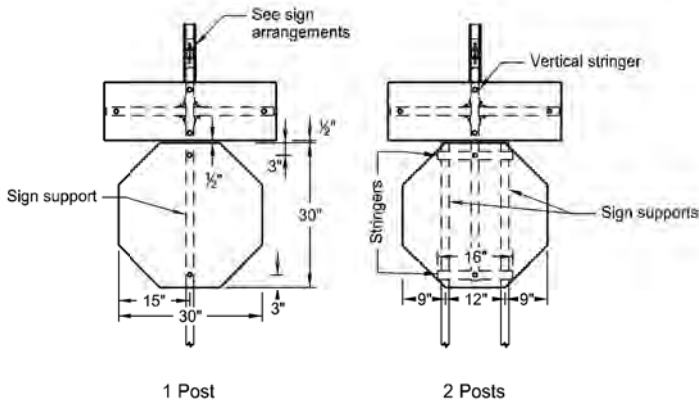
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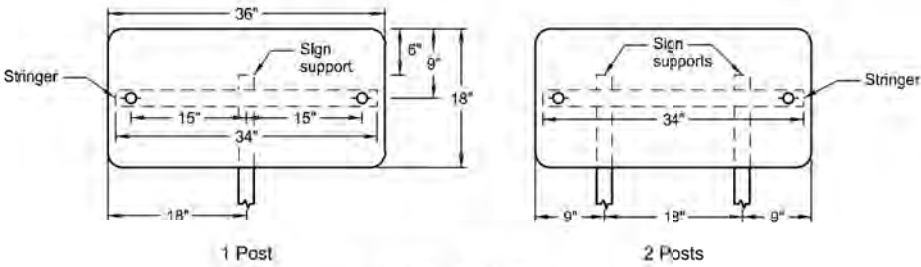
Assembly No. 8



Assembly No. 9



Special Assembly 2 (A, B, C, D or E)



Assembly No. 31



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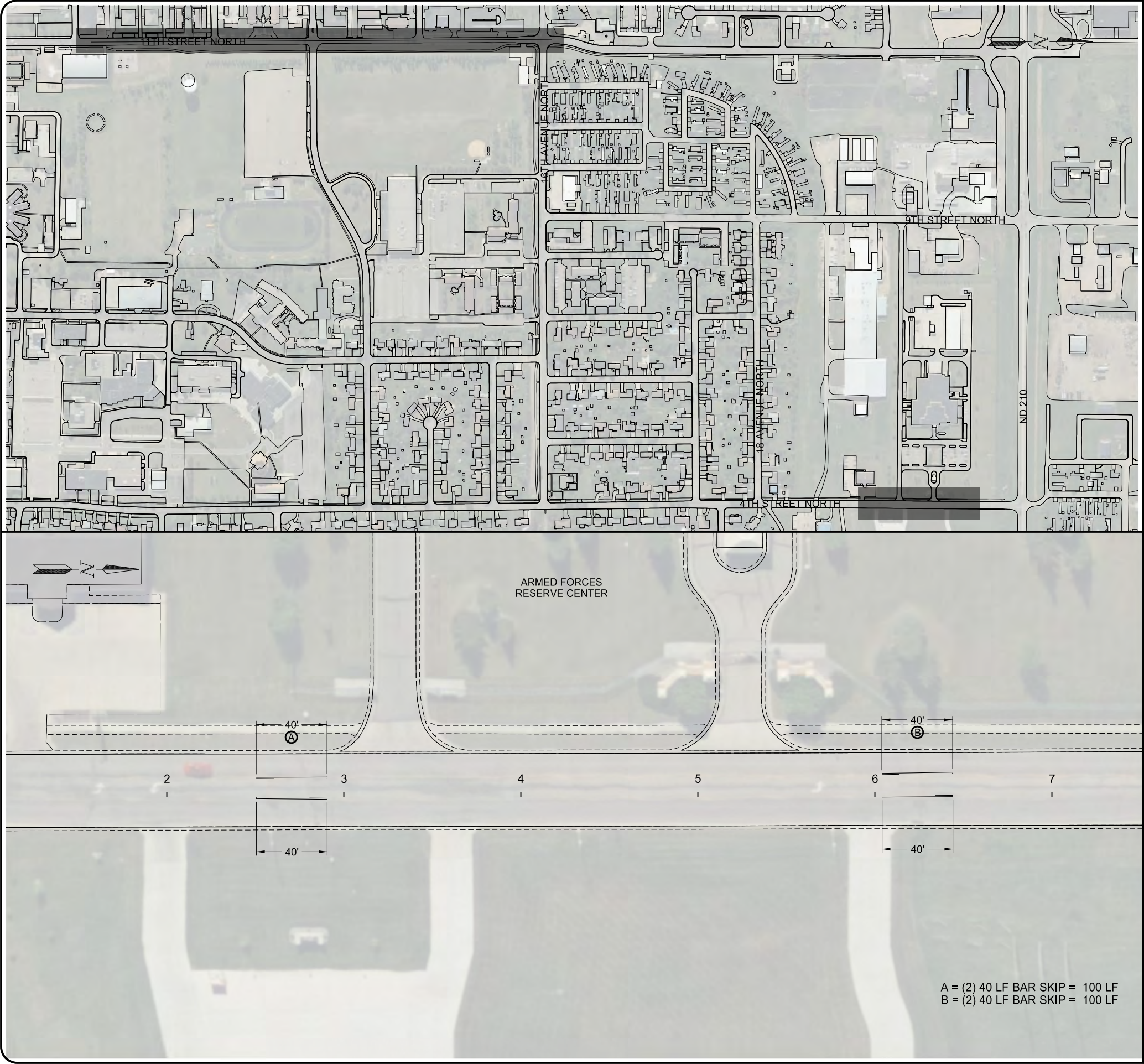
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WAHPETON, NORTH DAKOTA				PROJECT NO. ER2400139	
TRAFFIC SIGN LAYOUT				DATE: 5/4/2025	
DRAWN BY: AM				DESIGNED BY: LH	
CHECKED BY: ZH/D				DATE: 5/4/2025	

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SECTION 1 LOCATIONS

SECTION 1 - 4TH STREET NORTH

A = (2) 40 LF BAR SKIP = 100 LF
B = (2) 40 LF BAR SKIP = 100 LF



REV NO	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT
CITY PROJECT NO. 24-287
WAHPETON, NORTH DAKOTA

PAVEMENT MARKING LAYOUT

DRAWN BY: AM
CHECKED BY: ZHDD

PROJECT NO.: ER2400139
DATE: JANUARY, 2025

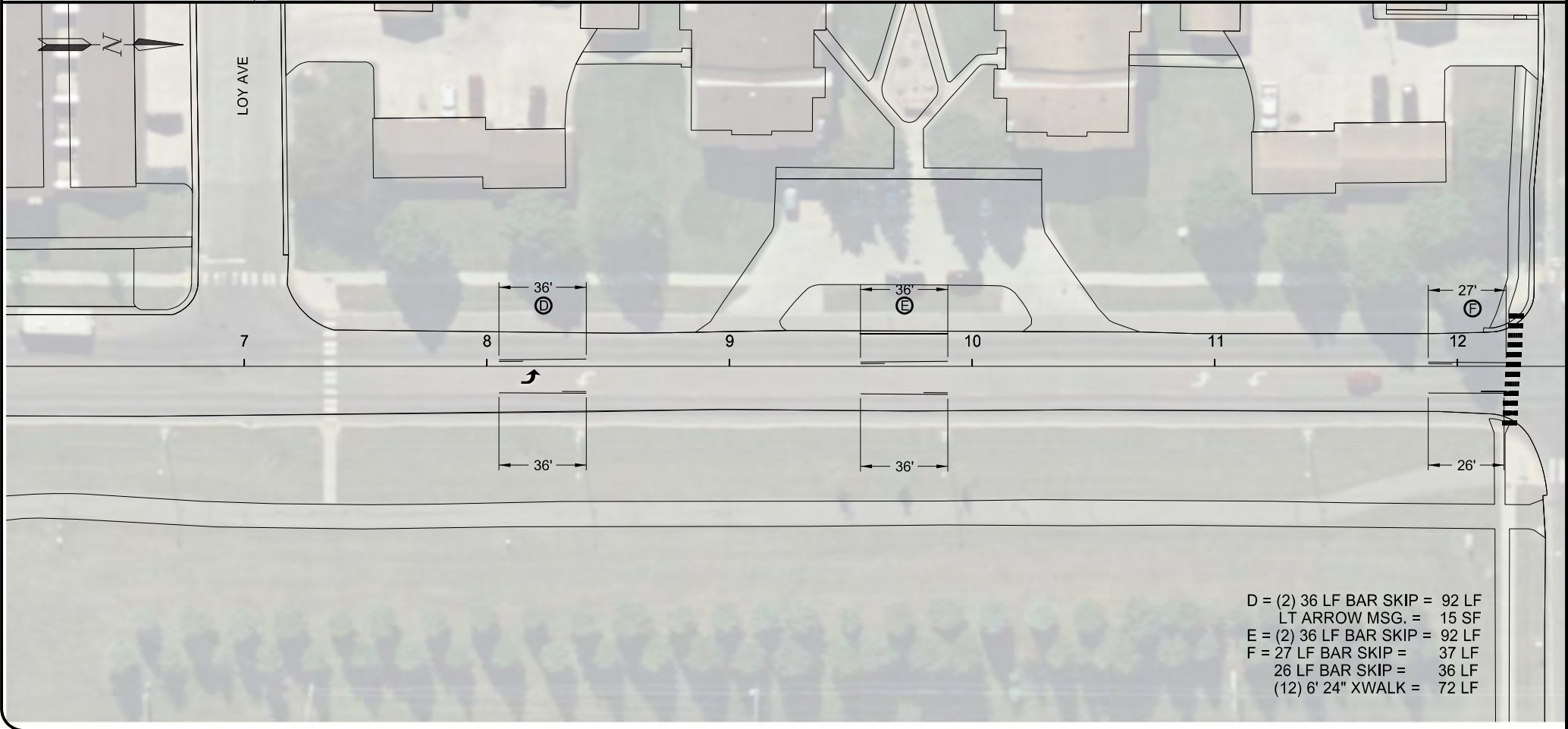
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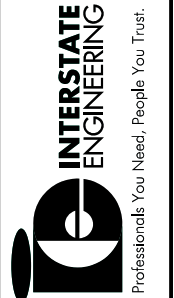
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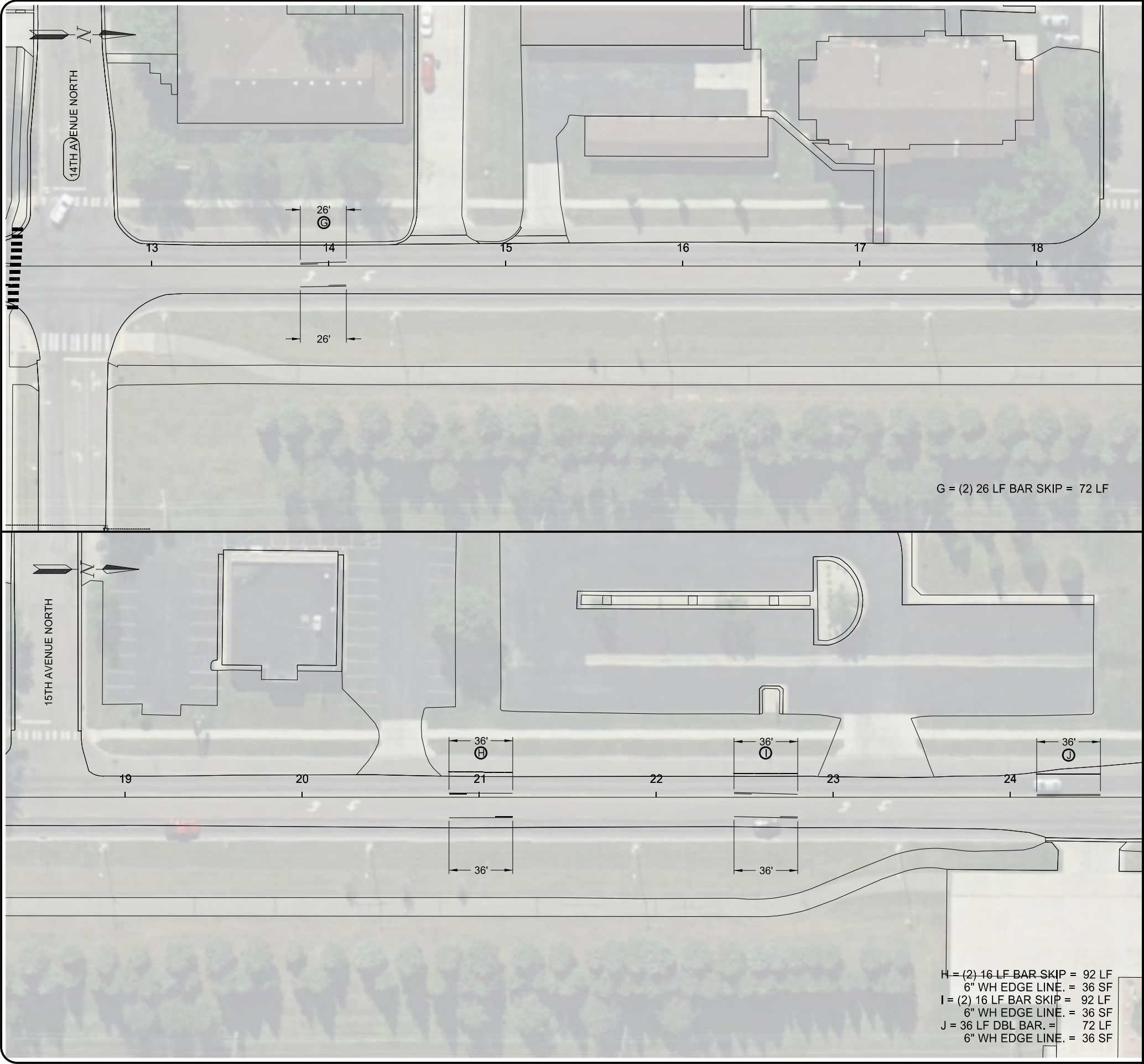
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PAVEMENT MARKING LAYOUT			
DRAWN BY: AM	DESIGNED BY: LH	PROJECT NO: ER2400139	DATE: JANUARY, 2025
CHECKED BY: ZHDD			

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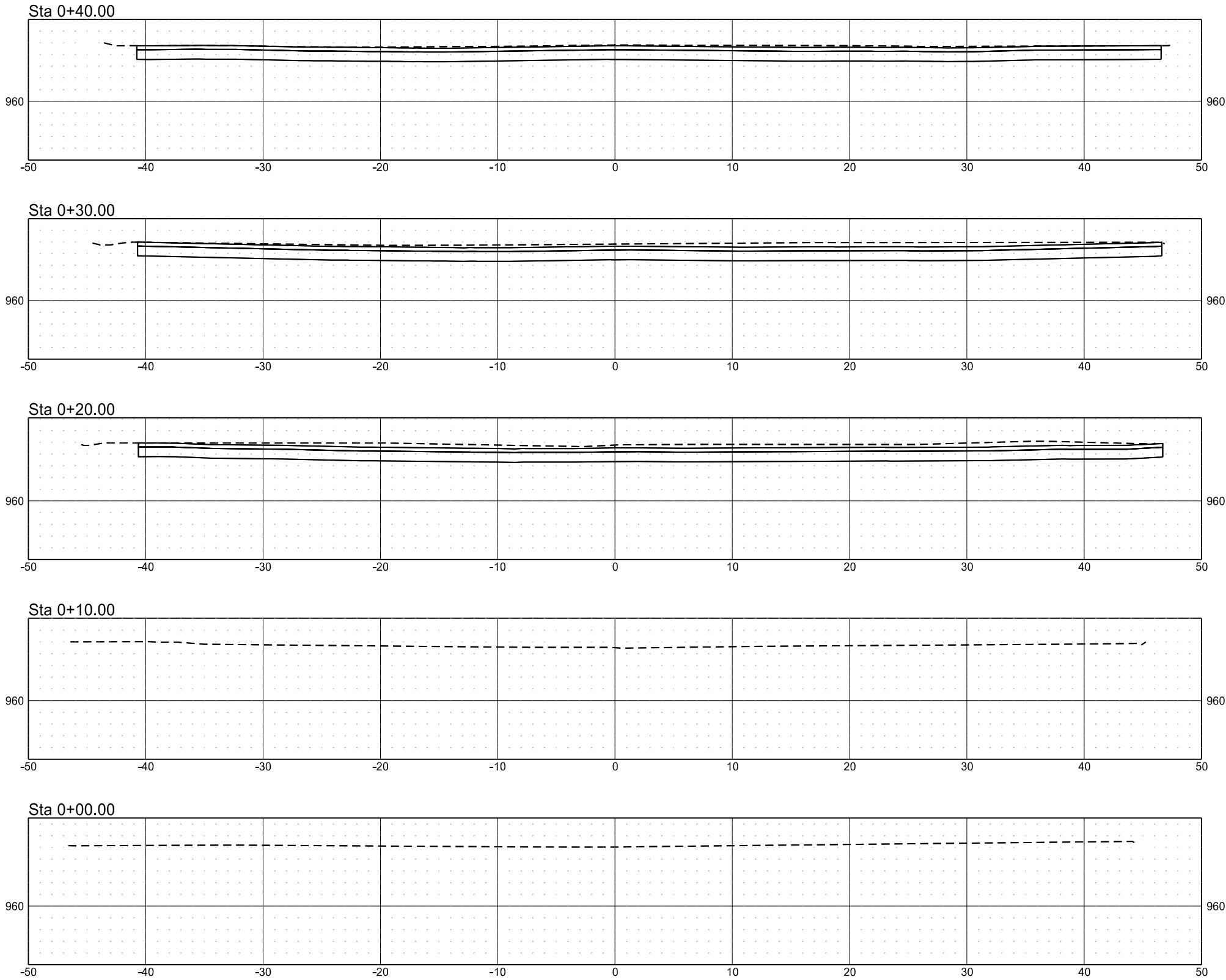
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PAVEMENT MARKING LAYOUT	
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CHECKED BY: ZHDD	DESIGNED BY: LH
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CITY PROJECT NO. 24-287			
WAHPETON, NORTH DAKOTA			
CROSS SECTIONS - 6TH AVENUE NORTH			
DRAWN BY:	AM	IEI	PROJECT NO. ER2400139
CHECKED BY:	ZHDD	LH	DATE: 2025
SURVEYED BY:			
DESIGNED BY:			

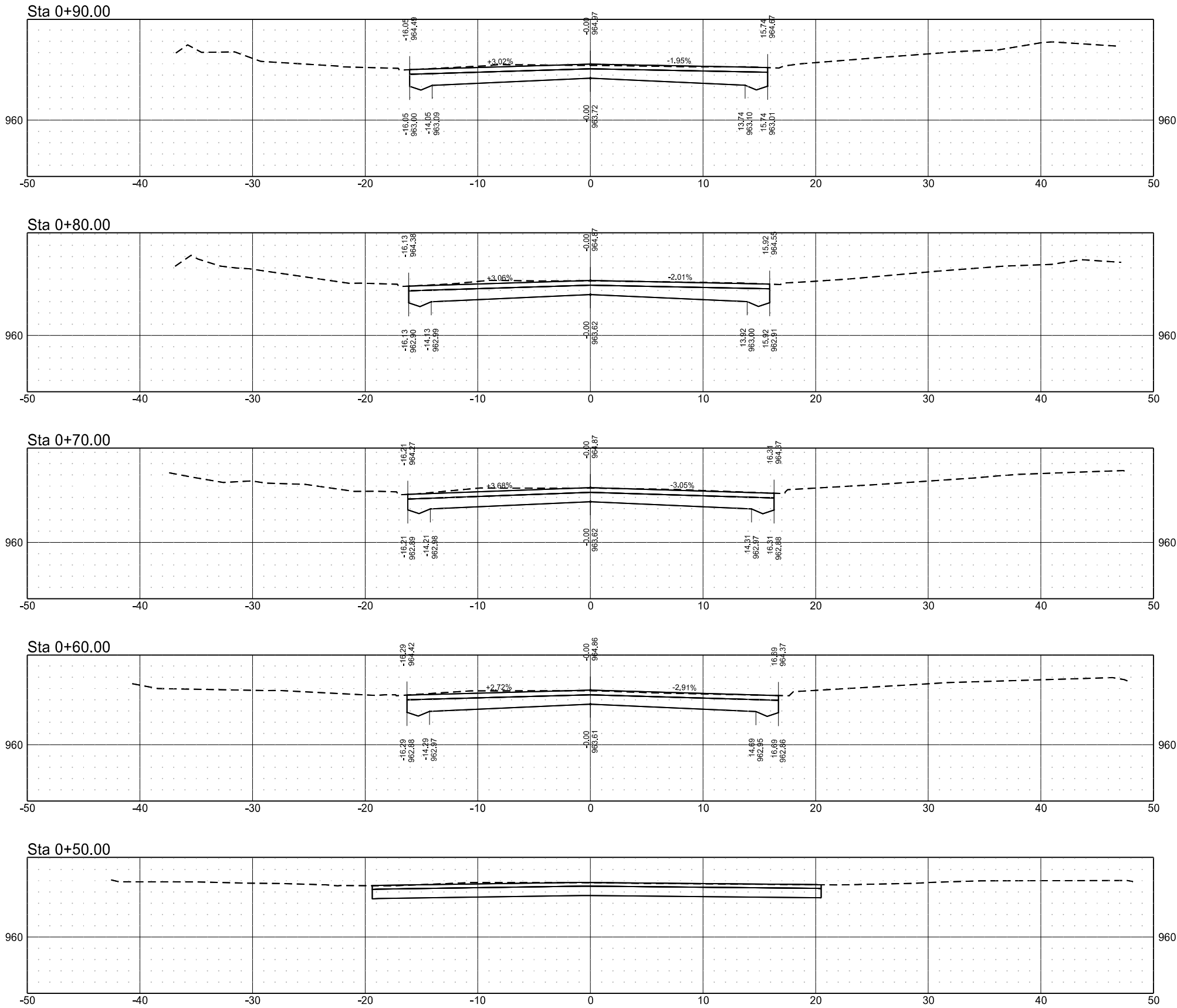


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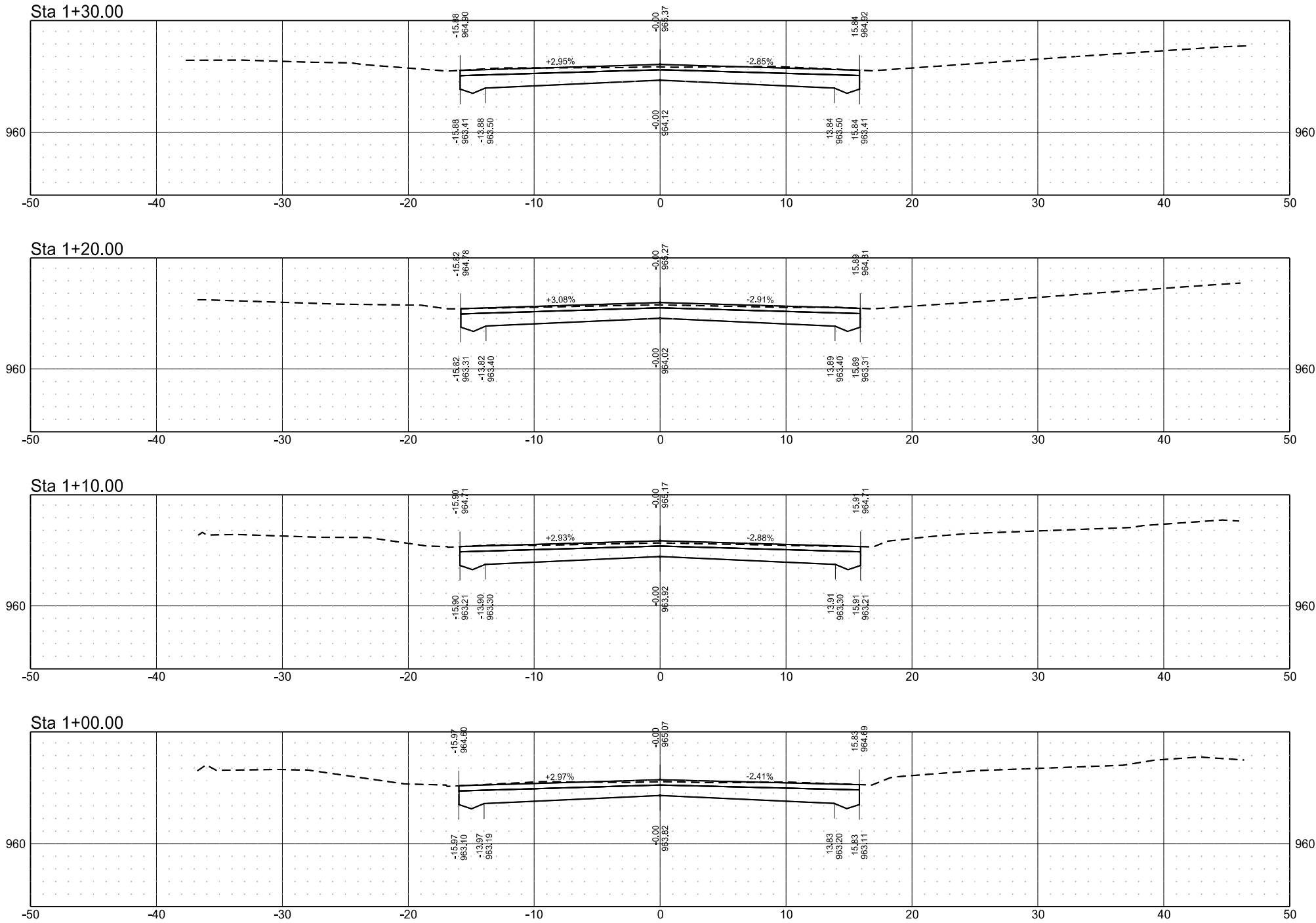
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WAHPETON, NORTH DAKOTA			
CROSS SECTIONS - 6TH AVENUE NORTH			
DRAWN BY: AM	DESIGNED BY: LH	PROJECT NO.: ER2400139	DATE: 2025
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CITY PROJECT NO. 24-287
WAHPETON, NORTH DAKOTA

CROSS SECTIONS - 6TH AVENUE NORTH

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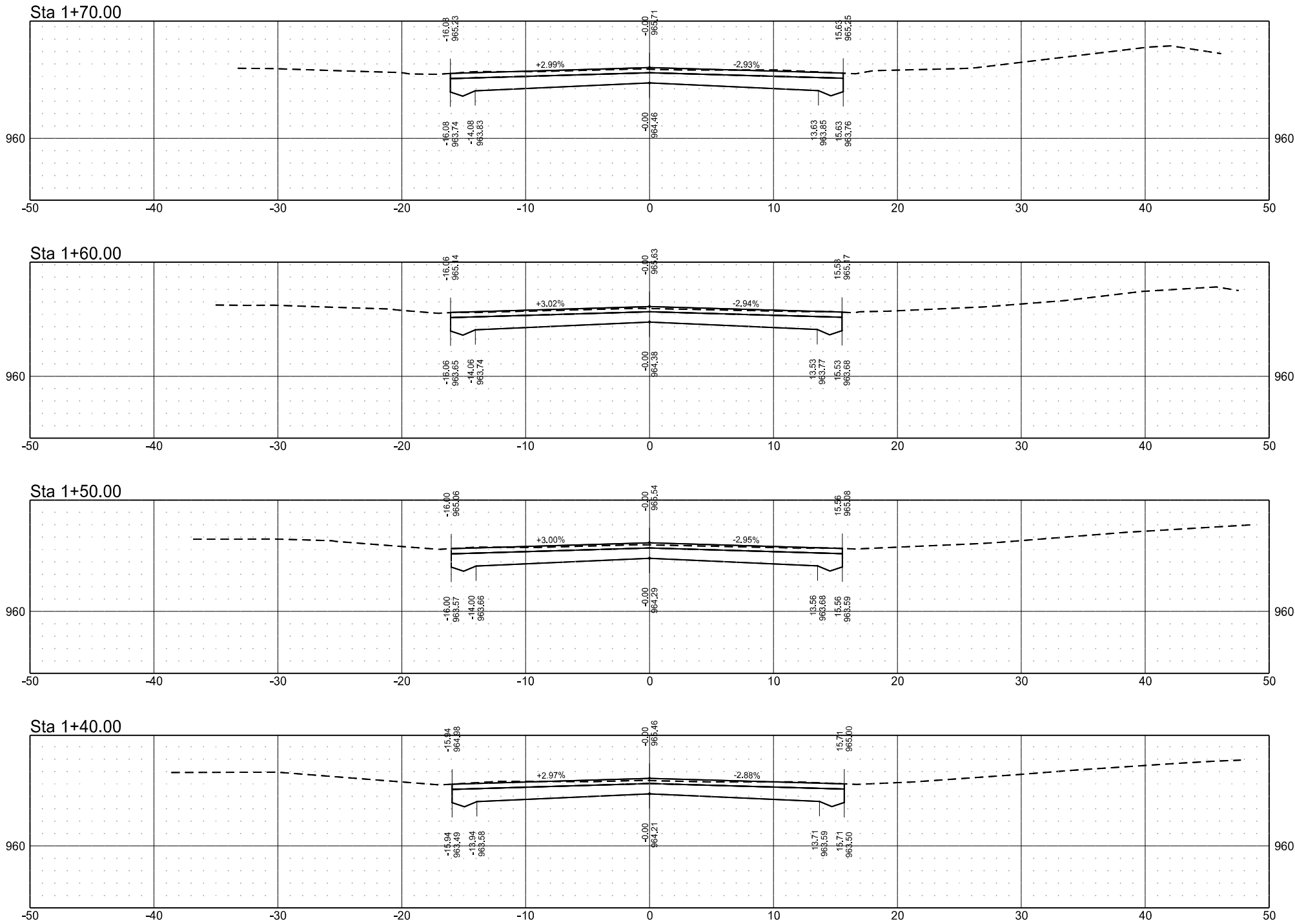
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CROSS SECTIONS - 6TH AVENUE NORTH			
DRAWN BY: AM	SURVEYED BY: IEI	PROJECT NO. ER2400139	
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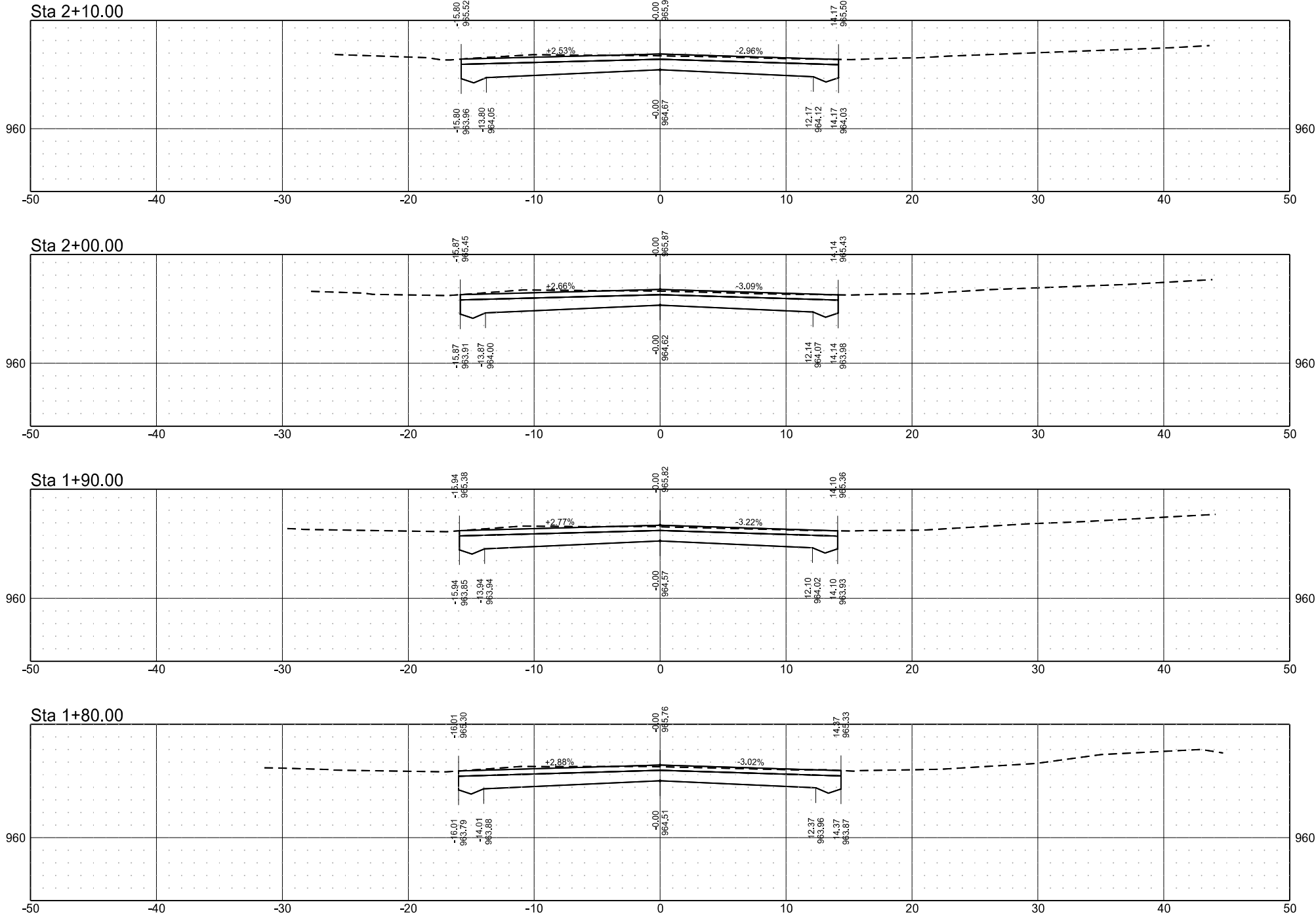


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CITY PROJECT NO. 24-287			
WAHPETON, NORTH DAKOTA			
CROSS SECTIONS - 6TH AVENUE NORTH			
DRAWN BY: <u>AM</u>	SURVEYED BY: <u>IEI</u>	PROJECT NO. <u>ER2400139</u>	
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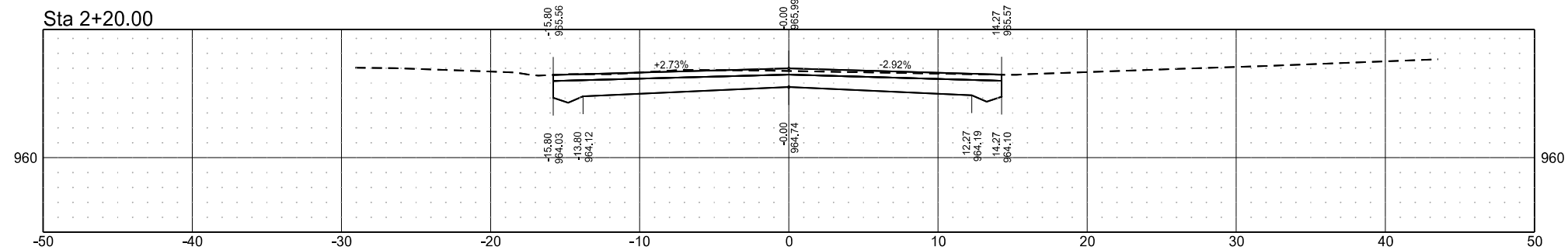


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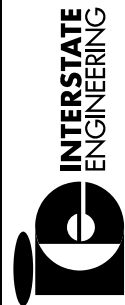
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WEST CENTRAL STREET IMPROVEMENT
CITY PROJECT NO. 24-287
WAHPETON, NORTH DAKOTA

CROSS SECTIONS - 6TH AVENUE NORTH

DRAWN BY: _____ AM	SURVEYED BY: _____ IEI	PROJECT NO: ER2400139
CHECKED BY: _____ ZHDD	DESIGNED BY: _____ LH	DATE: _____ 2025

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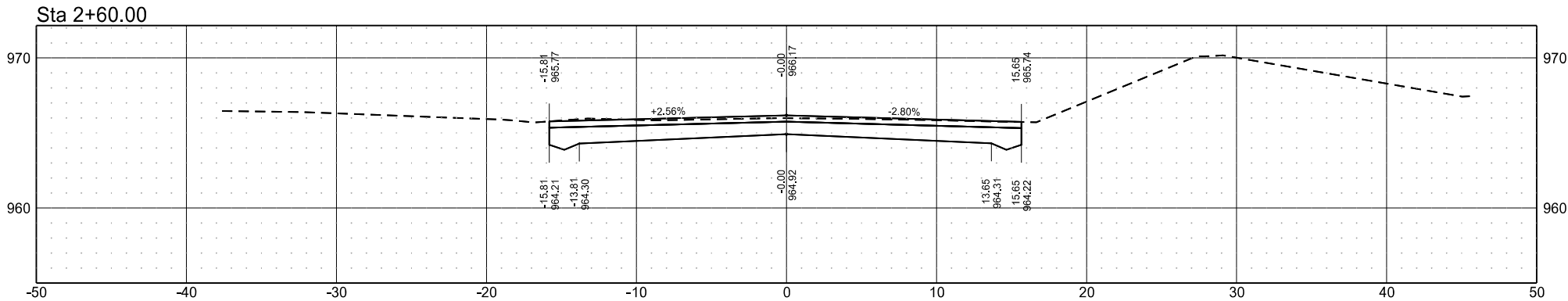
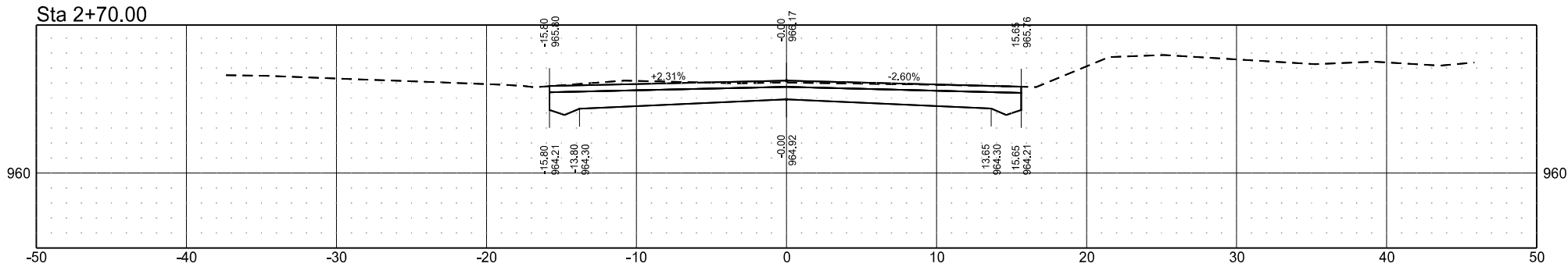
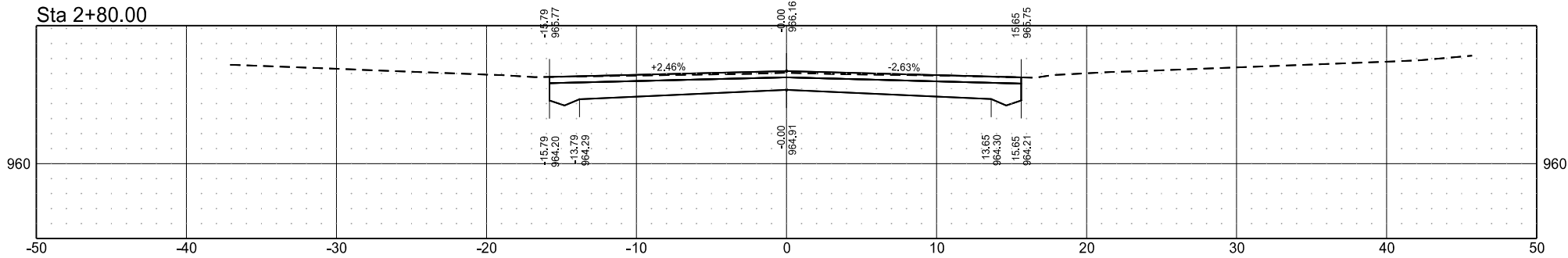
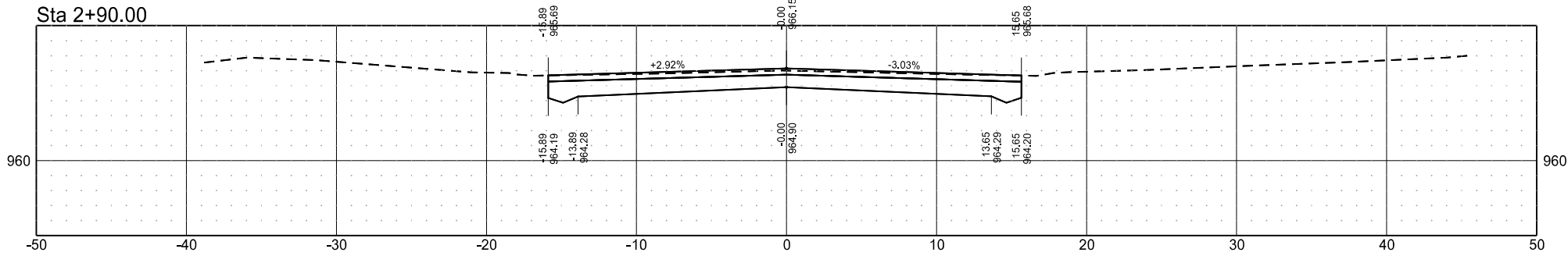
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REV	DATE	BY	DESCRIPTION

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CITY PROJECT NO. 24-287			
WAHPETON, NORTH DAKOTA			
CROSS SECTIONS - 6TH AVENUE NORTH			
DRAWN BY: AM	SURVEYED BY: IEI	PROJECT NO. ER2400139	DATE: 2025
CHECKED BY: ZHOD	DESIGNED BY: LH		

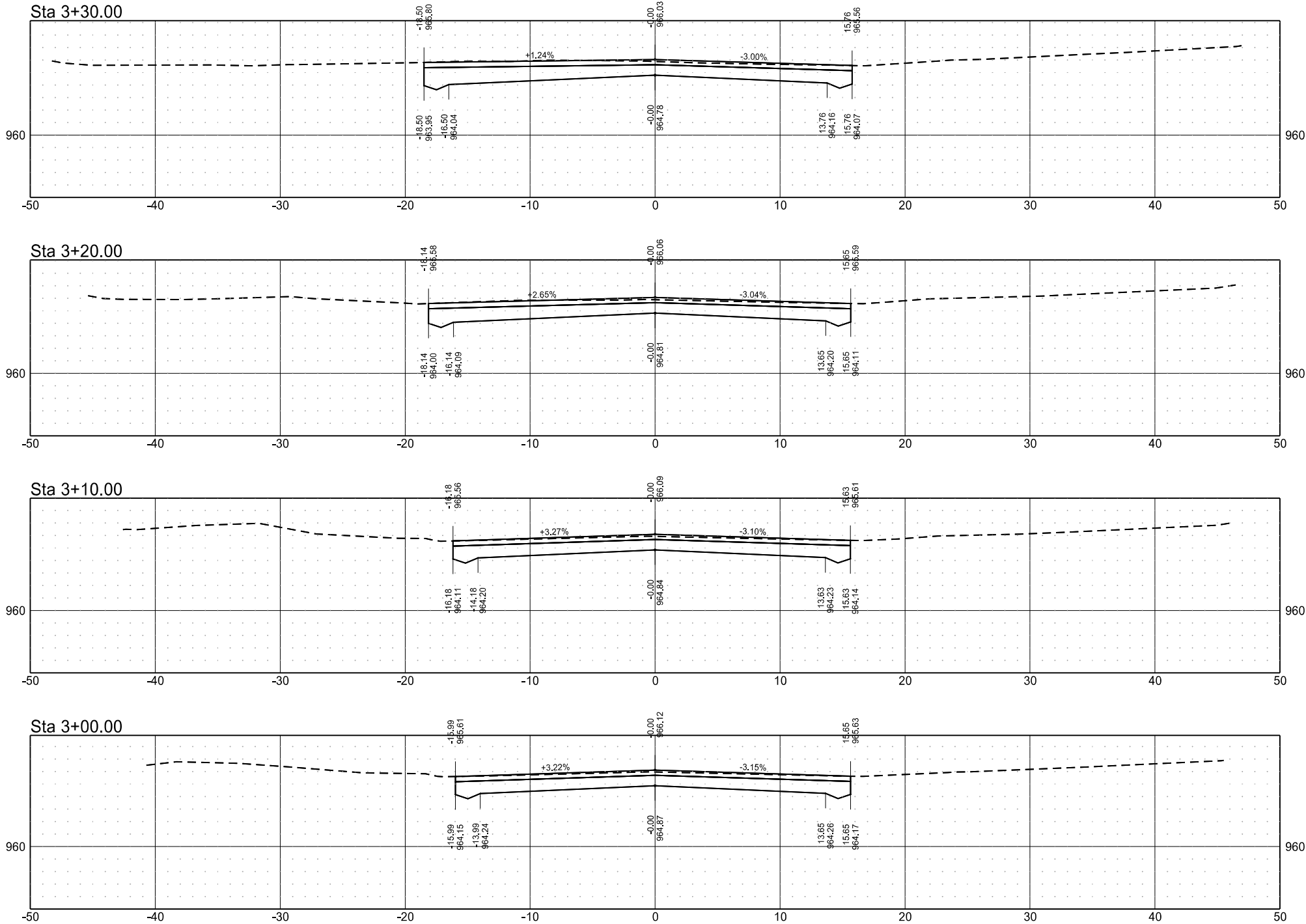


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REV	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT			
CITY PROJECT NO. 24-287			
WAHPETON, NORTH DAKOTA			
CROSS SECTIONS - 6TH AVENUE NORTH			
DRAWN BY: AM	SURVEYED BY: IEI	PROJECT NO. ER2400139	DATE: 2025
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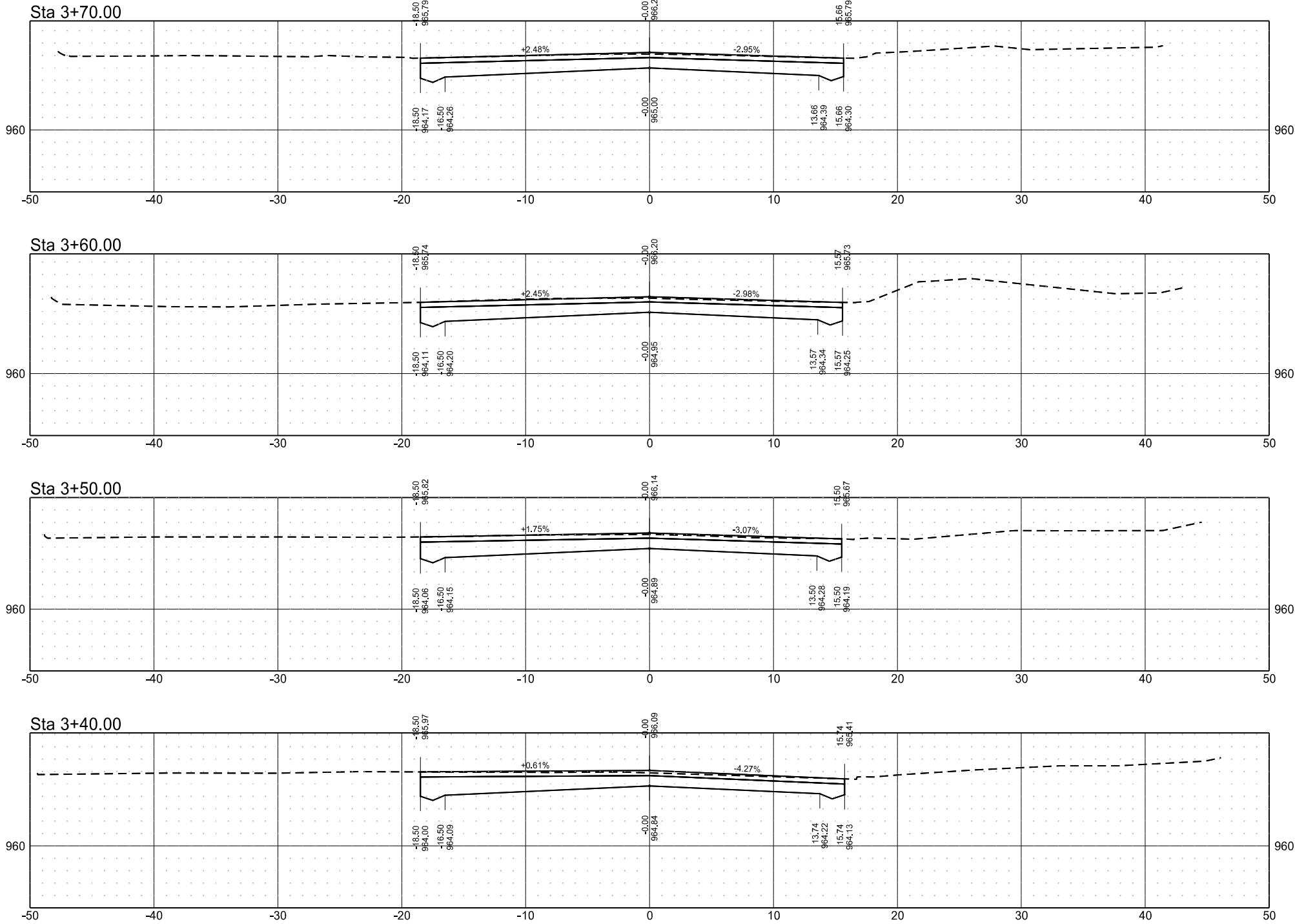


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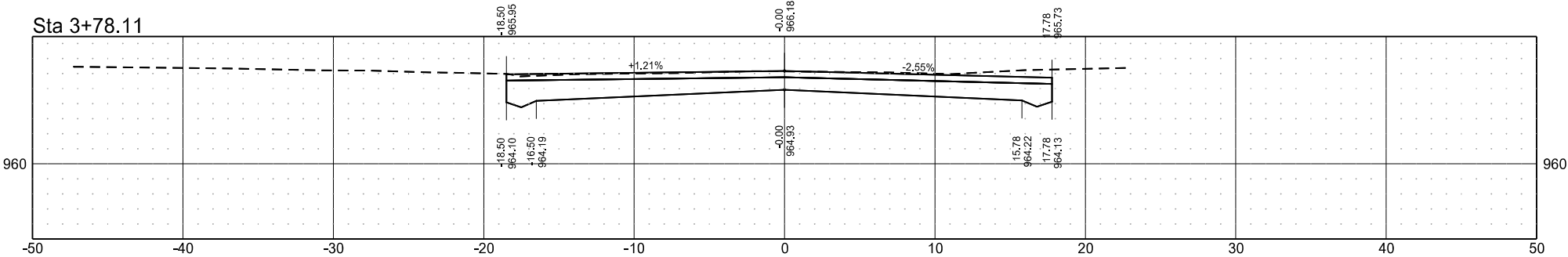
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WAHPETON, NORTH DAKOTA			
CROSS SECTIONS - 6TH AVENUE NORTH			
DRAWN BY: AM	SURVEYED BY: IEI	PROJECT NO.: ER2400139	DATE: 2025
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CITY PROJECT NO. 24-287

WAHPETON, NORTH DAKOTA

CROSS SECTIONS - 6TH AVENUE NORTH

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DESIGNED BY: LH

PROJECT NO.: ER2400139

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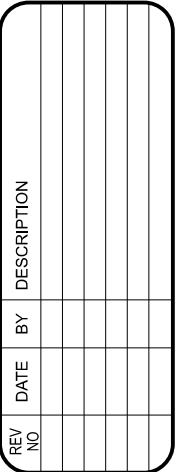
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CITY PROJECT NO. 24-287
WAPETON, NORTH DAKOTA

CROSS SECTIONS - AVENUE B

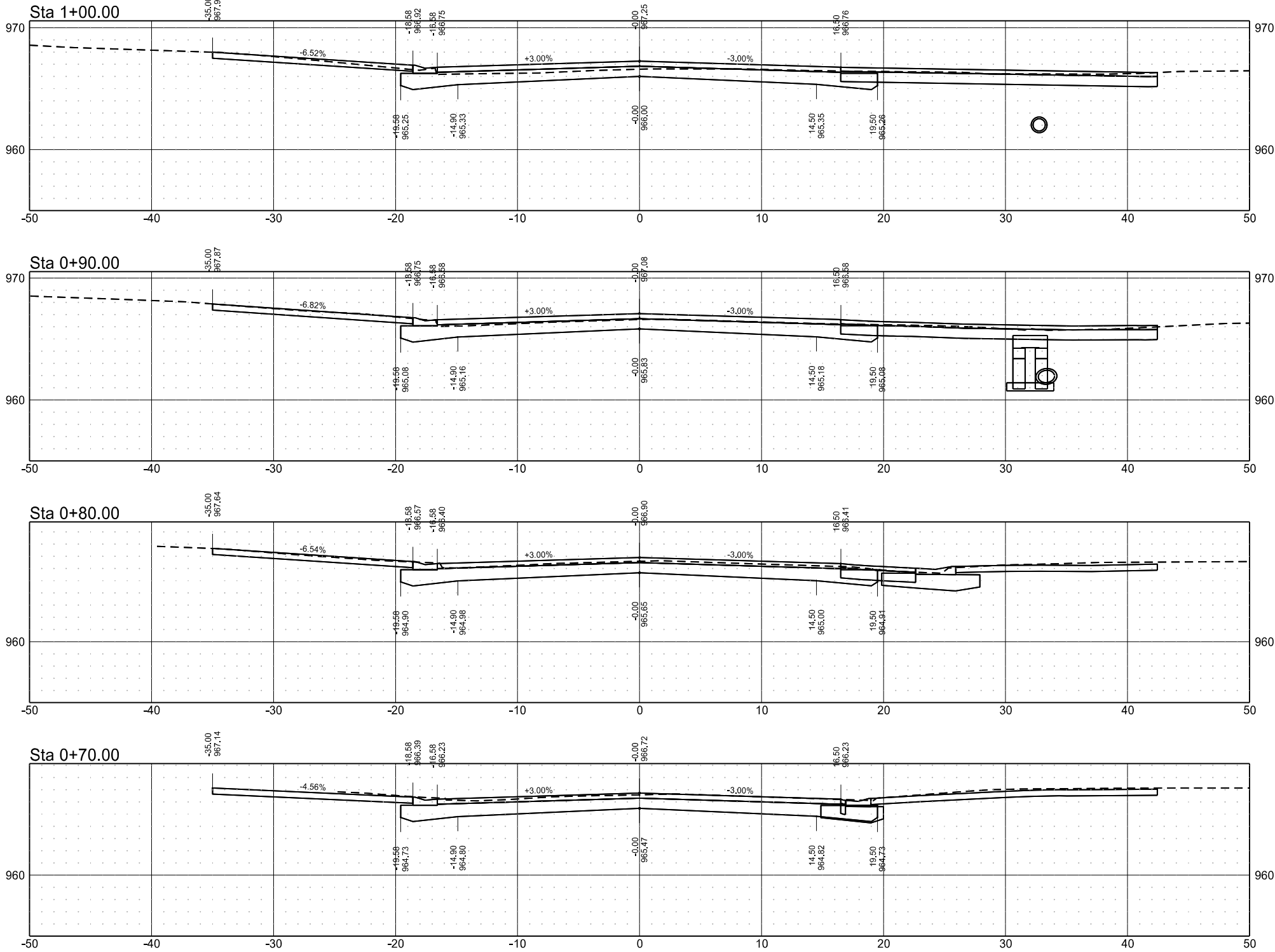
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CHECKED BY: _____	ZHDD _____	DESIGNED BY: _____	LH _____

PROJECT NO: ER2400139
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WAHPETON, NORTH DAKOTA			
CROSS SECTIONS - AVENUE B			
DRAWN BY: AM	SURVEYED BY: IEI	PROJECT NO. ER2400139	DATE: 2025
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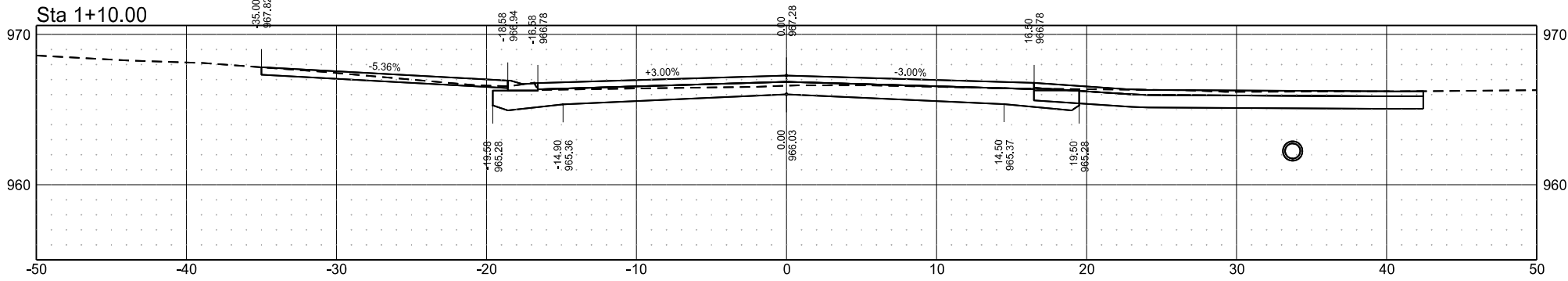
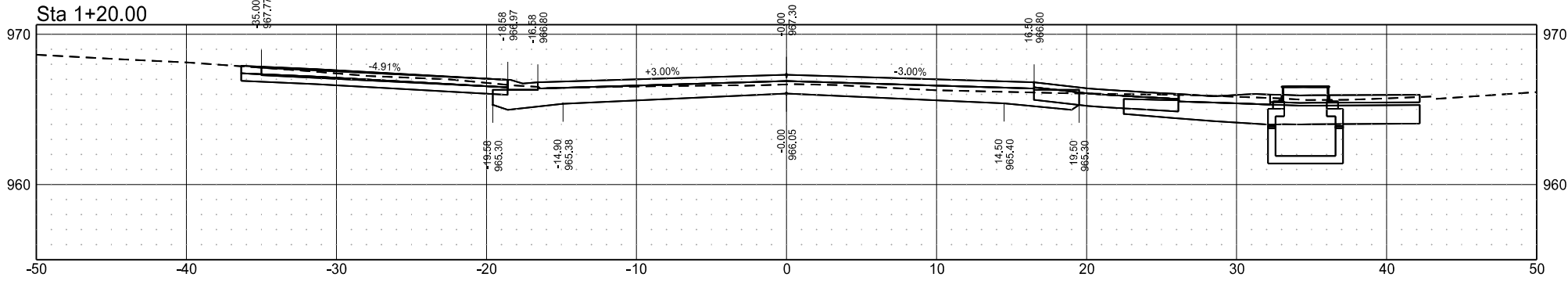
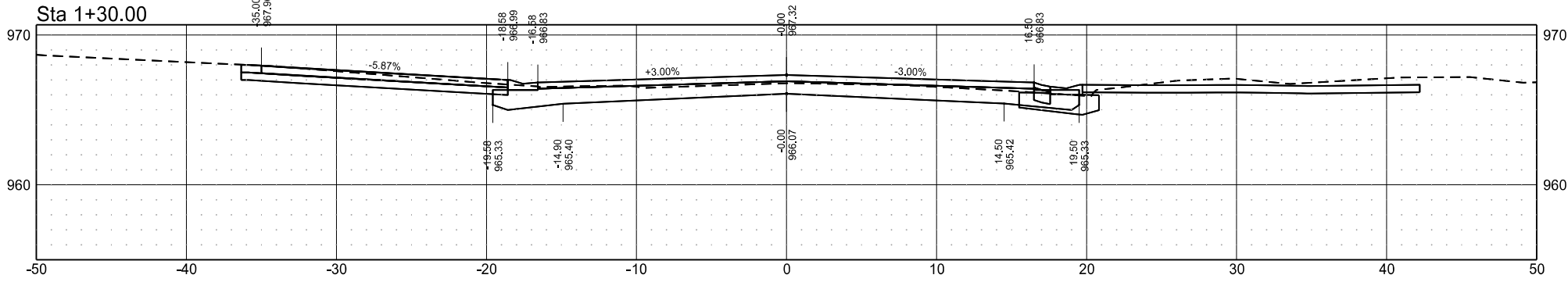
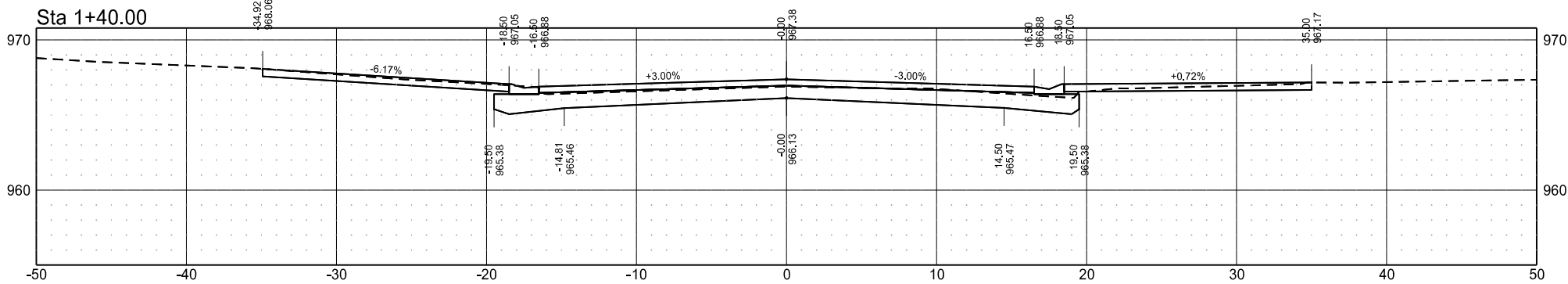


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REV	DATE	BY	DESCRIPTION

WEST CENTRAL STREET IMPROVEMENT			
CITY PROJECT NO. 24-287			
WAHPETON, NORTH DAKOTA			
CROSS SECTIONS - AVENUE B			
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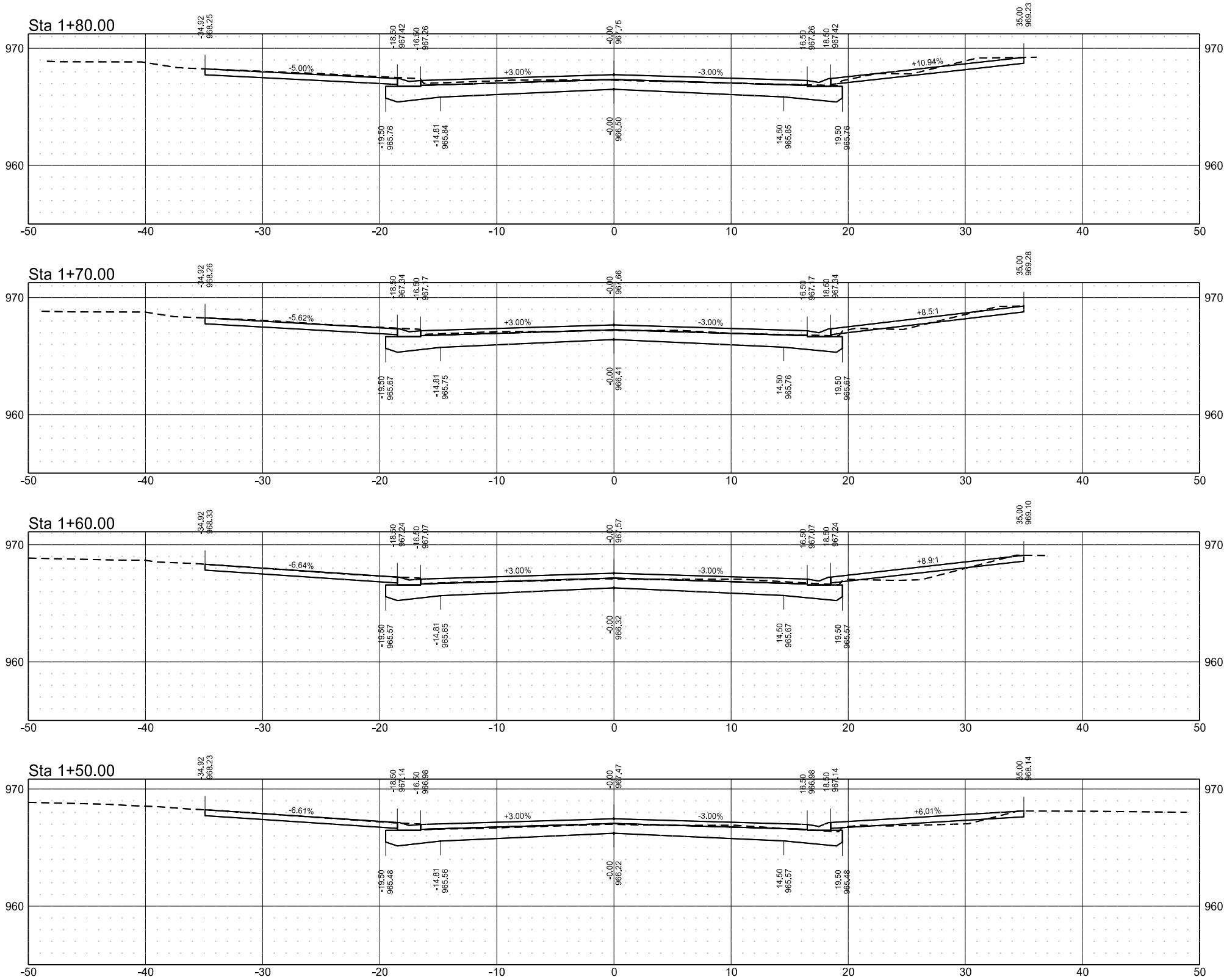


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CITY PROJECT NO. 24-287			
WAHPETON, NORTH DAKOTA			
CROSS SECTIONS - AVENUE B			
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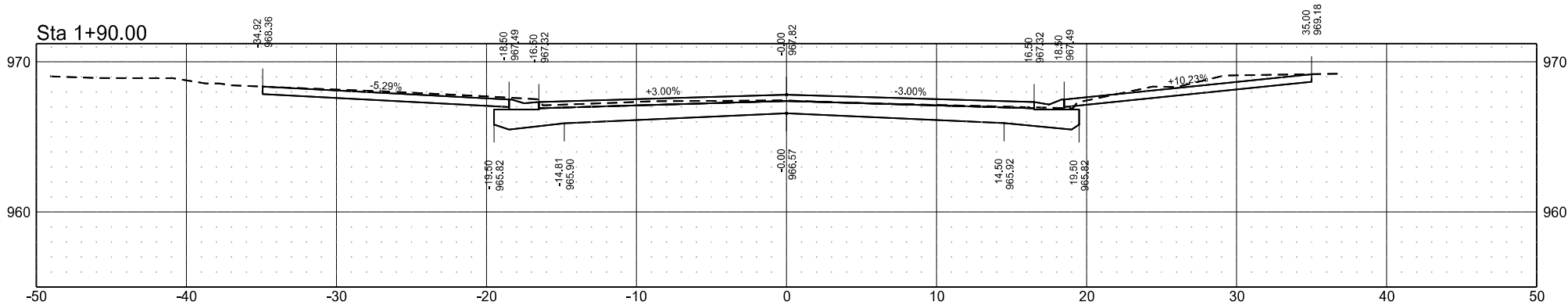
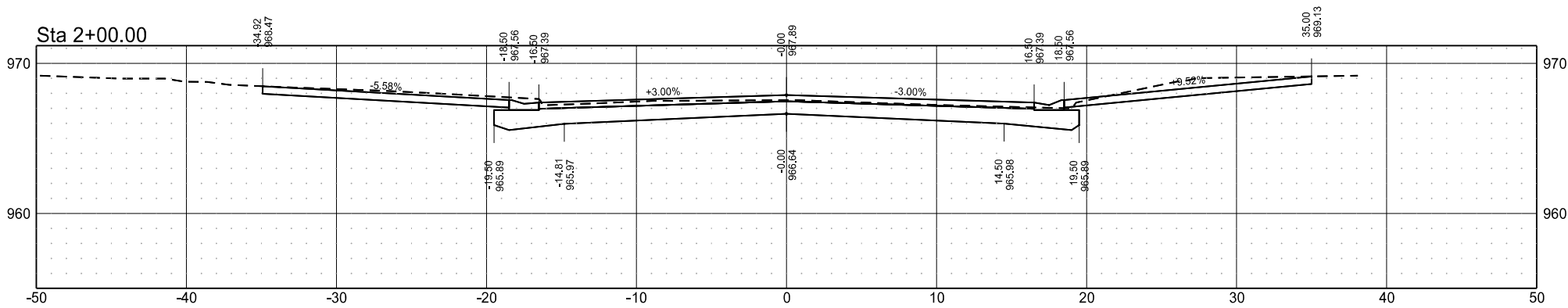
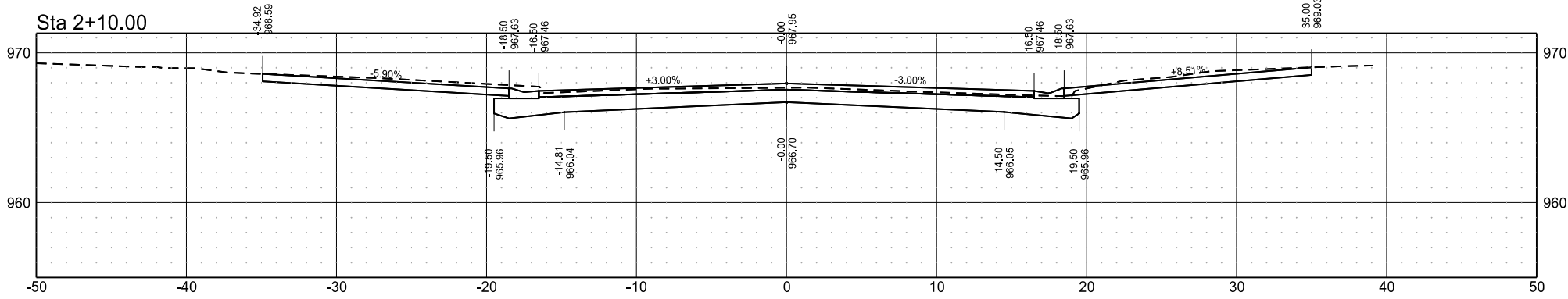
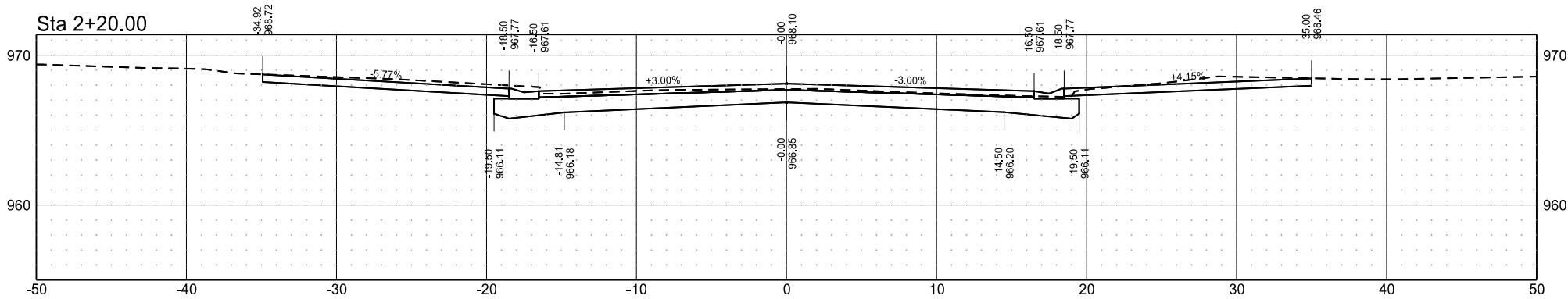


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CITY PROJECT NO. 24-287			
WAHPETON, NORTH DAKOTA			
CROSS SECTIONS - AVENUE B			
DRAWN BY: AM	SURVEYED BY: IEI	PROJECT NO.: ER2400139	DATE: 2025
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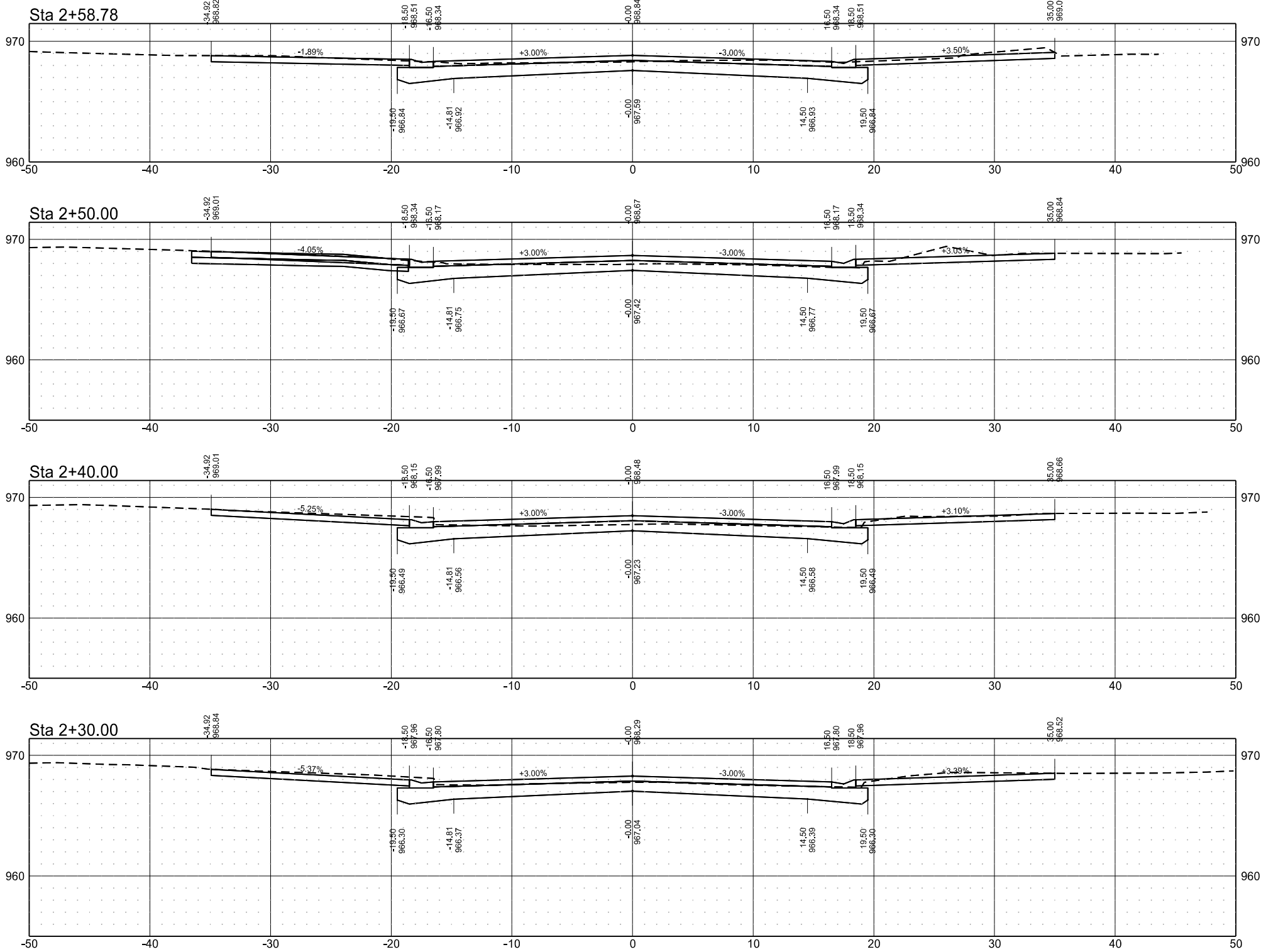


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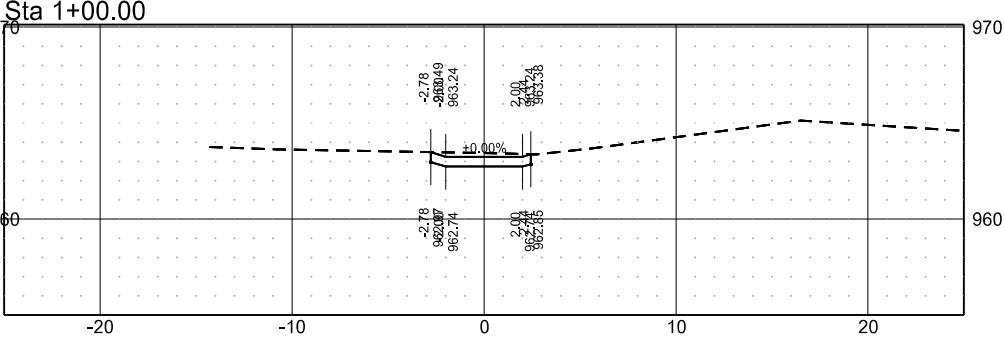
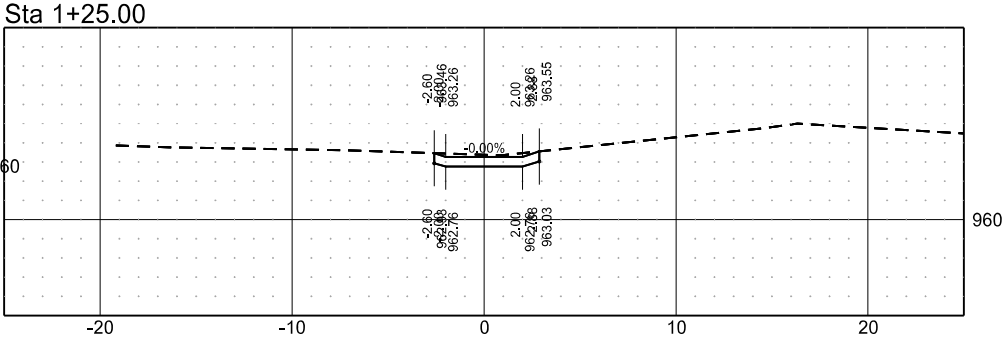
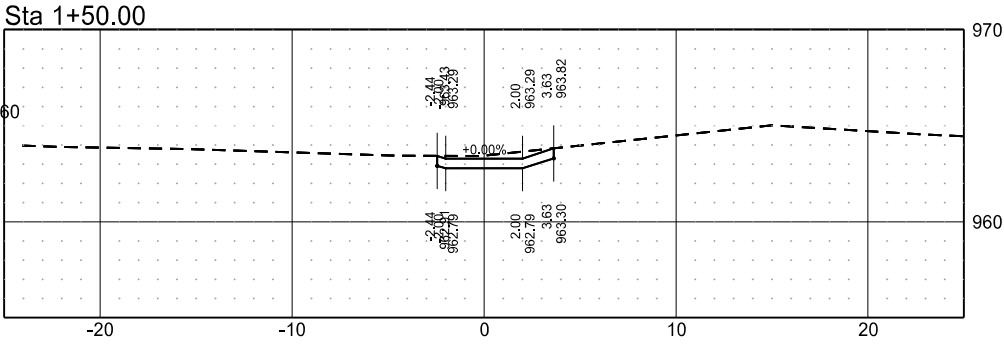
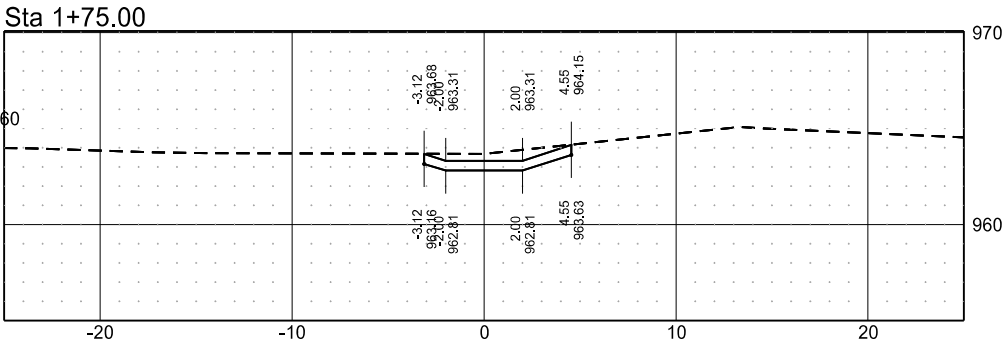
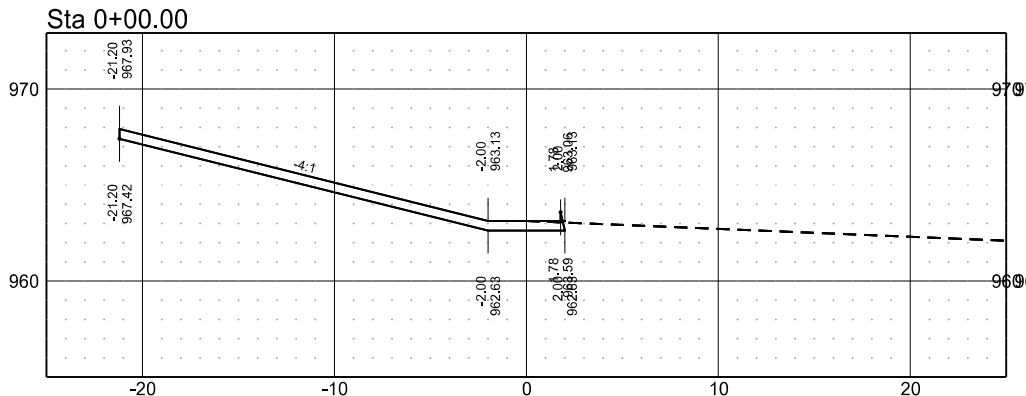
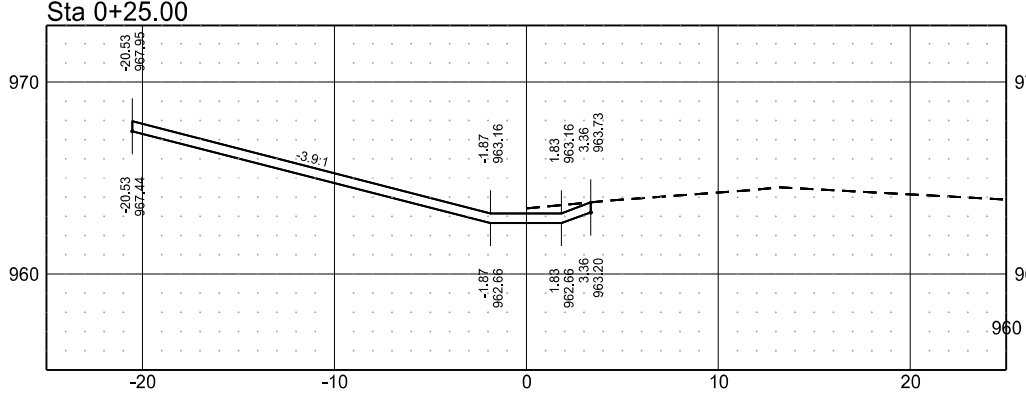
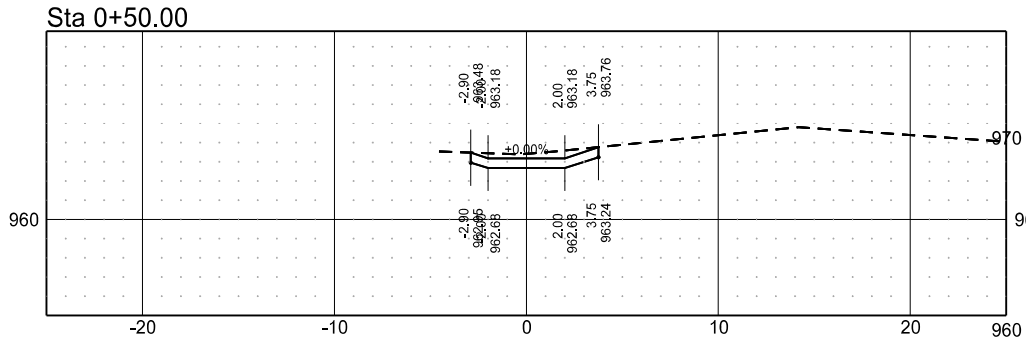
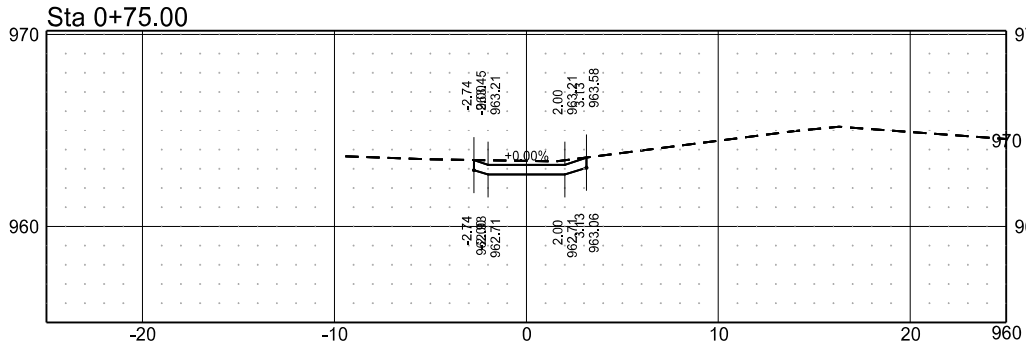
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CITY PROJECT NO. 24-287			
WAHPETON, NORTH DAKOTA			
CROSS SECTIONS - AVENUE B			
DRAWN BY: AM	SURVEYED BY: IEI	PROJECT NO. ER2400139	DATE: 2025
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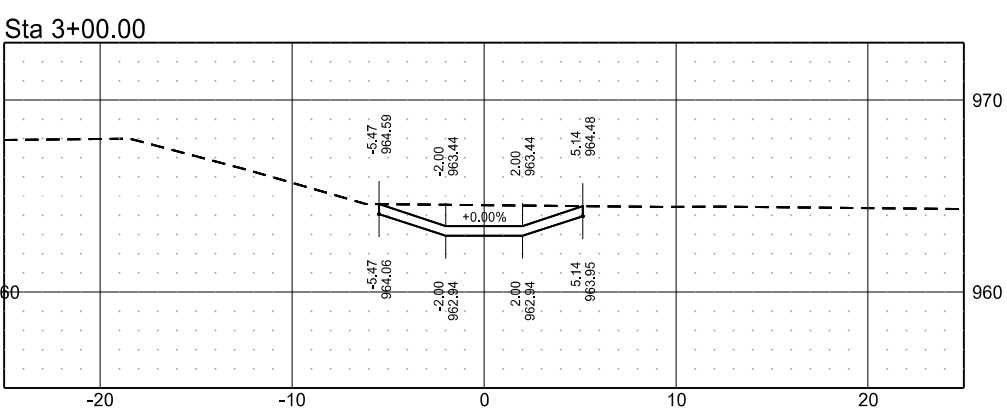
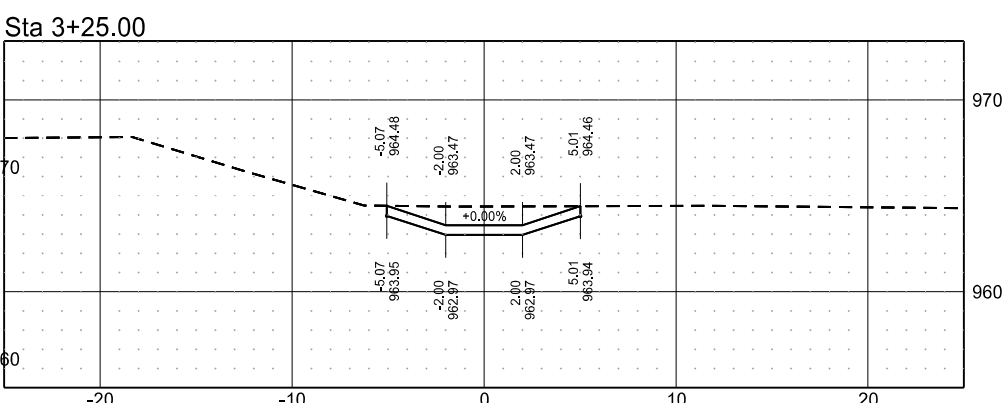
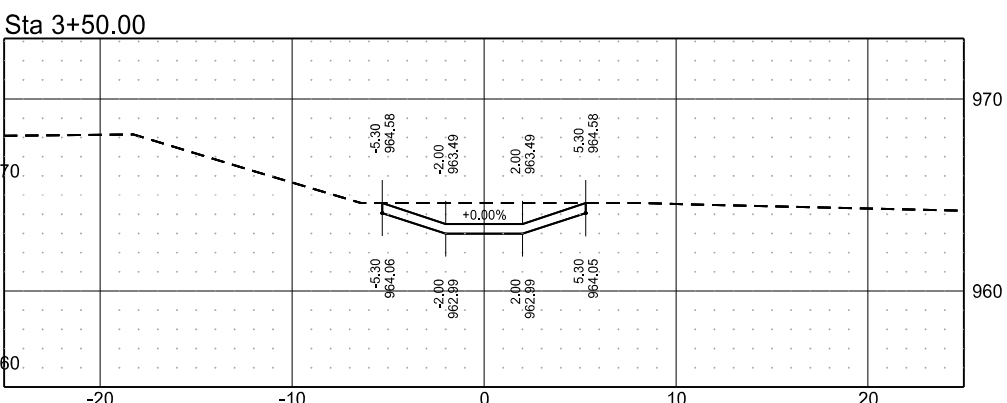
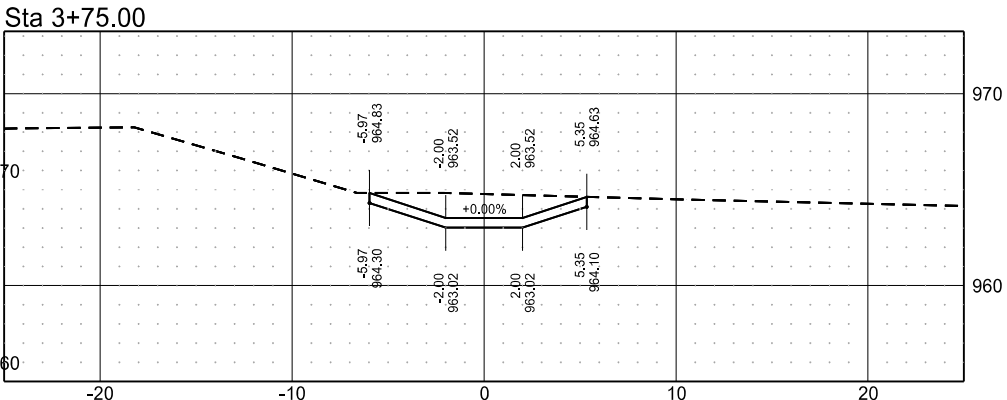
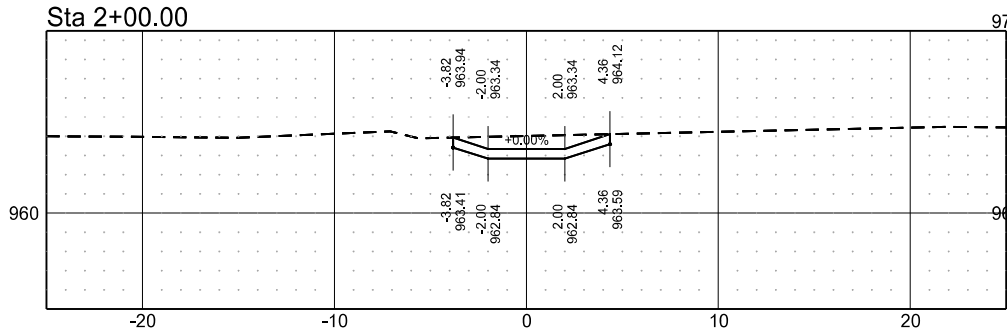
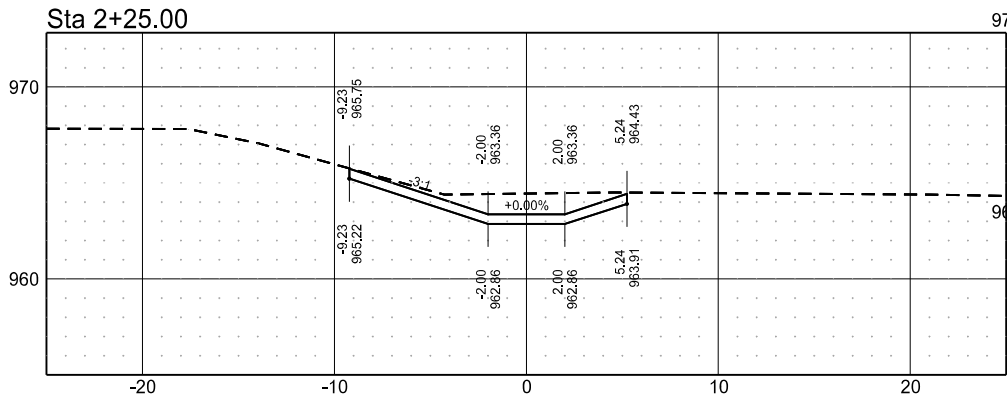
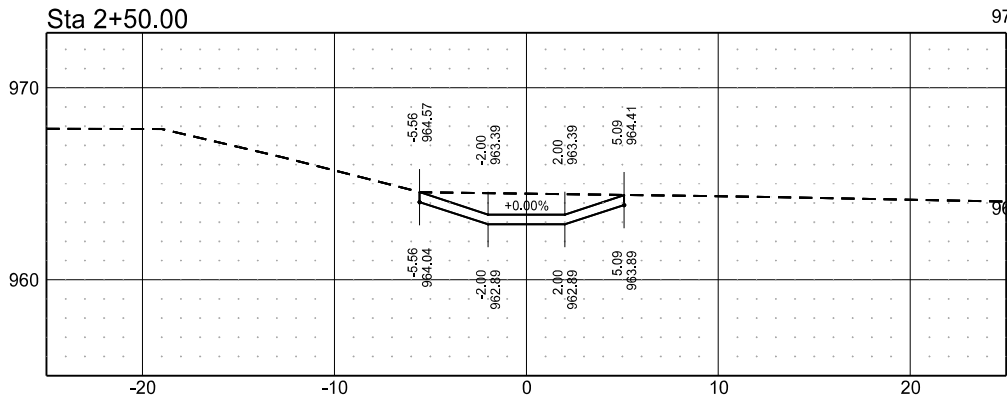
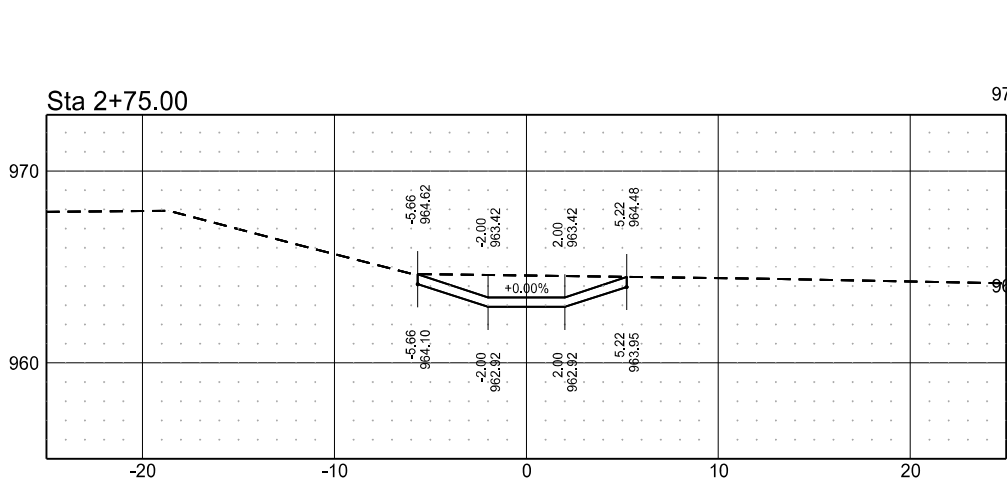
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DRAWN BY: AM	SURVEYED BY: IEI	PROJECT NO. ER2400139	DATE: 2025
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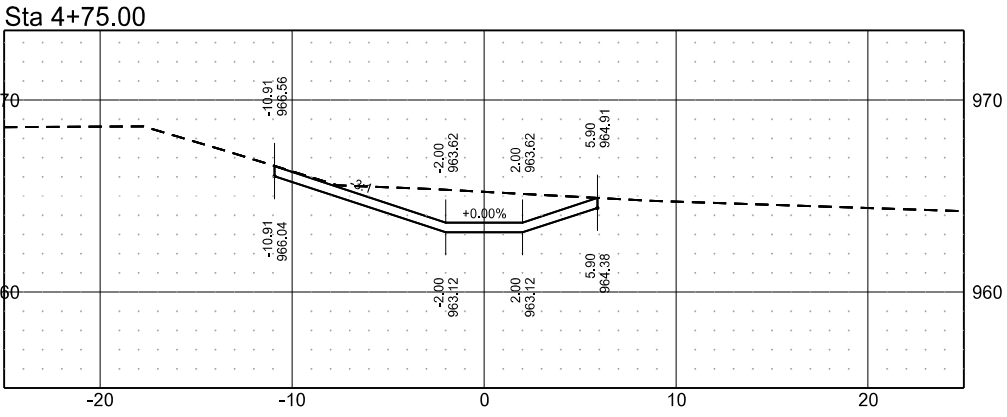
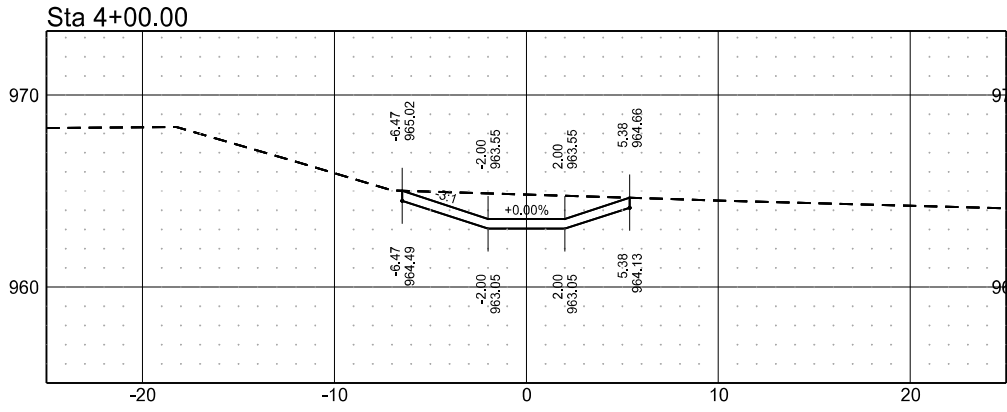
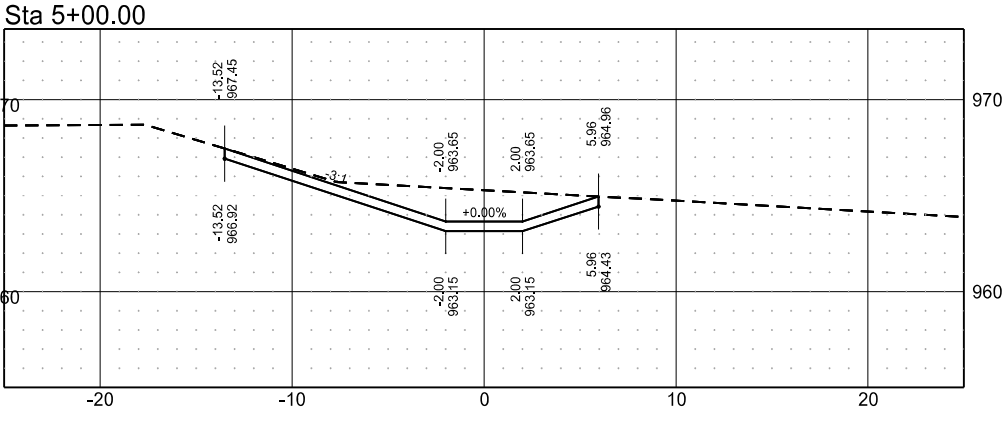
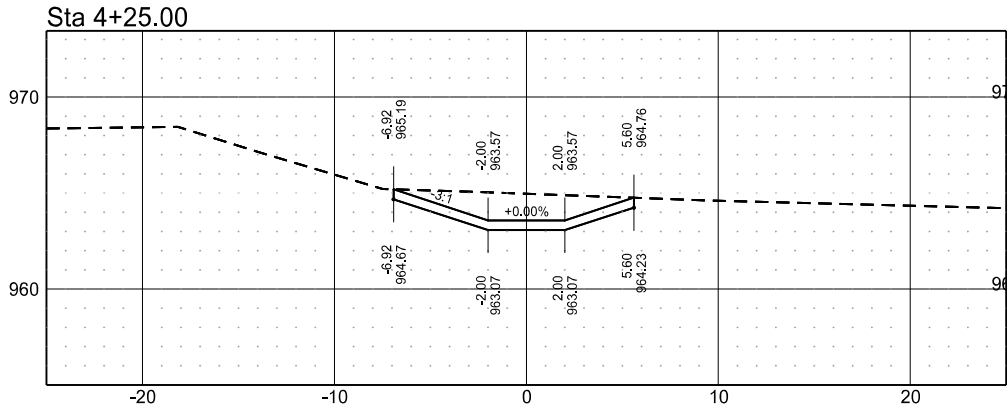
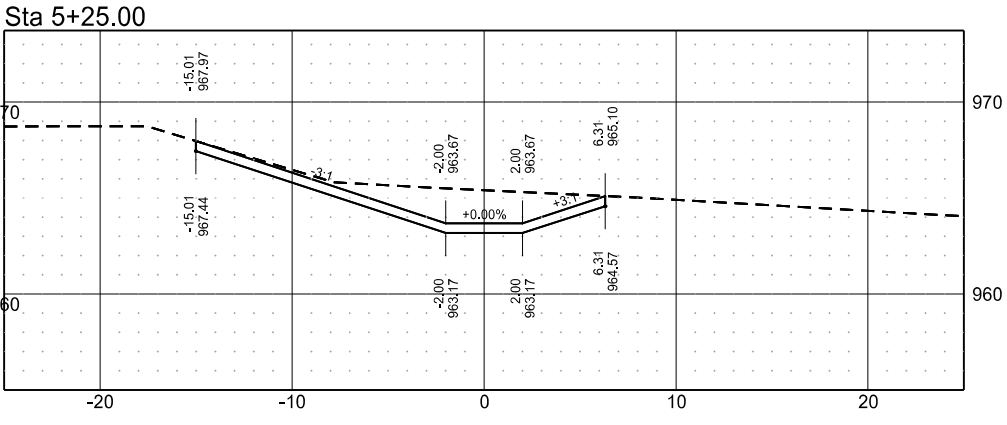
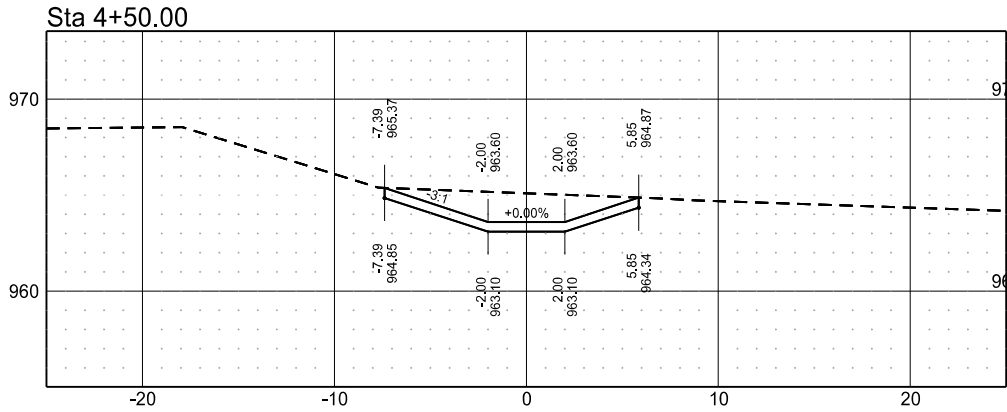
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WAHPETON, NORTH DAKOTA			
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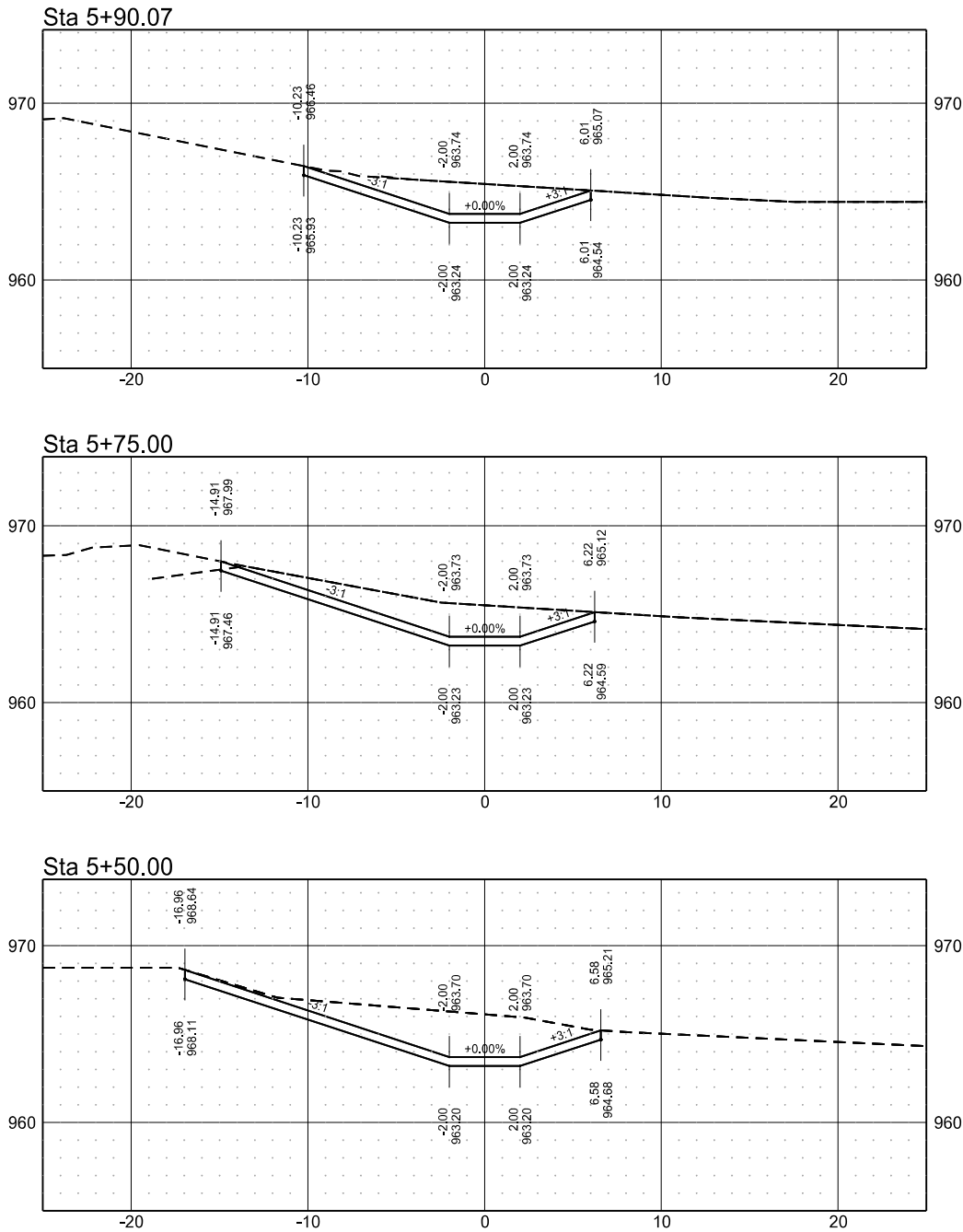
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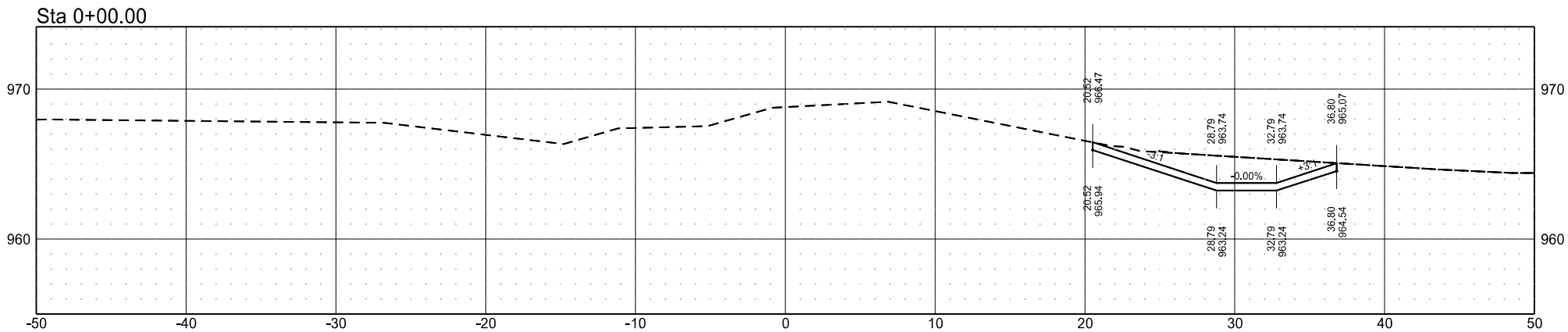
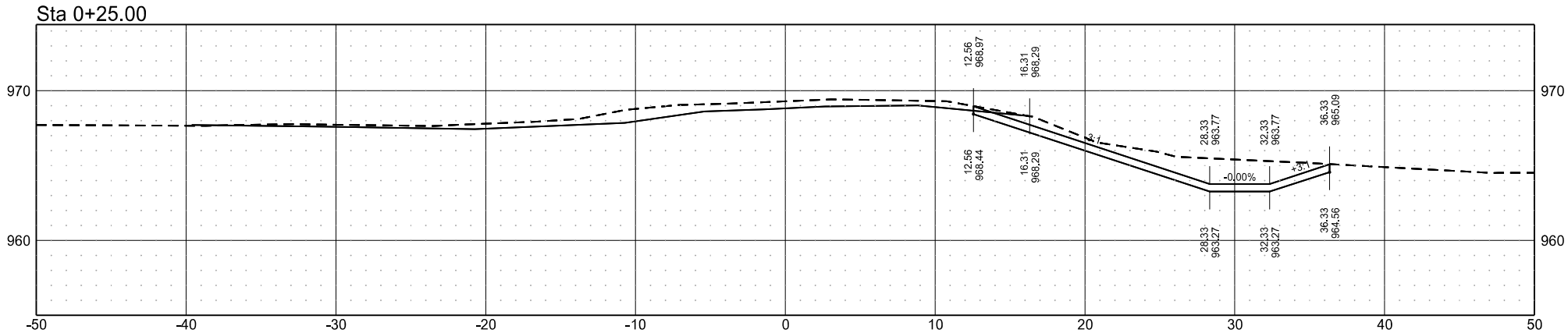
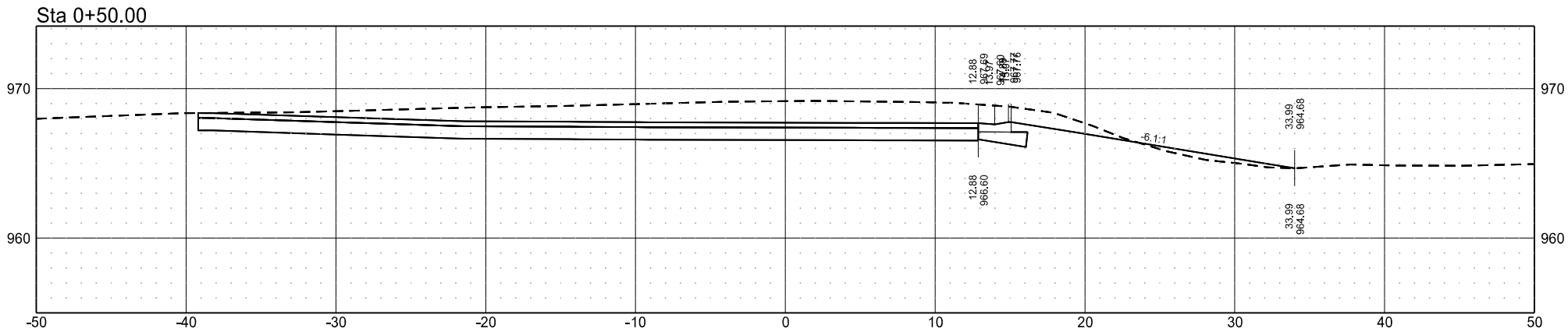
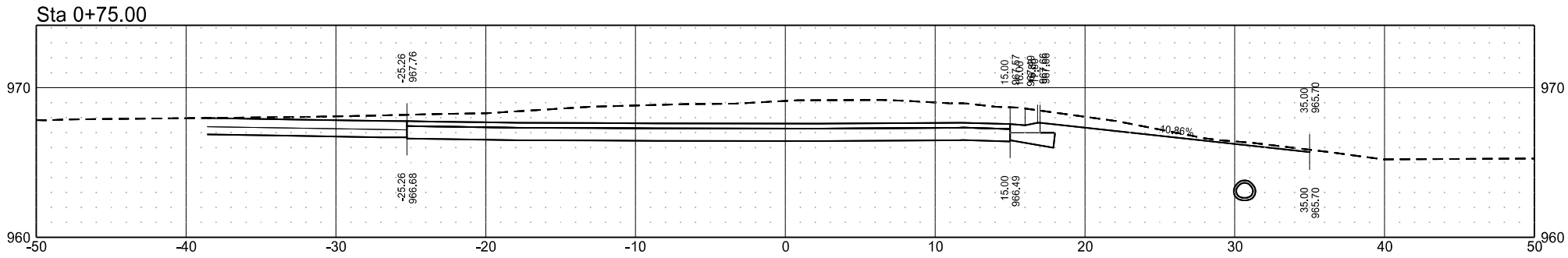
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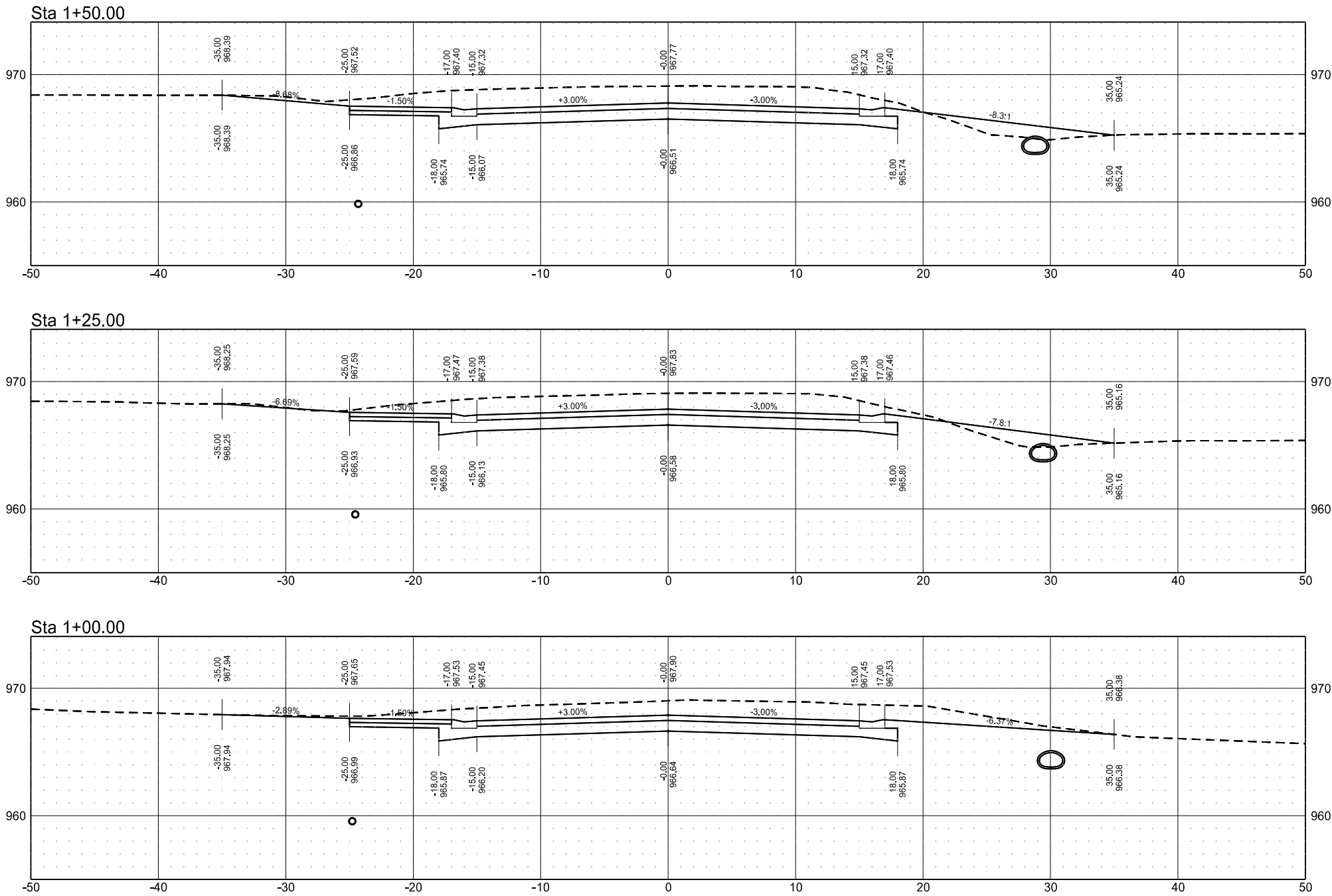
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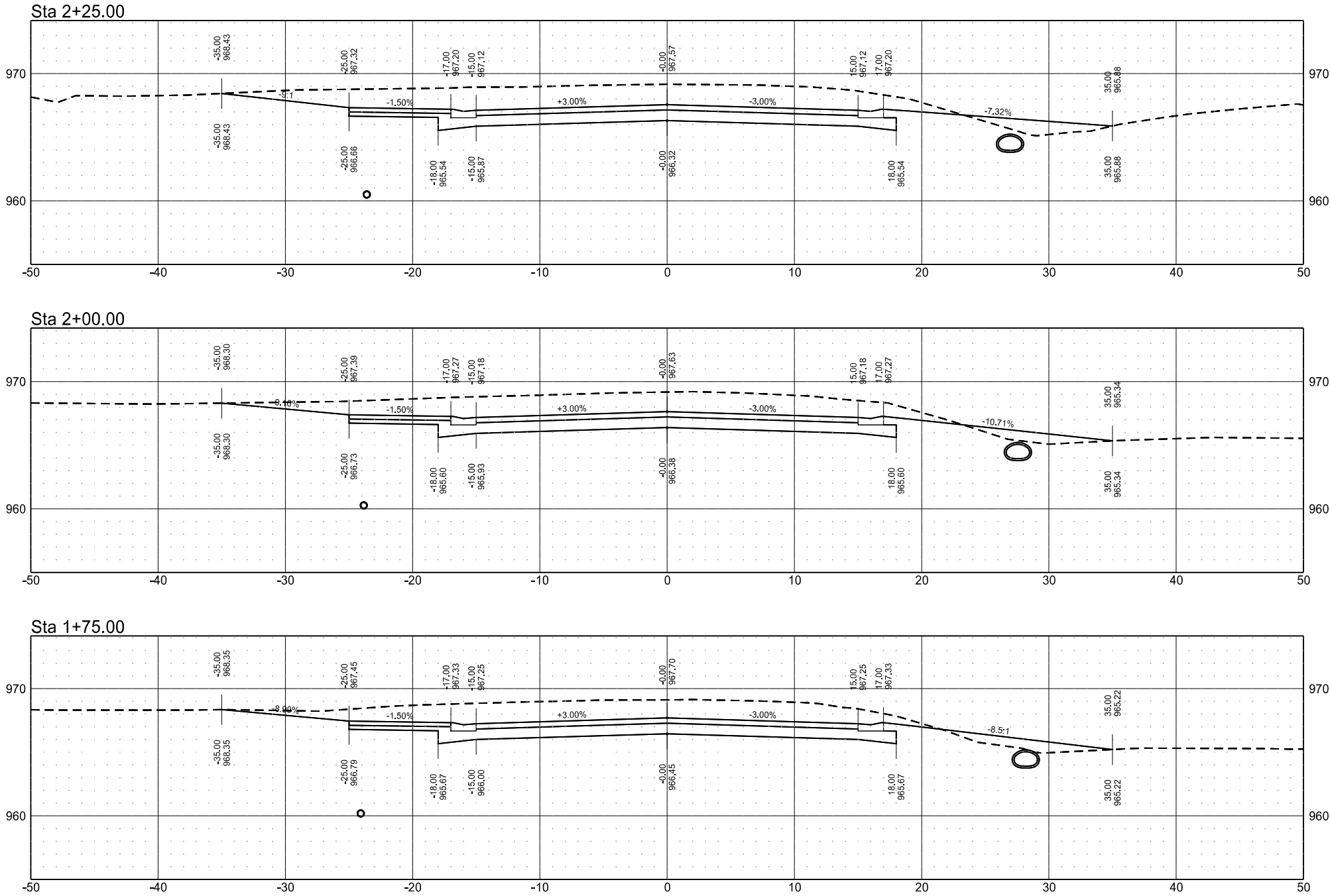
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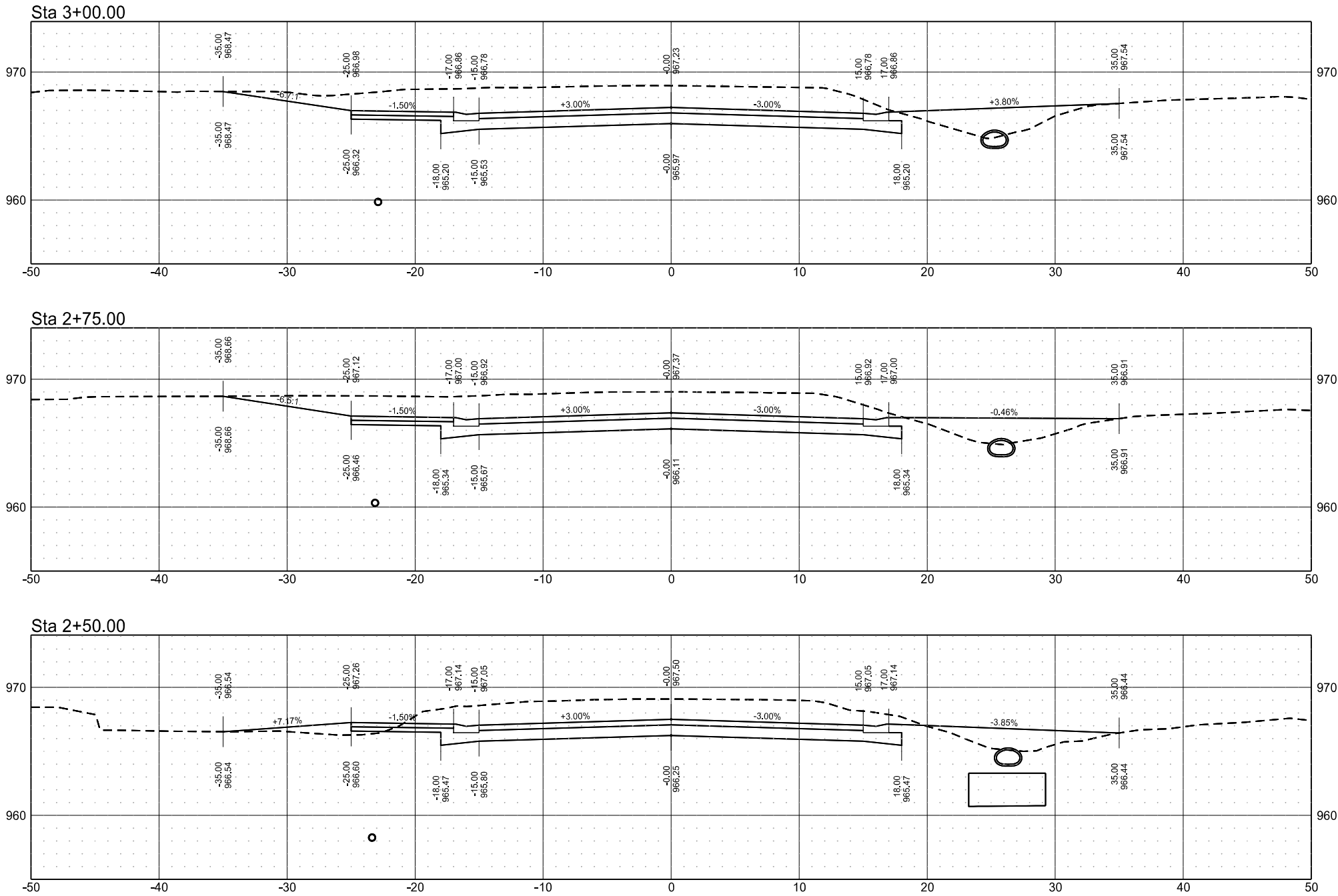


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CROSS SECTIONS - 5TH AVENUE			
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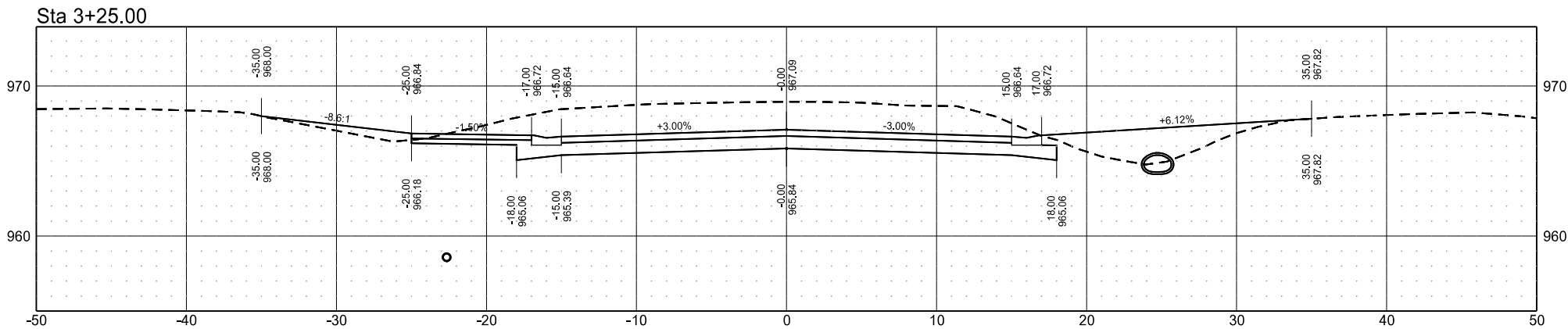
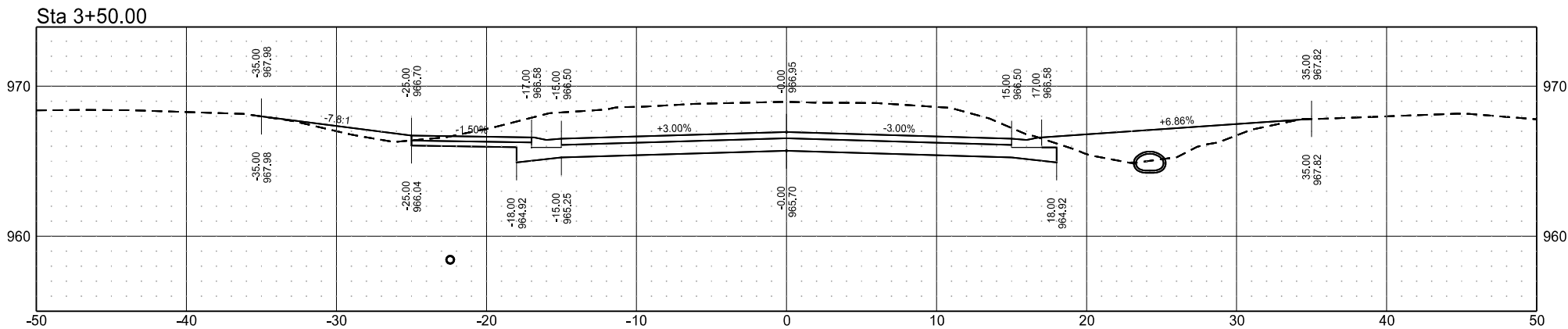
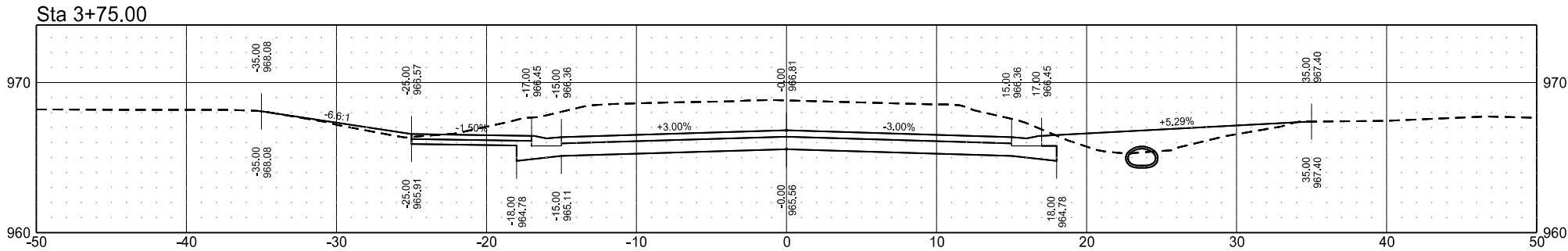
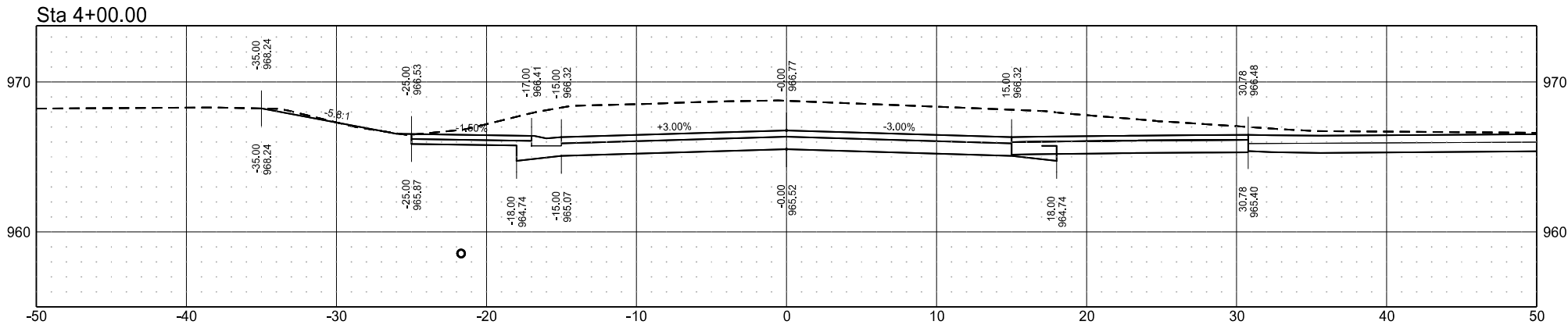


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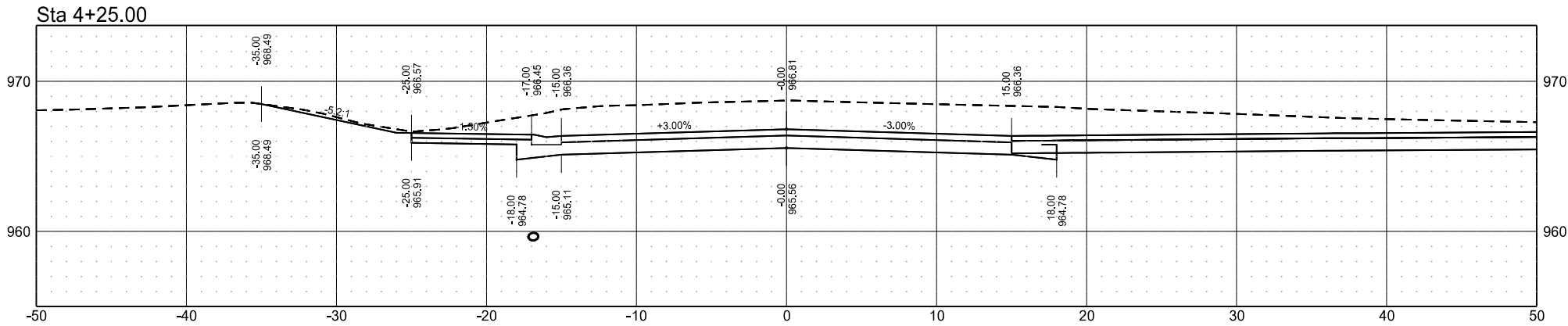
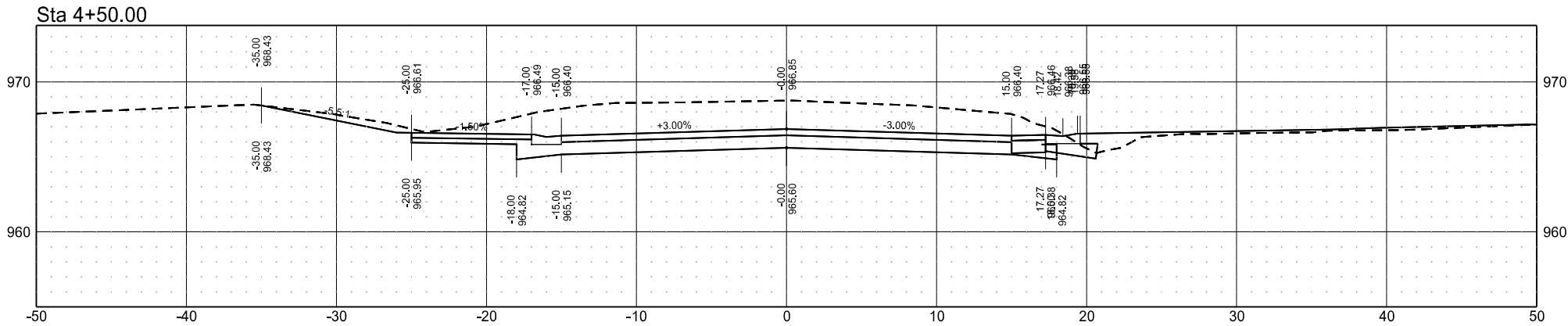
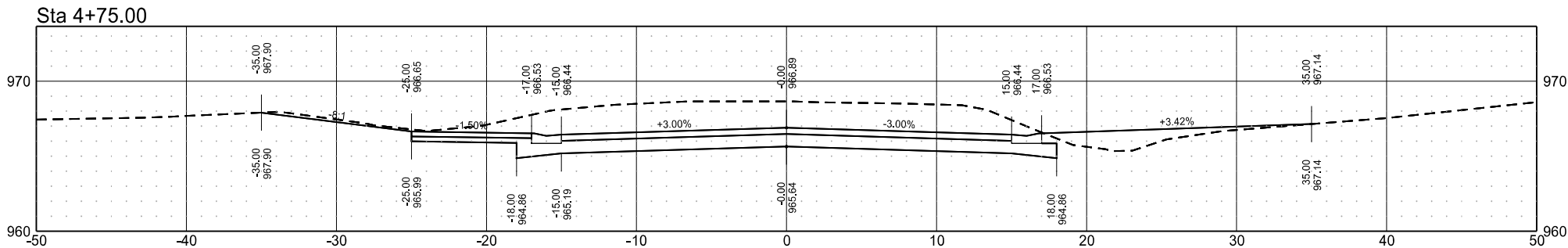
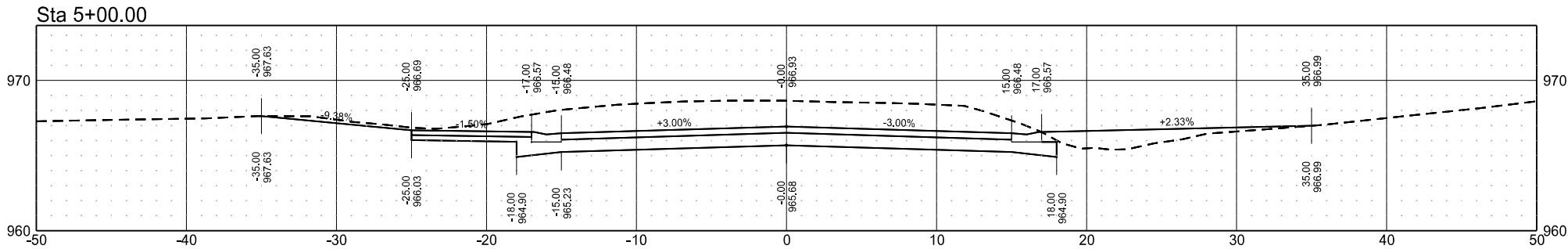
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WAHPETON, NORTH DAKOTA			
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CITY PROJECT NO. 24-287			
WAHPETON, NORTH DAKOTA			
CROSS SECTIONS - 5TH AVENUE			
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		PROJECT NO.:	ER2400139
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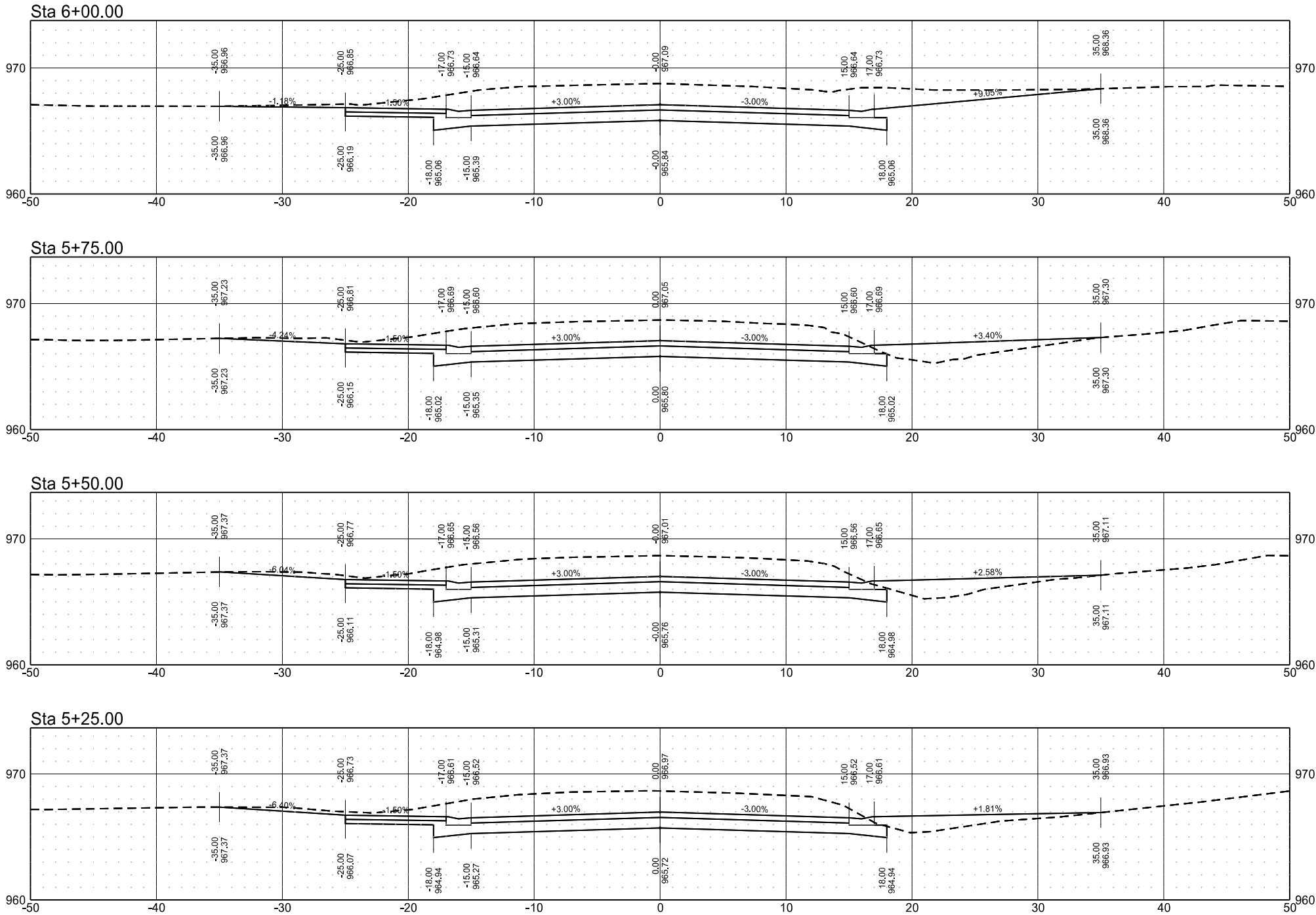


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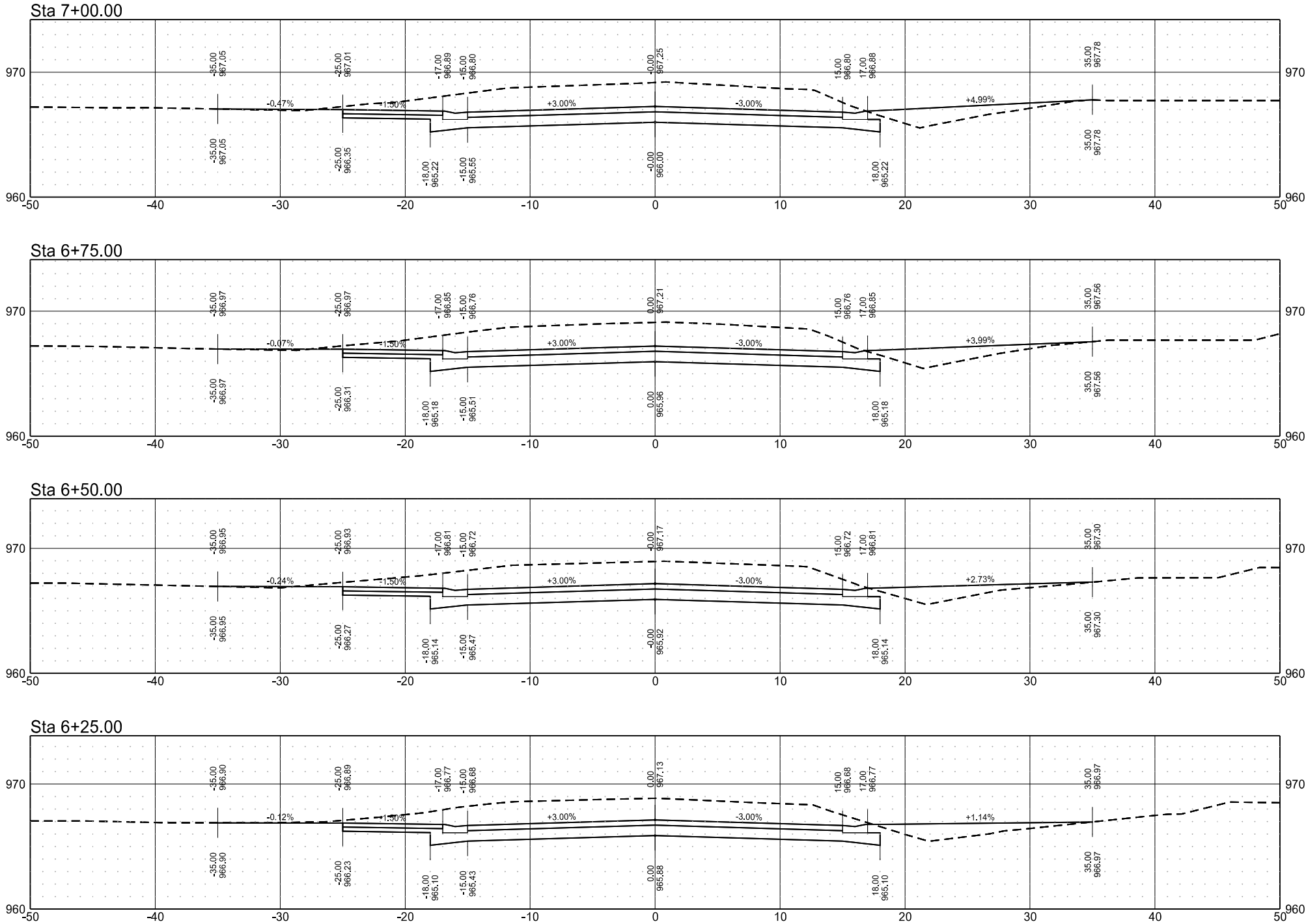
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WAHPETON, NORTH DAKOTA			
CROSS SECTIONS - 5TH AVENUE			
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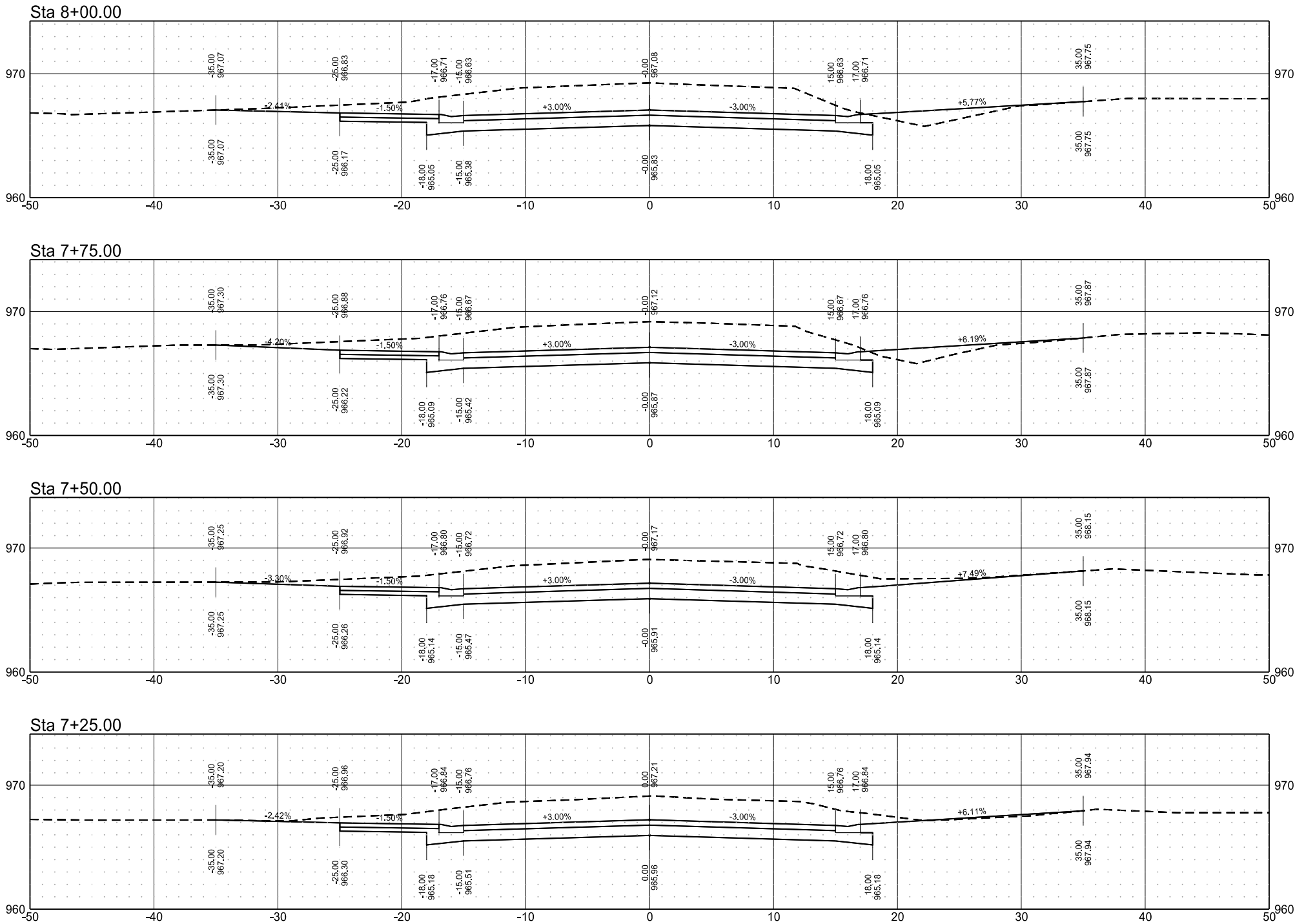
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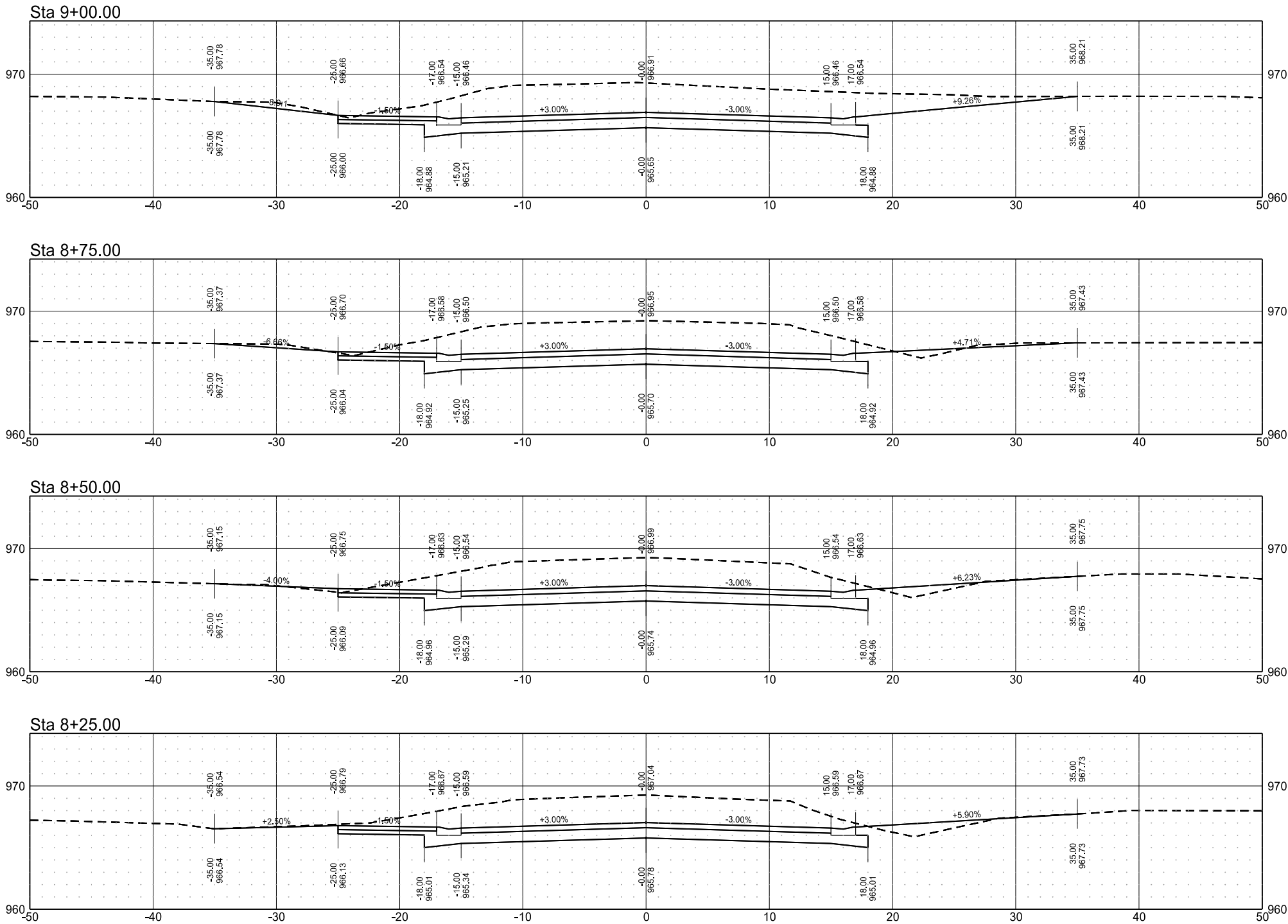
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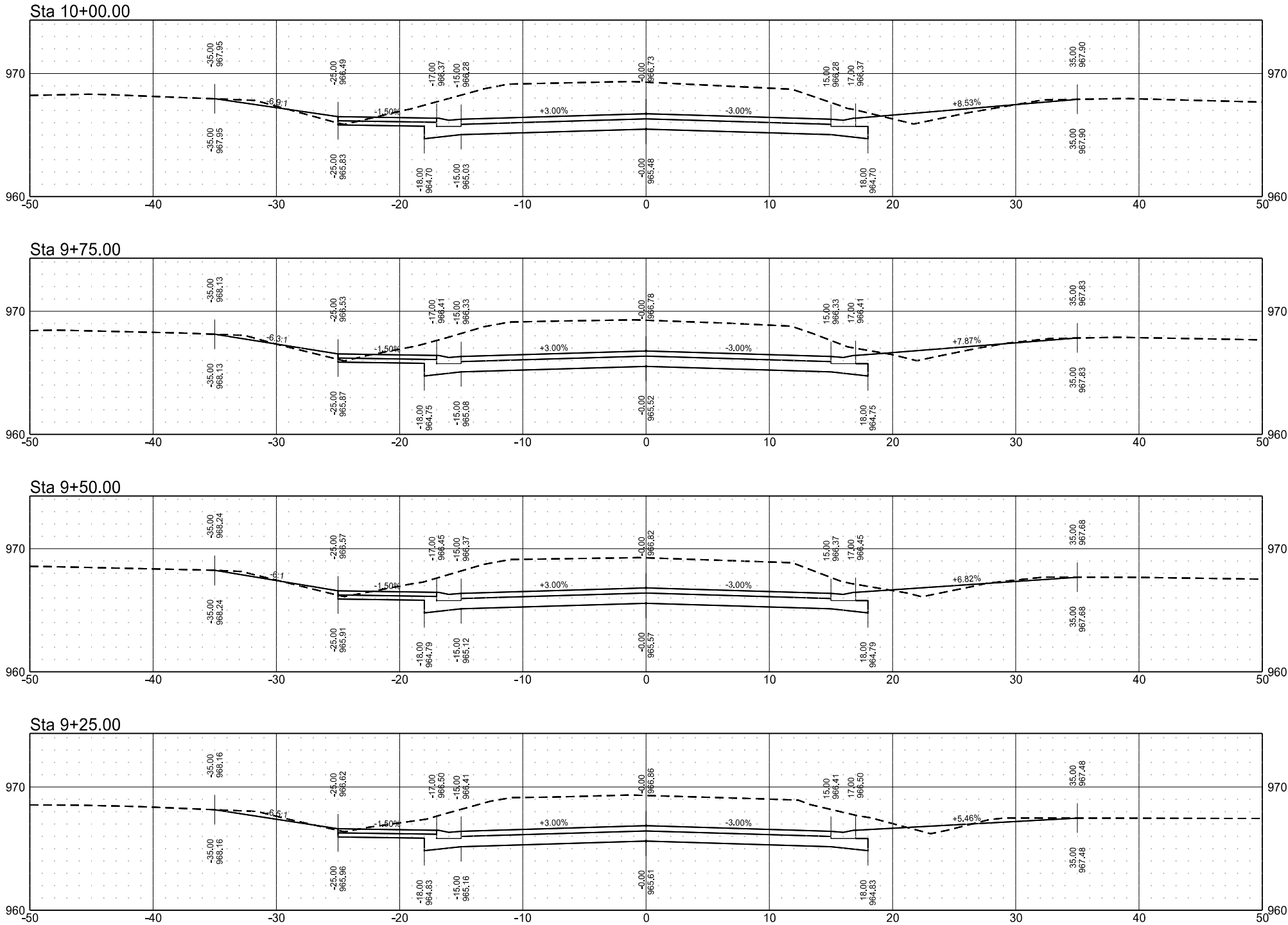


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CROSS SECTIONS - 5TH AVENUE			
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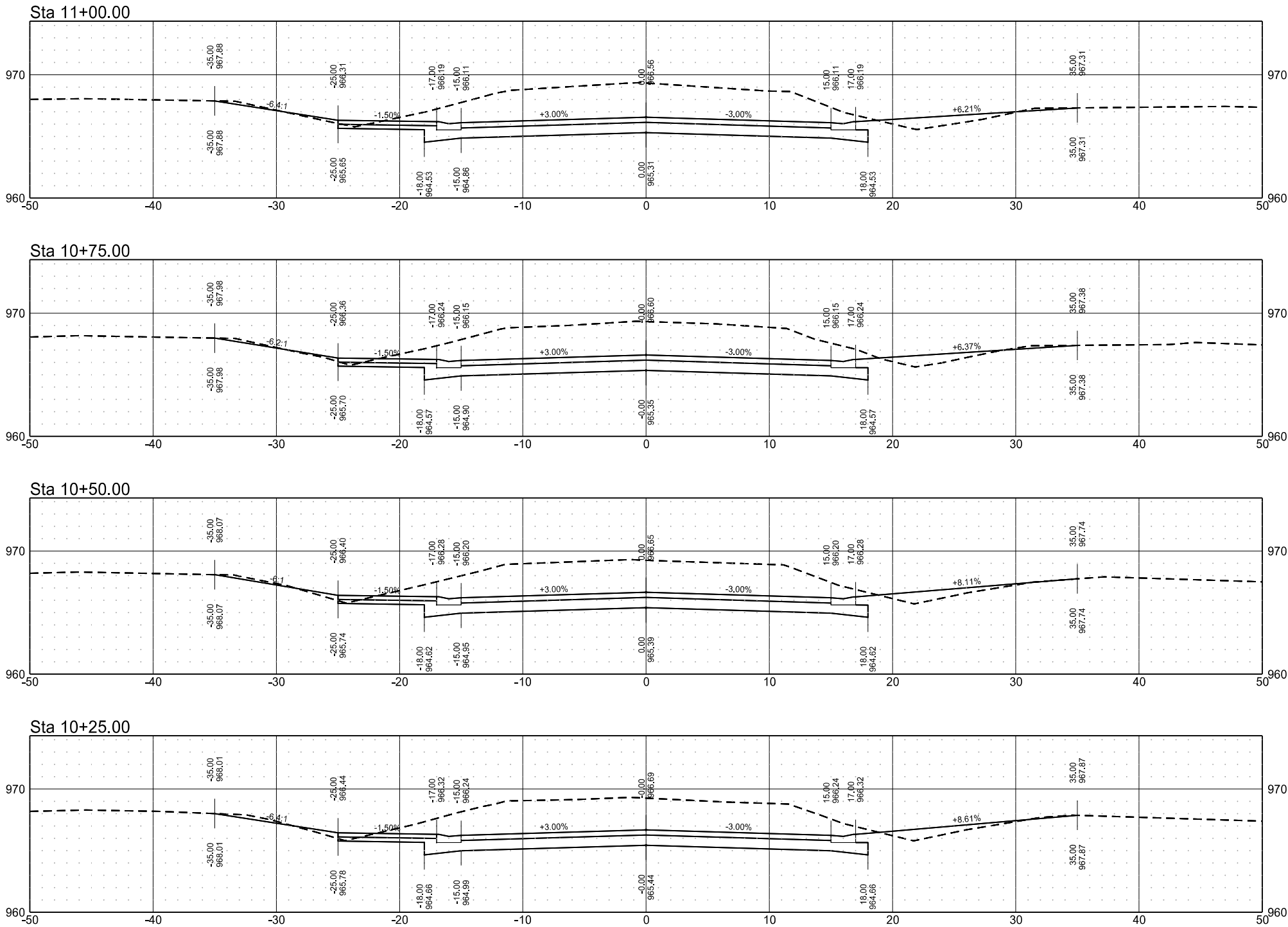


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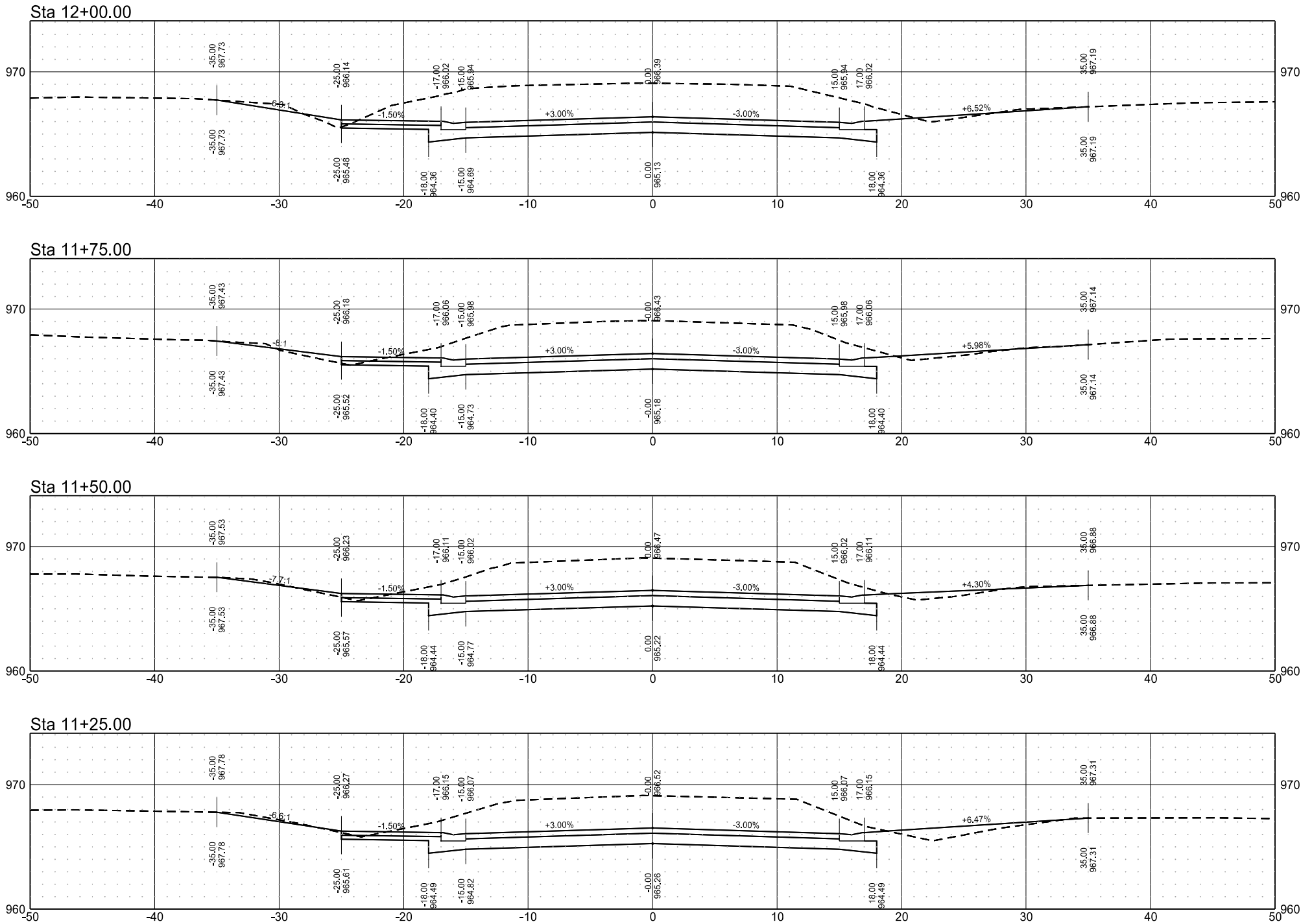


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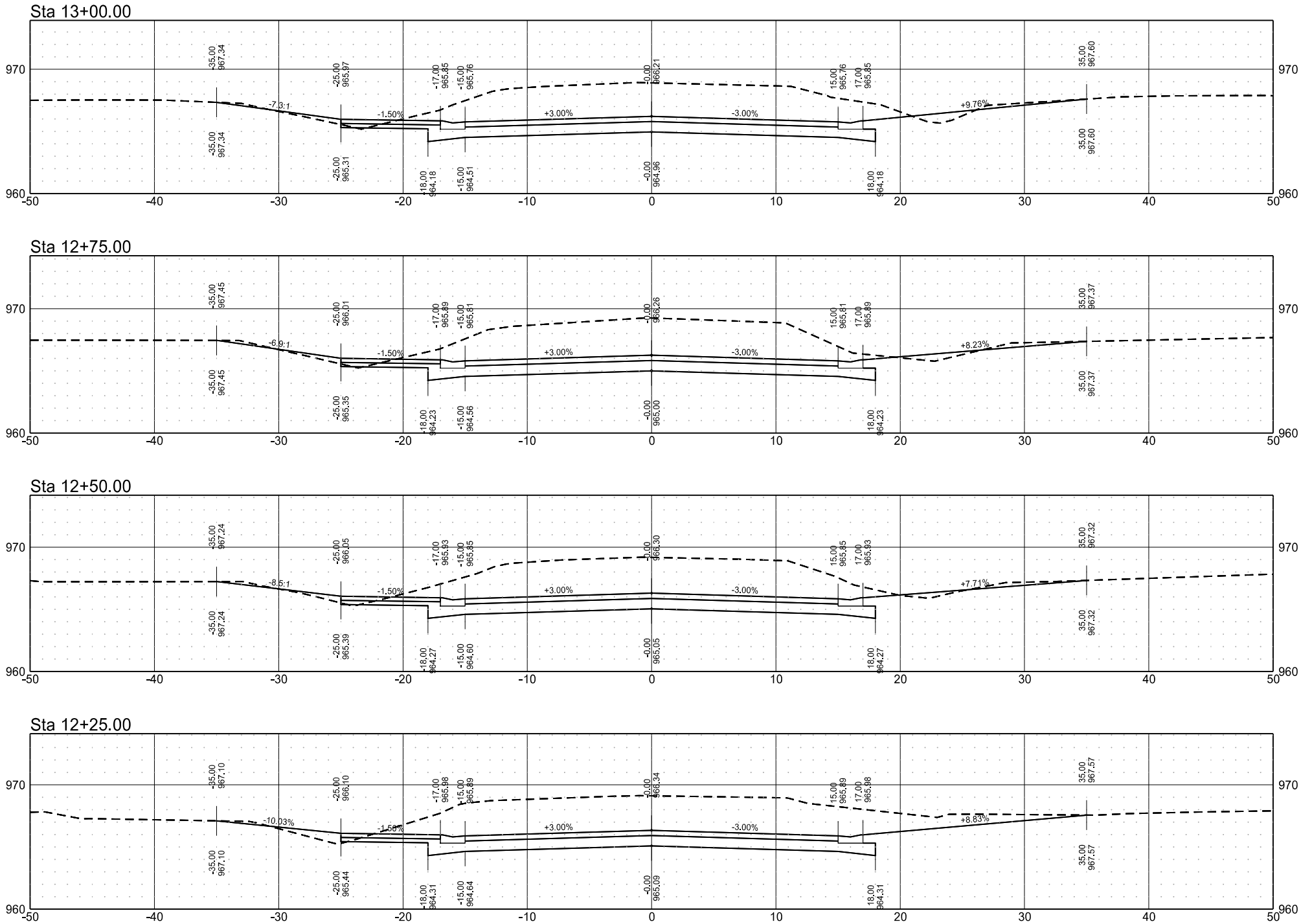
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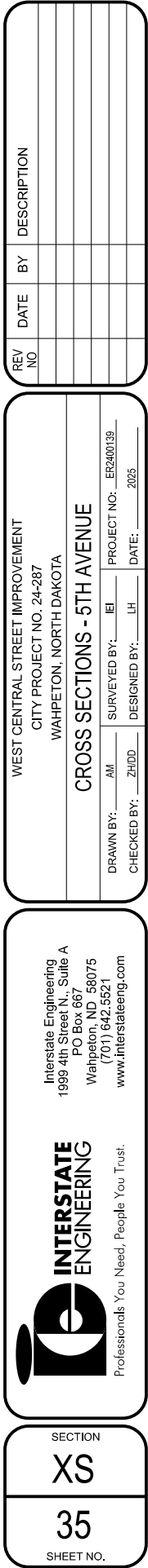
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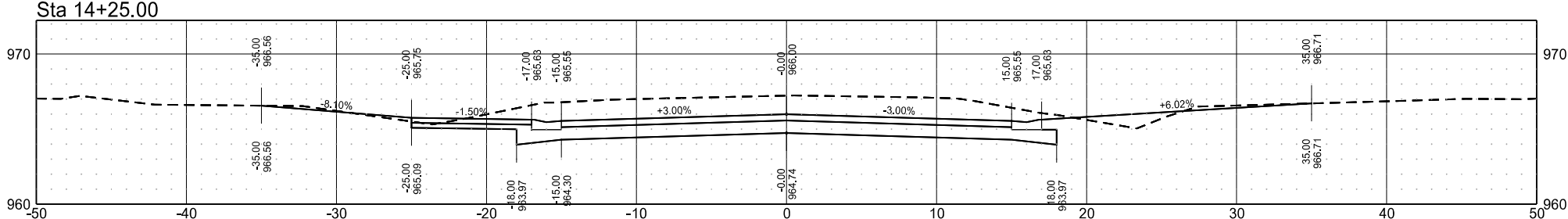
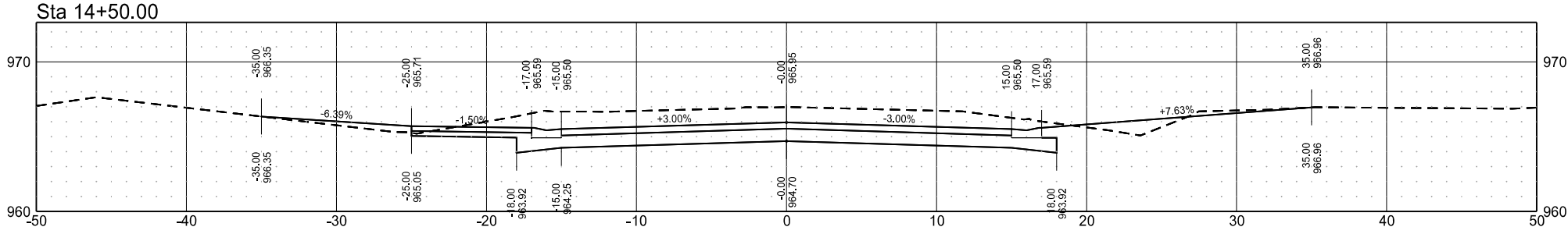
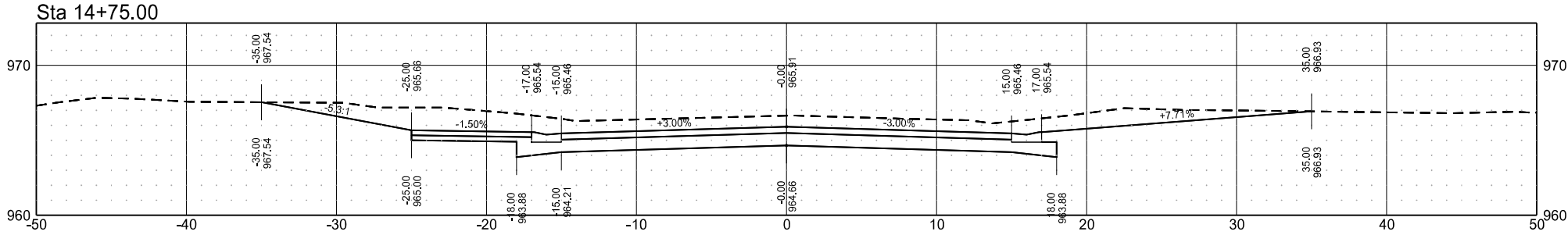
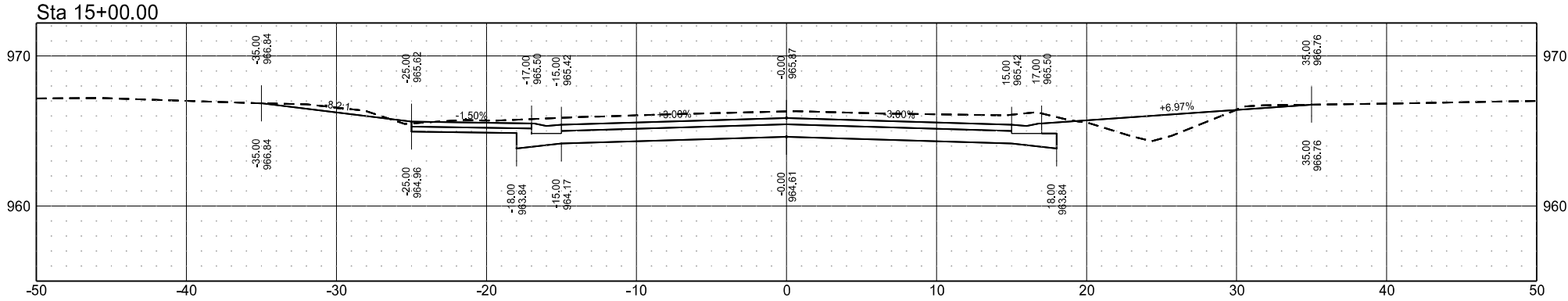
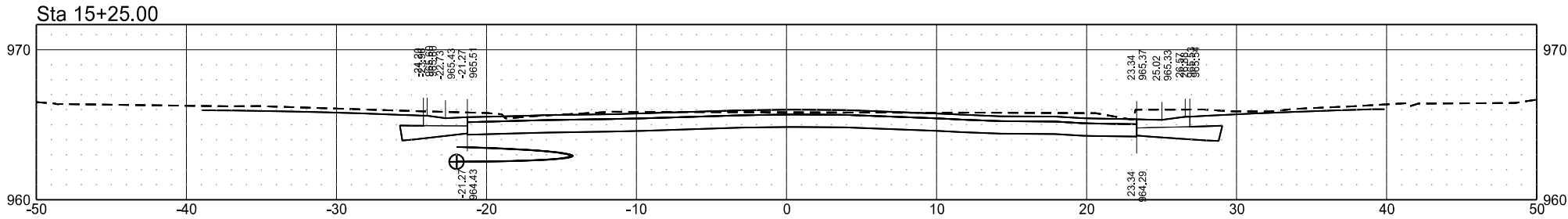


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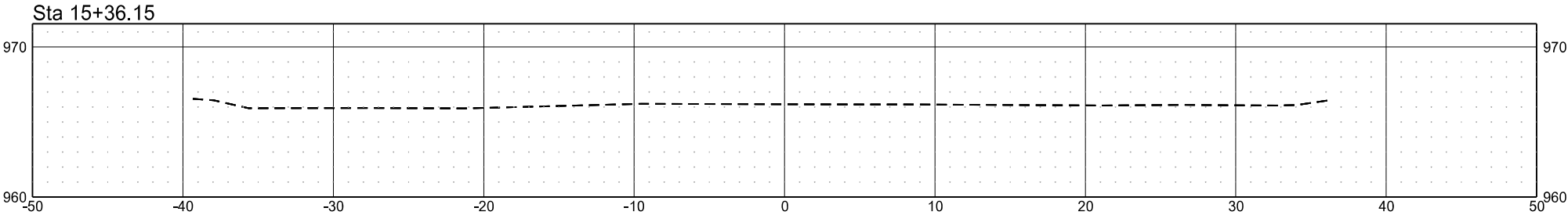


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CITY PROJECT NO. 24-287
Wahpeton, North Dakota

CROSS SECTIONS - 5TH AVENUE

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CHECKED BY:

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SURVEYED BY:

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DESIGNED BY:

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PROJECT NO.: ER2400139

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